



UNIVERSITY OF
FLORIDA

**INSTITUTE OF FOOD AND
AGRICULTURAL SCIENCES
FACILITIES PLANNING AND
OPERATIONS**

PROJECT TITLE: ROOF REPLACEMENT

BUILDING NUMBER: BUILDING 7122
CITRUS RESEARCH AND EDUCATION CENTER
LAKE ALFRED, FLORIDA

IFAS PROJECT NO: 09036

DATE: APRIL 23, 2010

PREPARED BY: AKEL, LOGAN & SHAFER, P.A.
ARCHITECTS / PLANNERS
704 ROSSELLE STREET
JACKSONVILLE, FLORIDA 32204

100% CONSTRUCTION DOCUMENTS

PROJECT MANUAL

PROJECT MANUAL
INCLUDING SPECIFICATIONS FOR

PROJECT: ROOF REPLACEMENT

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PREPARED FOR: UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
FACILITIES PLANNING AND OPERATIONS
BUILDING 124 MOWRY ROAD
GAINESVILLE, FLORIDA 32611-0850

IFAS PROJECT MANAGER: RONNIE COOPER
PHONE: (352) 392-6488 EXT. 251

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BID PROPOSAL FORM

FROM: _____
(Name of Bidder)

TO: UNIVERSITY OF FLORIDA
Institute of Food and Agricultural Services
Facilities Planning and Operations
Building 124 Mowry Road
Gainesville, Florida 32611-0850
Attn: Ronnie L. Cooper, IFAS Project Manager

The undersigned, hereinafter called "Bidder", having read the Documents for the Project entitled:

Roof Replacement, Building 7122, Citrus Research and Education Center, Lake Alfred, FL - IFAS Project No. 09036

Having visited the site of the proposed Project and familiarized himself/herself with all conditions affecting and governing the construction of said Project, hereby proposed to furnish all labor, materials, equipment and other items, facilities and services for the proper execution and completion of the Project, in strict compliance with the Bid Documents, the Addenda and all other Documents relating thereto on file in the Division of Purchasing, and, if awarded the Contract, to complete the said Work within 90 calendar days after receipt of the Notice to Proceed, for the sums as enumerated on this and the following pages:

BASE BID (Roof Areas C & D): _____
_____ Dollars. Figures: \$ _____

ALTERNATES (Indicate ADD or DEDUCT)

ALTERNATE NO. 1 (Roof Area B): _____
_____ Dollars. Figures: \$ _____

ALTERNATE NO. 2 (Roof Area A): _____
_____ Dollars. Figures: \$ _____

ADENDA:

The receipt of the following Addenda to the Bid Documents is acknowledged:

ADDENDUM # _____	Dated: _____
ADDENDUM # _____	Dated: _____
ADDENDUM # _____	Dated: _____

SIGNATURE:

I hereby certify that for all statements and amounts herein made on behalf of

(Signature of Bidder) (Date)

(Print Name) (Title)

(Company)

(Address)

(City) (State) (Zip Code)

(Contractor's License No.)

(Telephone No.) (Fax)

END OF BID PROPOSAL

PART 1 - GENERAL

- 1.1 **SCOPE:** The alternates listed below affect the scope of work of this project. Bidder shall include a separate price for each alternate in the Proposal. Failure to do so may be sufficient cause to reject the Proposal.
- 1.2 **BASE BID:** The Base Bid shall be a lump sum for the entire project as required by the contract documents, but not including work indicated or specified to be provided under any of the Alternates described below. All work not specifically included in the alternates below shall be included in the Base Bid.
- 1.3 **ALTERNATE NO. 1:** This Alternate shall be a lump sum price to be added to the base bid for all work required by the Contract Documents for Roof Area B.
- 1.4 **ALTERNATE NO. 2:** This Alternate shall be a lump sum price to be added to the base bid for all work required by the Contract Documents for Roof Area A.

END OF SECTION

PART 1 - GENERAL

- 1.1 **SCOPE** This Section includes requirements for protecting existing landscaping during construction.
- 1.2 **SUBMITTALS** Submit tree and vegetation protection plan for approval prior to proceeding with on-site construction activities.
- 1.3 **REQUIREMENTS** Any construction project which disturbs existing landscaping (sidewalks, benches, fountains, retaining walls, streetlights, accent lighting, trees, shrubs, ground cover, grass, flowers, etc.) shall include appropriate replacement of all damaged materials.
- 1.4 **PROTECTION OF LANDSCAPING DURING CONSTRUCTION**
- 1.4.1 **Tree and Vegetation Protection Plan** Trees and other vegetation within the general construction area (including construction parking areas) shall protected in accordance with the "Tree and Vegetation Protection Plan" included in the Contract Documents. In the absence of such a plan, the Contractor shall develop and implement a plan to protect the trees and vegetation in accordance with the latest edition of the "Trees and Development, A Technical Guide to Preservation of Trees During Land Development" by Nelda Matheny and James R. Clark, published by the International Society of Arboriculture. Prior to commencing construction, the University's Project Manager, in consultation with the Architect/Engineer and the PPD Urban Forester or Landscape Architect, shall review and approve the Contractor-developed plan.
- 1.4.2 **Tree Barricades** Tree barricade construction shall be completed before any other site preparation or vehicle entry, other than perimeter fence construction. After completion of tree barricade construction and prior to any additional site preparation the PPD Urban Forester or Landscape Architect shall inspect the tree barricades for compliance with the approved plan.
- 1.4.3 **Tree Barricade Maintenance** Areas within tree barricades are to be mulched with four inches of hardwood tree chips after barricade construction and kept free of any foreign material including trash, construction debris, building materials or vehicles. Any normal maintenance of shrubs, or groundcovers within the construction area is the responsibility of the Contractor. Any tree care work within the construction area is the responsibility of the contractor and shall be preformed by an ISA Certified Arborist with prior consultation with the UF Urban Forester. Under no circumstances shall any wires or ropes be attached to trees for electrical service or any other reason.
- 1.4.4 **Replacement Of Trees And Vegetation** Any vegetation, including trees and shrubs, severely damaged or destroyed shall be replaced or mitigated by the Contractor with the like species or another species approved by the Physical Plant Division. In the case of trees, mitigation shall occur on site whenever possible, elsewhere on campus if necessary due to space considerations.

