

ROOF COATING
LEON COUNTY COURTHOUSE

FOR
LEON COUNTY BOARD OF
COUNTY COMMISSIONERS

100% CD SUBMITTAL

JANUARY 18, 2013

ROOF COATING
LEON COUNTY COURTHOUSE

SPECIFICATIONS

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SECTION 01010 - SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 PROJECT/WORK IDENTIFICATION:

- A. General: Project name is as shown on the Contract Documents prepared by MLD Architects, Inc. 211 John Knox Rd, Suite 105, Tallahassee, Florida, 32303 (1-850-385-9200).
- B. Summary of References: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings, addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including but not necessarily limited to printed material referenced by any of these. It is recognized that work of the contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the contract documents.
- C. The work includes the roof coating of the Leon County Courthouse Building.
- D. Abbreviated Written Summary: Briefly and without force and effect upon the contract documents, the work of the Contract can be summarized as follows:

The work at the Leon County Courthouse includes pressure wash cleaning and coating the existing EPDM membrane roofing system adhered to the courthouse roofs indicated in the scope of work, cleaning, priming and painting the existing roof drains clamping rings and metal basket strainers and replacing the clamping ring bolts with stainless steel bolts. The existing roofing membrane will be repaired where deficient, punctured or torn and clean prior to coating. The work also includes cutting out and replacing existing sealants at counterflashing, metal coping joint caps, awnings, louvers frames, clerestory window frames and penthouse wall penetrations with premium silicone sealants. The stucco penthouse walls and screen walls above the roofs will be pressure washed and painted with two coats premium acrylic paint. Previously painted metal handrails, ladders, steps and guardrails to be cleaned primed and painted with fluorocarbon paint.

Additive Alternate One: Includes cutting out and resealing "wet glazing" the skylights sealant with premium silicone sealant.

1.3 CONTRACTOR USE OF PREMISES:

- A. General: The Contractor shall limit his presence on the site to the work indicated.

B. Use of the Site: Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated, in particular the playing field area, are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

1. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas agreed upon. If additional storage is necessary, obtain and pay for such storage off site.
2. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.

1.4 IDENTIFICATION OF CONTRACTOR'S EMPLOYEES:

A. All employees of the Contractor, Subcontractors, Sub-Subcontractors and other personnel on the project site shall have a company shirt or a laminated badge with the following information:

1. Worker's name.
2. Employer's name.
3. Identification badge shall be worn and visible at all times when on the project site.

1.5 OWNER OCCUPANCY:

A. Owner Occupancy: Cooperate fully with the Owner or his representative during construction operations to minimize conflicts, provide complete information as to those areas of restricted occupancy by work, and maintain safe conditions and to facilitate Owner usage. Perform the work so as not to interfere with the Owner's operations as designated.

1.6 ALTERATIONS AND COORDINATION:

A. General: The work of this Contract includes coordination of the entire work of the project, including preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from beginning of construction activity through project close-out and warranty periods.

B. Alterations: Where applicable, requirements of the contract documents apply to alteration work in the same manner as to new construction.

C. All work shall comply with the Florida Building Code 2010 Edition.

1.7 MISCELLANEOUS PROVISIONS:

A. General:

1. All work executed under the scope of this contract shall comply with the Steel Structures Painting Council guidelines for application of industrial coatings and for lead based paint as modified with additional methodology and regulatory requirements.

2. Component removal or component removal and replacement: All components scheduled to be replaced shall be replaced with new components and shall be supplied to meet architectural specifications. All components shall be certified to be free of lead based paint before installation.

B. Performance Requirements for Completed Work:

1. General: The Contract Documents indicated the intended occupancy and utilization of the building and its individual systems and facilities. Compliance with governing regulations is intended and required for the work and for the Owner's occupancy and utilization.

END OF SECTION 01010

SECTION 01012 - MATERIALS AND EQUIPMENT

GENERAL:

STANDARDS:

Reference to standards, codes specifications, recommendations and regulations: refer to the latest edition of printing in effect at the date of issue shown in the Documents, unless other date is implied by the suffix number of the standard.

Applicable portions of the standards listed that are not in conflict with the Contract Documents shall be constructed as Specifications for this work.

Specified variations from the standards listed shall be constructed as amendments and the unaltered portions of the Standards shall remain in full effect.

In cases of discrepancies or variations between the listed Standards, the more stringent requirements shall govern.

Keep at the site not less than one copy, in good condition, of the standards specifically indicated as the methods for applying, installing, connecting and erecting. Inform involved personnel as to the requirements and availability of the standards.

DELIVERY AND STORAGE:

Schedule deliveries and unloading to prevent traffic congestion, blocking of access and interference with work. Arrange deliveries to avoid larger accumulations than can be suitably stored at site.

Pack and handle material to prevent damage during loading, delivering and storing.

Deliver packaged materials to site in manufacturer's original, unopened, labeled containers. Do not open containers until approximate time for use.

Store materials at locations that will not interfere with progress of work. Arrange locations of storage areas in approximate order of intended use.

Do not store materials on the roof.

Store materials in a manner that will prevent damage to materials or structure, and that will prevent injury to persons.

STORING AREAS:

The Owner will make available limited storage areas on the building site. At the start of the operation, make arrangements with the Owner's representative for the assignment of the areas. During construction maintain the areas in a neat condition.

Parking of private cars is not permitted on the property of the Owner. Notify employees and Subcontractors of this requirement at the beginning of work.

MANUFACTURER'S DIRECTIONS:

Prepare and apply products and materials according to the recommendations of the manufacturer when such recommendations are not in conflict with the Contract Documents.

Furnish to the Architect copies of the manufacturer's recommendations. Secure approval of recommendations before proceeding with work.

Keep at site not less than one copy, in good condition, of manufacturer's recommendations or directions pertaining to work at the site and MSDS sheets on all products and materials being used. Inform involved personnel of requirements and availability of manufacturer's recommendations.

END OF SECTION 01012

SECTION 01040 - PROJECT COORDINATION

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

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

- Coordination.
- Administrative and supervisory personnel.
- General installation provisions.
- Cleaning and protection.

Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

COORDINATION AND MEETINGS

General: Prepare a written memorandum on required coordination activities. Include such items as required notices, reports and attendance at meetings. Distribute this memorandum to each entity performing work at the project site.

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

Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.

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

Make adequate provisions to accommodate items scheduled for later installation.

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

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

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

- Preparation of schedules.
- Delivery and processing of submittals.
- Progress meetings.
- Project Closeout activities.

Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

Salvage materials and equipment involved in performance of, but not actually incorporated in, the work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

SUBMITTALS

Schedule/Coordination Drawings: Prepare and submit schedule coordination Drawings.

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

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

GENERAL INSTALLATION PROVISIONS

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.

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.

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

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

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

Recheck measurements and dimensions, before starting each installation.

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.

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

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

CLEANING AND PROTECTION

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

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

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.

END OF SECTION 01040

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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 and drawings.
 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. Special prequalification requirements.
 2. Applications for payment.
 3. Performance and payment bonds.
 4. Insurance certificates.
 5. List of Subcontractors.
- C. Inspection and test reports are included in Section "Quality Control Services."

1.3 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.
 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.
- 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. Project name, and building reference.
2. Date.
3. Name and address of Architect.
4. Name and address of Contractor.
5. Name and address of subcontractor.
6. Name and address of supplier.
7. Name of manufacturer.
8. Number and title of appropriate Specification Section.
9. Drawing number and detail references, as appropriate.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. 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 limitations. Include Contractor's certification that information complies with Contract Document requirements.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".

1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
2. Within each time bar indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
5. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.

B. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.

- C. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.
- D. Cost Correlation: At the head of the schedule, provide a two item cost correlation line, indicating "precalculated" and "actual" costs. On the line show dollar-volume of Work performed as of the dates used for preparation of payment requests.
- E. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary 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.
- F. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.

1.6 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect at weekly intervals:
 - 1. Work completed this date
 - 2. Area of work (graphically indicate on reduced plaza deck drawing sheet attached this section).
 - 3. Products used, number of gallons, square feet covered, coverage rate, etc.
 - 4. Approximate count of personnel at the site.
 - 5. High and low temperatures, humidity, general weather conditions.
 - 6. Accidents and unusual events.
 - 7. Meetings and significant decisions.
 - 8. Stoppages, delays, shortages, losses.
 - 9. Emergency procedures.
 - 10. Orders and requests of governing/inspecting authorities.
 - 11. Change Orders received, implemented.
 - 12. Field tests and inspections. Meter readings and similar recordings.
 - 13. Partial Completions.
 - 14. Substantial Completions authorized.

1.7 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, and performance curves.
1. Mark each copy to show applicable choices and options. Where 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.
 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 a minimum of three (3) copies of each required submittal. The Architect will retain two, and will return the other marked with action taken and corrections or modifications required. If digital (pdf) files are provided, a minimum of one (1) hard copy is 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.
 6. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 7. Do not permit use of unmarked copies of Product Data in connection with construction.
- B. As required by Florida Statute 553.842 and the Florida Administrative Code 9B-72, the Contractor is required to provide the information and the product approval number(s) on building components listed on the attached PRODUCT APPROVAL SPECIFICATION SHEET prior to the start of work. Should you not know the product approval number of any of the listed products applicable to this project, contact your local product supplier or find the approved product number at www.floridabuilding.org.

1.8 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. 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.
 3. 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. Submittals: Submit three (3) sets; one will be returned marked with the action taken.
 1. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
 2. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 3. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- C. 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.
 1. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.9 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect 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 will stamp each submittal with a uniform, self-explanatory action stamp.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 01300

SECTION 01400 - QUALITY CONTROL SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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 installation procedures.
 - 1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as installation procedures.
 - 2. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate 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.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by material manufacturing except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency provided by the Contractor. Costs for these services shall be included in the Contract Sum.
 - 1. The Contractor shall employ and pay an independent agency, to perform specified quality control services.
 - 2. The Owner may engage and pay for the services of an independent agency to perform inspections and tests specified as the Owner's responsibility.

3. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.
4. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
5. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.
6. 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:
 7. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
 8. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 9. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 10. Security and protection of samples and test equipment at the Project site.

- B. Coordination: The Contractor and each agency engaged to perform inspections, 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, where possible, the necessity of removing and replacing construction to accommodate inspections and tests.

1.4 SUBMITTALS

- A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Architect, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the inspection, test, or similar service, submit a certified written report of each inspection, test or similar service to the Architect and Owner's Representative, in duplicate.
1. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Dates and locations/areas of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product/material, quantity and Specification Section.
 - h. Complete inspection or test data.

- i. Test results and an interpretations of test results.
- j. Ambient conditions at the time of sample-taking and testing.
- k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
- l. Name and signature of inspector.
- m. Recommendations on retesting, if applicable.

1.5 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified 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 engaged 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

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.
- B. Protect construction exposed by or for quality control service activities, and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01400

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of Contract Drawings as Record Drawings. Mark to show installation that varies from the Work originally shown.
- B. Record Specifications: Maintain one copy of the Project Manual, including addenda, as Record Specifications. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications.
- C. Operation and Maintenance Data: Organize data into 3-ring binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following:
 - 1. Emergency instructions.
 - 2. Spare parts list.
 - 3. Copies of warranties.
 - 4. Wiring diagrams.
 - 5. Shop Drawings and Product Data.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, and plumb; substrates within installation tolerances; surfaces that are smooth, clean, and free of deleterious substances; and application conditions within environmental limits. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Prepare substrates and adjoining surfaces according to manufacturer's written instructions, including, but not limited to, the application of fillers and primers.

3.2 CUTTING AND PATCHING

- A. Do not cut structural members without prior written approval of Architect.
- B. For patching, provide materials whose installed performance will equal or surpass that of existing materials. For exposed surfaces, provide or finish materials to visually match existing adjacent surfaces to the fullest extent possible.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned. Clean exposed surfaces and protect from damage. If applicable, prepare surfaces for field finishing.
- B. Comply with NFPA 70 for installation of electrically operated equipment and electrical components and materials.

3.4 FINAL CLEANING

- A. Clean each surface or item as follows before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
 - 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean.
 - 4. Vacuum carpeted surfaces and wax resilient flooring.
 - 5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures and lamps.
 - 6. Clean the site. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

3.5 CLOSEOUT PROCEDURES

- A. Request Substantial Completion inspection once the following are complete:
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Submit Record Drawings and Specifications, maintenance manuals, warranties, and similar record information.
 - 3. Deliver spare parts, extra stock, and similar items.
 - 4. Changeover locks and transmit keys to Owner.
 - 5. Complete startup testing of systems and instruction of operation and maintenance personnel.
 - 6. Remove temporary facilities and controls.
 - 7. Complete final cleanup.
 - 8. Touch up, repair, and restore marred, exposed finishes.
 - 9. Obtain final inspections from authorities having jurisdiction.
 - 10. Obtain certificate of occupancy.
- B. Upon receipt of a request for inspection, Architect will proceed with inspection or advise Contractor of unfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or advise Contractor of items that must be completed or corrected before the certificate will be issued.
- C. Arrange for each installer of equipment that requires operation and maintenance to provide instruction to Owner's personnel. Include a detailed review of the following:
 - 1. Startup and shutdown.

2. Emergency operations and safety procedures.
 3. Noise and vibration adjustments.
 4. Maintenance manuals.
 5. Spare parts, tools, and materials.
 6. Lubricants and fuels.
 7. Identification systems.
 8. Control sequences.
 9. Hazards.
 10. Warranties and bonds.
- D. Request inspection for certification of final acceptance and final payment, once the following are complete:
1. Submit final payment request with releases of liens and supporting documentation. Include insurance certificates.
 2. Submit a copy of the Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
 3. Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion.
 4. Submit consent of surety to final payment.
- E. Architect will reinspect the Work on receipt of notice that the Work has been completed.
1. On completion of reinspection, Architect will prepare a certificate of final acceptance. If the Work is incomplete, Architect will advise Contractor of the Work that is incomplete or obligations that have not yet been fulfilled.

END OF SECTION 01700

SECTION 075600 - FLUID-APPLIED WATERPROOF ROOF COATING SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Single-component acrylic polymer resin waterproof roof coating.

- B. Related Sections:

- 1. Division 07 Section "Joint Sealants" for joint-sealant materials and installation above coating system.
 - 2. Division 07 Section "Sheet Metal Flashing and Trim."

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproof roof coating.
- B. Shop Drawings: Show locations and extent of waterproof roof coating. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, pipe penetration flashing tie-ins with adjoining waterproof roof coating, flashing and other termination conditions.
- C. Samples: For the following products:
 - 1. Flashing sheet, 10 by 8 inches (250 by 200 mm).
 - 2. Membrane-reinforcing fabric, 10 by 8 inches (250 by 200 mm).
- D. Qualification Data: For Installer.
- E. Product Test Reports: For waterproof roof coating, based on evaluation of comprehensive tests performed by a qualified testing agency.
- F. Field quality-control reports.

- G. Warranties: Samples of specified manufacturer and installer special warranties.
- H. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 10 years experience in manufacturing products complying with requirements of this section.
- B. Installer Qualifications: A firm that is approved by waterproof roof coating manufacturer for installation of waterproof roof coating required for this Project.
- C. Source Limitations: Obtain waterproof roof coating materials from single source from single manufacturer.
- D. Approved by FMRC (Factory Mutual Research Corporation) according to Standard 4470 for Class 1 Roof Construction.
- E. Mockups: Before beginning installation, install waterproof roof coating to 100 sq. ft. (9.3 sq. m) of roof deck surface to demonstrate surface preparation, crack and joint treatment, corner treatment, thickness, texture, and execution quality. If not using pavers, delete option in first subparagraph below.
 - 1. A spring scale peel adhesion test, or other adhesion test of sample/mock up coating recommended by coating manufacturer, is to be performed by manufacturer's representative in presence of Architect and Contractor.
 - 2. If Architect determines mockups do not comply with requirements, reapply waterproof roof coating until mockups are approved.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review waterproof roof coating requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and flashings, installation procedures, testing and inspection procedures, and protection and repairs.
- G. Manufacturer's Technical Representative: The approved manufacturer's technical representative shall be on the site at least once every seven days of the coating installation work specified and provide field report to Contractor, Architect and Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver liquid materials to Project site in original containers with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, shelf life, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by waterproof roof coating manufacturer.
- C. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- D. Protect stored materials from direct sunlight.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Apply coating within the range of ambient and substrate temperatures recommended by coating manufacturer. Do not apply coating to a damp or wet substrate, when relative humidity exceeds 85 percent, or when temperatures are less than 5 deg F (3 deg C) above dew point.
 - 1. Do not apply coating in snow, rain, fog or mist, or when such weather conditions are imminent during application and curing period.
- B. Maintain adequate ventilation during application and curing of waterproof roof coating materials.

1.7 WARRANTY

- A. Special Manufacturer's Warranty: Manufacturer's standard form in which waterproof roof coating manufacturer and Installer agree to repair or replace waterproof roof coating system that does not comply with requirements or that fails to remain watertight within specified warranty period.
 - 1. Manufacturer's warranty is for labor and material.
 - 2. Failure includes, but is not limited to, failure of waterproof roof coating due to failure of substrate prepared and treated according to requirements.
 - 3. Warranty Period: Ten years from date of Substantial Completion.
- B. Special Installer's Warranty: Specified form, signed by Installer, covering Work of this Section, for warranty period of two years.
 - 1. Warranty includes labor and material to correct or repair defective work or work not in accordance with the contract documents.

PART 2 - PRODUCTS

2.1 SINGLE-COMPONENT ACRYLIC POLYMER RESIN WATERPROOF ROOF COATING

- A. Single-Component, Acrylic Polymer Resin Waterproof Roof Coating: Comply with liquid-applied, exterior waterproof roof coating materials, ASTM D6083, and with manufacturer's written physical requirements.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Firestone Building Products: AcryliTop PC-100.
 2. Products: Subject to compliance with requirements available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Hydro-Stop, a Quest Construction Product
 - b. Neogard, Div. of Jones-Blair; Neogard 7401.
 - c. Sarnafil; Sikacoat Roof Coating System
 - d. Advanced Coating Systems; Acu-Shield Elastomeric Roof Coating
 3. Cured Membrane Characteristics and Minimum Standards:
 - a. Fire Rating: ASTM E108: Class A
 - b. Solar Reflectance: ASTM C1371: ≥ 0.90
 - c. FM4470: no leakage, meets Class I-90, good resistance to foot traffic.
 - d. ASTM D 638: Elongation > 300%
 - e. ASTM E96: 3 perms moisture vapor

2.2 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials recommended by manufacturer to be compatible with one another and with waterproof roof coating, as demonstrated by waterproof roof coating manufacturer, based on testing and field experience.
- B. Primer: Manufacturer's standard, factory-formulated polyurethane or acrylic polymer primer.
- C. Sheet Flashing: 50-mil- (1.3-mm-) minimum, nonstaining, uncured sheet neoprene, or other membrane recommended by roof coating manufacturer.
1. Adhesive: Manufacturer's recommended contact adhesive.
- D. Membrane-Reinforcing Fabric: Nonwoven, white polyester fabric, per ASTM D1117: 3.2-oz./sq. yd. (109-g/sq. m) or manufacturer's standard and recommended weight.
- E. Joint Reinforcing Strip: Manufacturer's recommended polyester fabric.
- F. Joint Sealant: Multicomponent polyurethane sealant, compatible with waterproof roof coating, complying with ASTM C 920 Type M, Class 25; Grade NS for sloping and vertical applications or Grade P for deck applications; Use NT exposure; and as recommended by manufacturer for substrate and joint conditions.

1. Backer Rod: Closed-cell polyethylene foam.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
 1. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean and prepare substrate according to manufacturer's written recommendations. Provide clean, dust-free, and dry substrate for waterproof roof coating application.
- B. Mask off adjoining surfaces not receiving waterproof roof coating to prevent spillage or overspray affecting other construction.
- C. Close off roof drains and other roof deck penetrations to prevent spillage and migration of waterproof roof coating fluids.
- D. Remove grease, oil, bitumen, paints, curing compounds, acid residues, loose, deteriorated existing coatings and other contaminants or failed coatings from roof surface.
- E. Remove fins, ridges, and other projections and fill pitch pockets and flashing voids or pockets, and other voids.

3.3 PREPARATION AT TERMINATIONS AND PENETRATIONS

- A. Prepare vertical and horizontal surfaces at terminations and penetrations through waterproof roof coating and at expansion joints, drains, and sleeves according to ASTM C 898 and manufacturer's written instructions.
- B. Prime substrate unless otherwise instructed by waterproof roof coating manufacturer.
- C. Apply waterproof coating in two separate applications, and embed a joint reinforcing strip in the first preparation coat as recommended by waterproof roof coating manufacturer.
 1. Provide sealant cants around penetrations and at inside corners of roof-to-wall and roof-to-curb butt joints when recommended by waterproof roof coating manufacturer.

3.4 JOINT AND CRACK TREATMENT

- A. Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C 898 and waterproof roof coating manufacturer's written instructions. Remove dust and dirt from joints and cracks, complying with ASTM D 4258, before coating surfaces.
 - 1. Comply with ASTM C 1193 for joint-sealant installation.
 - 2. Apply bond breaker between sealant and preparation strip.
 - 3. Prime substrate and apply a single thickness of preparation strip extending a minimum of 3 inches (75 mm) along each side of joint. Apply waterproof roof coating in two separate applications and embed a joint reinforcing strip in the first preparation coat.
- B. Install sheet flashing and bond to deck and wall substrates where indicated or required according to waterproof roof coating manufacturer's written instructions.
 - 1. Extend sheet flashings onto perpendicular surfaces and other work penetrating substrate according to ASTM C 898.

3.5 WATERPROOF ROOF COATING SYSTEM APPLICATION

- A. Apply waterproof roof coating according to ASTM C 898 and manufacturer's written instructions.
- B. Start installing roof coating system in presence of manufacturer's technical representative.
- C. Apply primer over prepared substrate.
- D. Unreinforced Waterproof Roof Coating Applications: Mix materials and apply waterproof roof coating by spray, roller, notched squeegee, trowel, or other application method suitable to slope of substrate.
 - 1. Apply one or more coats of waterproof roof coating to obtain a seamless membrane free of entrapped gases, with an average dry film thickness of 45 mils (0.45 inches; 1.13 mm) and a minimum dry film thickness of 40 mils (1.016 mm) at any point, unless recommended thicker by manufacturer.
 - 2. Apply waterproof roof coating to prepared wall terminations and vertical surfaces.
 - 3. Verify wet film thickness of waterproof roof coating every 100 sq. ft. (9.3 sq. m).
- E. Reinforced Waterproof Roof Coating Applications: Mix materials and apply waterproof roof coating by roller, notched squeegee, trowel, or other suitable application method.
 - 1. Apply first coat of waterproof roof coating (base – primer), embed membrane-reinforcing fabric, and apply second coat of waterproof roof coating to completely saturate reinforcing fabric and to obtain a seamless reinforced membrane free of entrapped gases, with an average dry film total thickness of 45 mils (0.45 inches; 1.13 mm) and a minimum dry film thickness of 40 mils (1.016 mm) at any point, unless recommended thicker by manufacturer.

2. Apply reinforced waterproof roof coating to prepared wall terminations and vertical surfaces.
 3. Verify wet film thickness of waterproof roof coating every 100 sq. ft. (9.3 sq. m).
- F. Premium three stage, fabric reinforced flexible acrylic waterproof coating, fluid applied in successive stages to form continuous seamless, watertight liquid applied membrane; 40 mil (0.04 inches; 1.016 millimeters) DFT

3.6 FIELD QUALITY CONTROL

- A. Engage a full time site supervisor qualified by the waterproof roof coating / liquid applied membrane manufacturer to inspect substrate conditions, surface preparation, and application of the membrane, flashings, protection, and drainage components; and to furnish daily reports to Architect.
- B. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D 5957, after completing waterproof roof coating but before overlaying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water.
1. Flood to an average depth of 2-1/2 inches (64 mm) with a minimum depth of 1 inch (25 mm) and not exceeding a depth of 4 inches (100 mm). Maintain 2 inches (50 mm) of clearance from top of sheet flashings.
 2. Flood each area for 24 hours.
 3. After flood testing, repair leaks, repeat flood tests, and make further repairs until waterproof roof coating installation is watertight.
- C. Owner may engage an independent testing agency to observe flood testing and examine underside of decks and terminations for evidence of leaks during flood testing.
- D. Manufacturer's Technical Representative: The approved manufacturer's technical representative shall be on the site at least once every seven days of the coating installation work specified and provide field report to Contractor, Architect and Owner.

3.7 CURING, PROTECTION, AND CLEANING

- A. Cure waterproof roof coating according to manufacturer's written recommendations, taking care to prevent contamination and damage during application stages and curing.
1. Do not permit foot or vehicular traffic on unprotected membrane.
- B. Protect waterproof roof coating from damage and wear during remainder of construction period.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 071416

FLUID-APPLIED WATERPROOF ROOF COATING SYSTEM

071416 - 7

SECTION 07600 - FLASHING AND SHEET METAL

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

The Types of work specified in this section include the following:

Metal counterflashing.

Exposed metal trim.

Miscellaneous sheet metal accessories.

JOB CONDITIONS:

Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2 - PRODUCTS

FLASHING AND SHEET METAL MATERIALS:

Stainless Steel: AISI Type 302/304, complying with ASTM A 167, 2D annealed finish, soft, except where harder temper required for forming or performance; 0.0156-inch thick (28 gauge) except as otherwise indicated.

Aluminum: ASTM B 209, alloy 3003, temper H14, unless harder temper required for forming and performance, 0.032 thick (20 gage) except as otherwise indicated. Mil finish prepared for coating system as noted below. Color to be selected by Architect from manufacturer's standard selection.

