

# **EXHIBIT A**

## **Scope of Work and Specifications**

**(25 PAGES including cover page)**

Exhibit A contains the following documents:

- a. Section 01 10 00 – SUMMARY (4 pages)
- b. Section 07 01 55.01 – BUILT UP ROOFING - ROOF RESTORATION (6 pages)
- c. Section 07 01 55.03 – BUILDING J- ROOF COATING FOR METAL ROOFING (6 pages)
- d. ROOF PATCH AND REPAIR SPECIFICATION (8 pages)

**BID # CCC-024**

**PROJECT: Roof Repair of Various Buildings**

## SECTION 01 10 00 - SUMMARY

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. General provisions of the Contract, including General Conditions and other (if any) Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

## Section Includes:

- A. **Building D and C Vault: (See Section 07 01 55.01 for additional details)**
1. Nail down all large open splits; 6" staggered, penetrating into decking. Treat split with polyester and TremLastic S.
  2. At major splits which are open, nail split 6" staggered and install slip sheet over split and over with Tremlastic S and polyester.
  3. Smaller split can be treated with emulsion and polyester.
  4. At roof adjacent to the internal gutter address membrane that has risen up from metal edge, by nailing down and three coursing with ELS mastic and burmesh.
  5. Ensure all splits in the roof have been addressed.
  6. Reinforce base of penetrations and projections with POLYroof LV.
  7. Prime the entire roof with Tremprime WB.
  8. Apply Tremlastic S to the field of the roof at 4 gallons per square. Embed Rapid set polyester into the wet emulsion and work it in.
  9. Apply second application of TremLastic at 4 gallons per square and apply second ply of Rapid Set polyester.
  10. Prime with SP primer.
  11. Apply final Coat of ICE coating at the rate of 4 gallons per square.
  12. Coat all duct work and ensure seams are sealed.
  13. Repair and restore the Vault roof on Building C.
  14. Provide College with a 5+5 year Restoration Warranty.
  15. Contractor shall include 1 day of inspection by WTI (800) 852-4198
  16. Note: Roof does contain ACM containing materials
- B. **Building J: (See Section 07 01 55.03 for additional details)**
1. Power wash metal roof. And protect areas that will not be coated as a part of this project. And Prime the entire roof with Solargard Rust primer WB at the rate of 200 square feet per gallon.
  2. Reinforce all vertical seams with Solargard Seam Sealer and Permafab polyester.
  3. Vertical seams which are offset greater than 1/8" will need to be secured with a neoprene screws.
  4. Horizontal seams which are offset greater than 1/8" in height will need to be secured with neoprene screws.
  5. Reinforce horizontal seams with Solargard Seam Sealer.
  6. Reinforce all penetrations and projections with Solargard Seam Sealer and polyester.
  7. Repair any severely damaged area with patches to match the existing.
  8. Replace missing fasteners as needed.
  9. Apply a Low-odor, two part acrylic coating system Solargard 6083 Top and Base Coat at the rate of one gallon per square for the base and one gallon per square for the top.
  10. Install new box gutters around the perimeter of roof to replace the existing/missing and supply new down spouts. Down spouts shall be supplied at a minimum distance of 50 feet between downspouts unless otherwise directed on job walk.
  11. At the completion of the project contractor shall provide to the College a 12 year Metal Roof Restoration Warranty.
  12. Contractor shall include 4 days of inspection by WTI (800)852-4198

**C. General Repairs: (See Roof Patch and Repair Specifications for additional details)**

1. Repairs to Building G west end.
  - a. Reinforce splits in the field of the roof and reinforce any related penetrations and projections as needed.
  - b. Seal designated area with a two plies of Rapid Set polyester and Tremlastic S
  - c. Surface Tremlastic S with Double Duty Aluminum
2. Repairs to Building F over Room 31.
  - a. Reinforce splits in the field of the roof and reinforce any related penetrations and projections as needed.
  - b. Reinforce designated areas with Tremlastic and Polyester
3. Repairs to Building Y over room 99.
  - a. Remove roofing around one drain area and rework with APP Smooth and APP FR.
  - b. Reinforce designated area with Polyester and Tremlastic S, allow to dry and coat repair area with ICE coating.
4. Repairs to Vo-Tech.
  - a. Reinforce the base of designated HVAC units with Alpha Guard.
5. Repair D 26-29 Storage Area.
6. Provide an option for a two year TremCare warranty on designated repair areas.
7. Provide a one year contractor warranty on all repairs.

**D. Warranty: Single Source Warranty on all phases of work.****1.3 PROJECT INFORMATION**

Project Location: 1111 E. Artesia Blvd, Compton, California 90221.

**A. Owner: Compton Community College District.**

1. Owner's Representative: **Linda Owens, Director of Facilities Planning and Operations**
2. Identification: **Bid # CCC-024: Roof Repair of Various Buildings**

**1.4 WORK COVERED BY CONTRACT DOCUMENTS****A. The Work of Project is defined by the Contract Documents and consists of the following:**

1. **Restoration of Building J and Classroom Building D with repairs to various other areas.**

**B. Type of Contract:**

1. Project will be constructed under a single prime contract.

**C. Basis of Design:**

1. Tremco Inc.

**1.5 ACCESS TO SITE**

- A. **General:** Contractor shall have limited use of Project site for construction operations.
- B. **Use of Site:** Limit use of Project site to work. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. **Driveways, Walkways and Entrances:** Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
- C. **Condition of Existing Building:** Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Contractor shall repair damage caused by construction operations.

**1.6 COORDINATION WITH OCCUPANTS**

- A. **Full Owner Occupancy:** Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

**1.7 WORK RESTRICTIONS**

- A. **Work Restrictions, General:** Comply with restrictions on construction operations.
  - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. **On-Site Work Hours:** Limit work in the existing building to normal business working hours of 6:30 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated. Some weekend work may be required.
- C. **Existing Utility Interruptions:** Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
  - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. **Noise, Vibration, and Odors:** Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  - 1. Notify Owner not less than two days in advance of proposed disruptive operations.
  - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. **Nonsmoking Campus:** Smoking is not permitted on Campus.
- F. **Controlled Substances:** Use of tobacco products and other controlled substances on Campus is not permitted.

**1.8 SPECIFICATION AND DRAWING CONVENTIONS**

- A. **Specification Content:** The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

END OF SECTION 01 10 00

## SECTION 07 01 55.01 – BUILT UP ROOFING - ROOF RESTORATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

## 1.2 SUMMARY

## A. This Section includes the following:

1. Nail down all large open splits; 6" staggered, penetrating into decking. Treat split with polyester and TremLastic S.
2. At major splits which are open, nail split 6" staggered and install slip sheet over split and over with Tremlastic S and polyester.
3. Smaller split can be treated with emulsion and polyester.
4. At roof adjacent to the internal gutter address membrane that has risen up from metal edge, by nailing down and three coursing with ELS mastic and burmesh.
5. Ensure all splits in the roof have been addressed.
6. Reinforce base of penetrations and projections with POLYroof LV.
7. Prime the entire roof with Tremprime WB.
8. Apply Tremlastic S to the field of the roof at 4 gallons per square. Embed Rapid set polyester into the wet emulsion and work it in.
9. Apply second application of TremLastic at 4 gallons per square and apply second ply of Rapid Set polyester.
10. Prime with SP primer.
11. Apply final Coat of ICE coating at the rate of 4 gallons per square.
12. Coat all duct work and ensure seams ae sealed.
13. Repair and restore the Vault roof on Building C.
14. Provide College with a 5+5 year Restoration Warranty.
15. Contractor shall include 1 day of inspection.
16. Note: Roof does contain ACM containing materials

## B. Related Sections include the following:

1. Section 01 10 00 - "Summary" for use of the premises and phasing requirements, and for restrictions on use of the premises due to Owner or tenant occupancy.

## 1.3 MATERIALS OWNERSHIP

- A. Demolished materials shall become Contractor's property and shall be removed from Project site.

## 1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Existing Roofing System: Built-up asphalt 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.
- D. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.

- E. Existing to Remain: Existing items of construction that are not indicated to be removed.

#### 1.5 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. 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.
  - 1. Fire Classification: UL Class A.

#### 1.6 SUBMITTALS

- A. Product Data: For each type of product specified.
  - 1. Indicate CRRC Compliance.
- B. Qualification Data:
  - 1. For Installer.
  - 2. For Roofing Inspector.
- C. Inspection Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

#### 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Approved in writing by manufacturer of roofing recoating materials approved by warrantor of existing roofing system to work on existing roofing.
- B. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
  - 1. An authorized full-time technical employee of the manufacturer.
- C. **Re-coating Preinstallation Conference:** Conduct conference at Project site to comply with requirements in contract documents. Review methods and procedures related to roofing system including, but not limited to, the following:
  - 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 effect on work on existing internal gutter.
  - 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 sealing of ductwork.
  - 8. Review existing conditions that may require notification of Owner before proceeding.

**1.8 PROJECT CONDITIONS**

- A. Owner assumes no responsibility for condition of areas to be re-roofed.
  - 1. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
  - 2. Contractor is responsible for conclusions derived from Owner's existing condition documents.
- B. 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.
- C. Protect building to be re-coated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from re-coating operations.
- D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- E. Weather Limitations: Proceed with re-coating preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
- F. **Hazardous Materials:** (ACM) Present in building to be re-coated.
  - 1. Do not disturb hazardous materials or items suspected of containing hazardous materials.
  - 2. Coordinate any needed removal of hazardous materials with College.

**1.9 WARRANTY**

- A. Roofing Recoating Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Roof Recoating Warranty, General: Warranties specified in this Section include work of this Section and the following components and systems specified other Sections when supplied by the roof recoating manufacturer:
  - 1. Low slope-roofing system as accessory to roofing recoating.
  - 2. Warranty Period: 5+5 years from date of completion of recoating work.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Manufacturers/Products: Subject to compliance with requirements, provide products [of] [by one of the following manufacturers comparable to the Basis of Design product specified]:
  - 1. Tremco, Inc., Beachwood, OH, (800) 562-2728, [www.tremcoroofing.com](http://www.tremcoroofing.com).
  - 2. Tremco, Inc., Vernon CA, (800) 422-8989.
  - 3. Darryl Hazelton, 800-852-4198.
  - 4. Substitutions: None allowed.

**2.2 MATERIALS, GENERAL**

- A. General: Re-coating materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.
- B. Temporary Roofing Materials: Selection of materials and design of temporary roofing is responsibility of Contractor.



- C. **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.

### 2.3 RESTORATIVE COATINGS AND TOP COATINGS

- A. **White Roof Coating:** Tremco, ICE Coating: Water-based, Energy Star Certified, CRRC listed and California Title 24 Energy Code compliant elastomeric roof coating formulated for use on bituminous roof surfaces, with the following physical properties:
1. Asbestos Content, EPA/600/R-93/116: None.
  2. Non-Volatile Content (by weight), minimum, ASTM D 1644: 60 percent.
  3. Volatile Organic Compounds (VOC), ASTM D 3960: 39 g/L.
  4. Percent Solids (by volume), minimum, ASTM D 5201: 60 percent.
  5. Reflectance, minimum, ASTM C 1549: 83 percent.
  6. Emissivity, minimum, ASTM C 1370: 0.82.
  7. Solar Reflectance Index (SRI), ASTM E 1980: 103.

### 2.4 ROOFING MEMBRANE REINFORCING PLIES

- A. **Reinforcing Fabric Ply:** Basis of design product: Tremco, Rapid Set Reinforcing Fabric: 100 percent recycled content stitch-bonded polyester fabric, infused with a curing accelerant activated when installed in conjunction with a specially formulated adhesive, with the following properties:
1. Breaking Strength, minimum, ASTM D 146: machine direction, 70 lbf/in (12.0 kN/m); cross machine direction, 70 lbf/in (12.0 kN/m).
  2. Thickness, minimum, ASTM D 1777: 0.020 inch (0.51 mm).

### 2.5 BASE FLASHING MATERIALS

- A. **Reinforcing Fabric Ply:** Basis of design product: Tremco, Rapid Set Reinforcing Fabric: 100 percent recycled content stitch-bonded polyester fabric, infused with a curing accelerant activated when installed in conjunction with a specially formulated adhesive, with the following properties:
1. Breaking Strength, minimum, ASTM D 146: machine direction, 70 lbf/in (12.0 kN/m); cross machine direction, 70 lbf/in (12.0 kN/m).
  2. Thickness, minimum, ASTM D 1777: 0.020 inch (0.51 mm).

### 2.6 COLD-APPLIED ADHESIVE MATERIALS

- A. **Reinforcing Ply Sheet Adhesive: Rubberized Asphalt Emulsion:** Basis of design product: Tremco, TremLastic SP: One-part, asbestos-free, non-fibrated, cold-applied, rubberized asphalt emulsion formulated for compatibility and use with specified roofing membranes and flashings, with the following physical properties:
1. Asbestos Content, EPA/600/R-93/116: None.
  2. VOC, maximum, ASTM D 3960: <50 g/L.
  3. Tensile Strength at 77 deg. F (25 deg. C), minimum, ASTM D 412: 150 psi (1000 kPa).
  4. Elongation at 77 deg. F (25 deg. C), minimum, ASTM D 412: 100 percent.

### 2.7 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. **General:** Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system.
- B. **Asphalt Roofing Cement:** ELS - ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- C. **Elastomeric Mastic:** POLYroof LV.

- D. **Fasteners:** Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.
- E. **Miscellaneous Accessories:** Provide miscellaneous accessories recommended by roofing system manufacturer.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. **Protect existing roofing system** that is indicated not to be re-coated and adjacent portions of building and building equipment.
  - 1. Comply with warranty requirements of existing roof membrane manufacturer.
  - 2. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
  - 3. Maintain temporary protection and leave in place until replacement roofing has been completed.

#### 3.2 ROOFING RE-COATING PREPARATION

- A. **Membrane Reinforcement Plies:** Install reinforcement at alligatored substrates, along valleys, at areas of ponding and where additionally indicated.
  - 1. Install two ply sheets starting at low point of roofing system. Align ply sheets without stretching. Shingle side laps of ply sheets uniformly to achieve required number of plies throughout thickness of roofing membrane. Shingle in direction to shed water. Extend ply sheets over and terminate beyond cants.
  - 2. Embed each ply sheet in a solid mopping of cold, fluid-applied adhesive, applied at rate required by roofing system manufacturer, to form a uniform membrane without ply sheets touching.
- B. **Roof Patching:** Notify Owner each day of extent of roof tear-off proposed and obtain authorization to proceed.
  - 1. Build-up isolated low spots on existing roofing membrane with recoating manufacturer's recommended products to alleviate ponding.
- C. **Membrane Surface Preparation:**
  - 1. Remove blisters, ridges, buckles, mechanically attached roofing membrane with nails to address splits and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
  - 2. Repair membrane at locations where irregularities have been removed.
  - 3. Broom clean existing substrate.
  - 4. 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.
  - 5. Verify that existing substrate is dry before proceeding with application of coating.
- D. Repair flashings, gravel stops 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.

#### 3.3 ROOF RE-COATING TOP COAT

- A. **Reflective Coating:** Once restorative system has adequately cured, apply reflective top coat according to manufacturer's written instructions, by spray, roller, or other suitable application method. Apply in two coat application of 2. gal. /100 sq. ft. per coat for a total of 4 gallons per square.

3.4 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 07 01 55.01

## SECTION 07 01 55.03 – BUILDING J- ROOF COATING FOR METAL ROOFING

**GENERAL**

## 1.1 RELATED DOCUMENTS

- A. General provisions of the Contract, including General and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following:

1. Power wash metal roof and protect areas that will not be coated as a part of this project. And Prime the entire roof with Solargard Rust primer WB at the rate of 200 square feet per gallon.
2. Reinforce all vertical seams with Solargard Seam Sealer and Permafab polyester.
3. Vertical seams which are offset greater than 1/8" will need to be secured with a neoprene screws.
4. Horizontal seams which are offset greater than 1/8" in height will need to be secured with neoprene screws.
5. Reinforce horizontal seams with Solargard Seam Sealer.
6. Reinforce all penetrations and projections with Solargard Seam Sealer and polyester.
7. Repair any severely damaged area with patches to match the existing.
8. Replace missing fasteners as needed.
9. Apply a Low-odor, two part acrylic coating system Solargard 6083 Top and Base Coat at the rate of one gallon per square for the base and one gallon per square for the top.
10. Install new box gutter to replace the existing and supply new down spouts. Down spouts shall be supplied at a minimum distance of 50 feet between downspouts unless otherwise directed on job walk.
11. At the completion of the project contractor shall provide to the College a 12 year Metal Roof Restoration Warranty.
12. Contractor shall include 4 days of inspection by WTI (800-852-4198).

- B. Related Sections include the following:

1. Division 01 Section "Summary" for use of the premises and phasing requirements, and for restrictions on use of the premises due to Owner or tenant occupancy.

## 1.3 MATERIALS OWNERSHIP

- A. Demolished materials shall become Contractor's property and shall be removed from Project site.

## 1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Roofing Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.
- C. Patching: Removal of a portion of existing metal roofing system from deck or removal of selected components and accessories from existing metal roofing system and replacement with similar materials.
- D. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

- E. Existing to Remain: Existing items of construction that are not indicated to be removed.

#### 1.5 PERFORMANCE REQUIREMENTS

- A. General: Provide restorative coating system for metal roofing that remains watertight; does not permit the passage of water; and resists uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. 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.
- C. Flashings: Comply with requirements of Division 7 Sections "Sheet Metal Flashing and Trim" and "Manufactured Roof Specialties." Provide base flashings, perimeter flashings, detail flashings and component materials that comply with requirements and recommendations of the following:
  - 1. NRCA Roofing and Waterproofing Manual (Fifth Edition) for construction details and recommendations.
  - 2. SMACNA Architectural Sheet Metal Manual (Fifth Edition) for construction details.
- D. Energy Performance: Provide roof coating with solar reflectance index not less than 107 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.

#### 1.6 SUBMITTALS

- A. Product Data: For each type of product specified.
  - 1. Indicate CRRC Compliance.
  - 2. Indicate Energy Star compliance.
- B. Photographs or Video Recordings: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, which might be misconstrued as having been damaged by coating operations. Submit before Work begins.
- C. Qualification Data:
  - 1. For Installer.
  - 2. For Roofing Inspector.
- D. Inspection Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

#### 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Approved in writing by manufacturer of roofing coating materials.
- B. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
  - 1. An authorized full-time technical employee of the manufacturer.

- C. **Roofing Coating Preinstallation Conference:** Conduct conference at Project site to comply with requirements in Division 01 Section. Review methods and procedures related to roofing system including, but not limited to, the following:
1. Meet with Owner; roofing coating materials manufacturer's representative; roofing coating Installer including project manager and foreman; and installers whose work interfaces with or affects 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 coating preparation, including metal roofing coating system manufacturer's written instructions.
  3. Review temporary protection requirements for existing roofing system that is to remain uncoated, but primed during installation.
  4. Review gutter installation and down spout placement.
  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 existing conditions that may require notification of Owner before proceeding.

#### 1.8 PROJECT CONDITIONS

- A. Owner assumes no responsibility for condition of areas to be coated.
1. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
  2. Contractor is responsible for conclusions derived from Owner's existing condition documents.
- B. Owner will occupy portions of building immediately below coating area. Conduct 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.
- C. Protect building to be coated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from coating operations.
- D. Relocate any equipment or materials away from the building as needed to access working area.
- E. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- F. **Weather Limitations:** Proceed with coating preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.

#### 1.9 WARRANTY

- A. **Roofing Coating Warranty, General:** Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. **Special Warranty for Roof Coating:** Written warranty in which Manufacturer agrees to repair roof coating installations that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Membrane failures including rupturing, cracking, or puncturing.
    - b. Deterioration of coatings, metals, metal finishes, and other associated materials beyond normal weathering.
  2. **Installation Inspection Requirement:** By Roofing Inspector in accordance with requirements of Part 3 Field Quality Control Article.
  3. **Warranty Period:** 12 years from date of completion of coating work.

**PRODUCTS****2.1 MANUFACTURERS**

- A. **Manufacturers/Products:** Subject to compliance with requirements, provide products of the following manufacturer comparable to the Basis of Design product specified:
1. Tremco, Inc., Beachwood, OH, (800) 562-2728, [www.tremcoroofing.com](http://www.tremcoroofing.com).
  2. Tremco, Inc., Vernon California, 800-422-8989.
  3. Tremco, Darryl Hazelton, 800-852-4198. [dhazelton@tremcoinc.com](mailto:dhazelton@tremcoinc.com)
  4. Substitutions: None allowed.

**2.2 MATERIALS, GENERAL**

- A. **General:** Coating materials recommended by roof coating manufacturer for intended use and compatible with components of existing metal roofing system.

**2.3 MEMBRANE COATING**

- A. **Acrylic Resin Elastomeric Coating System:** Tremco, Solargard 6083 System: Energy Star Certified, elastomeric, two part (Base Coat and Top Coat)single-component acrylic resin roof coating formulated for application to metal roofing, meeting requirements of the CRRC, suitable for application method specified, with the following physical properties:
1. Asbestos Content, EPA/600/R-93/116: None.
  2. Solar Reflectance 0.85 Initial /0.81 Aged
  3. Solar Reflectance Index (SRI) 107 Initial/101 Aged reflectivity..
  4. Volatile Organic Compounds (VOC), maximum,: <50 g/L.
  5. Tensile strength, at 77 deg. F (25 deg. C), minimum, ASTM D 2370: 190 psi (1310 kPa).
  6. Elongation @ 73°F (ASTM D 2370) +390%.
  7. Flexibility @ -15°F (ASTM D 522) Passes 1/2 inch /mandrel bend/after 1000 accelerated/.
  8. Tensile Strength @ 73°F (ASTM D 2370)250 psi
  9. Dry Time (ASTM D 1640) 6 hours to touch/Min. 24 hours to re-coat.
  10. Solids by Weight (ASTM D 1644) greater than 60%
  11. Solids by Volume (ASTM D 2697) greater than 50%ercent.
  12. Color: White.

**2.4 AUXILIARY ROOFING COATING MATERIALS**

- A. **General:** Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and roofing coating system.
- B. **Primer:** Manufacturer's recommended water-based metal primer, Solargard Rust primer WB.
- C. **Seam Reinforcing Mesh:** Permafab Polyester mesh reinforcement.
- D. **Seam Sealer:** Solargard polyurethane Seam Sealer.
- E. **Sealant:** TremSeal D.
- F. **Fasteners:** Factory-coated steel fasteners with neoprene washers meeting corrosion-resistance provisions in FM 4470; designed for fastening metal roofing components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.
- G. **Metal Flashing Sheet:** Provide metal flashing sheet matching type, thickness, finish, and profile of existing metal flashing and trim.

**EXECUTION****3.1 EXAMINATION**

- A. Examine existing roofing substrates, with Installer present, for compliance with requirements and for other conditions affecting application and performance of roof coatings
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
  - 2. Verify compatibility with and suitability of substrates.
  - 3. Verify that metal roofing is free of rust affecting structural integrity of roofing, or other indications of impending metal roof system failure.
  - 4. Application of coatings indicates acceptance of surfaces and conditions.

**3.2 ROOFING COATING PREPARATION**

- A. Membrane Surface Preparation:
  - 1. Remove loose roofing fasteners, and other substrate irregularities from existing metal roofing that would inhibit application of uniform, waterproof coating.
  - 2. Repair metal roofing at locations where irregularities have been removed.
  - 3. Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at minimum 2000 psi. Remove existing coatings if any. Allow to dry thoroughly.
  - 4. Verify that existing substrate is dry before proceeding with application of coating.
  - 5. Secure and raised seam both vertical and horizontal which are raised up over 1/8" with screws with neoprene washers.
- B. **Roof Patching:** Notify Owner each day of extent of any roof patches that may be needed and obtain authorization to proceed.

**3.3 ROOF COATING APPLICATION**

- A. **Primer:** Prime cleaned rusted areas and roof area with metal primer at manufacturer's recommended application rate of 200 square feet per gallon and allowed to dry.
- B. **Metal Roofing Seam Reinforcement Plies:** Coat horizontal and vertical seams with detail course of seam sealer according to manufacturer's written instructions at a minimum 6 inches (150 mm) wide applied at 15 sq. ft. per gallon. Embed Permafab 4" reinforcement fabric over the seam.
- C. **Penetrations and projections:** Seal penetration or projection with detail course of seam sealer according to manufacturer's written instructions at a minimum 6 inches (150 mm) wide applied at 15 sq. ft. per gallon. Embed Permafab 4" reinforcement fabric over the seam.
- D. Reinforce all fastener heads with Solargard Seam Sealer.
- E. **Base Coat:** Once seam reinforcement mastic has adequately cured, apply base coat according to manufacturer's written instructions, by spray application. Apply in one coat application of 1 gal/100 sq. ft. per coat.
- F. **Finish Coat:** Once base coat has adequately cured, apply finish coat according to manufacturer's written instructions, by spray application. Apply in one coat application of 1gal/100 sq. ft. minimum per coat.



3.4 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.
- D. Touch up any areas on the roof or coating which are not acceptable to the manufacturer or owner.

END OF SECTION 07 01 55.03

## ROOF PATCH AND REPAIR

## PART 1 - GENERAL

## 1.1 SUMMARY

## A. This Section includes the following:

1. **Repairs to Building G west end.**
  - a. Reinforce splits in the field of the roof and reinforce any related penetrations and projections as needed.
  - b. Seal designated area with a two plies of Rapid Set polyester and Tremlastic S
  - c. Surface Tremlastic S with Double Duty Aluminum
2. **Repairs to Building D 26-29 Storage.**
  - a. Reinforce defects in the field of the roof as needed.
  - b. Seal designated drain/scupper.
3. **Repairs to Building F over Room 31.**
  - a. Reinforce splits in the field of the roof and reinforce any related penetrations and projections as needed.
  - b. Reinforce designated areas with Tremlastic and Polyester
4. **Repairs to Building Y over room 99.**
  - a. Remove roofing around one drain area and rework with APP Smooth and APP FR.
  - b. Reinforce designated area with Polyester and Tremlastic S, allow to dry and coat repair area with ICE coating.
5. **Repairs to Vo-Tech.**
  - a. Reinforce the base of designated HVAC units with Alpha Guard.
6. Provide an option for two year TremCare warranty on designated repair areas.
7. Provide and include one year contractor warranty on all repair areas.

## B. Related Sections include the following:

1. Division 01 Section "Summary" for use of the premises and phasing requirements, and for restrictions on use of the premises due to Owner or tenant occupancy.

## 1.2 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 for definitions of terms related to roofing work not otherwise defined in this Section.
- B. Cold Applied Built Up Roofing – An asbestos free formulation of asphalt, solvent, thixotropic, mineral stabilizer and reinforcing fibers used as an interply adhesive and flood coat.

## 1.3 PERFORMANCE REQUIREMENTS

- A. General: Install a watertight, built-up roofing and base flashing roofing system with compatible components that will not permit the passage of liquid water and will withstand wind loads, thermally induced movement, and exposure to weather without failure.

**1.4 SUBMITTALS**

- A. **Product Data:** For each type of roofing product specified. Include data substantiating that materials comply with Tremco requirements.

**1.5 QUALITY ASSURANCE**

- A. **Installer Qualifications:** Engage an experienced installer to perform Work of this Section who has specialized in installing roofing similar to that required for this Project; who is approved, authorized, or licensed by the roofing system manufacturer to install manufacturer's product; and who is eligible to receive the standard roofing manufacturer's warranty.
- B. **Fire-Test-Response Characteristics:** Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  - 1. **Exterior Fire-Test Exposure:** Class A; complying with ASTM E 108/UL 790, for application and slopes indicated.
- C. **Preliminary Roofing Conference:** Before starting roof deck construction, conduct conference at Project site. Meet with the same participants and review the same items listed for the pre-installation conference. In addition, review status of submittals and coordination of work related to roof construction. Notify participants at least 5 working days before conference.
- D. **Pre-installation Conference:** Before installing roofing system and or repair, conduct conference at Project site to comply with owners requirements. Notify participants at least 5 working days before conference.
- E. **Job Site Inspection:** Roofing Contractor shall include 2 days of inspection by WTI (800)852-4198 on this project.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Store roofing materials in a dry, warm, well-ventilated, weathertight location according to roofing system manufacturer's written instructions. Store rolls of felt and other sheet materials on end on pallets or other raised surfaces. Do not double-stack rolls.
  - 1. Handle and store roofing materials and place equipment in a manner to avoid significant or permanent damage to deck or structural supporting members.
- B. Do not leave unused felts and other sheet materials on the roof overnight or when roofing work is not in progress unless protected from weather and moisture and unless maintained at a temperature exceeding 50 deg F (10 deg C).
- C. Deliver and store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.
- D. Protect roofing insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturers written instructions for handling, storing, and protecting during installation.

## 1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed according to manufacturers' written instructions and warranty requirements.

## 1.8 WARRANTY

- A. General Warranty: The warranties specified in this specification shall only cover the areas directly re-roofed as part of this project and no other.
- B. Contractor shall provide owner with a one year warranty on repair area only.
- C. Provide College with alternate warranty for repair areas as follows:

Special Project Warranty: Submit a Four (2) year TremCare warranty per specification.

1. Maintenance Service Agreement:
  - a. Roof Management and Maintenance Specification: The following services will be Provided to the building owner on an annual basis, for a period of two (2) years, utilizing employees under the direct supervision of Manufacturer.
  - b. Roof Inspection Report: Provide report of roof conditions based upon roof inspections.
  - c. Storm Reports, Monitoring and Follow-up: Roof inspection at building owner request of roof areas after major storm activity.
  - d. Annual Roof Top Housekeeping:
  - e. Inspect roof membrane, drains, gutters, and scuppers of debris.
  - f. Remove, bag and properly dispose of all debris from the roof membrane, drains, gutters and scuppers.
2. Annual Roof Preventative Maintenance to include the following:
  - a. Metal Edge Flashing Components: Tears, splits, and breaks in the membrane flashings will be repaired with appropriate repair mastics and membranes. Open flashing strip-ins will be repaired with appropriate mastics and membranes. Metal edge cleats and clips will be re-secured. Exposed fasteners will be re-sealed.
  - b. Parapet Wall and Counterflashing Systems: Tears, splits and breaks in the flashings will be repaired with the appropriate repair mastics and membranes. Breaks, tears and splits in flashing strip-ins will be repaired with appropriate repair mastics and membranes. Coat all exposed reinforcing membranes with approved mastics. Exposed fasteners will be re-sealed. Void in termination bars, counterflashings and parapet caps will be cleaned and re-sealed. Re-secure termination bars and counterflashings. Check and re-secure loose metal coping caps to cleats.
  - c. Equipment/Projection Flashing Components: Tears, splits and breaks in the flashings will be repaired with appropriate mastics and membranes. Open or split flashing strip-ins will be repaired with appropriate mastic and membrane. Unsecured roof top equipment will be secured. Exposed fasteners will be tightened and re-sealed. Termination bars and counterflashings will be sealed. All pitch pans will be refilled and topped off. Metal projections (hoods and clamps) will be checked and re-sealed.
  - d. Roof Membrane Preventative Maintenance and Repair: Tears, splits and breaks in the roof membrane will be repaired with the appropriate repair mastic and membranes. All membrane repairs will follow the Manufacturer's written repair and maintenance guide lines. Dress up reflective coatings on flashings. Coat all exposed reinforcing membranes with approved mastics.
  - e. Drains, Gutters and Scuppers: Check and re-secure drain bolts and clamping rings. Advise owner of missing drain dome strainers. Check strip-ins around drain leads, coat with approved mastic. Check gutter straps, joints and strip-ins. Check inside and exterior of scuppers for open solder or caulking seals.

3. Leak response responsibilities of the Manufacturer to Building Owner:
  - a. In the event that a leak should occur:
    - (1) Provide toll free 800 number for Owner to call in leak report. Number will be monitored twenty-four (24) hours a day, 365 days a year.
    - (2) Provide a response to Owner on all leak calls within twenty-four (24) hours of when call is made.
    - (3) Provide a repair crew, at the building site, within two (2) business days of the call.
    - (4) Provide follow-up inspection to ensure that repairs were made properly.  
Monitor all leak events and response and provide a written quarterly summary if leaks have occurred. Deliver to Owner at the end of each quarter when leaks have occurred.

## PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following: Tremco Inc.
- B. Tremco Representative: Darryl Hazelton 800-852-4198

### 2.2 MATERIALS

- A. Base Sheet: POWERply APP Base Sheet: ASTM D 6509, fiberglass reinforced, APP-modified asphalt sheet, suitable for application method specified, with the following properties:
  1. Tensile Strength at 0 deg. F (-18 deg. C), minimum, ASTM D 6509: machine direction, 100 lbf/in (17.5 kN/m); cross machine direction, 100 lbf/in (17.5 kN/m).
  2. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D 6509: machine direction, 90 lbf (400 N); cross machine direction, 90 lbf (400 N).
  3. Elongation at 0 deg. F (-18 deg. C), minimum, ASTM D 6509: machine direction, 3.5 percent; cross machine direction, 3.5 percent.
  4. Low Temperature Flexibility, minimum, ASTM D 6509: 14 deg. F (-10 deg. C).
  5. Thickness, minimum, ASTM D 6509: 0.080 inch (2.0 mm).
- B. Roofing Membrane Sheet: Tremco, POWERply APP FR: ASTM D 6222, polyester reinforced, APP-modified asphalt sheet, suitable for application method specified, with the following properties:
  1. Tensile Strength at 0 deg. F, minimum, ASTM D 6222: machine direction, 180 lbf/in cross machine direction, 120 lbf/in.
  2. Tear Strength at 77 deg. F, minimum, ASTM D 6222: machine direction, 170 lbf; cross machine direction, 140 lbf.
  3. Elongation at 0 deg. F, minimum, ASTM D 6222: machine direction, 40 percent; cross machine direction, 40 percent.
  4. Low Temperature Flexibility, minimum, ASTM D 6222: 10 deg. F.
  5. Thickness, minimum, ASTM D 6222: 0.160 inch.

Glass-Fiber Fabric: Woven glass reinforcement complying with ASTM D 1668, Type III: BURmesh by Tremco.

### 2.3 ASPHALT MATERIALS

- A. Asphalt Primer. Tremprime LV.

### 2.4 AUXILIARY MEMBRANE MATERIALS

- A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with built-up roofing.
- B. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application
  - 1. ELS by Tremco
- C. Elastomeric Mastic
  - 1. Polyroof LV by Tremco.
- D. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer for intended use.

## 2.5 COATING MATERIALS

- A. Roof Coating: Acrylic coating, a High Build, white; formulated for use on bituminous roof surfaces.
  - 1. ICE Roof Coating by Tremco.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which roofing will be applied, with Installer present, for compliance with requirements.
- B. Verify that roof openings and penetrations are in place and set and braced and that roof drains are properly clamped into position.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean around area where new penetration has occurred. Remove all materials that will prevent proper adhesion of new materials.
- B. Cut existing membrane in manner to provide clean even edges. Take necessary precautions to prevent tearing and lifting of membrane to remain in place.
- C. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- D. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

### 3.3 ROOF MEMBRANE INSTALLATION AT DRAIN

- A. Install APP Base Sheet according to roofing system manufacturer's written instructions, starting at low point of roofing system. Shingle side laps of ply felts uniformly to achieve required number of membrane plies throughout. Shingle in direction to shed water.

1. Remove drain ring.
2. Remove roofing from around the drain.
3. Install base sheet over the deck
4. Application: Torch apply APP base and FR sheet as required by roofing system manufacturer, to form a uniform, defect free membrane.

### 3.4 COATING INSTALLATION

- A. Apply coatings to the field and base flashings according to manufacturer's written instructions, by spray, roller, or other suitable application method. Use coating material to dress flashings, penetrations and projections as needed. **Minimum 45 dry mil thickness.**
- B. Typical application in the field; two gallons per square per coat; two coats minimum. For vertical flashings the coverage rate will be a little less but two coats are required. Finished rate in the field shall be 4 gallons per square.
- C. Prior to installation of White elastomeric coating, prime with Tremco SP primer at the rate of 300 sq. ft per gallon.

### 3.5 MEMBRANE REPAIRS

- A. Blisters:
  1. Cut away delaminated felts until firmly laminated felts exist along every area to be repaired.
  2. Remove embedded gravel, debris, and dust from area extending at least 8 inches (200 mm) beyond perimeter of depressed area. Square corners. Dry.
  3. Fill depression with alternating layers of asphalt mastic and asphalt ply sheet; match number of plies removed.
  4. Cover layers of mastic/felt with two (2) layers of reinforcing mesh (one layer of 6-inch (150 mm) wide strips and one layer of 12-inch (305 mm) wide strips embedded between trowel applications of asphalt mastic. Extend repair area at least 6 inches (150 mm) beyond filled depression. Overlap reinforcing mesh at least 2 inches (50 mm). Cover mesh completely with mastic.
- B. Buckles:
  1. Cut away buckles greater than 1/2 inch (13 mm) in height and buckles, which have become brittle. Low and flexible buckles to remain in place provided they do not impair surface drainage.
  2. Remove loose gravel and dust from surfaces within 6 inches (150 mm) along each side of buckle/split.
  3. Reinforce and seal buckles/splits by embedding two (2) plies reinforcing mesh between continuous trowel applications of asphalt mastic; cover membrane completely.
- C. Unadhered felt edges or fishmouths:
  1. Unadhered ply sheet within 2 inches (50 mm) or less from exposed edges:
    - a. Cut away unadhered felts and remove dust and debris; dry.
    - b. Apply asphalt mastic to seal.
- D. Unadhered ply sheet more than 2 inches (50 mm) in from the ply edge:
  1. Cut away unbonded ply sheets until firmly laminated sheets are reached. Clean; dry.
  2. Reinforce and seal prepared area with reinforcing mesh embedded between alternate continuous applications of asphalt mastic.
- E. Splits:
  1. Remove embedded gravel, debris, and dust from area extending at least 8 inches (203 mm) beyond perimeter of split. Assure that area is dry.

2. Prime area and allow to dry tack free.
3. Trowel a 1/8 inch (3.2 mm) application of asphalt mastic over splits, 6 inches (150 mm) wide.
4. Embed mesh into mastic and dry trowel.
5. Apply second application of asphalt mastic to mesh. Cover mesh completely.

Note: One major splits or large splits; nail split 6" staggered and install slip sheet prior to polyester and emulsion.

F. At wall flashings:

1. Provide five-course seal/reinforcement to primed area:
  - a. Install two (2) plies flashing reinforcement. Extend bottom reinforcement course from top edge of flashing to 4 inches (100 mm) onto existing roofing; extend top reinforcement course from top edge of flashing to 2 inches (50 mm) beyond edge of bottom ply. Lap ends 4 inches (100 mm).
  - b. Set both plies and laps in alternating courses of asphalt mastic applied in continuous 1/16-inch (1.6 mm) thick applications. Ensure complete bond and continuity without wrinkles or voids.

G. At plumbing vents:

1. Trowel flashing adhesive to roof surface 15 inches (380 mm) wide, 1/16 inch (1.6 mm) thick. Extend flashing adhesive up plumbing vent 2 inches (50 mm).
2. Seal base into new roofing with reinforcing membrane embedded between alternate courses of asphalt mastic. Replace cracked lead.

H. At base of HVAC unit:

1. Prime base on unit with Alpha Guard WB.
2. Apply Alpha Guard Base Coat
3. Reinforce base coat with polyester.
4. Apply Alpha Guard Top Coat.

I. Metal Flange Repair:

1. Remove dirt and clean surface to a point onto the roof membrane 8 inches (203 mm) past existing flashing. Inspect metal flange, remove loose fasteners and re-secure with longer nail or screw. Remove defective metal and replace with material of like quality and dimension.
2. Prime metal flange and allow to dry tack free.
3. Cut out any loose or protruding felts. Apply layer of asphalt mastic 4 inches (100 mm) past existing flashing, center 6 inch (150 mm) wide mesh reinforcing over metal flange and roof membrane and embed into mastic, dry trowel tight and wrinkle free.
4. Cover the weave of membrane with second application of asphalt mastic.

J. Field Reinforcement with Tremlastic and Polyester:

1. Remove dirt and clean surface.
2. Address blisters or damaged material.
3. Prime entire area with Tremprime WB at the rate of 200 sq. ft. per gallon.
4. Install emulsion at 4 gallons per sq. then install polyester into wet emulsion. Allow to dry
5. Install another layer of emulsion and polyester and coat with Double Duty Aluminum.

### 3.6 SURFACING APPLICATION

A. Surfacing for field repairs

1. On granulated surfaces Broadcast #11 white granules into all mastic repairs.
2. On Aluminum coated roofs dress repairs with aluminum.



**3.7 FIELD QUALITY CONTROL**

- A. Owner will engage, at their option, an independent testing and inspecting agency to perform field inspections and quality-assurance tests.
  - 1. Testing agency will prepare reports stating whether inspected and tested Work complies with or deviates from requirements.
  - 2. Testing agency personnel shall be versed and have minimum of 5 years experience in the type of roofing being inspected.
  - 3. The Manufacturer and the Testing Agency shall agree in writing to acknowledge and accept the comments of the other agency.
- B. Correct deficiencies in or remove and replace roof membrane that inspections and test reports indicate does not comply with specified requirements.
  - 1. Repair roof membrane that does not comply with specified requirements by re-adhering test specimens back in place and by applying additional plies, equal to the original number of plies specified, over test specimens according to roofing system manufacturer's written instructions.
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing repairs on completion and submit report to Owner.
  - 1. Notify Architect and Owner 48 hours in advance of the date and time of inspection.

**3.8 PROTECTING AND CLEANING**

- A. Protect built-up roofing membrane from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove built-up roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair base flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION