ADDENDUM NO. 2

TO THE BID DOCUMENTS

FOR THE

ATCT RENOVATIONS PHASE II
GLASS REPLACEMENT AND CONTROL CONSOLE UPGRADES

BOCA RATON AIRPORT

BOCA RATON, FLORIDA

Project funded by:

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT)

May 31, 2019

TO: ALL HOLDERS OF CONTRACT DOCUMENTS

a. Your attention is directed to the following interpretations of, changes in, and additions to the Contract Specifications and Plans for the above named project at Boca Raton Airport, Boca Raton, Florida.

b. This Addendum is part of the Contract Documents and Plans, and the bidders are required to acknowledge receipt of this Addendum in the space provided below.

This addendum includes the following (see attachments):

1.	**REVISED INVITATION TO BID** Bid opening date extended to: "Deadline for Requests for Clarifications" unchanged	 **June 13, 2019; 2:00 PM** May 28, 2019; 2:00 PM
2.	**BID FORM** (BF 4.1)	**Issued/Dated: May 5, 2019**
3.	**TECHNICAL SPECIFICATIONS MANUAL**	Dated: May 5, 2019
4.	**CONTRACTOR QUESTIONS**	RFI #2, and RFI #3 Responses

NOTE: Sign and Return Addendum #1 Cover with Bids

Acknowledged:_____signature of Bidder

Name of Bidder:_____ Date:_____

END OF ADDENDUM NO. 2

INVITATION TO BID NO. 2019-BRAA-001 – ATCT Renovations Phase II

NOTICE IS HEREBY GIVEN, that Boca Raton Airport Authority (hereinafter referred to as "BRAA"), will receive sealed bids from General Contractors or other qualified contractors, at:

Boca Raton Airport Authority
903 NW 35th Street
Boca Raton, Florida 33431
Attn.: Travis Bryan, Airport Operations Manager

Until the hour of **2:00 PM**, Local Time, on **June 5, 2019** and said bids will be opened and publicly read immediately thereafter in the conference room, at the above address, on the same day.

Project Description: The project consists of renovations to the existing Air Traffic Control Tower (ATCT), including the removal and replacement of tower cab glass, removal of exterior motorized storm shutters, removal and installation of new interior cab shades, control console cabinetry refurbishment and upgrades, and miscellaneous plumbing and electrical tasks.

Scheduled hours for performing all work are from 11:00 PM to 6:30 AM, Sunday night through Friday morning (nightwork). Tower cab glass is to be replaced-installed prior to start of the control console upgrades and interior finishes work. Perspective contractors shall provide qualified-approved IT personal for relocation of exiting control console equipment per contract specifications.

The work must conform to the plans and specifications, which may be obtained digitally or examined on or after **Monday, May 6, 2019** at:

Boca Raton Airport Authority
903 NW 35th Street
Boca Raton, Florida 33431
Contact Person: Travis Bryan, Airport Operations Manager
(561) 391-2202; e-mail- travis@bocaairport.com

Bidders requiring plans and specifications to be mailed must submit a Federal Express account number to the Boca Raton Airport Authority. The bill will be charged to the recipient's account. ~~Perspective plan holders will be required to sign a Non-Disclosure Agreement (NDA) and follow all stipulated conditions outlined in NDA documents in order to receive drawings and specifications.~~

Bid proposals must be submitted on the forms provided by BRAA and accompanied by a bid security in the form of a certified check, cashier's check, money order or a bid bond submitted on the form provided, in favor of BRAA in the amount of not less than five percent (5%) of the bid price.

Date of Advertisement:	Monday, May 6, 2019
Date of Pre-Bid Conference:	Friday, May 17, 2019 (9:00 AM)
Deadline for Requests for Clarification:	**Tuesday, May 28, 2019 (2:00 PM)**
Deadline for Submission and Bid Opening:	**Thursday, June 13, 2019 (2:00 PM)**

BID FORM - SCHEDULE A

Air Traffic Control Tower Renovations - Glass Replacement

#	DIV	Item	DESCRIPTION	Units	QTY	
The following items are part of the Base Bid of the Contract. The Lump Sum price provided for each item shall include all materials and labor required to provide a complete and working system as described in the Contract Documents (Drawings and Written Specifications). The Work shall include, but is not limited to, the items described. The Contractor shall be responsible for understanding the complete Scope of Work prior to submitting a bid.						
						Bid Item Cost
1	DIV 1	Mobilization	Mobilization of all equipment, materials, and contractor personnel for completion of all direct work for project completion	**LS**	**1**	
2	DIV 2	Existing Conditions	Selective Demolition - Exterior Shutter Removal	**LS**	**1**	
3	DIV 5	Metals	Metal Panels Placement at Exterior Shutter Locations. Furnish and Install Metal Panels as Required. Match Existing	**SF**	**280**	
4	DIV 8	Openings	Tower Cab Laminated-Insulated Glass - Aluminum Curtain Walls. Replace Existing Glass Complete (inclcudes haul and disposal of existing off-site, install new	**LS**	**1**	
5	DIV 26	Electrical	Remove electrical for existing motorized shutters, w/terminations	**LS**	**1**	
6	W-103	Allowance (AAE)	General Allowance Account (AAE - Allowance Account Expenditures)	**ALL**	**1**	**$20,000**

Total Schedule A: **$$**

Total Schedule A: _____

(in words)

BID FORM - SCHEDULE B

Air Traffic Control Tower Renovations - Control Console Upgrades

#	DIV	Item	DESCRIPTION	Units	QTY	
						Bid Item Cost
1	DIV 1	Mobilization	Mobilization of alll equipment, materials and contractor personnel for completion of all direct work for project completion	**LS**	**1**	
2	DIV 2	Existing Conditions	Selective Demolition	**LS**	**1**	
3	DIV 6	Woods, Plastics and Composites	Architectural Millwork	**LS**	**1**	
4	DIV 9	Finishes	Anti Static Tile Carpeting, Interior Metal Framing, Gypsum, Interior Paints	**LS**	**1**	
5	DIV 11	Equipment	Appliances	**LS**	**1**	
6	DIV 12	Furnishings	ATCT Interior Transparent Plastic Window Shades	**LS**	**1**	
7	DIV 22	Plumbing	Plumbing, Complete in place	**LS**	**1**	
8	DIV 26	Electrical	Trouble Shoot and Repiar Existing Stairwell Exhaust Fan	**LS**	**1**	
9	DIV 26	Electrical	Remove and Replace Existing Stairwell Exhaust Fan	**LS**	**1**	
10	DIV 27	Communications	ATC Equipment Relocation (non-FAA)	**LS**	**1**	

Total Schedule B: **$$**

Total Schedule B: _____

(in words)

Basis for Award: Perspective bidders must provide comprehensive bids for BOTH SCHEDULES A and B. The award of the project will be based on the sum total of costs for both Schedules (Sch A + Sch B) and be provided below. Perspecitvie Bidders will be considered non-responsive to this bid solicitation if either bid schedule is not complete.

TOTAL: SCHEDULE A + SCHEDULE B **$$**

TOTAL: SCH A + SCH B _____

(in words)

BOCA RATON AIRPORT
BOCA RATON, FLORIDA

CONTRACT BID DOCUMENTS
FOR
BOCA RATON AIRPORT

AIR TRAFFIC CONTROL TOWER RENOVATIONS PHASE II

Glass Replacement and Control Console Upgrades Technical Specifications

Project funded by:
Florida Department of Transportation (FDOT)
and
Boca Raton Airport Authority (BRAA)

BOCA RATON, FLORIDA

Boca Raton Airport Authority
903 NW 35th Street
Boca Raton, Florida 33431
(561) 391-2202
Fax: (561) 391-2238

BCT Task No.: Task 52S

May 05, 2019

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TITLE PAGE

Boca Raton Airport Authority
AIR TRAFFIC CONTROL TOWER RENOVATIONS
PHASE II
GLASS REPLACEMENT AND CONTROL CONSOLE UPGRADES

OWNER

Boca Raton Airport Authority
Boca Raton, Florida

PROGRAM MANAGER

Ricondo & Associates, Inc.
1000 N.W. 57TH Court, Suite 920
Miami, Florida 33126-3511
Phone (305) 260-2727
Fax (305) 260-2728
www.ricondo.com

ARCHITECT

Schenkel Shultz
200 E Robison Street, Suite 300
Orlando, Florida 32801
Phone (407) 872-3322
Fax (407) 872-3303
www.schenkelshultz.com

STRUCTURAL CONSULTANT

BBM Structural Engineers
1912 Booth Circle, Suite 100
Longwood, Florida 32750
Phone (407) 645 3423
Fax (407) 645 3790
www.bbma.com

MECHANICAL/ELECTRICAL CONSULTANT

OCI Associates Inc.
427 Centerpointe Circle, Suite 1825
Altamonte Springs, Florida 32701
Phone (407) 332-5110
Fax (407) 332-7704
www.ociassociates.com

TOWER CONSULTANT

CTBXaviation
380 Ramsey Lane
Merritt Island, FL 32952
Phone (321) 591-0204
www.ctbxaviation.com

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Boca Raton Airport
Air Traffic Control Tower
Renovations Phase II - Glass Replacement and Control Console Upgrades
Boca Raton, Florida

Division 01

General Requirements

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SECTION 01 01 00

MOBILIZATION

01000-1 DESCRIPTION

The work specified in this section consists of the preparatory work and operations in mobilizing and demobilizing for the project, including, but not limited to, the movement of personnel, equipment, supplies, and incidentals to the project site, and the establishment of temporary offices, shops, production plants, material storage areas, equipment parks, utility services, safety and security measures, first aid supplies, sanitary and other facilities, etc. The maintenance and removal of these facilities and incidentals at the end of the project are also included in this item. Office facilities or other accommodations for the Construction Manager are not required.

01000-2 CONSTRUCTION METHODS

Facilities, equipment and materials located on the airport by the Contractor shall be limited to those necessary to complete the work in the contract. They shall be located as shown on the drawings or as approved by the Construction Manager and shall comply with pertinent laws, regulations and codes. Fences, stockpiles, structures, lighting, access roads, drainage and utility connections, etc. shall be approved by the Construction Manager before they are established. All facilities shall be maintained in secure, safe and clean conditions, to include weekly trash removal and site cleanup. At the completion of the contract, all Contractor facilities, equipment and materials shall be removed and the site shall be cleaned up and returned to its original state, unless otherwise indicated on the drawings or approved by the Construction Manager. Pavement removal, pavement restoration, utilities removal, turf restoration, etc. shall be accomplished as necessary to meet these requirements. The Contractor will be responsible for cleanup of any soil and water contamination caused by his/her operations.

Utility Location Services shall be completed within the limits of the entire project area. Services shall be performed to a minimum ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, CI/ASCE 38-02 Quality Level B. This item is generally described as “Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities.”

~~01002-3 FIELD OFFICE~~

~~DESCRIPTION:~~

~~Contractor shall furnish, install and maintain temporary utilities required for construction and other temporary facilities as indicated; remove on completion of work.~~

~~No construction shall be started until the Engineer's field office is erected, furnished as herein specified, and made available to the Engineer. The office shall be erected at a location designated by the Engineer and shall be separate from any building used by the Contractor.~~

~~Related requirements are specified in other sections of the specifications.~~

~~REQUIREMENTS OF REGULATORY AGENCIES:~~

~~Comply with National Electric Code.~~

Comply with Federal, State, and Local codes and regulations and with utility company requirements.

PRODUCTS

MATERIALS, GENERAL: Materials, furniture, and equipment may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards. The Engineer will determine acceptability of all items.

EXECUTION

TEMPORARY ELECTRICITY AND LIGHTING: Provide temporary electrical service required for power and lighting, and pay all costs for service and for power used.

TEMPORARY SANITARY FACILITIES:

Provide sanitary facilities in compliance with laws and regulations.

Service, clean and maintain facilities and enclosures.

TEMPORARY SUPPORT FACILITIES:

General: Provide reasonably neat and uniform in appearance temporary support facilities acceptable to the Engineer and the Owner.

Sitting: Locate field offices, storage and fabrication sheds and other support facilities for easy access to the work. Position office so that windows give the best possible view of construction activities.

Maintenance: Maintain field offices, storage and fabrication sheds, temporary sanitary facilities, waste collection and disposal systems, and project identification and temporary signs until near substantial project completion. Immediately prior to substantial completion remove these facilities

Engineer's Field Office: In the main project staging area, furnish an office or trailer for exclusive use by Engineer's Resident Representative with the following requirements:

1. Utility services: Power, touchtone telephone, water, and sanitary.
2. Services: Water cooler, suitable toilet facilities, and HVAC.
3. Furnishings:
   a. -office desks, with drawers, locks and two (2) sets of keys
   b. -office swivel chair
   c. -office straight-back chairs
   d. 1-4-drawer legal size steel filing cabinet with lock and keys
   e. -steel wastebasket
   f. 1-OSHA-approved fire extinguisher
4. Site: Prepare the field office site consisting of two-way access to public roads, grading of the site for field office placement and vehicle parking, surface drainage, stabilizing and maintaining the access road to the office site, and area lights. The vehicle parking areas shall be large enough to accommodate vehicles. The parking area and access road shall be adequately stabilized to provide an all-weather surface. The office area site preparation plans shall be reviewed and approved by the Engineer prior to construction.
5. Maintenance: The Contractor shall be responsible for periodically cleaning weekly the facility and furnishing toilet and washroom supplies.
6. All cost of utility usage, including local and long distance telephone calls, in the field office provided for the Engineer during the course of this project will be borne by the Contractor.

~~Maintain Engineer's field office up to sixty (60) days after until substantial completion of project. Remove when directed by the Engineer; grade the site to drain, and seed and mulch in accordance with specificaitons.~~

01000-3 MEASUREMENT AND PAYMENT

01000-3.1 Measurement and payment will be based on the contract lump sum price for Mobilization. This price shall be full compensation for furnishing all labor, equipment, materials, tools and incidentals necessary to complete the item.

Partial payments for Mobilization shall be made in accordance with the following schedule:

Percent of Original Contract Amount Earned	Cumulative Percent of Lump Sum Price Payable*
5	25
25	50
50	75
75	90
100	100

*Partial payments in accordance with the schedule will be limited to 5% of the original Contract amount for the project. The 5% limit and payment schedule noted above apply individually to the base bid and each bid alternate. Any remaining amount(s) will be paid upon completion of all work under the project.

The standard retainage, as specified in Contract Documents will be applied to these allowances. Partial payments made on this item shall in no way act to preclude or limit any of the provisions for partial payments otherwise provided for by the Contract.

Payment shall be made under:

Item 01000-1 Mobilization - per lump sum

Item 01000-2 Utility Location Services - per lump sum

END OF SECTION 01000

SECTION 01 11 00
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PROJECT DESCRIPTION

A. The project consists of renovations to the existing Air Traffic Control Tower (ATCT), including the removal and replacement of tower cab glass, removal of motorized storm shutters, installation of new interior cab shades, control console cabinetry refurbishment, and miscellaneous plumbing and electrical tasks.

B. The Work consists of all items as indicated on the Drawings and as specified in the Project Manual and those items of construction not indicated but normal and necessary and usual in the construction industry for construction of a building project.

1.3 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractors shall have full use of the premises for construction operations, including use of the site. The Contractor's use of the premises is limited only by the Owner's right to perform construction operations with its own forces or to employ separate contractors on portions of the project.

B. Limit use of the premises to construction activities in areas indicated or as directed by the Project Manager or Owner’s authorized representative.

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 and shall be protected from the public and students from entering the job site.
2. Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and students 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.

C. Each Contractor shall limit his use of the premises for work and for storage, to allow for work by other Contractors and Owner occupancy of adjacent buildings or building areas.

D. Each Contractor shall assume complete responsibility for the protection and safekeeping of products under this Contract, stored on the site.

E. Each Contractor shall move his stored products which interfere with operation of the Owner or separate Contractor.

F. Each Contractor shall obtain and pay for the use of additional storage of work areas needed for operation.

1.4 PERMITS, FEES, AND NOTICES

A. The General Contractor will secure the general building permit for the Owner. Each Contractor shall secure and pay for other permits, governmental fees, and licenses necessary for the proper execution and completion of his Work, which are applicable at the time the bids are also received. Fees to relocate utilities on Owner's property shall be included in the bid of the Contractor doing the relocation. Each Contractor shall be responsible for contacting the local governing agency for such cost information and requirements.

B. Inspections of installed work shall be performed by the governing authority as arranged for by the Contractor. Work shall not be covered until approved.

C. Each Contractor shall give notices and comply with laws, ordinances, rules, regulations, and orders of public authorities bearing on the performance of his Work. If a Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the General Contractor in writing, and necessary changes shall be adjusted by appropriate notification. If a Contractor performs Work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the General Contractor, he shall assume full responsibility therefore and shall bear the costs attributable thereto.

1.5 LABOR AND MATERIALS

A. Unless otherwise specifically noted, each Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of his Work, whether temporary or permanent and whether or not incorporated or to be incorporated at the Work.

B. Each Contractor shall enforce strict discipline and good working order among his employees or other persons carrying out Work of his Contract and shall not permit employment of unfit person or persons or anyone not skilled in the task assigned to them.

1.6 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than 1-week days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

C. Controlled Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.

D. Employee Identification: Owner will provide identification badges issued by the Airport Authority for Contractor personnel working on Project site. Require personnel to use identification badges at all times.

E. Employee Screening: Comply with Owner's requirements for drug and background screening including 5 year background check for Airport issued identification badges of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.7 CUTTING AND PATCHING

A. Refer to Section 01 73 29 for provision on this subject.

1.8 PROJECT COORDINATION

A. Each Contractor shall provide full-time, on-site supervision including a competent project coordinator and competent Superintendent to coordinate all aspects of his Work with other Contractors' Work. It shall be the full responsibility with all phases of Architectural, Structural, Mechanical (including Plumbing, Heating, Ventilation, and Sheet Metal Trades), Electrical Work, Site Work, Special Equipment, Kitchen Equipment, and other separate Contract Work. All Separate Contractors shall fully cooperate with each other and the Project Manager.

B. Each Contractor shall coordinate the performance of his subcontractors in the utilization of the site, as well as in the actual performance of their contractual obligations to the Owner.

C. Each Contractor shall cooperate with the Project Manager and all other Contractors employed by the Owner.

D. Each Contractor shall verify all dimensions shown on the Drawings and obtain all measurements required for proper execution of Work.

E. Before commencing work, each Contractor shall examine all spaces, surfaces, and areas indicated on the Drawings to receive their Work. Report necessary corrections in writing immediately to the Project Manager. Do not proceed until corrections (if any required) have been made. Commencing work signifies this Contractor's acceptance of said spaces, surfaces, and areas, and of job conditions.

