

COMMUNITY SERVICE BUILDING  
ROOF REPAIRS – PHASE 2  
LEON COUNTY

FOR  
LEON COUNTY DEPARTMENT OF  
FACILITIES MANAGEMENT

100% SUBMITTAL

MARCH 8, 2013  
(Revised April 30, 2013)

ROOF REPAIRS  
COMMUNITY SERVICE BUILDING  
501 APPELYARD DRIVE

SPECIFICATIONS

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END OF SPECIFICATIONS

## 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 repairs at the Leon County Community Service 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 roofing work at the Community Service Building includes cleaning the roof deck to receive the new roofing/ flashing system, building pressure treated plywood crickets in the valleys between each barrel vault roof section, nailing a heavy base sheet over the crickets, and installing a modified bitumen roofing/ flashing system over the valleys to tie into the existing modified bitumen roofing membrane over the barrel areas which appear to be in good condition. The new roofing system must meet minimum FM I-90 (FBC-120 mph) wind uplift requirements and in compliance with the current Florida Building Code and the Roofing Manufacturer's recommendations. The work also includes installing new prefabricated metal scuppers at each valley end and new gutter and downspouts on the northeast section to divert water from the sidewalk.

Additive Alternate One: Clean entire granulated modified bitumen membrane roofing cap sheet and apply roofing manufacturer approved high SRI cool roof coating system over the existing and newly installed roofing system.

Additive/ Deductive Alternate Two: In lieu of building plywood crickets, install tapered rigid isocyanurate insulation and a high density coverboard prior to torch applying a granulated modified bitumen roofing and flashing system (to match existing) to tie into the existing roofing system.

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.

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](http://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 06100 - ROUGH CARPENTRY

Submittals: Submit the following:

Wood treatment data including treatment plant's certification of compliance with indicated requirements.

Lumber: Provide lumber, S4S, S-Dry unless otherwise indicated, grade marked, complying with PS 20 and the following requirements:

Light-Framing (2"-4" thick, 2"-4" wide): Grade and species indicated:

Construction.

Southern Pine graded under SPIB rules.

Concealed Boards: Standard grade, any species graded under WWPA rules or No. 3 grade Southern Pine graded under SPIB rules.

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

Preservative pressure treat lumber and plywood with water-borne preservatives to comply with AWPA C2 and C9, respectively, and with requirements indicated below:

Wood for Above-Ground Use: AWPB LP-2.

Treat Cants, nailers, blocking, stripping and similar items in conjunction with roofing, flashing, vapor barriers, and waterproofing.

Treat sills, sleepers, blocking, furring, stripping and similar items in direct contact with masonry or concrete.

Install rough carpentry work to comply with "Manual of House Framing: by National Forest Products Association (N.F.P.A.) and with recommendations of American Plywood Association (APA), unless otherwise indicated. Set carpentry work to required levels and lines, with members plumb and true and cut to fit.

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

END OF SECTION 06100

## 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 5 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 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 three 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:  $\geq 0.90$
    - 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

### 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

## SECTION 07552 - SBS-MODIFIED BITUMINOUS MEMBRANE ROOFING

### 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 the following:
  - 1. SBS-modified bituminous membrane roofing and flashing systems
- B. Related Sections include the following:
  - 1. Division 3 Section "Lightweight Insulating Concrete."
  - 2. Division 6 Section "Rough Carpentry" for wood nailers, cants, curbs, and blocking.
  - 3. Division 7 Section "Sheet Metal Flashing" and Section "Roofing Accessories" for metal roof penetration flashings, flashings, and counterflashings.

#### 1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Hot Roofing Asphalt: Roofing asphalt heated to its equiviscous temperature, the temperature at which its viscosity is 125 centipoises for mop-applied roofing asphalt and 75 centipoises for mechanical spreader-applied roofing asphalt, within a range of plus or minus 25 deg F (14 deg C), measured at the mop cart or mechanical spreader immediately before application.
- C. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.
- D. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by a safety factor.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

- C. Roofing System Design: Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.
- D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.
  - 1. Fire/Windstorm Classification: Class 1A 90
  - 2. Hail Resistance: MH

## 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
  - 1. Base flashings, cants, and membrane terminations.
  - 2. Tapered insulation system layout.
  - 3. Crickets, saddles, and tapered edge strips, including slopes.
- C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
- D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  - 1. Submit evidence of meeting performance requirements.
- E. Qualification Data: For Installer and manufacturer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- G. Research/Evaluation Reports: For components of roofing system.
- H. Maintenance Data: For roofing system to include in maintenance manuals.
- I. Warranties: Special warranties specified in this Section.
- J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

## 1.6 QUALITY ASSURANCE

- A. **Installer Qualifications:** A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. **Manufacturer Qualifications:** A qualified manufacturer that has UL listing and FMG approval for roofing system identical to that used for this Project.
- C. **Testing Agency Qualifications:** An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- D. **Source Limitations:** Obtain components for roofing system from or approved by roofing system manufacturer.
- E. **Fire-Test-Response Characteristics:** Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. **Exterior Fire-Test Exposure:** Class A; ASTM E 108, for application and roof slopes indicated.
- F. **Preliminary Roofing Conference:** Before starting project construction, conduct conference at Project site. Comply with requirements for preinstallation conferences in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.
- G. **Preinstallation Conference:** Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner, Roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

#### 1.8 PROJECT CONDITIONS

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

#### 1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories, fasteners, liquid applied flashing, roof coating, and other components of roofing system.
  2. Warranty Period 20 years from date of Substantial Completion, with no dollar limit and no penal sum.
  - \*\* 3. Warranty shall not exclude damages caused by windstorms or gale winds less than 72 mph.\*\*
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, substrate boards, vapor retarders, and liquid applied flashing, for the following warranty period:
1. Warranty Period: Three years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. SBS-Modified Bituminous Membrane Roofing:
    - a. Johns Manville International, Inc.
    - b. Siplast, Inc.
    - c. Soprema
- B. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.
  2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.
  3. Basis of Design:
    - Manufacturer: Johns Manville (2FID)
    - Base sheet: Glass Ply Premier
    - Interply Sheet: DynaBase
    - Finish Ply: Dynaglass FR (cold adhesive); DynaWeld Cap (torch applied).
    - Flashing: DynaWeld Base and DynaWeld Cap FR
  4. Subject to compliance with specific requirements (including below items) and confirmation by manufacturer, the following roof systems may be used in lieu of the roof system basis of design: Siplast Parabase and Paradiene 20 HV/30 FR (cold adhesive interply and cap sheet installation); or 20HV/30FR TG (torched cap sheet installation); Flashing: Veral 4040 IT.
- C. Filler content in elastomeric blend to be less than 35% by weight. Submit certificate of analysis for production run of materials supplied for this project from test lab of the roofing manufacturer in accordance with ASTM D5147.

## 2.2 SBS-MODIFIED ASPHALT-SHEET MATERIALS

- A. Roofing Membrane Sheet: ASTM D 6163, Grade S, Type II, glass-fiber reinforced; ASTM D 6164, Grade S, Type I or II, polyester reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
- B. Roofing Membrane Cap Sheet: ASTM D 6163, Grade G, Type I or II, glass-fiber reinforced, SBS-modified asphalt sheet; high SRI coated mineral granular surface or white reflective tedlar coating; suitable for application method specified, and as follows:
  - 1. Film or Granule Coating Color: White

## 2.3 BASE FLASHING SHEET MATERIALS

- A. Backer Sheet: ASTM D 6164, Grade S, Type I or II, polyester-reinforced; ASTM D 6163, Grade S, Type I or II, glass-fiber-reinforced; ASTM D 6162, Grade S, Type I or II, composite polyester- and glass-fiber-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
- B. Flashing Sheet: ASTM D 6298, glass-fiber-reinforced, SBS-modified asphalt sheet; metal-foil surfaced, as indicated; suitable for application method specified, and as follows:
  - 1. Foil Surfacing: Aluminum, as indicated in drawings.
- C. Glass-Fiber Fabric: Woven glass-fiber cloth, treated with asphalt, complying with ASTM D 1668, Type I.

## 2.4 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Asphalt Primer: ASTM D 41.
- C. Roofing Asphalt: ASTM D 312, Type III or IV as recommended by roofing system manufacturer for application
- D. Roofing Asphalt: ASTM D 6152, SEBS modified.
- E. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- F. Mastic Sealant: Polyisobutylene, plain or modified bitumen, nonhardening, nonmigrating, nonskinning, and nondrying.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

- H. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."
- I. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 (2.36-mm) sieve and 98 percent of mass retained on No. 40 (0.425-mm) sieve, color to match roofing membrane.
- J. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

## 2.5 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by roofing manufacturer for intended use and compatible with insulating lightweight concrete deck.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to substrate.
- D. Wood Nailer Strips: Comply with requirements in Division 6 Section "Rough Carpentry"

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
  - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
  - 2. Verify that wood, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
    - a. Test for moisture by pouring 1 pint (0.5 L) of hot roofing asphalt on deck at start of each day's work and at start of each roof area or plane. Do not proceed with roofing work if test sample foams or can be easily and cleanly stripped after cooling.
  - 4. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Prime surface of concrete deck with asphalt primer at a rate of **3/4 gal./100 sq. ft. (0.3 L/sq. m)** and allow primer to dry.

### 3.3 INSULATION INSTALLATION

#### 3.4 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
  - 1. Install roofing system MBS 2-I-M-G-1 with base sheet M, according to specification-plate classifications in NRCA's "The NRCA Roofing and Waterproofing Manual" and requirements in this Section.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Where roof slope exceeds **3/4 inch per 12 inches (1:18)** install roofing membrane sheets parallel with slope.
- D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- E. Coordinate installing roofing system so insulating lightweight concrete and other components of the roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
  - 1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
  - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
  - 3. Remove and discard temporary seals before beginning work on adjoining roofing.
- F. Asphalt Heating: Do not raise roofing asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed roofing asphalt manufacturer's recommended temperature limits during roofing asphalt heating. Do not heat

roofing asphalt within 25 deg F (14 deg C) of flash point. Discard roofing asphalt maintained at a temperature exceeding finished blowing temperature for more than 4 hours.

- G. Asphalt Heating: Heat and apply SEBS-modified roofing asphalt according to roofing system manufacturer's written instructions.
- H. Add adhesive application: Polyurethane foam adhesive, or other UL or FM approved adhesive for specified application and wind up-lift.
- I. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

### 3.6 BASE-SHEET INSTALLATION

- A. Base Sheet: Lay the base sheet over the entire area to be roofed, lapping sides and ends four inches, using the specified fasteners, and manufacturer approved fastening pattern to comply with FM I-110 guidelines for wind uplift. Increase fasteners 50% at the perimeter and increase pattern at corners in compliance with Factory Mutual Loss Prevention and Wind Uplift Guidelines.

### 3.7 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
  1. Adhere intermediate and base ply sheet to substrate in a solid mopping of hot roofing asphalt applied at not less than 425 deg F (218 deg C).
  2. All cap sheet (and base sheet) at restricted roof areas torch apply to substrate, or cold adhesive.
  3. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
  1. Repair tears and voids in laps and lapped seams not completely sealed.
  2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing membrane sheets so side and end laps shed water.

### 3.8 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:

1. Prime substrates with asphalt primer if required by roofing system manufacturer.
  2. Backer Sheet Application: Mechanically fasten backer sheet to walls or parapets. Adhere backer sheet over roofing membrane at cants in a solid mopping of hot roofing asphalt or cold-applied adhesive.
  3. Flashing Sheet Application: Torch apply flashing sheet to substrate.
- B. Extend base flashing up walls or parapets a minimum of 10 inches (250 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing with termination bar screw fastened at 8" o.c. unless noted otherwise.
1. Seal top termination of base flashing with a strip of glass-fiber fabric set in asphalt roofing cement.
- D. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.

### 3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Test Cuts: Test specimens will be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
  2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
1. Notify Architect or Owner 48 hours in advance of date and time of inspection.
- D. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.11 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

### 3.12 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  - 1. Owner: Leon County
  - 2. Address: Tallahassee, Florida
  - 3. Building Name/Type: Leon County Community Service Building
  - 4. Address: Leon County, Tallahassee, Florida
  - 5. Area of Work: Barrel Roof
  - 6. Acceptance Date: (Substantial Completion Date)
  - 7. Warranty Period: Three Years
  - 8. Expiration Date: <Insert date.>
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period.
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
  - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. lightning;
    - b. peak gust wind speed exceeding 72 mph (m/sec);\*\*
    - c. fire;
    - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    - f. vapor condensation on bottom of roofing; and
    - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
  - 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
  - 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.

4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

- E. IN WITNESS THEREOF, this instrument has been duly executed this <Insert day> day of <Insert month>, <Insert year>.
1. Authorized Signature: <Insert signature.>
  2. Name: <Insert name.>
  3. Title: <Insert title.>

END OF SECTION 07552

## 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; and base flashing.
- Edge metal.
- Exposed metal trim.
- Coping.
- Scuppers.
- Scupper escutcheons.
- Expansion joint covers.
- Miscellaneous sheet metal accessories.
- Plastic flashing.

#### 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.

Roofing Cement: ASTM D 2822, asphaltic.

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

Soprema – Alsan Flashing  
Siplast – Parapro 123 Flashing Resin  
JM – 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.

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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.