PROJECT MANUAL

ROOF REPLACEMENT

OF THE

VISTANA WATER TREATMENT PLANT
8943 MEADOW CREEK DRIVE
ORLANDO, FL 32821

For

ORANGE COUNTY UTILITIES DEPARTMENT
SOUTHERN SYSTEM
13000 SOUTH ORANGE AVE
ORLANDO FL 32824

PREPARED BY:

A/R/C ASSOCIATES, INCORPORATED
601 North Fern Creek Avenue - Suite 100
Orlando, Florida 32803
(407) 896-7875 FAX # (407) 898-6043

Date: **July 10, 2014**

A/R/C Project No: 14027.00
Owner Project No:

James W Ripley AR-12758

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Drawings and Details

Details (8 ½ x 11 format) 1.01 – 9.03

Plans (24 x 36 format)

CS	Cover Sheet, Site Vicinity Map and Drawing Index
A1	Overall Roof Plan, Roof Schedule, General Notes and Code Data
A2	Roof Plan, Symbol Legend and Specific Notes

The Contractor shall check the pages with the index completeness; if any pages are missing or illegible, request replacements.

DRAWING INDEX

ROOF AND HVAC REPLACEMENT
WITH DESIGNATED REPAIRS

AT THE

VISTANA WATER TREATMENT PLANT
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Plans (24 x 36 format)

CS Cover Sheet, Site Vicinity Map and Drawing Index
A1 Overall Roof Plan, Roof Schedule, General Notes and Code Data
A2 Roof Plan, Specific notes and Symbols Legend

Detail numbers listed are merely for identification and may not be consecutive. The Contractor shall check the pages with the Index for completeness. If any pages are missing or illegible; request replacements.

PART I GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Work of this Contract comprises the replacement of existing roof and HVAC systems, with related renovation and repair work at the **Orange County Vistana Water Treatment Plant, 8943 Meadow Creek Drive, Orlando, FL 32821**

1.02 CONTRACT METHOD

A. Construct the work under a single lump sum contract (or as otherwise defined in bid documents).

1.03 COORDINATION

A. Coordinate work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various Sections having interdependent responsibilities for installing, connecting to and placing in service, such equipment. Differences shall be brought to the Owner's attention during bid process or remain the responsibility of the Contractor.

C. Coordinate space requirements and installation of items, such as, but not limited to, mechanical and electrical work which are indicated diagrammatically or otherwise on drawings. Follow routing shown for pipes, ducts and conduits, as closely as practicable; make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance and for repairs.

D. In finished areas (except as otherwise shown), conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

E. Execute cutting and patching to integrate elements of work, uncover ill timed, defective and nonconforming work, provide openings for penetrations of existing surfaces and provide samples as specified in individual sections for testing. Seal penetrations of existing surfaces and provide samples as specified in individual sections for testing. Seal penetrations through floors, walls and ceilings, and fire safe where necessary as part of the lump sum price.

1.05 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. The date of the standard is that in effect when a specified date is specified.

C. Obtain copies of referenced standards listed in individual specification sections. Maintain copy at job site during progress of the specific work.

END OF SECTION 01005

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Project Description and Location

B. Contractor Use of Premises

C. Distribution of Related Documents

D. Protection of Existing Building, Finishes, Furnishings and Equipment.

E. Owner Occupancy and Access.

F. Schedule

G. Project Rain Day Form

H. Interior Inspection Form

I. Exterior Inspection Form

J. Asbestos Free Material

1.2 RELATED DOCUMENTS

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

1.3 PROJECT DESCRIPTION AND LOCATION

A. The Work of this Contract consists of roof and HVAC replacement with associated repairs at the **Orange County Vistana Water Treatment Plant, Orlando, FL.** The work will be constructed under a single lump sum contract.

B. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 specification sections, apply to work on this contract. The Owner intends to award a single prime base bid contract, titled "General Construction Contract," for Work to be performed for this Project. The Contractor shall comply with the requirements of the General Conditions and the Supplementary Conditions in accomplishing his Work on this Project.

C. Base Bid General Construction Contract: Includes all general trades, roofing, flashing, unit price allowances and related mechanical and electrical items specified in the Project Specifications and Work shown on the Drawings
   1. The Contractor's Duties include:
      a. Provide and pay for all labor, materials, equipment, and installation costs of items described within these documents. Provide and pay for all costs

associated for all necessary tools, construction equipment, and protection of Existing Work.

b. The Contractor shall be responsible for the demolition and proper disposal of existing items and materials relative to this Contract

c. Comply with all listed and applicable Codes, Standards and Specifications.

D. The Contractor shall be responsible for the Work as specified herein and as indicated on the Drawings. Although the majority of the Drawings are "to scale," the Contractor is directed to field verify all dimensions and assumptions used for determining material quantities and requirements. No additional monies will be allowed to the Contractor for use of "scaling instruments" to determine material quantities, lack of adequate field investigation, or for other reasons.

E. The scope of work for this contract and the related construction is perceived to include the following:

DESCRIPTION OF WORK – ROOF REPALCEMENT WITH DESIGNATED REPAIRS AT THE VISTANA WATER TREATMENT PLANT:

1. Remove the existing Built-up roof with gravel down to the existing light weight insulating concrete (LWIC) over tapered EPS board insulation. Remove existing copings, counterflashings, scuppers, and overflow drains.

2. Remove and store existing lightning protection system for re-installation.

3. Remove existing single power vent and two (2) overflow drains. In-fill opening per details.

4. Mechanically fasten a vented base sheet to the existing LWIC deck.

5. Install new tapered polyisocyanurate rigid insulation system (1/8” per foot slope) and drain sumps to enhance roof drainage to primary scuppers over the existing LWIC insulation. Refer to project plans for general layout.

6. Raise perimeter parapet wall to meet minimum height requirement

7. Solidly adhere a 1/4" gypsum roof board to the new tapered rigid insulation system.

8. Torch apply two polyester reinforced SBS modified bitumen interply sheets over the gypsum cover board.

9. Install new overflow scuppers as indicated per plans. Saw-cut thru existing concrete wall.

10. Install new stainless steel scuppers, overflows, leaderheads, downspouts and other embedded flashings and torch apply “strip-in” membrane as detailed.

11. Torch apply a polyester reinforced SBS modified bitumen, granular surfaced cap sheet to the interply sheets.

12. Apply a two-ply, granular surfaced, SBS modified bitumen base flashing system at all curbs, parapets, and roof-to-wall transitions per the project details.

13. Provide new parapet copings, counterflashings, primary and secondary scuppers, conductor heads, downspouts, skirt metal and transitions as indicated in the project plans and specifications.

14. Re-install existing lightning protection. Replace missing or damaged components per details provided.

15. Repair soffit at southwest corner. Apply new stucco and metal lath system, paint to

match existing stucco surface.

1.4 CONTRACTOR USE OF SITE AND PREMISES

A. General: During the construction period, the Contractor shall coordinate with the Owner's schedule 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. General: Limited use of the premises to construction activities in areas indicated within the limit of the premises. The Contractor may use any portion of the site for storage or work areas or any legal purpose
   1. Confine operations to areas within Contract limits indicated on the Drawings. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
   2. Keep driveways and entrances serving the premises clear and available to the Owner and the Owners' employees 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
   3. Burial of Waste Materials: Do not dispose of organic and hazardous material on site, either by burial or by burning.

C. Access to Site: Limited to agreed-upon staging areas and access routes.

D. Emergency Building Exits During Construction: Maintain at all times.

E. Time Restrictions for Performing Interior Work: To be coordinated with Owner as required.

F. Utility Outages and Shutdown: Allowed only upon coordination with and notification of the Owner.

G. Be responsible for items of work and material stored on premise.

1.5 DISTRIBUTION OF RELATED DOCUMENTS

A. The Contractor is solely responsible for the distribution of ALL related documents/drawings to ALL appropriate vendors/subcontractors to ensure proper coordination of all aspects of the project and its related parts during bidding and construction.

1.6 PROTECTION OF EXISTING BUILDING, FINISHES, FURNISHINGS AND EQUIPMENT

A. Comply with all requirements of Division 1 of these specifications in regards to protection and cleaning of the existing site, buildings, finishes, furnishings and equipment.

B. Prior to construction beginning at any interior location, the contractor shall coordinate with the owner sensitive areas that will require security clearance due to the nature of the buildings function.

C. It is the contractor's responsibility to protect the existing construction and finishes from water intrusion during the course of this project.

D. The contractor shall police and clean the interior and exterior areas of work of this project and discard all debris in the appropriate contractor provided waste receptacle / "dumpster" at the end of each work day. Comply with Division 1 of these specifications fully.

1.7 OWNER OCCUPANCY AND ACCESS

A. The Owner will occupy the premises during the entire period of construction. Allow for the conduct of normal operations.

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

C. Schedule the Work to accommodate this requirement.

D. Comply with established Owner Policies.

E. Maintain "Good Housekeeping" on site as directed by Owner and Architect.

F. Access for ongoing inspections to the premises and work underway by the Owner and Architect shall not be restricted.

1.8 SCHEDULE

A. A progress schedule shall be made to include:
1. A start date.
2. A reasonable progression of work by Phase, Building, Task; i.e.
3. A start and finish date for construction materials and components listed in Divisions 2 thru 16 as defined by Division 1 of these specifications.

1.9 PROJECT RAIN DAY FORM

A. Maintain on a daily basis and submit with each Application for Payment, the Project Rain Day Form attached at the end of this section. Project Rain Day Form shall be signed by the Owner's Representative or Architect daily. See article 8.3 of the General Conditions for additional information regarding how delays due to weather are addressed.

1.10 INTERIOR INSPECTION FORM

A. Prior to commencing work, the Contractor will schedule a meeting with the Owner's Representative or Architect, to inspect and document the condition of the building interior(s) in both written and digital video or photographic form. Log conditions of ceiling tiles, lights, walls and flooring materials using the Interior Inspection Form attached at the end of this section. Submit two copies of the digital files and the form signed by the Contractor and Owner's Representative to the Architect prior to the start of construction.

1.11 EXTERIOR INSPECTION FORM

A. Prior to commencing work, the Contractor will schedule a meeting with the Owner's Representative or Architect, to inspect and document the condition of the building exterior conditions in both written and digital video or photographic form. Log conditions of exterior walls, building attachments, sidewalks, miscellaneous paving and landscaping using the Exterior Inspection Form attached at the end of this section. Submit two copies of the digital files and the form signed by the Contractor and Owner's Representative to the Architect prior to the start of construction.

PART 2 PRODUCTS

2.01 ASBESTOS FREE MATERIAL

A. Contractor shall provide a written and notarized statement on company letterhead(s) to certify and warrant that ONLY ASBESTOS FREE MATERIALS AND PRODUCTS were provided during the execution of the project work. Such statement shall be submitted with the final payment request. Final payment shall not be made until such statement is submitted. Contractor agrees that if materials containing asbestos are subsequently discovered at any future time to have been included in the construction, the Contractor shall be liable for all costs related to the redesign or modification of the construction of the project so that materials containing asbestos are removed from the facility. If construction has begun or has been completed pursuant to a design that includes asbestos containing materials, the Contractor shall also be liable for all costs related to the abatement of such asbestos.

PART 3 PRODUCTS (Not Used)

END OF SECTION 01010

PROJECT RAIN DAY FORM

Month: _____

Project Name: _____

Project No: _____

Contractor: _____

Owner's Authorized Rep.: _____

DAY	MORNING COND./TIME	AFTERNOON COND./TIME	SUPERINTENDENT SIGNATURE	AUTH. OWNER'S REP. SIGNATURE
1				
2				
3				
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30				
31				

INTERIOR INSPECTION FORM

ROOM NO.	CEILING TILE CONDITION			LIGHT LENSE STAINS	WALL CONDITION	CARPET CONDITION
	BROKEN	STAINED	CRACKED			

EXTERIOR INSPECTION FORM

ROOF AREA	SIDEWALK CONDITION			GRASS	SHRUBBERY CONDITIONS	MISC. CONDITIONS
	BROKEN	STAINED	CRACKED			

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Identification of each unit price by letter and description.

B. Related Sections:
1. Agreement: Monetary values of established Unit Prices and Percentage allowances for Contractor's overhead and profit
2. General Conditions: Governing requirements for changes in the Work, in Contract Sum/Price and Contract Time.
3. Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.
4. Section 01 29 00 – Payment Application Procedures
5. Section 01 33 00 – Submittal Procedures: Schedule of Values
6. Section 01 70 00 – Project Closeout Requirements

1.2 UNIT PRICE CONDITIONS

A. Drawings and general provisions of Contract, including General Conditions, Supplementary Conditions and other Division 01 specification sections apply to work of this section.

B. Unit Prices for products shall be stated in the blank spaces provided in the proposal form and the cost of the estimated quantities of products shall be included in the Base Bid.

C. The Owner reserves the right to reject or accept any Unit Price based solely on his judgment of what constitutes a "fair price". The fairness of any unit price will be affected by the potential for Owner credit for unused Unit Price quantities.

1.3 UNIT PRICES FOR PRODUCTS

A. The amount of each Unit Price is to be based on the actual quantity of existing material removed and/or replaced and shall include the following:
1. The cost of the product to the Contractor or Subcontractor, less any applicable trade discounts.
2. Delivery to the Site.
3. All equipment and labor required.
4. Applicable taxes and necessary bonds or insurance.
5. Handling at the Site, including unloading, uncrating, and storage.
6. Protection from the elements and from damage.
7. Labor for installation and finishing, and other expenses required to complete the installation.
8. Contractor's and Subcontractor's overhead and profit.

9. Excess material used due to waste, overlap olf materials, purchase quantity limitations and similar factors.

B. Adjustments for Costs:
1. Should the quantities be more or less than the specified quantity in the base bid, the Contract Sum will be adjusted accordingly by Change Order.
2. The Unit Price shall apply to the quantities actually used as determined by periodic field inspections by the Owner and Architect.
3. Unit Price material and the quantities used shall be recorded on a daily basis within the Contractor's Daily Report, and be accompanied by photographs of the conditions prior to removal of the old material, and conditions after installation of the new replacement material.
4. The Unit Price quantity records are to be reviewed with the Owner and Architect at each Project Progress Meeting. Acceptances of quantities used to date are to be documented in the Meeting Minutes.
5. If these documentation and approval procedures are not followed by the contractor, a later request for award of Unit Price Costs may be denied by the Owner and Architect.

1.4 DESCRIPTION OF UNIT PRICES

A. **Unit Price A:** Cost per linear foot to replace any existing deteriorated **2 x 8** pressure treated wood nailers along roof edge or within roof system or accessories. The exact locations and extent of replacement to be determined in the field by the Owner and Architect. Base proposal shall include the replacement of **Forty (40) linear feet** of pressure treated wood nailers, one layer thick. If this quantity is not used, the Owner will receive a credit for the unused quantity based on this same unit.

B. **Unit Price B:** Cost per square foot to remove any existing damaged or deteriorated **stucco surfacing** along soffit wall and parapet system and replace with new stucco and metal lath like in kind. The exact locations and extent of replacement to be determined in the field by Owner and Architect. Base Bid shall include replacement and finishing of **Twentyfive (25) square feet** of stucco surfacing. If this quantity is not used, the Owner will receive a credit for the unused quantity based on the same unit costs. NOTE: Additional stucco damaged during the course of construction by construction events, or indicated by the project details to be replaced, shall be replaced at no additional cost to the Owner.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

PART I GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

B. The Contractor's Construction Schedule and Submittal Schedule are included in Section 01300 – SUBMITTALS

1.03 SCHEDULE OF VALUES

A. Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Submit the Schedule of Values to the Owner at the earliest feasible date, but in no case later than Preconstruction Meeting.
2. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

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

1. Identification: Include the following project identification on the Schedule of Values:

a. Project name and location.
b. Name of the Architect
c. Project Number
d. Contractor's name and address
e. Date of submittal

2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed.

a. Generic name
b. Related Specification Section
c. Change Orders (numbers) that have affected value
d. Dollar Value
e. Percentage of Contract Sum to the nearest one-hundredth

percent, adjusted to total 100 percent

3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items:

   a. A value will be given for at least every major specification section (subsections can logically be grouped together).
   b. A single material subcontractor (i.e. sod, window blinds) will not be required to be broken down into labor and material unless it is anticipated the materials will be stored and invoiced prior to installation.
   c. All multiple item subcontracts or work items (i.e. concrete, roofing, painting, mechanical, electrical items, etc.) will be shown broken down at least in labor and material (all taxes, burden and overhead and profit included).
   d. Mobilization (move-on, bond, insurance, temporary office and sanitary service installation) shall not exceed 2.5 of contract price.
   e. For multi-story work all items broken down per floor.
   f. Concrete broken down at least into foundation slab on grade, columns, beams and suspended slabs.
   g. Masonry divided into C.M.U. brick, stem walls, exterior walls, interior walls and elevator shaft.
   h. Plumbing broken down at least into underslab rough-in, vents and stacks supply piping, equipment items (each listed separately), fixtures and trim.
   I. HVAC: Typically shown per specification section, labor and material, per floor.
   j. Electrical: same as HVAC.
   k. Fire protection broken down at least into underground, rough-in and trim. All per building and labor and material.
   l. Logical grouping of specification subsections is permitted.

4. Round amounts off the nearest whole dollar, the total shall equal the Contract Sum.
5. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
6. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.

   a. At the Contractors' option, temporary facilities and other major cost

items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.

7. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the contract sum.

1.04 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as reviewed by the Owner representative and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the Final Application for Payment involve additional requirements. See items “G” and “H” of this section.

B. Payment Application Times: The period of construction work covered by each Application of Payment is the period indicated in the Agreement.

C. Payment Application Forms: Use the County’s most updated form as the form for Application for Payment. Form given at the Preconstruction Conference.

D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and Contractors’ Construction Schedule. Use updated schedules if revisions have been made.
2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

E. Transmittal: Submit **five (5) original executed copies** of each Application for Payment to the Project Manager by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Project Manager.

F. Payment will be processed once a month. Payment for item will be based on percentage completed as determined and approved by the County Project Manager or invoice for stored materials. Retainage (10%) will be held for all applications.

G. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work. Application shall also include all items listed in Part H. below.

H. Final Payment Application: Administrative actions and submittals, which must precede or coincide with submittal of the final payment. Application for Payment includes the following:

1. Completion of Project Close-Out requirements
2. Completion of items specified for completion after Substantial Completion (Punch List)
3. Contractor's release of lien (on Owner's form)
4. Subcontractor and material supplier release of lien
5. Consent of Surety
6. Power of attorney
7. Asbestos-free letter

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01027

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.03 MINOR CHANGES IN THE WORK

A. Supplemental instructions authorizing minor changes in the work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Project Manager.

1.04 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Proposed changes in the work that will require adjustment to the Contract Sum or Contract Time will be issued by the Project Manager, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Proposal requests issued by the Project Manager are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change.

2. Unless otherwise indicated in the proposal request, within 7 days of receipt of the proposal request, submit to the Project Manager from the Owner's review, an estimate of cost necessary to execute the proposed change.

a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include a statement indicating the effect the proposed change in the work will have on the Contract Time.
d. Contractor and subcontractors will provide a complete detailed labor and material breakdown to justify change order request amount.

B. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions in mutual accord with the Owner Representative’s findings

require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.

2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Comply with requirements in Section 01631 Product Substitutions- if the proposed change in the work requires that substitution of one product or system for a product or system not specified.

5. Contractor and subcontractors will provide a complete detailed labor and material breakdown to justify change order request amounts.

1.05 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Project Manager may issue a Construction Change Directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.07 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Change Order Proposal Request, the Project Manager will issue a Change Order for signatures of the Owner and Contractor on County's Change Order form, as provided in the Conditions of the Contract.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01035

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
1. Coordination and project conditions.
2. Coordination with Owner Requirements
3. Preconstruction meeting.
4. Site mobilization meeting.
5. Progress meetings.
6. Pre-installation meetings.
7. General Installation provisions
8. Cutting and patching.
9. Special procedures.
10. Cleaning and protection

B. Related Documents
1. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 COORDINATION AND PROJECT CONDITIONS

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

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

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

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

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's occupancy.

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

1.3 COORDINATION WITH OWNER REQUIREMENTS

A. The Owner will be occupying the building during the work. All existing exits and any existing fire protection/life safety systems shall be continuously maintained and operational unless other measures are taken which provide equivalent safety per the Florida Building Code requirements. The contractor is to submit a "Construction Safety Plan" depicting how they will keep exit ways protected and in a safe condition while the buildings are occupied. Stipulate how the fresh air and exhaust fans will be kept in continued use while the buildings are occupied.