Fluoropolymer coating: Full strength 70% "Kynar 500" coating baked on for 15 minutes at 450 degrees F (232 degrees C), in a dry film thickness of 1.0 mil, 30% reflective gloss (ASTM D 523), over 0.2 mil baked on modified epoxy primer.

Durability: Provide coating which has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish, and without chalking in excess of 8 (ASTM D 659), and without fading in excess of five NBS units.

Elastic Sheet Flashing:

Provide only flashings compatible with and acceptable to roofing system manufacturer.

Copper: ASTM B 370, cold-rolled except where soft temper is required for forming; 16 oz (0.0216" thick) except as otherwise indicated.

Lead Flashing: 2-1/2 pound to 4 pound sheet of common desilverized pig lead.

Miscellaneous Materials and Accessories:

Solder: For use with stainless steel, provide 60 - 40 tin/lead solder (ASTM B 32), with acid-chloride type flux, except use rosin flux over tinned surfaces.

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

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

Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.

Paper Slip Sheet: 5-lb rosin-sized building paper.

Polyethylene Underlayment: 6-mil carbonated polyethylene film; FS L-P-512.

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

Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.

Reinforced Liquid Membrane Urethane Flashing System: Apply recommended primer and apply colored finish coat.

Soprema – Alsan Flashing
Siplast – Parpapro 123 Flashing Resine
Johns Manville – Perma Flash

FABRICATED UNITS:

General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form

work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.

Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joints).

Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.

Form section square, true and accurate in size, in maximum possible lengths and free of distortions and defects detrimental to appearance or performance. Hem exposed edges. (Allow for expansion at joints.)

Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

PART 3 - EXECUTION

INSTALLATION REQUIREMENTS:

General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams, which will be permanently watertight and weatherproof.

Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.

Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

Install reglets to receive counter-flashing in manner and by methods required.

Install counterflashing in reglets, either by snap-in seal arrangement, or by wedging in place for anchorage and filling reglet with mastic or elastomeric sealant.

Install elastic flashing without stretching. Install elastic flashing filler strips to provide for movement by forming loops or bellows in width of flashing. Locate filler strips to facilitate complete drainage of water from flashing. Seam flashing sheets with adhesive, and anchor edges as required by manufacturer.

CLEANING AND PROTECTION:

Clean exposed metal surfaces, removing substances, which might cause corrosion of metal or deterioration of finishes.

Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION 07600

SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

RELATED DOCUMENTS:

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

SUMMARY:

Extent of each form and type of joint sealer is indicated on drawings and schedules.

This Section includes joint sealers for the following locations:

Exterior joints in vertical surfaces and nontraffic horizontal surfaces as indicated below.

Silicone sealants:

Joints in sheet metal flashing, metal cladding and existing metal, masonry, cast-in-place concrete and panel joints indicated.

Joints between horizontal surfaces or ledges and vertical surfaces of masonry or concrete.

Perimeter joints between materials listed above and metal flashings associated with roofing system.

Joints between different materials listed above.

Perimeter joints between steel frames and masonry or metal panel trim.

Related Sections: The following sections contain requirements that relate to this section:

Painting is specified in Division 9.

SYSTEM PERFORMANCES:

Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

SUBMITTALS:

Product Data from manufacturers for each joint sealer product required, including instructions for joint preparation and joint sealer application.

Certificates from manufacturers of joint sealers attesting that their products comply with specification requirements and suitable for the use indicated.

Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

Compatibility with elastomeric coating system manufacturer certification and test reports indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with elastomeric coating system specified and submitted. Include elastomeric coating manufacturer's test results relative to coating performance and recommendations for primers and substrate preparation needed to obtain adhesion.

Product test reports for each type of joint sealers indicated, evidencing compliance with requirements specified.

Preconstruction field test reports indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.

QUALITY ASSURANCE:

Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

Investigate materials failing compatibility or adhesion tests and obtain joint sealer manufacturer's written recommendations for corrective measures, including use of specially formulated primers.

Preconstruction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:

Locate test joints where indicated or, if not indicated, as directed by Architect.

Conduct field tests for each application indicated below:

Each type of elastomeric sealant and joint substrate indicated.

Test Method: Test joint sealers by hand pull method described below:

Install joint sealants in 5-foot joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.

Make knife cuts as follows: A horizontal cut from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 2 inch cuts. Place a mark 1 inch from top of 2 inch piece.

Use fingers to grasp 2 inch piece of sealant just above 1 inch mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.

Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

Inspection and approval of joint preparation by Architect, Owner, and/or Manufacturer's Representative prior to application of new sealant.

Test cuts of completed joint sealant installation at 25 locations determined by the Architect, owner's Representative or Manufacturer's Representative to verify compliance.

References: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM D 4258-83 (1988) Standard Practice for Surface Cleaning Concrete for Coating.

ASTM D 4262-83 (1988) Test Method for pH of Chemically Cleaned Concrete Surfaces.

ASTM C-920, Type S, Grade NS, Class 25, Use T, NT, M, G, A, and O.

Federal Specification TT-S-001543 A for silicone building sealants.

Federal Specification TT-S-00230C for one-component building sealants.

DELIVERY, STORAGE, AND HANDLING:

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

Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

PROJECT CONDITIONS:

Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:

When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 deg F (4.4 deg C).

When joint substrates are wet due to rain, frost, condensation, or other causes.

Joint Width Conditions: Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.

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

SPECIAL PROJECT SEALANT WARRANTIES

Special Project Warranties: Submit for verification at bid opening two copies of special 10 year "Sealant Guarantee" from Manufacturer, covering urethane sealant products of this section, to be issued in conjunction with the manufacturer's elastomeric coating warranty. Provide written warranties by the Contractor, and his authorized installer, agreeing to replace/repair defective materials and workmanship. Provide written warranty by the manufacturers of the sealant material agreeing to replace defective or failed materials within the specified warranty period. Repairs and replacements required because of events beyond Contractor's/Installer's/Manufacturer's control (and which exceed performance requirements) shall be completed by Contractor/Installer and paid for by the Owner.

The Manufacturer's sealant warranty period is 20 years for silicone sealants. Warranty is to be nonprorated and no penal sum.

The Contractor and Installer's warranty period is two years after date of substantial project completion with no dollar limit and no penal sum.

SEQUENCING AND SCHEDULING:

Installation of joint sealer with other products as recommended by manufacturer of sealant, and other products. Submit manufacturer's recommendation of sequence.

Sequence schedule installation of joint sealers as soon as possible following cut out of existing sealant, grinding and thoroughly cleaning joint, and inspection of joint preparation by Architect or Owner's Representative, unless otherwise indicated.

PART 2 - PRODUCTS

MATERIALS, GENERAL:

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

Colors: Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

ELASTOMERIC JOINT SEALANTS:

Elastomeric Sealant Standard: Provide manufacturer's standard neutral curing, elastomeric sealant of base polymer indicated which complies with requirements of Federal Specifications TT-S-00230C, Type II, Class A, and with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses.

Single Part Neutral Curing Silicone Sealants for concrete, aluminum and glass joints, and other joints specifically indicated; use NT: Type S, Grade NS, Class 25; and Uses NT, M, A, and O.

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

- Dow Corning 790 Silicone Sealant.
- Dow Corning 791 Silicone Sealant.

Minimum Performance Criteria:

Colors	Minimum 10 standard colors
MIL-S-8802 Tack-Free Time, 50% RH, hours	1
Curing Time RH @ 25 deg.C. (77 deg.F), days	7-14
MIL-S-8802 Full Adhesion, days	14-21
Flow, Sag or Slump, in 3-inch wide joint	None
Working Time, minutes	10-20
As Cured, after 7 days at 25 deg.C (77 deg.F) and 50% RH	
ASTM D 2240 Durometer Hardness, Shore A, points	15
ASTM D 412 Ultimate Tensile Strength, max. elongation, psi	100
ASTM D 412 Elongation, percent maximum	1600
MIL-S-8802 Peel Strength, lbs/in.	25
ASTM C 1135 Tensile Adhesion	
With 25% extension	15
With 50% extension	20
TT-S-001543 Staining, after 14 days of 50% compression, at 158 deg.F. on concrete, granite, limestone and brick	None
Ozone Resistance	Good
Weathering, after 6000 hours in Atlas Weatherometer	Min. change in hardness
Joint Movement Capabilities, percent,	
Extension	+100
Compression	-50
Fire Endurance, hours	2

****Applicator to verify sealant manufacturer will provide specified warranty and products will comply with performance criteria.****

MISCELLANEOUS MATERIALS:

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

Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.

Masking Tape: Provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

EXAMINATION:

Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

PREPARATION:

Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellents; water; surface dirt; and frost.

Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

Remove laitance and form release agents from concrete.

Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile; and other nonporous surfaces by chemical cleaners or other means, which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.

Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

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

INSTALLATION OF JOINT SEALERS:

General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions indicated.

Installation of Sealant Backing: Install sealant backings to comply with the following requirements:

Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealant relative to joint widths, which allow optimum sealant movement capability.

Do not leave gaps between ends of joint fillers.

Do not stretch, twist, puncture, or tear joint fillers.

Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.

Install bond breaker tape between sealants and joint fillers, compression seals or back of joints where required to prevent third-side adhesion of sealant to back of joint.

Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

Provide concave joint configuration per Figure 6A in ASTM C 1193, unless otherwise indicated.

Provide flush joint configuration per Figure 6B in ASTM C 1193, where indicated.

Use masking tape to protect adjacent surfaces of recessed tooled joints.

CLEANING:

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

PROTECTION:

Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION 07900

JOINT SEALANT APPLICATOR SPECIAL PREQUALIFICATION REQUIREMENTS

Joint Sealant Applicator Special Prequalification Requirements: The special prequalification package shall be submitted by the apparent low bidder to the Architect's office and the Contractor's office within 48 hours following the bid opening. The prequalification package should include two complete sets of the following items:

- () Cover letter on the subcontractor's letterhead.
- () Certificate of workman's compensation and liability insurance for work in Florida.
- () Bidder's principal business address.
- () Provide affidavit by subcontractor/installer that he possesses sufficient fast-track capacity, including manpower and available equipment to mobilize and keep schedule.
- () Provide references reflecting a minimum of four sealant projects in previous three years experience of same type and similar size or larger. Include prime contractor, client or owner contact name, and facility name, address, telephone number, project dates, sealant product and manufacturer used, brief project description, total amount of contract, of like project, and superintendent on site.
- () List all projects presently under contract for the past two months. List the prime contractor, client, or owner contact name and telephone number, facility name, contract date, and contract dollar amount.
- () List all liquidated damages, penalties, liens, defaults, or cancellations imposed or filed against the contractor or Bidder for the past three years (include penalties/damages negotiated out or waived by owner or general contractor). List all claims and debts outstanding, longer than three months, for the previous two years. If none, so indicate.
- () Approval or authorization (on manufacturers' letterheads) for subcontractor/installer to apply specified sealant system and products by the specified manufacturers for this specific project. The manufacturers' letter to indicate the specified special 20 year sealant warranty shall be issued by the manufacturer for the sealant system when applied according to the manufacturer's requirements.

SECTION 09830 - SPECIAL COATINGS AND PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes applying special coating systems to items and surfaces scheduled, including surface preparation, prime coats, and topcoats.
- B. Coating or painting all exterior exposed surfaces is required whether or not colors are designated in schedules, except where a surface or material is specifically indicated not to be coated or painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.
- C. Painting is not required on prefinished items, finished metal surfaces, inaccessible, concealed surfaces, operating parts, and labels.
- D. Types of special coating and painting systems required for the Project include the following:
1. Painting and finishing of exposed exterior doors, frames and trim, previous painted metal, stucco walls and coping as indicated in the drawings.
 2. Special coatings and painting for exterior use in this project include the following:
 - a. Heavy bodied emulsion type elastomeric high build waterproof coating.
 - b. Premium acrylic architectural coating.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
1. Joint Sealers are specified in Division 7.

1.3 SUBMITTALS

- A. The Contractor shall submit sample 10 year elastomeric coating warranty from manufacturer for this project, evidence of the elastomeric coating manufacturer's approval of the coating applicator for this specific project on the manufacturer's letterhead, applicator's previous experience and qualifications within four days of bid opening.
- B. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- C. Product data for each coating system specified, including patching compound and primers.
1. Provide the manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each material proposed for use.

2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.
 3. Application instructions including mixing, surface preparation, compatible primers and topcoats, recommended wet and dry film thickness, recommended application methods.
 4. Certification of volatile organic compounds (VOCs) by the manufacturer for the products supplied.
- D. Samples for initial color selection in the form of manufacturer's color charts.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- E. Samples for Verification Purposes: Provide samples of each color and material to be applied with texture to simulate actual conditions on representative samples of the actual substrate.
1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until the required sheen, color, and texture are achieved.
 2. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.
 3. Submit samples on the following substrates for the Architect's review of color and texture only.
 - a. Stucco: Provide two 8-inch-square samples of stucco for each finish and color.
 - b. Ferrous Metal: Provide two 4-inch-square samples of flat metal and two 8-inch-long samples of solid metal for each color and finish.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has not less than five years of experience in application of elastomeric coating systems similar to those required for this project, and who has successfully completed a minimum of four coating system applications similar in material to those indicated for the Project, and who is acceptable to, and approved by, the manufacturer of primary coating materials. Submit approval of applicator from manufacturer (on manufacturer's letterhead) for this project within four days of bid opening.
- B. Single-Source Responsibility: Provide primers and undercoat material produced by the same manufacturer as the finish coats for each type of coating. Use only thinners recommended by the manufacturer and only within recommended limits.
- C. Field Samples: On wall surfaces and exterior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 200 sq. ft. of surface until the required sheen, color, and texture are obtained; simulate finished lighting conditions for reviewing in-place work.
1. Final acceptance of colors will be from job-applied samples.

2. The Architect will select one area, or surface to represent surfaces and conditions for each type of coating and substrate to be coated. Apply coatings on this surface according to the schedule, or as specified. After finishes are accepted, this area or surface will be used for evaluation of coating systems of a similar nature.
- D. The Contractor shall be responsible for application of the products in accordance with the manufacturer's instructions using the following tools at intervals indicated to ensure quality:
 1. Wet film thickness gage.
 2. Caliper mil gage.
 3. Slings psychrometer.
 4. Temperature gages.
 - E. The Contractor shall be responsible to keep a daily construction log containing readings from the use of the above listed instruments.
 - F. The Contractor shall submit a copy of the daily construction log, tests, and reports to the Architect weekly.
 - G. The Coating or Painting Manufacturer's Technical Representative shall make periodic coating and painting application inspections during the work, to be coordinated with the Architect. The Manufacturer's Technical Representative shall provide written inspection reports to the Architect.

1.5 SPECIAL COATING AND PAINTING PROJECT WARRANTIES

- A. Special Coating and Painting Project Warranty: Provide written warranties by the Contractor and Installer agreeing to replace/repair defective materials. Provide written warranty by the Manufacturer of special coating and painting materials agreeing to replace defective materials and coatings (cracked, chipped, flaked, or peeling). Warranty repairs to defective materials include labor and material. Repairs and replacements required because of events beyond Contractor's/Installer's/Manufacturer's control (and which exceed performance requirements) shall be completed by Contractor/Installer and paid for by Owner.
 1. The Contractor's and Installer's/Applicator's warranty period is two year and the Manufacturer's warranty period for elastomeric coating is ten years after date of substantial project completion, and warranty period for acrylic architectural coating is two years.
 2. Manufacturer's ten year elastomeric coating warranty to include urethane sealants specified in Division 7.
 3. Warranties are not prorated, with no penal sum.
- B. References: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
 1. ASTM D 4258-83 (1988) Standard Practice for Surface Cleaning Concrete for Coating.
 2. ASTM D 4261-83 (1988) Practice for Surface Cleaning Concrete Masonry for Coating.

3. ASTM D 4262-83 (1988) Test Method for pH of Chemically Cleaned Concrete Surfaces.
4. ASTM D 1653-93 Water Vapor Transmission of Organic Coatings Films.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, new, unopened packages, and containers bearing manufacturer's name and label, and the following information:
 1. Name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's name, stock number and date of manufacture.
 4. Contents by volume, for major pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. Handling instructions and precautions.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 1. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and applying the coatings.

1.7 PROJECT CONDITIONS

- A. Apply coatings only when the temperature of surfaces to be coated and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C) (unless otherwise specified by coating manufacturer or printed technical data sheet for product specified).
- B. Do not apply coatings in snow, rain, fog, or mist; when the relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
 1. Allow wet surfaces to dry thoroughly and attain the temperature and conditions specified before proceeding with or continuing the coating operation.
 2. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and the temperature within the area can be maintained within limits specified by the manufacturer during application and drying periods.
 3. Provide temporary lighting to achieve a well-lit surface with a level of not less than 80 foot candles measured mid-height.
 4. Maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during, and for 48 hours after application of finishes, or longer if required to obtain full cure as indicated by manufacturer's instructions.
- C. Maintenance Stock
 1. At time of completing application, deliver stock of maintenance material to the Owner.