F. Special Equipment, Other Equipment

1. Copies of Equipment Specifications and Drawings shall be made available to the Architectural Trade Contractors, Mechanical Contractor, and Electrical Contractor for information by which they shall determine the amount of Work to be done as described herein.
2. The Contractor shall cooperate with the suppliers' installation personnel by providing unobstructed areas in which they may assemble and install equipment. These areas shall be adequately heated and lighted with temporary or permanent power available for tools or testing purposes.
3. The responsibilities of the Electrical and Mechanical Work Contractors shall be as follows:

a. Final connections of equipment to building electrical and mechanical rough-ins will be made by the Electrical and Mechanical Work Contractors (interconnection between items of equipment will be done by the installing personnel, not by the Electrical or Mechanical Work Contractors). Equipment requiring only plug-in connections shall have floor outlets installed in accordance with these documents.

G. Temporary Omission of Work: If any materials and finish are of such nature that it is necessary to temporarily omit certain portions of work (as illustrated on Drawings or specified in Specifications) in order to make final installation, the Contractor whose work is involved shall omit such parts of this work or finish as necessary until other said work and/or materials have been installed and shall then return and install such omitted parts of his work as part of this Contract and without additional cost to the Owner.

1.9 TESTS AND ADJUSTMENTS

A. If the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested, or approved, the contractor shall give the Architect 48 hours advance notice so he may observe such inspection, testing, or approval. The Contractor shall bear all costs of such inspections, tests, or approvals conducted by or for public authorities.

B. The complete installation of piping, wiring, and working components, including all operating equipment and systems, shall be subjected to test at full operating conditions. The Contractor shall make all necessary adjustments and/or replacements which are necessary to fulfill the requirements of the Contract Documents, and to comply with all codes and regulations which may apply to the entire installation. The complete installation shall be left ready in all respects for use by the Owner. The Contractor shall bear all costs of such testing and adjustments.

C. Unless otherwise provided, the Owner shall bear all costs of other inspections, tests, and approvals.

1. The Bid Package Contractor shall bear all costs for scheduled pick ups or tests if the Testing agency makes a trip to the site and material or work is not ready for pick up or tests.

1.10 VERIFICATIONS OF EXISTING DIMENSIONS

A. When verification of existing dimensions is required, the Contractor requiring said verification for the construction or fabrication of his material shall be the Contractor responsible for procurement of the field information.

1.11 PROJECT SECURITY

A. The General Contractor shall be responsible for developing and conducting a security program, specifically oriented for the protection of preventing damage, injury, or loss to the entire project site and other property at the site or adjacent thereto. This shall be acceptable to the Owner and Architect, and shall remain in effect through Substantial Completion of the Project.

B. Each Contractor shall be responsible for securing his work and equipment at the close of each workday.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 11 00

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SECTION 01 31 13
PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

1. Coordination.
2. Administrative and supervisory personnel.
3. General installation provisions.
4. Cleaning and protection.
5. Coordination between Project phasing.

B. Progress meetings, coordination meetings and pre-installation conferences are included in Section 01 31 19, Project Meetings.

C. Requirements for the Contractor's Construction Schedule are included in Section 01 33 00, Submittals.

1.3 COORDINATION

A. Coordination: General Contractor shall coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

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

C. Administrative Procedures: General Contractor shall coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Project Close-out activities.

D. Conservation: General Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBMITTALS

A. Coordination Drawings: General Contractor shall prepare and submit coordination Drawings for MEP, and fire protection systems and where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components, and as may be directed or requested by the Architect.

1. Show the interrelationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Comply with requirements contained in Section 01 33 00, Submittals.

B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 CLEANING AND PROTECTION

A. 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 before or at Substantial Completion.

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

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.

16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.
31. Mold.
32. Mildew.

D. Refer to Section 01 74 13 for additional construction cleaning requirements.

END OF SECTION 01 31 13

SECTION 01 31 19
PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Pre-Construction Conference.
2. Pre-Installation Conferences.
3. Coordination Meetings.
4. Progress Meetings.

B. Construction schedules are specified in another Division 01 Section.

1.3 PRE-CONSTRUCTION CONFERENCE

A. The Owners Representative shall schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, Architect and their consultants, the General Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

C. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Tentative construction schedule.
2. Critical Work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data and Samples.
8. Preparation of record documents.
9. Use of the premises.

a. Owner's requirements.

10. Office, Work and storage areas.
11. Equipment deliveries and priorities.
12. Safety procedures.
13. First aid.
14. Security.
15. Housekeeping.
16. Working hours.

1.4 PRE-INSTALLATION CONFERENCES

A. The General Contractor shall conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of scheduled meeting dates.

1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

    a. Contract Documents.
    b. Options.
    c. Related Change Orders.
    d. Purchases
    e. Deliveries.
    f. Shop Drawings, Product Data and quality control Samples.
    g. Possible conflicts.
    h. Compatibility problems.
    i. Time schedules.
    j. Weather limitations.
    k. Manufacturer's recommendations.
    l. Compatibility of materials.
    m. Acceptability of substrates.
    n. Temporary facilities.
    o. Space and access limitations.
    p. Governing regulations.
    q. Safety.
    r. Inspection and testing requirements.
    s. Required performance results.
    t. Recording requirements.
    u. Protection.

2. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.
3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.5 COORDINATION MEETINGS

A. The Owner Representative shall conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 PROGRESS MEETINGS

A. The General Contractor shall conduct weekly progress meetings at the Project site. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: In addition to representatives of the Owner and Architect, each Contractor, subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

1. 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 schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
2. Review the present and future needs of each entity present, including such items as:

    a. Interface requirements.
    b. Time.
    c. Sequences.
    d. Deliveries.
    e. Off-site fabrication problems.
    f. Access.
    g. Site utilization.
    h. Temporary facilities and services.
    i. Hours of Work.
    j. Hazards and risks.
    k. Housekeeping.
    l. Quality and Work standards.
    m. Change Orders.
    n. Documentation of information for payment requests.

D. Reporting: No later than 3 days after each progress meeting date, the General Contractor will distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 19

SECTION 01 33 00
SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and non-administrative procedural requirements for submittals required for performance of the Work, including;

1. Construction Schedule
2. Submittal Schedule
3. Shop Drawings
4. Product Data
5. Samples

B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits
2. Applications for Payment
3. Performance and Payment Bonds
4. Insurance Certificates
5. List of Subcontractors

1.3 DEFINITIONS

A. Coordination Drawings: Drawings that show the relationship and integration of different elements that require careful coordination during installation within the space provided.

B. Field samples: Full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

1.4 SUBMITTAL PROCEDURES

A. Submittals, including those specified herein to be submitted to the Architect, excluding those directed to a specific individual, shall be submitted directly to the General Contractor for his review. General Contractor will forward required submittals to the Architect for their review.

1. Contractors shall submit shop drawings electronic format. Shop drawings or data submitted electronically to be in Acrobat Reader PDF, Word, Excel or DWF format. Coordinate with Architect prior to submitting. Electronic submittals may be submitted on CD or DVD media or e-mailed. Diskettes are not acceptable. All CD's/DVD's shall be labeled with all the pertinent and required information as specified herein just like it was a hard paper copy submittal.

B. Contractors on this Project shall provide submittals in accordance with the requirements of this Section. Where a submittal is required by a Contractor but assistance from others, Contractors shall participate and cooperate to expedite each submittal.

C. Where submission of samples, shop drawings, or other items are required from suppliers or subcontractors, it shall be the responsibility of the Contractor for whom the subcontractor is executing the Work to see that the submittal items required are complete and properly submitted, and corrected and resubmitted at the time and in the order required so as not to delay the progress of the Work. Submittals shall be made through the Contractor.

D. The Contractor shall check shop drawings, samples, and other submittals and submit them to the Architect with a letter of transmittal giving his approval, comments, and suggestions. Each transmittal shall include the following information:

1. Date Submitted.
2. Project title and number.
3. Contractor's name and address.
4. Identification by Specification Section and quantity submitted for each submittal including name of subcontractors, manufacturer, or supplier.
5. Notification of deviations from the Contract Documents for each submittal.
6. Contractor's written approval marked on each submittal. If contractor's submittals are not stamped and reviewed by the contractor prior to submitting for review, submittals will be sent back to the contractor.
7. If there is more than one building in the project, shop drawings are to be submitted and packaged for each building and submitted in packages for each separate building. Shop drawings not submitted in this fashion may be rejected.

E. The Contractor shall prepare, review, and stamp with his approval and submit, with reasonable promptness or within the specified time periods and in orderly sequence so as to cause no delay in the Work or in the Work of another contractor, submittals required by these Contract Documents or subsequently required by modifications.

1. If the product is not as specified or approved by Addenda, it will be rejected by the Architect. Contractor shall not make submittals if the product manufacturer is not specified or listed in the Addenda. This will delay the submittal process and the contractor shall assume full responsibility for any delays caused by unapproved manufacturer submittals.

F. The Contractor and Architect shall review and take action on submittals with reasonable promptness, so as to cause no delay in the progress. A reasonable period of time for review of and action taken on submittals shall be as specified herein, but in no case shall it be more than 21 calendar days from the time it is received by the Architect until the time the submittal is marked and forwarded or returned. Contractors shall allow sufficient mailing time for submittals.

G. The same submittal will only be reviewed a maximum of two (2) times. If the same submittal is not correct within the two (2) submittal limit for the same item, the contractor will be charged for the additional reviews required. The Architect's additional time will be on an hourly basis, which amount will be deducted from the contractor's Contract Sum by Change Order.

H. Identification of Submittals: Submittals, including re-submittals, shall be numbered with a Submittal Number. The Submittal Number shall consist of the applicable specification section number followed by a suffix number in consecutive order starting with 001. Additional submittals for the same specification section are to be numbered consecutively 002, 003, etc. The form of Submittals Numbers shall be as follows: ## ## ## - ### (example: 09 91 08 - 001). Re-submittal Submittal Numbers shall consist of the previously used Submittal Number plus an alphanumeric suffix for the re-submittal. (Example: 09 91 08 - 001R1). R1 indicates the first re-submittal, R2 indicates the second re-submittal, etc.

1.5 REQUIRED SUBMITTALS

A. List of Subcontractors, Suppliers, and Manufacturers

1. The apparent low Contractor shall submit, to the Architect, a list of Contractors, subcontractors, suppliers, and manufacturers furnishing and installing materials and products specified on this Project. List shall be submitted with bid. The list shall be complete with names, street addresses, city, state, and zip code. List shall be complete including requested subcontractors, suppliers, and manufacturers and model numbers of equipment on which the bid is based on.
2. The Architect shall submit through the General Contractor to the Subcontractors a complete master list of shop drawings and samples, including products and colors that will be required as submittals on this Project. The Contractor shall complete the form as submitted to him and return same to the General Contractor. Completeness and promptly return of this information is critical to making final color selections by the Architect.

    a. All required shop drawings and submittals shall be submitted within 60 days of initial request.

3. In addition to the names of subcontractors, suppliers, and manufacturers, the Contractor shall be aware of the required dates that shop drawings and samples are to be submitted for approval and the critical date for delivery. Dates submitted for shop drawings and samples shall be realistic and be coordinated with the Progress Schedule for critical dates that affect the progress of construction.

B. Construction Schedules

1. A linear bar chart time control schedule shall be provided by the General Contractor.

    a. Each Contractor shall work overtime nights, and weekends, if necessary to maintain his portion of the schedule.

        1) Overtime, night, and weekend work will be at no additional cost to the Owner.

    b. Each Contractor is responsibly to expedite approvals and deliveries of material so as not to delay job progress.

c. Each Contractor shall begin each phase of his work as quickly as physically possible, but not to impede or jeopardize the Work of other Contractors.
d. Each Contractor shall cooperate fully with the General Contractor in the coordination of the Work with other Contractors and the convenience of the Owner as indicated in the Specifications.
e. Each Contractor shall participate in the updating of the schedule on a monthly basis during the entire life of his contract.

1) Contractor's schedule shall be updated monthly and submitted to the Architect and other involved parties at least 2 days prior to the monthly progress meeting.

f. The Project Construction Schedule will be updated reflecting Contractor's revised schedule and progress meeting results.

C. Schedule of Values

1. Prepare and submit a Schedule of Values for approval within 7 days after Notice to Proceed. The Schedule of Values shall consist of a breakdown of the contract sum showing the various items of the Work, divided so as to facilitate the approval of payments for Work completed. The Schedule of Values shall show the breakdown of items of Work and supported by such data to substantiate its correctness.
2. The contract breakdown shall be the same form as that to be used in submitting request for payments. Each item of work shall have indicated a separate cost for labor and material.
3. Schedule of Values shall be coordinated with the Construction Schedule such that the percentages of Work completed relates to the values for the Work shown on the Request for Payments.
4. At the beginning of the Project prepare a schedule of monthly progress payments showing the anticipated amount at each requested payment.

D. Project Use Site Plan

1. The Contractor, in cooperation with other Contractors on this Project, shall prepare a proposed project use of the site plan.
2. Contractors shall confine operations at the site to areas within the areas indicated and as approved on the use of the site plan, and as permitted by law, ordinances, and permits. Site shall not be unreasonably encumbered with materials, products, or construction equipment.

E. Shop Drawings and Product Data

1. Shop drawings are drawings, diagrams illustrations, schedules, performance charts, brochures, and other data which are prepared by the Contractor or subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

a. Advertising brochures will not be accepted as shop drawings.
b. Erection and setting drawings as referred to in these Specifications will be considered as shop drawings and shall be submitted along with detailed shop drawings.
c. Where schedules are required to indicate locations, they shall be submitted as part of the shop drawing package for that item.

d. Shop drawings and schedules shall repeat the identification shown on the Contract Drawings.

2. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

   a. Clearly mark each copy to identify pertinent materials.
   b. Show dimensions and clearance required.
   c. Show performance and characteristics and capacities.
   d. Show wiring diagrams and controls.
   e. Note variances from the Contract Documents including manufacturer's recommended changes to sequencing and to piping and control diagrams.

3. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, Subcontractor, submittal name, and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking and provide space for Architect's "Action" marking. Package each submittal appropriately for transmittal and handling. Submittals which are received from sources other than through the Contractor will be returned "without action", which does not mean approval.
4. By approving and submitting shop drawings, the Contractor thereby represents that he has determined and verified field measurements, field construction criteria, materials, catalog numbers, and similar data, and that he has checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents prior to submitting to the Architect.
5. The Contractor shall make corrections required by the Architect and shall resubmit the required number of corrected copies of shop drawings until approved. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections requested by the Architect on previous submissions.
6. The Architect will review shop drawings only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Architect's review of a separate item shall not indicate review of an assembly in which the item functions.
7. The Architect's review of shop drawings shall not relieve the Contractor of responsibility for any deviation from the requirements or the Contracts documents unless the Contractor has informed the Architect in writing of such deviation at the time to submission and the Architect has given written approval to the specific deviation, nor shall the Architect's action relieve the Contractor from responsibility for errors or omissions in the shop drawings.
8. Notations and remarks added to shop drawings by the Architect are to insure compliance to Drawings and Specifications and do not imply a requested or approved change to contract cost.
9. Should deviations, discrepancies, or conflicts between shop and contract drawings and Specifications be discovered, either prior to or after review, Contract Documents shall control and be followed.
1. The following number of shop drawings and product data submittals shall be made on this Project. Where an insufficient number of copies are submitted, no action will be taken until proper number of copies has been received. Additional copies beyond the number required will be discarded.

F. Schedule of Required Shop Drawings and Product Data

1. Architectural/Structural/Mechanical/Electrical/Civil

    a. Submit to the Architect: 1 CD, DVD or e-mail with shop drawings and product data.
    b. Distribution: 1 CD is returned to the contractor (or e-mailed) for their printing and distribution.

2. Shop drawings will be marked as follows: Contractors shall take the following action for each respective marking:

    a. "REVIEWED AND RELEASED" - Copies will be distributed as indicated under above schedule.
    b. "REVIEWED AND RELEASED WITH CORRECTIONS" - Contractor may proceed with fabrication, taking into account the necessary corrections. Corrected shop drawings shall be resubmitted before fabrication of this Work is completed. Only shop drawings marked "REVIEWED AND RELEASED" by Architect will be permitted on the project site.
    c. "REVISE AND RESUBMIT" - Contractor will be required to resubmit shop drawings in their entirety. No fabrication or installation shall be started until shop drawings so marked have been completely revised, resubmitted, and marked by Architect according to preceding Paragraphs 1. or 2.
    d. "INSUFFICIENT INFORMATION" - Not enough information has been sent. Contractor will be required to resubmit shop drawings in their entirety.

3. Where re-submittal is required, submittal and distribution shall be as specified in subparagraph 11 above.
4. One set of shop drawings marked by Architect "REVIEWED AND RELEASED" be filed on the project site at all times. Shop drawing file may be electronic and accessible by the Architect and Owner on the on-site project computer. No installation of equipment, materials, or products is to be incorporated into the Project until shop drawings marked by Architect "REVIEWED AND RELEASED" have been received on the Project.

G. Samples

1. The Contractor shall submit to the Architect triplicate (3) samples to illustrate materials or workmanship, colors, and textures, and establish standards by which the Work will be judged. A complete list of required samples will be submitted to the Contractor for use as a check list.
2. By approving and submitting samples, the Contractor thereby represents that he has determined and verified materials, catalog numbers, and similar data, and that he has checked and coordinated each sample with the requirements of the Work and of the Contract Documents prior to submitting to the Architect.
3. The Contractor shall resubmit the required number of correct or new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted samples to revisions other than the changes requested by the Architect on previous submissions.
4. The Architect will review samples but only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Architect's approval of a separate item shall not indicate approval of an assembly in which the item functions.

5. The Architect's action shall not relieve the Contractor of responsibility for deviations from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of the deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's action relieve the Contractor form responsibility for errors or omissions in the samples.
6. Unless otherwise specified, samples shall be in triplicate and of adequate size to show function, equality, type, color, range, finish, and texture of material. When requested, full technical information and certified test data shall be supplied.

    a. Each sample shall be labeled, bearing material name and quality, the Contractor's name, date, project name, and other pertinent data.
    b. Transportation charges to and from the Architect's office must be prepaid on samples forwarded. Approved samples shall be retained by the Architect until the Work for which they were submitted has been accepted.

7. Materials shall not be ordered until approval is received. Materials shall be furnished, equal in every respect to approved samples. Where color or shade cannot be guaranteed, the maximum deviation shall be indicated by the manufacturer. Work shall be in accordance with the approved samples.

H. Operation and Maintenance Data

1. Typed or printed instruction covering the operation and maintenance of each item of equipment furnished, shall be prepared and place in a notebook by the Contractor and submitted to the Architect for review and transmittal to the Owner. The instructions, as applicable, shall include the following:

    a. Any schematic piping and wiring diagrams;
    b. Any valve charts and schedules;
    c. Any lubrication charts and schedules;
    d. Guides for troubleshooting;
    e. Pertinent diagrams of equipment with main parts identification;
    f. Manufacturer's data on all equipment;
    g. Operating and maintenance instructions for all equipment;
    h. Manufacturer's parts list; and,
    i. Any testing procedures for operating tests.

        1) Three (3) copies of the above instruction books shall be furnished prior to Final Payment. The books shall describe the information to be covered clearly and in detail and shall be in form and content satisfactory to the Owner.

2. The Contractor shall instruct the Owner's operating personnel in the proper use, care and emergency repair of all equipment installed by it before Final Payment. The Contractor shall call particular attention to any safety measures that should be followed. The instruction shall be adequate to train the Owner's operating personnel in the proper use, care and emergency repair of such equipment.

I. The work shall be furnished and installed in accordance with the Drawings, Specifications and as additionally required by the manufacturer's instructions, and where a conflict occurs between the Drawings or Specifications and the manufacturer's instructions, the contractor shall request clarification from the Architect prior to commencing the work and shall follow the interpretations given by the Architect.

1.6 MATERIAL SAFETY DATA SHEETS

A. In compliance with the OSHA Hazard Communication Standard (1910.1200, 08-24-1987) contractors are required to have on the site, MSDS (Material Safety Data Sheets) for ALL products classified as hazardous that their firm has knowledge that they will be furnishing, using, or storing on the jobsite during the duration of this Project. MSDS sheets are not part of the shop drawing review process.

1. The Contractor at completion of the Work shall provide the Owner with the MSDS sheets for the hazardous products used on the Project site during construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 33 00

SECTION 01 42 19
REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

A. General: Basic contract definitions are included in the Conditions of the Contract.

B. "Reviewed": The term "reviewed," when used in conjunction with the Architect's/Engineer's action on the Contractor's submittals, applications, and requests, is limited to the Architect's/Engineer's duties and responsibilities as stated in the Conditions of the Contract.

C. "Contractor": The term "contractor," "Contractor," describes to entity who has a signed agreement with the Owner as the primary entity contracted to perform the Work. The terms are used interchangably within this document.

D. "Directed": Terms such as "directed," "requested," "authorized," "selected," "reviewed," "required," and "permitted" mean directed by the Architect/Engineer, requested by the Architect/Engineer, and similar phrases.

E. "Furnish": The term "furnish" means to supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

F. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on the Drawings; or to other paragraphs or schedules in the Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted", "scheduled," and "specified" are used to help the user locate the reference. Location is not limited.

G. "Install": The term "install" describes operations at the Project site including the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Installer": An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, who performs a particular activity including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.

I. "Project site" is the space available to the Contractor for performing installation activities, either exclusively or in conjunction with others performing work as part of the Project.

J. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.

K. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the industry that control performance of the Work.

1. The term "experienced," when used with the term "installer," means having successfully completed a minimum of 5 previous projects similar in size and scope to this Project; being familiar with the special requirements indicated; and having complied with requirements of authorities having jurisdiction.
2. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

L. "Testing Agencies": A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 WASTE MANAGEMENT DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the Project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the Project site.

K. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing: solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywoods; and foam insulation. When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, and damage to the liver, kidneys, and central nervous system, and possibly cancer.

Q. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

R. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.

1.4 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's "MasterFormat" system.

B. Specification Content: These Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.5 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different but apparently equal to the Architect/Engineer for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect/Engineer for a decision before proceeding.

D. Copies of Standards: Each entity engaged in installation on the Project must be familiar with industry standards applicable to its installation activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required installation activity, obtain copies directly from the publication source and make them available on request.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research Inc.'s "Encyclopedia of Associations," which is available in most libraries.

1.6 SUBMITTALS

A. 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, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 19

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SECTION 01 45 00
QUALITY CONTROL AND TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Definitions: Quality control services include inspections and tests, and sections related thereto including reports, but do not include contract enforcement activities performed directly by Architect. Quality control services include those inspections and tests and related actions performed by independent agencies and governing actions performed by independent agencies and governing authorities, as well as directly by Contractor.

B. Inspections, tests, and related actions specified in this Section and elsewhere in Contract Documents are not intended to limit contractor's quality control procedures which facilitate compliance with requirements of Contract Documents.

C. Requirements for quality control services by Contractor, as requested or to be requested by Architect, Owner, governing authorities, or other authorized entities are not limited by provisions of this Section.

D. Contractors shall review and become familiar with the requirements of Paragraph 13.5, Tests and Inspections, of the General and Supplementary conditions covering the provisions for testing of the Work.

E. The Project Manager will employ and pay for services of an independent testing laboratory to perform specified inspection, sampling, and testing services.

F. Inspections and testing required by laws, ordinances, rules, regulations, or orders of public authorities and General Conditions.

G. Certification of products and mill test reports: Respective Specification Sections.

H. Test, adjust, and balance of equipment.

I. Inspection, sampling, and testing: Concrete.

1.3 CONTRACTOR RESPONSIBILITIES

A. Except where specifically indicated to be provided by another entity as identified, inspections, tests, and similar quality control services including those specified to be performed by independent agency (not directly by Contractor) are the Owner's responsibility, and costs thereof are not to be included in contract sum.

1. The Owner will engage and pay for the services of an independent agency to perform inspections and tests through Project Manager.

B. Retest Responsibility: Where results of required inspection, test, or similar service are unsatisfactory (do not indicate compliance of related work with requirements of Contract Documents), retests are responsibility of Contractor; except, first retest is responsible party if retest results are satisfactory. Retesting of work revised or replaced by Contractor is Contractor's responsibility, where required tests were performed on original work.

C. Responsibility for Associated Services: Contractor is required to cooperate with independent agencies performing required inspections, tests, and similar services. Provide auxiliary services as reasonably requested, including access to work, the taking of samples or assistance with the taking of samples, delivery of samples to test laboratories, and security and protection for samples and test equipment at project site.

D. Coordination: Contractor and each engaged independent agency performing inspections, tests, and similar services for project are required to coordinate and sequence activities so as to accommodate required services with minimum delay of work and without the need for removal/replacement of work to accommodate inspections and tests. Scheduling of times for inspections, tests, taking of samples, and similar activities is Contractor's responsibility.

E. Test procedures to be used shall be submitted for approval of the Architect where other than those specified are recommended by the testing agency.

F. Cooperate with laboratory personnel to provide access to Work and to manufacturer's operations.

G. Assist laboratory personnel in obtaining samples at the site.

H. Notify laboratory sufficiently in advance of operations to allow for his assignment of personnel and scheduling of tests.

I. Should the Contractors fail to schedule laboratory services or fail to cancel laboratory services, if the need arises, all additional cost shall be borne by the Contractors.

J. Employ, and pay for, services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required when initial tests indicate work does not comply with Contract Documents.

1. Separate laboratory shall be approved by the Owner and the Architect.

1.4 QUALIFICATION OF LABORATORY

A. Shall meet "Recommended Requirements of Independent Laboratory Qualifications," published by American Council of Independent Laboratories. For concrete and steel the laboratory shall comply with the basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."

B. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of deficiencies reported by inspection.

C. Testing equipment shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to either:

1. National Bureau of Standards.
2. Accepted values of natural physical constants.
3. Submit copy of certificate of calibration, made by accredited calibration agency.

D. Submit documentation of specified requirements. Submit 2 copies to the Architect.

1.5 SUBMITTALS

A. Submit 3 copies of test reports directly to the Architect from the approved testing services, with one copy to the Contractor.

1.6 LABORATORY DUTIES, LIMITATIONS OF AUTHORITY

A. Provide qualified personnel promptly on notice.

B. Perform specified inspections, sampling, and testing of materials and methods of construction.

1. Comply with specified standards; ASTM, other recognized authorities and as specified.
2. Ascertain compliance with requirements of Contract Documents.

C. Promptly notify Architect and Contractor of irregularities or deficiencies of Work which are observed during performance of services.

D. Promptly submit 3 copies of reports of inspections and tests to the Architect, including the following information, as applicable:

1. Date issued.
2. Project title and number.
3. Testing laboratory name and address.
4. Name and signature of inspector.
5. Date of inspection or sampling.
6. Record of temperature and weather.
7. Date of test.
8. Identification of product and specification.
9. Location in project.
10. Type of inspection or test.
11. Observations regarding compliance with Contract Documents.

E. Laboratory is not authorized to:

1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Approve or accept portion of Work.
3. Perform duties of the Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. Upon completion of inspection, testing, sample-taking, and similar services performed on Work, protect work, repair damaged Work and restore substrates and finishes to eliminate deficiencies, including defects in visual qualities of exposed finishes. Except as otherwise indicated, comply with requirements of Section 01 73 29, Cutting and Patching. Protect Work exposed by or for service activities and protect repaired Work. Repair and protection is Contractor's responsibility, regardless or assignment or responsibility for inspection, testing, or similar service. Work disturbed or altered after completion of testing, sample taking and similar service shall be re-inspected or retested by the same testing agency with the cost borne by the Contractor.

END OF SECTION 01 45 00

SECTION 01 50 00
TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 GENERAL

A. Furnish labor, materials, tools, equipment, and services for temporary facilities, including maintenance and their subsequent removal, in accordance with provisions of the contract Documents and as required for the progress and completion of the Project.

B. Pay applicable costs unless specifically stated otherwise.

C. Coordinate temporary facilities work with other trades and the Owner. Rerouting or relocation expenses shall be paid by the responsible Contractor doing the Work if the temporary work has not been coordinated with other trades and the Owner. Routing or relocations of temporary facilities shall also be reviewed by the Architect and Owner before installation.

D. Provide, maintain, and remove supplementary or miscellaneous item, appurtenances, and devices incidental to, or necessary for, a sound, secure, and complete installation.

E. Contractors shall provide and maintain temporary facilities as required for the progress and completion of his contract except as otherwise noted.

F. Repair, as required, work that has been interfered with or damaged as a result of temporary facilities work.

G. The cost for repair of temporary facilities due to abuse or misuse of said facilities by other Contractors will be the financial responsibility of the responsible Contractor that abused or misused that temporary facility.

H. Provide every protection to temporary facilities as required.

I. Contractor requiring one of the temporary services before it can be provided as specified, or whose requirements with respect to a particular service differ from the service specified, shall provide such service as suits his needs at his own expense and in a manner satisfactory to the Architect.

1. NOTE: Temporary services will not commence until that Contractor responsible for such temporary services start their field work and place the temporary services into operation.

J. Temporary facilities are to be maintained and kept in good operating condition. Maintenance personnel necessary to perform this Work shall be provided. Maintenance work and repair shall be done in a timely manner causing minimal interference to other trades.

K. Temporary services shall be placed into operations by Contractor in an expedient manner as required by job conditions.

L. Additional costs for providing temporary services beyond the time period provided, shall be at the expense of that contractor requiring that extended service time period.

M. Provide and maintain temporary facilities in compliance with governing rules, regulations, codes, ordinances, and laws of agencies and utility companies having jurisdiction over work involved in project.

N. Each Contractor is responsible for temporary work provided, and shall obtain necessary permits and inspections for such work.

O. Do not interfere with normal use of roads in vicinity of project site except as authorized by the City of Boca Raton Traffic Division and all other authorities having jurisdiction.

P. Each Contractor shall provide at his own expense, normal weather protection as required to carry on his work expeditiously during inclement weather and to protect his work and materials form damage by the weather unless stated otherwise herein.

1.3 CONSTRUCTION PLANT

A. Each Contractor is to provide all items such as cranes, hoists, and other lifting devices; scaffolding, staging, platforms, runways, and ladders; temporary flooring as required for the proper execution of his Work.

1. Scaffolding and ladders must meet OSHA requirements.
2. No aluminum ladders are permitted.

B. Provide such equipment with proper guys, bracing, guards, railing, and other safety devices as required by governing authority and safety standards.

C. Each Contractor shall provide, maintain and remove suitable means of travel between floor levels of building, including exterior grade levels and to all roof levels for his use until permanent stair systems are installed.

1.4 SPECIAL PRECAUTIONS AND REQUIREMENTS

A. Do not block required exits.

B. Conform to all Owner's rules and regulations.

C. Do not interfere with normal use of existing active utility services, except as absolutely necessary to execute required work involving such services, and then only after proper arrangements have been made through the proper authority.

D. Each Contractor is responsible in the performance of his work for protection of existing active utility services.

1. Notification of proposed interruption of service must be made 2 days in advance with the Owner.

1.5 SAFETY AND PROTECTION

A. General

1. Each Contractor must erect and maintain, as required by existing conditions and progress of the Work, every reasonable safeguard for safety and protection, including, but not limited to, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent utilities.
2. Each Contractor must provide protection at all times against damage with vandalism, theft, weather, and other causes to completed Work, materials, and apparatus.
3. Each Contractor shall take every appropriate precaution to prevent damage to his work and workers of other Contractors. Damage which is caused to another Contractor's Work will be repaired or replaced at the damaging contractor's expense.
4. Site Contractor shall protect existing trees, planting, structures, road, and walks during progress to the Work.
5. Each Contractor shall submit 3 copies of Contractor(s)' safety Program and designate a responsible employee at the site whose duty shall be the prevention of accidents. The person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Architect.
6. No Contractor shall load or permit any part of the Work to be loaded so as to endanger its safety.
7. The Contractor shall have a full-time, dedicated and qualified Safety Person for the Project to inspect job for safety hazards of all trades. This person will hold and record safety meetings once a week at the Superintendent Meeting. The Safety Person shall point out immediately to each Contractor each safety hazard he finds. Each Contractor shall correct the safety problem immediately.

    a. If safety problems are not corrected by appropriate trade, then the Safety Person shall take corrective action and charge the appropriate parties.
    b. This Safety Person shall record all accidents for the Project.

8. Each Contractor shall provide safety protection at each area which, because of his operation, creates a safety hazard.
9. Each Contractor that removes existing safety handrail(s) because of his operation shall reinstall or replace immediately upon completion of operation requiring removal. If above operation is not completed on the same day as started, the handrail will be replaced or reinstalled at the end of each workday. The Contractor removing the handrail shall have a employee remain at this location until the railing is replaced or reinstalled. If the Contractor fails to reinstall handrails, the Architect will direct reinstallation at said Contractor's cost.
10. Each Contractor shall take every appropriate safety precaution to prevent damage to the work or injury to the workers of other Contractors. This includes, but not limited to, overhead protection.

11. In an emergency affecting the safety of life, the work or adjoining property, the Contractor, without special instruction or authorization from the Architect, or Owner, shall take the action necessary to prevent such threatened loss of injury.
12. Each Contractor shall provide at the site first aid supplies for minor injuries. All injuries must be reported immediately to the job office, and the Superintendent of that Contractor shall make a written report thereof. A copy of same shall be sent to the Architect.

B. Water Control:

1. Each Contractor shall protect his Work against precipitation.
2. Each Contractor shall take every necessary precaution, including but not limited to, cleanup, to prevent floor and roof drains, being inoperable. If floor or roof drains are inoperable, the responsible Contractor(s) shall be responsible for the costs of related damages.

C. Safety Devices:

1. Each Contractor shall provide fences, barricades, bridges, railings, and guards for protection of construction personnel and the public, and to provide protection of his Work installed.

D. Streets and Sidewalks:

1. Each Contractor shall be responsible to keep public streets adjacent to project site reasonably free of mud, debris, and other foreign materials resulting from all project construction and vehicular traffic leaving site, to the satisfaction of governing public authorities regulating such conditions.
2. Do not interfere with normal use of streets in vicinity if project site except as indicated or as absolutely necessary to execute required work, and then only after proper arrangements have been made with authorities having jurisdiction including traffic control as applicable.

E. Hazardous Materials: When the use of storage of hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel. Such use and storage shall also be in accordance with governing authority. The use of explosives shall not be permitted.

1.6 TEMPORARY STORAGE

A. Each Contractor shall provide suitable storage facilities for materials delivered to site and protect materials from weather and damage.

1. Temporary storage of materials at site shall not interfere with the Work of other Contractors or the Work and property of the Owner. If necessary or as directed by the Architect, stored materials shall be relocated or removed.
2. Location on site for storage facilities shall be in designated areas as approved by the Architect.

1.7 ACCESS, AND DELIVERY

A. Each Contractor shall repair damage to existing pavement or other construction and landscaping when damage results from operations under his Contract.

1.8 OPENINGS FOR ELECTRICAL, MECHANICAL, AND OTHER TRADES

A. Temporary openings not called for on the Drawings, which may be required for the purpose of bringing equipment into the buildings or for placing same, shall be performed as approved by the Architect. The Contractor shall perform the Work of providing and maintaining such openings and of restoring the structure.

B. The Contractor whose equipment or work requires temporary openings are to bear the cost involved in providing such openings and restoring the structure. Ample notice shall be given of size and location of such openings by the Contractor requiring same.

C. Holes provided in general construction work to permit installation of lines for temporary mechanical and electrical services shall be restored by the Contractor doing the affected construction work, after removal of such lines, at no extra cost.

1.9 TEMPORARY FIRST AID FACILITIES

A. Each Contractor and subcontractor shall provide first aid facilities as required by Federal, State, or Local Safety Regulations.

1.10 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

A. These Construction Documents and the construction hereby contemplated shall be governed by applicable provisions of Federal, State, and local regulations for construction safety in the State in which the project is located.

1. Each Contractor shall be responsible for the safety and health of persons and property affected by the Contractor's performance of the Work including work performed by his subcontractors. This requirement shall apply continuously during the entire contact period and shall not be limited to normal working hours.
2. Each Contractor shall designate a qualified safety and health representative to be responsible for the administration of the Contractor's Safety and Health program.

B. Each Contractor shall be responsible for compliance with the above aforesaid safety and health regulations for construction as applicable to the Contractor's Contract and the Contractor's construction means and methods. Each Prime Contractor shall be liable for violations as may be cited or charged against the Contractor by authorities governing the safety and health regulations for construction.

1. The Architect and the Owner shall not be responsible for construction means and methods and shall not be responsible for construction safety. The Contractor shall indemnify and hold harmless the Architect and Owner under the provisions of paragraph "3.18 Indemnification" of the General Conditions of this Project Manual.
2. Each Contractor shall comply with the General Contractors Safety Program.

1.11 UTILITY PROTECTION

A. Existing utility lines and structures indicated or known, and utility lines constructed for this Project shall be protected from damage during construction operations.

B. Locate and flag lines and structures before beginning excavation and other construction operations.

C. When utility lines and structures that are to be removed or relocated are encountered within the area of operations, notify the Architect and affected utility in ample time for the necessary measures to be taken to prevent interruption of the services.

D. Damage to existing utility lines or structures not indicated or known shall be reported immediately to the Architect and the affected utility.

1.12 ENVIRONMENTAL PROTECTION

A. In order to prevent and to provide for abatement and control of environmental pollution arising from the construction activities of the Contractor and his subcontractors in the performance of this Contract, they shall comply with applicable federal, state, and local laws, and regulations concerning environmental pollution control and abatement as well as the specific requirements stated elsewhere in the Contract Documents.

B. Items having apparent historical or archaeological interest which are discovered in the course of construction activities shall be carefully preserved. The Contractor shall leave the archaeological find undisturbed and shall immediately report the find to the Architect so that the proper authorities may be notified.

C. No Contractor shall pollute water resources with fuels, oils, bitumens, calcium chloride, acids or harmful materials. It is the responsibility of each Contractor to investigate and comply with applicable federal, state, county, and municipal laws concerning pollution of rivers and streams. Work under this Contract shall be performed in such a manner that objectionable conditions will not be created in water resources through or adjacent to the project areas.

1. Spillages: Throughout the year, special measures shall be taken to prevent chemicals, fuels, oils, grease, bituminous materials, waste washings, herbicides and insecticides, and cement from entering water resources.
2. Disposal: If waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as directed by the Architect, and replaced with suitable fill material, compacted and finished with topsoil, at the expense of the Contractor.

1.13 TEMPORARY ELECTRICAL POWER AND LIGHT

A. The Electrical Contractor shall make arrangements for and pay for installation of temporary metered service including one time utility company "up/down" charges. Charges for connections to mains, extensions, furnishing of meters or equipment and accessories shall be included in the Electrical Contractor's bid. Regardless of whether the Owner may have to sign with the utility company for these services, the Contractor shall include in his proposal fees, inspection charges, permit charges, work charges, and other charges and shall be ready to deposit with the utility company said fees when required at time of Owner's signing for utility service.

B. The Electrical Contractor, shall provide, maintain, and connect the temporary electric service for the project office, temporary lighting and power tool usage during the construction and shall include service pole, main disconnect means, wiring, and distribution equipment.

C. Lamps for temporary lighting shall be provided and maintained by the Electrical Contractor at his expense. Every temporary lamp outlet must be properly lamped throughout the construction; dark or burned-out lamps shall be immediately replaced.

D. Wiring of Contractors' offices, trailers, storage facilities, and equipment used during construction, shall be the responsibility of the individual Contractors requiring same.

E. Where a Contractor requires the use of energy at places other than those herein specified or of an amount greater than would be available from the specified temporary service, the Contractor shall make independent arrangements with the Electrical Contractor for the service at his own expense.

F. When permanent facilities are approved by the Architect and Owner as ready for operation, they may be used for temporary light and power. The Electrical Contractor shall arrange with the utility for removal of the temporary metering and shall bear the cost involved in the changeover.

G. Upon approval of use and completion of the changeover to the permanent electrical system, the Electrical Contractor shall remove the temporary electrical service, including power and lighting, distribution and utilization, equipment and wiring.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 50 00

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SECTION 01 60 00
PRODUCTS, MATERIALS, AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. It is the intent of the Specifications and Drawings to accomplish a complete and first-grade installation in which there shall be installed new materials and products of the latest and best design and manufacturer. Workmanship shall be thoroughly first-class and complete, executed by competent and experienced workmen.

B. Equipment, specialties, and similar items shall be checked for compliance and fully approved prior to installation. Contractors are cautioned that work or equipment installed without approval is subject to condemnation, removal, and subsequent replacement with an approved item without extra compensation.

1.3 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," "structures," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.

1. "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.

    a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturers published product literature that is current at of the date of the Contract Documents.
    b. "Foreign Products", as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens or nor living within the United States and its possessions.

2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

PART 2 - PRODUCTS

2.1 PRODUCT STANDARD AND QUALITY - SUBSTITUTIONS

A. The Contract is based on the materials, equipment, and methods described in the Contract Documents.

1. All roofing products and other products comprising a building's envelope introduced as a result of new technology, whether or not listed or specified, shall comply with Rule 9B-72 of the Florida Administrative Code.
2. If certain manufacturers listed are not approved, the product manufacturer shall be responsible to obtain approvals in accordance with Rule 9B-72 of the Florida Administrative Code prior to submitting product data or shop drawings for this project. Otherwise, if not approved by the State, the manufacturer will not be acceptable for use on this project.

B. Where in the Drawings and Specifications certain products, manufacturer's tradenames, or catalog numbers are given, it is done for the expressed purpose of establishing a basis of design, quality, durability, and efficiency of design in harmony with the work outlined and is not intended for the purpose of limiting competition.

C. The Architect will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Architect to evaluate the proposed substitution.

D. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this Work by the Architect.

E. "Or equal":

1. Where the phrase "or equal" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Architect unless the item has been specifically approved for this Work by the Architect.
2. The decision of the Architect shall be final.

F. Availability of Specified Items:

1. Verify prior to bidding that specified items will be available in time for installation during orderly and timely progress of the Work.
2. In the event specified item or items will not be so available, so notify the Architect prior to receipt of bids.
3. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back charged as necessary and shall not be borne by the Owner.

G. Where the questions of appearance, artistic effect, or harmony of design are concerned, the Architect reserves the right to refuse approval of substituted products proposed to be substituted for that specified, if in his opinion the item to be substituted is not harmonious to the finished effect and appearance desired, as portrayed in the Drawings and Specifications. The Architect's said refusal to approve, established by this paragraph, is final and not subject to arbitration.

H. Products of other manufacturers will be considered for acceptance provided they equal or exceed the material requirements and functional qualities of the specified product. Requests for Architect's approval and complete technical data for evaluation must be received at least 10 days prior to bid due date. Additional approved manufacturers will be issued by Addendum.

2.2 MANUFACTURER'S DIRECTIONS

A. Manufactured products shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the manufacturer' printed directions, unless herein specified to the contrary. Where manufacturer's printed directions are available and where reference is made to manufacturer's directions in the Specification, the Contractor shall submit 2 copies of such directions to the Architect prior to the beginning of Work covered thereby.

B. Where specific installation instructions are not part of these Specifications and Drawings, equipment shall be installed in strict accordance with instructions from the respective manufacturers. Where installation instructions included in these Specifications or Drawings are at a variance with instructions furnished by the equipment manufacturer, the Contractor shall make written request for clarification from the Architect.

C. In accepting or assenting to the use of apparatus or material, or make, or arrangement thereof, the Architect in no way waives the requirements of these specifications or the warranty embodied therein.

2.3 WARRANTIES

A. Specific warranties or bonds called for in the Contract Documents, in addition to that falling under the general warranty as set forth in General Conditions, shall be furnished in accordance with the requirements of the Specifications.

B. Each Contractor shall and does hereby agree to warrant for a period of one year, or for longer periods, where so provided in the Specifications, as evidenced by the date of Substantial Completion issued by the Architect, products installed under the Contract to be of good quality in every respect and to remain so for periods described herein.

C. Should defects develop in the aforesaid Work within the specified periods, due to faults in products or their workmanship, the Contractor hereby agrees to make repairs and do necessary Work to correct defective Work to the Architect's satisfaction, in accordance with the Supplementary Conditions. Such repairs and corrective Work, including costs of making good other Work damaged by or otherwise affected by making repairs or corrective Work, shall be done without cost to the Owner and at the entire cost and expense of the Contractor within 14 days after written notice to the Contractor by the Owner.

D. Nothing herein intends or implies that the warranty shall apply to Work which has been abused or neglected or improperly maintained by the Owner or his successor in interest.

E. Where service on products is required under this Article, it shall be promptly provided when notified by the Owner and no additional charge shall be made, unless it can be established that the defect or malfunctioning was caused by abuse or accidental damage not to be expected under conditions of ordinary wear and tear.

F. In the event movement in the adjoining structure or components causes malfunctioning, the Contractor responsible for the original installation of the adjoining structure or components shall provide such repair, replacement, or correction necessary to provide for proper functioning to bring the equipment back into the same operating condition as approved at the completion of the building.

G. The manufacturer and supplier expressly warrants that each item of equipment furnished by him and installed in this Project is suitable for the application shown and specified in the Contract documents and includes features, accessories, and performing characteristics listed in the manufacturer's catalog in force on the date bids are requested for the Work. This warranty is intended as an assurance by the manufacturer that his equipment is not being misapplied and is fit and sufficient for the service intended. This warranty is in addition to and not in limitation of other warranties or remedies required by law or by the Contract Documents. It shall be the responsibility of the Contractor for the particular equipment to obtain this warranty in writing.

H. In case the Contractor fails to do Work so ordered, the Owner may have work done and charge the cost thereof against monies retained as provided for in the Agreement and, is said retained monies is available, the Contractor and his Sureties shall agree to pay to the Owner the cost of such Work.

2.4 MATERIAL DELIVERY AND RESPONSIBILITIES

A. Each Contractor shall be responsible for materials he orders for delivery to the jobsite. Responsibility includes, but is not limited to, receiving, unloading, storing, protecting, and setting in place; ready for final connections. Each Contractor will coordinate jobsite storage with the CM.

1. The Owner will not be responsible for deliveries related to the construction or operation of the Contractor. The Owner cannot sign delivery forms for the Contractor.

B. Contractors shall insure that products are delivered to the Project in accordance with the Construction Schedule of the Project. In determining date of delivery, sufficient time shall be allowed for shop drawings and sample approvals, including the possibility of having to resubmit improperly prepared submittals or products other than those specified and the necessary fabrication or procurement time along with the delivery method and distance involved.

2.5 PROTECTION

A. Each Contractor shall protect building elements and products when subject to damage. Should workmen or other persons employed or commissioned by one Contractor be responsible for damage, the entire cost of repairing said damage shall be assumed by said individual Contractor. Should damage be done by a person or persons not employed or commissioned by a Contractor, the respective Contractors shall make repairs and charge the cost to the guilty person or persons. The affected Contractors shall be responsible for collecting such charges. If the person or persons responsible for damage cannot be discovered, full and satisfactory repairs shall be made by the respective Contractor, and the cost of Work shall be prorated against each Contractor.

B. The respective Contractors shall protect their products prior to installation and final acceptance. Storage shall be dry, clean, and safe. Materials or equipment damaged, deteriorated, rusted or defaced due to improper storage, shall be repaired, refinished, or replaced, as required by the Architect. Products lost through theft or mishandling shall be replaced by the Contractor without cost to the Owner.

2.6 ACCEPTANCE OF EQUIPMENT OR SYSTEMS

A. The Owner will not accept the start of the warranty period on systems or equipment until Substantial Completion is issued to the respective Contractor(s) for Owner's occupancy of the building, in part or whole. Each Contractor shall make such provisions as required to extend the manufacturer's warranty from time of initial operation of systems or equipment until Substantial Completion is given in writing.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

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SECTION 01 60 10
PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

B. 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:

1. Revisions to Contract Documents requested by the Owner or Architect.
2. Specified options of products and construction methods included in Contract Documents.
3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

A. Substitution Request Submittal: Request for product substitution shall be submitted to the Architect no later than ten (10) days prior to bid due date. Requests received after this time may not be considered.

1. Substitutions after the bid date may be accepted and will be reviewed on a case-by-case basis.

B. Contractor's Substitution Request Form: Submit substitution requests to the Architect (through General Contractor) on the "Contractor Substitution Request Form" attached at the end of this Section.

C. Substitutions shall include product data, samples and shop drawings as required to evaluate the proposed product. Submittals shall also include specified product (some additional engineering may be required with specific materials) with a line-by-line comparison of the products.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

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

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of Contract Documents.
3. The request is timely, fully documented and properly submitted.
4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
5. 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.
6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
7. 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.
8. 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.
9. 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.
10. 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.

B. The Contractor's submittal and the 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.

C. Contractor's Substitution Request Form on following pages 3 and 4.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 60 10

CONTRACTOR'S SUBSTITUTION REQUEST FORM

PROJECT:_____DATE:_____

SPECIFICATION SECTION:_____ITEM(S):_____

SPECIFIED MANUFACTURER:_____

SPECIFIED MODEL NO:_____

PROPOSED MANUFACTURER:_____

PROPOSED MODEL NO:_____

REASON/S FOR _____

REQUEST FOR _____

SUBSTITUTION _____

Attach complete technical data, including laboratory tests, if applicable, in duplicate.

A. Will approval affect dimensions shown on Drawings in any way? No____Yes___
Explain (Attach drawings if necessary):_____
_____

B. Will the Contractor pay for any changes to the building design, including engineering and detailing costs caused by the approval? No____Yes___
Explain:_____
_____

C. Will approval affect the work of other trades? No____Yes___
Explain:_____ _____
___

D. Manufacturer's guarantees of the proposed and specified items are: Same____Different___
Explain:_____ _____
___

E. Does the proposed item meet all applicable Codes, Ordinances and regulations for this specific application? No_____Yes___
Explain:_____ _____
___

F. Has proposed item been used locally in similar applications? No____Yes____
Explain:_____ _____
___

G. If approved, will the Owner receive a credit for the proposed alternate material? No_Yes
Explain:_____ _____
___

H. Does the proposed alternate material meet the same applicable standards (ASTM, ANSI, UL, FS.) as the specified item? No____Yes____
Explain:_____ _____
___

It is the Contractor's responsibility to provide all information necessary to determine the proposed alternate material is equal or better than the specified item. This includes any test reports, product data, manufacturer's specifications, color samples, product samples or the like as may be required for an evaluation.

The Architect and Owner will not be required to prove any product is not equal or suitable to the Project.

SUBMITTED BY: _____

Firm: _____

Address: _____

_____

Signature:_____ Date:_____

FOR ARCHITECT'S USE:

Not Acceptable ___

No Exceptions Taken ___

By:_____ Date:_____

SECTION 01 60 20
FLORIDA PRODUCT APPROVAL FORM

PART 1 - GENERAL

1.1 FLORIDA PRODUCT APPROVAL FORM

Location: Boca Raton Project Name: Boca Raton Airport Control Tower

As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and the product approval number(s) on the building components listed below. More information about statewide product approval can be obtained at www.floridabuilding.org

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)
D. ROOFING PRODUCTS			
1. Underlayments			
2. Roofing Fasteners			
3. Single Ply Roofing System			
4. Roofing Insulation			
5. Cements-Adhesives – Coatings			

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite; 1) copy of the product approval, 2) the performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements.

I understand these products may have to be removed if approval cannot be demonstrated during inspection.

Product Name Manufacturer

Product Name Manufacturer

Product Name Manufacturer

Product Name Manufacturer

Product Name Manufacturer

Contractor or Contractor's Authorized Agent Signature | Print Name | Date

Site Address | Permit #

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 60 20

SECTION 01 73 29
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

C. Cutting and patching is the responsibility of the contractor.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a proposal to the Architect describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
3. List products to be used and firms or entities that will perform Work.
4. Indicate dates when cutting and patching is to be performed.
5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.
7. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.4 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.

1. Obtain approval from the Architect and Structural Engineer of the cutting and patching proposal before cutting and patching structural elements.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching operating elements or safety related systems.

a. Shoring, bracing, and sheeting.
b. Primary operational systems and equipment.
c. Air or smoke barriers.
d. Water, moisture, or vapor barriers.
e. Membranes and flashings.
f. Fire protection systems.
g. Noise and vibration control elements and systems.
h. Control systems.
i. Communication systems.
j. Electrical wiring systems.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

1. If possible, retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm.

a. Window wall system.
b. Stucco.
c. Acoustical ceilings.
d. Carpeting.
e. Wall covering.
f. HVAC enclosures, cabinets or covers.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials. Coordinate with Architect when an exact match to existing conditions is not possible.

PART 3 - EXECUTION

3.1 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
4. B

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.

    a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.

4. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29

SECTION 01 74 13
CONSTRUCTION CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The Architect reserves the right to act on behalf of the Owner pertaining to the clean-up responsibilities that are a part of each Contractor's Work.

1.3 PURPOSE - DAILY CLEANING

A. Define and emphasize the responsibility of each Contractor to remove his rubbish and debris from the construction site to guard against fire and safety hazards as well as to provide a more efficient construction operation for all Contractors. If this cleaning is not performed to the satisfaction of the Owner and the Architect, it will be performed for the Contractor at his expense.

1.4 PURPOSE - ROUTINE CLEANING

A. Each Friday afternoon, and more often if necessary, each Contractor shall perform an overall cleanup of the entire site, including a broom cleaning of appropriate surfaces. The trades shall remove their rubbish and debris from the building site to the rubbish collection location promptly upon its accumulation and in no event later than the regular Friday general cleanup.

1.5 RUBBISH CONTAINER

A. The General Contractor shall provide dumpster type rubbish container with lid, sized adequate for the Project waste, debris, and rubbish for the life of the Project.

B. Dispose of container contents weekly or at more frequent intervals if required by inadequate container capacity.

1.6 SAFETY REQUIREMENTS

A. Hazards Control (By each Contractor)

1. Store volatile wastes in covered metal containers, and remove from the premises daily.
2. Prevent accumulation of wastes, which create hazardous conditions.

3. Provide adequate ventilation during use of volatile or noxious substances.

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish and waste materials on project site.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surface recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DAILY CLEANING

A. Each Contractor shall execute daily cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.

B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

C. Daily, during progress of work, clean site and public properties and dispose of waste materials, debris, and rubbish in dumpster type rubbish container provided under this Section.

D. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

E. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

F. Place no new work on dirty surfaces.

3.2 ROUTINE CLEANING

A. Employ experienced workmen for cleaning.

B. Remove dirt, mud, and other foreign materials from sight exposed interior and exterior surfaces.

C. Each Friday, or at more frequent intervals, if work activities justify same, perform the following cleaning. This includes all dirt, dust, and debris not identifiable as part of a Contract. Broom clean floor and paved surfaces; rake clean other surfaces of ground.

D. Maintain adjacent roads free from the accumulation of mud, rocks, rubbish, litter and debris resulting from construction activities.

E. Remove litter, rubbish and debris from chases, whether the chases will be accessible or not.

F. Maintain cleaning throughout the life of the Project.

G. Should the Contractor fail in the performance of this Work, the Owner may perform such Work in accordance with Article 3 of the General Conditions.

