SECTION 07500

MODIFIED BITUMINOUS MEMBRANE ROOFING

PARADISE JR HIGH SCHOOL

PART 1 — GENERAL

1.1 SCOPE OF WORK

A. Provide all labor, equipment and non owner supplied materials to install the new roof system over the properly prepared substrate.

1. Tear off existing roof system (s) to the structural deck.

2. Locate and repair/replace all areas of damaged substrate prior to installing new roof system. Roofing manufacturer must have representative inspect structural deck prior to any materials being installed.

3. Install new gutter system per plan.

4. Install 2-ply modified bitumen roofing system per specification.

5. Insulation installed over exposed decks must be fully adhered with Insulock HR.

6. Install Title 24 compliant roof coating.

1.2 REFERENCES

A. American Society of Civil Engineers (ASCE):

1. ASCE 7, Minimum Design Loads for Buildings and Other Structures.

B. American Society for Testing and Materials (ASTM):

1. ASTM D41 Standard Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing.

2. ASTM D312 Standard Specification for Asphalt Used in Roofing.

3. ASTM D5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

4. ASTM E108 Standard Test Methods for Fire Test of Roof Coverings.

C. Factory Mutual Research (FM):

1. Roof Assembly Classifications.

D. National Roofing Contractors Association (NRCA):

1. Roofing and Waterproofing Manual.

E. Underwriters Laboratories, Inc. (UL):

1. Fire Hazard Classifications.

F. Warnock Hersey (WH):

1. Fire Hazard Classifications.

1.3 SUBMITTALS FOR REVIEW

A. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements. Include data substantiating that materials comply with the minimum specified requirements including rubber content, low temperature flexibility, tensile strength, tear strength, and amount of recycled content (post consumer and post industrial).

B. Samples: Submit four (4) samples of the following:

1. Cap Sheet

2. SBS Modified Base Sheet

3. Membrane wall and curb flashing with no hems

C. Specimen Warranty: Provide an unexecuted copy of the 30 year No Dollar Limit water tight warranty covering every part of the Built Up Roofing system specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner. All materials including insulation, asphalt, etc. to be provided by membrane manufacturer and covered under the terms of the warranty.

D. Any material submitted as equal to or better than the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the installation is to take place. This report shall show that the submitted equal meets the Design and Performance criteria in this specification. All items from 1.4 and 1.5 of this section must be provided in substitution request.

E. Substitution requests submitted without licensed engineer approval will be rejected for non-conformance. Substitution requests will only be considered from prime contractors.

F. Design Wind Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7, Method 2 for Components and Cladding, sealed by a registered professional structural II engineer licensed in California and employed by the system manufacturer as a full-time staff engineer. In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article of this specification.

1.4 SUBMITTALS FOR INFORMATION

A. Manufacturer's Installation Instructions: Submit installation instructions and recommendations indicating special precautions required for installing the membrane.

B. Manufacturer's Certificate: Certify that roof system furnished is approved by Factory Mutual, Underwriters Laboratories, Warnock Hersey or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.

C. Manufacturer's Certificate: Certify that the roof system furnished is approved or accepted by Factory Mutual Approval Standard 4470.

D. Manufacturer's Certificate: Submit a certified copy of the roofing manufacturer's ISO 9001 compliance certificate if available.

E. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147.

F. Written certification from the roofing system manufacturer certifying the applicator is currently authorized for the installation of the specified roof system.

G. Qualification data for firms and individuals identified in Quality Assurance Article below.

H. Notarized statement from the Roofing System Manufacturer, signed by an Officer of the Corporation with the Corporate Seal affixed there to stating that the Roofing System Manufacturer will provide field inspections on a daily basis during the entire period of installation until all construction is completed and to be performed by a full time employee of the manufacturer at no additional cost to the owner.

1.5 CONTRACT CLOSEOUT SUBMITTALS

A. General: Comply with Requirements of Division 01 Section - Closeout Submittals.

B. Special Project Warranty: Provide specified warranty for the Project, executed by the authorized agent of the Manufacturer.