2. Furnish not less than one properly labeled and sealed container of each type of finish coat of each color, taken from batch mix furnished for the work. Furnish the following amounts for each coating system:
 - a. Elastomeric coating: 1 gallon.
 - b. Premium Acrylic Architectural Coating: 1 gallon

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Heavy Bodied Emulsion Type Elastomeric High Build Waterproofing Coating
 1. BASF Chemical Co.
 2. Sika
- B. Premium Acrylic Architectural Coating
 1. BASF Chemical Co.
 2. Sherwin Williams Company
 3. Benjamin Moore & Company
 4. PPG

2.2 SPECIAL COATING AND PAINTING MATERIALS, GENERAL

- A. Material Compatibility: Provide conditioners, primers, finish coat material, and related materials that are compatible with one another and the substrates indicated under conditions of service and application as demonstrated by the manufacturer based on testing and field experience.
- B. Material Quality: Provide the highest grade of the various coatings as regularly manufactured by acceptable coating manufacturers. Materials not displaying manufacturer's identification as a best-grade product will not be acceptable.
- C. Colors: Provide custom colors of the finished coating systems if required to match colors indicated by reference to existing colors indicated in drawings.
- D. Conditioner/Primer/Sealers: Provide products listed in the Coating and Painting Schedule or, with Architect's approval, provide the manufacturer's better quality recommended factory-formulated conditioner/primer/sealers that are compatible with the substrate and finish materials indicated.
- E. Intermediate Coat Materials: Provide products listed in Coating and Painting Schedule or, with Architect's approval, provide the manufacturer's better quality recommended factory-formulated, intermediate coat materials that are compatible with the substrate, primers or base coat materials, and the finish materials indicated.
- F. Finish-Coat Materials: Provide products listed in the Coating and Painting Schedule or, with Architect's approval, provide the manufacturer's better quality recommended factory-formulated, finish-coat materials.

- G. Special Coatings and Painting Schedule: Special Coating and Painting Schedule found at the end of this section lists the coating and painting product name and number of each manufacturer for each coating system and area.

2.3 ELASTOMERIC COATING SYSTEM

- A. An internally plasticized, elastomeric high-build waterproof emulsion coating made with ter-polymer acrylic resins.

- B. Minimum Performance Criteria:

Flash Point	Lab Value	Non-combustible 200°F
Elongation	ASTM D412-87	@ 77°F = 262%
		@ 0°F = 115%
Tensile Strength	ASTM D2370	@ 77°F = 232psi
		@ 0°F = 887 psi
Water Vapor Transmission	ASTM E96	Perms = 12
	ASTM D1653	WVT=9.9/grams/hr/ft ² Perms=2
Sand Abrasion Resistance	ASTM D968, A	3000 L sand = 0 mils abraded
Midew Resistance	TT-P-29	21 days = Resistance
% Recovery at 24 hrs.	ASTM D-2370	96% after 100% Requirement
Impact Resistance	ASTM D2794	20 lbs. = Passed Meets Requirement
Fungus Resistance	TT-C-555B	Meets Requirement
Accelerated Weathering	ASTM G26-77	5000 hrs. = No defects
	(Xenon Arc)	
	TT-C-555B Para 4.4.6	400 hrs. = Meets Requirement
	(Carbon Arc)	
Surface Burning Characteristics	ASTM E84-86	Flame Spread = 5 Smoke = 15
Salt Fog Resistance	ASTM B 117-64	300 hrs. = No defects
Low Temperature Flexibility	TT-C-555B	-15°F Passes 1/8" mandrel
Lead Content	ASTM D-2088	0.075% Meets Requirement
Water Wind Driven Rain	TT-C-555B, para. 4.4.7.1	No Water Penetration
Min. Dry Film Thickness	Minimum 18 mils. (2 coats)	
	Manufacturer may recommend higher dry mil thickness	

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which coatings will be applied for compliance with requirements on applying coatings and painting in accordance with the Contract Documents and manufacturer's recommendations. Surfaces to receive coatings must be thoroughly dry before coatings are applied.
1. Report any unsatisfactory conditions in writing.
 2. Do not proceed with coating application until unsatisfactory conditions have been corrected.
 3. Start of application will be construed as the Applicator's acceptance of surfaces within that particular area.

B. Coordinating Work: Review existing painted surface preparation procedures and surface residue to ensure compatibility of the systems for substrates. On request, furnish information on the characteristics of specified finish materials to ensure compatible primers.

1. Notify the Architect of problems anticipated using the coatings specified over substrates where existing paint coatings remain.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already in place that are not to be coated, or provide surface-applied protection prior to surface preparation and coating. Remove these items, if necessary, to completely coat the items and adjacent surfaces. Following the coating operations in each space or area, have removed items reinstalled by workers skilled in the trades involved.

B. Cleaning: Before applying coatings or other surface treatments, clean the substrates of substances that could impair bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and coating application so dust and other contaminants from the cleaning process will not fall on wet, newly coated surfaces.

C. Surface Preparation: Clean and prepare surfaces to be coated according to the manufacturer's instructions for each particular substrate condition and as specified. Provide barrier coats over incompatible existing paint coatings, or remove and reprime.

1. Notify the Architect in writing of problems anticipated when using the specified finish-coat material with substrates where existing paint coatings are allowed to remain.

D. Cementitious Surfaces: Prepare concrete, concrete masonry block, cement plaster, and similar surfaces to receive special coatings. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents in accordance with ASTM D 4258 and ASTM D 4261. Roughen, as required, to remove glaze in accordance with ASTM D 4259. If hardeners or sealers have been used to improve concrete curing, use mechanical methods to prepare surface.

1. Use abrasive blast-cleaning methods if recommended by the coating system manufacturer.
2. Determine alkalinity and moisture content of surfaces to be coated by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish coats to blister and burn, correct this condition before application. Do not apply coatings over surfaces where the moisture content exceeds that permitted in the manufacturer's printed directions.

E. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sandpaper smooth when dried.

- F. Ferrous Metal: Clean ungalvanized ferrous metal surfaces; remove oil, grease, dirt, loose mill scale and other foreign substances. Use solvent or mechanical cleaning methods that comply with the recommendations of the Steel Structures Painting Council.
1. Clean and prepare surface profile in accordance with applicable SSPC specifications: SSPC-SP 2 Hand Tool Cleaning, SSPC-SP 3 Power Tool Cleaning, SSPC-SP 6 Commercial Blast Cleaning, SSPC-SP 7 Brush off Blast Cleaning, SSPC-SP 10 Near-White Blast Cleaning, and SSPC-SP 11 Power Tool Cleaning to Bare Metal.
 - a. Minimum degree of surface preparation for each coating system shall be as indicated in the schedule by the applicable SSPC specifications number, the lead based paint abatement specification Section 09800, and in the drawings.
 - b. Where no SSPC specification number is indicated, prepare surfaces in accordance with SSPC-SP 2 Hand Tool Cleaning or SSPC-SP 3 Power Tool Cleaning.
 2. Before hand or power tool cleaning, remove visible oil, grease, soluble welding residue, and salts by SSPC-SP 1 Solvent Cleaning. After hand or power tool cleaning, reclean surfaces if necessary.
- G. Nonferrous Metal Surfaces: High pressure wash/water blast clean previously painted galvanized surfaces according to the manufacturer's instructions for the application required.

3.3 MIXING AND THINNING

- A. Remove and discard any skin formed on surface of coatings in containers. Discard any containers where skin comprises two percent or more of the remaining material.
- B. Combine multi-component paints in quantities needed for use within the manufacturer's recommended pot life at the anticipated application temperatures. Discard remaining mixed material after pot life has expired.
- C. Do not add thinner except as specifically recommended (not merely permitted) by the coating manufacturer for proper coating application under the circumstances prevailing at the project site when application equipment recommended by the coating manufacturer is employed. Use only the quantities and the types of thinner recommended.
- D. Mix materials using mechanical mixers in accordance with coating manufacturer's instructions. Agitate mixed materials during application if recommended by manufacturer.
- E. Strain pigmented coatings after mixing except where mechanical application equipment is provided with effective strainers.
- F. Tinting: Except where coating materials cannot be tinted, tint each successive coat of paint a sufficiently contrasting color to facilitate identification of complete coating coverage.

3.4 APPLICATION

- A. **General:** Apply coatings by brush, roller, spray, squeegee, or other applicators according to the manufacturer's recommendations, and using application method best suited for obtaining full, uniform coverage of surfaces to be coated. Use brushes best suited for the material being applied. Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
1. Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 2. Coating colors, surface treatments, and finishes are indicated in the Schedules.
 3. Provide finish coats compatible with the primers used.
 4. Employ only application equipment that is clean, properly adjusted, in good working order, and of the type recommended by the coating manufacturer.
 5. Apply successive coats after adequate cure of the preceding coat and within the recommended recoating time.
 6. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Where sanding is required, according to the manufacturer's directions, sand between applications to produce a smooth, even surface.
 7. When undercoats or other conditions show through the final coat, apply additional coats until the cured film has a uniform coating finish, color, and appearance. Give special attention to edges, corners, crevices, welds, exposed fasteners, and similar surfaces to ensure that they receive a dry film thickness equivalent to that of flat surfaces.
 8. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 - a. Coat surfaces behind movable equipment and furniture the same as similar exposed surfaces.
 - b. Coat the back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 9. **Mechanical and Electrical Items:**
 - a. Paint electrical items exposed to view.
 - b. Paint mechanical items exposed to view.
 - c. Paint the following mechanical items:
 - 1) Piping and supports.
 - 2) Ducts and insulation.
 - 3) Others as indicated on drawings.
 - d. Paint the following electrical items:
 - 1) Conduit and fittings.
 - 2) Panel enclosures.
 - 3) Others as indicated on drawings.
- B. **Scheduling Coating:** Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration. Minimum recoating time shall comply with coating manufacturer's environmental cure chart for specific product.

1. Allow sufficient drying time between successive coats. Do not recoat until the coating has dried so it feels firm and does not deform or feel sticky under moderate thumb pressure and where applying another coat does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.
1. Brushes: Use brushes best suited for the material applied.
 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
 3. Spray Equipment: Use spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- D. Film Thickness: Apply each coat to achieve the dry film mil (DFM) thickness per coat recommended by manufacturer or indicated in the schedule at the end of this section, which ever is thicker. Application rates of excess thickness and fewer numbers of coats than specified will not be accepted.
1. The dry film mil thickness shown in the schedule are per each coat, unless otherwise specified.
 2. Where a single thickness is specified, the dry film thickness actually applied, when measured at any point, shall be equal to the specified value plus or minus 10 percent.
- E. Prime, First or Bottom Coats:
1. Either before or after applying prime coat or first coat, but before applying successive coats, stripe paint edges, corners, mechanical fasteners, and welds using specified primer or first coat material.
 2. Before applying successive coats, touch up connections, fasteners, and damaged areas using specified primer.
 3. Where first coat shows signs of suction spots or poorly sealed areas, reapply first coat material to adequately seal surface before proceeding with intermediate and top coats.
- F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to the material required to be coated or finished that has not been prime-coated by others.
- G. Brush Application: Brush-out and work brush coats into surfaces in an even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw glass lines and color breaks.
1. Apply primers and first coats by brush unless the manufacturer's instructions permit using mechanical applicators.
- H. Mechanical Applications: Use mechanical methods to apply coating when permitted by the manufacturer's recommendations and governing regulations.
1. Wherever using spray application, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double-back with spray equipment building-up film thickness of two coats in one pass, unless recommended by the manufacturer.

I. Miscellaneous:

1. Completed coatings shall be free of defects such as runs, sags, lap or brush marks, holidays and skips.
2. Apply coatings according to the schedule at the end of this section and as otherwise indicated. Coat all similar surfaces not specifically mentioned unless specifically exempted.
3. Apply coatings to match approved mockups.

J. Completed Work: Match approved samples for color, texture and coverage.

1. Remove coatings not in compliance with this specification, reclean and reprepare surfaces as specified, and apply coatings to comply with the contract documents.

3.5 FIELD QUALITY CONTROL

A. The Owner reserves the right to invoke product testing procedures at any time and as often as the Owner deems necessary during coating operations.

1. If results show materials being used do not comply with requirements, the Contractor may be directed to stop work and remove noncomplying materials, pay for testing, recoat surfaces coated with rejected materials, or remove rejected materials from previously coated surfaces if, upon recoating with specified materials, the two coatings are not compatible.

3.6 CLEANING

A. Cleanup: At the end of each work day, remove rubbish, empty cans, rags, and other discarded materials from the site.

1. After completing work, clean glass and spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.7 PROTECTION

A. Protect work against damage until fully cured from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as acceptable to the Architect. Leave in an undamaged condition.

1. Provide "Wet Paint" signs to protect newly coated finishes until surfaces are adequately cured.
2. Shortly before final completion of the project, examine surfaces for damage to coatings and restore coatings to new, undamaged condition. Touch up of minor damage will be acceptable where, in the opinion of the Architect, result is not visibly different from surrounding surfaces. Recoat entire surface where result is different either in color, sheen, or texture.

3.8 SPECIAL COATING AND PAINTING SCHEDULE FOR EXTERIOR SURFACES

Provide the following coating systems for areas and substrates indicated (subject to specified performance criteria).

A. Coating System Number One: Heavy bodied emulsion type elastomeric high build waterproof coating (ten year material warranty)

1. Area: Previously painted exterior stucco and top of coping, as indicated in drawings.
2. Surface Preparation:
 - a. High pressure power wash (3,000 psi). Cut out cracks and repair with butter grade sealant and patching compound. Detail with sealant and patching compound. Comply with manufacturer's recommendations.
3. Conditioner/Primer/Sealer:
 - a. As required by elastomeric coating manufacturer for specified warranty and existing substrate condition. Inspection and recommendation letter required by manufacturer's representative.
 - 1) BASF: Thoro Primer 1000
 - 2) Sika: Sikaguard 552 W Primer
4. Coat 1 - HEAVY BODIED EMULSION TYPE HIGH BUILD ELASTOMERIC WATERPROOF COATING:
 - a. System dry film thickness and coats to provide coverage rate at rate required by manufacturer for specified warranty. (Minimum 18 mils DFT - 2 coats)
 - 1) BASF: ThoroLastic A+
 - 2) Sika: Sikaguard Elasto Color

B. Coating System Number Two: Premium Acrylic Architectural Coating

1. Area: Previously painted steel, grills, rooftop equipment, support stands, hollow metal doors and door frames, and exposed steel surfaces on rooftop (unless otherwise noted).
2. Surface Preparation:
 - a. NACE RP-01-72 Water blasting and hand sanding SSPC-SP 2 hand tool cleaning
 - b. SSPC-SP 1 Solvent cleaning or power wash
 - c. SSPC-SP2 Hand tool cleaning/hand sanding
 - d. SSPC-SP3 Power tool cleaning rusted areas
3. Rusty Metal Treatment: Rust eliminator/treatment applied at concealed rust condition, surface rust unable to be cleaned and inaccessible conditions to be applied at spreading rate recommended by manufacturer (minimum 250 sf/gal.).
Quick Tann II - Lektro - Tech, Inc. (813/254-1380).
3. Metal Primer, Industrial Rust Inhibitive: Mod Alkyd Primer (spot prime rusted areas, then completely prime exposed surfaces): Minimum DFT 3, Maximum DFT 5
 - a. ICI: 4160-7100 Devguard Tank and Structural Primer 5205/5206/5207
 - b. Sherwin Williams: KEM Kromik Universal Metal Primer - B50Z Series
 - c. Benjamin Moore: Quick Dry Industrial Rust Inhibitive Primer 168
 - d. Porter Paints: 282 Universal Primer

4. Aluminum Primer: Provide the following primer over exterior aluminum surfaces:
Two finish coats over a primer. Surface preparation as recommended by paint manufacturer.
 - a. Porter: Alumi Prep #33
 - b. Primer: Alkyd based, metal primer, as recommended by the manufacturer for use over aluminum, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils (0.038 mm).
 - 1) Porter: 282 Universal Primer
5. Finish Coat 1 - Waterborne Acrylic: Minimum DFT 3, Maximum DFT 5
 - a. ICI: 2406-XXXX Decra Shield Exterior Semigloss Acrylic
 - b. Sherwin Williams: DTM Acrylic Primer/Finish B66W1
 - c. Benjamin Moore: Moor Glo Latex House and Trim Paint 096
 - d. PPG Industries: 6-900 Speedhide Exterior Acrylic Semi Gloss Paint
6. Finish Coat 2 - Waterborne Acrylic: Minimum DFT 3, Maximum DFT 5
 - a. ICI: 2406-XXXX Decra Shield Exterior Semigloss Acrylic
 - b. Sherwin Williams: DTM Acrylic Gloss Coating B66 Series
 - c. Benjamin Moore: Moor Glo Latex House and Trim Paint 096
 - d. PPG Industries: 6-900 Speedhide Exterior Acrylic Semi Gloss Paint

END OF SECTION 09830

SECTION 15010 - MECHANICAL GENERAL

PART 1 - GENERAL

1.1 REQUIREMENTS

- A. The Contractor shall read carefully the General and Special Conditions, which are considered a portion of the specifications applying to Contractor's work and all Bid Forms.
- B. The drawings and specifications are complementary and any work required by one and not the other shall be considered to be required by both.
- C. If equipment and/or materials are furnished or required under this division and installed under another division, it is the responsibility of the General Contractor to see that all such work is included in the contract bid amount and completed during construction and prior to acceptance by Owner.