Mitigation trees shall be Florida Nursery grade Number One or better and shall be a minimum of eight feet in height. The Contractor shall be held liable for the difference in value between the replacement tree and the original tree (value set in accordance with the International Society of Arboriculture's latest edition of "Guide for Plant Appraisal", "Replacement Cost method", edited by the International Society of Arboriculture). That difference shall be subtracted from the original contract amount to be paid the Contractor.

- 1.4.5 **Replacement Of Grassed Areas** All grassed areas damaged during construction shall be resodded with sand grow Floratam or St. Augustine Bitter Blue sod to provide uniform coverage and appearance. Argentine Bahia shall be used in un-irrigated areas. Reseeding will not be permitted. Prior to resodding, loosen the soil surface to a depth of 2-inches except where tree roots are near the surface and finish grade to a smooth, even and uniform plane with no abrupt changes of surface. Do not place sod against tree trunks. All damages areas shall be resodded within 72 hours of completion of the associated construction work.
- 1.4.6 **Other Damages** All other landscape features damaged during construction shall be replaced and/or restored to its previous condition.
- 1.4.7 **Contractor Parking** Construction vehicles shall park in designated laydown areas only and under no circumstances in University of Florida Natural Areas shown in the master Plan.

END OF SECTION

SECTION 03500

LIGHTWEIGHT INSULATING CONCRETE FILL

PART 1 - GENERAL

- 1.1 **SCOPE** Provide lightweight fill to provide encapsulate existing asbestos containing built-up membrane roofing.
- 1.1.1 **Related Work (Specified in other sections):**
 - Membrane Roofing; Section 07500.
- 1.2 **SUBMITTALS**
- 1.2.1 **Shop Drawings** Submit roof fill shop drawings indications ridges, valleys, crickets. Slope, thickness and details at drains, curbs, roof edges and wall intersections.
- 1.2.2 **Warranty** See Section 07500, Membrane Roofing; paragraph 1.8 guarantees, for Roof System Guarantee Requirements.

PART 2 - PRODUCTS

- 2.1 **INSULATION FILL** Furnish insulating fill to provide the roof slope indicated on the Drawings. Unless otherwise indicated, provide a minimum positive roof slope of ¼ inch per foot and a maximum average weight of 4 ½ pounds per square foot. **No Pre-generated foam products will be accepted.**
- 2.1.1 **Portland Cement** shall conform to Standard Specifications for Portland Cement, ASTM C150, Type I.
- 2.1.2 **Aggregate** shall be expanded vermiculite conforming to ASTM C332 and other materials especially formulated to provide a high strength roof fill mix especially designed for application over non-vented substrate. The mix shall have a cement to aggregate ratio of 1:3.5 cubic feet and a 28-day compressive strength of 300 psi.
- 2.1.3 **Water** shall be clean and free from deleterious amounts of acids, alkali and organic materials.

PART 3 - EXECUTION

- 3.1 **PREPARATION** Remove all existing roof top equipment; roof gravel, flashing, cants, roof accessories and debris that will prevent proper installation of insulating concrete fill. Cover void with sheet metal fastened in place and sealed with roofing membrane. Provide temporary membrane flashing at equipment curbs, parapet walls and similar vertical intersections. Seal around all roof

penetrations. Do not proceed with installing insulating concrete fill until the work of all other trades that penetrates the existing roof is substantially complete and the roof is made watertight.

- 3.2 **MIXING** Insulating concrete shall be mixed in a mechanical mixer. The required amount of water and cement shall be placed in the mixer and then the aggregate. Mixing shall be limited to the minimum time required to obtain a thorough mix and proper fluidity and shall not exceed 5 minutes.
- 3.3 **PROPORTIONS** The proportions shall be 1 bag (94 pounds) of cement to not more than 3.5 cubic feet of aggregate. The proportions shall be maintained uniform throughout the project.
- 3.4 **PLACING** Insulating concrete shall be pumped into place immediately after mixing is completed, and the period between completion of the mixing and placing shall be of such short duration that the mixture does not appreciably change consistency. Concrete shall not be placed when the temperature is less than 40 degrees F., if the temperature expected after the placing of the concrete is near or below 40 degrees F., the mixing water shall be heated in the temperature range 90-110 degrees F. Place a minimum of 2 inches of insulation concrete over the existing roof and screed to an even surface to receive new membrane roofing. Uniformly slope insulating concrete to provide positive drainage free of bird baths.
- 3.5 **CURING AND PROTECTION** The surface of freshly finished insulating concrete shall be prevented from drying out for not less than three days or sufficiently long enough to allow the concrete to develop the desired strength. The curing shall start immediately following partial set of the concrete. Where damage has occurred from freezing, rain or other causes, the damaged portion shall be replaced as required before application of any roofing is started.
- 3.6 **QUALITY CONTROL**
- 3.6.1 **Slope Test** Prior to commencing roof installation, roof deck shall be flood tested. All deck areas holding ponding water from more than 24 hours shall be repaired by the roof deck applicator and retested until all surface water drains away within a 24 hour period.

END OF SECTION

PART 1 - GENERAL

- 1.1 **SCOPE** The work includes the demolition or removal of all construction indicated or specified. All debris and materials resulting from demolition work except as indicated or specified otherwise, shall become the property of the Contractor and shall be removed from the limits of the property.
- 1.2 **PROCEDURES** The procedures for the accomplishment of demolition work shall provide for safe conduct of the work, careful removal and disposition of materials, protection of property which is to remain undisturbed, protection of all persons occupying the property, protection of pedestrians and traffic around the building, coordination with other work in process, and timely disconnection of utility services.
- 1.3 **DUST CONTROL** Dust resulting from demolition and removal work shall be controlled to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution.
- 1.4 **NOISE CONTROL** Noise resulting from demolition and removal work shall be controlled to avoid distraction or interruption of business and residential activities in the surrounding area. Work that involves inherent severe impact noise (wrecking ball, jack-hammer, sledge-hammer, etc.) shall not be permitted 8:00 A.M. to 5:00 P.M. Mondays through Fridays.
- 1.5 **PROTECTION** Existing work to remain shall be protected from damage. Use of explosives shall not be permitted.
- 1.5.1 **Protection of Building from the Weather** The interior of the building and all materials and equipment shall be protected from the weather at all times. Where removal of existing roofing or exterior walls is necessary to accomplish work, materials and workmen necessary to provide adequate and approved temporary covering of exposed area shall be kept in readiness at all times. Temporary coverings shall be attended as necessary to insure their effectiveness and prevent displacement.
- 1.5.2 **Protection of Building Occupants** Demolition work and new construction shall not be permitted in occupied spaces. Coordinate scheduling of all work with the IFAS Project Manager to assure occupants have sufficient time to move to other portions of the building away from the work area. Provide and maintain barriers as necessary to protect occupants from the hazards of construction. Maintain exits from occupied areas as directed by the Fire Marshal.
- 1.5.3 **Protection of Utilities** Maintain continuous existing utility service. Obtain written approval from the IFAS Project Manager prior to temporarily disrupting any utility service.

PART 2 - PRODUCTS

- 2.1 **DISPOSITION OF MATERIALS** Title to all materials and equipment to be removed, except as specified otherwise, is vested in the Contractor upon receipt of Notice to Proceed. The Owner will not be responsible for the condition, loss or damage of such property after Notice to Proceed.
- 2.1.1 **Reuse of Materials** Materials and equipment to be reused or relocated shall be carefully removed and stored to prevent damage, and reinstalled as the work progresses.

PART 3 - EXECUTION

- 3.1 **EXISTING MATERIAL TO BE REMOVED** Remove existing membrane roofing, flashing, roof top equipment, piping, conduit, wiring, ventilating penthouse and roof accessories as indicated. Extreme care shall be taken not to remove or damage any portion of the existing material or equipment designated to remain. Repair or replace damaged portions to match existing.
- 3.1.1 **Removal of Asbestos-Containing Materials** Removal of all roofing materials containing asbestos shall be performed by a certified roofing contractor. Contractor shall have a superintendent who has successfully completed a 5-day asbestos Contractor/Supervisor Course on the job whenever asbestos removal work is in progress. Asbestos removal, handling, transportation and disposal shall comply with all OSHA and EPA requirements. Furnish three (3) copies of all personnel monitoring sample reports within 48 hours of receipt of testing results. Furnish three (3) copies of each waste material disposal receipts within 48 hours of disposal of any waste material. Furnish three (3) copies of all post-job submittals including worker training documentation, all air sampling data, worker's acknowledgment of asbestos exposure, physician's written opinion of each worker, and worker's verification of "Respirator Protection Training".
- 3.1.2 **Location of Existing Asbestos-Containing Material** Samples have been taken and analyzed to determine the presence of existing asbestos-containing material. The following roof areas have been found to contain asbestos.

Building No. 7122

- No asbestos containing materials were found on the roof.

See attached copy of testing laboratory report for an analysis of samples taken.

- 3.2 **CLEAN-UP** All demolition material, debris and rubbish shall be removed from the site immediately or stored in a secure area of container until removed to prevent access to material by occupants. Stored material shall be removed from site as soon as possible. Debris and rubbish shall not be allowed to accumulate on site. Material shall be removed and transported in a manner that will prevent

spillage on streets and adjacent areas. Comply with local regulations regarding hauling and disposal.

END OF SECTION

SUMMARY OF BULK SAMPLE ANALYSIS
University of Florida; Roof Survey Building 7122
10140-00738

Sample	Sample Type	Fiber Type	
M-01A	Black Cover Over Roof Seam	100%	Polymer
M-01B	Black Cover Over Roof Seam	100%	Polymer
M-01C-QC	Black Cover Over Roof Seam	100%	Polymer
RBU-01A	Built-Up Roofing	100%	Bitumen, Quartz, Calcite, Mica
RBU-01B	Built-Up Roofing	100%	Bitumen, Quartz, Calcite, Mica
RBU-01C	Built-Up Roofing	100%	Bitumen, Quartz, Calcite, Mica
RF-01A	White Roof Sealant	100%	Polymer, Quartz, Calcite, Clay, Mica
RF-01B	White Roof Sealant	100%	Polymer, Quartz, Calcite, Clay, Mica
RF-01C	White Roof Sealant	100%	Polymer, Quartz, Calcite, Clay, Mica
RF-02A	Black Roof Sealant	100%	Bitumen
RF-02B	Black Roof Sealant	100%	Bitumen
RF-02C	Black Roof Sealant	100%	Bitumen
RF-03A-QC	Black w/ Silver Flashing	100%	Bitumen, Quartz, Calcite, Mica
RF-03B	Black w/ Silver Flashing	100%	Bitumen, Quartz, Calcite, Mica

Analyst / Approved
Signatory:


Darryl Neldner

* Polarized Light Microscopy coupled with dispersion is the technique used for identification in accordance with EPA-600 and EPA 40 CFR 763.

** The percentage of each component is visually estimated. The result of this analysis relate only to the material tested.
The report shall not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.
(>1% greater than one percent, <1% less than one percent) QC - Sample reanalyzed for QA/QC.

*** This report shall not be reproduced except in full, without the written approval of the laboratory. GLE Report # 12614

Analysis performed by GLE Associates, Inc. NVLAP #102003-0, CA 2580, TX 30-0337

SUMMARY OF BULK SAMPLE ANALYSIS
University of Florida; Roof Survey Building 7122
10140-00738

Sample	Sample Type	Fiber Type	
RF-03C	Black w/ Silver Flashing	100%	Bitumen, Quartz, Calcite, Mica
RR-01A	Gray Gravel Rolled Roofing	100%	Bitumen, Quartz, Calcite, Mica
RR-01B	Gray Gravel Rolled Roofing	100%	Bitumen, Quartz, Calcite, Mica
RR-01C	Gray Gravel Rolled Roofing	100%	Bitumen, Quartz, Calcite, Mica

Analyst / Approved
Signatory:



Darryl Neldner

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(>1% greater than one percent, <1% less than one percent) QC - Sample reanalyzed for QA/QC.

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Analysis performed by GLE Associates, Inc. NVLAP #102003-0, CA 2580, TX 30-0337

PART 1 - GENERAL1.1 **SCOPE**1.1.1 **Related Work** specified in other sections:

- Lightweight Insulating Concrete; Section 03500.
- Flashing and Sheet Metal; Section 07600.

1.2 **REQUIREMENTS OF REGULATORY AGENCIES** Roofing system shall conform to the requirements of the Underwriter's Laboratories, Inc., for Class A fire hazard classification, and withstand the design wind velocity criteria indicated on the drawings.1.3 **QUALIFICATIONS** Applicator shall be a certified Florida roofing contractor with a minimum of five (5) years full time experience installing roofing systems for commercial/institutional/educational buildings of similar size and scope and a home or established regional office with staff and storage facilities located within 100 miles of the project site and capable of providing full project services from the location (job trailers, mobile offices, telephone answering services and the like are not acceptable). Contractor shall be a certified applicator of one or more of the specified membrane manufacturers prior to bidding; shall have installed one or more of the specified products on at least five (5) similar projects; and have a full time roofing superintendent with at least five (5) years roofing experience on the job whenever work is in progress.1.4 **SUBMITTALS**1.4.1 **Manufacturer's Literature** Prior to delivery or installation, submit the latest edition of the manufacturer's roofing and base flashing specification including warranty and a list of materials proposed for use. Submit manufacturer's product literature for attachment of temporary roof or base sheet to existing lightweight concrete fill deck including recommended fastener pattern for the required design wind loads.1.4.2 **Certificates** Prior to delivery or installation, submit certificate stating the materials furnished are compatible with the deck indicated, each one to the other and to adjacent related work. Upon request submit certificates of compliance with the applicable standards and referenced specifications for roofing materials not described specifically by trade name or manufacturer.1.4.3 **Calculations** Submit design calculations, duly signed and sealed by professional engineer in the State of Florida for approval of fasteners and nailing pattern for temporary roof, base sheet and roof board.1.5 **PRODUCT HANDLING** Deliver materials to project site in manufacturer's original, unopened containers and rolls with labels intact and legible. Where fire

resistance classification is required, materials shall be labeled and packaged as required by labeling service. Store all roofing materials off grade and provide continuous cover for protection against weather, wetness, and moisture absorption. Film packaging is not considered adequate protection. Store rolled goods on end. Handle rolled goods so as to prevent damage to edge or ends. Select and operate material handling equipment so as not to damage existing construction or applied roofing. Remove all damaged or wet materials from project site.

1.6 **ENVIRONMENTAL CONDITIONS** Apply roofing in dry weather only. Do not apply roofing when temperature is below 45 degrees F. or when wind speed is over 20 mph. Do not overheat bitumen to compensate for low temperature.

1.7 **PROTECTION** Protect paving, sidewalks and building walls adjacent to hoist prior to starting work and maintain for duration of roofing work. Protect all completed work from traffic and damage until acceptance by Owner.

Protect all persons using building and maintain the building in a safe and watertight condition throughout the work as follows:

- Where the roof deck or structure is deteriorated, that portion of the roof shall be replaced only when the spaces below are unoccupied.
- In the absence of prior active reported roof leaks, any leakage from the roof area into the building during re-roofing projects will be assumed to be the responsibility of the Contractor.
- Prior to starting work of the project, the Contractor will verify that all roof drains are working. Report any stoppages to the Project Manager prior to beginning work.
- Do not allow water build-up on roof due to changed drainage patterns. Provide for roof drainage during re-roofing, either by direct drainage to roof drains or pumps. Do not discharge water from roof directly to grade without specific authorization from the Project Manager.
- Provide protection for interior spaces, furnishings and equipment.
- To prevent the entrance of outdoors into building air intakes, have their odors exhausted to another location, or be filtered to remove the odors. Building fresh air intakes may require temporarily closing the intakes in the vicinity of the work. Such closures must be coordinated with EH&S and building occupants through the Project manager. Whatever measures are necessary to prevent fumes from entering the building must be employed. The use of tankers for asphalt, torch-down applications or cold application methods does not relieve the Contractor of this responsibility.
- Provide presence on job site during and immediately after heavy rains in order to identify and repair leaks, clean-up water and repair water

damage. It is especially important to immediately remove water from interior spaces and to wet-vac and clean areas in order for the occupants to proceed with their daily duties without interruption or inconvenience. Storage areas, mechanical rooms and unoccupied areas will be cleaned and repaired same as occupied areas. Proceed immediately with clean up as soon as discovered, do not wait for the next day to do this work.

- The Contractor should be aware that any expenditures by the University to repair or stop leaks, or provide custodial services will be charged to the Contractor.
- Promptly repair all damage to University property, including vegetation and irrigation systems. It is the Contractor's responsibility to identify areas with subsurface irrigation and utility systems.
- Dig permits must be obtained before installing fencing.

1.8 **GUARANTEES**

1.8.1 **Applicator's Guarantee** Prior to acceptance of the work, the roofing applicator shall furnish a written guarantee for five (5) years from the date of substantial completion which covers repairs required to maintain roof, including membrane, flashings, and insulation in water-tight and reroofable condition. Guarantee shall be limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Repairs shall be made at no expense to the Owner. Applicator shall inspect the project annually for three (3) years after date of substantial completion and advise Owner in writing after each inspection of all findings.

1.8.2 **Manufacturer's Guarantee** Prior to acceptance of the work, furnish roofing manufacturer's single source, no dollar limit, written guarantee for 20 years from the date of substantial completion which covers repairs required to maintain roof including membrane, flashings, and insulation in water-tight and reroofable condition. Guarantee shall be limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Repairs shall be made at no expense to the Owner within the limits of the guarantee liability. The manufacturer shall inspect the project annually for the life of the guarantee period and advise Owner in writing after each inspection of all findings.

PART 2 - PRODUCTS

2.1 **ROOFING SYSTEMS** Provide a 20-year guaranteed adhesive applied, modified bitumen roof system. Components of the roofing system shall be as described for each manufacturer listed. No other roofing systems will be considered. Mop or torch application will not be considered without specific written authorization of the Owner.

2.1.1 **Johns Manville** Specification No. 4FLD-CA

PermaPly 28 Base Sheet (mechanically attached)
 2 Plies DynaBase Interply Sheet (adhesive applied)
 DynaGlas FR Cap Sheet (adhesive applied)
 Membrane Flashing: DynaBase Base Sheet
 DynaFlex Cap Sheet
 Liquid Resin Flashing: PermaFlash Flashing System
 Prime substrates per Manufacturer's recommendations

2.1.2 **Siplast** Specification No. 2030CBA

Parabase FS Base Sheet (mechanically attached)
 2 Plies Paradiene 20 Interply Sheet (adhesive applied)
 Paradiene 30 FR Cap Sheet (adhesive applied)
 Membrane Flashing: Paradiene 20 Base Sheet
 Paradiene 40 HV RP Cap Sheet
 Liquid Resin Flashing: Parapro Flashing System
 Prime substrates per Manufacturers recommendations

2.1.3 **Soprema** Specification No. IL-02(2)25/42-C

Soprema G-2 Base Sheet (mechanically attached)
 2 Plies Elastophene Sanded Interply Sheet (adhesive applied)
 Elastophene FR GR Cap Sheet (adhesive applied)
 Membrane Flashing: Elastophene Sanded 3.0 Base Sheet
 Sopralene 180 FR GR Cap Sheet
 Liquid Resin Flashing: Alsan Flashing System
 Prime substrates per Manufacturers recommendations

2.2 **SECONDARY ROOFING MATERIALS** not specified shall comply with roofing manufacturers' recommendations.

2.2.1 **Membrane Adhesive** shall be a one or two-part cold adhesive specifically recommended by the roofing manufacturer as appropriate for adhesion of Class A roofing and flashing membrane sheets under existing conditions.

2.3 **CEMENTS, PRIMER, POURABLE SEALANT AND COATING**

2.3.1 **Plastic Cement** for an adhesive in horizontal flashings and where ply felts are joined to sheet metal shall conform to ASTM Designation D4586.

2.3.2 **Primer** shall conform to ASTM Designation D41. Primer shall be the standard product of the roofing system manufacturer for priming concrete masonry and asphaltic surfaces.

2.3.3 **Pourable Sealant** shall be a one-part moisture curing, non-shrink, polyurethane sealant especially designed for filling ring curbs.

2.4 **EDGINGS, NAILERS AND CANTS**

- 2.4.1 **Cant Strips** shall be pressure treated wood conforming to AWWPA Standard C-2.
- 2.4.2 **Tapered Edge Strips** shall be preformed perlite or fiberboard conforming to ASTM Designation C208 with a maximum thickness of 1-5/8 inches and a face incline of 1-inch per foot.
- 2.4.3 **Wood Nailers** shall be pressure treated with water-borne salts in accordance with requirements of the American Wood Preserver's Association. Nailers shall have same thickness as adjoining insulation and be 2 inches wider than flange of metal edging.
- 2.4.4 **Wood Curbs** shall be pressure treated same as wood nailers. Curbs shall have a nominal width of 2 inches and extend a minimum of 4 inches above cant strip.
- 2.5 **FASTENERS**
- 2.5.1 **Nails and Screws** shall be non-ferrous or stainless steel and of type recommended by roofing system manufacturer and approved by Factory Mutual and Miami-Dade County for the conditions of the installation.
- 2.5.2 **Metal Discs** shall be 1-inch diameter, minimum 30-gage, flat sheet metal caps. Form caps to prevent dishing. Bell or cup-shaped caps are not acceptable.
- 2.5.3 **Termination Bar** shall be 1-1/4 inch wide by 1/8-inch thick aluminum bar with holes 6 inches on center for solid aluminum masonry anchors. Size holes to allow for thermal movement.
- 2.6 **ROOF ACCESSORIES**
- 2.6.1 **Roof Drains** Replace damaged or missing dome strainers and clamping rings on existing roof drains designated to remain.
- 2.6.2 **One -Way Roof Vents** shall be one-piece spun aluminum one-way roof vents recommended for use in roofs over lightweight insulating concrete fill.
- 2.6.3 **Ring Curbs** for sealing small roof penetrations shall be ChemCurb System penetration seals consisting of urethane ring curbs, sealant/adhesive, and pourable urethane sealant as manufactured by Chem Link, Inc.

PART 3 - EXECUTION

- 3.1 **REMOVAL** Remove and dispose of all existing roofing, flashing, insulation, roof top equipment, piping, conduit, wiring, ventilating penthouse structure and roof accessories unless identified to remain. Do not remove more roof than can be completely reroofed with temporary roof in the same day.

- 3.2 **INSPECTION OF SURFACES** Examine roof deck for inadequate anchorage, foreign material, excessive moisture, and unevenness, which would prevent the execution and quality of application of roofing system as specified. Do not proceed with application of roofing system until such defects have been corrected and the work of all other trades, which penetrates or requires traffic across the roof deck, has been substantially completed.
- 3.3 **PREPARATION** Replace all damaged or deteriorated roof deck, wood nailers, curbs and edges. Fasten nailers around periphery of the roof in accordance with Factory Mutual Loss Prevention Data Sheet 1-49. Fill all nail holes and voids in cementitious roof decks with cement grout material to provide a smooth and uniformly level roof deck surface. Raise existing curbs and nailers and extend existing plumbing vents as indicated. Cover cracks and voids with sheet metal nailed in place, or fill with plastic cement and strike smooth frame and fill larger openings as indicated. Remove all debris and foreign matter from roof decks and apply temporary roof.
- 3.4 **TEMPORARY ROOF** Upon removal of existing roof materials, provide a temporary roof consisting of two cold applied APP or SBS base sheets on concrete decks (prime as required); a nailed base sheet and one cold applied APP or SBS base sheet on lightweight concrete fill and poured gypsum decks; or one-ply sheathing paper, a nailed base sheet and one cold applied SBS base sheet on wood and fiber cement decks. Nail base sheet using fasteners and nail pattern recommended by roofing manufacturer for the required wind loads. Extend sheets down vertical face of perimeter wood nailers. Provide temporary flashings at roof penetrations and openings. Do not apply temporary roof over permanently installed insulation. Glaze coat all temporary roofs.
- 3.4.1 **Contractor's Option** If the existing roofing membrane is removed, the deck repaired, and the new base, interply and flashing sheets installed weather tight all in the same day; then the temporary roof may be deleted at the contractors option. If not, the temporary roof shall be required over the entire roof deck. Partial or intermittent temporary roof will not be permitted. In either case, the Contractor will be singularly responsible for keeping all equipment, material, the building and its contents dry and fully protected from the weather at all times.
- 3.5 **APPLICATION OF MEMBRANE ROOFING** Install modified bitumen roofing in accordance with roofing manufacturer's specification and as specified below. Install base and interply sheets perpendicular to slopes less than 2 inches per foot and parallel on greater slopes. Install cap sheet perpendicular to slopes of 1/2-inch per foot and less and parallel to slopes greater than 1/2-inch per foot. Apply all sheets in firmly and uniformly set fashion, free of voids, stagger laps between sheets. Fasten membrane roofing around the periphery of the roof in accordance with Factory Mutual Loss Prevention Data Sheet 1-29S. Complete installation up to line of termination of days' work. Seal edges of incomplete roofing system so no moisture can enter roofing construction before work resumes.
- 3.5.1 **To Lightweight Concrete Fill** Nail one-ply base sheet to insulating fill. Lap felt 3 inches at edges and 4 inches at ends. Use fasteners and nail pattern

recommended by roofing manufacturer for the required wind loads. Adhesive apply two interply sheets over base sheet. Lap sides and ends a minimum of 3 inches. Apply sheets shingle fashion up the slope.

