PART 1 - GENERAL

1.1 SCOPE OF WORK: Performance specification based on Garland Energizer® K Plus FR liquid waterproofing membrane restoration system for restoration smooth or mineral-surfaced SBS, APP, and built-up roof systems. Work required under this Section consists of application of fluid applied waterproofing and related items necessary to complete all work, including: cleaning, inspections and tests, repairs, roof area replacement, flashing, reinforcement, and all other work necessary to ensure a secure fluid applied restoration system.

 1.2 RELATED SECTIONS

 A. Section 00 65 36.01 Contractor’s 2 Year Roofing Warranty

 B. Section 00 65 36.04 Contractor’s 5 Year Guarantee for Flashing, Sheet Metal & Accessories

1.3 REFERENCES

1. ASTM C 1250 – Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.
2. ASTM D 93 – Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
3. ASTM D 412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
4. ASTM D 1475 – Standard Test Method for Density of Liquid Coatings and Related Products.
5. ASTM D 2369 – Standard Test for Volatile Content of Coatings
6. ASTM D 3960 – Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings

1.4 SUBMITTALS

1. [Product Data](http://www.arcat.com/arcatcos/cos38/arc38425.cfm): Provide [Product Data](http://www.arcat.com/arcatcos/cos38/arc38425.cfm) sheets for each type of product indicated in this section.

1. Shop Drawings: Provide manufacturers standard details and approved shop drawings for the system specified.
2. Certificate: Certification that products used meet or exceed specified requirements.
3. Manufacturer’s Installation Instructions: Provide all procedures and manufacturer’s instructions for installation of the complete roofing system.
4. Warranty: Submit completed manufacturer’s warranty forms and documents in the Owner’s name registered with the manufacturer.
5. Project Closeout: Provide all project closeout documents required by PCSB contract, Project design documents, and Division 01.

1.5 QUALITY ASSURANCE

1. Manufacturer Qualifications: The manufacturer shall provide a roofing system that meets or exceeds the criteria listed in this section.
2. Installation Contractor Minimum Qualifications: Installer shall be certified by the manufacturer as a fully qualified and licensed installation Contractor.
3. Source Limitations: Components listed shall be provided by a single manufacturer or approved by the primary roofing manufacturer.

1.6 PRE-INSTALLATION CONFERENCE

1. Prior to the notice to proceed with the roofing system installation and associated work, conduct a meeting at the project site with the Installation Contractor, Architect, Owner, Manufacturer’s Representative, Facility Administrator, and any other persons directly involved with the performance of the work. The Installation Contractor shall record conference discussions to include decisions, agreements, and open issues and furnish copies of recorded discussions to each attending party. The primary purpose of the meeting is to:
	1. Review foreseeable methods and procedures related to roofing work.
	2. Tour representative areas of roofing substrates to inspect and discuss conditions of substrate, penetrations and other preparatory work to be performed.
	3. Review roofing system requirements specifications, Project Design documents and the Contract documents.
	4. Review required all required submittals.
	5. Review and finalize the construction schedule related to roofing work, and verify availability of materials, installer's personnel, equipment and facilities needed to consistently make progress and avoid delays.
	6. Review required inspection(s), testing, and certifying, and material usage accounting procedures.
	7. Review forecasted weather conditions.
	8. Establish procedures for coping with unfavorable conditions, including the possibility of temporary roofing work.

1.7 REGULATORY REQUIREMENTS

1. Work shall be performed in a safe, professional manner, conforming to federal, state and local codes.
2. UL Listing: Provide roofing system component materials which have been evaluated by Underwriters Laboratories for flame-spread, and are listed in the "Underwriters Laboratory Roofing Materials and Systems Directory" for Class A construction over existing metal or other non-combustible roofing (Flame-spread shall pass ASTM E-108 and/or UL 790). Provide roof covering materials bearing UL approval marking on the container. This indicates that the material has been subjected to UL's examination, test procedures and follow-up inspection service.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Store and handle materials in a manner that will ensure there is no possibility of contamination.
2. Store in a dry, well ventilated, weather tight location in accordance with manufacturer’s recommendations and in a location approved by the Owner/Facility administrator.
3. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with regulatory requirements.

1.9 WARRANTY

1. Applicator's warranty: Written warranty, signed by Contractor and an officer of roofing subcontractor's firm, agreeing to maintain the work of this Section, and its associated flashings and accessories, free from blistering and the penetration of water for a period of 2 years following the Date of Substantial Completion.
2. Manufacturer's warranty: Provide 10-year renewable manufacturer's warranty. Full systems warranty to include flashing endorsement signed by an officer of coating manufacturer's company.
3. Also see Division 7 and Section 01 78 36 Warranty requirements.

PART 2 - MATERIALS

2.1 APPROVED MANUFACTURER and PRODUCT: Performance specification based on Garland Energizer® K Plus FR liquid waterproofing membrane restoration system.

2.2 Mirafi-180N mesh or equal, temporary filter for roof granules at all roof drains and scuppers

PART 3 - EXECUTION

1. This sections includes Examination, Preparation and Application
2. Environmental Protection
3. Installation of Mirafi-180N mesh shall be installed at all roof drains and scuppers prior to any work starting on roofs.
	1. Mirafi-180N mesh shall be maintained and cleaned for the duration of work to prevent blockage of water flow.
	2. Mirafi-180N mesh shall be removed the day of Substantial Completion Inspection.
4. Exterior fresh air intake fans shall be off when installing liquid restoration products or primers.

1. Remove all loose dirt and debris from the roof surface by broom or blower. Seal all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.
2. Wet areas identified by IR scan shall be cut out and replaced. Remove existing roof system down to deck. Match existing insulations. Cover board shall be ½” Securerock board. Insulation shall be mechanically fastened with deck screws and plates or installed in adhesive.
3. New roof area replacement shall be covered with a 2-ply, torch-applied modified bitumen membrane tied into the existing roof system.
4. Reflash existing roof drains (if applicable). Water test all drains before and after the project.
5. Repair blisters. Cut open, heat with torch. Repair with cold process adhesive. Install new torch-applied modified bitumen membrane target.
6. FLASHING REPLACEMENT: Existing perimeter and curb flashing. The foil-faced surface of the existing flashing membrane shall be heated with torch and peel foil off. Prime surface area with Garla-Prime asphalt primer at a rate of ¾ gal per 100 sq.ft. Apply new foil-faced flashing membrane as specified over existing. Pin the top of the new flashing with a flat pressure bar and approved fasteners minimum 8 inches o.c. Install a new metal skirt flashing (0.050 mil finish aluminum) up and under the inside of the existing copings and curbs.
7. Prime roof surface with GARLA-PRIME asphalt primer at a rate of ¾ to 1.0 gallon per 100 sq.ft. Let dry until tacky (30 minutes minimum). All primers must be coated within 24 hours of application. Re-prime if more time passes after priming.
8. REINFORCEMENT: Install full fabric reinforcement/topcoat entire roof surface.
9. Run fabric parallel to the low edge using a shingling method up the slope with minimum 4 inch fabric laps.
10. After positioning reinforcement to roll out, apply Energizer about 40 inches wide to surface where reinforcement ply is to be applied at 3.0-3.5 gallons per 100 SF.
11. Do not apply too far ahead of fabric so coating does not dry before fabric can be embedded.
12. Immediately roll a 36 inch width of reinforcement into wet coating.
13. Use care to lay the fabric tight to the roof surface without air pockets, wrinkles, fish mouths, etc.
14. After embedding reinforcement into the coating, apply additional coating to completely saturate the fabric at 3.0-3.5 gallons per 100 SF.
15. Embed polyester membrane firmly into the Energizer. Work membrane into Energizer.

SURFACING:

1. Within 5 minutes, broadcast new 3M roofing granules into the Energizer as you apply the coating at a rate of 60 lbs. per 100 sq.ft. Recommend using sand blasting equipment spraying the granules evenly.
2. Once roof is cured enough to walk on (minimum 4 or 5 days), return to sweep loose granules from roof surface.

**END OF SECTION**