B. Working period: The normal work hours for the Owner(s) inspector(s) are defined as any 10-hour period between 7:00 a.m. and 7:00 p.m., Monday through Friday. Any work outside the 10-hour period shall be paid for by the Contractor and requested in writing 48 hours in advance. Weekends, County Holidays, all overtime, and weekend work shall be at the rate of $150/hour and shall be deducted from payments due the Contractor on a monthly basis.

C. Stipulate in the "Construction Safety Plan" how the contractor will keep the building(s) occupied during the roof replacement operations.

D. Roof loading and overhead crane operations shall be scheduled as much as practicable during times the facilities are unoccupied.

E. HVAC exhaust and fresh air equipment are not to be shut down while the buildings are occupied without Owner's prior knowledge and permission.

F. Contractor shall consult with local governing authorities having jurisdiction regarding noise abatement requirements and construction operations, if applicable.

G. A copy of all required city, county and state licenses that are applicable to this project shall be supplied to the Owner's representative prior to the appropriate work commencing.

H. The Contractor shall perform any trimming, pruning or relocation of trees or significant landscape materials as needed to fulfill the requirements of work on this project. Failure to adequately protect the existing landscaping material will require replacement of these materials at no additional cost to the Owner.

I. The Contractor and contractor personnel shall observe the following rules of conduct prescribed by the owner in regard to work on this project. They include but are not limited to:
   1. Workmen are not to traverse any walkway between buildings or buildings that are not included in this contract as well as new work that has been completed.

2. All contractor and subcontractor vehicles are to be parked in designated areas only. This will be determined during the pre-construction meeting.
3. No smoking is permitted on the project site.
4. Radios, tape or CD players (“boom boxes”) are not to be utilized at the site.
5. No firearms or other weapons are to be brought to the site
6. Contractor shall coordinate project access, parking and egress of all personnel and tradesmen with the Owner and the Owner’s administrative personnel.

J. Lack of coordination as specified in this and other sections of the contract documents are in grounds for assessment of back charges and/or termination in order to remediate the situation

1.4 PRECONSTRUCTION MEETING

A. Owner will schedule meeting after Notice of Award.

B. Attendance Required: Owner, Architect/Engineer, Contractor and any subcontractors and suppliers the contractor may wish to include.

C. At the Preconstruction meeting 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

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

E. Contractor shall record minutes and distribute copies within three days after meeting to participants, with two copies to Architect/Engineer, Owner, and those affected by decisions made.

1.5 SITE MOBILIZATION MEETING

A. Owner will schedule meeting at Project site prior to Contractor occupancy.

B. Attendance Required: Owner, Architect/Engineer, Special Consultants, Contractor, Contractor's Superintendent, and major Subcontractors.

C. Agenda:
   1. Use of premises by Owner and Contractor.
   2. Owner's requirements and occupancy.
   3. Construction facilities and controls provided by Owner.
   4. Temporary utilities provided by Owner.
   5. Security and housekeeping procedures.
   6. Schedules.
   7. Application for payment procedures.
   8. Procedures for testing.
   9. Procedures for maintaining record documents.

D. Contractor shall record minutes and distribute copies within three days after meeting to participants, with two copies to Architect/Engineer, Owner, and those affected by decisions made.

1.6 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum bi-weekly intervals.

B. Contractor shall make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems impeding planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
   10. Coordination of projected progress.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

E. Contractor shall record minutes and distribute copies within three days after meeting to participants, with two copies to Architect/Engineer, Owner, and those affected by decisions made.

1.7 PRE-INSTALLATION MEETINGS

A. When required in individual specification sections, convene pre-installation meetings at Project site prior to commencing work of specific section.

B. Require attendance of parties directly affecting, or affected by, Work of specific section.

C. Notify Architect/Engineer four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
1. Review conditions of installation, preparation and installation procedures.
2. Review coordination with related work.

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

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 Project Manager 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/Project Manager for final decision.

3.2 CUTTING AND PATCHING

A. Employ skilled and experienced personnel to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements affecting:
1. Structural integrity of element.
2. Integrity of weather-exposed or moisture-resistant elements.
3. Efficiency, maintenance, or safety of element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching to complete Work, and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of penetrated element.

J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

K. Identify hazardous substances or conditions exposed during the Work to Architect/Engineer for decision or remedy.

3.3 SPECIAL PROCEDURES

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

B. Employ skilled and experienced personnel to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

H. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition.

I. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect/Engineer for review.

K. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing smooth transition; to Architect/Engineer for review. Request instructions from Architect/Engineer.

L. Trim existing doors to clear new floor finish. Refinish trim to original or specified condition.

M. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

N. Finish surfaces as specified in individual product sections.

3.4 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 at Substantial Completion.

B. Clean and maintain completed construction as directed by the Project Manager and as frequently as necessary to ensure its integrity and safety 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 the applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessively high or low temperatures
3. Excessively high or low humidity
4. Air contamination or pollution
5. Water
6. Solvents
7. Chemicals
8. Soiling, staining and corrosion
9. Rodent and insect infestation
10. Combustion
11. Destructive testing
12. Misalignment
13. Excessive weathering
14. Unprotected storage
15. Improper shipping or handling
16. Theft
17. Vandalism

END OF SECTION 01040

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 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.

1. Requirements of this Section apply to mechanical and electrical installations. Refer to Division-15 and Division-16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.03 SUBMITTALS

A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching are required before proceeding, submit a proposal 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.

1.04 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 of the cutting and patching proposal before cutting and patching the following structural elements.

a. Foundation construction
b. Bearing and retaining walls
c. Structural concrete
d. Structural steel
e. Lintels
f. Timber and primary wood framing
g. Structural decking
h. Miscellaneous structural metals
I. Stair systems
j. Exterior curtain wall construction
k. Equipment supports
l. Piping, ductwork, vessels and equipment
m. Structural systems of special construction in Division 13.

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. Refer to Divisions 15 and 16 regarding Fire Rated Penetrations.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following 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. Conveying systems
k. Electrical wiring systems
l. Special construction specified by Division-13 Sections

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. Processed concrete finishes
    b. Preformed metal panels
    c. Window wall system
    d. Stucco and ornamental plaster
    e. Acoustical ceilings
    f. Carpeting
    g. Wall covering
    h. HVAC enclosures, cabinets or covers
    I. Roofing systems

PART 2 PRODUCTS

2.01 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 unless otherwise indicated by Architect/Owner. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.01 INSPECTION

A. Before cutting 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 all 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.

3.02 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 and 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.

3.03 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 carborundum saw or diamond core drill.
4. Comply with requirements of applicable Sections of Division-2 where cutting and patching required excavating and backfilling.
5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

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 smooth painted surfaces, extend final coat over entire unbroken surfaces containing the patch, after the patched area has received primer and second coat.

3.04 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 materials to their original condition.

END OF SECTION 01045

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DEFINITIONS

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

B. Indicated: The term *indicated* refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as shown, noted, scheduled and specified are used, it is to help the reader locate the reference; no limitation on location is intended.

C. Directed: Terms such as directed, requested, authorized, selected, accepted, required, and permitted mean directed by the Project Manager, requested by the Architect/Project Manager and similar phrases.

D. Approved: This term approved means accepted, where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. 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 construction industry that control performance of the Work.

F. Furnish: The term furnish is used to mean supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install: The term install is used to describe operations at project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

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

I. Installer: An Installer is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application,

and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term experienced, when used with the term Installer, means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
2. Trades: Use of titles such as carpentry is not intended to 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 trades persons of the corresponding generic name.

J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

K. Testing Laboratories: A testing laboratory 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.

1.03 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16 Division format and MASTER FORMAT numbering system.

B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

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

    a. The words, shall be shall be included by inference wherever a

colon (:) is used within a sentence or phrase.

1.04 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copies directly into the Contract Documents to the extend reference. Such standards are made part of the Contract Documents by reference.

B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards are specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer these requirements that are different, but apparently equal, and uncertainties to the Architect 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. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect/Owner for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed for performance of a required construction activity. The Contractor shall obtain copies directly from the publication source or any other authorized source.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. See Trade Reference List at the end of this Section, also refer to the Encyclopedia of Associations, published by Gale Research Co., available in most libraries.

1.05 GOVERNING REGULATIONS/AUTHORITIES

A. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary the preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the work.

1.06 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, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulation bearing upon performance of the Work.

1.07 TRADE REFERENCES

A. Acronyms for abbreviations used in the Specifications or other Contract Documents mean the recognized name of the trade association, standards generating organization, authority that have jurisdiction or other entity applicable to the context of the text provision.

AA Aluminum Association

AAMA American Architectural Manufacturer’s Association

ACI American Concrete Institute

AISC American Institute of Steel Construction

ANSI American National Standards Institute

APA American Plywood Association

ASC Adhesive and Sealant Council

ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers

ASME American Society of Mechanical Engineers

ASTM American Society of Testing of Materials

AWPB American Wood Preservers Bureau

AWS American Welding Society

FM Factory Mutual Engineering and Research

ICBO International Conference of Building Officials

NEC National Electric Code

NFPA National Fire Protection Association

NHLA National Hardwood Lumber Association

NRCA National Roofing Contractors Association

SMACNA Sheet Metal and Air Conditioning Contractor's National Association

SPRI Single Ply Roofing Institute

SSPC Steel Structures Painting Council

UL Underwriters Laboratories

1.08 FEDERAL GOVERNMENT AGENCIES

A. Names and titles of federal government standard or Specification producing agencies are frequently abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard of Specification producing agencies of the federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up-to-date as of the date of the Contract Documents.

EPA Environmental Protection Agency
401 M. St., SW
Washington, DC 20460 (202) 382-2090

OSHA Occupational Safety and Health Administration
(U.S. Department of Labor)
Government Printing Office
Washington, DC 20402 (202) 523-7001

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

(Not Applicable)

END OF SECTION 01095

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:

1. Contractor's Construction Schedule
2. Submittal Schedule
3. Daily Construction Reports
4. Shop Drawings
5. Product Data
6. 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 with start and finish dates (update as necessary)
6. Schedule of Values
7. Construction Schedule

C. The Schedule of Values submittal format is included in Section 01027 - Applications for Payment.

D. Inspection and test report requirements are included in Section 01400 - Quality Control Services.

1.03 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related elements

of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

a. The Project Manager reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Project Manager will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
b. If an intermediate submittal is necessary, process the same as the initial submittal.
c. Allow two weeks for reprocessing each submittal.
d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
2. Include the following information on the label for processing and recording action taken.

a. Project name
b. Date
c. Name and address of Architect
d. Name and address of Contractor
e. Name and address of subcontractor
f. Name and address of supplier
g. Name of manufacturer
h. Number and title of appropriate Specification Section
I. Drawing number and detail references, as appropriate.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Project Manager using transmittal form as provided by the Project Manager. Submittals received from sources other than the Contractor will be returned without action.

1. On the transmittal record relevant information and requests for data. On

the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitation. Include Contractor's certification that information complies with Contract Document requirements.

2. Transmittal Form: As provided by the Project Manager

D. Contractor shall be responsible for cost of re-review of rejected submittals, shop drawing, etc. Costs for re-review shall be reimbursed to the County by deducting the cost from the Contractors monthly progress payments. Costs to be determined by applying the consultants standard billing rates, plus 10% handling by the County.

E. Substitution request to specified products will be made within 30 days of Notice to Proceed. After the 30 day period, no requests for substitutions from the Contractor will be considered.

1. Substitution submitted within the first 30 days will have product data from specified and requested substitute submitted together and demonstrate better quality, cost savings if of equal quality, or show benefit to the County for accepting the substitute.

F. Once submittals are approved or approved as noted, they will be scanned and converted to PDF documents with OCR (optical character recognition) and given to the owner.

1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. See General Conditions: Article 18

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1.05 SUBMITTAL LOG

A. After development and acceptance of the Contractor's construction schedule, prepare a complete log of submittals.

1. Coordinate submittals log with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
2. Prepare the log in chronological order; include all submittals required. Provide the following information:

a. Scheduled date for the first submittal
b. Related Section number
c. Submittal category
d. Name of subcontractor
e. Description of the part of the work covered
f. Scheduled date for resubmittal
g. Scheduled date the Architect's final release or approval.

3. All submittals must be received within the first 25% of contract time.

B. Distribution: Following response to initial submittal, print and distribute copies to the Project Manager, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the project meeting room and field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

C. Log Updating: Revise the log after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.06 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Project Manager at weekly intervals:

1. List of subcontractors at the site
2. Approximate count of personnel at the site
3. High and low temperatures, general weather conditions
4. Accidents and unusual events
5. Meetings and significant decisions
6. Stoppages, delays, shortages, losses
7. Meter readings and similar recordings
8. Emergency procedures
9. Orders and requests of governing authorities
10. Change Orders received, implemented
11. Services connected, disconnected
12. Equipment or system tests and start-ups
13. Partial completions, occupancies
14. Substantial Completions authorized

1.07 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered a Shop Drawings and will be rejected.

B. Shop Drawings include fabrication and installation drawings, setting diagrams,

schedules, patterns, templates and similar drawings. Include the following information:

1. All required dimensions
2. Identification of products and materials included
3. Compliance with specified standards
4. Notation of coordination requirements
5. Notation of dimensions established by field measurement
6. Sheet Size: Except for templates, patterns and similar full-size Drawings on sheets at least 8 1/2" x 11" but no larger than 24" x 36".
7. Initial Submittal: Submit one correctable translucent reproducible print and one blue-or black-line print for the Project Manager's review; the reproducible print will be returned.
8. Initial Submittal: Submit 2 blue-or black-line prints for the Architect's review; one will be returned.
9. Final Submittal: Submit 5 blue-or black-line prints; submit 7 prints where required for maintenance manuals. 3 prints will be retained; the remainder will be returned.
10. Final Submittal: Submit 4 copies of the approved shop drawings to the owner.
    a. All prints shall be marked-up and maintained as a Record Documents.
11. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connections with construction.

C. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.

1. Preparation of coordination Drawings is specified in section Project Coordination and may include components previously shown in detail on Shop Drawings or Product Data.
2. Submit coordination Drawings for integration of different construction elements. Show sequence and relationships of separate components to avoid any conflict including conflicts in use of space.
3. Contractor is not entitled to additional payments due to lack of compliance with this Section.

1.08 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawing".

1. Mark each copy to show applicable choices and options. When printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

    a. Manufacturer's printed recommendations
    b. Compliance with recognized trade association standards
    c. Compliance with recognized testing agency standards
    d. Application of testing agency labels and seals
    e. Notation of dimensions verified by field measurement
    f. Notation of coordination requirements
    g. Manufacturers local representative and phone number.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.
4. Submittals: **Submit six (6) copies** of each required submittal. The Project Manager will return two (2) sets to the Contractor marked with action taken and corrections or modifications required.

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

5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

    a. Do not proceed with installation until an applicable copy of Product Data applicable is in the Installer’s possession.
    b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.09 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's/Owner's Sample. Include the following:

    a. Generic description of the Sample
    b Sample source
    c. Product name or name of manufacturer

d. Compliance with recognized standards
e. Availability and delivery time

2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

    a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
    b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

    a. Preliminary submittals will be reviewed and returned with the Architect's/Owner's mark indicating selection and other action.

4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.
5. Maintain sets of Samples, as returned, at the project site, for quality comparisons throughout the course of construction.

    a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
    b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1. Field Samples specified in individual sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the work will be judged.

    a. Comply with submittal requirements. Process transmittal forms to provide a record of activity.

1.10 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect/Project Manager will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Architect/Project Manager will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, similarly as follows, to indicate the action taken:

1. Final Unrestricted Release: Where submittals are marked **"No Exceptions Taken" - APP**, that part of the work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
2. Final-But-Restricted Release: When submittals are marked **"Make Corrections As Noted" – A/C**, that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
3. Returned for Resubmittal: When submittal is marked **"Revise and Resubmit" – R/R**, do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations and resubmit without delay. Repeat if necessary to obtain a different action mark.

a. Do not permit submittals marked **"Revise and Resubmit"** to be used at the Project site, or elsewhere where work is in progress.

4. Rejected: When submittal is marked **"Rejected" - REJ** it does not comply with requirements of the Contract Documents. Submittal must be discarded and entirely new submittal shall be forwarded to the Project Manager without delay.

PART 2 PRODUCTS (Not Applicable)

PART 3 Execution (Not Applicable)

END OF SECTION 01300

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for quality control services.

B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Architect.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and test, cover production of standard products as well as customized fabrication and installation procedures.
2. Inspection, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitates compliance with Contract Document requirements.
3. Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.03 GENERAL QUALITY CONTROL

A. The Contractor shall be responsible for maintaining and ensuring quality control over subcontractors, suppliers, manufacturers, materials, equipment, products, services, site conditions and workmanship to product work of specified quality. The completed work shall be of high quality throughout.

1.04 WORKMANSHIP

A. Comply with well-known standards recognized be each trade except when more restrictive tolerances or specified requirements indicate more rigid standards or

more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality. Said qualifications shall be determined by well-known standards recognized by the trade for each respective portion of contract work.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration and racking.

1.05 MANUFACTURER'S INSTRUCTIONS

A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Architect before proceeding.

1.06 MANUFACTURER'S CERTIFICATES

A. When required by individual Specifications Section, submit manufacturer's certificate and supporting documentation, in duplicate, that products meet or exceed specified requirements.

B. ASBESTOS FREE MATERIALS - Manufacturer and/or supplier shall provide a written and notarized statement on manufacturer's company letterhead to certify and warrant that product(s) utilized on project are asbestos free.

1.07 MOCKUPS

A. When required by individual Specifications Section, erect complete, full scale mockup of assembly at Project Site.

1.08 MANUFACTURER'S FIELD SERVICES

A. When specified in respective Specification Sections, require supplier and/or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, test, adjust and balance of equipment as applicable and to make appropriate recommendations.

B. Representative shall submit written report to Owner listing observations, recommendations, and certifying full conformance and compliance with manufacturers standards or requirements.

1.09 TESTING LABORATORY SERVICES

A. The County shall employ and pay for services of an Independent Testing Laboratory to perform inspections, tests for the new HVAC system.

B. Services will be performed in accordance with requirements of governing authorities and with specified standards.

C. Reports will be submitted to the County, Contractor and Architect giving observations and results of tests, indicating compliance or noncompliance with specified standards and with Contract Documents.

D. Contractor shall cooperate with testing laboratory personnel; furnish tools, samples of materials, design, mix equipment, storage and assistance as requested.

1. The contractor shall be responsible for notifying the testing laboratory at least 24 hours prior to expected time for operations requiring testing services. Longer length of notice to testing laboratory shall be provided by Contractor when required by the testing laboratory to ensure the timely scheduling and performance of all tests required.
2. The Contractor is responsible for obtaining and paying tests including but not limited to test and balance, potable water bacteriological tests and test required in Divisions 7 through 16.

E. The costs of any tests which fail will be paid for by the Contractor. The amount to be reimbursed to the County by the Contractor will be the amount invoiced to the County by the testing laboratory in accordance with the testing services fees set forth in its contract with the County.

1.11 RESPONSIBILITIES

A. The Owner shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and these services include those specified to be performed by an independent agency and not by the Contractor.

B. The Contractor shall cover all costs of tests or inspections to evaluate means and methods of installation performed as a substitution and not as originally specified.

1. Re-testing: The Contractor is responsible for re-testing where results of required inspections, test or similar services prove unsatisfactory and do not indicate compliance with Contract Documents requirements, regardless of whether the original test was the Contractor's responsibility.

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

2. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to:
   a. Providing access to the work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
   b. Taking adequate quantities of representatives samples of materials that require testing or assisting the agency in taking samples.
   c. Providing facilities for storage and curing the test samples.
   d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
   e. Security and protection of samples and test equipment at the Project site.

C. Duties of the Testing Agency: The independent testing agency engages to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with Architect and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
3. The agency shall not perform any duties of the Contractor.

D. Coordination: The Contractor and each agency engaged to perform inspection, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition, the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

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

1.12 SUBMITTALS

A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are pre-qualified as complying with Recommended Requirements for Independent Laboratory qualification by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engages on the Project

shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finished to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for Cutting and Patching.