- 3.5.2 **Cap Sheet** Cut cap sheets square. Adhesive apply cap sheet over interply sheet taking special care to provide a neat and uniform finished appearance. Stagger end joints to provide a uniform overall joint pattern. Mechanically fasten head laps to roof deck as recommended by the membrane manufacturer. Sprinkle matching loose granules to conceal exposed adhesive. Protect cap sheet from workmen and equipment tracking adhesive over finished surface.
- 3.6 **APPLICATION OF FLASHING** Install two (2)-ply flashing in accordance with roofing manufacturer's specification and as specified below. Prime all concrete and masonry surfaces to receive flashing at the rate of one gallon per 100 square feet.
- 3.6.1 **Base Flashing** Provide cant strip and base flashing at all curbs, walls and vertical surfaces where other types of flashing are not indicated. Extend base flashing not less than 10 inches nor more than 18 inches above level of roof surface. Anchor base flashing at the top edge with nails through metal discs or with solid cap nails. Install metal counter flashing or metal coping immediately or seal top edge of base flashing with sealant.
- 3.6.2 **Strip Flashing** Flanges of edge flashing, vents, and similar items shall be set in plastic cement and securely anchored to roof prior to application of cap sheet. Strip flash over flanges with one layer cap sheet set in flashing cement.
- 3.6.3 **Liquid Resin Flashing** Provide liquid resin flashing at selected locations indicated, and at contractor's option, in lieu of ring curbs at small roof penetrations. Seal around penetrations and apply flashing over cap sheet in strict accordance with roofing manufacturers instructions for installation with cold-applied roofing membrane. Mask all flashing terminations prior to installing flashing and remove masking tape before resin sets. Flashing shall be white or top coated with two coats of 100% acrylic elastomeric coating to achieve total cured coating thickness of 20 mils.
- 3.7 **INSTALLING ROOF ACCESSORIES** Install roof accessories in accordance with manufacturer's printed instruction. Set each item in plastic cement and anchor to roof deck.
- 3.8 **EXPOSED CONCRETE CANOPIES** Clean, prime and apply a non-reinforced resinous roof coating over the exposed concrete canopy roof surface per manufacturer's instructions.
- 3.9 **FIELD QUALITY CONTROL**
- 3.9.1 **Manufacturer's Field Inspection** During roofing installation, a representative of the membrane manufacturer shall make weekly visits to the project and submit a written report following each visit to the Owner with a copy to the Architect. Reports shall be submitted along with contractors pay requests.

- 3.9.2 **Thermal Scan** Upon completion of the work and prior to Final Completion, provide an Infrared Thermal Scan of the completed roof assembly. Scanning shall be performed by a certified Infrared Thermographer, and a member of the Infraspction Institute. Submit three (3) copies of the Infrared scanning results including scale drawings of the roof showing location of all suspected defective areas.
- 3.10 **CLEANING** Remove bitumens, resins and all adhesives from adjoining surfaces. Verify all roof mounted fans, motors and roof drains are free of dirt and debris and are in proper working order.

END OF SECTION

PART 1 - GENERAL**1.1** **SCOPE****1.1.1** **Related Work** specified in other sections:

- Membrane Roofing (Replacement); Section 07500
- Flashing and Sheet Metal; Section 07600.

1.2 **REQUIREMENTS OF REGULATORY AGENCIES** Roofing system shall conform to the requirements of the Underwriter's Laboratories, Inc., for Class A fire hazard classification, and withstand the design wind velocity criteria indicated on the drawings.**1.3** **QUALIFICATIONS** Applicator shall be a certified Florida roofing contractor with a minimum of five (5) years full time experience installing roofing system for commercial/institutional/educational buildings of similar size and scope and a home or established regional office with staff and storage facilities located within 100 miles of the project site(s) and capable of providing full project services from that location (job trailers, mobile offices, telephone answering services and like are not acceptable). Contractor shall be a certified applicator of one or more of the specified membrane manufacturers prior to bidding; shall have installed one or more of the specified products on at least five (5) similar projects; and have a full time roofing superintendent with at least five (5) years roofing experience on the job whenever work is in progress.**1.4** **SUBMITTALS****1.4.1** **Manufacturer's Literature** Prior to delivery or installation, submit the latest edition of the manufacturer's roofing and base flashing specification including warranty and a list of materials proposed for use. Submit manufacturer's recommendations for application over existing roofing membrane.**1.4.2** **Certificates** Prior to delivery or installation, submit certificate stating the materials furnished are compatible with the existing roofing membrane, each one to the other and to adjacent related work. Upon request submit certificates of compliance with the applicable standards and referenced specifications for roofing materials not described specifically by trade name or manufacturer.**1.5** **PRODUCT HANDLING** Deliver materials to project site in manufacturer's original, unopened containers and rolls with labels intact and legible. Where fire resistance classification is required, materials shall be labeled and packaged as required by labeling service. Store all roofing materials off grade and provide continuous cover for protection against weather, wetness, and moisture absorption. Film packaging is not considered adequate protection. Store rolled goods on end. Handle rolled goods so as to prevent damage to edge or ends. Select and operate material handling equipment so as not to damage existing construction or applied roofing. Remove all damaged or wet materials from

project site.

1.6 **ENVIRONMENTAL CONDITIONS** Apply roofing in dry weather only. Do not apply roofing when temperature is below 45 degrees F. or when wind speed is over 20 mph. Do not overheat bitumen to compensate for low temperature.

1.7 **PROTECTION** Protect paving, sidewalks and building walls adjacent to hoist prior to starting work and maintain for duration of roofing work. Protect all completed work from traffic and damage until acceptance by Owner. Protect all persons using building and maintain the building in a safe and watertight condition throughout the work (see Paragraph 1.7 Section 07500, Membrane roofing for additional requirements).

1.8 **GUARANTEES**

1.8.1 **Applicator's Guarantee** Prior to acceptance of the work, the roofing applicator shall furnish a written guarantee for five (5) years from the date of substantial completion which covers repairs required to maintain roof, including membrane, flashings, and insulation/lightweight insulating concrete fill in water-tight and reroofable condition. Guarantee shall be limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Repairs shall be made at no expense to the Owner. Applicator shall inspect the project annually for three (3) years after date of substantial completion and advise Owner in writing after each inspection of all findings.

1.8.2 **Manufacturer's Guarantee** Prior to acceptance of the work, furnish roofing manufacturer's single source, no dollar limit, written guarantee which extends existing period for 10 years and covers repairs required to maintain roof including membrane, flashings, and insulation/lightweight insulating concrete fill in water-tight and reroofable condition. Guarantee shall be limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Repairs shall be made at no expense to the Owner within the limits of the guarantee liability. The manufacturer shall inspect the project annually for the life of the guarantee period and advise Owner in writing after each inspection of all findings.

PART 2 - GENERAL

2.1 **ROOFING SYSTEMS** Provide a 10-year extended guarantee, adhesive applied modified bitumen roof recover system. Components of the roofing system shall be as described below for each manufacturer listed. No other roofing systems will be considered. Mop and torch application shall not be considered.

2.1.1 **Existing Roofing System (Roof Area A)** is a Siplast 20/30 application over lightweight concrete deck, installed by Big D Roofing, Inc., Ocala, Florida, and warranted by Siplast thru February 23, 2013.

2.1.2 **Johns Manville**

DynaKap FR Cap Sheet (adhesive applied).
Base Flashing: DynaFlex Cap Sheet (adhesive applied).

2.1.3 Siplast

Paradienne 40 FR Cap Sheet (adhesive applied).
Base Flashing: Paradiene 40 HV RP Cap Sheet (adhesive applied).

2.1.4 Soprema

Soprema 180 FR GR Cap Sheet (adhesive applied) – 0" to ½ " per foot slope.
Sopralast ALU Cap Sheet (adhesive applied) – over ½ " per foot slope.
Base Flashing: Sopralast 180 FRGR Cap Sheet (adhesive applied).

2.2 SECONDARY ROOFING MATERIALS not specified shall comply with roofing manufacturers' recommendations.

2.2.1 Membrane Adhesive shall be a one-part or two-part cold adhesive specifically recommended by the flooring manufacturer as appropriate for adhesion of Class A roofing and flashing membrane sheets under existing conditions.

2.3 CEMENTS, PRIMER AND POURABLE SEALANT

2.3.1 Plastic Cement for an adhesive in horizontal flashings and where ply felts are joined to sheet metal shall conform to ASTM Designation D4586.

2.3.2 Primer shall conform to ASTM Designation D41. Primer shall be the standard product of the roofing system manufacturer for priming concrete masonry and asphaltic surfaces.

2.3.3 Pourable Sealant shall be a one part, moisture curing, and non-shrink, polyurethane sealant especially designed for filling pitch pans.

2.4 EDGINGS, NAILERS AND CANTS

2.4.1 Cant Strips shall be pressure treated wood conforming to AWPA standard C-2.

2.4.2 Tapered Edge Strips shall be preformed perlite or fiberboard conforming to ASTM Designation C208 with a maximum thickness of 1-5/8 inches and a face incline of 1-inch per foot.

2.4.3 Wood Nailers shall be pressure treated with water-borne salts in accordance with requirements of the American Wood Preserver's Association. Nailers shall have same thickness as adjoining insulation and be 2 inches wider than flange of metal edging.

2.5 FASTENERS

2.5.1 Nails and Screws shall be non-ferrous, or stainless steel and of type recommended by roofing system manufacturer and approved by factory mutual and Miami-Dade County for the conditions of the installation.

- 2.5.2 Metal Discs** shall be 1-inch diameter, minimum 30 gage, flat sheet metal caps. Form caps to prevent dishing. Bell or cup-shaped caps are not acceptable.
- 2.5.3 Termination Bar** shall be 1-1/4 inch wide by 1/8-inch thick aluminum bar with holes 6 inches on center for solid aluminum masonry anchors. Size holes to allow for thermal movement.
- 2.6 ROOF ACCESSORIES**
- 2.6.1 Roof Drains** Replace damaged or missing dome strainers and clamping rings on existing roof drains designated to remain.
- 2.6.2 Ring Curbs** for sealing small roof penetrations shall be ChemCurb System penetration seals consisting of urethane ring curbs, sealant/adhesive, and pourable urethane sealant as manufactured by Chem Link, Inc.

PART 3 - EXECUTION

- 3.1 REMOVAL** Remove and dispose of all edge metal and roof accessories indicated. Do not remove more material than can be replaced and/or protected with temporary roofing/flashing in the same day.
- 3.2 INSPECTION OF SURFACES** Examine existing roofing for inadequate anchorage, foreign material, excessive moisture and unevenness, which would prevent the execution and quality of application of the re-cover membrane roofing. Do not proceed with the re-cover application until such defects have been corrected and the work of all other trades, which penetrates or requires traffic across the roof, has been substantially completed.
- 3.3 PREPARATION** Sweep loose granules, remove metal foil facing, and cut out blisters, buckles and surface irregularities. Repair cut out areas with membrane materials, level with surrounding surfaces. Replace all damaged or deteriorated wood nailers, curbs and edges. Remove all debris and foreign matter from existing roof prior to applying re-cover membrane.
- 3.4 APPLICATION OF RE-COVER MEMBRANE** Install modified bitumen membrane in accordance with roofing manufacturer's re-cover specification and as specified below. Adhesive apply membrane over existing roof system taking special care to provide a neat and uniform finished appearance. Apply cold adhesive, using roofing manufacturer's recommended type and application rate, in a smooth, even, continuous layer without breaks or voids. Apply membrane free of wrinkles, creases or fish mouths exerting sufficient pressure on roll during application to prevent air pockets. Mechanically fasten head laps as recommended by the membrane manufacturer. Sprinkle matching loose granules to conceal exposed adhesive. Protect re-cover membrane from all traffic until adhesive has fully set. Complete Installation up to line of termination of day's work and seal edges of incomplete re-cover application so no moisture can enter roofing construction before work resumes.

