SECTION 07 56 00.10 – FLUID-APPLIED ROOFING

PART 1 - GENERAL

1.1 SUMMARY - SCOPE OF WORK

A. This Section includes the following:
1. Base Bid Roof Areas includes Roof Areas 1 & 2.
2. Power wash existing roofs.
3. Remove identified wet areas down to the metal deck, install insulation to match existing roof height and adhere a composite ply base sheet in solvent free adhesive.
4. Prime smooth asphaltic surfaces with primer.
5. Apply liquid applied aliphatic polyurethane base coat to roof and walls and penetrations at 64 mils per gallon.
6. Embed reinforcement mat into base coat per manufacturer's recommendation.
7. Apply liquid applied aliphatic polyurethane top coat to roof, walls and penetrations at 32 mils per gallon over reinforcement mat.
8. If applying directly to concrete, prime concrete with 100% solids, two component epoxy primer.
9. At vertical application apply base coat at 2 gallons per square 32 mils for the base coat and top coat with reinforcement mat embedded between each.
10. Contractors option to use fiberglass or polyester reinforcement mat.
11. At parapet walls, install fluid applied flashings up vertical surface to bottom of metal coping and install a skirt metal counterflashing that will extend down over all fluid applied flashings.

B. At Alternate Bid Roof Areas 3& 4:
1. Power wash existing roofs.
2. Prime smooth asphaltic surfaces with primer.
3. Apply liquid applied aliphatic polyurethane base coat to roof at 64 mils per gallon.
4. Embed reinforcement mat into base coat per manufacturer's recommendation.
5. Apply liquid applied aliphatic polyurethane top coat to roof, walls and penetrations at 32 mils per gallon over reinforcement mat.
6. At vertical application apply base coat at 2 gallons per square for the base coat and top coat with reinforcement mat embedded between each.
7. Contractors option to use fiberglass or polyester reinforcement mat.
8. Install protective roof tread under satellite equipment.
9. At parapet walls, install fluid applied flashings up vertical surface to bottom of metal coping and install a skirt metal counterflashing that will extend down over all fluid applied flashings.

1.2 MATERIALS OWNERSHIP

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

1.3 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. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

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

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. 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. **Roofing System Design:** Modify roofing system as required so that fluid-applied roofing system will perform identically to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.

D. 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:

F. NRCA Roofing and Waterproofing Manual (Fifth Edition) for construction details and recommendations.

G. SMACNA Architectural Sheet Metal Manual (Fifth Edition) for construction details.

1.5 QUALITY ASSURANCE

A Contractor shall:

1. Be experienced in fluid applied roofing over modified bitumen roof systems. 5 years minimum.
2. Be acceptable by City of Joplin.
3. Contractor will provide 100% payment and performance bond for project.
4. Abide by latest Missouri Prevailing Wage Law for Jasper County.
5. Shall be licensed by the City of Joplin and all personnel involved in the project shall be certified in their trade in accordance with the City of Joplin, Missouri requirements.

B. All employees employed on project must have OSHA 10 hour certification class as per State Law House Bill 1549.

C. E Verify - Contractors bidding on a contract for services in excess of $5,000 to provide a sworn affidavit and supporting documentation that affirms the sub-contractor's participation in a federal work authorization program, such as E-Verify, and that the bidder will not employ illegal workers for the project.

D. WAGE RATE AFFIDAVIT

1. The Contractor shall submit with his final application for payment the enclosed wage rate affidavit stating that he has fully complied with the prevailing wage rates as set forth in the Department of Labor and Industrial Relations Prevailing Wage Section 290.290, which states:

"The Contractor's payroll records, contents - affidavit of compliance required - signs on motor vehicles and equipment, requirements - temporary stationary sign, when - exception.

(1) The Contractor and each Subcontractor engaged in any construction of public works shall keep full and accurate records clearly indicating the names, occupations and crafts of every workman employed by them in connection with the public work together with an accurate record of the number of hours worked by each workman and the actual wages paid therefore. The payroll records required to be so kept shall be open to inspection by any authorized representative of the contracting public body or of the department at any reasonable time and as often as may be necessary and such records shall not be destroyed or removed from the state for the period of one year following the completion of the public work in connection with which the records are made.

(2) Each Contractor and Subcontractor shall file with the contracting public body upon completion of the public work and prior to final payment therefore an affidavit stating that he had fully complied with the provisions and requirements of this chapter, and no public body shall be authorized to make final payment until such affidavit is filed therewith in proper form and order."

(3) Each Contractor and Subcontractor engaged in any construction of public works shall have its name, acceptable abbreviation or recognizable logo and the name of the city and state of the mailing address of the principal office of the company, on each motor vehicle and motorized self-propelled piece of equipment which is used in connection with such public works project during the time the Contractor or Subcontractor is engaged on such project. The sign shall be legible from a distance of twenty feet but the size of the lettering need not be larger than two inches. In cases where equipment is leased or where affixing a legible sign to the

equipment is impractical, the Contractor may place a temporary stationary sign, with the information required pursuant to this subsection, at the main entrance of the construction project in place of affixing the required information on the equipment so long as such sign is not in violation of any state or federal statute, rule or regulation. Motor vehicles which are required to have similar information affixed thereto pursuant to requirements of a regulatory agency of the state or federal government are exempt from the provision so this subsection.

(4) The provision of subsection 3 of this section shall not apply to construction of public works for which the contract awarded is in the amount of two hundred fifty thousand dollars or less.

2.. All successful bid Contractors shall submit certified copies of their payrolls to the contracting public body to show compliance with the prevailing wage law. Payrolls shall be submitted monthly.

3. Not less than the prevailing hourly rate of wages specified shall be paid to all workers performing work under the contract. Section 290.250. employed in order to execute the contract and employed on the construction of the public works is kept posted in a prominent and easily accessible place at the site thereof by each Contractor and Subcontractor engaged in the public works project under the provisions of this law and such notice shall remain posted during the full time that any worker shall be employed on the public works. Section 290.265.

4. The Sub-Contractor shall forfeit as a penalty to the state, county, city and county, city, town, district, or other political sub-division on whose behalf the contract is made or awarded, ten dollars for each workman employed, for each calendar day, or portion thereof, such workman is paid less than the said stipulated rates for any work done under said contract, by him or by any Subcontractor under him. Section 290.250.

E. NONDISCRIMINATION IN EMPLOYMENT

1. The Contractor and his Subcontractors will not discriminate based on affected group status unless with respect to sex, age, or handicapped status such restrictions relate to the bona fide occupational qualifications. Specifically, the Contractor and his Subcontractors shall not discriminate:

(1) Against recipients of service on the basis of race, color, religion, national origin, sex, handicap or age.

(2) Against any employee or applicant for employment on the basis of race, color, religion, national origin, sex or otherwise qualified handicapped status.

(3) Against any applicant for employment or employee on the basis of age, where such applicant or em ployee is between ages 40 and 70 and where such Contractor employees at least 20 persons.

(4) Against any applicant for employment or employee on the basis of that person's status as a disabled or Vietnam-era veteran.

2.. The Contractor and Subcontractors will take affirmative action to insure applicants are employed and employees are treated during employment without regard to the above considerations. Such action shall include, but not be limited to, the following: employment, upgrading, demotion and transfer; recruitment advertising; and selection for training, including apprenticeship. The Contractor and Subcontractor will give written notice of their commitments under this clause to any labor union with which they have bargaining or other agreements.

3. Facilities provided for employees will be provided in such a manner that segregation on the basis of race, color, religion, or natural origin cannot result.

4. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, age, sex or national origin.

5. The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of rules, regulations and relevant orders of the Secretary of Labor, and shall also comply with the Missouri Fair Employment and Public Accommodation Practices Act, Chapter 213 R.S.Mo., any applicable provisions of the Americans with Disabilities Act of 1990, Titles VI and VII of the Civil Rights Act of 1964, all incorporated herein by reference, and will hold harmless City of Joplin from any violation or claimed violation of law, ordinance or regulation arising from this Agreement.

6. The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by an appropriate agency of the Federal government and by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

7. Each prime Contractor and Subcontractor shall file annually, on or before the 31st day of March, complete and accurate reports on Standard Form 100 (EEO-1) promulgated jointly by the Office of Federal Contract Compliance Programs, the Equal Employment Opportunity Commission and Plans for Progress or such form as may hereafter by promulgated in its place if such prime Contractor or Subcontractor (I) is not

exempt from the provisions of the regulations in accordance with 60-1.5; (ii) has 50 or more employees; (iii) is a prime Contractor or first tier Subcontractor; and (iv) has a contract, subcontract or purchase order amounting to $50,000 or more or serves as a depository of Government funds in any amount, or is a financial institution
which is an issuing and paying agent for U.S. savings bonds and savings notes: Provided, that any Subcontractor below the first tier which performs construction work at the site of construction shall be required to file such a report if it meets requirements of paragraphs (I), (ii), and (iv) of this section.

F. OSHA Program Requirements

1. Contractor shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for its onsite employees, which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program. All employees are required to complete the program within 60 days of beginning work on such construction projects. Any employee found on work site without documentation of the successful completion of the required training shall be afforded 20 days to produce such documentation before being subject to removal from the project.
(2) The contractor shall forfeit as a penalty the sum of two thousand five hundred dollars ($2,500.00) plus one hundred dollars ($100.00) for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training. Said amounts shall be withheld from all sums and amounts due under this provision when making payments to the Contractor.
(3) This provision is subject to, and Contractor and Subcontractor shall comply with all requirements of Section 292.675 RSMo.

1.6. SAFETY

A. Safety requirements:

1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
2. All contractor employees must all have passed the OSHA 10 Hour safety training.
3. Contractor shall follow Owner safety programs.
4. Comply with federal, state, local and Owner fire and safety requirements.
5. Notify Jeff Tennis with City of Joplin whenever work is expected to be hazardous to Owner, employees, and/or operators.
6. A crewman with two-way communication (i.e., radio, mobile phone) shall be maintained by the contractor as a floor area guard whenever tear-off work is being conducted and when roof decking is being repaired or replaced. Isle ways shall have traffic cones and safety tape put up to warn and/or divert personnel from walking beneath areas under construction. Floor guard shall be maintained until base ply is completely installed.
7. The contractor, whenever power tools, roofing kettles, fuels, solvents, torches, and open flames are being used shall maintain fire extinguishers within easy access.
8. Roofing contractor is required to have an OSHA approved fall protection plan in place prior to the start of work. The roofing contractor shall include in his proposal all safety railing and barricades to protect his crews. The roofing contractor shall present a safety plan prior to the pre-construction meeting. All fall protection shall conform to state and federal regulations as outlined in OSHA CODE OF FEDERAL REGULATION 29 PART 1926.500 SUB PART M. The awarded roofing contrac tor shall submit a safety plan to the owner containing to each item listed below as it pertains to the specific project.

B. Fall Protection: Fall protection is required whenever subcontractor s are working on a surface that has an unprotected side or edge that is six (6) feet or more above a lower level. An unprotected edge is one that has a parapet wall that is less than 39 inches in height. The slope of the roof dictates which fall protection system or systems may be used.

1. Low Slope Roofs

a. (Slope is less than or equal to 4 in 12.) On low slope roofs, employees shall be protected from fall ing by guardrail systems, personal fall arrest systems, or a combination of warning line system and

guardrail system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet or less in width, the use of a safety monitoring system alone is permitted.

2. Warning Line System

a. When mechanical equipment (mechanical equipment meaning all motor or human-propelled, wheeled equipment used for roofing work except wheelbarrows and mop carts) is not being used, the warning line shall be erected no less than six (6) feet from the roof edge.

b. When mechanical equipment is being used, the warning line shall be erected not less than six (6) feet from the roof edge that is parallel to the direction of mechanical equipment operation and not less than ten (10) feet from the roof edge, perpendicular to the direction of the mechanical equipment operation.

c. Stanchions shall be set not further than 12 feet apart.

d. Warning lines shall be a height of 39 inches at the highest point and 34 inches at the lowest point, including sag. They shall be flagged at not more than six (6) foot intervals with high visibility materal.

e. All employees working outside the warning line and within six (6) feet of the roof edge must wear a full safety harness with the "0" ring located in the rear. A six (6) foot shock-absorbing lanyard with rollout protection also must be used. This lanyard is to be located between the lifeline and the harness. In cases where work outside the warning line is to be performed, a Safety Monitoring System or an approved OSHA fall protection system may be used. (See section below)

C. Safety Monitoring System

1. A documented competent person monitors the safety of all employees on a roofing or sheet metal crew and warns them when it appears to the monitor that they are unaware of a hazard or are acting in an unsafe manner. The competent person must be on the same roof as, and within visual sighting distance of, the employees and must be close enough to verbally communicate with the employees.
2. Only used on low slope roofs that are 50 feet or less in width if no other fall prevention system is installed. Can be used on low slope roofs of any width if combined with a warning line system.
3. No mechanical equipment shall be used with this system.
4. Parapet Wall Clamp-On Guardrail System
   a. Used on roofs where the parapet wall is less than 39 inches.
   b. Clamp-on posts must be spaced eight (8) feet or less apart.
   c. Top rail positions 42 inch plus or minus 3 inches high.
   d. Mid-rail between the top rail and top of the parapet wall at 21 inches.
   e. If a section of the railing has to be removed to perform work, lifelines, and safety harnesses with six (6) foot lanyards must be used while working in the unprotected area.
   f. If 1/4 inch steel cable is used at the top and mid-rail, the top cable must be flagged at no more than six (6) foot intervals with a highly visible material.

D. Guardrail Systems

1. Top edge of top rail shall be 42 inches plus or minus 3 inches above the working surface.
2. Mid-rails are required if there is no wall or parapet wall at least 21 inches higher. When used, mid-rails shall be installed at a height midway between the top edge of the guardrail and the working level.
3. When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.
4. When guardrail systems are used at holes or skylights, they shall be erected on all unprotected sides or edges of the hole.
5. When guardrail systems are used around holes used for ladder access, they shall be provided with a gate or be so offset that a person cannot walk directly into the hole.
6. Manila, plastic or synthetic rope used for top rails or mid-rails shall be inspected as frequently as necessary to ensure that it continues to meet OSHA strength requirements.

E. Personal Fall Arrest System

1. Only full body harnesses with either shock-absorbing lanyard or lifelines, or a combination there of, shall be used when required. All snap hooks shall be of the locking variety.
2. Personal fall arrest systems shall be rigged such that an employee can neither free-fall more than

six (6) feet or contact any lower level.
3. Self-retracting lifelines shall automatically limit free-fall distance to two feet or less.

F. **Roofing Pre-installation Conference**: Conduct conference at Project site to comply with require ments in specification. Review methods and procedures related to roofing system including, but not limited to, the following:
1. Meet with Owner; roofing materials manufacturer's representative; roofing Installer including project manager and foreman; and installers whose work interfaces with or affects coating include ing installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
2. Review methods and procedures related to roof preparation[, including membrane roofing system manufacturer's written instructions.
3. Review roof drainage during each stage of roofing and review roof drain plugging and plug remov al procedures.
4. Review and finalize construction schedule, and verify availability of materials, Installer's personnel equipment, and facilities needed to make progress and avoid delays.
5. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condi tion of other construction that will affect roofing.
6. Review existing conditions that may require notification of Owner before proceeding.

1.7 PROJECT CONDITIONS

A. Protect building to roofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from coating operations.

B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

C. Weather Limitations: Proceed with roofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.

D. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Project Manager. Hazardous materials will be removed by Owner under a separate contract.

1.8 WARRANTY

A. 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: Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of fluid-applied roofing that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories and other components of fluid-applied roofing.
2. Warranty Period: 20 years from date of Substantial Completion.

C. Installer's Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section and related Sections indicated above, including all components of fluid-applied roofing such as membrane, base flashing, and accessories:
1. Warranty Period: **Two** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.6 FLUID-APPLIED ROOFING MEMBRANE

A. Polyurethane Elastomeric Fluid-Applied System: ASTM D 7311, elastomeric, two-coat single-component moisture triggered polyurethane fluid-applied roofing formulated for application to modified bitumen roof system, with the following physical properties:

1. Aliphatic Urethane Base Coat : Basis of Design: Tremco Alphaguard MT Base Coat
   a. Asbestos Content, EPA/600/R-93/116: None.
   b. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: ≤35 g/L.
   c. Dynamic Puncture Resistance, ASTM D 7311: 714 ft. lbs.
   d. Static Puncture Resistance, ASTM D 7311: 75 lbs.
   e. Water Vapor Transmission, ASTM D 7311: 0.020 perm/in.
   f. Accelerated Weathering, ASTM D 7311: Pass, no cracking or checking.
   g. Percent solids (by weight), minimum, ASTM D 1644: 90%.
   h. Color: Grey.

2. Aliphatic Urethane Top Coat : Basis of Design: Tremco Alphaguard MT Top Coat
   a. Asbestos Content, EPA/600/R-93/116: None.
   b. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: ≤40 g/L.
   c. Elongation at break, minimum, ASTM D 7311: 350%.
   d. Tensile Strength, minimum, ASTM D 7311: 1,435 lb/in².
   e.Tear Resistance, ASTM D 7311: 159 lbf/in.
   f. Accelerated Weathering, ASTM D 7311: Pass, no cracking or checking.
   g. Percent solids (by weight), minimum, ASTM D 1353: 90%.
   h. Color: White.

B. Fiberglass Reinforcement: Medium to fine fiber, rapid wetting chopped strand glass mat for fluid-applied membrane and flashing.

C. Optional Flashing Reinforcement: Polyester reinforcement mat.

2.7 AUXILIARY MATERIALS

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

B. Structural Concrete Deck Primer if needed: Two-component, 100% solids, epoxy penetrating primer for concrete deck surfaces.

C. Metal Surface Primer if needed: Single-component, water based primer to promote adhesion of base coat metal surfaces.

D. Primer: Single-component, multi-substrate primer to promote adhesion of base coat to a variety of surfaces including smooth asphalt surfaces.

E. Re-Prime: If base coat has sat for more than 72 hours then a re-primer is needed over the base coat prior to the application of the top coat.

F Sheet Metal: Skirt Metal for metal coping and curbs:

1. Galvanized, pre-painted: Twenty-four (24) gage minimum, galvanized steel; commercial quality, All sheet metal to be pre-painted and approved by roofing manufacturer.

EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Use products with personal protection equipment. User must read container label and material safety data sheets prior to use.

B. Store all materials prior to application at temperatures between 60ºF and 90ºF

C. Use with adequate ventilation.

D. Do not apply materials when air temperature is below 50º Fahrenheit or above 110º Fahrenheit. Cure times are extended at temperatures below 50º Fahrenheit.

E. Prevent materials from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

F. Painters tape shall be used to mask detail areas and metal flashings. Remove tape while fluid-applied material remains wet.

G. All flashings shall be done first, before the field of the roof is covered. After base coat and reinforcement mat have been installed, and before the top coat is installed, a thorough inspection of the surface must be conduct ed by the manufacturer's technical representative. The reinforcement mat must be completely encapsulated by the base coat, with no pinholes or voids, at the end of each work day.

H. Coverage rates of base coat and top coat must be continuously verified for proper wet film thickness with a wet mil gauge.

I. Raised or exposed reinforcement mat shall be sanded smooth prior to application of top coat.

3.2 SUBSTRATE PRIMER INSTALLATION

A. Direct to smooth asphaltic materials:
   1. Apply manufacturer's recommended primer at 200 – 250 sq. ft. per gallon.

B. Direct to Concrete: Two part epoxy 100% solids primer.
   1. Mixing: Use clean containers and mixing equipment. Using a low speed "Jiffy" type mixer, mix the A & B components separately for approximately one minute.
   2. Combine one part by volume Part A with one part by volume "B". Mix the components thoroughly for three to five minutes.
   3. Scrape the bottom and sides of the mixing container at least once. Do not aerate the blend. Mix only enough material that can be used within the working life.
   4. Application: The ambient and surface temperature should be between 50ºF to 90ºF (10ºC to 32.2ºC).
   5. Apply using a short nap roller, squeegee, brush or an airless spray according to manufacturer's written instructions. Coverage rates may vary depending on concrete surface conditions.
   6. Surface temperature, porosity and texture will determine actual material quantities. Ensure primer does not puddle and substrate has complete coverage.
   7. Fluid-applied base coat can be applied as soon as the primer has become tack free.

3.3 LIQUID APPLIED ROOFING INSTALLED OVER GRANULAR MODIFIED ROOF PREPARATION

A. Membrane Surface Preparation:
   1. Remove blisters, ridges, buckles, repair irregularities projecting above the membrane, and other sub strate irregularities from existing roofing membrane that would inhibit application of uniform, water proof 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 coat

ing by power washing at maximum 800 psi. Allow to dry thoroughly.

5. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.
6. Verify adhesion of new products.

B. Limited Roof Tear-Off: Remove and replace the wet areas as identified by infra-red scan. Remove down to the the metal decking. Install insulation to match existing height and install one ply of composite ply in cold adhesive.

Strip in perimeter of replacement areas with urethane mastic or Alphaguard Base coat and polyester mesh, tie-in minimum 8" onto adjacent roof area.

1. Notify Owner each day of extent of roof tear-off proposed and obtain authorization to proceed.
2. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

3.4 PRIME SUBSTRATE:

A. Apply manufacturer's recommended primer at 200-250 sq. ft. per gallon for on areas where there are no granules present, **no need to prime a granulated modified surface**.

B. Metal substrates will be primed with Alphaguard M Primer.

3.5 FLASHING REPAIR

A. Fluid-Applied Flashing Application: Complete base coat and polyester reinforcement at parapets, curbs, penetrations, and drains prior to application of field of fluid-applied membrane.
1. Extend coating up vertical surfaces and minimum 6 inches onto horizontal surfaces.

B. At modified curbs, walls, and penetrations:
1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.
2. Mask off perimeter areas where non coated areas intersect with coated areas to keep surfaces clean of coating.
3. Apply liquid applied flashings up to the base of the existing metal flange or metal counterflashing.
4. Install new skirt metal counterflashing that will be fastened under existing metal counterflashing or metal flange and extend down over new liquid applied flashings.

3.6 FLASHING AND STRIPPING INSTALLATION

A. Base coat and polyester reinforcement must be installed on all curbs, penetrations, and drains before moving to installation in the field.
1. Install masking tape or similar along the top edge of flashings where base coat will terminate.
2. Prime all metal surfaces with manufacturers recommended primer prior to installing flashings.
3. Install base coat to flashing surfaces according to manufacturer's written instructions. Extend coating up vertical surfaces a minimum of 8 inches and out onto horizontal surfaces 6 inches. Back roll to achieve a minimum wet mil coating thickness as required by the manufacturer.
4. Install fiberglass or polyester reinforcement immediately into wet base coat. Extend reinforcement up vertical surfaces a minimum of 8 inches and out onto horizontal surfaces 6 inches. Install according to manufacturers written instructions.
   a. Lap adjacent flashing pieces of reinforcement mat no less than 3”.
5. Roll the surface of the fiberglass or polyester to completely embed it into the wet base coat.
6. Mat must be fully encapsulated in base coat and not contain pin holes, voids, or openings.

3.7 FLUID-APPLIED MEMBRANE APPLICATION

A. Base coat and fiberglass reinforcement installation:
1. Install base coat directly onto substrate and spread coating evenly according to manufacturer's written instructions. Install primer as directed by manufacturer.

2. Back roll to achieve a minimum wet mil thickness according to manufacturer's written instructions.
3. Install reinforcement mat immediately into wet base coat. Roll surface of fiberglass to fully embed into wet base coat. Roll until fully saturated.
   a. Lap adjacent rolls of glass mat no less than 3". End laps shall be no less than 6".
   b. Lap onto flashing no less than 3".
4. Roll the surface of the mat to completely embed it into the wet base coat.
5. Allow base coat to cure a before installing top coat.
6. Reinforcement mat must be fully encapsulated in base coat and not contain pin holes, voids, or openings.

B. Top coat installation for field of roof and flashings:
   1. Priming of the base coat may be required if top coat is not applied within 72 hours of the base coat application. The base coat shall be lightly primed with manufacturer's recommended primer.
   2. Install top coat on flashings first. Extend coating up vertical surfaces a minimum of 8 inches and out onto horizontal surfaces.
   3. Install top coat directly over field base coat and spread coating evenly according to manufacturer's written instructions.
   4. Back roll to achieve a minimum wet mil thickness according to manufacturer's written instructions.
   5. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

3.8 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation every day and on completion, and submit report to the Owner.
   1. Notify Owner 48 hours in advance of date and time of final inspection.
   2. Repair fluid-applied membrane where test inspections indicate that they do not comply with specified requirements.
   3. Additional inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 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 56 00.10