SECTION 07015
ALPHAGUARD RESTORATION
20 YEAR WARRANTY SYSTEM

PART I.1 GENERAL

A. RELATED DOCUMENTS

1. The attached are components of this section:
   a. General Conditions
   b. Supplemental Conditions
   c. Statement of roofing material manufacturer's qualifications
   d. Pre-final inspection checklist for Roofing Contractor
   e. Drawings and general provisions of the Contract, including General and Supplementary
   f. Conditions and Division 01 Specification Sections, apply to this Section.

PART 1.2 SUMMARY

A. This Section includes the following:

1. Roof re-coating preparation including roof patching and cleaning preparation for Restoration coating.
2. Application of fluid-applied roof membrane and flashings over existing modified bituminous membrane roofing.
3. 20 Year Quality Assurance Plus Warranty System.
4. Removal of damage area marked on roof.
5. Built-up of Low Areas.

B. Scope of Work: Buildings 3,000; 5,000; 6,000; and 7,000 – Optional for 2,000

1, Power wash all areas on existing roof system, and flashing areas.
2. Sweep and remove all loose granules, rock and debris.
3. Contractor shall take protective measures to protect conduits, units, roof equipment from overspray during application of roofing materials.
4. Prime existing membrane prior to all field, wall, or flashing repairs with Alpha Guard WB Primer, at one gallon per square.
5. Repair all roof membrane and flashing splits or tears with a five-course application of AlphaGuard Mastic and Permafab reinforcing membrane.
6. Reinforce all perimeter and projection base flashing with 1-ply of Alpha Guard Bio Base Coat and Permafab Polyester Membrane.
7. Seal all pipe and metal penetrations with a 5-course of AlphaGuard Mastic and Permafab Reinforcing Membrane.
8. Seal all curbs, base, and flashing areas with Alpha Guard Bio and Permafab Membrane.
9.. Replace all blocking as required.

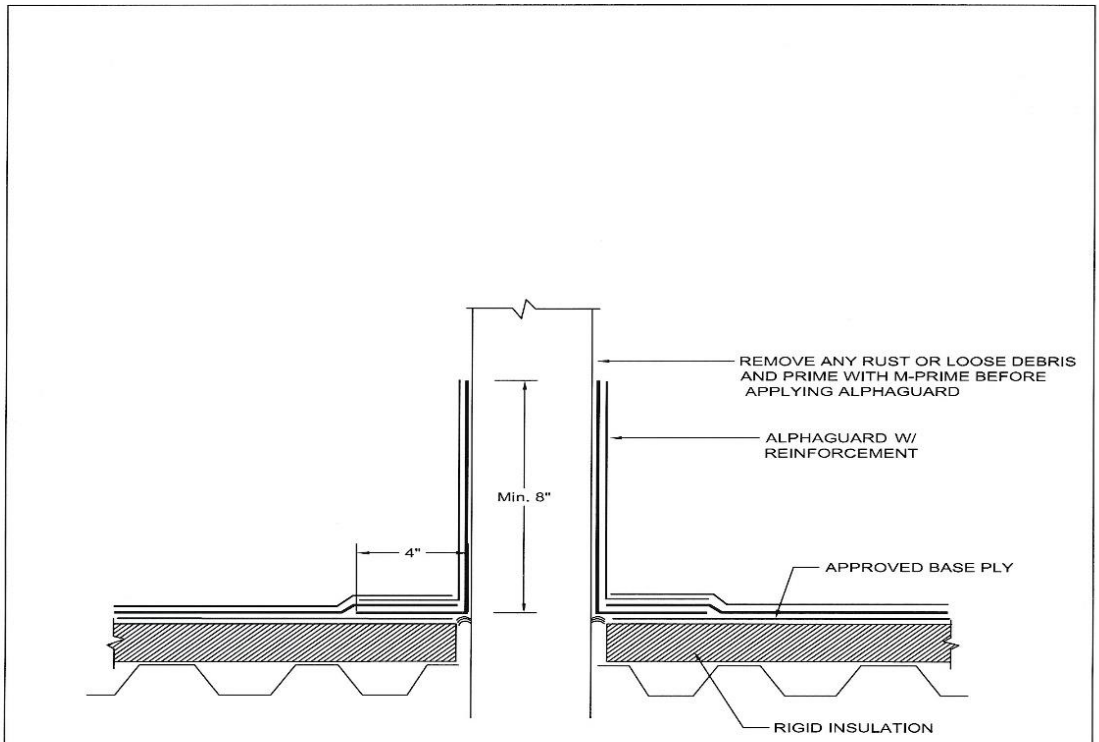
10. Seal around all drains and scuppers with a five course of AlphaGuard Mastic and Permafab Membrane.
11. Remove existing metal counter flashing for proper installation of the Alpha Guard System and replace at completion. Seal reglet joint with Tremseal D White.
12, Remove existing walk pads. Note existing area of walk pads.
13, Clean and remove ICE Coating at membrane seams where it is peeling, and seal with SolarGard Seam Sealer and Permafab Membrane.
14. All existing roof membrane, curbs, flashing, and penetrations will be primed with AlphaGuard Water Based Primer, at a rate of one gallon per 100 square feet.
15, Apply Alpha Guard Bio Base coat and Permafab Membrane to low areas, as indicated on the Job Walk and Marked.
16, Apply AlphaGuard Bio Base coat to the cleaned, repaired, and primed existing surface at a rate of 4½ gallons per 100 square feet on PowerPly FR Membrane, without ICE Coating.
17, Apply Alpha Guard Bio Base Coast to primed surface of the sections with ICE Coating at a rate of 4 gallons per 100 square feet.
18. Embed into the "Wet" base coat one ply of Permafab Polyester Mat Membrane, and allow to cure overnight.
19. Apply AlphaGuard Bio Top Coat to the Permafab Membrane at a rate of 2½ gallons per 100 square feet.
20. Note: Recoat priming will be required if application if not completed in 48 hours of previous work. Use AlphaGuard Re-prime.
21. Install Alpha Guard Yellow Top Coat at 1½ to 2 gallons per square, and broadcast a washed silica sand (20-40 mesh), then back roll, for walkways. Note: Areas not cover by Solar Panels.
22. Allow the system to cure 48 hours before traffic.