- 3.5** **APPLICATION OF FLASHING** Install flashing membrane in accordance with roofing manufacturer's re-cover specification. After roofing membrane has been applied to the top of the cant, prime area to receive flashing and allow primer to thoroughly dry. Adhesive apply flashing membrane full height over existing flashing and extend a minimum of 6 inches beyond toe of cant over roof membrane. Apply cold adhesive, using roofing manufacturer's recommended type and application rate, in a smooth, continuous layer free of breaks and voids. Stagger laps of flashing membrane with lap seams of roofing membrane. Mechanically attach top edge of flashing membrane and install metal counterflashing or metal coping immediately or seal top edge of flashing with sealant. Sprinkle matching loose granules to conceal exposed adhesive.
- 3.5.1** **Strip Flashing** Set flanges of edge flashing, expansion joint covers and similar items in plastic cement, securely anchor to roof construction, and strip in the flanges using stripping-ply material extending a minimum of 4 inches beyond the edge of the flange. Terminate the re-cover membrane at the outer edge of the edge metal.
- 3.6** **FIELD QUALITY CONTROL**
- 3.6.1** **Manufacturer's Field Inspection** During re-cover installation, a representative of the membrane manufacturer shall make weekly visits to the project and submit a written report following each visit to the Owner with a copy to the Architect. Reports shall be submitted along with contractors pay requests.
- 3.7** **CLEANING** Remove bitumens and adhesive from surfaces other than those requiring their application. Verify all roof mounted fans and motors are free of dirt and debris and are in proper working order, and securely anchored in place.

END OF SECTION

PART 1 - GENERAL1.1 **SCOPE.**1.1.1 **Related Work** specified in other sections:

- Membrane Roofing; Section 07500.
- Sealants; Section 07900.

1.2 **SUBMITTALS** Submit shop drawings for approval-indicating thickness, dimensions, anchoring methods, and provisions for all sheet metal and flashing items. Submit product data for all factory-fabricated items.

1.3 **PRODUCT HANDLING** Protect fabricated sheet metal items from damage prior to installation by storing away from construction operations. Replace damaged material at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 **SHEET ALUMINUM** shall be 3004 alloy, with Kynar 500 fluorocarbon coating exterior finish. Color shall be selected from full range of available colors.

2.2 **SHEET LEAD** for flashing shall weigh not less than 4 pounds per square foot unless indicated otherwise.

2.3 **FASTENERS** shall be of the same metal or a non-corrosive metal compatible with the item fastened and of the type required to securely anchor the item in place.

PART 3 - EXECUTION

3.1 **PREPARATION** Prior to fabricating or installing sheet metal items verify the shape and dimensions required to suit existing conditions. Remove obstructions and relocate pipe, conduit, or wiring that may obstruct installation. Repair or replace damaged portions of all existing thru-wall flashing, rivet and seal all loose joints watertight, and otherwise restore for reuse.

3.2 **FABRICATION** All sheet metal items shall be fabricated of 0.40 aluminum. Fabricate items to maximize lengths practical allowing for the minimum number of joints. Unless indicated otherwise all joints shall be riveted and sealed watertight.

3.2.1 **Metal Edge Flashing** shall be fabricated with butt joints and back-up plates sealed watertight. Provide 12 inches long back-up plates formed to exact profile. Provide continuous hold-down cleats. Corners shall be mitered, riveted and sealed watertight.

- 3.2.2 **Roof Counterflashing** shall overlap base flashing 4 inches minimum. Vertical joints shall be lapped 3 inches and sealed watertight. Corners shall be mitered, lapped, riveted and sealed watertight.
- 3.2.3 **Expansion Joint Covers** shall be on curbs after membrane flashing is in place. Curbs shall extend a minimum of 12 inches above roof level. Cover includes counterflashing on both sides with cap pieces joined by standing seams and held in place with cleats. Slope cap to drain. See Fig. 5-5A, SMACNA Architectural sheet metal manual, 5th edition. Fasten edge flashings in accordance with ANSI/SPRI ES-1 to resist the required design wind loads.
- 3.3 **INSTALLATION** Installation of all flashing and sheet metal items shall comply with the latest edition of the Architectural Sheet Metal Manual of the Sheet Metal and Air Conditioning Contractor's National Association, Inc.
- 3.3.1 **Dissimilar Metals** Separate dissimilar metal with a ply of roofing felt cemented in place or other approved method to prevent electrolysis.
- 3.3.2 **Plumbing Stacks** Flash all plumbing vent stacks with lead sleeves having a 4" flange. Set flanges in plastic cement and nail in place. Bend over top of sleeve a minimum of 2" down into vent pipe.
- 3.3.3 **Painting** Prime and paint all ferrous metal roof accessories two coats of exterior acrylic enamel paint.
- 3.4 **CLEANING** Clean all exposed metal surfaces at completion of installation. Grease and oil film, handling marks, and debris shall be removed and the work scrubbed clean. Repair or replace damaged work leaving exposed surfaces free of dents, creases, waves and marks.

END OF SECTION

PART 1 - GENERAL1.1 SCOPE1.1.1 Related Work specified in other sections:

-Flashing and Sheet Metal; Section 07600.

PART 2 - PRODUCTS

- 2.1 SEALANT COMPOUND shall be one component polyurethane, non-sag, gun-grade compound conforming to ASTM Designation C-920, Type S, Grade NS, Class 25. Sealant compound shall be used for all exterior work. Color of sealant compound shall be manufacturer's standard colors, which most nearly match adjacent materials. Source: Mameco, Vulkem #116.
- 2.2 BACKUP MATERIAL shall be a non-absorbent material recommended by the sealant manufacturer. Oakum and other types of absorptive materials shall not be used.

PART 3 - EXECUTION

- 3.1 GENERAL REQUIREMENTS All joints about the perimeter of exterior openings, metal-to-metal joints and elsewhere indicated, shall be filled with sealant in a manner to provide weather tight condition. All sealants shall be installed in strict accordance with the manufacturer's recommendations.
- 3.2 PREPARATION All surfaces to receive compound shall be dry and thoroughly cleaned of all loose particles, dirt, dust, oil, grease or other foreign matter. Rake out joints to a minimum of 1/4" wide. Provide backup material to assure the depth of sealant shall be not greater than the joint width and in no case greater than 1/2". Install back-up material with roller or blunt instrument to a uniform depth. A putty knife or other sharp instruments shall not be used for this purpose.
- 3.3 PRIMING After cleaning and before the application of the compound, all joints in wood, concrete and masonry shall be primed with a quick drying primer as recommended by the sealant manufacturer.
- 3.4 APPLICATION The compound shall be applied using an approved type of caulking gun, with nozzles of the sizes required to fit the several widths of joints. The compound shall be forced into the joint grooves with sufficient pressure to force out all air and to fill the grooves solidly. Upon completion, any unfilled joints shall be roughened and filled as specified and tooled smooth. Any excess material shall be neatly removed.

- 3.5 **CLEANING** The surface of all materials adjacent to sealant application shall be cleaned of all smears of compound or other soiling resulting from the work.

END OF SECTION