1.2 WORKMANSHIP

- A. All work shall be done in a neat and professional manner.
- B. All work shall meet accepted standards of good practice.
- C. Any work which the Architect does not deem to present a professional appearance or which is below the accepted standards of practice will be replaced at his direction and at the Contractor's expense.

1.3 SCOPE OF WORK

- A. The Contractor shall furnish and install all labor and materials, scaffolding, tools, equipment, hoists, accessories, etc., required for proper, complete and correct installation systems included here and/or shown on the drawings.
- B. The Contractor shall visit the job site prior to submitting his bid and shall carefully inspect the premises and shall include in his bid such necessary contingencies as might be required by conditions at the site.
- C. Conflicts and/or discrepancies discovered by the Contractor during preparation of his bid shall be promptly reported to the Architect in order that all bidders may be notified by addenda or clarification.
- D. Failure of the Contractor to visit the job site and include contingencies or failure to report conflicts or discrepancies shall not relieve the Contractor from complete and correct installation of all mechanical work.
- E. The Contractor shall carefully coordinate his work and that of others, and shall cooperate in every way with others to prevent delays in construction and avoid conflicts in work.

- F. The Contractor shall patch and restore all finished surfaces to the condition existing prior to entry and to match surrounding work. Surfaces newly exposed in finished spaces as a result of this project shall be upgraded by the Contractor to match surrounding surfaces.
- G. The Contractor shall maintain a neat and orderly job site and shall remove all rubbish caused by his work. At the completion of the job, all tools, equipment and rubbish shall be removed and the job site left in an acceptable condition.
- H. Upon completion of work, the Contractor shall perform the required cleaning, maintenance and adjustments on all equipment he has installed and make certain all items are in proper working order.
- I. The Contractor is responsible for all safety measures required by prudence and common sense, including but not limited to those, which may be spelled out elsewhere in this specification.
- J. The Contractor shall obtain all permits and arrange for all inspections required by state and local authorities, and shall pay all fees and charges associated with same.
- K. The Contractor is responsible for all transportation of materials and equipment to the construction site.

1.4 PAINING, TOUCHUP AND CLEANUP

- A. All steel frames, supports, anchors and hangers shall be cleaned, degreased, have all rust removed and receive one coat of primer before installation. After installation and before substantial completion, the steel shall again be cleaned, degreased have rust spots removed, receive a second coat of primer, and two coats of yellow equipment enamel, unless another color is called out elsewhere or on the plans.
- B. All equipment installed on this job shall be touched up prior to substantial completion. Touchup shall consist of cleaning, degreasing, removal of rust spots, priming and painting with exact match of manufacturer's finish.
- C. The work area and all equipment shall be thoroughly cleaned prior to substantial completion.

1.5 COORDINATION

- A. Both before and after performing work under this specification, the Contractor will examine work done by others which affects, interfaces with, or bears on work of this section and will notify the Architect if conditions exist which prevent satisfactory results. Start of work by the Contractor shall constitute acknowledgement of the suitability of prior work to receive his work.
- B. All work shall be coordinated with the building superintendent or other authority as designated by the Owner. The Contractor shall submit a proposed work schedule seven days in advance, and will cooperate with the Owner to adjust it as necessary.

- C. Work shall be scheduled and performed in a manner to minimize disruption of operations during normal working hours. Noisy work, such as setting cartridge anchors, impact drilling, etc., shall be done outside of normal working hours. Normal working hours shall be deemed to mean 8:00 a.m. to 5:00 p.m. weekdays.

1.6 DRAWINGS

- A. The Contractor is responsible for verifying that no conflicts exist at the job site, which will prevent the successful completion of work under this section.
- B. The Contractor is responsible for installing piping and ducts so that there is adequate clearance from structures and obstructions, so that there is adequate clearance for roofing work, so that openings and passageways are kept clear, and so that there is adequate clearance for service.

1.7 DAMAGE

- A. The Contractor shall exercise due care when working in overhead or finished areas, shall take all necessary protective measures, and shall repair or replace all surfaces which are damaged as a result of his work.
- B. The Contractor shall be bound by the requirements of the general specification paragraph for the security and protection of personnel, materials and equipment on site.

1.8 CODES

- A. All work, materials and equipment provided under this specification shall be in compliance with the applicable sections of the latest editions of the following codes and standards.
 1. Occupational Safety and Health Regulation
 2. National Fire Codes, in particular, NFPA 24 - 1997, NFPA 13 - 1997.
 3. National Electric Codes
 4. Standards of the National Board of Fire Underwriters.
 5. ASME Boiler and Pressure Vessel Code.
 6. Florida Standard Building Code.

1.9 INSPECTIONS

- A. The Contractor is responsible for scheduling and having performed all inspections required by the Owner, or Architect. Work shall not be closed until the required inspections are performed.

1.10 DELIVERY AND STORAGE

- A. Equipment and materials shall be properly stored and adequately protected and carefully handled to prevent damage. Equipment and materials shall be handled, stored and protected in accordance with the manufacturer's recommendations.

- B. Equipment damaged by the Contractor, in the opinion of the Architect, shall be replaced at no cost to the Owner.

1.11 ACCEPTANCE

- A. Prior to final acceptance, the Contractor will complete all work and install all equipment required by the drawings and this specification and will provide the following:
 - 1. Written certification that all work has been completed and is in compliance with applicable codes.

END OF SECTION 15010

SECTION 16010 - ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and supplemental Conditions and Division 1 Specifications, apply to this section.

1.2 SCOPE

- A. The specific tasks to be performed under Division 16 of this project shall be as follows:
 - 1. Perform all electrical work incidental to raising, relocating, or temporarily removing mechanical equipment.
 - 2. Perform all electrical work incidental to lowering, relocating or temporarily removing lighting fixtures, communication cable, antenna wire, and emergency lighting.
- B. The Contractor shall furnish all materials, equipment, transportation, tools, scaffolding, services, permits, insurance, supervision and labor required to properly complete all electrical work required for this project.
- C. The electrical design character and scope of the work shall be governed and controlled by the drawings and the specifications together.
- D. It shall be clearly understood that the Contractor shall make the electrical work for this project complete.

1.3 BEFORE BID

- A. The Contractor shall examine the entire contract documents and visit the project site before submitting his bid. If discrepancies arise between drawings, specifications and actual on-site conditions, the Architect/Engineer shall immediately be notified for his interpretation by addendum.

1.4 DEFINITIONS

- A. Refer to article 100 of the National Electrical Code (NEC) for definitions of terms peculiar to the electrical trade. Any mandatory requirement of this document will be designated by the word, "shall".

1.5 CODES AND/OR STANDARDS

- A. All work and equipment shall conform to the latest additions of the National Electrical Code (NEC), National Electric Safety Code (NESC), National Fire Protection Association (NFPA), Underwriter's Laboratories (UL), National Electrical

Manufacturer's Association (NEMA), American National Standards Institute (ANSI), Occupational Safety and Health Administration (OSHA).

1.6 PROPERTY DAMAGE

- A. Any property damage to the Owner's property by the Contractor shall be repaired or replaced as required. The repair or replacement shall bring the Owner's property back to pre-existing conditions.

1.7 MATERIALS AND EQUIPMENT

- A. All materials and equipment furnished by the Contractor shall be new and free from any defects and be the manufacturer's latest standard design. The materials and equipment shall be approved by one or more of the national testing laboratories listed under CODES and/or STANDARDS above.
- B. Electrical materials and equipment delivered to the jobsite shall be stored so as not to be weather damaged. Damaged or defective equipment shall be replaced or repaired by the Contractor at this expense. The decision to repair or replace shall be the Engineer's.

1.8 MINOR DEVIATIONS

- A. Minor deviations in routing or positioning of equipment are permitted as long as they do not significantly alter the obvious intent of the electrical requirements.

1.9 WORKMANSHIP

- A. Electrical equipment, conduit, mounting of panels, installation of conductors and connections, etc., shall be executed in a neat and workmanlike manner. The Owner's representative shall be the judge of whether work meets this standard and the Contractor shall bear the cost to make the work right.

1.10 SUPERVISION

- A. The Contractor shall have a superintendent responsible for the project at all times during electrical work. Qualifications shall be a person who is a journeyman electrician with not less than three years of experience as an electrician.

1.11 WARRANTY

- A. The Contractor shall guarantee all of his work for one year after job acceptance. The Contractor shall repair any faulty workmanship, replace faulty materials or equipment and pay for any damages that may result from same during the one year period. Guarantee work shall be done promptly and with new materials and/or equipment by a person skilled in the trade.

END OF SECTION 16010