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

C. Repair and protection in the Contractor's responsibility regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01400

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities required include but are not limited to:

1. Water service and distribution
2. Temporary electric power and light
3. Telephone service
4. Sanitary facilities

C. Temporary construction and support facilities required include but are not limited to:

1. Temporary heat and ventilation as required to facilitate construction process and personnel.
2. Field office and storage sheds.
3. Sanitary facilities, including drinking water.
4. Temporary enclosures.
5. Hoists and temporary elevator use.
6. Temporary project identification signs and bulletin boards
7. Waste disposal services.
8. Rodent and pest control
9. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities required include but are not limited to:

1. Temporary fire protections
2. Barricades, warning signs, lights
3. Sidewalk bridge or enclosure fence for the site.
4. Environmental protection
5. Fencing:

a. Contractor shall be responsible for providing a temporary 6' high chain link construction fence around the entire perimeter of the construction site. Fence shall be removed upon completion of the job. Limits of construction fence indicate on the site plan drawings.

6. Barriers:

a. Contractor shall be responsible for providing security measures as required to prevent public entry to construction areas and adjacent properties from damage from construction operations.
b. Contractor shall be responsible for providing a protective barrier around trees and plants designated to remain as indicated in plans. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials and puddling or continuous running water.

7. Enclosures:

a. Provide temporary weather-tight closures of openings in exterior surfaces to provide acceptable working conditions and protection for materials, in allow for temporary heating, and to prevent entry of unauthorized persons. Provide temporary doors with self-closing hardware and locks.

8. Protection of Installed Work:

a. Provide temporary protection for installed products. Control work and traffic in immediate area to avoid damage.
b. Provide protective coverings at walls, projections, jambs, sills and soffits of openings. Provide barriers or coverings to protect roof and finished floors and stairs from work and traffic, movement of heavy objects and storage.
c. Prohibit work, traffic and storage on waterproofed and roofed surfaces, and on lawn and landscaped areas that is not a part of the work for those surfaces and areas.

9. Security and Maintenance:

a. Vehicular and pedestrian gates, when indicated or required, shall be securely locked at all times when no work is in progress and when not required for construction activities.
b. During all work hours, gates which must be open shall be continuously monitored by the contractor to prevent unauthorized personnel or vehicles from entering the construction site.
c. Fencing shall be as specified in 1.02 D above and shall prevent pedestrian travel through the site for any reason.
d. Temporary fencing shall be removed only for construction reasons. If temporary fencing removal is required for non-construction reasons, fencing shall be immediately replaced and secured as soon as the activity for which its removal was required is completed, or if the activity cannot be completely by the end of the work day, temporary security measures shall be taken by the Contractor to ensure that there is no breach of security even during off-work periods.
e. “No Trespassing” and similar signs shall be posted at gates and along fencing adjacent to public areas to inform non-construction personnel of the reason for the fence and potential hazards of entering the construction

site. Said signs shall be of a size and spacing to be legible from any point along the entire perimeter of the construction site.

1.03 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

1.04 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but to limited to:

1. Building Code requirements
2. Health and safety regulations
3. Utility company regulations
4. Police, Fire Department and Rescue Squad rules
5. Environmental Protection regulations

B. Standards: Comply with NFPA Code 241, “Building Construction and Demolition Operations”, ANSI-A10 Series standards for “Safety Requirements for Construction and Demolition”, and NECA “Electrical Design Library Temporary Electrical Facilities”.

1. Refer to Guidelines for Bid Conditions for Temporary Job Utilities and Services, prepared jointly by AGC and ASC, for industry recommendations.
2. Electrical Services: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

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

1.05 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use for the permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, nor permit them to interfere with progress. Do not allow hazardous dangerous, unsanitary conditions, nor public nuisances to develop or persist on the site.

C. Water Control: Grade site to drain. Maintain excavations free of water. Provide and operate pumping equipment if necessary. Provide silt barriers required by the Florida Department of Transportation St. Johns and any other authority having jurisdiction over the Project.

D. Cleaning During Construction: Control accumulation of waste materials and rubbish so as to maintain a neat, clean and orderly and safe project; periodically dispose of off-site as needed.

1. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

E. Project Identification: Provide a sign as outlined in SECTION 01580 PROJECT SIGN. Locate to provide an unobstructed view from adjoining roadway. Remove project sign upon final completion acceptance.

F. Field Office and Sheds: Office: Weather-tight with lighting, electrical outlets, heating, cooling, and ventilating equipment, and equipped with furniture.

1. Storage Sheds for Tools, Materials, and Equipment: Weather-tight with adequate space for organized storage and access, and lighting for inspection of stored materials. Contractor provide 10 x 8 minimum size office with plan table, telephone, heat, a/c for projects exceeding 10,000 sq. ft. building area.

G. Protection of Adjacent Properties: Locate on site construction operations that will generate noise and/or dust as far as practical from occupied structures on adjacent properties so as to minimize disturbances to the occupants of these structures or properties.

1. Prevent dust or other contaminants caused by construction operations for this Project from being carried to adjacent properties by installation of protective barriers and/or suspension of construction operations during high winds.
2. Dispose of all construction debris which may be carried to adjacent properties by winds. Remove debris daily and/or more often as required to prevent contamination of adjacent properties.

H. Removal: Remove temporary materials, equipment and construction facilities prior to Substantial Completion inspection.

1. Remove temporary utility services prior to Final Completion Inspection.
2. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations; grade and complete all work on site as indicated.

I. Conversion to Public Utilities: General Contractor is to coordinate and arrange with the appropriate utility service providing agencies and make arrangements for the installation and connection to final utilities prior to Final Completion inspection.

1. General Contractor shall provide any and all coordination, scheduling and layouts as may be required by the service utilities.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Provide new materials; of acceptable to the Project Manager, undamaged previously used materials in serviceable condition maybe used. Provide materials suitable for the use intended.

B. Lumber and Plywood: Comply with requirements in Division 6 Section – Rough Carpentry.

1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1 of sizes and thickness indicated.
3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.
4. For safety barriers, sidewalk bridges and similar uses, provide minimum 5/8" thick exterior plywood.

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

D. Water: Provide portable water approved by local health authorities.

E. Open-Mesh Fencing: Provide 11-gage, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized barbed wire top strand and galvanized steel pipe post, 1 inch I.D. for line posts and 2 inch I.D. for corner posts.

2.02 EQUIPMENT

A. General: Provide new equipment: if acceptable to the Project Manager, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. Long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset bottom and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use “hard-service” cords

where exposed to abrasion and traffic. Provide water proof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockage entrances, operable windows and serviceable finished. Provide heated and air-conditioned units on foundations adequate for normal loading.

H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

I. First Aid Supplies: Comply with governing OSHA and any other regulations.

J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class □A□fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable UL-rated, class □ABC□ extinguishers of NEPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 EXECUTION

3.01 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with

the utility company recommendations.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
3. Obtain easements to bring temporary utilities to the site, where the Owner ☐S easements cannot be used for that purpose.
4. Use Charges: Cost of use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be acceptable as a basis of claims for a Change Order.

B. Water Service: Install water service and distribution piping of sized and pressures adequate for construction until permanent water service is in use.

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.

D. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge or effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.

F. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by run-off of storm water from heavy rains.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities land other temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until Substantial

Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Provide incombustible construction for offices, shops and sheds located within the construction area or within 30 feet of building lines. Comply with requirements of NFPA 241.

C Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

D. Heating Facilities: Except where use of the permanent system is authorized, provide electric vented self-contained LP gas or fuel oil heaters with individual thermostatic control.

1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

E. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds maybe open shelters or fully enclosed spaces with the building or elsewhere on the site.

G. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project needs. ☐S

1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

H. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. Provide one toilet for each 15 workers on site and have serviced weekly as a minimum.

I. Wash Facilities: Install wash facilities supplied with portable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

1. Provide safety showers, eye-wash fountains and similar facilities for convenience, safety and sanitation of personnel.

J. Drinking Water Fixtures: Provide drinking water fountains including paper supply.

K. Drinking Water Fixtures: Provide drinking water fountains including paper supply.

1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 degree F (7 to 13 degree C).

L. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 2 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations and construction free of water.

M. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
4. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.

N. Temporary Lifts and Hoist: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting material are considered tools and equipment and not temporary facilities.

O. Project Identification and Temporary Signs: Prepare project identification and other signs of the size indicated install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.

1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.

2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

P. Temporary Exterior Lighting: Maintain exterior yard and sign lights so that signs are visible when work is being performed.

Q. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material

and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to raise above 80 degree F (27 degree). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of materials in a lawful manner.

R. Rodent and Pest Control: Before foundation work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals so the project will be relatively free of pests and their residues at Substantial Completion. Perform control operations in a lawful manner using environmentally safe materials.

3.04 SECURITY AND PROTECTIONS FACILITIES INSTALLATION

A. Except for use of permanent fire protection as soon as available do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Project Manager.

B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 Standard for Portable Fire Extinguishers, and NFPA 141 Standard for Safeguarding Construction, Alternations and Demolition Operations.

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access in fire extinguishers, fire hydrants, temporary file protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting including flashing red or amber lights.

E. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs and other animals from easily entering the site, except by the

entrance gates.

1. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of gravel and earth.

F. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of materials to minimize the opportunity for theft and vandalism.

G. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possible that air,
waterways and sub-soil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which product harmful poise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.05 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

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

2. Protection: Prevent water filled piping from freezing. Maintain makers for underground lines. Protect from damage during excavation operations.

C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than substantial completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.

2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street pavings, curbs and sidewalks at the temporary entrances, as required by the governing authority.
3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

    a. Replace air filters and clean inside of ductwork and housings.
    b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
    c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use as noted by the Owner's representative.

END OF SECTION 01500

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section 01300 -Submittals.

C. Standards: Refer to Section 01095 - Reference Standards and Definitions for applicability of industry standards to products specified.

D. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section 01300 - Product Substitutions.

1.03 DEFINITIONS

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

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 term “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 manufacturer’s published product literature that is current as 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 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.

1.04 SUBMITTALS

A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Project Manager. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.
   a. Related Specification Section Number
   b. Generic name used in Contract Documents
   c. Proprietary name, model number and similar designations.
   d. Manufacturer's name and address
   e. Supplier's name and address
   f. Installer's name and address
   g. Projected delivery date, or time span of delivery period.

2. Initial Submittal: Within 30 days after date of commencement of the work, submit 3 copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.

   a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.

3. Complete Scheduled: Within 45 days after date of commencement of the Work, submit 3 copies of the completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
4. Architect's Action: The Architect will respond in writing to the Contractor within 2 weeks of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers on products, but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect's response will include the following:

   a. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.05 QUALITY ASSURANCE

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

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

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

1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data.

    a. Name of product and manufacturer
    b. Model and serial number
    c. Capacity
    d. Speed
    e. Ratings
    f. Additional pertinent information

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deteriorating and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
3. Deliver products to the site in the manufacturer's original sealed container of other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate in prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situation on other projects.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.

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

2. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of those products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
3. Descriptive Specification Requirements: Where Specifications describe products or assemblies, listing exact characteristics required, with or without use of a brand or trade names, provide a product or assembly that provides the characteristics and otherwise complies with Contract

requirements.

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

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

5. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
6. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.

    a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning 'substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

7. Visual Selection: Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, pattern, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.
8. Asbestos free materials: No products containing asbestos shall be used for any part of the work for this project. Provide verification.

PART 3 EXECUTION

3.01 INSTALLATION OF PRODUCTS

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

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

END OF SECTION 01600

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

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

B. The Contractor's Installation Schedule and the Schedule of Submittals are included under Section 01300 - Submittals.

C. Standards: Refer to Section 01095 – Reference Standards and Definitions for applicability of industry standards to products specified.

1.03 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 installation required by Contract Documents proposed by the Contractor during bidding and after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:

1. Only substitutions requested by Bidders during the bidding period, and accepted prior to bid opening and award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in Section for substitutions.
2. Revisions to Contract Documents requested by the Owner or Architect.
3. Specified options of products and installation methods included in Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.04 SUBMITTALS

A. Substitution Request Submittal: After the bid is awarded, a request for substitution will be considered if received within thirty (30) days after commencement of the Work, as long as this time allowance will not impact the construction schedule.

1. Submit **three (3) copies** of each request for substitution for consideration.

Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitution, and the following information, as appropriate:

    a. Product Data, including Drawings, and descriptions of products, fabrication and installation procedures.
    b. Samples, where applicable or requested.
    c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.
    e. A statement indicating the substitution's effect on the Contractor's construction schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
    f. Cost information, including a proposal of the net change, if any in the Contract Sum.
    g. Certification by the Contractor that the Substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

3. Architect's Action: Within two weeks of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request if needed. Within two (2) weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the project specified by name. Decision on the use of a product substitution or its rejection by the Architect is considered final. Acceptance will be in the form of a Change Order.

PART 2 PRODUCTS

2.01 SUBSTITUTIONS

A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise request 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 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.
5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
6. A substantial advantage is offered to 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 consideration.
7. 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.
8. 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.
9. 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 Project Manager'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. Substitution request constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
2. Will provide the same warranty for substitution as for specified product.

3. Will coordinate installation and make other changes which may be required for work to be complete in all respects.
4. Waives claims for additional costs which may subsequently become apparent. All costs associated with the substitution will be paid by the Contractor regardless of approvals given, and regardless of subsequent difficulties experienced as a result of substitutions.

END OF SECTION 01631

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements for project close-out, including but not limited to:

1. Inspection procedures
2. Project record document submittal. (substantial completion requirements)
3. Operating and Maintenance Manual Submittal (substantial completion requirements).
4. Submittal of warranties (substantial completion requirement).
5. Final cleaning

B. Close-out requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.

C. Final Payment to be made when the County has received all required close-out documents.

1.03 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for Certification of Substantial Completion, complete the following: List exceptions in the request.

1. In the Application for Payment that coincided with, or first follows, the date Substantial Completion in claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

    a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.

2. Advise Owner of pending insurance change-over requirements.
3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
4. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

5. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the Project Manager will either proceed with inspection or advise the Contractor of unfilled requirements. The Project Manager will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. Results of the completed inspection will form the basis of requirements for final acceptance.
2. Should the project fail to meet the standards required for Substantial Completion as defined in the documents, the Contractor will pay the expense of a second inspection by the Architect/Consultants and the Owner. Cost will be deducted from the Contractor's retainage.

1.04 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following list exceptions in the request:

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and complete operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect or Owner’s final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Project Manager.
4. Submit final meter readings for utilities, a measured record of stored fuel and similar data as of the date of Substantial Completion, or when the Owner took possession of the responsibility for corresponding elements of the Work.
5. Submit consent of surety to final payment.
6. Submit a final liquidated damages settlement statement
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The Architect will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of reinspection, the Architect will prepare a certification

of final acceptance, or advise the contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

1.05 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation; where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Provide for project photographs if deemed necessary by Owner's representative.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
3. Note related Change Order numbers where applicable.
4. Organize record drawing sheets, and print, suitable titles, dates and other identification on the cover of each set.
5. Provide **three (3)** additional sets of black line drawing sets of As-Builts Drawings. (color copies)

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Project Data.

1. Upon completion of the Work, submit **two (2)** copies of Record Specifications to the Architect for the Owner's records.

D. Record Project Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variation in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct

observation. Note related Change Orders and mark-up of record drawings and Specifications.

1. Upon completion of mark-up, submit **one (1) complete set** of Record Product Data in the three ring binder (indexed) to the Architect for the Owner's records.

E. Record Sample Submitted: Immediately prior to the date or dates of substantial completion, the Contractor will meet at the site with the Architect and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of substantial completion, complete miscellaneous record and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Project Manager for the Owner's records.

G. Maintenance Manuals: Organize operating and maintenance data into **five (5) suitable sets** of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions
2. Spare parts list
3. Copies of warranties
4. Wiring diagrams
5. Recommended turn-around cycles
6. Inspection procedures
7. Shop Drawings and Product Data
8. Fixture lamping schedule

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 CLOSE-OUT PROCEDURES

A. Operating and Maintenance Instructions: Arrange for each installer of equipment that required regular maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. All items shall be provided or competed prior to Certificate of Substantial Completion being issued by the Owner. Include a detailed review of the following items:

1. Maintenance manuals
2. Record documents
3. Spare parts and materials
4. Tools
5. Lubricants
6. Fuels
7. Identification systems
8. Control sequences
9. Hazards
10. Cleaning
11. Warranties and bonds
12. Maintenance agreements and similar continuing commitments
13. On-site instructions to County maintenance personnel on major systems operations such as HVAC as per technical specifications.

B. As part of instruction for operating equipment, demonstrate the following procedures, prior to the Owner issuing Certificate of Substantial Completion:

1. Start-up
2. Shutdown
3. Emergency operations
4. Noise and vibration adjustments
5. Safety procedures
6. Economy and efficiency adjustments

3.02 PROJECT CLOSE-OUT MANUALS AT SUBSTANTIAL COMPLETION

A. Submit Project Close-out Manuals prior to issuance of final application for payment. Provide **three (3) copies**.

B. Bind in commercial quality 8 ½” x 11" three ring binder, indexed with hardback, cleanable, plastic covers.

C. Label cover of each binder with typed title PROJECT CLOSE-OUT MANUAL, with title of project; name, address, and telephone number of Contractor and name of responsible Principal.

D. Provide table of contents: Neatly typed, in the following sequence:

1. Final Certificate of Occupancy
2. Warranty Service Subcontractors Identification List
3. Final Lien Waivers and Releases
4. Warranties and Guarantees
5. Systems Operations and Maintenance Instruction
6. Manufacturer’s Certificates and Certifications
7. Maintenance Service Contracts
8. Spare Parts Inventory List

9. Special Systems Operating Permits or Approvals
10. Asbestos free materials notarized statement.

E. Provide all documents required by each specification section listed in the Project Manual. List the individual documents by section in sequence indicated in the Table of Contents of the Project Manual.

F. Identify each document listed in the Table of Contents with the number and title of the specification section in which specified, and the name of the product or work item.

G. Separate each section with index to sheets that are keyed to the Table of Contents listing.

H. Warranty Service Subcontractors List shall identify subcontractor supplier, and manufacturer for each warranty with name, address and emergency telephone number.

I. Electronic Close-out DVD: At the completion of the project, submit one copy of a DVD with entire project close out information below in PDF format. All letter, legal and brochure size sheets shall be portrait and the As-built drawings will be landscape. All fonts will be Arial. All items will be in PDF with OCR (Optical Character Recognition). This will enable a search engine to identify words on the scanned documents.

1. Contacts: Set up a separate PDF for the contacts. No bookmarks are needed for this section.
2. As-Builts: All as-built drawings will be landscape.
3. Submittals: All technical submittal items (approved and approved as noted) will be provided and sorted by the 16 standard divisions. Bookmarks will be needed for the appropriate divisions.
4. Operations and Maintenance Manual: Specify the division name only in the bookmarks (1-16). Please note that all items will be in PDF with OCR (Optical Character Recognition). This will enable a search engine to identify works on the scanned documents.
5. Permitting: This should include the Certificate of Occupancy and any other document that the Project Manager may include pertaining to the permitting for the project.

3.03 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section - Temporary Facilities.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with

manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

    a. Remove labels that are not permanent labels.
    b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
    c. Clean exposed exterior and interior hard-surfaced finished to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
    d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
    e. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface. Remove waste and surplus materials from the site in an appropriate manner.

C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.

D. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 01700

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contractor Documents, including manufacturer's standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
2. General close-out requirements are included in Section 01700 - Project Close-Out Requirements.
3. Specific requirements for warranties for the work and products and installations that are specified to be warranted are included in the individual Sections of Division 2 through 16.
4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.

B. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents.

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

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept work for the Project where a special warranty, certification, or similar commitment is required on such work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.04 WARRANTY PERIOD

A. The Contractor shall participate with the County and the Architect's representative, at the beginning of the tenth month of the warranty period, in conducting an on-site review and evaluation of all items of equipment, materials and workmanship covered by the warranties and guarantees. Contractor shall act promptly and without cost to the County to correct all defects, problems, or deficiencies determined as such by the Architect/Owner during on the site review.

B. All warranties and guarantees shall commence on the date of Substantial Completion except for items which are determined by the County to be incomplete or a non-comply status at the time of Substantial Completion. The coverage commencement date for warranties and guarantees of such work shall be the date of the County's acceptance of that work.

C. Warranty period shall be manufacturer's standard for product specified except where specific warranty periods are specified in individual sections. But in no case less than one year.

1.05 SUBMITTALS

A. Submit written warranties to the Owner prior to the date certified for Substantial Completion. If the Architect's Certificate of substantial

Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the work, submit written warranties upon request of the Project Manager.

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

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

1. Refer to individual Sections of Division 2 through 16 for specific content requirements, and particular requirements for submittal of special warranties.

C. Form of Submittal: At Final Completion compile **two (2) copies** of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Submittal Binders: Bind **three (3) sets** of warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 1/2” by 11" paper.

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

2. Identify each binder on the front and the spine with the typed or printed title “WARRANTIES AND BONDS”, the Project title or name, and the name of the Contractor.
3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required

warranty, as necessary, for inclusion in each required manual.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01740

EXISTING CONDITION ASSESMENT (INFORMATION TO BIDDERS)
SECTION 02010

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Roof Evaluation of the Vistana Water Treatment Plant

B. Related Sections:
   1. Section 01010 – Summary of Work

1.2 EXISTING PROJECT / SITE CONDITIONS

A. Field Investigation: A field investigation was conducted by A/R/C Associates, Incorporated on May 5, 2014, at which time the exposed conditions of the proposed roof replacement areas were observed and the under-roof conditions were determined to the best extent observable without destructive methods. Limited existing construction record drawings and specifications were available for A/R/C to verify. The details of the project indicated that existing conditions are based of typical construction practice. A/R/C offers no assurance that all varying conditions have been discovered, or that any Owner-furnished information is completely accurate. It shall be the responsibility of each bidder to make additional inspections as they may judge to be a necessity.

B. Verification of Dimensions: The approximate dimensions shown for each roof area are the result of reconstruction of the building design from field measurements taken by A/R/C Associates. This information is given to assist prospective Bidders in establishing the approximate scope of the project. As a prerequisite for bidding the project, however, all dimensions shall be field verified by each Bidder so that the dimensions and areas utilized in bidding the project will be confirmed or corrected by the Bidder.

C. Additional Information Available: Attached to this section are the results of two (2) roof cuts performed at the time of the site investigation.

D. Condition of Structure:
   1. The Owner assumes no responsibility for actual condition of the structure.
   2. Conditions existing at time of inspection for bidding purposes will be maintained by Owner in so far as practicable. However, variations may occur by Owner's operations.
   3. Prior to bidding: Inspect and verify existing conditions of Project, including elements subject to damage or to movement during construction activity.
      a. Conflicts and problems shall be reported to the ***Purchasing and Contracts Division*** for resolution prior to bidding.

b. Failure to report these conflicts places the responsibility on the Prime Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.

4. During construction: Inspect conditions affecting installation of products, or performance of work.
   a. Report unsatisfactory or questionable conditions to Architect in writing; do not proceed with work until Architect has provided further clarification and/or instructions.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

(Not Applicable)

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Description of Areas to be Demolished.
2. Demolition Contractor Qualifications
3. Regulatory Requirements
4. Scheduling
5. Project Conditions
6. Preparation
7. Demolition Requirements

B. Related Sections:
1. Section 01010 – Summary of Work

1.2 DESCRIPTION OF AREAS TO BE DEMOLISHED

A. Roof Area 1/A
1. Remove existing modified bitumen membrane roof system and the underlying hypalon single ply roof membrane down to the extruded polystyrene insulation layer.
2. Remove all existing metal flashings and counterflashings including coping caps, expansion joints, penetration flashing, primary and secondary scuppers, conductor head and downspouts.
3. Remove existing roof top HVAC units and associated curbs, flashings and penetrations in preparation to receive new HVAC equipment.

1.3 QUALIFICATIONS

A. Demolition Contractor: Contractor having minimum of five (5) years documented experience in performing the work of this section.

1.4 REGULATORY REQUIREMENTS

A. Conform to applicable code for demolition of roofing, safety of adjacent structures, dust control and disposal. Conform to applicable regulatory procedures when hazardous or contaminated materials are present

B. Notify affected utility companies before starting work and comply with their requirements.

C. Do not close or obstruct roadways, sidewalks, and hydrants without permits.

1.5 SCHEDULING

A. Schedule work under the provisions of Division 1.

B. Coordinate and schedule demolition work with HVAC roof top mechanical and electrical work with roof replacement work. Minimize roof deck exposure during this process.

C. Describe and discuss demolition removal procedures and schedule with Owner and project architect.

1.6 PROJECT CONDITIONS

A. Existing Conditions:
1. Report conflicts or problems to the Purchasing and Contracts Division for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 PREPARATION

A. Provide, erect, and maintain temporary barriers and security devices.

B. Protect existing landscaping materials, appurtenances, structures and adjacent roofs which are not to be demolished.

3.2 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures and occupants.

B. Any materials damaged by the demolition process that are out of the scope of work, as specified by the contract documents, must be replaced at no additional cost to the owner.

C. Cease operations immediately if adjacent structures appear to be in danger. Notify Architect. Do not resume operations until directed.

D. Conduct operations with minimum interference to public or private accesses. Maintain egress and access at all times.

E. Remove demolished materials from site.

F. Do not burn or bury materials on site. Leave site in clean condition.

G. Upon completion, remove all temporary work.

H. Coordinate and schedule HVAC roof top mechanical and electrical work with roof replacement work. Minimize roof deck exposure during this process.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
1. Miscellaneous framing and sheathing;
2. Nailers and blocking,
3. Preservative treatment of wood where indicated.

B. Related Sections:
1. Section 07536 – Modified Bitumen Roofing- Torched Applied
2. Section 07620 – Sheet Metal Flashing and Trim

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI A208.1 - Mat-Formed Wood Particleboard.

B. American Wood-Preservers' Association:
1. AWPA Standard U1, UC 1-4 - All Timber Products - Preservative Treatment by Pressure Process.
2. AWPA Standard U1, UCF A and B - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.

C. ASTM International:
1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. National Fire Protection Association:
1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

E. Southern Pine Inspection Bureau:
1. SPIB - Standard Grading Rules for Southern Pine Lumber.

F. Underwriters Laboratories Inc.:
1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

G. U. S Department of Commerce National Institute of Standards and Technology:
1. DOC PS 1 - Construction and Industrial Plywood.
2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
3. DOC PS 20 - American Softwood Lumber Standard.

1.3 SUBMITTALS

A. Division 1 - Submittal Procedures

B. Product Data: Submit technical data on
1. Wood /Plywood
2. Fasteners and Anchors
3. Wood preservative and fire retardant treatment materials and application instructions.
4. MSDS of treatment materials.

C. Samples:
1. Fastener types : Two (2) of each type
2. Material Samples, if requested by the Architect.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with the following:
1. Lumber Grading Agency: Certified by DOC PS 20.
2. Lumber: DOC PS 20.

B. Surface Burning Characteristics:
1. Fire Retardant Treated Materials: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

C. Apply label from agency approved by authority having jurisdiction to identify each preservative treated and fire retardant treated material.

D. Perform Work in accordance with current Florida Building Code requirements.

PART 2 PRODUCTS

2.1 MATERIALS

A. Lumber Grading Rules: SPIB.

B. Miscellaneous Framing/Blocking: Stress Group D 1x and 2x No. 2 Grade Southern Yellow Pine species, 19 percent maximum moisture content, pressure preservative treated where indicated.

C. Plywood Sheathing: APA/EWA Structural I, 5/8” thickness (unless otherwise noted), Grade: CDX; pressure treated with preservative and fire retardant treated. Exposure Durability: Exposure 1.

2.2 ACCESSORIES

A. Fasteners and Anchors:
1. All fasteners: Stainless steel for high humidity and treated wood locations, hot dipped galvanized steel elsewhere.
2. Nails: ASTM F1667; ring-shanked, except as otherwise directed.
3. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.3 FACTORY WOOD TREATMENT

A. Wood Preservative (Pressure Treatment) for wood (exterior, above ground): AWPA U1, use category 3 (UC3) using water borne preservative with 0.25 pounds per cubic foot of wood product.

B. Wood preservatives shall not contain arsenic or arsenate.

PART 3 EXECUTION

3.1 EXAMINATION

A. Division 1 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify substrate conditions are ready to receive blocking, curbing and framing.

3.2 PREPARATION

A. Coordinate placement of blocking, curbing and framing items.

3.3 INSTALLATION

A. General:
1. Discard material with defects which might impair quality of work and units which are too small to fabricate work with minimum joints or optimum joint arrangement.
2. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
3. Securely attach carpentry work to substrate by anchoring and fastening as shown or as required by recognized standards. Countersink fastener heads on exposed carpentry work.
4. Use fasteners and anchorages as indicated. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required. Holes drilled oversized or wallered out, shall be re-drilled.
5. Place horizontal members, crown side up.

6. Construct curb members of solid wood sections.
7. Do not install wood nailers or sheathing more than one day in advance from installation of roofing. Install dry-in felt over any wood nailers and sheathing.

B. Nailers, Blocking and Curb Extensions:
1. Coordinate curb extensions and installation of wood nailers with roof construction work.
2. Provide blocking and edging wherever shown and where required for screeding or attachment of other work.
3. Set members level and plumb, in correct position.
4. Construct curb members of single pieces.
5. Curb roof openings [except where prefabricated curbs are provided]. Form corners by alternating lapping side members.
6. Attach to substrates as required to support applied loading. Countersink bolts and nuts with washers flush with surfaces, unless otherwise shown.
7. Where new members are doubled, ends shall be lapped and thoroughly spiked to each other and to bearing members.
8. Where new members bear on concrete, securely fasten to same by bolts or lag screws on centers as called for on drawings, staggered. Provide heads of all bolts or lag screws with large-head washers.
9. Round edges and corners of wood plates where flashing occurs.

C. Plywood Sheathing (wall sheathing replacement) (see Details):
1. Install sheathing properly framed to required lines, level and rigidly secured in place.
2. Cut sheathing sections to fit. Leave 1/8” clearance between panels at side laps. Cover sheathing with dry-in felt and seal top horizontal edge.

3.4 SCHEDULES

A. Roof top equipment curb nailers and extensions: See project manual details and plans for sizes and locations.

B. Plywood Sheathing associated with perimeter parapet and wall expansion joint: See project manual details and plans for locations.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Removal of existing roof systems in preparation for the installation of a new single-ply membrane fastened to the metal deck.

B. Related Sections
1. Section 02070 – Selective Demolition
2. Section 06100 – Rough Carpentry
3. Section 07536 – Modified Bitumen Roofing – Torched Application.

1.2 DESCRIPTION OF WORK

A. Remove and store existing electrical lightning protection system for reinstallation

B. All Areas where indicated: Remove existing roof membrane system, coping caps, counter flashings, counterflashing, vent stack flashing, overflow drains, primary scuppers down to the existing light weight concrete insulation to remain.

C. Remove and replace any damaged or deteriorated blocking, nailers or sheathing.

D. Remove existing power vent and curb, in-fill opening.

1.3 QUALIFICATIONS

Materials Removal Firm: Company specializing in performing the work of this Section with minimum 5 years documented experience.

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Product Data: Provide product description and specification information of roof materials and accessories as may be specified elsewhere.

1.5 PRE-INSTALLATION CONFERENCE

A. Attend conference specified in Division 1.

1.6 PROJECT CONDITIONS

A. Existing Conditions
1. The roof applicator shall verify existing conditions, such as soundness of perimeter conditions, varying deck and other visible conditions prior to bidding.

2. Report conflicts and problems to the Purchasing and Contracts Division for resolution prior to bidding. Failure to report these conflicts and problems places the responsibility on the Prime Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
3. Replace or restore to original condition any materials or work damaged during construction.
4. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.
5. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not remove existing roofing membrane when weather conditions threaten the integrity of the building contents or intended continued occupancy.

B. Maintain continuous protection prior to and during installation of new roofing system.

1.8 SCHEDULING AND COORDINATION

A. Schedule and coordinate work under the provisions of Division 1.

B. Schedule work to coincide with commencement of installation of new roofing system.

C. Coordinate the work with other affected mechanical and electrical work associated with roof penetrations.

D. Remove only existing roofing materials that can be replaced with new materials the same day or as the weather will permit.

PART 2 PRODUCTS

2.1 MATERIALS

A. Temporary Protection: Sheet polyethylene; provide weights to retain sheeting in position.

B. Protection Board (as may be required): ASTM C208, Roof Insulating Board type, cellulose fiber board, with the following characteristics:

1.	Board Size	48x96 inches.
2.	Board Thickness	1/2 inch
3.	Board Edges	square

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions under provisions of Division 1.

B. Verify that existing roof surface is clear and ready for work of this section.

3.2 PREPARATION

A. Sweep roof surface clean of loose matter. Remove loose refuse and dispose off site.

3.3 MATERIAL REMOVAL

A. Remove metal copings and counter flashings

B. Remove roofing membrane, perimeter base flashings, and flashings around roof protrusions, penetrations and scuppers.

C. Remove damaged insulation and fasteners and blocking.

D. Repair existing wood and lightweight insulating concrete deck surface to provide smooth working surface for new roof system.

3.4 TEMPORARY PROTECTION

A. Protect finished Work under provisions of Division 1.

B. Provide temporary protective sheeting over uncovered deck surfaces.

C. Turn sheeting up and over parapets and curbing. Retain sheeting in position with temporary fasteners.

D. Provide for surface drainage from sheeting to existing drainage facilities.

E. Do not permit traffic over unprotected or repaired deck surfaces.

3.5 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Division 1.

B. Inspection will identify the exact limits of material removal.

C. Testing will identify the exact condition of existing materials and their reuse, repair or removal.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Two ply SBS modified bitumen membrane system over vented base sheet, including gypsum roof coverboard and rigid insulation insulation.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry

B. Section 07565 - Preparation for Re-Roofing.

C. Section 07620 - Sheet Metal Flashing and Trim

1.3 REFERENCES

A. ASTM C 177 - Test Method for Steady-State Thermal Transmission Properties by Means of the Guarded Hot Plate.

B. ASTM C 630 - Water-Resistant Gypsum Backing Board.

C. ASTM C 728 - Perlite Thermal Insulation Board.

D. ASTM C 1002 - Steel Drill Screws for the Application of Gypsum Board.

E. ASTM C 1177 - Glass Mat Gypsum Substrate for Use as Sheathing.

F. ASTM C 1289 - Polyisocyanurate Board Insulation.

G. ASTM D 41 - Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.

H. ASTM D312 - Asphalt Used in Roofing.

I. ASTM D 41 - Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.

J. ASTM D 2178 - Asphalt Impregnated Glass (Felt) Mat Used in Roofing and Waterproofing.

K. ASTM D 3617 – Sampling and Analysis of New Built-Up Roof Membranes.

L. ASTM D 4586 - Asphalt Roofing Cement.

M. ASTM D 4601-04 - Asphalt Coated Glass-Fiber Base Sheet Used in Roofing.

N. ASTM D 4897-01 - Asphalt Coated Glass-Fiber Venting Base Sheet Used in Roofing.

O. ASTM D 5147-06 - Std. Test Methods for Sampling & Testing Modified Bitumen Sheets.

P. ASTM D 6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bitumen Sheet Materials Using Glass Fiber Reinforcements.

Q. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bitumen Sheet Materials Using Polyester Reinforcements.

R. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

S. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.

T. CGSB-37-GP-50 - Roof Membrane Physical Property Testing.

U. FM 1-52 – Field Uplift Tests.

V. FM 4470 - Base ply fasteners to meet Factory Mutual Research Approval Standard #4470.

W. FM - “Class A” - Roof Assembly Classifications.

X. NRCA (National Roofing Contractors Association) - Roofing and Waterproofing Manual.

Y. ULI - “Class A” - Fire Hazard Classifications.

Z. FS HH-I-1972/Gen, FS HH-I-1972/3 - Polyisocyanurate Insulation Board.

AA. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

BB. NFPA 255 - Test of Surface Burning Characteristics of Building Materials.

CC. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.4 SYSTEM DESCRIPTION

A. **ALL ROOF AREAS**: Styrene Butadiene Styrene (SBS) modified bitumen granular surfaced roofing system: One ply, granular surfaced, SBS modified bitumen, polyester reinforced cap sheet membrane, torch applied to two interply sheets. Interplies are to be two plies of a smooth surfaced, SBS modified bitumen, polyester reinforced flexible membrane, torch applied to gypsum roof board which is adhered to tapered rigid insulation board, which is adhered to a venting base sheet which is mechanically fastened to the existing light weight insulating concrete deck.

1.5 SUBMITTALS

A. Submit under provisions of Division 1, Section 01330 – Submittal Procedures.

B. Shop Drawings: 1/8" Scale; indicate setting plan for tapered insulation, layout of seams, direction of laps, base flashing details if different from project details.

C. Product Data: Provide membrane materials, base flashing materials, insulation, fasteners

and accessories.

D. Fastener Withdrawal Resistance Testing: Submit copies of the results of any in-situ testing of the fasteners proposed for this project.

E. Manufacturer's Installation Instructions: Indicate special precautions required for seaming the membrane.

F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

G. Manufacturer's Field Reports: Submit under provisions of this section.
   1. Reports: Indicating procedures followed, ambient temperatures and wind velocity during application.

H. All products used shall be asbestos free.

I. Warranty: Submit sample of roof membrane manufacturer's warranty

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with Contract Documents and NRCA Roofing and Waterproofing Manual except where NRCA details differ from the project manual details. Maintain one copy of each document on site.

B. Work closely associated with flexible sheet roofing, including vapor barriers, insulation, flashing and counterflashing, and joint sealers, shall be performed by the installing applicator of the primary roofing system.

C. Manufacturer of the roofing materials shall provide qualified technical representatives to observe field conditions of surfaces and installation, quality of workmanship as applicable, and to make appropriate recommendations.

D. Manufacturer's Certificate of Compliance: Roof membrane manufacturer's certification that materials are chemically and physically compatible with each other and suitable for inclusion in the roof system and are acceptable for the warranty specified. Materials will not be approved without the manufacturer's written certification.

E. Manufacturer's representative shall visit the project throughout progress of the Work as follows:
   1. Pre-construction meeting.
   2. Once every two weeks, coordinated with the weekly scheduled meetings.
   3. Final "zero punch list" inspection.
   4. Called meetings by the Architect.
   5. 11th month inspection prior to Owner's 12 month inspection.
   6. 23rd Month inspection prior to Owner's 24 month inspection.
   7. Manufacturer's Representative shall make a written report of his observations and recommendations, if any within three (3) days of the visit, however, significant discrepancies between the quantity or quality of the installation and the requirements of the Contract Documents shall be brought to the Architect's attention immediately

8. The Architect shall be entitled to rely upon such observations and recommendations to establish the materials and systems will meet the requirements of the Contract Documents.

F. Manufacturer's Field Reports: Submit under provisions of Section 01400.
   1. Reports: Indicating procedures followed ambient temperatures and wind velocity during application.

G. Maintain one copy of each document on site.

H. The Contractor shall submit a sample of roof membrane manufacturer's warranty.

I. A manufacturer's letter shall be required certifying that the Contractor is an approved and recommended applicator in good standing.

J. The Contractor shall not deliver to site or install a material system that has not been approved.

K. The Contractor shall be required to remove materials installed without prior approval upon Owner's request.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this section with five (5) years current documented experience.

B. Applicator: A single installer specializing in performing the work of this section with three (3) years current documented experience and approved by system manufacturer.

C. Supervisor: Maintain a full-time non-working supervisor, on the job site during roofing work in progress. Supervisor shall have five current years minimum documented experience of roofing work similar in scope to specified roofing.

D. Manufacturer's Field Inspection and Services
   1. Manufacturer of the roofing materials shall provide qualified personnel to observe field conditions of surfaces and installation, quality of workmanship as applicable, and to make appropriate recommendations.
   2. Representative shall visit the Project throughout progress of the work, per Article 1.6/F of this section.
   3. Representative shall submit written reports, within three days of each visit to Architect listing observations, recommendations and related comments.

1.8 REGULATORY REQUIREMENTS

A. Conform to applicable code for roof assembly fire hazard requirements.

B. ULI: Class A Fire Hazard Classification.

C. FM: Roof Assembly Classification, Class 1 Construction. Roof membrane and insulation system shall resist the wind uplift pressures as generated by wind speed of **116mph (Nominal)** and **150 mph (Ultimate)** and calculated in accordance with ASCE 7-10 and the 2010 Florida Building Code.

D. Wind Uplift Resistance: Provide wind load calculations and submit engineering calculations and substantiating data to validate wind resistance of any non-rated roof system. Wind uplift calculations shall be based on a design wind speed of **116 mph (Nominal)** and **150 mph (Ultimate)** in accordance with ASCE 7-10 and the 2010 FBC requirements. Calculations shall be certified by a professional engineer registered in the State of Florida.

E. Material Safety Data Sheets: Submit for all roofing products.

1.9 CERTIFICATION

A. Materials: For each material specified with a standard or reference material designation, certification labels shall appear on each package of bulk-shipments to project with certificate of compliance.

B. Installer: Provide two copies of all certifications to Architect prior to beginning roofing work.

C. The Contractor shall have pull tests conducted on the job site in compliance with the Florida Building Code TAS 105 with the specified fasteners to determine the pull-out resistance of the existing deck. Submit the data to the roofing manufacturer and Architect for review and approval before installation of any roofing materials.

1.10 MOCKUP

A. Provide mockup of roof membrane system and associated components and accessories under provisions of Section 01450.

B. Mockup Size: 10 x 10 feet, including insulation and typical base and counterflashing specified; at location designated.

C. Mockup may remain as part of the Work.

1.11 PRE-INSTALLATION CONFERENCE

A. Convene one week prior to commencing work of this section at project site with Contractor, Roofer, and Subcontractors, governing authorities, product manufacturers, Architect and Owner.

B. Review requirements, Contract Documents, submittals, sequencing, availability of materials and installation facilities, proposed installation schedule, requirements for inspections and testing or certifications, forecasted weather conditions, governing regulations, insurance requirements, and proposed installation procedures.

C. Record discussion on matters of significance; furnish copy of recorded discussions to each participant. Discuss roofing system protection requirements for construction period

extending beyond roofing installation.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Deliver to site, store, protect, and handle products under provisions of Contract Documents.

B. Deliver material in manufacturer's original, unopened containers with manufacturer's labels intact and legible.

C. Deliver material requiring fire resistance classification to the job with labels attached and packaged as required by labeling service.

D. Deliver enough material to allow continuous work.

E. Store rolls, cans and drums of cements, primers, and coatings, on end and over clean raised platforms.

F. Store and handle materials to protect them from.
   1. Moisture, whether due to precipitation, or condensation.
   2. Damage by construction traffic.
   3. Temperatures over 110 degrees or below 40 degrees F.
   4. Direct sunlight.
   5. Mud, dust, sand, oil and grease.

G. Select and operate material handling equipment and store materials to keep from damaging existing construction or applied roofing. Immediately remove and dispose of wet materials.

H. Comply with fire, safety, and environmental protection regulations.

I. Do not store materials on roof decks, nor position roofing installation equipment on roof decks, in concentrations exceeding design live loads.

J. Take special precautions against traffic on roofing when ambient temperature is above 80 degree F. Avoid heavy traffic on the work during installation.

1.13 PROJECT CONDITIONS

A. Existing Conditions
   1. The roofing applicator and sheet metal installer shall verify existing conditions, such as soundness of perimeter conditions, and varying deck and wall thickness for length of anchoring services required and other visible conditions prior to Bidding.
   2. Report conflicts and problems to the Architect for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Prime Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
   3. Replace or restore to original condition any materials or work damaged during construction.

4. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.
5. Failure to install the work in strict accordance with provisions of this Section, is subject to total rejection of work specified herein.
6. The Contractor shall have pull tests conducted on the job site in compliance with the Florida Building Code TAS 105 with the specified fasteners to determine the pull-out resistance of the existing deck. Submit the data to the Architect for review and approval before installation of any roofing materials.

1.14 ENVIRONMENTAL REQUIREMENTS

A. Do not apply roofing membrane during inclement weather ambient temperatures below 40 degrees F.

B. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

C. Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with requirements of this section and warranty compliance requirements.

1.15 SAFETY REQUIREMENTS

A. All work shall be in compliance with OSHA safety standards and regulations with emphasis on Section 29 CFR 1910, including but not limited to the following requirements.
   1. Provide facility administrator one day prior notice before commencing with work or moving to new areas.
   2. Proper identification and clothing, to work at all times. Only the facility administrator is permitted in the facility.
   3. The Contractor shall provide sufficient temporary barricades in order to contain passage ways around tankers, trash chutes, hoisting areas and areas below roof edges where work is conducted.
   4. Fire extinguishers are required, one on the ground and one on the roof deck.
   5. Seal all possible seepage areas, before using bituminous materials.
   6. Power driven shot fasteners are not permitted.
   7. All pumps shall use rigid pipes.
   8. No flammable or explosive substance or equipment for repairs or alterations shall be introduced in a building of normally low or ordinary hazard classification while the building is occupied unless the condition of use and safeguards provided are such as not to create any additional hazard or handicap to egress beyond the normally permissible conditions in the building.
   9. Protect building and adjacent surfaces from bitumen spillage and repair or replace damaged materials at no cost to Owner.
   10. All toxic substances enumerated in the Florida Substance List established pursuant to S.442.103 that are to be used in the construction, repair or maintenance of educational facilities are restricted to usage according to the following provisions:
      a. Before any such substance may be used, the Contractor shall notify the Owner in writing at least three working days prior to using the substance. The

notification shall contain:
1) The name of the substance to be used;
2) Where the substance is to be used; and
3) When the substance is to be used.

b. The Owner shall take all reasonable actions to ensure that the Contractor complied with the safety precautions and handling instructions set forth in the material safety data sheet for each substance used by the Contractor so that usage of the substance poses no threat to the health and safety of students, school personnel and the general public.

11. Refer to Section 01310 – Project Meetings for additional requirements.

1.16 COORDINATION

A. Coordinate work under provisions of Section 01110.

B. Coordinate the work with installing associated wood blocking and nailers, roofing, expansion joints, area dividers, and metal flashing as the work of this section proceeds.

1.17 SEQUENCING

A. Organize operations so work can simultaneously proceed on the various aspects including roofing, cants and flashing so at the end of each day the work done that day will be substantially complete.

B. Roof area shall be substantially complete prior to beginning another roof area; utilize multiple crews for multiple roof area construction. Phasing of roof construction by area is not permitted.

C. Sequence equipment removal with covering of deck openings with plywood strong enough to prevent injuries from falling through. Contractor shall install waterproof covering over plywood and tie-in to existing membrane to achieve complete watertightness.

1.18 WARRANTIES

A. Applicators Warranty: A **TWO (2) Year** applicator guarantee is to include a 24 hour maximum response time requirement, to cover entire roof assembly, not just the membrane, (Furnish on executed form included at the end of this section).

B. Manufacturer's Warranty: **Twenty (20) Year "No Dollar Limit"** total roof system warranty inclusive of roofing materials, included products and accessories from deck to finish membrane (Refer to "Manufacturer's Notice of Intent to Issue Roof Warranty" at end of this Section).

C. A "Manufacturer's Notice of Intent to Issue Roof Warranty" Form shall be executed by the Manufacturer that acknowledges project design, warranty requirements, lists primary/secondary material approvals, and the initial manufacturer approval (or certification) for the named roofing contractor as an applicator. **Submit one (1) copy of executed form with bid**.

D. A non-prorated, non-penal sum manufacturer's roof warranty is required.

E. Manufacturer's roof warranty will cover the cost of removal and replacement of damaged or wet insulation that is the result of leaks from poor application or failed material.

F. The Contractor is responsible to submit and provide components required by the roofing system manufacturer for the specific warranty.

G. Warranty will not exclude from coverage damage to the roof system for wind gusts as defined in the Manufacturer's Notice of Intent to Issue Roof Warranty at end of this Section. Warranty may exclude damage for wind launched debris or projectiles which are not part of this system.

H. A Contractor's Final Statement of Compliance shall be issued by the roofing contractor as part of the "close-out" documentation required at the end of the project.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL

A. Insurance and Code Requirements: Provide materials complying with governing regulations, installed to comply with Underwriters Laboratories Class A; ASCE 7 and the 2010 Florida Building Code wind up-lift requirements, calculated for a **116 mph (Nominal)** and **150 mph (Ultimate)** wind speed (per ASCE 7).

B. Obtain primary modified bitumen sheet roofing from a single manufacturer. Provide secondary materials only as recommended by the manufacturer of the primary material, and additionally as specified.

2.2 MODIFIED BITUMEN ROOFING AND FLASHING MEMBRANE MATERIALS

A. Modified Bitumen (Roofing and Flashing) Cap Sheet: Granular surfaced SBS modified bitumen membrane sheet intended for heat welded (torched) application, membrane shall be a minimum of 155 mils, and weight not less than 100 lbs. per 100 square feet. SBS membrane ply shall be reinforced with a 170 gram/square meter minimum non-woven polyester mat(s), shall conform to the requirements of ASTM D 6164, Type I, Grade G, and be a Class A material as tested in compliance with ASTM E 108. Acceptable manufacturer's and products are as follows: **(Substitutions are not permitted)**

1.	Soprema	Sopralene Flam 180FR Granules
2.	GAF	Ruberoid SBS Heat-Weld FR
3.	MB Technology	Fastorch SBS FT 160 PWH
4.	Firestone	SBS FR Torch
5.	Polyglass	Elastoshield TS
6.	Johns Manville	DynaWeld Cap 180 FR

A. Modified Bitumen Interply (Flashing and Field of Roof) Sheet: Smooth surfaced SBS

modified bitumen membrane “interply” sheet intended for torched application, membrane shall be a minimum of 90 mils, and weight not less than 70 lbs. per 100 square feet. SBS membrane ply shall be reinforced with a 160 gram/square meter minimum non-woven polyester mat(s), shall conform to the requirements of ASTM D 6164, Type I, Grade S, and be a component within a Class A roofing system as tested in compliance with ASTM E 108. Acceptable manufacturer's and products are as follows: **(Substitutions are not permitted):**

1.	Soprema	Sopralene Flam 180
2.	GAF	Ruberoid SBS Heat-weld Smooth
3.	MB Technology	FT 120 PSA
4.	Firestone	SBS Poly Torch Base
5.	Polyglass	Elastoflex S6
6.	Johns Mansville	DynaWeld Cap 180 Smooth

2.3 CAP SHEET GRANULES: Manufacturer's standard white or gray cap sheet granules (Owner selection).

2.4 SHEET MATERIALS

A. Strip-In Flashing: Smooth surfaced SBS modified bitumen flashing sheet for torch or cold process application..

B. Dry-In Membrane: 40 mil thick, polyester reinforced, SBS modified asphalt waterproofing and underlayment membrane sheet
1. InterWrap Titanium PSU
2. Protecto-Wrap “Rainproof-40".
3. Soprema “Sopralene Stick”.
4. Tamko “TW Metal and Tile” underlayment.
5. Architect approved (prior to bidding) equivalent product.

C. Venting Base Sheet: ASTM D-4897, Type II asphalt coated fiber glass nailable base sheet with course granular surfacing and venting channels. Approved products:

1.	GAF	Stratavent
2.	Johns Manville	Ventsulation
3.	Soprema	4897 sheet
4.	Architect approved (prior to bidding) equivalent product.	

2.5 BITUMINOUS MATERIALS

A. Asphalt Primer: ASTM D41.

B. Plastic Cement: ASTM D4586, Type II, cutback asphalt type (non-asbestos).

C. Modified Bitumen Adhesive: SBS modified asphalt adhesive; such as; "Matrix SB" by US Intec, or manufacturer-approved equivalent.

2.6 INSULATION

A. Polyisocyanurate Insulation: Closed cell glass fiber reinforced type, conforming to the following (tapered and non-tapered):
   1. Board Size: 4 x 4 feet, (4 x 8 feet if mechanically attached).
   2. Tapered insulation at crickets will vary due to varied roof slopes, determine in field taper needed to provide a 1/4" per foot slope to each side of obstruction, minimum thickness to be 0".
   3. Tapered System Slope: Typically installed as required to provide a 1/4” per foot finished roof slope in a single sloping direction.
      a. 1/8” per foot existing slope, install a 1/8” per foot tapered insulation system, provide ¼” per foot tapered insulation system at crickets between primary scuppers.
      b. Crickets over a ¼” per foot system, install a ½” per foot taper system.
   4. Compressive Strength: 25 psi per ASTM C 165
   5. Facing: Factory applied skin of glass fiber facing on both faces.
   6. Board Edges: Square.
   7. Water Absorption: In accordance with ASTM C209, 1 percent by volume maximum.
   1. Foam Core Flame Spread: 25 Max. - ASTM E-84 (Tunnel Test).
   2. ULI Fire Rating: Conform to the current ULI, Class A, Roof/Ceiling fire rated assemblies (see current ULI "Fire Resistance Directory").

B. Tapered Perlite Edge Strips For Use at Crickets Within Roof System: 1/2" per foot tapered preformed units, as approved for use within a 20 year warranted roof system by the roofing manufacturer, of material with the following characteristics:
   1. Board Density: 8 lb/cu ft.
   2. Board Size: 2x4 feet.
   3. Board Thickness/slope: ½" per foot slope for all crickets.
   4. Compressive Strength: Minimum 35 psi.
   5. Water Absorption: In accordance with ASTM C 209, 1.5 percent by volume maximum.
   6. Board Edges: Square.
   7. ULI Fire Rating: Conform to the current ULI, Class A, Roof/Ceiling fire rated assemblies (see current ULI "Fire Resistance Directory").

2.7 GYPSUM ROOF BOARD (Options)

A. Gypsum Roof Board (Glass fiber reinforced/faced gypsum): as approved for use within a 20 year warranted roof system by the roofing manufacturer, with the following characteristics:
   1. Board Type: manufacturer standard product for use over polyisocyanurate insulation and over metal decks.
   2. Manufacturer and Product: Georgia-Pacific Corporation, Gypsum Division, Dens-Deck Prime Roof Board or approved equal.
   3. Board Size: 4 feet x 4 feet x 1/4" minimum thickness.
   4. Compressive Strength: Minimum 35 psi.
   5. Water Absorption: In accordance with ASTM C 1177-91
   6. Board Edges: Square.
   7. UL Fire Rating: Conform to the current UL, Class A, Roof/Ceiling fire rated assemblies (see current UL "Fire Resistance Directory").

B. Gypsum Roof Board (Glass fiber reinforced with no face layer) : as approved for use within a 20 year warranted roof system by the roofing manufacturer, with the following characteristics:
   1. Board Type: manufacturer standard product for use over polyisocyanurate insulation and over metal decks.
   2. Manufacturer and Product: United States Gypsum Company, Securock Roof Board or approved equal.
   3. Board Size: 4 feet x 4 feet x 1/4" minimum thickness.
   4. Compressive Strength: Minimum 1,250 psi.
   5. Water Absorption: 10 In accordance with ASTM C 473
   6. Board Edges: Square.
   7. UL Fire Rating: Conform to the current UL, Class A, Roof/Ceiling fire rated assemblies (see current UL "Fire Resistance Directory").

2.8 MECHANICAL FASTENERS

A. Fastener Schedule: Refer to Details 8.01 thru 8.04 for Fastener Schedule and requirements. For locations not indicated in the referenced schedule, provide size, type, material and finish as required, matching material being fastened.

B. For Fastening Base Flashing to Wood Nailers: Roofing nails: galvanized, hot dipped or non-ferrous type, size as required to suit application.

C. For Fastening Vented Base Sheet to Lightweight Concrete Deck: Lightweight concrete base ply fastener with FM 1-90 discs. Comply with Factory Mutual Approval Standard #4470.

D. Insulation Fasteners: Appropriate for purpose intended and approved by Factory Mutual and system manufacturer; length required for thickness of material with plastic washers.

E. For All Other Locations: Provide size, type, material and finish as required, matching material being fastened.

2.9 INSULATION ADHESIVES - MANUFACTURERS

A. OLY BOND Adhesive Fastener, Olympic Manufacturing Group, Inc. 153 Bowels Road, Agawam, MA 01001, 800-633-3800 and (FAX: 413-821-0417).

B. INSTA-STIK Professional Roofing Adhesive, Insta-Foam Products, Inc., 1500 Cedarwood Drive, Joliet, IL 60435-3187, 800-800-3626, (FAX: 815-741-6822).

C. TILE-SET Commercial Roofing Adhesive, Polyfoam Products, Inc., 10798 NW 53rd Street, Sunrise, FL 33351, 888-774-1099, (FAX: 954-578-1042).

D. ROOF ASSEMBLY ADHESIVE, CHEM-LINK Advanced Architectural Products, Inc., 416 Ransom Street, Kalamazoo, MI 49007, 800-826-1681. May be obtained through ASR Associates, Inc., 800-683-0221.

E. Other acceptable adhesives: Any FM Listed Foam Adhesives or Adhesives approved by the roofing system manufacturers may be submitted for review and acceptance by the Architect no later than eight (8) calendar days prior to bidding.

F. Contractor to submit certification based on pull tests showing adhesive meets ASCE 7 uplift requirements.

2.10 FIBRATED ALUMINUM COATING: Fibrated reflective coating with asphalt cut-back base, fiberglass fibers, and leafing type aluminum pigment; complying with ASTM D-2824, Type III.

2.11 ACCESSORIES

A. Non-combustible Cant Strip (and Contractors Options): Basis of design is a continuous strip of 16 gage, G90 galvanized steel, with the material formed to a 140 degree angle top and bottom, with a 3 inch minimum face width. Due to combustibility concerns, the contractor has the following options:
1. Perlite, treated by the manufacturer for torch application.
2. Mineral fiber.
3. Formed sheet metal cant.
4. Adhering a self-adhesive modified bitumen membrane to the face of a fiber cant.
5. Laminating gypsum roof board to the face of the cant strip.
6. Modified bitumen cant (Derbicant by Performance Roof Systems, Inc.)

B. Vent Pipe Flashing: Prefabricated pipe flashing of 4 lb. per square foot common pig lead having a 4 inch deck flange.

C. Roof Drain Lead Flashing: 36 inch square sheet of 4 lb. per square foot common pig lead.

D. Modified Bitumen, Self Adhesive Flashing Tape: Utilize ProtectoFlash Building Tape - 20 mil thick by 4 inch wide, modified bitumen, self-adhesive tape as manufactured by Protecto Wrap Company of Denver, Colorado (800-759-9727), or approved equal to seal joints of gypsum roof board.

E. Cementitious Filler Compound: Utilize an acrylic modified, site mixed, cement based compound intended for the correction of minor roof slope issues, such as that produced by RoofSlope of Murrieta, CA 92562, (888) 255-1888), www.roofslope.com

F. Flashing Tape: Double Sided grey extruded or performed, 99% solids crosslinked polyisobutylene compound, non-sag, non-toxic, non-staining, permanently elastic self adhesive tape, 1/8" minimum thickness, ¾" minimum width unless noted otherwise on the drawings.
1. Pecora Corporation — Extru-Seal Glazing Tape
2. Tremco Construction Products — 440 II Tape
3. Equivalent products as approved by the Owner and Architect.

G. Tapered Edge Strip: Perlite, preformed to a slope of 1/4", 1/2", or 3/4" per foot slope per roof plans and as necessary for the finish slope indicated.

H. Traffic Pads: Provide either the manufacturer's standard factory fabricated walkway pad system, or field fabricate as follows:
   1. Provide a contrasting color, granule surfaced cap sheet membrane as specified above, cut into four foot lengths, remove selvage edge.
   2. Heat weld a single layer of this cap sheet to a similarly prepared single layer of smooth surfaced interply membrane as specified above.
   3. Provide and install where indicated by the project drawings, and as required by the roof membrane manufacturer as determined in the field.

2.12 SEALANTS: As specified in Section 07900.

2.13 PREFABRICATED METAL CURBS - Approved Products:
   A. The Pate Company.
   B. Custom Curb, Inc.
   C. Architect approved equal product.

2.14 PREFABRICATED EQUIPMENT SUPPORTS - Approved Products:
   A. The Pate Company.
   B. Custom Curb, Inc.
   C. Architect approved equal product.

2.15 SEALANT PRIMER: Recommended by sealant manufacturer to suit application.

2.16 JOINT CLEANER: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

2.17 BACKER ROD: Extruded polyolefin foam made of a non-absorbing outer skin and a highly resilient interior network of open and closed cells which will not out-gas when ruptured.

2.18 MISCELLANEOUS MATERIALS: All other material and accessories, not specifically described, but required for a complete and proper installation of roofing, shall be products of, or recommend by the manufacturer of the primary material and subject to the approval of the Architect.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

   A. Total Installation Concept:
      1. The specified system is a total roofing system, not a patched up, chopped up, spliced or added to or on roofing system. Therefore, this type of application will not be acceptable.
      2. If a section of roof requires reworking and/or patching, the entire area or section of roofing shall be replaced. This shall mean from vertical surface to vertical surface, or roof perimeter to roof perimeter in all directions.

   B. Watertightness Imperative:
      1. The work specified herein will not preclude the use of procedures that will maintain

the buildings watertight. Therefore, the Contractor, while conforming to these Contract Documents, must utilize necessary procedures to keep water out of the buildings while construction is in progress.

2. At end of each day's roofing installation and prior to the onset of all inclement weather, new section of roofing shall be temporarily sealed with cut-offs to the unfinished substrates. Seal projections through the roof and to the surrounding intersections so that no moisture may enter roofing or into structure before work resumes. Remove cut-offs before work resumes.
3. Cut-offs: 1 ply of roofing membrane, fully adhered by torching, or set in full bed of modified bitumen adhesive/mastic; remove at beginning of next days' work.

C. In areas where there is a chance of debris falling into the occupied space, work will be performed after hours, on weekends or on holidays.

D. Environmental Impact: Ensure that fresh air intakes in the area of new roofing construction are properly sealed or filtered. Coordinate user requirements for temporary equipment shutdown as needed. Also, take care to prevent lightweight concrete or asphalt from entering through voids in the deck.

E. Interior Work: Coordinate installation of associated ceiling repairs with user schedules and peak-use times.

F. Off Hour Work: The following roof construction activities must be coordinated and scheduled to occur while those spaces immediately below the required work are not occupied.
1. Asbestos abatement.
2. Roof tear-off.
3. Removal or installation of heavy roof top equipment.
4. Structural and/or deck repairs.
5. Application of hot asphalt to structural deck.
6. Loading or unloading of materials.
7. Installation of up-lift anchors into Tectum decks.
8. Any covered walkway roofing work.
9. Any interior (below structural roof deck) work.

G. Building Safety
1. **Contractor shall maintain a daily “fire watch” for a minimum of two (2) hours after torch down shift has been completed.**

3.2 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secured.

C. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains, valleys, or eaves.

D. Verify deck surfaces are dry. Verify flutes of metal deck are clean and dry.

E. Confirm dry deck by moisture meter with 12 percent moisture maximum.

F. Verify roof openings, curbs, pipes, conduit, sleeves, ducts, roof drains and vents through roof are solidly set, and cant strips and reglets are in place.

3.3 INSTALLATION REQUIREMENTS

A. Protect other work from spillage of modified bitumen roofing materials and prevent liquid materials from entering or clogging drains and conductors. Replace/restore other work damaged by installation of roofing system work.

B. Torch application shall follow guidelines set by FM Global Safeguarding Torch-Application Roof Installations Data Sheet 1-33.

C. Insurance/Code Compliance: Install system for (and test where required to show) compliance with governing regulations and with the following requirements:
1. Underwriter's Laboratories "Fire Classified" and "Class A", the 2010 Florida Building Code and ASCE 7-10 for **116 mph (Nominal)** and **150 mph (Ultimate)** wind up-lift resistance.

3.4 PREPARATION - EXISTING ROOF DECKS

A. Test fastener to verify that pull out strength is at least 40 lbs. per fastener. A documented pull test report from the fastener manufacturer is to be provided indicating a minimum number of pull tests per roof area and per square feet as required by the roofing material manufacturer.

B. Replace any damaged or deteriorated decking per the unit price allowances and as authorized by the Owner. Smooth rough spots and sweep all surfaces clean.

3.5 APPLICATION OF BASE SHEET

A. Mechanically Fasten Venting Base Sheet to Lightweight Insulating Concrete:
1. Start with an 18" width, at the low edge, followed by full width sheets.
2. Lap the base sheet 4 inches at ends and edges.
3. Base sheet fastening:
   a. Mechanically fasten sides and end laps per product approvals.
   b. Mechanically fasten rows within field of sheet per product approvals.

3.6 PREPARATION FOR INSULATION APPLICATION

A. The Contractor shall verify field dimensions for determining a positive drainage slope.

B. Install only as much insulation board in any one day as can be covered by the completed membrane in the same day.

C. Prior to insulation board application, remove excess dust, loose granules and foreign materials from surface of preliminary roof by brooming and powered blowers or vacuums.

D. Contractor shall insure that slopes indicated on the drawings are "finish" slopes, regardless of irregularities and deviations in the roof deck or substrate.

3.7 INSTALLATION OF RIGID INSULATION

A. Insulation and Gypsum Roof Board Application
1. Ensure base sheet is clean and dry.
2. Apply adhesive to deck. Embed insulation into adhesive with full contact.
3. As required for subsequent layers of insulation: Apply adhesive to top surface of insulation. Embed second, third, etc. layer of insulation into adhesive, with joints staggered. (full contact)
4. Fully adhere gypsum roof board to top layer of insulation.
5. Apply no more insulation and roof board than can be covered with membrane in same day.

B. Install crickets on "high" side of roof top equipment curbs and between roof drains, prior to installation of the gypsum roof board. Adhere with a manufacturer approved insulation adhesive.

C. Adhere a subsequent layer of 1/4" minimum thickness, fiberglass reinforced gypsum cover board over the tapered rigid insulation board system with a manufacturer approved insulation adhesive, (butt boards tightly). Cover all joints with tape and fully prime top surface of the gypsum cover board.

D. Cant Strips/Tapered Edge Strips: Except as otherwise shown, install preformed 45 degrees non-combustible cant strips at junctures of membrane with vertical surface after installation of the gypsum roof board.

3.8 MEMBRANE APPLICATION

A. Interply Sheet Application: Install one SBS modified bitumen interply sheet, lapped, (shingled in proper direction to shed water), with torch-adhered application.
1. The first interply serves as the base sheet for the roof system and is mechanically fastened through the rigid insulation system to the underlying metal deck as defined by the manufacturer for the specific project requirements.
2. All lap joints are to be heat-welded. All fasteners are to be concealed within laps or covered with additional heat-welded membrane patches or strips.
3. Overlap ends of connecting plies (endlap) minimum of 10 inches. Remove all factory splices from rolls.
4. Roof system is to be watertight upon completion of the installation of the first interply membrane.
5. The two interplies are to be applied individually as separate layers to allow work of other trades to be completed prior to the application of the second interply.
6. The second interply sheet is to be heat-welded to the first interply. Apply flame to bottom side of interply as it is being rolled out to achieve full adhesion to the

previously applied membrane.

B. Apply membrane; lap and seal edges and ends permanently waterproof.

C. Apply membrane smooth, free from air pockets, wrinkles, or tears. Ensure full bond of membrane to substrate.

D. Extend membrane up to top of cant strip.

E. Extend membrane over vapor barrier of wall construction and seal.

F. Seal membrane around roof protrusions and penetrations.

G. **Contractor shall maintain a daily "fire watch" for a minimum of two (2) hours after torch down shift has been completed.**

3.9 APPLYING GRANULAR SURFACED MODIFIED BITUMEN CAP SHEET

A. Roll out cap sheet and cut each roll in two equal lengths. Allow cap sheet to relax 30 minutes before installation.

B. Cap Sheet Installation:

C. Laying Cap Sheet:
1. Lay out cap sheet shingle fashion in the direction of the roof slope.

D. Apply flame to bottom side of cap sheet as it is being rolled out to achieve adhesion to interplies. Lap end of sheets 10 inches, and side laps 3 inches. Remove all factory splices from rolls.
1. Lap and seal edges and ends permanently waterproof.
2. Apply membrane smooth, free from air pockets, wrinkles, or tears.
3. Allow sufficient "bleed out" at membrane edges to ensure proper bonding.
   a. Apply granules to "bleed out" areas (matching color of new cap sheet) in a timely manner so as to ensure embedment into asphalt. Apply pressure over granules as may be required

E. Contractor shall maintain a daily "fire watch" for a minimum of two (2) hours after torch down shift has been completed.

F. Set-on Accessories:
1. Coordinate installation of set-on accessories.
2. Review details for special installation requirements.
3. Where small roof accessories are set on the membrane, set primed metal flanges in a 1/4" thick bed of flashing adhesive, and seal penetration of membrane with bead of flashing adhesive.
4. Strip metal flanges using manufacturer's standard white or tan granular-surfaced flashing, set in modified bitumen adhesive, extending minimum 4" beyond flange.

3.10 VENT PIPE FLASHING

2. Install inner sleeve inside existing vent pipe. Set primed metal flange in a 1/4" thick bed of flashing adhesive.
3. Secure in place by tightening the two top screws to expand sleeve inside pipe for friction fit.
4. Strip-in as specified for set-on accessories.
5. Set primed metal flanges of set-on accessories in bed of flashing adhesive.
6. Place and secure stainless steel vandal-proof cap with a minimum of two set screws.

B. TRAFFIC PADS: Apply walkway protection pads at locations shown, using units of size shown or, if sizes not shown, using units of manufacturer's standard size. Set units in roof cement or adhesive compatible with and approved by roof membrane manufacturer, field fabricated traffic pads can also be heat welded in place. Leave 3" clear between pads

C. Touch-up all exposed bitumen at all laps, penetrations and other locations with the manufacturer supplied PMMA repair compound.

3.11 FLASHING (ROOFING TORCH APPLICATION)

A. Install SBS modified bitumen, polyester reinforced flashing system using a roofing torch on vertical surfaces of wall and curbs over a mechanically fastened base ply felt or solid substrate.
1. Apply flexible sheet base flashing using a “torch” application over initial modified bitumen interply flashing.
2. Hand rub to ensure complete embedment and adhesion of flashing.
3. Three course outside corners and side laps using reinforcing membrane and flashing adhesive. Coat exposed asphalt with fibrated aluminum coating.

B. Secure top of flashing to nailers or solid substrate at 4 inches on center.

C. Coordinate installation of roof drains, curbs and related flashing.

D. **Contractor shall maintain a daily “fire watch” for a minimum of two (2) hours after torch down shift has been completed.**

3.12 FLASHING (COLD PROCESS APPLICATION).

A. Install SBS modified bitumen, polyester reinforced flashing system in trowelable flashing adhesive on vertical surfaces of wall and curbs over a mechanically fastened base sheet or solid substrate.
1. Apply flexible sheet base flashing using cold process application methods over modified bitumen interply flashing.
2. Hand rub to ensure complete embedment and adhesion of flashing.
3. Three course outside corners and side laps using reinforcing membrane and flashing adhesive. Coat exposed asphalt with fibrated aluminum coating.

B. Secure top of flashing to nailers or solid substrate at 4 inches on center.

C. Coordinate installation of roof drains, curbs and related flashing.

3.13 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Contract Documents.

B. Correct identified defects or irregularities.

C. Require site attendance of roofing and insulation materials manufacturers during installation of the Work.

3.14 CLEANING

A. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.

B. Repair or replace defaced or disfigured finishes caused by work of this section.
   1. Trash and scraps are a hazard and shall be collected and disposed of immediately.
   2. The applicator shall remove all masking protection equipment, materials and debris from the work and storage areas and leave those areas in an undamaged and acceptable condition.
   3. Place new sod in an acceptable blending of the edges of new sod to existing surrounding sod in all damaged areas.
      a. Do not placed new sod over existing sod. Excavate so that top plane of new sod will conform to adjacent plane of existing sod. Match new sod with existing sod type.

3.15 PROTECTION

A. Protect building surfaces against damage from roofing work.

B. Where traffic must continue over finished roof membrane, protect surfaces.

C. Upon completion of roofing work (including associated work) advise Owner of recommended procedures for surveillance and protection of roofing during remainder of construction period.

D. At the end of the construction period, or at a time when remaining construction work will in no way affect or endanger roofing, make a final inspection of roofing and prepare a written report to Owner and Architect describing nature and extent of deterioration or damage, if any, found in the work.

E. Repair or replace deteriorated or defective work found at time of final inspection. Repair damages to roofing which occurred subsequent to roofing installation and prior to final inspection. Repair or replace the roofing and associated work to a condition free of damage and deterioration at time of substantial completion.

END OF SECTION

MANUFACTURER'S NOTICE OF INTENT TO ISSUE ROOF WARRANTY

Whereas_____
herein called the "Roofing System Manufacturer" hereby gives notice to:

Owner: _____

Address:_____
of its Notice of Intent to issue its Roof Warranty, to the Owner for the Project,

Project:_____

Address:_____

incorporating the Manufacturer's_____

_____
roofing system or product is installed in accordance with the Contract Documents.

Manufacturers' Notice of Intent to Issue Roof Warranty in conformance with the Contract Documents shall be executed by the manufacturer and must be attached to the bid form. Each Bidder shall submit a single form, only from a single specified manufacturer, and shall include items 1 and 2 as follows:

1. A detailed description of the components of the manufacturer's system proposed and a list of any other component and accessories, proposed for use in the system that is provided by other manufacturers or suppliers.

    a) A statement that the Manufacturer's Representative has thoroughly reviewed the job conditions and project manual. Having reviewed the above items in detail, the Representative will provide a written notice to the Design Professional ten days prior to the bid date, if conflicts between the Manufacturer's requirements occur with the above listed documents.

2. A sample of the Manufacturer's Roof Warranty shall be attached to and submitted with this form and the bid package. The manufacturer shall delete all exceptions relative to system failure from high winds uplift pressures due to gale force winds and windstorms below 116 mph (nominal wind speed) and/or below the following "Unfactored / (Nominal) Wind Uplift Pressures as calculated per the Florida Building Code and ASCE 7:

    a. Interior of Roof (Zone 1): - 52.0 PSF
    b. Perimeter of Roof (Zone 2): - 79.0 PSF
    c. Corners of Roof (Zone 3): - 112.0 PSF

3. **Twenty (20)** year total roof system warranty inclusive of roofing materials, all included products and accessories, including all metal flashings, from roof deck to finish membrane, whether supplied by the membrane manufacturer or by others. Provide a "No Dollar Limit", single source responsibility, non-deductible roofing warranty inclusive of all material and labor in full compliance with all the requirements of the project specifications.

a) The manufacturer shall modify the roof warranty to include total labor coverage for the warranty period and to cover damage to roof materials and insulation down to the roof deck resulting from water penetration.

b) The manufacturer shall modify the roof warranty to state that the Owner has the right to make emergency repairs without voiding the warranty if the manufacturer or applicator do not respond within 24 hours to notification by the Owner of a defect or leak.

c) The manufacturer shall modify the roof warranty to state that annual inspections with written reports by the Owner, and resulting maintenance, are sufficient to fulfill the periodic inspection requirements of the manufacturer's warranty.

4. The manufacturer's Representative shall conduct a Post-Construction field inspection no earlier than **eleven (11) months**, and no later than **twelve (12) months** after the Date of Substantial Completion. Submit a written report within seven (7) days of this visit to the Owner's Maintenance Dept. listing observations, conditions and any recommended repairs or remedial action.

5. The manufacturer will, during the second (2^{nd}), and fifth (5^{th}), year of this warranty, inspect the roof system and provide a written Executive Summary of the Roof Condition to the Owner.

Further, the manufacturer acknowledges that the applicator:

Roof Applicator's Name: _____

Address: _____

has been approved to install this roof system since _____, _____ and meets the criteria for an approved applicator listed in the Project Manual.

By signing the above, the Authorized Representative of said Manufacturer certifies and represents the Roofing System Manufacturer with the authority to contract and make the above representations to the Owner.

By: _____ Date: _____
Signature of Authorized Representative

Name: _____ Title: _____

Witness: _____

Date: _____

APPLICATOR WARRANTY FOR ROOFING

Whereas _____

of (address)_____

herein called the "Roofing Contractor", has performed roofing, flashing and sheet metal and associated ("work") on following project:

Owner:_____

Address:_____

Name and Type of Building:_____

Address:_____

Area of Work:_____

Date of Acceptance:_____

Warranty Period: **Two (2) Years** Date of Expiration:_____

The Roofing Contractor hereby certifies to the Owner as a “Final Statement of Compliance” that the finished roof membrane (and insulation) system was installed in compliance with the approved contract documents.

AND WHEREAS Roofing Contractor has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks, faulty or defective materials, roofing components deemed faulty or in disrepair, and workmanship for designated the Warranty Period.

NOW THEREFORE Roofing Contractor hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions.

1. Specifically excluded from this Warranty are damages to roofing work and other parts of the building, and to building contents, caused by: a) lightning, windstorm; b) fire; c) failure of roofing system substrate or structure (including cracking, settlement, excessive deflection, deterioration, and decomposition). When work has been damaged by any of the foregoing causes, Warranty shall be null and void until such damage has been repaired and until cost or repairs has been paid by the Owner or by another responsible party as so designated.

2. The Roofing Contractor is responsible for damage to work covered by this Warranty, and is not liable for consequential damages to building or building contents, resulting from leaks or faults or defects of work.

3. The Owner shall promptly notify Roofing Contractor of observed, known or suspected leaks, defect, disrepair or deterioration. The Contractor shall guarantee to respond to all notifications within **twenty-four (24) hours** and to make all such repairs as deemed necessary to correct said leaks or defects to a satisfactory condition to the Owner. Repairs shall be made by workman in the current employment of the Contractor. Subcontracting of repair work is not permitted.

4. The definition of faulty roofing components or roofing in disrepair includes, but is not limited to the following:

    A. Blisters in roofing.
    B. Cracks or ridging in roofing membranes.
    C. Delamination, shears or tears in membrane.
    D. Defects in the quality of work or materials.
    E. Leaks of any kind.

5. This Warranty is recognized to be the only warranty of the Roofing Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of roofing failures. Specifically, this Warranty shall not operate to relieve Roofing Contractor of responsibility for performance of original work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

IN WITNESS THEREOF, this instrument has been duly executed this

_____day of_____, 20____.

_____
Roofing Contractor Firm (SEAL)

_____
Signature of Authorized Person Title

_____
Witness

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Parapet coping caps and transition flashings

B. Scupper and Overflow Scupper Fabrications

C. Counterflashings and miscellaneous accessories

D. Leaderheads and downspouts

1.2 RELATED SECTIONS

A. Section 06100 - Miscellaneous Rough Carpentry

B. Section 07536 – Modified Bitumen Roofing – Torch Application

C. Section 07900 – Joint Sealers

D. Section 09900 – (Minor) Painting.

1.1 REFERENCES

A. AISI American Iron and Steel Institute - Stainless Steel - Uses in Architecture.

B. ASTM A-167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate.

C. ASTM A-525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.

D. ASTM B-209 - Aluminum and Alloy Sheet and Plate.

E. ASTM B-32 - Solder Metal.

F. ASTM B-486 - Paste Solder.

G. ASTM D-226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

H. ASTM D-4586 - Asphalt Roof Cement, Asbestos-Free.

I. FS O-F-506 - Flux, Soldering, Paste and Liquid.

J. NRCA National Roofing Contractors Association - Roofing Manual.

K. SMACNA - Architectural Sheet Metal Manual, latest edition.

1.2 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Shop Drawings - Submit Shop Drawing for any condition not shown on the Plans or Details.

C. Samples - Submit two samples, 12x12 inch in size illustrating typical standing seam, external corner, internal corner, junction to vertical dissimilar surface, material and finish.

D. Submit two samples 12x12 inch in size metal samples.

1.3 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA and standard details and requirements.

B. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

C. Maintain one copy of each document on site.

1.4 QUALIFICATIONS

A. Fabricator and Installer - Company specializing in sheet metal flashing work with three (3) years documented experience.

1.5 PRE-INSTALLATION CONFERENCE

A. Convene 1 week prior to commencing work of this section, under provisions of Division 1.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver to site, store, protect and handle products under provisions of Division 1.

B. Stack preformed material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials which may cause discoloration or staining.

1.7 COORDINATION

A. Coordinate work under provisions of this Section.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. Stainless Steel: ASTM A-167, Type 304, soft temper, 22 or 24 ga. Thick unless otherwise specified; smooth 2B finish.

B. Zinc-Coated Steel: Commercial quality with 0.20% copper, ASTM A 525 except ASTM A 527 for lock-forming, G90 hot-dip galvanized, 16 gage for cleat/blocking and cants.

C. Termination Bar: Aluminum ASTM B-209, Alloy 6061, Temper T-6, mill finish; sizes 1/8" thick by 1-1/2" with rounded edges.

2.2 ACCESSORIES

A. Fasteners: Stainless steel.

B. Primer: Asphaltic based primer for flanges set in adhesive.

C. Sealant: Specified in Section 07 90 00.

D. Plastic Cement: ASTM D-4586, Type.

E. Solder: ASTM B-32; 50/50 lead/tin type.

F. Flux: Acid - Chloride type.

G. Flux Cleaner: Washing Soda Solution - 5% to 10%.

H. Protective Backing Paint: FS-TT-C-494, Cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.

I. Flashing Tape (concealed application): Double sided, grey extruded or preformed, 99% solids, cross-linked polyisobutylene compound, non-sag, non-toxic, non-staining, permanently elastic self adhesive tape. 1/8" minimum thickness, 3/4" minimum width unless noted otherwise on the drawings.
   1. Pecora Corporation Extru-Seal Glazing Tape.
   2. Tremco Construction Products 440 II Tape.
   3. Equivalent products as approved by the Owner and Design Professional.

J. Modified Bitumen “Dry-in” Membrane material: 40 mil (1 mm) minimum total thickness, polyester reinforced, SBS modified asphalt waterproofing and underlayment membrane sheet , single-sided, self-adhesive, with a strippable treated release paper. Factory or field cut if necessary to the size required by the details. Approved products:
   1. Interwrap Titanium PSU.
   2. Protecto-Wrap “Rainproof-40".

3. Soprema “Sopralene Stick”.
4. Tamko “TW Metal and Tile” underlayment.
5. W.R. Grace Ice & Water Shield.
6. Architect approved (prior to bidding) equivalent product.

K. Sheet Metal Fasteners: Manufacturer's required fasteners.
1. Exposed fasteners are prohibited, and may only be used where specifically permitted by the project details or the Architect.
2. Fasteners bearing on weather side of panels are to be a minimum #10 size “Scots” type screw with metal-backed neoprene washer integral with the head of the screw, or 3/16" diameter minimum stainless steel rivet.
3. Use stainless steel fasteners for exterior application and galvanized or cadmium plated fasteners for interior applications. Use painted fasteners where fastening into painted panel or trim.
4. Locate and space fastenings for true vertical and horizontal alignment. Use proper type fastening tools to obtain controlled uniform compression for positive seal without rupture of neoprene washer.

L. Sheet Metal Adhesive: Aluminum adhesive: SciGrip SG300 Series adhesive, 2 component system as manufactured by SCIGRIP Americas, 600 Ellis Road, Durham, NC 27703. Contact: (887) 477-4583, (www.scigrip.com) or Architect approved equal.

2.3 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats of stainless steel.

C. Form pieces in longest possible lengths.

D. Hem exposed edges on underside 1/2 miter and seam corners.

E. Pretin edges of stainless steel sheet. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.

F. Fabricate corners from one piece with 18 inch long face; solder/weld for rigidity.

G. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

H. Fabricate flashing to allow toe to extend 1-1/2 inches over wood nailers. Return and brake edges.

2.4 FINISH

A. All stainless steel flashing surfaces are to remain unfinished unless specifically noted otherwise by the project details, in which case, prepare surfaces in accordance with the finish manufacturer's published recommendations.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 5 mil when dissimilar metals are in contact.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, and nailing strips located.

B. Verify roofing termination and base flashing are in place, sealed, and secure.

3.2 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

3.3 INSTALLATION

A. Secure flashing in place using concealed fasteners. Use exposed fasteners only where permitted.

B. Fit flashing tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

C. Solder/weld metal joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.

D. Apply modified bitumen cement compound between metal flashing and bituminous underlayment and/or flashing membrane. At other locations utilize self-adhesive butyl flashing tape as specified above.

E. All straight joints in coping cap and fascia metal shall be formed with a minimum of cutting, and assembled in a manner to allow overlap of materials and the underlying cleat for sealant contact.

F. Seal metal joints watertight.

3.4 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of Division 1.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.5 SCHEDULE

Location		Metal Type	Thickness	Finish
A.	Parapet Coping Cap	stainless steel	24 ga	mill
B.	Continuous Cleats	stainless steel	22 ga	mill
C.	Splice Joint Covers	stainless steel	26 ga	mill
D.	Skirt Metal	stainless steel	24 ga	mill
E.	Scuppers/Overflow	stainless steel	24 ga	mill
F.	Leaderheads	stainless steel	24 ga	mill
G.	Downspouts	stainless steel	24 ga	mill
H.	Counterflashing/Receiver	stainless steel	24 ga	mill
I.	Counterflashing Retainer Cleats	stainless steel	26 ga	mill
J.	Blocking/cleats	galvanized steel	16 ga	mill

K. Miscellaneous metal flashing ; stainless steel ; 24 gage, mill, finish as required by Architect, typical unless noted otherwise.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes sealants and joint backing, and accessories.

B. Related Sections:
1. Section 07536 – Modified Bitumen Roofing - Torched Application.
2. Section 07620 – Sheet Metal Flashing and Trim.

1.2 REFERENCES

A. ASTM International:
1. ASTM C 834 - Standard Specification for Latex Sealants.
2. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
3. ASTM C 1193 - Standard Guide for Use of Joint Sealants.
4. ASTM D 1056 - Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
5. ASTM D1667 - Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
6. ASTM D2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Products Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.

C. Samples: Submit two samples, 1/4 x 6 inches in size illustrating sealant colors for selection.

D. Manufacturer's Installation Instructions: Submit special procedures, surface preparation and perimeter conditions requiring special attention.

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

1.4 QUALITY ASSURANCE

A. Perform work in strict accordance with sealant manufacturer’s requirements for preparation of surfaces and material installations instructions.

B. Maintain one copy of each document covering installation requirements on site.

1.5 QUALIFICATIONS

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

B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience, and approved by manufacturer.

1.6 MOCKUP

A. Section 01400 - Quality Control: Requirements for mockup.

B. Construct mockup of sealant joints in conjunction with window, wall and roof mockups specified in other sections.

C. Construct mockup with specified sealant types and with other components noted.
   1. Determine preparation and priming requirements based on manufacturers recommendations; take action necessary for correction of failure of sealant tests on mock-up.
   2. Verify sealants, primers, and other components do not stain adjacent materials.

D. Locate where directed by Architect/Engineer.

E. Incorporate accepted mockup as part of Work.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01600 – Common Products Requirements.

B. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.8 COORDINATION

A. Section 01300 – Project Management and Coordination.

B. Coordinate Work with sections referencing this section.

1.9 WARRANTY

A. Provide a five (5) year warranty under provisions of Section 01700 – Closeout Procedures.

PART 2 PRODUCTS

2.1 JOINT SEALERS

A. Manufacturers:
1. Dow Corning Corp.
2. GE Silicones.
3. Pecora Corp.
4. Sika Corp.
5. Tremco.
6. Sonneborn.
7. ChemLink.
8. Substitutions: Section 01600 - Product Requirements.

B. Products Description:

1. Silicone Sealant (Type S): ASTM C 920, Grade NS, Class 25. Use single component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, non sagging type; color as selected or match adjacent finish materials. Acceptable Manufacturers:
   a. Dow Corning Product: 795.
   b. GE Product: Silpruf.
   c. Pecora Corporation Product: 860 / 863 / 864.
   d. Tremco Product: Spectrem II.
   e. Architect approved equal.

2. Polyurethane Sealant (Type S): ASTM C 920, Grade NS, Class 25. Use single component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, non sagging type; color as selected or match adjacent finish materials. Acceptable Manufacturers:
   a. Sika Product: 1A.
   b. Sonneborn Product: NP-1.
   c. Architect approved equal.

3. Ethicone Sealant (Type S): ASTM C 920, Grade NS, Class 25. Use single component, moisture curing, solvent free, non-staining, non-non bleeding, capable of continuous water immersion, non sagging type; color as selected or match adjacent finish materials. Acceptable Manufacturers:
   a. ChemLink Product: M-1.
   b. Architect approved equal.

2.2 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Backer Rod of extruded polyolefin foam made of non-absorbing outer skin and a highly resilient interior network of open and closed cells which will not out-gas when ruptured. Oversize backer rod 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01300 - Project Management & Coordination.

B. Verify substrate surfaces and joint openings are ready to receive work.

C. Verify joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Remove loose materials and foreign matter impairing adhesion of sealant.

B. Clean and prime joints.

C. Perform preparation in accordance with ASTM C 1193.

D. Protect elements surrounding Work of this section from damage or disfiguration.

3.3 INSTALLATION

A. Perform installation in accordance with ASTM C 1193 and manufacturer's instructions.

B. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
1. Width/depth ratio of 2 :1.
2. Neck dimension no greater than 1/2 of joint width.
3. Surface bond area on each side not less than 75 percent of joint width.

C. Install bond breaker where joint backing is not used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Tool joints concave. channel shaped as detailed.

3.4 CLEANING

A. Section 01700 - Execution and Closeout Requirements: Final cleaning.

B. Clean adjacent soiled surfaces.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01700 - Execution and Closeout Requirements: Protecting installed construction.

B. Protect sealants until cured.

3.6 SCHEDULE (JOINT TYPES)

A.	Metal to Metal	Type: Silicone	Color to match metal
B.	Metal to CMU/Stucco	Type: Silicone	Color to match metal
C.	Metal to Roof Membrane	Type: Ethicone	Color to match metal
D.	CMU / Stucco joints	Type: Urethane	Color to match Paint selected
E.	Roof Membrane to CMU	Type: Ethicone	Color to match Membrane

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. Surface preparation and field application of paints for use for touching up existing or repaired painted finishes of surfaces damaged during these roofing activities.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry.

B. Section 07620 - Sheet Metal Flashing and Trim.

1.3 REFERENCES

A. ASTM D-16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.

B. PDCA (Painting and Decorating Contractors of America) - Painting - Architectural Specifications Manual.

C. SSPC (Steel Structures Painting Council) - Steel Structures Painting Manual.

1.4 DEFINITIONS

A. Conform to ASTM D-16 for interpretation of terms used in this Section.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide data on all finishing products.

C. Samples: Submit manufacturer's color chart illustrating range of colors available for each surface finishing product scheduled.

D. Samples: Submit three samples, 6x18 inch in size illustrating selected colors for each color selected.

E. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years experience.

B. Applicator: Company specializing in performing the work of this section with minimum 3 years documented experience.

1.7 REGULATORY REQUIREMENTS

A. Conform to code for flame and smoke rating requirements for finishes.

1.8 FIELD SAMPLES

A. Provide field sample of paint under provisions of Section 01300.

B. Provide field sample illustrating special coating color, texture, and finish.

C. Locate where directed.

D. Accepted sample may remain as part of the Work.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver to site, store, protect and handle products under provisions of Division 01.

B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

C. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

D. Store paint materials at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.10 PROJECT CONDITIONS

A. Existing Conditions:
   1. The Bidder shall verify existing conditions prior to Bidding.
   2. Conflicts and problems shall be reported to the Architect for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Prime Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
   3. Replace or restore to original condition any materials or work damaged during construction.
   4. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.

5. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

1.11 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Do not apply exterior coatings during rain or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F (7 degrees C) for interiors; 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.

1.10 WARRANTY: Provide 6 year manufacturer’s product warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers – Paint:
1. Benjamin Moore.
2. Devoe and Reynold.
3. PPG Industries.
4. Porter Paint.
5. Pratt & Lambert.
6. Sherwin-Williams.

B. Manufacturers - Primer: Manufacturer's specified prime for use with metals, stucco, and other building materials.

C. Substitutions: Under provisions of Section Division 01.

2.2 MATERIALS

A. Coatings: Ready mixed, lead free, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.

B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

C. Corrosion Neutralizer: Skybrite Company – Ospho, or approved equivalent product.

2.3 FINISHES

A. Refer to schedule at end of section for surface finish schedule.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Division 01.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. Test shop applied primer for compatibility with subsequent cover materials.

3.2 PREPARATION

A. Correct defects and clean surfaces which affect work of this section.

B. Seal with shellac and seal marks which may bleed through surface finishes.

C. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

D. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints are cleaned. Prime and paint after repairs.

E. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

F. Existing Corroded Steel or Iron Surfaces: Use power wire brushing, power abrading, power impact or other power rotary tools to remove all loose scale, all loose or non-adherent rust, and all loose paint. Do not burnish the surface, operate power tools in a manner that prevents the formation of burrs, sharp ridges and sharp cuts (SSPC-SP-3).

G. Treated all corroded surfaces with a rust neutralizing compound, such as “Ospho” as manufactured by the Skybrite Company, as directed by the manufacturer.

H. After hand/power tool cleaning and prior to painting, remove dirt, dust or similar contaminants from the surface. Acceptable methods included brushing, blow off with clean, dry air or vacuum cleaning.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Do not apply finishes to surfaces that are not dry.

C. Apply each coat to uniform finish.

D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

E. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.

F. Allow applied coat to dry before next coat is applied.

3.4 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of Section 01400.

3.5 CLEANING

A. Clean work under provisions of Section 01700.

B. Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.6 PAINT SCHEDULES

A. Stucco:
1. One coat of masonry primer.
2. Two coats of acrylic masonry paint. Color to match existing stucco walls.

B. Metal Fabrications (where indicated by the project details):
1. One coat of metal primer.
2. Two coats of acrylic metal paint (color to match existing stucco).

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Replacement of stucco in soffit areas where removal has occurred due to water intrusion.

B. Related Sections:
1. Section 07620 – Sheet Metal Flashing and Trim
2. Section 07920 – Joint Protection
3. Section 09100 – Minor Painting

1.2 REFERENCES

A. American Society for Testing and Materials International (ASTM)
1. ASTM C 150 - Standard Specification for Portland Cement.
2. ASTM C 206 - Standard Specification for Finishing Hydrated Lime.
3. ASTM C 847 - Standard Specification for Metal Lath.
4. ASTM C 897 - Standard Specification for Aggregates for Job-Mixed Portland Cement-Based Plasters.
5. ASTM C 926 - Standard Practice for Application of Portland Cement-Based Plaster.
6. ASTM C 932 - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
7. ASTM C 1063 - Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
8. ASTM C 1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.

B. National Association of Architectural Metal Manufacturers (NAAMM)
1. ML/SFA 920 - Guide Specifications for Metal Lathing and Furring.

1.3 SUBMITTALS

A. Procedure: Submit in accordance with Section 01300 – Submittal Procedures.

B. Product Data: Manufacturer’s product information

C. Samples: Not required.

D. Manufacturer's Installation Instructions: Required.

E. Manufacturer's Certificate: Manufacturer’s certification that materials conform to specification requirements.

1.4 DESCRIPTION OF WORK

A. Work of this Section includes the repair of existing exterior soffit surfaces of Roof Area 1/A at the Vistana Water Treatment Plant

B. The Contractor shall inspect stucco surfaces to determine the extent of repair required. Soundings are to be made using 3/8" rebar to locate areas of loose (hollow/non-adhering) or otherwise damaged or deteriorated stucco conditions.

C. Cracks in bonded substrate larger than what is considered "hairline" shall have sealant applied in accordance with the requirements of Section 07920 – Joint Sealants.

D. Remove loose stucco back to solidly adhered stucco surfaces. Make joinings flush, smooth and uniform, without visible lap marks. Match stucco texture to adjacent surfaces.

E. Follow requirements of this section for appropriate installation procedures.

1.5 QUALITY ASSURANCE

A. Applicator Qualifications: Minimum five (5) years documented experience in work of this Section.

B. Mockup:
1. Size: 100 square feet.
2. Show: Stucco color and texture, horizontal and vertical control joints, and casings.
3. Locate where directed.
4. Approved mockup may remain as part of the Work

1.6 JOB CONDITIONS

A. Existing Conditions:
1. Verify existing conditions, such as soundness of perimeter conditions, and varying wall thickness for length of anchoring services required and other visible conditions prior to Bidding.
2. Report conflicts and problems to the Architect for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
3. Replace or restore to original condition any materials or work damaged during construction.
4. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.
5. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

1.7 PRE-INSTALLATION CONFERENCE

A. Convene one week prior to commencing work of this section
   1. Prior to work of this Section, meet at project site with Contractor and, representatives of other entities directly concerned with performance work. Coordinate so representatives of governing authorities, product manufacturers, Architect and Owner will also be present.
   2. Review requirements, Contract Documents, submittals, status of coordinating work, availability of materials and installation facilities, proposed installation schedule, requirements for inspections and testing or certifications, forecasted weather conditions, governing regulations, insurance requirements, and proposed installation procedures.
   3. Record discussion on matters of significance; furnish copy of recorded discussions to each participant. Discuss wall system protection requirements for construction period extending beyond installation.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver to site, store, protect and handle products under the following provisions.
   1. Store materials on raised platforms above ground.
   2. Store and handle materials to protect them from:
      a. Moisture, whether due to precipitation or condensation.
      b. Damage by construction traffic.
      c. Mud, dust, sand, oil, grease and dirt.
   3. Store materials according to manufacturer's printed instructions.

B. Handling:
   1. Select and operate material handling equipment and store materials to keep from damaging existing construction.
   2. Comply with fire, safety, and environmental protection regulations.

1.9 COORDINATION

A. Coordinate Work in accordance with Owner's requirements.

PART 2 PRODUCTS

2.1 STUCCO MATERIALS AND ACCESSORIES

A. Portland Cement Plaster (Stucco): Florida Super Stucco and Florida Fibered Stucco manufactured by LaFarge Corporation, Tampa, Florida or an Architect approved manufactured brand conforming to: ASTM C 926-06; ASTM C 91, Type S.
   1. All But Finish Coat: Florida Fibered Stucco, or add 3/8 pound of reinforcing fibers to each stucco batch during mixing process.
   2. Finish Coat: Florida Super Stucco.

B. Portland cement: ASTM C 150, from one source.

C. Hydrated lime: ASTM C 206, Type S.

D. Reinforcing fibers for plaster mixes: Hi-Tech Stucco Fibers manufactured by Hi-Tech Fibers, Edgefield, S.C.

E. Bonding agent:
1. Acrylbond by Lambert Corporation, Orlando, Florida.
2. Cement-Stucco Bond by Dana Marine Laboratory, Tampa, Florida
3. Acrylic Admix 101 by Larsen Products Corp., Rockville, MD.
4. Acryl 60 by Thoro, Miami, FL

F. Water: Potable, clean, and free from substances harmful to plaster.

G. Sand for Portland cement plaster: ASTM C 897-05(2009)

H. Sealant: As specified in Section 07 90 00.

2.2 METAL LATH AND TRIM

A. Lath description: Self-furring 3.4 pound diamond mesh lath, dimpled 1 1/2” on center each way, galvanized.

B. Trim (USG Designations) Metal-Zinc Alloy
1. Casing beads - #66 with expanded flange.
2. Expansion Control Joints – Style # 15
3. Corner Beads – Double X with 3 1/4” flange and 1/8” nose.

C. Metal Lath Fasteners (Each type as approved by Architect)
1. Masonry/Concrete Application:
a. Hot-dipped galvanized power actuated or hand driven fasteners, with 3/8" diameter beads, through galvanized washers, spaced 16" on center horizontally and 6" on center vertically - pull out resistance of each fastener shall be 50 pounds. Fasteners shall be as recommended by the manufacturer of the furring type used and the length suitable for at least 1/2 inch (12.7 mm) penetration of the substrate.
2. Steel Stud Application (where applicable):
a. Galvanized steel furring nails and or screws, of type and length suitable for at least a 2/3 inch (17 mm) penetration of the steel stud system

PART 3 EXECUTION

3.1 WORKMANSHIP/INSTALLATION-STUCCO

A. Provide best workmanship available in accordance with best practices of trade.

B. Lay-out stucco work so that stoppages occur only at natural breaks such as expansion or control joints, corners, and other metal trim conditions.
1. Make joinings flush, smooth and uniform, without visible lap marks.

C. Cracks in bonded substrate larger than what is considered “hairline” shall have sealant applied in accordance with Section 07 92 00. The scope of work shall provide for the repair of stucco areas greater than 2.5 sq. feet.

D. Remove loose stucco back to solidly adhered stucco surface. Use 3/8” x 8” rebars to make soundings to determine location of hollow/non-adhered areas.
   1. Make joinings flush, smooth and uniform, without visible lap marks.

E. Do not apply stucco when temperature is above 95 degrees F., or below 45 degrees F. Temperature may be as high as 95 degrees F. during curing.

F. Maintain stucco surface planes within allowable tolerances;
   1. Allowable tolerances: Finish all stucco surfaces to true and even plane within tolerance of 1/8 in. in 5 ft. - 0 in. as measured by a straight edge placed at any location on surface.

3.2 INSPECTION

A. Verify that surfaces to receive stucco are free of dust, loose particles, oil, and foreign matter which would affect bond of subsequent stucco coats.

B. Examine framing, grounds, and accessories to insure that finished stucco surfaces will be true to line, level and plumb, without requiring additional thicknesses of stucco and with clearance behind metal lath to permit keying.

3.3 PROTECTION

A. Cover, or otherwise protect finish materials subject to damage by stucco.

B. Cover and protect adjacent areas from stucco stains, including areas which will be covered by other finish materials.

3.4 MEASURING AND MIXING

A. Measuring: Proportion and measure ingredients in suitably calibrated devices which can be easily and accurately checked at any time. Shovel measurements are not permitted.
   1. Scratch and Brown Coat:
      a. ASTM C926, Type CL. Add glass fibers at a rate recommended by manufacturer.
      b. One 78 pound bag of fibered stucco, 2-1/4 to 3-1/4 parts by volume sand. (Mix in accordance with manufacturer’s instructions)
   2. Finish Coat:
      a. ASTM C926, Type [F.] [FL.] [Add colorant in accordance with manufacturer’s instructions.]
      b. One 78 pound bag of Super Stucco and 2-1/4 to 3 parts by volume sand, fine texture. (Mix in accordance with manufacturer’s instructions)

B. Mixing:

1. Use mechanical mixer.
2. Mix each batch separately; double batching with single batch discharge not acceptable.
3. Accurately proportion materials for initial mixture using measuring devices of known volume. Sand may be added by shovel after mixer is calibrated with known volumes of materials, including water.
4. Thoroughly mix materials dry before adding water. Continue mixing for 3 to 5 minutes after all ingredients have been added.
5. Clean equipment after each batch.
6. Mixtures may be re-tempered one time after initial mixing.
7. Discard frozen, caked, and hardened mixes. Discard mixes not used within 1-1/2 hours after initial mixing
8. Bonding Agent: Approved bonding agent shall be added, diluted 50/50 with water. Follow Architect approved manufacturer's, volume/bag, recommendation of bonding agent.
9. If reinforcing fibers are not already contained in cement stucco bags, add reinforcing fibers to mixer by hand sprinkling, for complete dispersion throughout mix, during last minutes of mixing cycle. Add fibers for both scratch coat and brown coat mixes.
    a. Follow manufacturer’s recommendations.

3.5 APPLICATION OF STUCCO

A. Apply stucco in accordance with ASTM C 926.

B. Apply [scratch, brown, and finish] [brown and finish] coats to minimum [5/8] [__] inch thickness from [face of lath] (face of CMU masonry or concrete).

C. Dampen each coat prior to applying succeeding coats.

D. Three Coat Application on Metal Lath (Scratch, Brown and Finish Coats). Minimum 7/8 inch thickness from face of lath.
    1. Scratch Coat:
        a. Apply to nominal 3/8 inch thickness.
        b. Form full keys on lath. Cross rake surface bonding of brown coat.
    2. Brown Coat:
        a. Apply to nominal 3/8 inch thickness.
        b. Bring out to grounds and rod level.
        c. Float surface to provide surface texture receptive to application of finish coat.
    3. Finish Coat:
        a. Apply to nominal 1/8 inch thickness.
        b. Work from wet edges to apply unbroken area in one continuous operation to eliminate joints.
        c. Finish surfaces to match color and texture of adjacent surfaces.
        d. Finish surfaces true to plane, plumb and with neat, sharp corners and intersections.

e. Work in panels to nearest natural break formed by intersections, corners, trim, and accessories.
f. Tool plaster to V-joint at trim, grounds and accessories.
g. Not acceptable: Lines caused by variations in application or finishing techniques, cold joints, and other surface defects visible when viewed from a distance of 10 feet.

E. Finish Texture: to match existing.

F. Total Plaster Thicknesses:
1. Seven eights (7/8) inch over metal lath, or as required matching existing at areas of patching of existing.

3.6 CURING STUCCO

A. Moist cure scratch coat for 48 hours. Wet or “mist” surfaces as climatic conditions require. Warm dry conditions require more moisture. Cold rainy conditions require less.

B. Moist cure brown coat for 48 hours; Dry cure brown coat (allow to “sit”) for 5 days. Total wet and dry curing time equals 7 days.

C. Dry cure finish coat approximately 14 days.

3.7 PATCHING AND COMPLETION

A. Complete entire work to the satisfaction of the Owner and Architect.

B. Neatly patch or replace damaged stucco surfaces after the various trades have left the work.

C. Remove broken or damaged stucco. Patch with same materials and methods as original work. Match adjoining work in plane, finish and texture, without perceptible joints.

D. Upon completion of work, remove excess plaster from beads, screeds, base, trim, and adjoining work, and leave work clean.

3.8 PROTECTION

A. Provide final protection and maintain conditions, in manner suitable to Owner that ensures plaster work being without damage or deterioration at time of Substantial Completion.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Basic Mechanical Requirements specifically applicable to Division 15 Sections, in addition to Division 1 - General Requirements
2. Performance Data Log Sheets for existing roof top mounted exhaust fans and air conditioning equipment.

1.2 DESCRIPTION OF WORK

A. The extent and location of work is described by provisions of this section and includes the following
1. Removal of roof top equipment.
2. Removal of all cables, conduits, pipes, fixtures, and such items related to this trade as governed and required by the specified roof installation. In-fill deck as required per details

1.3 WORK SEQUENCE

A. Install work in stages to accommodate Owner's occupancy requirements during the construction period coordinate mechanical schedule and operations with Owner and Architect.

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

C. Mark dimensions and values in units to match those specified.

1.5 REGULATORY REQUIREMENTS

A. Conform to the 2010 Florida Building, Mechanical and Plumbing Codes.

B. All mechanical work shall be performed by a Florida licensed mechanical contractor. All plumbing work shall be performed by a Florida licensed plumbing contractor.

C. Install all work in accordance with the latest edition of all applicable regulations and governing building codes

1.6 PROJECT/SITE CONDITIONS

A. Existing Conditions:
1. This project involves mechanical work on existing building(s). Verify existing conditions and other visible conditions prior to bidding.
2. Report conflicts and problems to the Architect prior to bidding for resolution. Failure to report these conflicts and problems places the responsibility on the Prime Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
3. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

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

C. Install Work in locations shown on Drawings, unless prevented by Project conditions.

1.7 SEQUENCING AND SCHEDULING

A. Construct Work in sequence under provisions of Section 01010.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 ROOF-TOP EQUIPMENT PROCEDURE

A. Operate mechanical equipment in the presence of representatives of the Contractor and representatives of the Owner prior to any demolition, or prior to disconnecting any mechanical equipment or wiring in order to establish that all these systems are in proper working order at the start of the project. This would establish the degree of responsibility that this Contractor will have when he is required to place these mechanical/electrical systems back in working order at the end of the project.

B. Removal:
1. Prior to disconnection of any mechanical equipment, prepare a performance log (attached at end of this Section) for each item of equipment. Submit log sheet with any comments as to existing problems to the Architect or Architect's representative.
2. Temporarily remove existing roof top equipment as required to perform work. Use all means necessary to protect equipment during removal.
3. Store equipment in a secure place for reinstallation.

C. Reinstallation
   1. Reinstall mechanical equipment in accordance with the manufacturer's instructions.
   2. Reconnect electrical and control wiring to equipment and comply with equipment manufacturer's instructions.
   3. Reinstallation and reconnection of equipment shall comply with governing mechanical codes.
   4. Start up equipment after reinstallation. Prepare performance log for each unit at start-up and submit to the Architect.

D. Coordination with Roofing
   1. Cables, conduits, pipes, fixtures, and such related items shall not be in direct contact with roof membrane, roofing sheet metal, and related roofing accessory items, except as shown on drawings and as specified.

END OF SECTION

PERFORMANCE LOG DATA SHEET: EXHAUST FAN

Date:_____ Time: _____

Project: _____

Prime Contractor: _____

Mechanical Subcontractor: _____

Exhaust Fan:_____

Equipment Manufacturer: _____

Model Number: _____

Serial Number: _____

Location: _____

Rated Voltage: _____

Fan Motor Amperage Actual:_____

Fan R.P.M.: _____

General Description of physical appearance of the unit and associated duct work:

_____

_____

_____

_____

_____

_____

_____

_____

_____

PERFORMANCE LOG DATA SHEET: AIR CONDITIONING EQUIPMENT

Date: _____ Time: _____

Project: _____

Prime Contractor: _____

Mechanical Subcontractor: _____

Air Conditioning Equipment:_____

Equipment Manufacturer: _____

Model Number: _____

Serial Number: _____

Location: _____

Description of Control System: _____

Operating Voltage: _____

Fan Amperage: Rated _____ Actual: _____

Fan R.P.M.: Rated _____ Actual: _____

Compressor Amperage: Rated: _____ Actual: _____

Evaporator Motor Amperage: Rated: _____ Actual: _____

Pressure: Suction:_____ Oil:_____ Discharge:_____

Evap. Air Temp. F: Entering:_____ Leaving:_____

Coil Condition - Evaporation: _____

Coil Condition - Condenser: _____

General description and physical appearance of units:_____

_____

_____

_____

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Air terminals and interconnecting conductors.
2. Grounding and bonding for lightning protection.

B. Related Sections:
1. Section 07536 – Modified Bitumen Roofing – Torch Application
2. Section 07620 – Sheet Metal Flashing and Trim
3. Section 15000 – Basic Mechanical Equipment Requirements

1.2 REFERENCES

A. Lightning Protection Institute
1. LPI-175 - Lightning Protection Installation Standard.
2. LPI-176 - Lightning Protection System Material and Components Standard.
3. LPI-177 - Inspection Guide for LPI Certified Systems.

B. National Fire Protection Association
1. NFPA 780 – Standard for the Installation of Lightning Protection Systems.

C. Underwriters Laboratories
1. UL 96 - Lightning Protection Components
2. UL 96A - Installation Requirements for Lightning Protection Systems.

1.3 SYSTEM DESCRIPTION (SCOPE)

A. The existing roof top lightning protection system (conductors, air terminals, fasteners, clips, etc) located on roof areas within the scope of this project is to be removed and new system installed. Existing undamaged and non-deteriorated conductors and air terminals may be re-used in the new system being installed. All other accessories required for proper installation and functioning of a completed system shall be new. The system is fastened from the exterior of the building.

B. The new roof top system shall be compatible with existing building system and comply with NFPA and UL requirements and LPI standards.

C. Work shall be accomplished by a certified lightning protection contractor as required by article 1.8 of this Section.

D. Upon completion of the lightning protection installation after the roofing and flashing replacement, obtain the services of Underwriters Laboratories, Inc. to provide final inspection and 'Letter of Findings' stating that the lightning protection system has been installed in accordance with UL 96A.

1. Contractor's Option and approval of the Owner: Contractor may provide a UL Label of Certification of the new lightning protection system.

E. Preparation of the new roof membrane surface to receive the lightning protection system shall be the responsibility of the roofing contractor.

F. Installation of the new roof top lightning protection system and connection to the existing down lead system shall not affect the roof system warranty in any way.

G. It will be the responsibility of the roofing contractor to coordinate and schedule the lightning protection work under this section.

1.4 SUBMITTALS

A. Section 01300 - Submittals: Procedures for submittals.

B. Shop Drawings: Indicate layout of air terminals, grounding electrodes, and bonding connections to structure and other metal objects on roof top. Include terminal, electrode, and conductor sizes, and connection and termination details.

C. Product Data: Provide dimensions and materials of each component, and include indication of listing in accordance with UL 96.

D. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.5 PROJECT CLOSEOUT SUBMITTALS

A. Section 01700 - Contract Closeout.

B. Record actual locations of air terminals, grounding electrodes, bonding connections, and routing of system conductors in project record documents.

C. Submit 'Letter of Findings' or UL Master Label from Underwriters' Laboratories indicating approval of the lightning protection system.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 780.

B. Perform Work in accordance with UL 96A.

C. Perform Work in accordance with LPI-175 and provide LPI Certification.

D. The contractor shall furnish a UL Master Label or Letter of Findings upon completion of the installation.

E. Work shall be performed under the supervision of an LPI Certified Master Installer, and an LPI System Certification shall be delivered upon completion of the installation.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in lightning protection equipment with minimum three years documented experience.

B. Installer: Authorized installer of manufacturer with minimum three years documented experience. The installing contractor company shall be listed with the Lightning Protection Institute, and Underwriters' Laboratories, Inc. The installation contractor shall have personnel on staff Certified by the LPI as a Master Installer or Master Installer – Designer of lightning protection systems. LPI qualified staff shall provide supervision of the installation to ensure conformance to the Standards.

1.8 PROJECT CONDITIONS

A. Existing Conditions:
1. Verify existing conditions, such as soundness of perimeter conditions, and varying deck and wall thickness for length of anchoring surfaces required and other visible conditions prior to bidding.
2. Report conflicts or problems to the Architect for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
3. Replace or restore to original condition any materials or work damaged during construction.

1.9 REGULATORY REQUIREMENTS

A. Product Listing: UL 96 and LPI-176.

1.10 PRE-INSTALLATION CONFERENCE

A. Section 01040 – Administrative Requirements (Coordination and Meetings): Pre-Construction meeting.

B. Convene one week prior to commencing work of this section.

1.11 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.12 COORDINATION

A. Section 01040 - Administrative Requirements (Coordination and Meetings). Coordinate work with roofing installations.

PART 2 PRODUCTS

2.1 MATERIALS

A. All materials used in the installation shall be new and shall comply in weight, size and composition as required by UL 96A and NFPA 780 and shall be labeled or listed by Underwriters Laboratories Inc. for use in lightning protection systems. The system furnished under this specification shall be the standard product of a manufacturer regularly engaged in the production of lightning protection equipment. The manufacturer shall be listed by UL as a recognized manufacturer of lightning protection components.

B. Manufacturers:
1. East Coast Lightning Equipment, Inc.
2. ERICO International Corporation (lightning protection equipment)
3. Harger Lightning Protection, Inc.
4. Heary Brothers Lightning Protection, Inc.
5. Robbins Lightning, Inc.
6. Thompson Lightning Protection, Inc.
7. Section 01600 – Product Requirements: Product options and substitutions. Substitutions permitted per Division 1.

2.2 COMPONENTS

A. Class I materials shall be used on structures that do not exceed 75 feet in height and Class II materials shall be used on structures that are 75 feet or higher above average grade.

B. Copper materials shall not be mounted on aluminum surfaces including Galvalume, galvanized steel and zinc; this includes these materials that have been painted.

C. Aluminum materials shall not come into contact with earth or where rapid deterioration is possible. Aluminum materials shall not come into contact with copper surfaces.

D. Air Terminals: Air terminals shall be 1/2” by 12” for Class 1 installations and 5/8” by 12” for Class 2 installations solid aluminum (matching existing) and shall extend at least 10 inches above the object to be protected. All air terminal bases shall be cast bronze. The air terminals shall be spaced so as not to exceed 20’ apart around the outside perimeter of the roof or the ridge and not over 50’ apart through the center of flat roof areas. The air terminals in the center roof area shall be 5/8” by 24” solid aluminum. All “field” air terminal bases shall be of the “non-penetrating” adhesive type. Perimeter coping air terminal bases shall be mechanically attached as indicated by project details.

E. Grounding Rods: Solid Copper

F. Ground Plate: Copper

G. Conductors: copper (match existing).

H. Cable Straps: One or two hole straps as appropriate. Attachment to metal roofing and associated flashing is permitted only as indicated by project details. Avoid any penetration of the metal roofing and flashing in the field of the system.

I. Cable Connections and Splices: Bolted pressure clamp type shall be used. Crimp type connections shall not be used. All connectors to be compatible with copper conductor cables.

J. Anchor Plates and Holders for Conductor Cable: Non-penetrating copper with adhesive bases for flashing and roof- top installations. May be (1) bolted pressure clamp type or (2) crimp type similar to details shown.

K. Adhesive/Sealant:
1. Ethicone adhesive/sealant per section 07900, which is compatible with the SBS modified bitumen roof membrane being installed.
2. SBS modified asphalt adhesive as recommended and approved by the roofing membrane manufacturer.

L. Roof Membrane Adhesive: such as; "Matrix SB" by US Intec, or roof manufacturer-approved equivalent.

M. Epoxy adhesive is to be used to adhere any base plates to metal surfaces, approved product is as follows: SciGrip SG300 Series adhesive, 2 component system as manufactured by SCIGRIP Americas, 600 Ellis Road, Durham, NC 27703. Contact: (887) 477-4583, (www.scigrip.com) or Architect approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with NFPA 780, UL 96A, and LPI-175.

B. Connect conductors using mechanical connectors and/or an exothermic welding process. Protect adjacent construction elements and finishes from damage.

C. Bond exterior metal bodies on building to lightning protection system and provide intermediate level interconnection loops 60 feet (18 m) on center.

D. During installation, no penetration is permitted of the metal roofing system and/or flashing components by mechanical fasteners unless specifically detailed within the project documents; epoxy adhesive attachment of the base and anchor plates is required otherwise.

E. Where any part of the protection system is exposed to mechanical injury, it shall be protected by a nonconductive material. If metal pipe or tubing is used for protecting

conductors, the conductor shall be electrically connected to the pipe or tubing at both ends. Conceal down conductors in PVC (Schedule 40) conduit.

F. Where necessary, connect copper equipment to aluminum surfaces using UL recognized bimetal transition fittings. Lead coating is not acceptable as a bimetal transition fitting.

G. Roof Conductors: A perimeter cable shall be installed around the entire main roof areas, and all penthouses. Each perimeter cable shall be connected to at least (2) down leads, providing a two-way path to ground for each air terminal. All center roof air terminals shall be interconnected with conductors to the outside perimeter cable. Conductors on the flat roof areas may be run exposed. Ground connections shall be made around the perimeter of each roof and to the main down conductor at a maximum distance of 100'-0" on center.

H. Down Conductors: Existing shall be used where properly tested and approved for UL labeling. New down conductors, if required, shall be concealed and installed in 1" PVC (Schedule 40) conduit. Each perimeter roof cable shall be connected to at least two down leads. The average distance between down leads shall not exceed 100' from upper roof to lower roof, or from roof to ground terminals. Irregularly shaped structures may require extra down conductors to provide a two-way path to ground from each air terminal.

I. Interconnection of Metals: All metal bodies within 6' of the conductor shall be bonded to the system with proper fittings and conductor. Connections between dissimilar metals shall be made with UL recognized bimetallic connections.

1. Bonding of all metallic objects and systems at roof levels and elsewhere on the structure shall be complete. Primary bonds for metal bodies of conductance shall be bonded with appropriate fittings and full-size conductor; and shall consist of, but not limited to the following: Roof exhaust fans, HVAC units with related piping ductwork, exhaust vents and any other roof piping systems, cooling towers, and rail systems, window washing tracks, antenna mast for TV, radio or microwave, flag poles, roof handrails and/or decorative screens, roof ladders, skylights, metal plumbing stacks, etc. Exterior architectural metal fascia and/or curtain walls or mullions, which extend the full height of the structure shall also be bonded, if not inherently bonded thru the building frame.
2. Metal bodies of inductance located within 6' of a conductor or object with secondary bonds, shall be bonded with secondary cable and fittings. Typical of these are: roof flashings, parapet coping caps, gravel guards, isolated metal building panels or siding, roof drains, down spouts, roof insulation vents and any other sizeable miscellaneous metals, etc.

J. Concealed Conductors: All concealed conductors shall be installed in 1" PVC (Schedule 40) Conduit.

K. Fasteners: Conductor fasteners shall be UL recognized adhesive type of non-corrosive metal, have ample strength to support conductors and shall be spaced not to exceed 3'-0" centers.

L. Roof Penetration: Utilize existing thru-roof conductor down leads, but install new thru-structure assemblies as detailed within the project documents, the lightning protection installer shall furnish the “approved” thru-structure assemblies for installation by the roofing contractor. All work related to the installation and sealing of the thru-structure assemblies shall be furnished by the roofing contractor.

M. Grounding: The system shall be connected to the existing grounding terminals located at the base of the structure. Where ground terminations do not exist, the contractor is to provide. Ground connections shall be made around the perimeter of the structure and in no case shall average over 100'-0" apart. Ground terminals shall be 5/8" in diameter and shall be driven to a minimum depth of 32'-0". One ground shall have connection to the water system where the water supply enters the building. In case of rock ledge or other conditions making it impossible to comply with the above, trenching or a copper ground plate will be permitted; providing it will meet UL requirements.

N. Common Grounding: Provide necessary common grounds between the lightning protection system and the electric and telephone service entrance cables, TV and radio antenna grounds.

O. Coordination of Lightning Protection Work and Re-roofing Work: Provide removal of existing rooftop system and installation of new rooftop system as required to perform roof replacement work. Provide temporary connections required to maintain existing lightning protection affected by new construction. Permanently bond together any existing systems to new system.

3.2 FIELD QUALITY CONTROL

A. Section 01400 - Quality Requirements: Field inspection, testing, and adjusting.

B. Upon completion of equipment installation, obtain the services of Underwriters Laboratories, Inc. to provide an inspection and a new “Master Label” for the lightning protection system in accordance with UL 96A. If obtaining a “Master Label” would require modification of building components and/or systems outside of the scope of work of this project, then a “Letter of Findings” is to be provided.

C. Perform inspection and testing in accordance with LPI-177.

3.3 PROJECT COMPLETION AND CLOSEOUT

A. Provide to Owner three (3) copies of the As-built Drawings.

B. Attach Master Label to the building as directed by the Owner, or provide a UL “Letter of Findings” at the completion of the system installation.

END OF SECTION