3.3 FINAL CLEANING (Each Contractor)

A. The Contractor shall be responsible for final clean-up and shall leave the Work of the complete Project in clean, neat condition. The following are examples, but not by way of limitation, of cleaning levels required.

1. Remove labels which are not required as permanent labels.
2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass and damaged transparent materials.
3. Clean exposed exterior and interior hard surfaces to a dirt free condition, free of dust, stains, films, and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
4. Wipe surfaces of mechanical and electrical equipment clean; remove excess lubrication and other substances.
5. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
6. Clean concrete floors in nonoccupied spaces broom clean.
7. Vacuum clean carpeted surfaces and similar soft surfaces.
8. Clean plumbing fixtures to a sanitary condition, free of stains, including those resulting from water exposure.
9. Clean light fixtures and lamps so as to function with full efficiency. Replace all lamps that are burnt out and/or flickering.
10. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom clean condition; remove stains, petro-chemical spills, and other foreign deposits. Rake grounds which are neither planted nor paved to a smooth, even textured surface.

END OF SECTION 01 74 13

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Disposing of nonhazardous demolition waste.

1.3 DEFINITIONS

A. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

B. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

1.4 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within **7** days of date established for commencement of the Work.

1.5 INFORMATIONAL SUBMITTALS

A. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Waste Management Conference: Conduct conference at Project site. Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of waste management coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to disposal facilities.
5. Review waste management requirements for each trade.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 01 50 00 "Temporary Facilities and Controls."

B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with Section 01 50 00 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 DISPOSAL OF WASTE

A. General: Remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 01 74 19

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ITEM W-103 ALLOWANCE ACCOUNT

DESCRIPTION

103-1.1 Allowance accounts have been established to compensate the Contractor for approved and accepted additional work that may be necessary due to unforeseen conditions or Owner requested changes. Additional work required and cost incurred by the Contractor due to unacceptable work or damage by the Contractor will not be paid for from allowance accounts.

METHOD OF MEASUREMENT

103-2 If directed by the Owner via Change Order, applicable established unit prices shall be used to pay for work under the Base Bid Schedules. If established unit prices are not applicable to the work, a cost proposal will be requested by the Owner. The method of measurement and payment for materials or work performed under an allowance account must be established and approved by the Owner prior to executing the work. The work and cost must be acceptably documented prior to payment (invoices, delivery slips etc.), in accordance with the Contract Documents. Approved costs shall include all costs associated with the work or materials provided, such as taxes, freight, and delivery to the site.

BASIS OF PAYMENT

103-3 Payment will be processed by the Owner for costs to complete as stipulated in Article 38 – General Conditions "Change Orders." See the Allowance Account table below for schedules and budgets:

Bid Schedule	Maximum Allowance
Sch A - Base Bid General Allowance	$20,000.00

Payment will be made under:

Item W-103 General Allowance Account – per Allowance (ALL)

:

END OF ITEM W-103

Division 02

Existing Conditions

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SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
4. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Engineering Survey: Submit engineering survey of condition of building.

C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

D. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Use of stairs.
3. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

F. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

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

1.8 QUALITY ASSURANCE

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

B. Demolition Firm: Company specializing in performing the Work of this Section with minimum five (5) years documented experience.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the following items:

a. Computers and related items.
b. Phone equipment.
c. Additional items indicated on the drawings.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials evaluation has been performed: Contractor shall refer to the Hazardous materials report on file, contractor shall review the report to become familiar with the findings.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 WARRANTY

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

1. Components of the building which are under warranty shall be requested from the Owner.

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

1.11 COORDINATION

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

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

3.3 ELECTRONIC EQUIPMENT

A. Relocation of FAA and Airport Owned Equipment- “The Airport will coordinate and schedule the relocation of Airport Owner Equipment, STARS and FDIO equipment. The Contractor shall provide 7-day notice prior to commencement of all work.”

3.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 "Temporary Facilities and Controls."

B. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 74 19 "Construction Waste Management and Disposal."

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

END OF SECTION 02 41 19

Division 06

Wood, Plastics and Composites

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SECTION 06 41 16
PLASTIC-LAMINATE-FACED ARCHITECTURAL MILLWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Plastic-laminate-faced architectural Countertops and Doors.

1.3 SUBMITTALS

A. Product Data: For each type of product, including high-pressure decorative laminate and hardware and accessories.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
2. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each regional material.
3. Chain-of-Custody Certificates: For certified wood products. Include statement of costs.
4. Product Data: For adhesives, indicating that product contains no urea formaldehyde.
5. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
6. Product Data: For composite wood products, indicating that product contains no urea formaldehyde.

C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

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

D. Samples for Initial Selection:

1. Plastic laminates.
2. PVC edge material.
3. Thermoset decorative panels.

E. Samples for Verification:

1. Plastic laminates, 12 by 12 inches, for each type, color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.
2. Thermoset decorative panels, 12 by 12 inches, for each color, pattern, and surface finish, with edge banding on one edge.
3. Exposed hardware and accessories, one unit for each type and finish.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.

B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.

C. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.6 FIELD CONDITIONS

A. Field Measurements: Where millwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support millwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

B. Established Dimensions: Where millwork is indicated to fit to other construction, establish dimensions for areas where millwork is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that millwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL MILLWORK

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

B. Grade: Match Architects Sample.

C. Type of Construction: As Indicated.

D. Door, and Drawer Front Interface Style: Full Overlay to match existing.

E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.

1. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide or comparable product by one of the following:

a. Formica Corporation.
b. Lamin-Art, Inc.

2. Colors, Patterns, and Finishes: Match Architects Sample.

F. Laminate Cladding for Exposed Surfaces:

1. Horizontal Surfaces: Grade HGS.
2. Vertical Surfaces: Grade VGS.
3. Edges: Grade HGS.

G. Materials for Semiexposed Surfaces: Match Architects Sample.

H. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

I. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.

1. Medium-Density Fiberboard: ANSI A208.2, made with binder containing no urea formaldehyde.
2. Drawer Bottoms: White Birch or White Maple plywood; not less than 1/4-inch thick.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.

1. Wood Moisture Content: 8 to 13 percent.

B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural millwork and quality grade specified unless otherwise indicated.

1. Softwood Plywood: DOC PS 1.

2.3 HARDWARE AND ACCESSORIES

A. General: Provide hardware and accessory materials associated with architectural millwork.

B. Hinges: BHMA A156.9, B01521, reuse if fully operational, or match existing.

C. Pulls: BHMA A156.9, B02011, reuse if fully operational, or match existing.

D. Drawer Slides: BHMA A156.9, reuse if fully operational, or match existing.

E. Door Catch: BHMA A156.9, B03071, reuse if fully operational, or match existing.

F. Locks: BHMA A156.11, E07041, reuse if fully operational, or match existing.

1. Lever Direction: Standard, unless otherwise required to suit casework indicated.
2. Finish: To match pulls.
3. Keying: Provide 2 keys per lock.

a. Key locks alike per room.

G. Door and Drawer Silencers: BHMA A156.16, L03011.

H. Grommets for Cable Passage through Countertops: Molded-plastic grommet sleeves and matching flip-top plastic caps with slot for wire passage.

1. Sizes: Match Existing.
2. Color: Match Existing.

I. Door Locks: BHMA A156.11, E07121, reuse if fully operational, or match existing.

J. Drawer Locks: BHMA A156.11, E07041, reuse if fully operational, or match existing.

2.4 MISCELLANEOUS MATERIALS

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

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

C. Adhesives: Do not use adhesives that contain urea formaldehyde.

2.5 FABRICATION

A. General: Fabricate millwork to dimensions, profiles, and details indicated.

1. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
2. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

B. Countertops: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrates.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition millwork to average prevailing humidity conditions in installation areas.

B. Before installing millwork, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

A. Assemble millwork and complete fabrication at Project site to the extent that it was not completed in the shop.

B. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.

1. Secure field joints in countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

C. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical-treatment manufacturer's written instructions, including those for adhesives used to install woodwork.

E. Countertop Installation: Anchor securely by screwing through base cabinets or other supports into underside of countertop.

1. Install countertops level and true in line. Use concealed shims as required to maintain not more than a 1/8-inch-in-96-inchesvariation from a straight, level plane.
2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
3. Seal joints between countertop and backsplash, if any, and joints where countertop and backsplash abut walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective millwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean millwork on exposed and semiexposed surfaces.

END OF SECTION 06 41 16

Division 07

Thermal and Moisture Protection

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SECTION 07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Sealants for interior and exterior applications.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

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

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

D. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

E. Field Test Report Log: For each elastomeric sealant application. Include information specified in "Field Quality Control" Article.

F. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

G. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.

H. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

C. Manufacturer's Representative: Manufacturer's representative shall certify the installation of sealant materials and shall attend pre-construction meetings, make site visits during construction and after completion of each phase of work that directly applies to the materials being installed before issuing a warrantee certification.

D. 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 of each type of sealant and backing installation; minimum length 8 feet.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 degrees F.
3. When joint substrates are wet.

B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: As specified beginning from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 PRODUCTS AND MANUFACTURERS

A. Products: Provide the following products for each application listed. Substitutions for exterior building joint sealants shall be listed on the Validated Products list published by the Sealant, Waterproofing, and Restoration Institute (SWRI).

1. Joint Sealant - One-Part: For precast concrete, poured-in-place concrete, and concrete-to-concrete and concrete-to-masonry; one-part silicone sealant, having a joint movement capability of plus-or-minus 100% elongation, minus 50% compression, and Shore A durometer hardness of 15.

a. Product and Manufacturer:

1) Dow Corning 790 Silicone Building Sealant; Dow Corning Corp.

b. Warranty: Manufacturer's standard 20-year warranty.

2. Joint Sealant - One-Part: For masonry-to-aluminum, steel-to-aluminum, concrete-to-aluminum, steel-to-steel, and other metal-to-metal joints (including KYNAR coatings); one-part silicone sealant having a joint movement capability of plus-or-minus 50% elongation, and Shore A durometer hardness of 30.

a. Product and Manufacturer:

1) Dow Corning 795 Silicone Building Sealant; Dow Corning Corp.

b. Warranty: Manufacturer's extended 20-year warranty.

3. Joint Sealant - One-Part Latex Sealant: For interior use for horizontal and vertical joints around door frames, and joints between dissimilar materials.

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

1) AC-20 + Silicone; Pecora Corp.
2) Sherwin Williams; 850A
3) Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
4) Tremflex 834; Tremco, Inc.

b. Warranty: Manufacturer's standard warranty.

4. Joint Sealant - One-Part Silicone - Sanitary Sealant: For Interior use at plumbing fixtures in toilets and janitor closets, and horizontal and vertical joints of dissimilar materials in toilets and other wet areas.

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

1) Dow Corning 786 Silicone Mildew Resistant Sealant; Dow Corning Corp.
2) SCS1700 Sanitary; General Electric Co.
3) Pecora 898 Silicone Mildew Resistant Silicone Sealant; Pecora Corp.
4) Tremsil 200; Tremco, Inc.

b. Warranty: Manufacturer's extended 3-year warranty.

2.3 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.4 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Backer Rod (Joint Fillers, Compressible Filler): Type B, ASTM C 1330, preformed, cylindrical, flexible, compressible, resilient, non-staining, bi-cellular material, with a density of 24-48 km/m3 per ASTM D1622, tensile strength greater than 200 kPa per ASTM D 1623, and water absorption less than 0.1 g/cc per ASTM C 1016.

1. Product and Manufacturer - Basis of Design:

   a. Sof Rod; Nomaco, Inc., Zebulon, NC.

2. Other Acceptable Manufacturers: Manufacturers offering products having performance characteristics meeting or exceeding those specified may be incorporated into the Work.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Verify location and application of acoustical sealant and all other sealants indicated. Do not allow sealants to come into contact with incompatible materials. Prevent reaction to metals and other substances; protect all surfaces.

3.2 PREPARATION

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

B. Joint Priming: Prime joint substrates, unless otherwise recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

1. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

1. Install sealants by proven techniques and at the same time backings are installed.
2. Place sealants so they directly contact and fully wet joint substrates.
3. Completely fill recesses provided for each joint configuration.
4. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

B. Backing Materials: Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Bond-Breaker Tape: Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

D. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealants from surfaces adjacent to joint.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Perform field-test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.

b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.

2. Test Method: Test joint sealants by hand-pull method described below:

   a. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from crosscut end of 2-inch piece.
   b. Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1-inch mark; pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
   c. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.
4. Inspect tested joints and report on the following:

   a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field- adhesion hand-pull test criteria.
   b. Whether sealants filled joint cavities and are free from voids.
   c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field adhesion test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures used to originally seal joints. Ensure that original sealant surfaces are clean and new sealant contacts original sealant.

B. Evaluation of Field-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements, will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

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

3.6 PROTECTION

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

END OF SECTION 07 92 00

Division 08
Openings

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SECTION 08 80 10
TOWER CAB LAMINATED-INSULATED GLASS

PART 1 - GENERAL

1.01 WORK INCLUDED

Furnish labor, materials, equipment and incidentals necessary for the new glass and glazing in the cab of the Boca Raton Airport – Airport Traffic Control Tower (ATCT).

1.02 QUALITY ASSURANCE

A. FABRICATION:

1. Fabrications of insulating units shall adhere to the certification program of IGMA/IGCC which includes random periodic testing according to ASTM E-773 and E-774, and tested units shall carry the highest passing grade.

2. Fabricate glass and other glazing products in sizes required to glaze all openings in the control cab, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

B. SYSTEM PERFORMANCE REQUIREMENTS

1. General: Provide glazing systems that are produced, fabricated and installed to withstand normal thermal movement, wind loading and impact loading (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and or other defects in construction.

2. Glass Minimum thickness indicated is for detailing only. Confirm glass thickness by analyzing Project loads and in-service conditions. Glass shall comply with the requirements of ASTM Standard E1300 “Standard Specification for Determining the Minimum Thickness of Annealed Glass Required to Resist a Specific Load”, based on straight line wind graphs as well as manufacturer’s wind load charts and information obtainable from the local U.S. Weather Bureau.

3. Contractor shall determine the wind loading of glass in its position within the structure and provide glazing suitable to the wind pressure at each level, as recommended by the manufacturer. Furnish design data for the Owner’s Representative for approval prior to the fabrication of any glazing unit.

4. Maximum deflection of framing member shall be limited to 1/175 of span. Contractor shall coordinate this requirement with the supplier of aluminum framing members.
5. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sky heat loss.

   a. Temperature Change (Range): 120 F deg, ambient; 180 F deg, material surfaces.

6. Fixed Glazing Systems, including aluminum framing systems, glazing units, and joints and seals, shall meet or exceed the following:

   Air infiltration (ASTM E 283) – 0.60 CFM/624 PSF
   of Pressure Water Penetration (ASTM E331) – none
   at 15 psf of pressure Uniform load structural per ATSM E330

7. ATCT Cab glazing, in addition to requirements above, shall be capable of resisting wind pressure as stated on the structural construction drawings, or higher values as determined by local wind charts obtained from NOAA or the National Weather Service. Glazed window openings shall experience no leakage during wind driven rains as determined during actual storm conditions.

1.04 SUBMITTALS

A. Product data shall be submitted to the Engineer for each glass product and glazing material indicated. Submittal of the following minimum information shall be required to be provided in one (1) package only. If it is not, then the submittal will be returned marked, Revise & Resubmit.

B. Certifications: Provide the following.

1. Glass Windload Calculations: Submit structural calculations for all glass installations certifying compliance with structural windload requirements as given below. The windload shall be derived from ASCE 7 (components and cladding) or from actual windload tests, whichever is greater. The thickness of the glass shall be determined using ASTM E 1300 with allowable glass stress based on probability of 8/1000 glass breakage.

   Prescribed Loading Conditions:

   The glazing shall withstand, without failure, the following load case:

   •Wind Load (50°C @ 3 sec load)
   •180 mph (Ultimate Design)
   •Category IV
   •Exposure C
   •Height 41 ft
   •38.48 psf

2. Maximum panel deflection limit shall be L/175 or 0.75 inch whichever is less. Structural analysis calculations based on finite element procedures shall be made using an industry recognized software such as “Glass Window Design” by Standards Design Group and the PPG configuration tool, for example. The finite element simulations shall be based on the mechanical properties of the glass and the polymer interlayer. The design shall be certified by the glass provider and/or manufacturer that the glass units meet the requirements for impact resistant glass as applicable to the Florida Building Code.

3. Glazing Accessories: Submit certificates from the manufacturer attesting that the units meet the luminous and solar radiant transmission requirements for heat absorbing glass.

4. Sealants: ASTM C 1087; submit from the manufacturer(s) attesting that the sealant or structural sealant, used in butt glazing, is compatible with the laminated glass interlayer. Provide calculations for the structural sealant joint design including structural bite, deadload support, glueline thickness, shear, and other performance parameters.

C. Supplier/Installer written certification that all glass edge sealants were tested for compatibility with and adhesion to other materials including other sealants, glazing tape, gaskets, setting and edge blocks.

D. Product cut sheets for each type of glazing sealant and gasket indicated, evidencing compliance with requirements specified.

E. Maintenance Manual for glass and other glazing materials.

G. Warranties: Special warranties specified in this Section. Submit a sample for material approval in addition to the final version upon project close-out.

H. Qualification Data:

1. An experienced glazier who has completed glazing similar in material, design and extent to that indicated for this Project with a record of successful in-service performance. Submit company and personnel information to demonstrate years of experience and the number of similar installations over the last 10 year period. Provide job location, brief description and reference contact information. Control Tower insulted glass projects are preferred although high rise installations ma be considered.
2. Licensed and insured to do business in the state of Florida.

I. Samples: For the following products, in the form of two (2) 12-inch- (300-mm-) square samples for the specified glass.

1. Laminated Insulating glass unit for each designation specified including the required capillary tube (approximately 1” length exposed in the sample).

2. Samples for glazing materials shall bear the manufacturer's adhered label designating type, thickness, interlayer and applicable coating of the glass and stating a quality control program of a recognized certification agency or independent testing agency acceptable to authorities having jurisdiction.

3. Labels for the approved glass shall also appear on each glass unit delivered to the job site. Do not remove labels until observed by the Engineer on-site.

1.05 REFERENCES AND STANDARDS

The applicable provisions of the following references and standards are hereby made a part of this section as if written in their entirety:

A. American Architectural Manufacturer's Association (AAMA)

1. 800: Voluntary Specifications and Test Methods for Sealants.
2. SFI: Dense Rubber-Like Compression Gasket Materials.

B. American National Standards Institute (ANSI)

1. Z97.1: Glazing Materials Used in Building Safety Performance Specifications and Method of Test.

C. American Society of Civil Engineers (ASCE)

1. ASCE 7-10 (or most current to date) Minimum Design Loads for Buildings and Other Structures

D. American Society of Testing and Materials (ASTM) 500950

1. C 509: Specification For Elastomeric Cellular Pre-Formed Gasket and Sealing Material
2. C542: Specification for Lock-Strip Gaskets
3. C 719: Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
4. C 864: Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
5. C 920: Specifications for Elastomeric Joint Sealants.
6. C 1036: Specifications for Flat Glass.
7. C 1076 Standard Test Method for determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
8. C 1184 Standard Specification for Structural Silicone Sealants.
9. C 1401 Standard Guide for Structural Sealant Glazing.

10. C 1115: Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories.
11. C 1172: Specification for Laminated Architectural Flat Glass.
12. D 395 Standard Test Methods for Rubber Property-Compression Set.
13. E 152: Methods for Fire Tests of Door Assemblies.
14. E 773 Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units.
15. E 774: Specifications for Sealed Insulating Glass Units
16. E 1300: Practice For Determining The Minimum Thickness And Type Of Glass Required to Resist a Specified Load.

E. Consumer Products Safety Commission (CPSC)

1. 16CFR Part 1201: Safety Standard for Architectural Glazing Materials

F. Federal Standards (FS)

1. DD-G-451D: Glass, Float or Plate, Sheet, Figured (flat for glazing, mirrors and other uses.)

G. Glass Association of North America (GANA)

1. Glazing Manual.
2. Glazing Sealant Systems Manual.
3. Laminated Glazing Manual.

H. Insulating Glass Manufacturers Alliance (IGMA)
I. Insulating Glass Certification Council (IGCC)

J. A3000: Recommended Practices for Vertical Field Glazing of Organically Sealed Insulated Glass Units.

K. Deterioration of Laminated Glass is defined as defects developed from normal use that are attributed to the manufacturing process and not to glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's directions. Defects include edge separation, delamination, materially obstructing vision through glass, chips, scratches and blemishes exceeding those allowed by referenced glass standards.

1.06 QUALITY ASSURANCE

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations above, except where more stringent requirements are indicated. Refer to the following publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. FGMA Publications: “GMA Glazing Manual”.
2. LSGA Publications: “SGA Design Guide”.
3. IGMA/IGCC Publications: TM-3000 “Vertical Glazing Guidelines” and TB-3001 “Sloped Glazing Guidelines”.

B. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1202 for Category II materials.

1. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

C. Insulating Glass Certification Program: provide insulating glass units permanently marked either on spacers or at least one component lite of units with appropriate certification label of inspecting and testing agency indicated below:

1. Insulating Glass Certification Council (IGCC)
2. Associated Laboratories, Inc. (ALI).
3. National Certified Testing Laboratories (NCTL).

D. Glazier Qualifications: An experienced glazier who has completed glazing similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance.

E. Single-Source Responsibility for Glass: Obtain glass from one source for each product specified for use.

F. Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated for use.

G. The Contractor shall provide inspection reports to the Owner from the manufacturer at the time that the glazing units leave the plant. The Contractor shall notify the Owner and Engineer when glazing units are scheduled to arrive on the site. The Contractor shall provide a second report to the Owner when the units arrive at the site and have been unloaded. These inspection activities shall record barometric pressure and weather conditions plus checks for double imaging, cracks, cleanliness, flaws or defects, edges lined up and square, capillary tube installation, sealant and adhesive integrity, and proper packing and shipping methods. The glass shall be rejected due to edge damage, chips, scratches, or any other of the above or otherwise stated requirements. Note, these are precursory checks and do not preclude the responsibilities of the Contractor in the event damage goes undetected at any of the checkpoints. The cab glass will be checked on-site for final acceptance by the Engineer in accordance with the FAA Quality Assurance Procedure for distortions and double imaging (non-linearity) tolerances after it has been installed.

1.07 DELIVERY, STORAGE AND HANDLING

A. Protect glazing materials to comply with manufacturer's direction and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1. Where insulating glass units will be exposed to substantial altitude changes, comply with insulating glass fabricator's recommendation for venting and sealing to avoid hermetic seal ruptures.

2. Deliver glass to the site in accordance with the approved construction or phasing schedule to avoid delays. Do not deliver glass before installation can begin. Erect glass in place as it is delivered to the site.

B. Prior to delivery all the cab glass shall be boxed and crated for shipping. Under no circumstances shall the cab glass be installed in the cab framing before delivering to the site. The cab glass shall be shipped to the site in a vertical position and stored in a vertical position against a sturdy support at an angle of approximately 7 degrees from vertical.

C. Deliver products to the site in unopened containers, labeled plainly with manufacturer's names and brands.

D. Store glass and setting materials in safe, dry locations with adequate ventilation free from heavy dust, not subject to combustion products or sources of water and that shall permit easy access for inspection and handling. Do not unpack until needed for installation.

E. Deliver caulking and sealing compounds to the jobsite in sealed containers labeled to show the designated name, formula, or specification number; lot number, color, date of manufacturer, shelf life, and curing time when applicable.

F. Handle and install materials in a manner that will protect them from damage.

G. Unpack glass from the front of the case or container and avoid sliding the glass against itself or any uncushioned materials. Stack individual lites on edge using clean, cushioned pads placed at the quarter points of the bottom edge. Protect all edges from impact and use a clean dry separating material.

1.08 JOB CONDITIONS

A. All work should be accomplished before or after the daily hours of control tower operation. If there is a possibility that glazing will be installed during normal working hours of the control tower, then acceptable arrangements must be made through the Owner including coordination with the tower manager.

B. Protect glass from damage after installation. Replace glass broken by workmen during construction or by vandalism until the project is accepted by the Owner.

C. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing

materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes. Install liquid sealants at ambient and substrate temperatures above 40 º F.

D. Protect ATCT cab glazing from welds and impacts. Replace if damaged.

PART 2.00 PRODUCTS

2.01 RELATED MATERIALS

A. GLAZING TAPE
Butyl glazing tape, fully cured; 3M “606 Butyl Tape”, or approved equal.

B. SETTING BLOCKS:
Neoprene 70-90 Shore A durometric hardness.

C. SPACERS:
Neoprene, 40-50, Shore A durometric hardness

D. SEALANT:
One part acrylic terpolymer in selected standard color. The Tremco Manufacturing Co,: “Mono-Lasto-Meric” or equal.

E. CLEAR SEALANT:
One part translucent silicone rubber compound; Dow Corning Corp.; “Silicone Rubber Sealant”; or approved equal.

2.02 LAMINATED - INSULATED GLASS UNITS

A. Glass thicknesses shown on the drawings or specified herein are minimums. Manufacturer to certify that glass can withstand all forces specified. The thickness of the cab glass shall be determined by ASTM E 1300 for a probability of breakage of 8 lite per 1000 at the first occurrence of the design windloading indicated on the drawings or per ASCE 7, whichever is greater. The Cab glass shall not be tinted, tempered, heat strengthened, or chemically strengthened. Glass Clad Polycarbonate is not acceptable. No on-site grinding or buffing of the glass is allowed. Glass edges shall be clean cut, undamaged, slight bevel and flat ground.

B. Annealed Glass: Refer to ASTM C 1036, Type I, Class 1 for clear, and minimum Q3.
1. Allowable point blemish size and distribution.
2. Allowable linear blemish size and distribution.
3. Allowable shell chip size and distribution.
4. Allowable scratches: None.

C. Interlayer: Ionomer or ionoplastic material shall be provided as the interlayment material. The material shall be SentryGlas by Kuraray (or an approved equal). Properly fabricated laminates using SentryGlas interlayer will exhibit stress levels below the maximum stress level for annealed glass. Pattern haze or trapped air in the

laminate shall not be acceptable. The creation of a `solid-phase` of interlayer, essentially free of a gas phase, is paramount. Additionally, the laminate shall remain haze and bubble-free for the entire warranty period under end use conditions. The laminated glass shall be considered defective if and when dissolved gasses come out of solution (form bubbles, haze or delaminated areas between the glass/interlayer interface) by any cause including elevated temperatures due to weather conditions and sunlight exposure.

Special glass units for ATCT Cabs: The cab glass shall not be tinted, tempered or heat treated. All glass shall be of high quality (q3 or better) clear float glass produced by a single source, from the same lot, and shall bear the mark of the manufacturer. Edges shall be factory cut and ground smooth. Insulating glass units for the ATCT Cab shall be hermetically sealed units with the two panels of glass separated by a ½" dehydrated air space. The metal separator shall be black in color. Units shall be double sealed: primary seal shall be polyisobutylene; secondary seal shall be polyurethane or silicone. Within the bottom 6 to 24 inches of one of the vertical edges of the units, the fabricator shall install an open 12-inch long capillary/breather tube for pressure equalization. The tube shall be open during installation but no longer than 2 weeks after delivery if installation becomes delayed. Tubes may be used by the Contractor to attempt adjustment of non-linearity of inner & outer panes, if warranted.

E. Laminated Insulated Glass Units (LIGU): Provide LIGUs, comprised of two (2) glass panels (inner and outer), each fabricated from two (2) plies of monolithic clear annealed float glass bonded by a 0.060-inch Interlayer, as such:

Outer Panel	¼" glass / 0.060" SentryGlas / ¼" glass
Low e	Applied to inside (air space) surface of the outer panel
Air Space	½" with capillary tube
Inner Panel	¼" glass / 0.060" SentryGlas / ¼" glass

Maximum allowable edge overlap of the plies shall be 5 mm for all edges. It is important in practice to ensure that adequate glazing support shall be provided along the supported edges and that care shall be taken to ensure that no glass-metal contact or installation damage occurs.

F. Performance Properties (or reasonably within range)

<u>Transmittance</u>	
Visible	62 percent
Solar Energy	26 percent
Ultraviolet	0 percent
<u>Reflectance</u>	
Visible Light (exterior)	14 percent
Visible Light (interior)	15 percent
Solar Energy (exterior)	30 percent
<u>Thermal</u>	
U-Value (winter/night)	0.44 Btu/hr-ft^2 °F average

U-Value (summer/day)	0.46 Btu/hr-ft2 °F average
Shading Coefficient	0.41 average
Solar Heat Gain Coeff.	0.36
Relative Heat Gain	88.5 Btu/hr-ft2 °F
Light to Solar Gain	1.72

G. Shape

a. Trapezoidal
b. Install at slope of 75 degrees from the bottom outside horizontal; tip top outward (see plans)
c. Dimensions: See plans for the general size of the openings. Actual dimensions of panes shall be from measurements taken on-site by the Contractor's representative.

H. Support Conditions

a. Four (4) side supported
b. Idealized model

I. Approved Manufacturers

a. PPG Clear Glass
b. Pilkington Optifloat
c. Guardian Advanced Architectural Clear Glass
d. Old Castle Building Envelope
e. Others if considered an approved equal by the Engineer

2.03 SETTING MATERIALS

A Provide as specified in the GANA Glazing Manual, IGMA/IGCC TB-3001, and manufacturer's recommendations, unless specified otherwise herein. Do not use metal sash putty, nonskinning compounds, nonresilient pre-formed sealers, or impregnated pre-formed gaskets. Materials exposed to view and unpainted shall be gray or neutral color.

B. Elastomeric Sealant: ASTM C 920, Type S or M, Grade NS, Class 12.5, Use G. Use for channel or stop glazing sash. Sealant shall be chemically compatible with setting blocks, edge blocks, and sealing tapes, with sealants used in manufacture of insulating glass units. For laminated glass, the sealant shall be compatible with the PVB or any other approved interlayer. Color of sealant shall be as selected.

C. Structural Silicone Glazing Sealant: ASTM C 1087, colorless, one-component, high tensile strength, neutral-cure, elastomeric silicone sealant and adhesive for bonding glass, metal, and other building components. Use for permanent watertight sealing between butt-glazed glass panes using no backer rods or other means of support other than the two glass edges. For laminated glass, the sealant shall be compatible with SentryGlas or any other approved PVB interlayer.

D. Pre-formed Channels: Neoprene, vinyl, or rubber, as recommended by the glass manufacturer for the particular condition.

D. Sealing Tapes: Pre-formed, semi-solid, polymeric-based material of proper size and compressibility for the particular condition. Use only where glazing rabbet is designed for tape and tape is recommended by the glass or sealant manufacturer. Provide spacer shims for use with compressible tapes. Tapes shall be chemically compatible with the product being set.

E. Setting Blocks and Edge Blocks: Lead or neoprene of 80 to 90 Shore "A" durometer hardness, chemically compatible with sealants used, and of sizes recommended by GANA and the glass manufacturer.

F. Accessories: Provide as required for a complete installation, including glazing points, clips, shims, angles, and spacer strips. Provide non-corroding metal accessories. Provide primer-sealers and cleaners as recommended by the glass and sealant manufacturers.

PART 3.00 EXECUTION

3.01 EXAMINATION

A. Examine glass framing, with glazier present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
2. Thoroughly tested for acceptable visibility, clarity, and no distortions or double imaging. These tests shall be conducted and documented at the place of manufacture by the manufacturer.
3. Minimum required face or edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Do not proceed with glazing until unsatisfactory conditions have been corrected.

C. Demolition and removal of existing glazing and installation of new glazing (curtainwalls and glass units) shall be accomplished only at night beginning at 11 PM and finishing, including clean up and dry-in, by 6:30 AM.

3.02 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

B. Frames receiving glazing shall be clean, free of oil, grease, dust or other materials. Firmly anchor in place before installing glass.

C. The glazing contractor shall verify opening sizes at the job site. Framing members shall be plum and vertical, installed without bows or misalignments. Frames shall not be set to be under stress from surrounding construction.

D. Leave removable labels in place until the installation is approved, except remove applied labels on heat-absorbing glass and on insulating glass units as soon as glass is installed.

3.03 INSTALLATION: GENERAL

A. Cut each pane to proper size, allowing a face clearance of 1/8 inch and an edge clearance of ¼ inch between the glass and the framing members at all perimeters. Avoid contact of glass to metal. Cut glass to produce clean, smooth edges, free of piped or chipped edges.

B. Provide setting blocks at quarter points of glass bearing. Center glass in opening in both horizontal and vertical planes. Provide edge blocks for large panes, which are no less than three (3”) inches long and insert near the top and bottom edges of vertical members.

C. Glazing in metal frames with stops shall be made with tape glazing. Cut glazing tape to full length of the opening and set permanent stops. Remove protective paper from tape, set glass onto setting blocks and press firmly against tape surface. Seal joints between glazing stop and glass with continuous bead of sealant.

D. Frames furnished with neoprene or vinyl glazing strips shall have glass set in accordance with the manufacturer’s recommendations to produce a weather-tight joint.

E. At removable stops, provide a ¼ inch clearance between edge of glazing material and back of glazing rabbet at jambs and head after allowance for setting block or shim thickness at sill. At dry glazing, provide clearance required by design of frame member but not less than ¼ inch**.**

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass sizes larger than 50 united inches (length plus height) as follows:

1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and comply with system performance requirements.

2. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.

3.04 INSTALLATION OF CAB GLASS:

A. Install with capillary tube open. Position the end of the tube so that the end of the tube is visible and accessible when the exterior glazing bead cover is removed. Use caution while positioning the tube not to break the seal of the tube at the point of penetration of the insulation glass unit. Before installing the glazing bead cover and only after each pane has been tested for double imaging, seal the end of the tube with polyurethane sealant in a manner that the seal can be easily broken for future use. Allow 7 calendar days for the air pressure to equalize between the panes, in their installed position, prior to sealing the tube. Provide a weatherproof decal adhered to the exterior bead cover as an indication of the location of the capillary tube. This special requirement is to allow for future air pressure equalization.

3.05 FIELD QUALITY CONTROL

A. The Glass Supplier shall identify site-specific problems related to installation to the General Contractor and advise on installation and protection techniques.

B. Replace glass and materials that become broken, chipped, cracked or damaged during construction and before substantial completion of building.

C. Where existing work is required to be re-glazed, remove existing setting material completely to base glazing frame and re-glaze opening as required for a new glazing.

D. Surface scratches shall be cause for rejection of any piece of glass. Iron spots, weld marks, or any defects that confuse vision from the control cab shall be defects that require rejection and replacement of glass.

E. Each pane of cab glass shall be tested in place, after sunset, by the Engineer with the capillary tubes open and exposed in accordance with the FAA prescribed quality control test procedure for non-linearity of insulated glass. Acceptance shall be made based on this test and the other parameters listed in paragraph 1.06.G.

F. Labels shall be visible on each glass unit delivered and shall bear the manufacturer's name, quality control program as well as designated glass type, thickness, interlayer and low e coating. Do not remove labels until observed by the Engineer on-site.

3.06 PROTECTION AND CLEANING

A. Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove non-permanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkali deposits, or stains, and remove as recommended by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.

E. Wash glass on both faces in each area of the Project not more than 4 days prior to date scheduled for inspections that establish the date of Substantial Completion. Wash glass as recommended by glass manufacturer.

3.07 WARRANTY

A. Manufacturer's Warranty on Insulating Glass: Submit written warranty signed by the manufacturer of insulating glass agreeing to furnish replacements for insulating glass units that deteriorate, f.o.b. point of manufacture, freight allowed Project site, within the specified warranty period indicated below. Capillary tubes and installation on an airport shall not be excluded. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, protecting and maintaining practices contrary to glass manufacturer's published instructions.

1. Warranty Period: Manufacturer's standard but not less than ten (10) years after date of Delivery On-Site Acceptance by the Owner.

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SECTION 08 91 10
ALUMINUM CURTAIN WALLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 00 Procurement &Contracting and Division 01 General Requirments Sections, apply to this and all technical sections of these Specifications.

1.2 SUMMARY

A. This Section includes conventionally glazed aluminum curtain walls installed as stick systems.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide glazed aluminum curtain-wall systems, including anchorage, capable of withstanding, without failure, the effects of the following:

1. Structural loads.
2. Thermal movements.
3. Movements of supporting structure indicated on Drawings including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
4. Dimensional tolerances of building frame and other adjacent construction.
5. Failure includes the following:

    a. Deflection exceeding specified limits.
    b. Thermal stresses transferred to building structure.
    c. Framing members transferring stresses, including those caused by thermal and structural movements, to glazing.
    d. Noise or vibration created by wind and thermal and structural movements.
    e. Loosening or weakening of fasteners, attachments, and other components.
    f. Sealant failure.

B. Structural Loads:

1. Wind Loads: As indicated on Drawings.
2. Seismic Loads: As indicated on Drawings.
3. Periodic Maintenance-Equipment Loads: As indicated on Drawings.

C. Structural-Test Performance: Provide glazed aluminum curtain-wall systems tested according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Duration: As required by design wind velocity but not less than 60 seconds.

D. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span, or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch 3.2 mm.
3. Cantilever Deflection: Where framing members overhang an anchor point, limited to 2 times the length of cantilevered member, divided by 175.

E. Story Drift: Provide glazed aluminum curtain-wall systems that accommodate design displacement of adjacent stories indicated.

1. Design Displacement: As indicated on Drawings.
2. Test Performance: No glass breakage, anchor failures, or structural damage when tested according to AAMA 501.4.

F. Thermal Movements: Provide glazed aluminum curtain-wall systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 180 deg F (100 deg C), material surfaces.
2. Test Performance: No buckling, stress on glass, glazing-edge seal failure, sealant failure, excess stress on curtain-wall framing, anchors and fasteners, or reduction of performance when tested according to AAMA 501.5.

    a. Test High Exterior Ambient Air Temperature: That which produces an exterior metal surface temperature of 180 deg F 82 deg C.

G. Air Infiltration: Provide glazed aluminum curtain-wall systems with maximum air leakage of 0.06 cfm/sq. ft. 0.03 L/s per sq. m of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure differential of 1.57 lbf/sq. ft. 75 Pa.

H. Water Penetration Under Static Pressure: Provide aluminum glazed curtain-wall systems that do not evidence water penetration when tested according to ASTM E 331 at a minimum differential static pressure of 20 percent of positive design wind load, but not less than 10 lbf/sq. ft. 479 Pa.

I. Water Penetration Under Dynamic Pressure: Provide glazed aluminum curtain-wall systems that do not evidence water leakage when tested according to AAMA 501.1 under dynamic pressure equal to 20 percent of positive design wind load, but not less than 10 lbf/sq. ft. 479 Pa.

1. Maximum Water Leakage: According to AAMA 501.1 No uncontrolled water penetrating systems or appearing on systems' normally exposed interior surfaces from sources other than condensation. Water controlled by flashing and gutters that is drained to exterior and cannot damage adjacent materials or finishes is not considered water leakage.

J. Condensation Resistance: Provide glazed aluminum curtain-wall systems with condensation-resistance factor (CRF) of not less than 70 for frame and 56 for glass, when tested according to AAMA 1503.

K. Average Thermal Conductance: Provide glazed aluminum curtain-wall systems with average U-factor of not more than 0.66 Btu/sq. ft. x h x deg F 3.75 W/sq. m x K when tested according to AAMA 1503.

L. Sound Transmission: Provide glazed aluminum curtain-wall systems with minimum STC 32 according to ASTM E 413 and an OITC 26 according to ASTM E 1332, as determined by testing according to ASTM E 90.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product indicated.

B. Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication and assembly of glazed aluminum curtain-wall systems.

1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Qualification Data: For Installer and testing agency.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for glazed aluminum curtain-wall systems.

F. Warranties: Sample of special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Capable of assuming engineering responsibility and performing Work of this Section and who is acceptable to manufacturer.

1. Engineering Responsibility: Preparation of data for glazed aluminum curtain-wall systems including the following:

a. Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 699 for testing indicated.

C. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

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.

D. Welding: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code--Aluminum."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for glazed aluminum curtain-wall systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating glazed aluminum curtain-wall systems without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 WARRANTY

A. Special Assembly Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of glazed aluminum curtain-wall systems that do not comply with requirements or that deteriorate as defined in this Section within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Noise or vibration caused by thermal movements.
c. Deterioration of metalsand other materials beyond normal weathering.
d. Water leakage.

2. Warranty Period: Ten (10) years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not necessarily include normal weathering.

1. Warranty Period: Ten 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: The design for glazed aluminum curtain-wall systems is based on <Insert manufacturer's name and product>. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:

1. Arch Aluminum & Glass Co., Inc.
2. EFCO Corporation.
3. Kawneer.
4. United States Aluminum.
5. YKK AP America Inc.

2.2 FRAMING SYSTEMS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
2. Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221 (ASTM B 221M).

3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Steel Reinforcement: With manufacturer's standard corrosion-resistant primer complying with SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A 611.
3. Hot-Rolled Sheet and Strip: ASTM A 570/A 570M.

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

D. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Where fasteners are subject to loosening or turn out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
2. Reinforce members as required to receive fastener threads.
3. At movement joints, use slip-joint linings, spacers, and sleeves of material and type recommended by manufacturer.

E. Anchors: Three-way adjustable anchors that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.

F. Concealed Flashing: [Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials] [Dead-soft, 0.018-inch-(0.457-mm-) thick stainless steel, ASTM A 240/A 240M of type recommended by manufacturer].

G. Framing Gaskets: As recommended by manufacturer for joint type.

H. Framing Sealants: As recommended by manufacturer for joint type.

2.3 GLAZING SYSTEMS

A. Glazing: As specified in Division 8 Section "Glazing."

B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

C. Glazing Sealants: As recommended by manufacturer for joint type.

2.4 ACCESSORY MATERIALS

A. 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.

2.5 FABRICATION

A. Form aluminum shapes before finishing.

B. Fabricate components that, when assembled, have the following characteristics:

1. Sharp profiles, straight and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Internal guttering systems or other means to drain water passing joints, condensation occurring 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 prevent glazing-to-glazing contact and to maintain required glazing edge clearances.
6. Provisions for reglazing from exterior.

C. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

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

2.6 ALUMINUM FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

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

C. High-Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.

1. Color and Gloss: Black and non-reflective. Submit to Architect for approval.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Seal joints watertight, unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Install components plumb and true in alignment with established lines and grades.

E. Install glazing as specified Division 8 Section "Glazing."

F. Install sealants as specified in Division 7 Section "Joint Sealants."

G. Erection Tolerances: Install glazed aluminum curtain-wall systems to comply with the following maximum tolerances:

1. Plumb: 1/8 inch in 10 feet (3 mm in 3 m); 1/4 inch in 40 feet (6 mm in 12 m).
2. Level: 1/8 inch in 20 feet (3 mm in 6 m); 1/4 inch in 40 feet (6 mm in 12 m).
3. Alignment:

a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch (13 mm) wide, limit offset from true alignment to 1/16 inch (1.6 mm).
b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch (13 to 25 mm) wide, limit offset from true alignment to 1/8 inch (3.2 mm).
c. Where surfaces are separated by reveal or protruding element of 1 inch (25 mm) wide or greater, limit offset from true alignment to 1/4 inch (6 mm).

4. Location: Limit variation from plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/2 inch (12.7 mm) over total length.

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Division 09
Finishes

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SECTION 09 68 13
ANTI-STATIC TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes carpet tile and accessories.

1.3 SUBMITTALS

A. Product Data:

1. Printed data sheets for each type of carpet and accessory specified
2. Installation system proposed
3. Care, cleaning, and maintenance information. Include 3 copies of each of the following CRI publications:

    a. “Steps in the right direction, an Owners Manual for Your Carpet” with pertinent treatment highlighted
    b. Carpet Maintenance Guidelines for Commercial Applications

4. Smoke and flammability reports

B. Sustainable Design Submittals:

1. Product Data: For adhesives, indicating VOC content.
2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
3. Laboratory Test Reports: For flooring products, indicating compliance with requirements for low-emitting materials.

C. Shop Drawings:

1. Working layout for each area to be carpeted. Include location of accent tile.
2. Show pattern, color, trim units, and other pertinent installation details
3. Maintenance training video

D. Samples:

1. Manufacturers standard color books of actual samples
2. Manufacturers standard trim chain

3. Three full size samples of each carpet tile pattern submitted to Architect 3 months before ordering. Allow 4 – 6 weeks lead time.
4. Three 12-inch long strips of each trim unit submitted

E. Certifications and Testing:

1. Provide certification that tile has been manufactured in accordance with the Contract Documents.
2. Test results of the Bond and Moisture tests
3. Test results from the Calcium Chloride tests

F. Sample Warranty

1.4 QUALITY ASSURANCE

A. Contractor's Qualifications:

1. Employ only experienced installers, skilled in installation of the specified systems.
2. Installation company shall employ a minimum of three qualified installers with a minimum of three years experience each of installing similar systems.

B. Manufacturer's Qualifications:

1. Employ only manufacturers making the specified materials as a current production item.
2. Manufacturers shall have a minimum of five years of production experience with carpet of similar types to that specified.

C. Source Limitations: Obtain carpet from a single source, unless otherwise directed by Architect.

D. Install carpet after building is enclosed, wet work complete, and HVAC system operational.

1. Maintain temperature and humidity at designed level for the remainder of the construction period.

E. Carpeting shall have a minimum critical radiant flux of 0.45 watts per square centimeter (radiant panel test) per ASTM E-648 "Standard Test Methods for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source", latest edition.

F. Carpet Fire-Test-Response Characteristics: Provide carpeting with the following characteristics as determined by testing identical products per test method indicated below by U.L. or another nationally recognized testing laboratory acceptable to the authorities having jurisdiction. Identify carpet with appropriate markings of applicable agency.

1. Surface Flammability: Passes CPSC 16 CFR, Part 1630
2. Flame Spread 25 or less per ASTM E 84, latest edition
3. Smoke Development: 450 or less per ASTM E 84, latest edition
4. Static: Under 3.5 kv. Below the average level of human sensitivity

G. Carpet shall have been tested against and passed the Indoor Air Quality Carpet Testing Program requirements of CRI.

H. Calcium Chloride Test: Measure moisture vapor emissions from concrete slab prior to the installation of the carpeting. Maximum moisture emissions levels shall be as recommended by the carpeting manufacturer.

I. Bond and Moisture Tests: Provide bond and moisture tests prior to the installation of the carpet. Tests shall be in accordance with the carpet manufacturer's recommendations. Provide amount of tests as recommended by the carpet manufacturer.

J. The Architect may send samples of materials, taken at random from the jobsite, to an independent testing laboratory. The cost of testing shall be borne by the contractor if the material is found non compliant with specifications.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in the original factory packaging, labeled with identification of manufacturer, brand name, lot number, and test data.

B. Store materials on site, in original packaging, inside a well ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity.

1.6 PROJECT CONDITIONS

A. Dimensions supplied in these Specifications and Drawings are approximate. Field verify dimensions and other conditions affecting Work.

1.7 EXTRA STOCK

A. Two percent of the amount of installed Carpet.

B. Testing: Provide one lineal foot of carpeting for testings in accordance with FAU's Cost Containment Guidelines.

1.8 WARRANTIES

A. Manufacturer's Warranty: Non-pro-rated, not less than 15 year warranty against surface pile wear, zippering, edge ravel, excessive static, loss of resiliency, moisture barrier, and delamination of secondary backing.

B. Installer's Warranty: Guarantee installation against defects in workmanship, seaming, and loss of adhesion for not less than 3 years from Date of Substantial Completion.

C. Warranties shall begin on the date of Substantial Completion.

D. Upon written notice from the Architect, correct or replace improper work and material that may become apparent within the warranty period. Repairs will be made in accordance with this specification.

1. Exception: Any problems arising from improper adherence to the manufacturer's recommended maintenance program.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Basis of Design Product and Manufacturer; as indicated on the finish schedule.

B. Description: Carpet shall be releasable adhesive type of first quality material and manufacture. No seconds or imperfections will be acceptable.

C. Vinyl Carpet Trims: Products and colors shall be as selected by Architect from available products and accessories similar to those manufactured by Johnsonite.

D. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

1. Adhesives shall have a VOC content of 50 g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers." The building concentration of formaldehyde shall not exceed half of the indoor recommended exposure limit or 33 mcg/cu. m and that of acetaldehyde shall not exceed 9 mcg/cu. m.

E. Sustainable Design Requirements:

1. Flooring products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Examine substrate for compliance with the Contract Documents. Do not proceed until unsatisfactory conditions have been corrected.

B. Remove coatings, including curing compounds, dust, dirt, solvents, soaps, silicone, wax, oil, grease, paint, plaster, and other substances that are incompatible with adhesives. Allow floors to dry. Apply sealer to prevent dusting.

C. Ensure concrete floors are free from cracks, ridges, depressions, scaling and irregularities.

D. Ensure constant floor height after installation with a maximum variation of 1/4-inch per 10 feet non-cumulative in any direction.

3.2 INSTALLATION

A. Install carpet system in accordance with manufacturer's recommendations.

1. Carpet coverage shall be complete to edges of space and free of gaps between tiles and at bases of permanent fixtures within designated areas.
2. Install using direct glue-down method. Comply with CRI 104, Section 8, Direct Glue-Down Installation

B. Check matching of carpet before cutting and ensure no visible variation between dye lots.

C. Cut carpet in a manor to allow proper seam and pattern match. Ensure cuts are straight, true, and not frayed.

D. Adhesive: Prime substrate as recommended by adhesive manufacturer. Spread adhesive at stipulated rates for full adhesion.

E. Install trims where carpet terminates at other floor coverings. Use full-length pieces only. Where splicing cannot be avoided, butt ends tight and flush.

F. Install tile to be free of air pockets.

G. Do not place heavy objects such as furniture on carpeted areas for a minimum of 24- Hours after completed installation or until adhesive is set.

H. Separate waste in accordance with the Waste Management Plan. Manufacturer to reclaim all scrap not retained by Owner.

3.3 CLEANING AND PROTECTION

A. All scrap carpet shall be palletized and returned to the manufacturer.

B. Immediately after installation, remove visible cement, dirt, wrappings, cartons, clippings, and other foreign substances. Vacuum carpet.

C. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and installer until the Date of Substantial Completion.

D. Conduct an instruction class for the Owner's maintenance staff prior to the Date of Substantial Completion.

1. Instruct personnel on the proper method of cleaning the material as recommended by the manufacturer.
2. Videotape this secession.

END OF SECTION 09 68 13

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SECTION 09 91 23
INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates.

1.3 SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Sustainable Design Submittals:

1. Product Data: For paints and coatings, indicating VOC content.
2. Laboratory Test Reports: For paints and coatings, indicating compliance with requirements for low-emitting materials.

C. Samples for Initial Selection: For each type of topcoat product.

D. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

E. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Product and Manufacturer – Basis of Design: Sherwin Williams Company.

B. Other Acceptable Manufacturers:

1. Duron
2. Glidden Professional
3. M. A. Bruder and Sons, Inc. (MAB Paints)
4. Porter Paint Company
5. PPG Industries, Inc. (Pittsburgh Paints)

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.

D. Colors: Match Architect's samples.

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINT SCHEDULE

A. Gypsum Board:

1. Acrylic Finish, 2 finish coats over primer.

a. Primer: Promar Latex Primer.
b. Finish Coats: Promar 200 Zero VOC.
c. Sheen: Semi-Gloss.

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Division 11

Equipment

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SECTION 11 94 13
MISCELLANEOUS EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Miscellaneous building equipment as indicated on the Equipment Schedule.

1.3 SUBMITTALS

A. Product Data: Include material descriptions, dimensions, profiles, fastening and mounting methods, and finishes for equipment specified.

1.4 QUALITY ASSURANCE

A. Source Limitations: Provide products of same manufacturer for each type of equipment or unit and for units exposed to view in same areas, unless otherwise approved by Architect.

1.5 COORDINATION

A. Coordinate equipment locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing.

1.6 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Manufacturer's Warranty: Written warranty, executed by the individual equipment manufacturer agreeing to replace defective units.

1. Minimum Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS EQUIPMENT

A. Basis of Design Product and Manufacturer; As indicated on the Equipment Schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment units according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by the manufacturer. Install equipment units level, plumb, and firmly anchored in locations and at heights indicated.

3.2 ADJUSTING AND CLEANING

A. Adjust equipment units for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 11 94 13

Division 12

Furnishings

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SECTION 12 24 12
ATCT TRANSPARENT PLASTIC WINDOW SHADES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for material, fabrication and installation of transparent plastic window shades for use in the Boca Raton Airport Traffic Control Tower (ATCT) cab. Shades shall be installed at each of the 6 sides of the control cab. Existing shades (primary) shall remain (except as temporarily removed for new cab glass installation, then reinstalled; see Contract Drawings). A new secondary set of overlapping darker shades shall be installed for this project. The shade pocket at the top of the cab windows shall be modified as shown on the Contract Drawings to provide for a minimum approved separation between primary and secondary rollers.

1.2 SUBMITTALS

A. Submit the technical information from one of the approved manufacturers listed in this section of these specifications and a shop drawing specific to this installation. If one of the two approved manufacturers in 2.1.A are used, then only the film designation needs to be submitted to satisfy para. 1.3, however all other submittals are required regardless of manufacturer.

B. The Contractor shall submit copies of descriptive literature, shop drawings and/or samples to the Engineer for approval of materials or methods submitted as equal to the brand name(s) as specified.

C. Identification by brand names does not indicate a preference for the products mentioned but indicates the quality and characteristics that will meet the FAA's needs. All characteristics of a specified brand name product, which are essential to the FAA, are described in this specification or on the project drawings. The Contractor shall obtain product literature from the manufacturer of the specified brand name product to determine its general quality and functional characteristics and shall use that information in making any desired substitutions.

E. Product Data: For plastic window shades; include a materials list.

F. Shop Drawings: Include plans, elevations, sections, details, sequence of installation, operational clearances, and relationship to adjoining Work. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.

G. Cleaning and Maintenance Data.

H. Qualification Data: For manufacturer and installer (if different than the manufacturer). List of at least 3 control tower cab installations over the last 3 years with customer contact information.

I. Sample Warranty.

1.3 PERFORMANCE REQUIREMENTS

A. Shade material shall be scratch resistant and manufactured from a polyester type polymer in accordance with Federal Specification L-F-377b for type weatherable DuPont Mylar clear sheet film or other FAA approved manufacturer. Fire resistant rated “self-extinguishing to very slow burning” U.S. Testing Company, fire test 302; melting point 500 deg. F, combustion 977 deg. F. no toxic hazard.

B. Secondary shades shall be installed behind the primaries and where called for on the drawings. The secondary shade shall be installed inboard on the primary shade utilizing the specified installation techniques and standards. Provide a film designation DS 8 SR, FAA-11SM/G or approved equivalent.

C. Transparent Plastic Shade Film Construction: Shade product shall consist of a 5 mil, 3-ply laminated polyester film. Two sheets of polyester vat dyed gray, hard coat S/R applied to one side. The final film construction shall be 5 gauge thick, optically clear and totally transparent. Surface tinting or color adhesives will not be acceptable.

D. Visible Light Reflection: Secondary shades shall reflect no more than 8 percent of the visible light when measured by Association of Industrial Metalizers, Coaters, and Laminators (AIMCAL) Standard Methods.

E. Ultra-Violet Transmission: Secondary shades shall transmit no more than 2 percent of the ultra-violet solar energy when measured by AIMCAL Standard Methods.

F. Total Solar Energy Rejected: Secondary shades shall reject 59.8 percent of the total solar energy transmitted when measured by AIMCAL Standard Methods.

1. Solar Absorptions: 55 percent.
2. Shading Coefficient: 0.39.
3. Solar Heat Gain Coefficient: 0.40.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer who can comply with applicable standard methods of the Association of Industrial Metalizers, Coaters, and Laminators (AIMCAL) for manufacture and fabrication of transparent plastic window shades. Manufacturer shall be recognized producer of transparent plastic window shades for the previous 10 years.

B. Fire-Test-Response Characteristics: Provide products passing flame-resistance testing according to NFPA 701 by a testing agency acceptable to authorities having jurisdiction.

1.5 WARRANTY

A. Furnish to the Owner, three (3) copies of the product warranty that certifies that all the specification requirements have been met and that all replacement costs shall be covered for one (1) year after the date of installation and acceptance.

PART 2 - PRODUCTS

2.1 ROLLER SHADES

A. Approved Manufacturers: Provide products designed for this project by the following:

1. Plastic-View ATC.
2. Solar-Screen.
3. Other manufacturer if acceptable as approved equal.

2.2 ROLLER SHADE SYSTEM FABRICATION

A. Bottom Bar: Shades shall have a flat 1-inch by 1/2 inch, dull black, full width metal hemline bar, minimum of 26 gage, at bottom onto which the pull cord and shade are attached. Black plastic caps shall be provided on each end of hemline bar to cover any sharp exposed edges.

B. Shade Cords: Shade cords shall be black and of sufficient length to route around equipment to cord lock positions whenever required. The cords shall be 9/64 inch diameter rope made of 4.5 Duro Nylon and shall be attached underneath the center of the bottom of the hemline bar.

C. Shade Rollers: Shades shall be mounted on a 1-3/4 inch diameter corrosion resistant metal wrapped roller. The rollers shall be spring loaded, single piece barrel, with a reusable safety cotter key type retainer installed through both end pins and washers to prevent roller from falling out of mounting brackets. Constant tensions in shades is required.

D. Mounting Brackets: Provide mounting brackets with a 2-1/4 inch resting ledge. Standard ceiling brackets are not acceptable. A label stating "This End Down" with an arrow pointing in the proper installation direction of the roller into the mounting brackets shall be placed on the spring motor end of each shade roller. The shade film laminate material shall be mounted on rollers to minimize ridgings. Roll-off direction of material from roller shall be as directed by the shade manufacturer for use in the tower cab.

E. Each shade shall have a label or whatever suitable means required to specify and identify the proper roll-off direction.

F. Each shade shall have a manufacturer's label attached to the metal bar hemline giving cleaning instructions and the telephone number for emergency service.

G. Lock Pulley. Lock pulleys shall consist of a roller and a spring return side action cam cord grip.

H. Cord Direction Change Pulley: Provide cord direction change pulley which shall be used to route shade cord around obstructions where they exist. Pulleys shall be positioned in direct line with cord outlet on metal hemline. Cords for window shades in the rear of the cab shall be routed over the stairwell so they can be drawn from the cab floor level and not from inside the stairwell.

I. Shade Size: Shade roller width shall be within 1/2-inch of maximum possible width as determined by physical limitations. Shade material with shade fully drawn shall be to within (less than) 1 inch of columns on bias cut sides and to within (less than) 1-3/4 inch of columns on vertical cut sides. Horizontal seam shall be avoided but if required due to fabrication limits it shall be located a minimum of 55 inches from the bottom of the shade. Shades in ATCT cabs shall be bias cut when required. To ensure a safe roll-up, a minimum of 15 inches of shade material shall remain on the roller when the shade is fully extended.

J. Measuring for Shades: Measuring for shades and positioning shall be strictly in accordance with the shade manufacturer's instructions. Marks showing the precise position of all brackets, pulleys, and metal hemline positions as related to the factory measuring instructions shall be provided. All measurements shall be taken per instructions from shade manufacturer.

PART 3 - EXECUTION

3.1 ROLLER SHADE INSTALLATION

A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions. Allow clearances for window operation hardware. The secondary shade shall be installed inboard (toward the cab interior) from the primary.

B. Shades shall be installed in shade recess pockets or on wood or metal plates. Shades shall follow the slope of cab glass as closely as practical within physical limitations of air ducts and other equipment. No drilling shall be done in vertical uprights of cab because some uprights may contain electrical cables.

C. Spring tension in roller shall be manually adjusted so that shades roll comfortably and do not bind.

D. In order to safely control and limit the shade travel, the installer shall make two knots in the shade cord. One knot shall be placed before the lock pulley to prevent the metal hemline bar from hitting the windowsill. The second know shall be placed after the lock pulley to prevent the metal hemline bar from hitting and overrunning the shade roller. Adherence to THIS END UP label when installing shade will prevent improper roller installation which can result in a locked shade situation when the metal bar hemline is near the lock pulley and cannot be pulled down to release the spring motor cam lock.

E. Shade shall be able to operate at a moment’s notice; to gain unimpeded rapid access for the use of emergency light guns. The inability for one controller to “snap-up” the shade in an emergency endangers lives, and system that does not meet the unimpeded rapid access will not be approved.

F. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

G. Clean roller shade surfaces after installation, according to manufacturer's written instructions.

END OF SECTION 12 24 12

Division 27

Communications

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SECTION 27 50 10
AIR TRAFFIC CONTROL (ATC) EQUIPMENT

1. General

The criterion set forth in this section includes the equipment, materials, and labor to satisfy the ATC communication requirements for the replacement of the cab console in the Boca Raton Airport Traffic Control Tower (ATCT). The Contract Drawing directly related to this section is titled “New ATC Console Layout”. However, all of the Contract Drawings shall be referred to in coordinating the removal and installation of ATC equipment into the new ATCT cab console. The Contractor is encouraged to verify all existing conditions by making an independent site evaluation during the bid period.

2. Codes and Standards

All electrical equipment and installations shall be provided in accordance with the current required local and national codes and standards, as applicable. Qualified personnel shall perform the installations and shall also be in attendance for all punch list and final inspections. Qualifications material will be required to provide evidence of how long the firm has been in business, relevant experience levels of personnel, licensing, certifications and testimony from recent customers.

3. Qualifications

The Contractor must provide a minimum of two (2) qualified technicians on-site for this project, both having applicable prior experience. These installers must be certified by FCC and must have demonstrated the ability to install, configure and integrate all equipment needed to meet FAA minimum standards for Contract Towers in at least four (4) locations over the past twenty-four (24) months. The Contractor shall provide this documentation with its equipment submittals for review by the Project Engineer (Owner’s representative), substantiating experience including low voltage licensing required by the state of Florida.

4. Equipment Submittals, Installation and Coordination

The Contractor shall furnish, install, test, and verify all equipment, hardware, software, cabling, conduit, connectors, labeling (identification), and miscellaneous equipment required to provide a complete and usable installation. Existing equipment to be temporarily removed, stored and reinstalled shall be tested in storage to record its condition, within 12 hours of removal, in the presence of an Airport staff member.

All ATC equipment is existing to be removed, stored and reinstalled unless otherwise indicated as “new” or “provide”. The Contractor shall be responsible to coordinate its equipment installation, in advance, with the Air Traffic Manager and the Owner or its designated representative to avoid conflicts and delays in air traffic control work flow.

All submittals shall be provided in pdf electronic format to the Architect/Engineer. A specific arrangement of the ATC equipment console is provided in the Contract Drawings. The cab console is designed with alternating flat and sloped surfaces (turrets) in anticipation of supporting pedestal mounted displays and panels as well as flush mounts. ATC Equipment Submittals shall be submitted with the Console (cabinetry/millwork) Submittal for joint coordination. The Contractor shall coordinate the ATC Equipment sizes and locations with the Console shop drawings and schematically show the equipment layout on those drawings prior to submittal to the Architect/Engineer. Additional time may be required for architectural review in order to coordinate an FAA review for placement of their equipment (STARS & FDIO). The Contractor shall not move or disturb the FAA's STARS and FDIO components. Any coordination between the Contractor and the FAA shall be made through the Owner.

If the Contractor proposes to make any modifications to the console layout from that presented in the Contract Drawings or as subsequently approved, then the Contractor shall submit a clear statement and/or drawings with the equipment and console submittals for approval at least twenty-one (21) calendar days prior to the scheduled fabrication of the consoles. Alternate console layouts shall be reviewed further with FAA, the Owner and its project representative, as required, for coordination and approval. Coordination among trades of telephone, data and electrical outlets locations with Console construction and electronic equipment locations during shop drawing preparations and installations shall all be the responsibility of the Contractor.

When the installation is complete:

- Submit As-built system AutoCAD plans and diagrams showing equipment locations and wire paths.
- Submit Test Reports for ATC cabling and equipment installations.

5. Scheduling the Installation

All work in this section of these specifications shall begin after the replacement of the cab glass windows (Phase I – Sch A: Glass Replacement referenced in sections 088010 and 089110). The ATC Equipment shall be removed from the existing console and installed in the new console in a phased approach in order to maintain uninterrupted air traffic control. There are three (3) controller positions in the ATCT. The new console will be installed one position at a time along with the equipment in that part of the console. In effect, a minimum of two (2) controller positions must be active and operational at all times. A Phased Cutover Plan shall be submitted to the Owner's representative and the Project Engineer for review and approval.

Work shall be conducted during the evening hours that the control tower is not in operation minus one hour prior to opening, that is, between the hours of 2300 and 0600, and turned over to the ATC Manager no later than 0630 for a 0700 re-opening. Any work proposed to be conducted during other hours shall be requested by the Contractor in writing 7 calendar days prior to any attempt and then approved by the Owner. The equipment shall be installed in the locations shown on the Contract Drawings. If there is a reason not to, then the Contractor shall provide a written statement and/or drawing, as detailed above. The Contractor shall clean up, inspect and test all equipment and electrical systems after each work session but finish no later than 0630 and certify to the Owner that they are ready for operation at that time.

The Prime Contractor shall supply the Owner and his Authorized Representative with an initial daily schedule and weekly updates. The Contractor shall report any difficulties or delays to the Owner or his Authorized Representative, immediately.

6. Existing Equipment for Reuse

The existing equipment shall be carefully and methodically removed in a phased approach from each of three (3) controller positions. Only one (1) position can be out of commission at any time. The removed equipment shall be stored in a safe dry place approved by the Owner while the respective section of console is replaced. The Airport Authority will provide some temporary storage space inside the control tower. As they are being removed, each piece of equipment shall be tested and documented in writing regarding its condition and operational parameters. After acceptance of the new console section millwork by the Owner, then the equipment can be installed in that section and retested. The process is then repeated for the other two (2) controller positions. A summary of the existing equipment for reuse is below.

Supervisor (SUP)

- Voice Switch touch entry display (TED)
- Voice Switch speaker
- Airfield Lighting Control Panel
- STARS radar controls & audio alarm unit (by FAA)
- Task Light (gooseneck Littlite)

Ground Control (GC)

- Voice Switch touch entry display (TED)
- Voice Switch speaker
- GPS Clock display
- Backup Wind Speed & Direction indicator
- STARS radar keyboard and trackball (by FAA)
- Task Light (gooseneck Littlite)

Local Control (LC)

- Voice Switch touch entry display (TED)
- Voice Switch speaker
- Backup Wind Speed & Direction indicator
- STARS radar keyboard & trackball
- FDIO keyboard, printer, computer (new monitor by Contractor; labor by FAA)
- SIA Board
- ATIS phone
- Front Door Camera master station
- Computer, monitor and keyboard/mouse for CEDAR, ALSE
- Task Light (gooseneck Littlite)

Common Central Area (between GC & LC)

- STARS radar display (by FAA)
- AWOS display
- Administration Phone

7. CEDAR/AISR

The Contractor shall also move the related PC and keyboard from the middle of the control cab to a new console location as directed by the Air Traffic Manager (ATM). The PC shall be stored in the cabinet below the console top.

8. FDIO

The FDIO (Flight Data system) is comprised of a printer, keyboard, computer and monitor display. It is typically owned by the FAA, however it is understood to be owned by the Boca Raton Airport Authority (BRAA) under a special agreement with the FAA. However, all FDIO equipment moving and labor shall be reserved for FAA technicians. The Contractor is required to purchase the monitor described below and turned over to the FAA for installation.

The existing FDIO printer, computer and keyboard shall be relocated from the middle of the control cab to its position on the new console as shown on the Contract Drawings. The computer shall be stored in the cabinet below the console top. The Contractor shall provide one (1) new 15" flatscreen monitor for the FAA to place it on the new console as shown on the Contract Drawings. The ATM is taking the responsibility to acquire an FAA adaptor for connecting the new monitor to the existing computer. The new screen shall provide high contrast color, be adjustable to viewing angles and have brightness controls to be easily readable during day and night. The screen shall be sun readable and have a non-glare surface. The screen bezel shall be non-reflective gray or black. Do not provide a touchscreen. Monitor shall be a Viewsonic VA503b or an approved equal.

9. Flight Strip Bays

The Contractor shall provide all necessary hardware for the organization of flight data strips to accommodate two (2) controller positions (Local and Ground). They shall be made of durable aluminum and have a powder coated black finish unless otherwise approved. Each bay shall hold and include fifteen (15) white plastic holders for flight data strips and a means of facilitating their coordination with the process of aircraft traffic operations. Provide twenty (20) additional plastic holders.

The Strip Bays shall be as manufactured by Sunshine Welding in Cocoa, FL or equal. The Holders shall be as manufactured by Emcor or an approved equal.

10. FAA Equipment and Circuits

The existing FAA related equipment is listed below. There are no backup systems for them. Movement and reconnection shall be specifically accomplished by an FAA technician. Work by the Contractor in the vicinity of FAA equipment shall be coordinated with the Air Traffic Manager (ATM) and the Owner beginning with the Pre-construction Meeting and throughout the project.

STARS TDW – Radar screen, control panel and audio alarm unit, two (2) keypads & two (2) trackballs.
FDIO – Printer, Computer, Keyboard & Monitor (see paragraph 8 in this section of these specifications.

The STARS radar screen, control panel and audio alarm shall be maintained operable throughout the console replacement (no outages from 0600 to 2300 every day). The Contractor shall provide an approved metal bracket for permanent installation of the STARS radar screen and the AWOS display suitable for mounting on the window mullion or the console millwork. The Contractor shall provide temporary mounting as approved until permanently installed on the new console. One (1) set of keypads and trackballs shall be available and operable throughout, as well. The approvals in this paragraph shall be provided by the FAA as coordinated by the Contractor directly with the Owner.

The two existing FAA circuits shown below are for Contractor information and coordination purposes only and may not be all-inclusive. They are tied to the voice switch via connection in the equipment room below the cab. The Contractor shall be responsible for obtaining a briefing from the ATM prior to beginning work regarding these circuits and other specifics. The circuits shall not be disturbed throughout the project. If deemed necessary, a meeting may be requested by the Owner with the local FAA Sector Service Center (SSC) personnel and the Contractor at the beginning of the construction period to ascertain complete and up-to-date information.

a) Palm Beach Approach/Departure Control
b) Other (party line")

The Contractor shall not directly contact the FAA. If needed, any contact with the FAA for this project shall be through the Owner.

11. Cutover Requirements

"Cutover" from existing equipment to new equipment shall be carefully planned and coordinated in order to maintain safe and continuous operation of airport traffic control.

a. The ATCT is a 0700 to 2300 operational facility. The Installer shall perform the Phased Cutover during the non-operational hours (minus one hour prior to tower opening) and remain on-site for each following day of operation of the ATCT to provide whatever assistance and/or troubleshooting is required. All work, testing and clean up shall be completed by 0600 each morning.

b. The Installer shall provide an equipment Cutover Plan to the Owner and Engineer for review and FAA consideration at least 30 days prior to the planned cutover date. No cutover activities shall commence until all Owner and FAA coordination has been finalized.

c. The Installer shall make all required provisions to prevent impact to flight operations during control tower transfer from one console to another in the ATCT.

d. The Installer shall coordinate all activities with the Owner, the Air Traffic Manager and related FAA cutover personnel prior to and during the cutover. A pre-cutover meeting shall be scheduled at least 48 hours before the scheduled activity.

The Cutover Plan shall address:

- Provide an equipment replacement plan that shall maintain operational requirements simultaneously in both the existing and new control towers until the new one is commissioned.
- Provide a list of all ATC equipment and incidentals to be replaced, removed, and/or relocated.
- Confirm critical equipment items necessary to maintain ATC operations.
- Confirm that all work will be done during tower off-hours and make written request for any required deviations.
- Develop a strategy and schedule that mitigates impact to ATC operations and coordinate this with all concerned parties.
- A checklist to verify operational capability of equipment installation. Identify corrective actions for anticipated deficient possibilities. Continue to monitor all equipment during tower operating hours for the following day.
- Obtain written concurrence for the Cutover Plan from the Air Traffic Manager prior to cutover activities.

12. Warranty

The Contractor shall provide a minimum (1) one-year warranty on all installation work related to labor and ancillary new parts provided.

13. Training & Orientation

The Contractor shall schedule and provide a training session to the ATC controllers and the Owner's maintenance personnel at the completion time of the installation and prior to cutover. Completion of this session shall be documented by the Contractor with the Owner, attendees, and specific equipment manufacturers, as required. A separate visit by the Contractor's Installer shall be made within the first 30 days after FAA Commissioning to provide an inspection and adjustments of the electronics performance, as required.

Sufficient written documentation shall be provided by the Contractor in order for the Owner and controllers to independently operate and maintain the equipment included in this specification. Documents shall include all operation and maintenance manuals, schematics, diagrams, as-built conditions, and any other related materials.

END SECTION 27 50 10

BOCA RATON AIRPORT
AIR TRAFFIC CONTRL TOWER RENOVATIONS – PHASE II

ADDENDUM #2 – May 31, 2019

CONTRACTOR QUESTIONS/RFI RESPONSES

RFI #2

Q: I am looking for the Glass Makeup (what glass, spacer bar, etc.) that is required. The Plans and Manual only indicate Insulated Laminated Glazing Units

A: *See the attached "Technical Specifications Manual." The same volume is also posted on the Airport website for Bidders use/reference*.

RFI #3

Q: Do you have a contact person for Sunshine Welding/ Emcor?

A: *A contact person from "Sunshine Glass" is not available. Sunshine Glass is located in Cocoa, Florida.*

Q: Can you please clarify the budget for this job?

A: *The Engineer's Estimate is $400,000-$480,000.*