C. Roofing Maintenance Instructions. Provide a manual of manufacturer's recommendations for maintenance of installed roofing systems.

D. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

E. Demonstration and Training Schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed roofing work. Refer to Part 3 for additional requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with not less than 12 years documented experience.

B. Installer Qualifications: Company specializing in modified bituminous roofing installation with not less than 5 years experience and authorized by roofing system manufacturer as qualified to install manufacturer's roofing materials.

C. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress. Maintain proper supervision of workmen.

D. Maintain a copy of the Contract Documents in the possession of the Supervisor/Foreman and on the roof at all times.

E. Source Quality Control: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001.

F. Material Manufactures full time Representative to perform three times weekly field inspections and reports. The reports are to be updated every Friday on-line with photo's and job in progress written updates. Reports and inspections will be performed free of charge to the owner.

1.7 PRE-INSTALLATION CONFERENCE

A. Pre-Installation Roofing Conference: Convene a pre-roofing conference approximately two (2) weeks before scheduled commencement of modified bituminous roofing system installation and associated work.

B. Require attendance of installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing that must precede or follow roofing work (including mechanical work if any), Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work:

1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.

2. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work

performed by others.

3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.

4. Review roofing system requirements specifications and other contract documents. 5.

Review required submittals both completed and yet to be completed.

6. Review and finalize construction schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.

7. Review required inspection, testing, certifying and material usage accounting procedures.

8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not mandatory requirement).

9. Record discussion of conference including decisions and agreements (or disagreements) reached and furnishes copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

10. Review notification procedures for weather or non-working days.

C. The Owner's Representative will designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.

D. The intent of the conference is to resolve issues affecting the installation and performance of roofing work. Do not proceed with roofing work until such issues are resolved to the satisfaction of the Owner.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.

B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to prevent moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).

C. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.

D. Secure all material and equipment on the job site. If any material or equipment is stored on the

roof, assure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the Contractor's actions will be the sole responsibility of the Contractor, and the deck will be repaired or replaced at his expense.

1.9 MANUFACTURER'S INSPECTIONS

A. When the Project is in progress, the roofing system manufacturer will provide the following services free of charge:

1. Report progress and quality of the work as observed with weekly on-line reports. Reports are due every Monday on-line to the Owner; reports to include photos of work in progress and completed work.

2. Job site inspections a minimum of 2 days per week with photo documentation.

3. Report to the Owner in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.

4. Confirm after completion that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.10 PROJECT CONDITIONS

A. Proceed with roofing work only when existing and forecasted weather conditions will permit a unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.

B. Do not apply roofing insulation or membrane to damp deck surface.

C. Do not expose materials subject to water or solar damage in quantities greater than can be weatherproofed during same day.

1.11 SEQUENCING AND SCHEDULING

A. Sequence installation of roofing with related units of work specified in other Sections to ensure that roof assemblies, including roof accessories, flashing, trim and joint sealers, are protected against damage from effects of weather, corrosion and adjacent construction activity.

B. Complete all roofing field assembly work each day. Phased construction will not be accepted.

1.12 WARRANTY

A. Upon completion of installation, and acceptance by the Owner the Manufacturer will supply

to the Owner a 30 Year No Dollar Limit Warranty. Warranty shall be a single source warranty from one manufacturer covering: modified bitumen roofing, sheet metal flashings and reflective coating.

B. Installer will submit a (2) two year warranty to the membrane manufacturer with a copy directly to Owner.

1.13 DESIGN AND PERFORMANCE CRITERIA

A. Uniform Wind Uplift Load Capacity

1. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria. Attachment shall be installed exactly as given in Part 3. (To be included with bid documents)

a. Design Code: ASCE 7-10, Method 2 for Components and Cladding.

b. Category III Building with an Importance Factor of 1.15.

c. Safety Factor: 1.650 after any load reduction or material stress increase. d.

Wind Speed: 130 MPH

e. Ultimate Pullout Value: 730 lbs.

f. Exposure Category: C

g. Design Roof Height: 15 feet.

h. Minimum Building Width: 90 feet.

i. Roof Pitch: 1/2 inches per foot.

j. Topographic Factor: 1.00

1) Roof Area Design Uplift Pressure:

2) Zone 1 - Field of roof: 20.6

3) Zone 2 - Eaves, ridges, hips and rakes

4) Zone 3 - Corners

PART 2 — PRODUCTS

2.1 PRODUCTS, GENERAL

A. Refer to Division 01 Section Common Product Requirements.

B. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this Section. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

C. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements and Division 01 provisions.

1. Proposals shall be accompanied by a copy of the manufacturer's standard specification Section.

2. Include a list of five (5) projects of similar type and extent, located within a one hundred mile radius from the location of the project. In addition, the three projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.

3. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.

4. Substitution request must be submitted by prime bidding contractor a minimum of 7 business days before Bid Due Date.

2.2 DESIGN BASED UPON

A. The design is based upon roofing systems engineered and manufactured by The Garland Company.

2.3 DESCRIPTION

A. Modified bituminous roofing work including but not limited to:

1. One ply of Garland Stressbase 120 base sheet bonded to the prepared substrate with bitumen.

2. Hot Bitumen: ASTM D312, Type III steep asphalt having the following characteristics: a.

Softening Point 185°F - 205°F

b. Flash Point 500°F

c. Penetration @ 77°F 15-35 units

d. Ductility @ 77°F 2.5 cm

3. Base Flashing Ply: One (1) ply of SBS base flashing ply covered by an additional layer of modified bitumen membrane and set in bitumen.

4. Modified Membrane: Stressply Plus FR MINERAL; 145 mil SBS (Styrene-Butadiene Styrene) rubber modified roofing membrane with fiberglass reinforced scrim.

5. Surfacing: Apply white acrylic coating ASTM G26

2.4 BITUMINOUS MATERIALS

A. Asphalt Primer: V.O.C. compliant, ASTM D41.

B. Asphalt Roofing Mastic: V.O.C. compliant, ASTM D2822, Type II.

C. Interply Adhesive: ASTM D312, Type III.

2.5 SHEET MATERIALS

A. Base Ply (Stressbase 120 Sheet): Fiberglass scrim with the following minimum performance requirements according to ASTM D5147. Properties (Finished Membrane):

1. Tensile Strength (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 100 lbf/in CMD 100 lbf/in

2. Tear Strength (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 110 lbf CMD 110 lbf

3. Elongation at Maximum Tensile (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 2.5% CMD 2.5%

4. Low Temperature Flexibility (ASTM D5147): Passes -30°F (-34°C)

B. Base Flashing Ply (Stressbase 120 Sheet): Fiberglass scrim with the following minimum performance requirements according to ASTM D5147. Properties (Finished Membrane):

1. Tensile Strength (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 100 lbf/in CMD 100 lbf/in

2. Tear Strength (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 110 lbf CMD 110 lbf

3. Elongation at Maximum Tensile (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 2.5% CMD 2.5%

C. Modified Flashing Ply:

1. STRESSPLY PLUS FR MINERAL

D. Modified Membrane Properties (Finished Membranes): STRESSPLY PLUS FR MINERAL; ASTM D6163, Type III Grade G

1. Tensile Strength (ASTM D5147)

a. 2 in/min. @ 73 ± 3.6°F MD 310 lbf/in CMD 310 lbf/in

2. Tear Strength (ASTM D4073)

a. 2 in/min. @ 73 ± 3.6°F MD 500 lbf CMD 500 lbf

3. Elongation at Maximum Tensile (ASTM D2523)

a. 2 in/min. @ 73 ± 3.6°F MD 3.5 % CMD 3.5 %

4. Low Temperature Flexibility (ASTM D5147): Passes -30 °F

2.6 SURFACINGS

A. White Elastomeric Roof Coating: Pyramic Plus LO; Energy Star approved white acrylic roof coating: 1.

Weight/Gallon 12 lbs./gal. (1.44 g/cm3)

2. Non-Volatile % (ASTM D 1644) 66 min

3. Reflectance 81%

2.6 RELATED MATERIALS

A. Roof Insulation Fasteners: Follow roof system manufacturer's wind uplift calculations. B. 1" Polyisocyanurate and ½" wood fiber insulation roof board to be fully adhered with Insulock HR over exposed decks.

C. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel. Fasteners shall be self-clinching type of penetrating type as recommended by the manufacturer of the deck material. Nails and fasteners shall be flush-driven through flat metal discs of not less than one (1) inch diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than one (1) inch diameter are used.

D. All roof slopes greater than 2” in 12” all SBS Modified sheets must be back nailed or strapped.

E. Urethane Sealant: One part, non-sag sealant as recommended and furnished by the membrane manufacturer for moving joints.

1. Tensile Strength (ASTM D412) 250 psi

2. Elongation (ASTM D412) 950%

3. Hardness, Shore A (ASTM C920) 35

4. Adhesion-in-Peel (ASTM C920) 30 pli

D. Sealant: Single component, 100% solids structural adhesive as furnished and recommended by the membrane manufacturer.

1. Elongation (ASTM D412) 300%

2. Hardness, Shore A (ASTM C920) 50

3. Shear Strength (ASTM D1002) 300 psi

E. Glass Fiber Cant: Continuous triangular cross Section made of inorganic fibrous glass used as a cant strip as recommended and furnished by the membrane manufacturer.

PART 3 — EXECUTION

3.1 EXECUTION, GENERAL

A. Comply with requirements of NRCA, Roofing and Waterproofing.

3.2 EXAMINATION

A. Verify that deck surfaces and project conditions are ready to receive work of this Section. B.

Verify that deck is supported and secured to structural members.

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

D. Verify that adjacent roof substrate components do not vary more than [¼] inch in height. E.

Verify that deck surfaces are dry and free of ice.

F. Confirm that moisture content does not exceed twelve (12) percent by moisture meter tests. On concrete deck pour hot asphalt on to deck if it bubbles / foams and once cooled does not adhere to the substrate, the moisture levels are too high.

G. Verify that openings, curbs, pipes, conduit, sleeves, ducts, and other items which penetrate the roof are set solidly, and that wood cant strips, wood nailing strips, and reglets are set in place.

3.3 DECK PREPARATION

A. Wood Deck

1. Verify that wood decking is flat and has tight joints.

3.4 GENERAL INSTALLATION REQUIREMENTS

A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.

B. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.

C. Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of the coal tar modified bituminous roofing system.

D. Coordinate installation of roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut-offs at end of each

day's work to cover exposed ply sheets and insulation with two (2) plies of #15 organic roofing felt set in full moppings of bitumen and with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work.

E. Asphalt Bitumen Heating: Heat and apply bitumen in accordance with the Equiviscous Temperature (EVT) Method as recommended by National Roofing Contractors Association (NRCA). Do not raise temperature above minimum normal fluid-holding temperature necessary to attain EVT (plus 5°F at point of application) more than one (1) hour prior to time of application. Determine flash point, finished blowing temperature, EVT, and fire-safe handling temperature of bitumen either from information by manufacturer or by suitable test. Do not exceed recommended temperature limits during bitumen heating. Do not heat to a temperature higher than twenty five degrees (25°F) below flash point. Discard bitumen that has been held at temperature exceeding Finishing Blowing Temperature (FBT) for more than three (3) hours. Keep kettle lid closed except when adding bitumen.

F. Asphalt Bitumen Mopping Rate:

1. Modified Membrane Mopping: Apply bitumen at the rate of approximately thirty (30) lb. of bitumen per roof square.

G. Substrate Joint Penetrations: Prevent bitumen from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

H. Apply roofing materials as specified by manufacturer's instructions. 1.

Keep roofing materials dry before and during application.

2. Do not permit phased construction.

3. Complete application of roofing plies, modified sheet and flashing in a continuous operation.

4. Begin and apply only as much roofing in one day as can be completed that same day.

I. Cut-Offs (Waterstops): At end of each day's roofing installation, protect exposed edge of incomplete work, including ply sheets and insulation. Provide temporary covering of two (2) plies of #15 organic roofing felt set in full moppings of bitumen with joints and edges sealed.

J. Broadcast minerals into the bleed out of bitumen while bitumen is at its recommended EVT temperature to achieve uniform color throughout.

3.6 BASE PLY INSTALLATION

A. Base Ply: Install one (1) base ply sheet in thirty (30) lbs. per square of bitumen shingled uniformly to achieve one ply over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof.

B. Lap ply sheet ends eight (8) inches. Stagger end laps twelve (12) inches (304mm) minimum.

C. Lightly broom in base ply to assure complete adhesion.

D. Extend ply two (2) inches beyond top edges of cants at wall and roof projections and equipment bases.

E. Install base flashing ply to all perimeter and projection details after membrane application. **3.7**

MODIFIED MEMBRANE APPLICATION

A. Solidly bond the modified membrane to the base layer with specified asphalt at the rate of twenty five (25) to thirty (30) lbs. per 100 square feet.

B. The modified membrane roll must push a puddle of asphalt in front of it with asphalt slightly visible at all side laps. Exercise care during application to eliminate air entrapment under the membrane.

C. Apply pressure to all seams to ensure that the laps are solidly bonded to substrate.

D. Install subsequent rolls of modified membrane across the roof as above with a minimum of four (4) inch (101mm) side laps and eight (8) inch end laps. Stagger the end laps. Apply the modified membrane in the same direction as the previous layers but stagger the laps so they do not coincide with the laps of the base layers.

E. Apply asphalt no more than five (5) feet ahead of each roll being embedded.

F. Extend membrane two (2) inches beyond top edge of all cants in full moppings of the specified asphalt.

3.8 FLASHING MEMBRANE INSTALLATION

A. Seal all curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.

B. Prepare all walls, penetrations, expansion joints to be flashed with asphalt primer at the rate of one hundred (100) square feet per gallon. Allow primer to dry tack free.

C. Use the modified membrane as the flashing membrane. Adhere to the underlying base flashing ply with specified asphalt unless otherwise noted in these specifications. Nail off at a minimum of eight (8) inches o.c. from the finished roof at all vertical surfaces.

D. Solidly adhere the entire sheet of flashing membrane to the substrate.

E. Seal all vertical laps of flashing membrane with a three-course application of trowel-grade mastic and fiberglass mesh.

F. Coordinate counter flashing, cap flashings, expansion joints, and similar work with modified bitumen roofing work.

G. Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work.

H. Metal Edge

1. Inspect the nailer to assure proper attachment and configuration.

2. Run one ply over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails at eight (8) inches o.c.

3. Install continuous cleat and fasten at six (6) inches o.c.

4. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailer every three (3) inches o.c. staggered.

5. Prime metal edge at a rate of one hundred (100) square feet per gallon and allow to dry.

6. Strip in flange with base flashing ply covering entire flange in bitumen with six (6) inches on to the field of roof. Assure ply laps do not coincide with metal laps.

7. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches on to the field of the roof.

I. Equipment Support

1. Minimum curb height is eight (8) inches. Prime vertical at a rate of one hundred (100) square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches.

3. Install base flashing ply covering curb set in bitumen with six (6) inches on to field of the roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches on to the field of the roof. Attach top of membrane to top of curb and nail at eight (8) inches o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.

5. Install pre-manufactured cover. Fasten sides at twenty four (24) inches o.c. with fasteners and neoprene washers. Furnish all joint cover laps with butyl tape between metal covers.

6. Set equipment on neoprene pad and fasten as required by equipment manufacturer. J.

Curb Detail/Air Handling Station

1. Minimum curb height is eight (8) inches. Prime vertical at a rate of one hundred (100) square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches.

3. Install base flashing ply covering curb set in bitumen with six (6) inches on to field of the roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.

5. Install pre-manufactured counterflashing with fasteners and neoprene washers or per manufacturer's recommendations.

6. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

K. Roof Drain

1. Plug drain to prevent debris from entering plumbing.

2. Taper insulation to drain minimum of twenty four (24) inches from center of drain. 3. Run roof system plies over drain. Cut out plies inside drain bowl.

4. Set lead/copper flashing (thirty (30) inch square minimum) in (¼) inch bed of mastic. Run lead/copper into drain a minimum of two (2) inches. Prime lead/copper at a rate of one hundred (100) square feet per gallon and allow to dry.

5. Install base flashing ply (forty (40) inch square minimum) in bitumen. 6. Install modified membrane (forty eight (48) inch square minimum) in bitumen. 7. Install clamping ring and assure that all plies are under the clamping ring. 8. Remove drain plug and install strainer.

L. Plumbing Stack

1. Minimum stack height is twelve (12) inches.

2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.

3. Prime flange of new sleeve. Install properly sized sleeves set in (¼) inch bed of roof cement.

4. Install base flashing ply in bitumen.

5. Install membrane in bitumen.

6. Caulk the intersection of the membrane with elastomeric sealant.

7. Turn sleeve a minimum of one (1) inch down inside of stack.

3.9 FLASHING'S

A. Three course all flashing's:

1. Trowel grade asphalt based roofing mastic designed for use in repair and patching against leaks in asphalt based roofing systems. Product must contain plasticizing oils and resins which provide low temperature flexibility and ductility.

2. SBR coated woven fiberglass reinforcing fabric to be used in all 3 course applications.

3.10 APPLICATION OF SURFACING

A. Prior to installation of surface, obtain approval from manufacturer as to work completed. 14 days are required prior to final surfacing.

B. Reflective Coating

1. Paint all exposed roofing with manufacturer's Energy Star acrylic coating installed at a rate of two (2) gallons per square base coat and one and one half (1.5) gallons per square top coat. Base and top coat must me back rolled.

3.11 FIELD QUALITY CONTROL

A. Perform field inspection and as required by manufacturer.

B. Correct defects or irregularities discovered during field inspection.

C. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system. A copy of the specification should also be on site at all times.

3.12 CLEANING

A. Remove bitumen adhesive drippings from all walls, windows, floors, ladders and finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning instructions and conform to their instructions.

C. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.13 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during roofing procedures. Comply with requirements of authorities having jurisdiction.

3.14 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Contractor, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.

B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. The roofing system manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the [Roofing] Contractor.

D. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.

E. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

F. Notify the Contractor and Owner upon completion of corrections.

G. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

H. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

3.15 OWNER SUPPLIED MATERIALS

A. Contractor must provide all labor to install owner supplied materials as part of their bid. All materials not specifically included in the owner supplied materials section will be the responsibility of the contractor to provide and install in compliance with section

07500. Freight charges of Owner supplied materials will be the responsibility of the Owner. Contractor must take delivery of materials, properly cover and store at jobsite. Contractor must be able to provide certification in writing from roof system manufacturer that the contractor is approved to install the specified roof system and provide all warranty requirements of section 07500.

A. Materials specifically provided by the Owner;

1. Stress Ply Plus FR Mineral 75 sq ft roll – 22

2. Stress Base 120 100 sq ft roll - 17

3. Pyramic Plus LO 5 gallon pail - 3

4. Pyramic Plus LO 55 gallon drums – 1

5. Flashing Bond 5 gallon pails - 3

6. Tuff Stuff Urethane Sealent 10.1 ounce tube - 10

7. Garmesh 6” x 150’ rolls – 1

END OF SECTION 07500

MODIFIED BITUMINOUS MEMBRANE ROOFING - HOT APPLIED