Nevada County Roof Restoration and Replacement Project for Various Locations

Project Specifications

ERIC ROOD ADMINISTRATIVE CENTER
Restorative Roofing Application

SECTION 01100 - SUMMARY

GENERAL

(i) SUMMARY OF WORK

1) Project: New Roofing on Eric Rood Administrative Center

2) Owner: County of Nevada

3) Architect: County Facilities Department

4) The Work consists of : Restorative roofing application.

5) Work Not Included: The following will be provided by others:

a) N/A

(ii) WORK RESTRICTIONS

1) The General Contractor awarded the bid for this project will be referred to as Contractor. Contractor's Use of Premises: During construction, Contractor will have limited use of the building space as shown on the plans. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project[as follows]:

a) Owner will occupy building during the roof restoration. Perform construction during normal working hours (7 a.m. to 5 p.m. Monday thru Friday, other than holidays). Weekend or Holiday work 8 a.m. to 5 p.m., unless otherwise agreed to in advance by Owner.

2) Office personnel and the Public will be in the area during roof restoration. Construct 8 ft. tall temporary chain link fencing barricades to cordon off work and loading zones in the parking

area and below the exterior roof access/loading area to prevent unauthorized persons from entering work zones.

(iii) SPECIAL REQUIREMENTS
County will pull permit, contractor will be responsible for obtaining and passing inspections.

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Built-Up Mineral Modified Surface Roof Restoration (1.4.C.7/8 and 9)(2.4)

1.2 SCOPE OF WORK

A. Provide all labor, equipment and materials to restore the existing built up roofing system.

B. Remove all debris from roof.

C. Pressure wash the roof.

D. Apply primer per specification.

E. Seal all penetrations, curbs, etc. per specification.

F. Apply Energizer Lo base coat per specification.

G. Embed polyester reinforcement per specification.

H. Apply Energizer LO top coat per specification.

I. Apply roofing granules per specification.

J. Apply Pyramic per specification.

K. Apply Uni Bond and White Knight Plus WC to HVAC curb caps.

L. Replace all screws in penthouse metal roof.

1.3 REFERENCES

A. ASTM C 1250 - Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.

B. ASTM D 5 - Standard Test Method for Penetration of Bituminous Materials.

C. ASTM D 816 - Standard Test Methods for Rubber Cements.

D. ASTM D 1863 - Standard Specification for Mineral Aggregate Used on Built-Up Roofs.

E. ASTM D 2939 - Standard Test Methods for Emulsified Bitumens Used as Protective Coatings.

F. ASTM D 4479 - Standard Specification for Asphalt Roof Coatings - Asbestos-Free.

G. South Coast AQMD Standards.

H. SMACNA Architectural Sheet Metal Manual.

I. ANSI/SPRI ES-1 - Testing and Certification Listing of Shop Fabricated Edge Metal

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

1.4 SYSTEM DESCRIPTION

A. Built-Up Smooth or Mineral Modified Surface Restoration: Renovation work includes:
1. Surface preparation: Remove loose mineral, dust, dirt, and debris.
2. Primer: Prime entire roof surface.
3. Base Coat: Apply base coat over entire roof surface.
4. Reinforcement: For mineral surfaced systems install full fabric reinforcement/ topcoat entire roof surface.
5. Install roofing minerals into the coating while it is wet.
6. Apply cool roof coating.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.

D. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.

E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

F. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. 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.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years

and experience.

C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.

D. 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.

E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.

B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Owner, roofing system manufacturer's representative.

C. Objectives include:
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, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
4. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
6. Review required inspection, testing, certifying procedures.
7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.

D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Weather Condition Limitations: Do not apply roofing system during inclement weather or when a 40 percent chance of precipitation or greater is expected.

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

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

E. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
   1. Close air intakes into the building.
   2. Have a dry chemical fire extinguisher available at the jobsite.
   3. Post and enforce "No Smoking" signs.

F. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.

G. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

H. Take precautions to ensure that materials do not freeze.

I. Minimum temperature for application is 40 degrees F (4 degrees C) and rising for solvent based materials and 50 degrees F (10 degrees C) and rising for water based.

1.10 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition. One manufacturer to provide all warranties for all locations for 2018 roofing projects.
   1. Warranty Period:

a. 10 years

B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
1. Warranty Period:
a. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. or PRE-APPROVED equal. Local Garland Representative Justin Holliman 530-965-0884.

2.2 ROOF RESTORATION SYSTEM FOR BUILT-UP SMOOTH OR MINERAL MODIFIED SURFACE ROOFS

A. Energizer LO:
1. Primer: Garla-Prime VOC.
2. Coating: Energizer LO.
3. Flashing: Seal all curb corners.
4. Reinforcement: full fabric reinforcement.
a. Grip Polyester Firm.
5. Surfacing:
a. Roofing granules.
b. Cool roof coating.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

A. General:
1. Seal all pipes, penetrations, etc. with mastic and reinforcement.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Repair all defects such as deteriorated roof decks; replace saturated insulation board, replace loose or brittle membrane or membrane flashings. Verify that existing conditions meet the following requirements:
1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.

D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.

E. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations

where water could enter the building envelope.

F. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solution. Allow roof to dry thoroughly before continuing.

G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

H. Pre-Treatment of Known Growth - General Surfaces: Once areas of moss, mold, algae and other fungal growths or vegetation have been removed and surfaces have also been thoroughly cleaned, apply a biocide wash at a maximum spread rate of 0.2 gallons/square (0.08 liters/m), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution.

3.3 INSTALLATION

A. General Installation Requirements:
   1. Install in accordance with manufacturer's instructions. Apply to minimum coating thickness required by the manufacturer.
   2. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.
   3. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
   4. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
   5. All primers must be top coated within 24 hours of application. Re-prime if more time passes after priming.
   6. Keep roofing materials dry during application. Phased construction can be allowed as long as no, more than 7 days pass between coats excluding primers.
   7. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sections under Related Work.
   8. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sections under Related Work.

B. Smooth or Mineral Surface Restoration: Renovation work includes:
   1. Surface preparation: Remove all loose roofing granules, dirt and foreign debris from the roof surface.
   2. Flashing:
      1) Seal all vertical laps of flashing membrane with a three-course application of Flashing Bond and Garmesh.
      2) Seal junction of flashing membrane and roof with a three-course application of Flashing Bond and Garmesh.
      b. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
   3. Primer: Prime entire roof surface at 1/2 gallon per 100 SF.
   4. Coating: Apply top coat as soon as possible after embedding reinforcement.
      a. Apply Energizer LO Coating to entire roof surface at 3.0 gallons per 100 SF.
      b. Embed polyester.
      c. Apply Energizer LO Coating to entire polyester surface at 3.0 gallons per 100 sq ft.
   5. Surfacing: Install roofing minerals into the coating while it is wet at a rate of 60 lbs per 100 sq ft. Contractor to return a minimum of 14 days after installation to remove loose

granules.

6. Apply Pyramic over the existing Energizer LO, curbs and walls at a rate of 1.5 gallons base coat and 1 gallon top coat. Both base coat and top coat must be back rolled.

3.4 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.5 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system.

B. Perform field inspection and [and testing] as required under provisions of Section 01410.

C. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

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

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

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

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

E. Architect upon completion of corrections.

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

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

A. Primers:
   1. All-Knight Primer/ All-Stallion Primer: copolymer sealant that prevent staining and degradation of surface coatings when installed over smooth or granulated asphalt, coal tar modified bitumen, or smooth asphalt BUR membranes.
      a. Non-Volatile Solids % by Weight, ASTM 3960: 28-32 %
      b. Non-Volatile Solids % by Volume, ASTM 3960: 25-28 %
      c. pH: 8-10
      d. Wet Film Thickness @ 1 gal./100 sq. ft.: 16 mils (microns 406.4)
      e. Flash Point PMCC: None
      f. Drying Time, Touch @ 70 degrees F (21.1 degrees C) /50% R.H.: 1-2 hrs.
      g. Viscosity @ 77 degrees F (25 degrees C) Brookfield RVT, #4 Spindle; 20 rpm, ASTM 2196: 3000-5000 cPs
      h. VOC: 30 g/l max

B. Coatings:
   1. Coating: Energizer LO: Asphaltic polyurethane based, low-odor, liquid waterproofing membrane.
      a. Non Volatile, ASTM C 1250: 82%
      b. Ash Content, ASTM D 5040: 19%
      c. Density, ASTM D 1475: 9.4 lb./gal. (1.13 g/cm3)
      d. Viscosity @ 77 degrees F (25 degrees C), Brookfield RVT, Spindle #5, 50: rpm 6,500 cP
      e. Flash Point. ASTM D 93: Minimum 100 degrees F (37.7 degrees C)
      f. Elongation @ 77 degrees F (25 degrees C), ASTM D 412: Typical 1100%
      g. Water Absorption: < 0.7%
      h. Compound Stability: Passes 220 degrees F (104.4 degrees C)
      i. VOC: 204 g/l

C. Reinforcement/Base Coat
   1. Grip Polyester Firm: Strong, rigid polyester reinforcing fabric.

END OF SECTION

Nevada County District Attorney Building
Restorative Roofing Application

SECTION 01100 - SUMMARY

GENERAL

(i) SUMMARY OF WORK

1) Project: New Roofing on Nevada County District Attorney Building

2) Owner: County of Nevada

3) Architect: County Facilities Department

4) The Work consists of : Restorative roofing application.

5) Work Not Included: The following will be provided by others:

a) N/A

(ii) WORK RESTRICTIONS

1) The General Contractor awarded the bid for this project will be referred to as Contractor. Contractor's Use of Premises: During construction, Contractor will have limited use of the building space as shown on the plans. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project[as follows]:

a) Owner will occupy building during construction. Perform construction during normal working hours (8 a.m. to 5 p.m. Monday thru Friday, other than holidays), unless otherwise agreed to in advance by Owner.

2) Office personnel and the Public will be in the area during roof restoration. Construct 8 ft tall temporary chain link fencing barricades to cordon off work and loading zones in the parking area and below the exterior roof access/loading area to prevent unauthorized persons from entering work zones.

(iii) SPECIAL REQUIREMENTS

1) County will obtain Building permit. Contractor will be required to request and pass required inspections.

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Provide all labor, equipment and materials to restore the existing gravel surfaced BUR.

1.2 RELATED SECTIONS

A. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

A. ASTM C 1250 - Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.

B. ASTM D 5 - Standard Test Method for Penetration of Bituminous Materials.

C. ASTM D 36 - Standard Test Method for Softening Point of Bitumen.

D. ASTM D 75 - Standard Practice for Sampling Aggregates.

E. ASTM D 1863 - Standard Specification for Mineral Aggregate Used on Built-Up Roofs.

F. ASTM D 2939 - Standard Test Methods for Emulsified Bitumens Used as Protective Coatings.

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

1.4 SYSTEM DESCRIPTION

A. Built-Up, Gravel Surface Roof Restoration: Renovation work includes:
   1. Surface preparation: Remove gravel, dust, dirt, and debris.
   2. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
   3. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with primer/mastic/membrane.
   4. Primer: Prime entire roof surface
   5. Flood coat: Apply flood coat over the entire roof surface.
   6. Apply title 24 compliant roof coating to entire surface.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Closeout Submittals: Provide manufacturer's maintenance instructions that include

recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. 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.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.

C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.

D. 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.

E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.

B. Objectives include:
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, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
3. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
4. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
5. Review required inspection, testing, certifying procedures.
6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
7. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct

exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.

D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Weather Condition Limitations: Do not apply roofing system during inclement weather or when a 40 percent chance of precipitation or greater is expected.

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

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

E. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
   1. Close air intakes into the building.
   2. Have a dry chemical fire extinguisher available at the jobsite.
   3. Post and enforce "No Smoking" signs.

F. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

G. Take precautions to ensure that materials do not freeze.

H. Minimum temperature for application is 40 degrees F (4 degrees C) and rising for solvent based materials and 50 degrees F (10 degrees C) and rising for water based.

1.10 WARRANTY

A. Upon completion of the work, provide one warranty from one manufacturer that covers the restoration, flashings, roof coating and coping cap. Multiple warranties are not allowed. Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the

defective area to a watertight condition. One manufacturer to provide all warranties for all locations for 2018 roofing projects.

B.

1. Warranty Period:
    a. 10 years from date of acceptance.

C. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
    1. Warranty Period:
        a. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer or approved equal: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105 or PRE-APPROVED equal; Local Garland representative Justin Holliman 530-965-0884

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 ROOF RESTORATION SYSTEM FOR BUILT-UP, GRAVEL SURFACE ROOFS

A. Cold Applied Weatherscreen:
    1. Primer: Garla-Prime:
    2. Coating: Weatherscreen:
    3. Flashings: Seal flashings
    4. Surfacing: Gravel ASTM D 1863:
    5. Surfacing: Title 24 cool roof coating

2.3 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Drain Flashings should be 4lb (1.8kg) sheet lead formed and rolled.

B. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

3.2 ROOF PREPARATION AND REPAIR

A. General:
    1. Remove all wet, deteriorated, blistered or delaminated roofing membrane or insulation and fill in any low spots occurring as a result of removal work to create a smooth, even surface for application of new roof membranes.
    2. Existing roof surfaces shall be primed as necessary and allowed to dry prior to installing the roofing system.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Repair all defects such as deteriorated roof decks; replace saturated insulation board, replace loose or brittle membrane or membrane flashings. Verify that exiting conditions meet the following requirements:
   1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.
   2. Application of roofing materials over a brittle roof membrane is not recommended.

D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.

E. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.

F. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solution. Allow roof to dry thoroughly before continuing.

G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

H. Pre-Treatment of Known Growth - General Surfaces: Once areas of moss, mold, algae and other fungal growths or vegetation have been removed and surfaces have also been thoroughly cleaned, apply a biocide wash at a maximum spread rate of 0.2 gallons/square (0.08 liters/m), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution.

3.3 INSTALLATION

A. General Installation Requirements:
   1. Install in accordance with manufacturer's instructions. Apply Weatherscreen at a rate of 5 gallons per 100 sq ft.
   2. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.
   3. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
   4. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
   5. All primers must be top coated within 24 hours of application. Re-prime If more time passes after priming.
   6. Keep roofing materials dry during application. Phased construction can be allowed as long as no, more than 7 days pass between coats excluding primers.

B. Built-Up, Gravel Surface Roof Restoration: Renovation work includes:
   1. Surface Preparation: Remove gravel, dust, dirt, and debris.
      a. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with primer/mastic/membrane.
      b. Remove three equipment support curbs on lower roof.
      c. Make deck repairs.
      d. Install Stress Ply Plus FR mineral and Stressbase 80 with Flashing Bond.
   2. Flashings:
      1) Seal all vertical laps of flashing membrane with a three-course application of Flashing Bond and fiberglass mesh and aluminize.

2) Seal junction of flashing membrane and roof with a three-course application of Flashing Bond and mesh.

b. Metal Flashings: Apply Tuff Stuff to coping cap seams and apply Uni Bond and White Knight Plus WC to the HVAC ducting seams on lower roof.

3. Primer: Prime entire roof surface at 1 gallon per 100 SF.
4. Coating: Flood coat/resurface entire roof surface at:
   a. Cold process products, 6 gallons per 100 SF.
5. Surfacing: Apply Pyramic coating at 2 gallons per 100 sq. ft. (one gallon base coat and one gallon top coat). Both coats must be rolled on.

3.4 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.5 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of 3 days per week.

B. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

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

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

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

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

E. Owner upon completion of corrections.

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

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

A. Primers:
   1. Primer: Garla-Prime: Non-fibered, quick drying, asphalt based roof primer having the following characteristics:
      a. Viscosity by Zahn Cup #2 ASTM D 4212: 18-21 sec
      b. Flash Point: ASTM D 93 100 degrees F (37.70C)
      c. Non-Volatile (ASTM D 2369): 47.6%
      d. V.O.C. ASTM D 3960 470 g/l

B. Coatings:
   1. Coating: Weatherscreen: heavy-bodied, rubberized, fiber reinforced, fire-rated restoration treatment.
      a. Viscosity @ 77 degrees F (25 degrees C) Stormer, Special Blade: 20-25 sec.
      b. Density @ 77 degrees F (25 degrees C) 9.1 lbs./gal. (1.10 g/cm3
      c. Non-Volatile, ASTM D 4479: Typical 75%
      d. Asphalt Content, ASTM D 4479: 63% (by weight)
      e. Flash Point, ASTM D 93: 105 degrees F (41 degrees C)
      f. Uniformity, ASTM D 4479: Pass
      g. Wet Film Thickness
         1) New Flood Coat @ 4-5 gal. (15-19 l): 64-80 mils (1,625.6 - 2,032 microns)
         2) Restoration @ 6-8 gal. (22.7-30.3 l): 96 - 128 mils (2,438.4 - 3,251.2 microns)
      h. VOC: 250 g/l

C. Surfacing:
   1. Surfacing: Title 24 compliant “Cool Roof” coating.

END OF SECTION 07563

GRASS VALLEY VETERANS MEMORIAL BUILDING
RESTORATIVE ROOF APPLICATION

SECTION 01100 - SUMMARY

GENERAL

(i) SUMMARY OF WORK

1) Project: Restorative Roofing on Grass Valley Veterans Memorial Building

2) Owner: County of Nevada

3) Architect: County Facilities Department

4) The Work consists of : Restorative roofing application.

5) Work Not Included: The following will be provided by others:

a) N/A

(ii) WORK RESTRICTIONS

1) The General Contractor awarded the bid for this project will be referred to as Contractor. Contractor's Use of Premises: During construction, Contractor will have limited use of the building space as shown on the plans. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project[as follows]:

a) Owner will occupy building during the roof restoration. Perform construction during normal working hours (7 a.m. to 5 p.m. Monday thru Friday, other than holidays). Weekend or Holiday work 8 a.m. to 5 p.m., unless otherwise agreed to in advance by Owner.

2) Office personnel and the Public will be in the area during roof restoration. Construct 8 ft. tall temporary chain link fencing barricades to cordon off work and loading zones in the parking area and below the exterior roof access/loading area to prevent unauthorized persons from entering work zones.

(iii) SPECIAL REQUIREMENTS

1) The County will obtain the Building Permit. The contractor will be responsible for requesting and passing required inspections.

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 Provide all labor, equipment and materials to complete the roofing project.

SCOPE OF WORK:

A. Remove all debris from roofing system.

B. Power wash lower and steep roof with Simple Green. (Bid Alt 5- power wash upper roof with simple green)

C. Apply Unibond to all single ply seams on steep section of roof. (Bid Alt 5- Apply Unibond to all single ply seams on upper section of roof).

D. Apply White Knight Plus base coat @ a rate of 1.5 gallons per 100 sq ft to steep section of single ply roof. (Bid Alt 5- apply White Knight Plus base coat at a rate of 1.5 gallons per 100 sq ft to upper single ply roof.)

E. Apply White Knight Plus top coat @ a rate of 1.5 gallons per 100 sq ft to steep section of single ply roof. (Bid Alt 5- Apply White Knight Plus top coat at a rate of 1.5 gallons per 100 sq ft to upper roof)

F. Add fasteners and plates to BUR walls.

G. Three course over fasteners and plates with KEE Lock mastic and Garmesh.

H. Apply Pyramic Plus base coat @ a rate of 1.5 gallons per 100 sq ft to entire BUR roof.

I. Apply Pyramic Plus top coat @ a rate of 1.5 gallons per 100 sq ft to entire BUR roof.

1.2 REFERENCES

A. ASTM C 1250 - Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.

B. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

C. ASTM D 1475 - Standard Test Method for Density of Liquid Coatings, Inks, and Related Products.

D. ASTM D 1876 - Standard Test Method for Peel Resistance of Adhesives (T-Peel Test).

E. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

F. SRI - Solar Reflectance Index calculated according to ASTM E 1980.

1.3 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. 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. Provide inspection progress reports during the installation of the coating.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.

C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.

D. 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.

E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.5 PRE-INSTALLATION CONFERENCE

A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.

B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Owner, roofing system manufacturer's representative.

C. Objectives include:
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, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
4. Review roofing system requirements, Drawings, Specifications and other Contract

Documents.

5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
6. Review required inspection, testing, certifying procedures.
7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.

D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Weather Condition Limitations: Do not apply roofing system during inclement weather or when a 40 percent chance of precipitation or greater is expected.

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

D. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
   1. Close air intakes into the building.
   2. Have a dry chemical fire extinguisher available at the jobsite.

E. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

F. Take precautions to ensure that materials do not freeze.

G. Minimum temperature for application is 40 degrees F (4 degrees C) and rising for solvent based materials and 50 degrees F (10 degrees C) and rising for water based.

1.8 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition. One manufacturer to provide all warranties for all locations for 2018 roofing projects.

B.
1. Warranty Period:
   a. 10 years from date of acceptance.

C. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
1. Warranty Period:
   a. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. or PRE-APPROVED equal.

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 ROOF RESTORATION SYSTEM FOR SINGLE PLY ROOFS

A. White-Knight Plus
1. Primer: None
2. Coating: White-Knight Plus:
3. Flashing: Repair or replace as needed.
4. Reinforcement: Apply in base coat of seams and around penetrations only.
   a. Grip Polyester Soft:
5. Surfacing: None

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared and inspected by the coating manufacture.

B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

C. If substrate preparation is the responsibility of another installer, notify Owner of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

B. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.

C. Clean and seal all parapet walls, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.

D. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water. Allow roof to dry thoroughly before continuing.

E. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

3.3 INSTALLATION

A. General Installation Requirements:
   1. Install in accordance with manufacturer's instructions.
   2. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
   3. Keep roofing materials dry during application. Phased construction can be allowed as long as no, more than 7 days pass between coats.

B. Single Ply Roof Restoration Renovation: work includes:
   1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
   2. Flashing:
      a. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
      b. Metal Flashings: Repair/Replace damaged metal flashings, pitch pockets, etc.
   3. Reinforcement: Base coat and treatment of field seams and around penetrations:
      a. Application of Reinforcement with White-Knight Plus on field seams, flashings and around penetrations:
         1) Verify that the surface to be coated is properly prepared.
         2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
         3) Apply reinforcement to field seams and penetrations as required. Must be coated the same day.
         4) Apply White-Knight base coat at 1.5 gallons per 100 SF over entire roof including reinforcement the same day reinforcement was installed.
         5) Allow to dry for a minimum of 24 hours before applying finish coats.
   4. Coating: Application of White-Knight finish coats.
      a. Apply White-Knight in a uniform manner.
      b. Use special attention to coating flashings and other critical areas to build adequate membrane thickness.
      c. Use multiple coats on verticals to prevent sagging.
      d. Apply at 1.5 gallons per 100 SF over the entire roof and wall surface. The finished roof will have three gallons of White Knight per one hundred square feet.

3.4 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.5 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.6 FIELD QUALITY CONTROL

A. Require attendance of roofing materials manufacturers' representative a minimum of 3 days per week at site during installation of the roofing system.

B. Report to Owner weekly with photo reports of previous weeks work.

C. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

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

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

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

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

3.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

A. Coatings:
   1. Coating: White-Knight Plus: Multi-purpose: high build, aliphatic urethane, liquid waterproofing membrane having the following characteristics:
      a. Elongation (ASTM D 412) >600%
      b. Tensile Strength (ASTM D 412) 1700 psi (with polyester reinforcement)

c. Tear Resistance (ASTM D 624) 700 lbs/in.
d. Energy Star Approved: Yes
e. Flash Point: 110 degrees F
f. Non-Volatile, ASTM D 75, 83%
g. Solar Reflective Index, ASTM E 1980, 110

B. Reinforcement/Base Coat
1. Unibond reinforcement.

END OF SECTION

Nevada County Animal Shelter Modular Building Roofing Application

SECTION 01100 - SUMMARY

GENERAL

(i) SUMMARY OF WORK

1) Project: New Roofing on Nevada County Animal Shelter Modular Building

2) Owner: County of Nevada

3) Architect: County Facilities Department

4) The Work consists of: Replacement roofing application.

5) Work Not Included: The following will be provided by others:

a) N/A

(ii) WORK RESTRICTIONS

1) The General Contractor awarded the bid for this project will be referred to as Contractor. Contractor's Use of Premises: During construction, Contractor will have limited use of the building space as shown on the plans. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project[as follows]:

a) Owner will occupy building during the roof restoration. Perform construction during normal working hours (7 a.m. to 5 p.m. Monday thru Friday, other than holidays). Weekend or Holiday work 8 a.m. to 5 p.m., unless otherwise agreed to in advance by Owner.

2) Office personnel and Public will be in the area during construction. Construct barricades/ fencing to cordon off work and loading zones in the parking area and below the exterior roof access to prevent unauthorized persons from entering work areas.

(iii) SPECIAL REQUIREMENTS
1) County will obtain Building permit. Contractor will be required to request and pass required inspections.

SECTION 07500
MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 — GENERAL

1.1 SCOPE OF WORK

A. Provide all labor, equipment and 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 insulation per specification.

4. Install modified base sheet per specification.

5. Install modified cap sheet per specification.

6. Remove and replace existing sheet metal edge flashing from all roof sections.

7. Install new expansion joints.

8. Apply Title 24 compliant “Cool Roof” coating per specification.

1.2 REFERENCES

A. American Society of Civil Engineers (ASCE):

1. ASCE 7-10, 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.

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 7-10, 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 photos 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 3 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. One manufacturer to provide warranties for all 2018 roofing projects. Multiple warranties will not be allowed.

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: 20 feet.

    h. Minimum Building Width: 115 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 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 80 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 80 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)

. Base Flashing Ply (Stressbase 80 Sheet): Fiberglass scrim with the following minimum performance requirements according to ASTM D5147. Properties (Finished Membrane):

1. Tensile Strength (ASTM D5147)

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

2. Tear Strength (ASTM D5147)

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

3. Elongation at Maximum Tensile (ASTM D5147)

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

A. Modified Flashing Ply:

0. STRESSPLY PLUS FR MINERAL

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

0. Tensile Strength (ASTM D5147)

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

1. Tear Strength (ASTM D4073)

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

2. Elongation at Maximum Tensile (ASTM D2523)

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

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

2.6 SURFACINGS

A. White Elastomeric Roof Coating: Pyramic; 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. ½" wood fiber insulation roof board.

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

C. 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.

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 one and one half (1.5) gallons per square per coat in a two coat application. Total of three gallons per 100 sq ft.

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.

END OF SECTION 07500

MODIFIED BITUMINOUS MEMBRANE ROOFING - HOT APPLIED