The Village of Oak Park
2017 Roof Restorations

This Document provides specifications for:

Village Hall Single-Ply Roof Restoration
123 N. Madison St. Oak Park, IL

Main Fire House Metal Roof Restoration
100 N. Euclid Ave. Oak Park, IL

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Mandatory Pre-Bid Meeting:
Main Fire House located at 100 N. Euclid Ave.
Wednesday, May 24th at 9:00AM

Please note the material for this job is being purchased by the Village of Oak Park directly from Garland Industries through the U.S. Communities Procurement Co-Operative. A material list with descriptions and quantities will be provided at the pre-bid meeting.

SECTION 07563
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metal Surface Roof Restoration (1.4.B)(2.3)

B. Single Ply Roof Restoration (1.4.E)(2.6)

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry: Roof blocking installation and requirements.

B. Section 07620 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.

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

D. Section 07710 - Manufactured Roof Specialties: Counter flashing gravel stops, and fascia, scuppers, gutters and downspouts.

E. Section 15430 - Plumbing Specialties: Piping vents and roof drains.

1.3 REFERENCES

A. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.

B. ASTM C 92 - Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials.

C. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.

D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.

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

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

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

H. ASTM D 43 - Standard Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing.

I. ASTM D 71 - Standard Test Method for Relative Density of Solid Pitch and Asphalt.

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

K. ASTM D 92 - Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester.

L. ASTM D 93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester.

M. ASTM D 113 - Standard Test Method for Ductility of Bituminous Materials.

N. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

O. ASTM D 562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.

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

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

R. ASTM D 1002 - Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).

S. ASTM D 1370 - Standard Test Method for Contact Compatibility Between Asphaltic Materials (Oliensis Test).

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

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

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

W. ASTM D 2042 - Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene.

X. ASTM D 2196 - Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer.

Y. ASTM D 2240 - Standard Test Method for Rubber Property-Durometer Hardness.

Z. ASTM D 2369 - Standard Test Method for Volatile Content of Coatings.

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

BB. ASTM D 3111 - Standard Test Method for Flexibility Determination of Hot-Melt Adhesives by Mandrel Bend Test Method.

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

DD. ASTM D 4209 - Standard Practice for Determining Volatile and Nonvolatile Content of Cellulosics, Emulsions, Resin Solutions, Shellac, and Varnishes.

EE. ASTM D 4212 - Standard Test Method for Viscosity by Dip-Type Viscosity Cups.

FF. ASTM D 4402 - Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer.

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

HH. ASTM D 5040 - Standard Test Methods for Ash Content of Adhesives.

II. ASTM D 5420 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).

JJ. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces

KK. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

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

MM. South Coast AQMD Standards.

NN. SMACNA Architectural Sheet Metal Manual.

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

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

1.4 SYSTEM DESCRIPTION

A. Metal Surface Roof Restoration: Renovation work includes:
1. Surface preparation: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
2. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
3. Primer: Prime entire roof surface. (For all White-Knight system only)

B. Single Ply Roof Restoration Renovation: work includes:
1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
2. Fascia Edges: Inspect and make repairs to membrane
3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with new membrane

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. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
3. Product reflectivity and emissivity criteria to qualify for one point under the LEED credit category, Credit 7.2, Landscape & Exterior Design to Reduce Heat Island - Roof.

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

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

G. 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, Architect, 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.

1. Warranty Period:
    a. 5 plus 5 (10 years): 5 years from date of acceptance plus 5 additional years after required inspection by Garland.

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. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Fax: 216-641-0633; Email: request info (jmlachak@garlandind.com); Web:www.garlandco.com

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

2.2 ROOF RESTORATION SYSTEM FOR METAL SURFACE ROOFS

A. Cold Applied White-Knight Plus/ White-Stallion Plus:

1. Primer: White-Knight Metal Primer/ White-Stallion Metal Primer:
2. Coating: White-Knight Plus/ White-Stallion Plus:
3. Flashing: None or repair as needed.
4. Reinforcement: None.
5. Surfacing: None

2.3 ROOF RESTORATION SYSTEM FOR SINGLE PLY ROOFS

A. White-Knight Plus/ White-Stallion Plus:

1. Primer: None.
2. Coating: White-Knight Plus/ White-Stallion Plus.
3. Flashing: Repair or replace as needed.
4. Reinforcement: Apply White-Knight Plus Base Coat/ White-Stallion Plus Base Coat on seams and around penetrations only.
5. Surfacing: None.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Flashing Boot - Rubbertite Flashing Boot: Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.

B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.

C. Pitch pans, Rain Collar 24 gauge stainless or 20oz (567gram) copper. All joints should be welded/soldered watertight. See details for design.

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

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

F. Liquid Flashing - Tuff-Flash: An asphaltic-polyurethane, low odor, liquid flashing material designed for specialized details unable to be waterproofed with typical modified membrane flashings.
   1. Tensile Strength, ASTM D 412: 400 psi
   2. Elongation, ASTM D 412: 300%
   3. Density @77 degrees F 8.5 lb/gal typical

G. Fabricated Flashings: Fabricated flashings and trim are specified in Section 07620.
   1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Association "Copper in Architecture - Handbook" as applicable.

H. Manufactured Roof Specialties: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Section 07710.
   1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

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. Remove existing roof flashings from curbs and parapet walls down to the surface of the roof. Remove existing flashings at roof drains and roof penetrations.
   2. 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.
   3. Install new wood nailers as necessary to accommodate insulation/recovery board or new nailing patterns.
   4. When mechanically attached, the fastening pattern for the insulation/recovery board shall be as recommended by the specific product manufacturer.
   5. Re-roofing over coal tar pitch requires a mechanically attached recovery board or insulation and a base sheet prior to the application of roofing system.
   6. 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.

I. Power washing of metal roof surfaces to remove all loose rust or scale is mandatory before application. Use a high volume air broom or compressed air to remove residual dust rust perforations, etc. Deteriorated metal roof decks must be repaired or replaced prior to the application of the coating system.

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. Metal Surface Roof Restoration: Renovation work includes:
1. Surface Preparation: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
a. Remove rust by the most rigorous method suitable for the particular project and as approved by Garland.

b. Tighten all fasteners and verify that neoprene washers are in place.
c. Replace missing fasteners using oversize fasteners as necessary.
d. Seal all fastener heads by applying a heavy dab of compatible sealant to the tops and around of all fastener heads.
1) White-Knight Plus/ Stallion Plus

2. Flashings: Repair/Replace metal flashings, pitch pockets, etc.
3. Primer:
a. Immediately after rust has been removed, prime surfaces with White-Knight Metal Primer/ Stallion Metal Primer at 1/4 gallon per 100 SF to prevent rust from reoccurring.
4. Reinforcement: Base coat and treatment of field seams and around penetrations:
a. Application of White-Knight Plus Base Coat/ White-Stallion Plus Base Coat or White-Knight Plus Base Coat WC 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 materials at specified dry film thickness.
4) Apply White-Knight Plus Base Coat/ White-Stallion Plus Base Coat or White-Knight Plus WC Base Coat at minimum 6 inch wide stripes over all seams, flashings and around penetrations at 2.0 gallons per 100 SF.
5) Use fabric reinforcement when panels are gapped and cannot be be cured tightly together.
6) Allow to dry for a minimum of 24 hours before applying finish coats.
7) On vertical surfaces to achieve proper application rate cut your application into two coats to avoid sagging and runs of coating.
5. Coating:
a. Material: Apply in a uniform manner at 2.0 gallons per 100 SF over the entire roof surface.
1) White-Knight Plus/ Stallion Plus
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 to Garland's minimum membrane thickness over the entire roof surface.

C. Single Ply Roof Restoration Renovation: work includes:
1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
2. Flashing:
a. Fascia Edges: Inspect and make repairs to membrane.
b. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
c. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
3. Reinforcement: Base coat and treatment of field seams and around penetrations:
a. Application of White-Knight Plus/ Stallion Plus or White-Knight Plus WC 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 materials must be applied at specified dry film thickness.
4) Apply White-Knight/ Stallion Plus or White-Knight Plus WC at minimum 6 inch wide stripe over all seams, flashings and around penetrations at 2.0 gallons per 100 SF.
5) Allow to dry for a minimum of 24 hours before applying finish coats.
6) On vertical surfaces to achieve proper application rate cut your

application into two coats to avoid sagging and runs of coating.

4. Coating: Application of White-Knight/ Stallion, White-Knight WC or White-Knight Plus/ Stallion Plus, White-Knight Plus WC finish coats.
   a. Apply White-Knight/ Stallion or White-Knight Plus/ Stallion Plus 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 2.0 gallons per 100 SF over the entire roof surface.

3.4 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Fabricated Flashings: Fabricated flashings and trim are provided as specified in Section 07620.
   1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Copper Development Association "Copper in Architecture - Handbook" as applicable.

B. Manufactured Roof Specialties: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are provided as specified in Section 07710.
   1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the National Roofing Contractor's Association "Roofing and Waterproofing Manual" as applicable.

3.5 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.

3.6 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.

3.7 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.

3.8 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.

3.9 PROTECTION

A. Protect installed products until completion of project.

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

3.10 SCHEDULES

A. Coatings:
   1. Coating: White-Knight Plus/ White-Stallion Plus: Highly reflective multi- purpose, single-component aliphatic urethane, liquid waterproofing membrane.
      a. Tensile Strength: ASTM D 412, 2100 psi
      b. Tear Resistance: ASTM D 624, 160 lbs./in
      c. Elongation: ASTM D 412, 320%
      d. Density @ 77 degrees F (25 degrees C, ASTM D 2939) 10.4 lb./gal (1.2 g/m3)
      e. Flash Point: ASTM D 93, 110 degrees F min. (43 degrees C)
      f. Non-Volatile: ASTM D 75, Typical 83%
      g. Viscosity @ 77 degrees F (25 degrees C); Brookfield RVT, #4 Spindle 10 rpm9200 cP
      h. Wet Film Thickness@ 2 gal./100 sq. ft. (0.82 l/m2)
      i. VOC: 225 g/l
      j. Reflectance: 0.87
      k. Emittance: 0.89
      l. SRI: 110

B. Flashings
   1. Coating: White-Knight Plus/ White-Stallion Plus: highly reflective multi- purpose, single-component aliphatic urethane, liquid waterproofing membrane.
      a. Tensile Strength: ASTM D 412, 2100 psi
      b. Tear Resistance: ASTM D 624, 160 lbs./in
      c. Elongation: ASTM D 412, 320%
      d. Density @ 77 degrees F (25 degrees C, ASTM D 2939) 10.4 lb./gal (1.2 g/m3)
      e. Flash Point: ASTM D 93, 110 degrees F min. (43 degrees C)
      f. Non-Volatile: ASTM D 75, Typical 83%
      g. Viscosity @ 77 degrees F (25 degrees C); Brookfield RVT, #4 Spindle 10

rpm9200 cP

h. Wet Film Thickness @ 2 gal./100 sq. ft. (0.82 l/m2)
i. VOC: 225 g/l
j. Reflectance: 0.87
k. Emittance: 0.89
l. SRI: 110

END OF SECTION