C. Scope of Work: Building 2000
   1. Building 2,000 shall be an optional add to Bid Documents.
   2, Building 2,000 shall be completed as the Scope of Work above.

SOLAR PANEL EXTENSION INSTALLATION:

1. All new extensions should be properly prepared by and primed with the appropriate primers (see chart 1).
2. Once a penetration has been properly prepared, mark them at least 4" above the roof deck. Tape along these marks to ensure you have a clean, straight line.
3. On the round extensions cut pieces to sizes that are manageable and tear the bottom edge, 2-3" from the edge. This will allow the reinforcement to conform to the pipe. Apply the AlphaGuard Bio base coat and fully embed the reinforcement. The field base coat should extend over the toe of the flashing, to the base of the extension.
4. Once cured, the AlphaGuard Bio top coat can be applied, followed by the field top coat. On square penetrations, cut pieces that are manageable. Cut the pieces to go 8" above the field of the roof and 4" onto the field of the roof. Apply the AlphaGuard base coat and fully embed the reinforcement. The field base coat should extend over the toe of the

flashing, to the base of the pipe. Once cured, the AlphaGuard top coat can be applied, followed by the field top coat.



ALPHAGUARD	ROOF PENETRATION - METAL DECK W/ RIGID INSULATION
TREMCO®	

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PART 1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing Manual" for definition of terms related to roofing work in this Section.
B. Existing Roofing System: SBS-modified bituminous roofing, and components and accessories between deck and roofing membrane.
C. Roofing Re-Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.

PART 1.4 PERFORMANCE REQUIREMENTS:

A. General: Provide recoated roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
B. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
C. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
D. Solar Reflectance Index: Solar reflectance index not less than 90 for not less than 75 percent of the roof surface, when calculated according to ASTM E 408 based on testing identical products by a qualified testing agency.
E. Energy Performance: Roofing system shall have an initial solar reflectance index of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.
F. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

PART 1.5 SUBMITTALS – If requested

A. Product Data: For each type of product specified.
B. Product MSDA Sheets for all Liquid Materials.
C. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
D. Letter written for this Project indicating manufacturer approval of Installer to apply specified product and provide specified warranty.
E. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing rehabilitation system.
F. Warranties: Unexecuted sample copies of special warranties.
G. Inspection Reports: Reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

PART 1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: To include in maintenance manuals.
B. Warranties: Executed copies of approved warranty forms.

PART 1.7 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years of experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and the following:
B Qualified by the manufacturer to install manufacturer's product and furnish warranty of System specified.
D. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum five years of experience in manufacture of specified products in successful use in similar applications.
E. Roofing Restoration Pre-Installation Conference: Review methods and procedures related to roofing system.
    1. Meet with Owner; roofing re-coating materials manufacturer's representative; roofing re-coating Installer including project manager and foreman; and installers whose work interfaces with or affects re-coating including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
    2. Review methods and procedures related to re-coating preparation, including membrane roofing system manufacturer's written instructions.
    3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
    4. Review roof drainage during each stage of re-coating and review roof drain plugging and plug removal procedures.
    5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    6. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-coating.
    7. Review HVAC shutdown and sealing of air intakes.
    8. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
    9. Review governing regulations and requirements for insurance and certificates if applicable.
    10. Review existing conditions that may require notification of Owner before proceeding.

PART 1.8 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately below re-coating area. Conduct re-coating so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

B. Protect building to be rehabilitated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from rehabilitation operations.
C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
D. Weather Limitations: Proceed with rehabilitation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
E. Store all materials prior to application at temperatures between 60 and 90 deg. F.
F. Apply coatings within range of ambient and substrate temperatures recommended by manufacturer. Do not apply materials when air temperature is below 50 or above 110 deg. F.
G. Do not apply roofing in snow, rain, fog, or mist.
H. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
I. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner. Hazardous materials will be removed by Owner under a separate contract.

PART 1.9 WARRANTY

A. Special Warranty for Roof Rehabilitation: Written warranty in which Manufacturer agrees to repair roof rehabilitation installations that fail in materials or workmanship within specified warranty period.
B. Failures include, but are not limited to, the following:
   1.. Membrane failures including rupturing, cracking, or puncturing.
   2. Deterioration of membranes, coatings, metals, metal finishes, and other associated materials beyond normal weathering.
C. Limit of Warranty Coverage for Repair of Roof Rehabilitation: Not to exceed original purchase price of manufacturer's recoating materials, except that manufacturer may elect to apply the limit amount toward the following:
   1. Purchase of a new replacement roof within the first 5 years following completion of rehabilitation work.
D. Qualified Installer Requirement: Installer must meet requirements of Quality Assurance Article.
G. Installation Inspection Requirement: By Roofing Inspector in accordance with requirements of Part 3 Field Quality Control Article.
H. Annual Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum. Inspections to occur in Year 2, 5, 10, and 15 following completion.
I. Warranty Period: 20 years from date of completion of rehabilitation work.
J. Technical Job Site Consulting 20 days at $ 750.00 per day.
K. Contractor Warranty: 3 Years.

PART 2.1 PRODUCTS

A. MANUFACTURERS:

1. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Subject to compliance with requirements, provide the named product or an approved comparable product by one of the following: Tremco Contact: Mr. William R. Calagna 818-429-2584: Tommy Calagna – 818-390-1203

B. MATERIALS

1. General: Re-coating materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.
2. *Temporary Roofing Materials: Selection of materials and design of temporary roofing is responsibility of Contractor.*
3. Infill Materials: Where required to replace test cores and to patch existing roofing, use infill materials matching existing membrane roofing system materials, unless otherwise indicated.
4. FLUID-APPLIED ROOFING MEMBRANE - Polyurethane Elastomeric Fluid-Applied System: ASTM D 7311, elastomeric, two-coat single-component moisture triggered polyurethane fluid-applied roofing formulated for application to existing built-up roofing, with the following minimum physical properties:
   a. Aliphatic Urethane Base Coat:
      (1) Basis of Design Product: Tremco, AlphaGuard Bio Base Coat.
      (2) Asbestos Content, EPA/600/R-93/116: None.
      (3) Volatile Organic Compounds (VOC), ASTM D 3960: Not greater than 40 g/L.
      (4) Percent solids (by weight), ASTM D 1644: Not less than 85 percent.
   b. Aliphatic Urethane Top Coat: UV-stabilized, chemical-resistant top coat:
      (1) Basis of Design Product: Tremco, AlphaGuard Bio Top Coat.
      (2) Asbestos Content, EPA/600/R-93/116: None.
      (3) Volatile Organic Compounds (VOC), ASTM D 3960: Not greater than 45 g/L.
      (4) Elongation at break, ASTM D 7311: Not less than 340 percent
      (5) Tensile Strength, ASTM D 7311: Not less than 1,400 lbf/sq. in.
      (6) Tear Resistance, ASTM D 7311: Not less than 150 lbf/in.
      (7) Accelerated Weathering, 5000 hour, ASTM D 7311: Pass, no cracking or Checking.
      (8) Percent solids (by weight), ASTM D 1353: Not less than 85 percent.
      (9) Color: [White, with Solar Reflectance Index meeting performance requirements], [As selected by Architect from manufacturer's standard colors].
5. Polyester Reinforcement: rapid wetting polyester mat for fluid-applied membrane and flashing.
   a. Basis of Design Product: Tremco Permafab Membrane.
6. AUXILIARY ROOFING COATING MATERIALS

General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and fluid-applied roofing system.

a. Metal Surface Primer: Single-component, water based primer to promote adhesion of base coat to metal surfaces.
   (1) Basis of Design Product: Tremco, AlphaGuard M-Prime.
b. Asphaltic Surfaces Primer: Single-component, multi-substrate primer to promote adhesion of base coat to surfaces recommended by manufacturer.
   (1) Basis of Design Product: Tremco, AlphaGuard Re-Prime or AlphaGuard WB Primer.
c. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

PART 3.1 EXECUTION

A. EXAMINATION

1. Examine existing roofing substrates, with Installer present, for compliance with requirements and for other conditions affecting application and performance of roof coatings.
2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
3. Verify compatibility of approved re-coating system with and suitability of substrates.
4. Verify that substrates are visibly dry and free of moisture.
5. Verify that roofing membrane surfaces have adequately aged to enable proper bond with re-coating system base coat.
6. Verify that existing roofing membrane is free of blisters, splits, open laps, indications of shrinkage, and puncture damage or other indications of impending roof system failure.
7. Application of fluid-applied re-coating membrane indicates acceptance of surfaces and conditions.

B. PREPARATION

1. Protect existing roofing system that is indicated not to be rehabilitated, and adjacent portions of building and building equipment.
2. Mask surfaces to be protected. Seal joints subject to infiltration by coating materials.
3. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
4. Maintain temporary protection and leave in place until replacement roofing has been completed.
5. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

6. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

C. ROOFING RE-COATING PREPARATION

1. Membrane Surface Preparation:
   a. Remove blisters, ridges, buckles, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
   b. Repair membrane at locations where irregularities have been removed.
   c. Broom clean existing substrate.
   d. Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 800 psi. Allow to dry thoroughly.
   e. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.
   f. Verify adhesion of new products.
   g. Remove rough and peeling ICE Coating at Modified Membrane seams as necessary.

2. FLASHING REPAIR
   a. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.
   b. Repair flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, replace loose or missing fasteners, and replace components where required to leave in a watertight condition.
   c. Roof Drains: Remove drain strainer and clamping ring. Grind metal surfaces down to clean, bare, metal.
   d. Prime metal surfaces with manufacturers recommended primer.

3. FLUID-APPLIED MEMBRANE APPLICATION
   a. Base Coat: Apply base coat to flashing surfaces in accordance with manufacturer's written instructions. Back roll to achieve minimum wet mil coating thickness of 48 mils unless otherwise recommended by manufacturer; verify thickness of base coat as work progresses.
   b. Apply base coat on prepared and primed surfaces and spread coating evenly.
   c. Embed fiberglass reinforcement into wet base coat. Lap adjacent flashing pieces of fiberglass minimum 3 inches along edges and 6 inches at end laps.
   d. Roll surface of fiberglass reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
   e. Allow base coat to cure prior to application of top coat.
   f. Following curing of base coat and prior to application of top coat, sand raised or exposed edges of fiberglass reinforcement.

g. Fluid Applied Flashing Application: Complete base coat and fiberglass reinforcement at parapets, curbs, penetrations, and drains prior to application of field of fluid-applied membrane.
h. Extend coating minimum of 8 inches up vertical surfaces and 4 inches onto horizontal surfaces.
i. Roof Drains: Install base coat onto surrounding membrane surface and metal drain bowl flange. Install target piece of fiberglass reinforcement immediately into wet base coat and roll to fully embed and saturate fabric. Reinstall clamping ring and strainer following application of top coat. Replace broken drain ring clamping bolts.
j. Top Coat: Apply top coat uniformly in a complete installation to field of roof and flashings.
k. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.
l. Apply top coat to flashings extending coating up vertical surfaces and out onto horizontal surfaces 4 inches. Install top coat over field base coat and spread coating evenly.
m. Back roll to achieve wet mil thickness of 32 mils unless otherwise recommended by manufacturer.
n. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

4. WALKWAY INSTALLATION
a. Slip-Resistant Yellow Walkway Topcoat: Apply walkway second topcoat following application and curing of top coat. Locate as indicated, or as directed by Owner/Architect.
b. Mask walkway location with tape.
c. Prime first top coat prior to application of walkway top coat if walkway top coat is not applied within 72 hours of the first top coat application, using manufacturer's recommended primer.
d. Back roll to achieve wet mil thickness of 20 mils unless otherwise recommended by manufacturer.
e. Broadcast 20 to 30 lbs. per 100 sq. ft. of Slip-Resistant Top Coat Aggregate in wet top coat.
f. Back roll sand and top coat creating even dispersal of sand. Remove masking immediately.

5. FIELD QUALITY CONTROL
a. Roof Inspection: Contractor shall engage roofing system manufacturer's technical personnel to inspect roofing installation, and submit report to the Architect. Notify Architect or Owner 48 hours in advance of dates and times of inspections. Inspect work as follows:
(1) Upon completion of preparation of first component of work, prior to application of re-coating materials.
(2) Following application of re-coating to flashings and application of base coat to field of roof.

(3) Upon completion of re-coating but prior to re-installation of other roofing components.
(4) Repair fluid-applied membrane where test inspections indicate that they do not comply with specified requirements.
(5) Arrange for additional inspections, at Contractor's expense, to verify compliance of replaced or additional work with specified requirements.

6. PROTECTING AND CLEANING

a. Protect roofing system from damage and wear during remainder of construction period.
b. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.

c. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION