

SECTION 07560

FLUID-APPLIED ROOFING

UNITED COATINGS™ ROOF MATE OVER NON-METAL SUBSTRATE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This specification is intended to outline the requirements for application of the United Coatings™ System over approved roof substrates in acceptable condition. Specific addenda address each surface at the end of this guide specification.

1.2 RELATED SECTIONS

- A. Section 06100: Rough Carpentry: Roof blocking installation and requirements.
- B. Section 07620: Sheet Metal Flashing and Trim: Metal flashing and counter flashing installation and requirements.
- C. Section 15430: Plumbing Specialties: roof drains, scuppers, gutters and downspout installation and requirements.

1.3 REFERENCES

- A. Factory Mutual (FM Global) Approval Guide.
 - 1. Factory Mutual Standard 4470 Approval Standard for Class 1 Roof Covers.
- B. Underwriters Laboratories (UL) Roofing Systems and Materials Guide (TGFU R1306).
- C. ASTM International (ASTM) Annual Book of ASTM Standards.
 - 1. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.
 - 2. ASTM D 1653 Standard Test Methods for Water Vapor Transmission of Organic Coating Films.
 - 3. ASTM D 4263 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
 - 4. ASTM D 4798 / D4798M 1- Standard Practice for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Xenon-Arc Method).
 - 5. ASTM D 6083 Standard Specification for Liquid Applied Acrylic Coating Used in Roofing
 - 6. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials.
 - 7. ASTM E 108 Standard Test Methods for Fire Tests of Roof Coverings.
 - 8. ASTM G 26 Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.
 - 9. ASTM G 53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
- D. Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) -Architectural Sheet Metal Manual.
- E. National Roofing Contractors Association (NRCA).
- F. American Society of Civil Engineers (ASCE).
 - 1. ASCE 7 Minimum Design Loads for Buildings and Other Structures.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.5 SYSTEM DESCRIPTION

A. The United Coatings™ roofing work includes roofing, flashing and reinforcing of joints and junctions, and roof accessories integrally related to roof installation.

- B. Final determination of the fitness of the system, or its components, for any given roof may not be made by any representative of GAF / United Coatings ™ other than a member of GAF's Field Services Department.
- C. Provide an installed roofing membrane and base flashing system that does not permit the passage of water, and will withstand the design pressures calculated in accordance with the current revision of ASCE 7.
- D. GAF shall provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data:
 - 1. Provide product data sheets for each type of product indicated in this section.
- C. Shop Drawings:
 - 1. Provide manufacturers standard details and approved shop drawings for the system specified.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: GAF shall provide a roofing system that meets or exceeds the criteria listed in this section.
- B. Installer Minimum Qualifications:
 - 1. Installer shall be classified as a Premium Contractor as defined and certified by GAF.
 - 2. Installer shall be classified as a Master Select Contractor as defined and certified by GAF.
 - 3. Installer shall be classified as a Master Contractor as defined and certified by GAF.
- C. Source Limitations: Components listed shall be provided by a single manufacturer or approved by the primary roofing manufacturer.

1.8 PRE-INSTALLATION CONFERENCE

- A. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, GAF representative and any other persons directly involved with the performance of the work. The installer 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 review foreseeable methods and procedures related to roofing work.
 - 1. Tour representative areas of roofing substrates to inspect and discuss conditions of substrate, penetrations and other preparatory work to be performed.
 - 2. Review United Coatings[™] roofing system requirements (United Coatings [™] specifications, detail drawings and the Contract Documents).
 - 3. Review required submittals, both completed and in progress.
 - 4. 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.
 - 5. Review required inspection(s), testing, and certifying, and material usage accounting procedures. Review forecasted weather conditions.
 - 6. Establish procedures for coping with unfavorable conditions, including the possibility of temporary roofing work.

1.9 REGULATORY REQUIREMENTS

A. Work shall be performed in a safe, professional manner, conforming to federal, state and local codes.

B. UL Listing: Provide United Coatings ™ Roofing System and 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.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle United Coatings ™ materials in a manner that will ensure there is no possibility of contamination.
- B. Store in a dry, well ventilated, weather tight location at temperatures between 50°F (10°C) and 80 °F (27°C) until the products are ready to be applied (keep from freezing). Do not stack material pallets more than two (2) high.
- C. Do not subject existing roof to unnecessary loading of stockpiled materials.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.11 PROJECT CONDITIONS

- A. Weather:
 - 1. Proceed with roofing only when existing and forecasted weather conditions permit.
 - 2. Ambient temperatures shall be above 45 °F (7.2 °C) when applying water based adhesives.
- B. Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with United Coatings™ recommendations and guarantee requirements as follows:
 - 1. Do not begin work if precipitation is expected within twenty-four hours of application, or if temperatures are expected to fall below 42 °F (6 °C) during the duration of the job.
 - a. FlexSeal™ Sealant may be used in temperatures lower than 42 °F (6 °C).
 - 2. Upper temperature restriction (both air and substrate) for application of United Coatings™ products is 105 °F (40 °C). If substrate temperatures exceed 105 °F (40 °C), United Coatings™ products shall be applied during cooler periods of the day. If this is not practical, the substrate shall be cooled with water, and then United Coatings™ products applied just after the water has flashed-off.
 - 3. No moisture may be present when applying United Coatings™ products. Taking into consideration the UV curing properties of United Coatings™, allow for sufficient daylight hours necessary for curing of materials.

1.12 WARRANTY

- A. Liquid Applied Emerald Pledge™ Limited Warranty: Manufacturers standard form, in which United Coatings™ agrees to repair leaks through the United Coatings™ products on the roof caused by manufacturing defects or natural deterioration of the United Coatings™ roofing system.
 - 1. Warranty Duration:
 - a. Ten (10) Years Labor and Material
 - b. Fifteen (15) Years Labor and Material
 - c. Twenty (20) Years Labor and Material
- B. Limited Product Warranty: Manufacturers standard form, in which GAF agrees to replace or reimburse the owner the portion of the products that leaks in the event of a manufacturing defect. 1. Warranty Duration: Five (5) Years.
- C. Limited Material Warranty: Manufacturers standard form, in which United Coatings™ agrees to reimburse the owner in the event of a manufacturing defect that adversely affects the performance of the United Coatings™ Membrane.
 - 1. Warranty Duration: Five (5) Years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: GAF, Commercial Roofing Products Division, which is located at: 1 Campus Drive; Parsippany, NJ 07054; Toll Free Tel: 800-ROOF-411; Tel: 973-628-3000; Fax: 973-628-3451; Email: technical questions@gaf.com; Web: www.gaf.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 COATINGS

- A. United Coatings™ Roof Mate™ TCM Coating: Water-based, spray-applied, liquid roofing membrane. Curing is enhanced by UV exposure. Available in white, gray, patina green and other standard as well as custom colors. Do not apply in temperatures under 42 °F (5.6 °C).
 - 1. Application Rate: 1.0 to 1.5 gal per 100 sf (4.07 to 6.11 L/ 10 m².) per coat.
 - 2. Application Method: Airless sprayer.
 - 3. Application Temperature (air, surface): 42 °F (5.5 °C) 120 °F (49 °C).
 - 4. Dry Time (75 °F (24 °C), 50 percent RH): Approximately 24 hours per coat.
 - 5. Color:
- B. United Coatings™ Roof Mate™ Top Coat Elastomeric Acrylic Top Coat: A water-based, high solids elastomeric acrylic coating that forms a seamless, weatherproof, fire-resistant membrane over various properly prepared roof surfaces.
 - 1. Application Rate: 1.0 to 1.5 gal per 100 sf (4.07 to 6.11 L/ 10 m².) per coat.
 - 2. Application Method: Airless sprayer.
 - 3. Application Temperature (air, surface): 32 °F (0.0 °C) 105 °F (40 °C).
 - 4. Dry time: (light rain & foot traffic) White @ 4 hours @ 70°F (21°C) 50% R.H. @ 16 wet mils (406 microns).
 - 5. Color:
- C. United Coatings™ Roof Mate™ QS Coating: A quick-setting water-based acrylic coating utilizing unique formulation designed to achieve wash-off resistance from a light rain or dew in approximately 30 minutes at 75°F (24°C), 50% RH, which is less than half the time required for standard Roof Mate.
 - 1. Application Rate: 1: 1.0 to 1.5 gal per 100 sf (4.07 to 6.11 L/ 10 m².) per coat.
 - 2. Application Method: Airless sprayer.
 - 3. Application Temperature (air, surface): 32 ° (0.0 ° C) 105 ° F (40 ° C).
 - 4. Dry time: (light rain & foot traffic) White @ 5 hours @ 70°F (21°C) 50% R.H. @ 16 wet mils (406 microns).
- D. United Coatings™ Roof Mate™ HT Coating: A high tensile water-based acrylic top coat utilizing the latest advances in acrylic technology for roof areas subject to heavy maintenance traffic, severe weather conditions, chemical fallout, etc. High tensile emulsion polymers are combined with reinforcing pigments and nonmigrating fire retardants for superior physical properties, durability, weatherproofing, dirt and mildew resistance, ultraviolet resistance, and fire retardancy.
 - 1. Application Rate: 1.0 to 1.5 gal per 100 sf (4.07 to 6.11 L/ 10 m².) per coat.
 - 2. Application Method: Airless sprayer.
 - 3. Application Temperature (air, surface): 32 ° (0.0 ° C) 105 ° F (40 ° C).
 - 4. Dry time: (light rain & foot traffic) White @ 5 hours @ 70°F (21°C) 50% R.H. @ 16 wet mils (406 microns).
 - 5. Color:
- E. United Coatings™ MB Plus Coating: Water-based, low VOC, sprayable polymeric liquid that cures to form a seamless rubber membrane. To be applied as a primary coating over all residual asphalt, modified bitumen, BUR, Hypalon, and PVC. Promotes adhesion to asphalt based products as well as resists asphalt bleed through.

- 1. Application Rate: 1.0 to 1.5 gal / 100 sf (4.07 to 6.11 L/ 10 m2) per coat
- 2. Application Method: Airless sprayer or roller.
- 3. Application Temperature (air, surface): 42 °F (5.5 °C) 120 °F (49 °C).
- 4. Dry Time: 75 ° F (24 ° C), 50 percent RH: Approx. 24 hrs. per coat.
- 5. Clean up: Water before curing.

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- G. United Coatings™ Roof Mate™ Base Coating: A water-based, high solids elastomeric acrylic coating to be used in conjunction with Roof Mate Coating to provide superior weatherability, ultraviolet resistance, and fire retardancy over various properly prepared roof surfaces.
 - 1. Application Rate: 1.0 to 1.5 gal per 100 sf (4.07 to 6.11 L/ 10 m².) per coat.
 - 2. Application Method: Airless sprayer.
 - 3. Application Temperature (air, surface): 32 °F (0.0 °C) 105 °F (40 °C).
 - 4. Dry time: (light rain & foot traffic) White @ 4 hours @ 70°F (21°C) 50% R.H. @ 16 wet mils (406 microns).

2.3 FLASHINGS, FABRIC AND BULKING AGENTS

- A. United Coatings™ Roof Mate™ Butter Grade Flashing: A high volume solids for low shrinkage providing increased tensile strength and elongation on problem roof areas. It is ideally suited for sealing mechanical fasteners and horizontal seams on metal roofs, as well as around flashings, drains and protrusions. Also used for encapsulating Roof Mate Fabric.
 - 1. Application Rate: apply up to 1/4" (6.4 mm) thickness
 - 2. Application Method: Putty Knife, spatula and stiff bristle brush.
 - 3. Application Temperature (ambient): minimum 50 °F (10 °C).
 - 4. Dry Time: 1-4 hours depending on application thickness
 - 5. Clean-up: Water before curing.
- B. United Coatings™ TCM Flashing (Spray Formula): Light-gray, water-based synthetic rubber sealant for application on seams, fasteners, flashings and penetrations. Curing is enhanced by UV exposure. Do not apply in temperatures under 42 °F (5.6 °C).
 - 1. Application Rate: 5 gal (19 l) total / 125 ft. (38 m) (6 inches (152 mm) width).
 - 2. Application Method: Airless sprayer.
 - 3. Application Temperature (air, surface): 42 °F (5.5 °C) 120°F (49 °C).
 - 4. Dry Time: 75 °F (24 °C), 50 percent RH: Approximately 24 hrs.
 - 5. Clean-up: Water before curing.
- C. United Coatings™ Roof Mate™ Liquid Fabric: Light gray, water-based, flexible liquid seam sealer. Roof Mate Liquid Fabric may be used to seal horizontal seams on metal roofs without the use of Roof Mate Fabric when horizontal seams are properly secured per product application requirements.
 - 1. Application Rate: 5 gal (19 l) total / 125 ft. (38 m) of seam (6 inches (152 mm) wide).
 - 2. Application Method: Brush.
 - 3. Application Temperature (air, surface): 42 °F (5.5 °C) 120°F (49 °C).
 - 4. Dry Time: 75 °F (24 °C), 50 percent RH: Approximately 24 48 hours.
 - 5. Clean up: Water.
- D. United Coatings™ Hydrofiber Bulking Agent: This product is comprised of glass fibers that, when mixed with one of the above listed products, will create a thick, workable compound used to fill voids, level surfaces, and create cants. Also used for flashing details, metal roof seams, inside and outside flashing details, round stacks, pipe legs, pitch pockets, conduit pipes, expansion ioints, etc.
 - 1. Application Rate: 0.50 gal per 100 ft². (2.03 L/ 10m²).
 - 2. Application Method: Brush.
 - 3. Application Temperature (air, surface): 40°F (4.5 °C) 105° F (40.5 °C).
 - 4. Dry Time: Minimum 24 hours.
 - 5. Clean up: Water.

- E. United Coatings™ Roof Mate™ Fabric: tough, non-woven, stitch-bonded, heat-set polyester designed for roofing and flashing applications of all types. Available in 300ft rolls and varying widths.
 - 1. Length: 300ft. (91 m), Width: 4" (102 mm),6" (152 mm),8" (203 mm), 12" (305 mm), 16" (406 mm), 20" (508 mm), 24" (610 mm)
 - 2. Length: 336ft. (102 m), Width: 40" (1.02 m)
- F. United Coatings™ UniTape Seam Tape: A polymer-backed woven polyester reinforcing fabric designed for application to a wide range of substrates where additional strength is required over seams, splits, transitions, protrusions, etc.
 - 1. Temperature Limits for Service -30°F to 180°F (-35°C to 82°C)
 - 2. Bond Time: Initial bond is immediate; full bond requires approximately 24 hours.

2.4 PRIMERS AND SEALANTS

- A. UniBase Primer: A low viscosity, highly penetrating, advanced acrylic polymer adhesive and primer designed to act as a bonding primer to enhance the adhesion of over built-up, granulated cap sheets, modified bitumen roofing, concrete, or previously coated surfaces, also acting as an excellent asphalt bleed blocker. Can also be used to penetrate and adhere reinforcement fabrics, forming a flexible base for applying acrylic finish coats.
 - 1. Application Rate: Application Rate: 0.50 to 1.0 gal per 100 ft² (2.03 to 4.08 L/ 10m²) per gallon on properly prepared surfaces. 1.33 gallon per 100 ft² (5.42 L/ 10m²) as fabric saturate.
 - 2. Application Method: Brush, roller or sprayer.
 - 3. Application Temperature (air, surface): 50°F (10°C) 105°F (40°C).
 - 4. Dry Time: 1-2 hour @70°F (21.1°C), 50 percent RH.
- B. Adhere It II: is specifically developed for dramatically increasing the bond to new or weathered black EPDM surfaces. It is a low viscosity, pinkish liquid that chemically alters the black EPDM surface to which it is applied, creating a "lock and key" effect with the subsequent topcoat.
 - 1. Application Rate: 1 gal per 5 squares @1,200 PSI (8,273 kPa) minimum
 - 2. Application Method: pump-up sprayer.
 - 3. Application Temperature (air, surface): 40°F (10°C) to 105°F (40°C)
 - 4. Dry Time: 20 minutes. Should be power-washed after a minimum of 20 minutes and maximum of 2 hours.
- C. Lock-Down Primer: Single component, moisture cured, low viscosity, aluminized polyurethane primer designed to enhance adhesion of coatings to sound, stable, moderately corroded metal, or to provide a thin protective finish where desired.
 - 1. Application Rate: 0.25 gallon per 100 ft² (1.02 L/ 10m²).
 - 2. Application Method: Roller or airless sprayer.
 - 3. Application Temperature (air. surface): 50 °F (10 °C) 105 ° F (40 °C).
 - 4. Dry Time: (to touch) 75 °F (24 ° C), 50 percent RH: Approximately 1 hour. (to cure) 75 °F (24 °C), 50 percent RH: Approximately 12 hours
- D. TPO Red Primer: TPO Red Primer is a VOC-compliant, solvent based thermoplastic liquid to be applied to new or aged TPO membranes where adhesion of United Coatings water-based is desired. TPO Red primer is slightly tinted to distinguish primed areas on bright white TPO membranes. The surface of the treated area must be clean of all dirt, dust, and debris and be completely free of moisture prior to application of the primer.
 - 1. Application Rate: 0.5 gallon / 100 sf (2.04 L/ 10m².).
 - 2. Application Method: Roller or airless sprayer.
 - 3. Application Temperature (air. surface): 42 °F (5.5 °C) 120 °F (49 °C).
 - 4. Dry Time: 75 °F (24 °C), 50 percent RH: Approximately 15 minutes.

- E. XR-2000 Primer: White, water-based adhesion promoting primer designed to enhance the adhesion of the United Coatings™ roofing system to pre-finished metal roofing, including those containing fluoropolymers such as KYNAR® or siliconized polyesters. Due to the wide variety of pre-applied finishes, suitability of XR-2000 Primer shall be tested on an individual basis. Do not apply in temperatures under 42 °F (5.6 °C).
 - 1. Application Rate: 0.75 gal per 100 ft² (3.05 L/ 10m²).
 - 2. Application Method: Roller or airless sprayer.
 - 3. Application Temperature (air, surface): 42 °F (5.5 °C) 120 °F (49 °C).
 - 4. Dry Time: 75 °F (24 °C), 50 percent RH: Approximately 6 hours.
- F. FlexSeal™ Sealant: White, solvent-based synthetic elastomeric compound designed to line and waterproof interior and exterior gutters typically found in metal buildings. FlexSeal™ Sealant is capable of withstanding ponding water. This product is easiest to apply at temperatures over 42°F (5.5°C).
 - 1. Application Rate: 0.5 gallon per 100 ft² (2.03 L/ 10m²).
 - 2. Application Method: Roller or airless sprayer.
 - 3. Application Temperature (air, surface): 20 °F (-6.6 °C) 120 °F (49 °C).
 - 4. Dry Time: 75 ° F (24 °C), 50 percent RH: Approximately 24 hours.
- G. United Cleaning Concentrate: A highly effective cleaning agent that, when combined with water, penetrates the existing coating or substrate and allows contaminants to be flushed from the surface. It is non-toxic and leaves no pollutants or contaminating by-products to damage the environment. Used for the proper cleaning of existing elastomeric coating on roofs, metal surfaces, concrete and masonry substrates, as well as uncoated roof, deck and wall surfaces.
 - 1. Application Rate: 0.67 0.50 gallon per 100 ft2. (2.73 2.03 L/ 10m²).
 - 2. Application Method: Low pressure sprayer or broom.

2.5 EQUIPMENT

A. Airless Sprayer and Accessories: As recommended by GAF's Technical Services.

PART 3 EXECUTION

3.1 SUBSTRATE CONDITIONS

- A. Installer shall verify adhesion. Questionable substrates shall be directed to GAF's Field Services Department for resolution.
- B. Follow GAF's Substrate Preparation Guidelines at gaf.com.

3.2 SYSTEM APPLICATION

- A. Refer to individual addenda at the end of this guide specification for preparation and application requirements for specific substrates.
 - 1. Addendum 1 Resurfacing PVC & Hypalon Substrates
 - 2. Addendum 2 Resurfacing TPO Substrates
 - 3. Addendum 3 Resurfacing EPDM Substrate
 - 4. Addendum 4 Resurfacing MB/BUR Substrates
 - 5. Addendum 5 Resurfacing Structural Concrete Substrate

3.3 INSPECTION INFORMATION

- A. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fishmouths, air pockets, etc.) to ensure that work is complete and satisfactory.
- B. Inform Project Architect and GAF's Technical Services Department when all preliminary work and flashing details will be complete and the Installer is ready to proceed with application of United Coatings™ Roofing Membrane. Allow a minimum of two (2) weeks for the interim inspection to be made by the GAF's Technical Services Department.

C. Any final roofing installation prior to this interim inspection is subject to rejection by the Project Architect and/or the GAF's Technical Services Department. Please be advised that Technical On-Site Support for instructing Certified Contractors in the proper application of the United Coatings™ Roofing System is available. The first day of instruction is at no-charge to the Certified Contractor. Any additional days or return trips for instruction will be at a cost of \$600.00 per day, plus all incurred travel expenses. The two (2) required inspections (interim and final) for the Liquid Applied Roofing System Guarantees are free of charge. Additional inspections will be billed at a rate of \$600.00 per day plus all incurred travel costs.

3.4 OTHER ITEMS

- A. Installer shall take photographs of representative roof areas, including detail work, before work commences, after the surface has been properly prepared, after all flashing and detail work has been performed, and after the spray application of the United Coatings ™ membrane.
- B. Installer shall provide the following support for on-site inspections by a representative from GAF's Field Services Department (list is not comprehensive):
 - 1. Representative from the installer's company who has authority to make binding decisions
 - 2. Required means to access all areas of the treated roof.
 - 3. Previous photographs of the roof, including test patch results, as applicable
 - 4. United Coatings™ products and application equipment required to repair roof areas where destructive tests are to be performed by GAF's Field Services Department.
- C. Special care shall be taken to avoid shading when spraying dark United Coatings™ Roofing Membrane colors. When applying a dark United Coatings™ Membrane color, Installer shall always spray wet material onto wet material to ensure that spray lines do not appear. United Coatings™ strongly recommends the installation of any dark-colored finish coat by spraying two lighter coats (instead of one heavy coat) using a smaller tip size. Installer should also use the roof ribs or standing seams to terminate each spray pass.
- D. Installer shall take special care when moving spray hoses and other equipment on the roof so that flashing work and encapsulated fastener heads are not damaged. Also, all spray equipment shall remain on the ground for the duration of the job.
- E. If there will be an extended period of time (6 months or greater) between application of base and finish coats, the use of United Coatings™ white for the base coat (versus gray) is recommended. The base coat shall be thoroughly cleaned before applying the finish coat.
- F. It is strongly recommended that walkways designed for metal roofing systems be installed in all high traffic areas. Contact the GAF's Technical Services Department for recommendations.

3.5 REPAIRS

- A. In the event that the United Coatings™ membrane is damaged or punctured, repairs are to be performed using United Coatings™ Roof Mate Butter Grade Flashing and United Coatings™ Roof Mate Fabric or United Coatings™ UniTape Seam Tape (where necessary) as follows:
 - 1. Damaged areas are to be cut, cleaned and dried.
 - 2. Apply United Coatings™ Roof Mate Butter Grade Flashing and feather out onto the existing United Coatings ™ Roof Mate membrane.
 - 3. If a new penetration area has been cut, embed United Coatings™ Roof Mate Fabric or United Coatings™ UniTape Seam Tape into the United Coatings™ Roof Mate Butter Grade Flashing according to standard United Coatings™ Roof Mate specifications.
 - 4. Once the United Coatings™ Roof Mate Butter Grade Flashing has cured, United Coatings™ white or appropriate United Coatings™ color may be applied for aesthetic uniformity.

END OF SECTION

ADDENDUM 1 – Resurfacing PVC & Hypalon Substrates

3.2 PREPARATION OF SUBSTRATE

- A. Moisture Survey: A moisture survey shall be performed on the roof system to determine the suitability of the existing roof for application of a United Coatings™ roofing system. Any wet or deteriorated areas shall be removed and replaced.
- B. Preparation of the Roof substrate is the responsibility of the installer, who shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation of the United Coatings™ roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. Treatment of damaged/deteriorated membrane: Any areas where the membrane has torn, cracked and /or buckled must be repaired using similar or compatible products manufactured by GAF. Any wet insulation must be replaced as part of the roofing repair. Allow at least 24 hours drying time before application of other United Coatings™ products.
- D. Treatment of Ponding Water Areas: Installer shall make every effort to mechanically eliminate all ponding water areas on the roof prior to application of United Coatings™ products. Ponding water is defined as water that does not properly drain and remains on the roof for more than 48 hours after precipitation stops. Ponding water areas that cannot be eliminated shall be treated with FlexSeal™ Sealant prior to application of other United Coatings™ products.
- E. Deteriorated Seams: Repair all delaminated or open seams using method acceptable to the manufacturer.
- F. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- G. Condensate Lines: Condensate lines shall be installed from HVAC units to gutters as part of the overall drainage system. The type of piping used for condensate lines may vary depending on local building codes.
- H. Membrane cleaning: Roof substrate must be carefully pressure washed with water. Use an approximate working pressure of 2,000 psi (depending on condition of roof) to remove all dirt, dust, chalking, loose materials, etc. Take care not to damage the roof surface or force water into the roof system. Use hot water and mild detergent to remove grease and/or oils from the roof substrate. If mildew or algae are present, use bleach to treat these areas, then pressure wash surface.
- I. Application of PVC/Hypalon Primer: Spray Unisil Primer over the entire surface to be coated.

3.6 FLASHING APPLICATION

- A. Preliminary work consists of substrate preparation and all flashing details. After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with either 6 inches (152 mm) or 12 inches (305 mm) Roof Mate Fabric and United Coatings™ Roof Mate Butter Grade in accordance with United Coatings™ Detail Drawings. Roof Mate Butter Grade shall be feathered at the edges (see current United Coatings™ Detail Drawings) so that water may flow over the various flashing details.
- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 6 inches (152 mm) minimum width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate Fabric and Roof Mate Butter Grade.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 6 inches (152 mm) width of Roof Mate Fabric and Roof Mate Butter Grade. Encapsulate all fasteners using United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so fabric lies flat.

- D. Penetrations: United Coatings™ Roof Mate Butter Grade shall be applied around the base of the penetration, extending at least 4 inches (101 mm) onto the vertical and 4 inches (101 mm) onto the base. Embed a 6 inches (152 mm) width of Roof Mate Fabric using additional Roof Mate Butter Grade, as necessary. Cut Roof Mate Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. The entire perimeter shall be flashed with a minimum 6 inches (152 mm) width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All exposed skylight fasteners shall be encapsulated with United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 6 inches (152 mm) Roof Mate Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- G. Ponding Water Areas: The severity of the ponding water condition will determine the requirements for additional preparation. Contact the GAF's Technical Services Department for information.
- H. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fishmouths, air pockets, etc.) to ensure that work is complete and satisfactory.

3.7 FIELD OF ROOF APPLICATION AND RATES

A. Roof Mate Coating 10 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 25 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 34 mils in the field of the roof. All unsatisfactory areas must be repaired.

3.8 FIELD OF ROOF APPLICATION AND RATES

B. Roof Mate Coating 10 year System:

1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.

- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 23 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 33 mils in the field of the roof. All unsatisfactory areas must be repaired.

ADDENDUM 2 – Resurfacing TPO Substrates

3.3 PREPARATION OF SUBSTRATE

- A. Moisture Survey: A moisture survey shall be performed on the roof system to determine the suitability of the existing roof for application of a United Coatings™ roofing system. Any wet or deteriorated areas shall be removed and replaced.
- B. Preparation of the Roof substrate is the responsibility of the installer, who shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation of the United Coatings™ roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. Treatment of damaged/deteriorated membrane: Any areas where the membrane has torn, cracked and /or buckled must be repaired using similar or compatible products manufactured by GAF. Any wet insulation must be replaced as part of the roofing repair. Allow at least 24 hours drying time before application of other United Coatings™ products.
- D. Treatment of Ponding Water Areas: Installer shall make every effort to mechanically eliminate all ponding water areas on the roof prior to application of United Coatings™ products. Ponding water is defined as water that does not properly drain and remains on the roof for more than 48 hours after precipitation stops. Ponding water areas that cannot be eliminated shall be treated with FlexSeal™ Sealant prior to application of other United Coatings™ products.
- E. Deteriorated Seams: Repair all delaminated or open seams using method acceptable to the manufacturer.
- F. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- G. Condensate Lines: Condensate lines shall be installed from HVAC units to gutters as part of the overall drainage system. The type of piping used for condensate lines may vary depending on local building codes.
- H. Membrane cleaning: Roof substrate must be carefully pressure washed with water. Use an approximate working pressure of 2,000 psi (depending on condition of roof) to remove all dirt, dust, chalking, loose materials, etc. Take care not to damage the roof surface or force water into the roof system. Use hot water and mild detergent to remove grease and/or oils from the roof substrate. If mildew or algae are present, use bleach to treat these areas, then pressure wash surface.
- I. Application of TPO Primer: Spray TPO Red Primer over the entire surface to be coated.

3.9 FLASHING APPLICATION

- A. Preliminary work consists of substrate preparation and all flashing details. After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with either 6 inches (152 mm) or 12 inches (305 mm) Roof Mate Fabric and United Coatings™ Roof Mate Butter Grade in accordance with United Coatings™ Detail Drawings. Roof Mate Butter Grade shall be feathered at the edges (see current United Coatings™ Detail Drawings) so that water may flow over the various flashing details.
- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 6 inches (152 mm) minimum width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate Fabric and Roof Mate Butter Grade.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 6 inches (152 mm) width of Roof Mate Fabric and Roof Mate Butter Grade. Encapsulate all fasteners using United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so fabric lies flat.

- D. Penetrations: United Coatings™ Roof Mate Butter Grade shall be applied around the base of the penetration, extending at least 4 inches (101 mm) onto the vertical and 4 inches (101 mm) onto the base. Embed a 6 inches (152 mm) width of Roof Mate Fabric using additional Roof Mate Butter Grade, as necessary. Cut Roof Mate Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. The entire perimeter shall be flashed with a minimum 6 inches (152 mm) width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All exposed skylight fasteners shall be encapsulated with United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 6 inches (152 mm) Roof Mate Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- G. Ponding Water Areas: The severity of the ponding water condition will determine the requirements for additional preparation. Contact the GAF's Technical Services Department for information.
- H. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fishmouths, air pockets, etc.) to ensure that work is complete and satisfactory.

3.10 FIELD OF ROOF APPLICATION AND RATES

C. Roof Mate Coating 10 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 25 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 34 mils in the field of the roof. All unsatisfactory areas must be repaired.

3.11 FIELD OF ROOF APPLICATION AND RATES

D. Roof Mate Coating 10 year System:

1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.

- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 23 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 33 mils in the field of the roof. All unsatisfactory areas must be repaired.

ADDENDUM 3 – Resurfacing EPDM Substrates

3.4 PREPARATION OF SUBSTRATE

- A. Moisture Survey: A moisture survey shall be performed on the roof system to determine the suitability of the existing roof for application of a United Coatings™ roofing system. Any wet or deteriorated areas shall be removed and replaced.
- B. Preparation of the Roof substrate is the responsibility of the installer, who shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation of the United Coatings™ roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. Treatment of damaged/deteriorated membrane: Any areas where the membrane has torn, cracked and /or buckled must be repaired using similar or compatible products manufactured by GAF. Any wet insulation must be replaced as part of the roofing repair. Allow at least 24 hours drying time before application of other United Coatings™ products.
- D. Treatment of Ponding Water Areas: Installer shall make every effort to mechanically eliminate all ponding water areas on the roof prior to application of United Coatings™ products. Ponding water is defined as water that does not properly drain and remains on the roof for more than 48 hours after precipitation stops. Ponding water areas that cannot be eliminated shall be treated with FlexSeal™ Sealant prior to application of other United Coatings™ products.
- E. Deteriorated Seams: Repair all delaminated or open seams using method acceptable to the manufacturer.
- F. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- G. Condensate Lines: Condensate lines shall be installed from HVAC units to gutters as part of the overall drainage system. The type of piping used for condensate lines may vary depending on local building codes.
- H. Membrane cleaning: Roof substrate must be carefully pressure washed with water. Use an approximate working pressure of 2,000 psi (depending on condition of roof) to remove all dirt, dust, chalking, loose materials, etc. Take care not to damage the roof surface or force water into the roof system. Use hot water and mild detergent to remove grease and/or oils from the roof substrate. If mildew or algae are present, use bleach to treat these areas, then pressure wash surface.
- I. Application of EPDM Primer: Spray Adhere-It II Primer over the entire surface to be coated.

3.12 FLASHING APPLICATION

- A. Preliminary work consists of substrate preparation and all flashing details. After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with either 6 inches (152 mm) or 12 inches (305 mm) Roof Mate Fabric and United Coatings™ Roof Mate Butter Grade in accordance with United Coatings™ Detail Drawings. Roof Mate Butter Grade shall be feathered at the edges (see current United Coatings™ Detail Drawings) so that water may flow over the various flashing details.
- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 6 inches (152 mm) minimum width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate Fabric and Roof Mate Butter Grade.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 6 inches (152 mm) width of Roof Mate Fabric and Roof Mate Butter Grade. Encapsulate all fasteners using United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so fabric lies flat.

- D. Penetrations: United Coatings™ Roof Mate Butter Grade shall be applied around the base of the penetration, extending at least 4 inches (101 mm) onto the vertical and 4 inches (101 mm) onto the base. Embed a 6 inches (152 mm) width of Roof Mate Fabric using additional Roof Mate Butter Grade, as necessary. Cut Roof Mate Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. The entire perimeter shall be flashed with a minimum 6 inches (152 mm) width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All exposed skylight fasteners shall be encapsulated with United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 6 inches (152 mm) Roof Mate Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- G. Ponding Water Areas: The severity of the ponding water condition will determine the requirements for additional preparation. Contact the GAF's Technical Services Department for information.
- H. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fishmouths, air pockets, etc.) to ensure that work is complete and satisfactory.

3.13 FIELD OF ROOF APPLICATION AND RATES

E. Roof Mate Coating 10 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 25 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 34 mils in the field of the roof. All unsatisfactory areas must be repaired.

3.14 FIELD OF ROOF APPLICATION AND RATES

F. Roof Mate Coating 10 year System:

1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.

- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 23 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 33 mils in the field of the roof. All unsatisfactory areas must be repaired.

ADDENDUM 4 – Resurfacing MB/BUR Substrates

3.5 PREPARATION OF SUBSTRATE

- A. Moisture Survey: A moisture survey shall be performed on the roof system to determine the suitability of the existing roof for application of a United Coatings™ roofing system. Any wet or deteriorated areas shall be removed and replaced.
- B. Preparation of the Roof substrate is the responsibility of the installer, who shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation of the United Coatings™ roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. Treatment of damaged/deteriorated membrane: Any areas where the membrane has torn, cracked and /or buckled must be repaired using similar or compatible products manufactured by GAF. Any wet insulation must be replaced as part of the roofing repair. Allow at least 24 hours drying time before application of other United Coatings™ products.
- D. Treatment of Ponding Water Areas: Installer shall make every effort to mechanically eliminate all ponding water areas on the roof prior to application of United Coatings™ products. Ponding water is defined as water that does not properly drain and remains on the roof for more than 48 hours after precipitation stops. Ponding water areas that cannot be eliminated shall be treated with FlexSeal™ Sealant prior to application of other United Coatings™ products.
- E. Treatment of Residual Asphalt: Installer shall make every effort to remove asphaltic roofing elements. Removal efforts shall include use of methods such as pressure washing, scrapers, wire brushes, electric drill wire-wheels, or other similar tools. Residual asphalt is defined as asphaltic material remaining after the exercise of all required removal efforts, and exists when there is asphaltic material greater in thickness than 3 mils (.08 mm) over an area greater than 1 square foot (0.1 sqm.). Residual asphalt shall be coated with UniBase Primer or Roof Mate MB Plus
- F. Deteriorated Seams: Repair all delaminated or open seams using method acceptable to the manufacturer.
- G. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- H. Condensate Lines: Condensate lines shall be installed from HVAC units to gutters as part of the overall drainage system. The type of piping used for condensate lines may vary depending on local building codes.
- I. Membrane cleaning: Roof substrate must be carefully pressure washed with water. Use an approximate working pressure of 2,000 psi (depending on condition of roof) to remove all dirt, dust, chalking, loose materials, etc. Take care not to damage the roof surface or force water into the roof system. Use hot water and mild detergent to remove grease and/or oils from the roof substrate. If mildew or algae are present, use bleach to treat these areas, then pressure wash surface.
- J. Application of Smooth Asphaltic Primer: Spray United Coatings™ Roof Mate Base Coating or United Coatings™ Roof Mate MB Plus over the entire surface to be coated.
- K. Application of Granulated Asphaltic Primer: Spray Unibase Primer or United Coatings™ Roof Mate Base Coating or United Coatings™ Roof Mate MB Plus over the entire surface to be coated.

3.15 FLASHING APPLICATION

A. Preliminary work consists of substrate preparation and all flashing details. After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with either 6 inches (152 mm) or 12 inches (305 mm) Roof Mate Fabric and United Coatings™ Roof Mate Butter Grade in accordance with United Coatings™ Detail Drawings. Roof Mate Butter Grade shall be feathered at the edges (see current United Coatings™ Detail Drawings) so that water may flow over the various flashing details.

- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 6 inches (152 mm) minimum width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate Fabric and Roof Mate Butter Grade.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 6 inches (152 mm) width of Roof Mate Fabric and Roof Mate Butter Grade. Encapsulate all fasteners using United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so fabric lies flat.
- D. Penetrations: United Coatings™ Roof Mate Butter Grade shall be applied around the base of the penetration, extending at least 4 inches (101 mm) onto the vertical and 4 inches (101 mm) onto the base. Embed a 6 inches (152 mm) width of Roof Mate Fabric using additional Roof Mate Butter Grade, as necessary. Cut Roof Mate Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. The entire perimeter shall be flashed with a minimum 6 inches (152 mm) width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All exposed skylight fasteners shall be encapsulated with United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 6 inches (152 mm) Roof Mate Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- G. Ponding Water Areas: The severity of the ponding water condition will determine the requirements for additional preparation. Contact the GAF's Technical Services Department for information.
- H. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fishmouths, air pockets, etc.) to ensure that work is complete and satisfactory.

3.16 FIELD OF ROOF APPLICATION AND RATES

G. Roof Mate Coating 10 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 25 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat (white) of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat (white) of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 38 mils in the field of the roof. All unsatisfactory areas must be repaired.

ADDENDUM 5 – Resurfacing Structural Concrete Substrate

3.6 PREPARATION OF SUBSTRATE

- A. Moisture Survey: A moisture survey shall be performed on the roof system to determine the suitability of the existing roof for application of a United Coatings™ roofing system. Any wet or deteriorated areas shall be removed and replaced.
- B. Preparation of the Roof substrate is the responsibility of the installer, who shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation of the United Coatings™ roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. Treatment of damaged/deteriorated membrane: Any areas where the membrane has torn, cracked and /or buckled must be repaired using similar or compatible products manufactured by GAF. Any wet insulation must be replaced as part of the roofing repair. Allow at least 24 hours drying time before application of other United Coatings™ products.
- D. Treatment of Ponding Water Areas: Installer shall make every effort to mechanically eliminate all ponding water areas on the roof prior to application of United Coatings™ products. Ponding water is defined as water that does not properly drain and remains on the roof for more than 48 hours after precipitation stops. Ponding water areas that cannot be eliminated shall be treated with FlexSeal™ Sealant prior to application of other United Coatings™ products.
- E. Treatment of Residual Asphalt: Installer shall make every effort to remove asphaltic roofing elements. Removal efforts shall include use of methods such as pressure washing, scrapers, wire brushes, electric drill wire-wheels, or other similar tools. Residual asphalt is defined as asphaltic material remaining after the exercise of all required removal efforts, and exists when there is asphaltic material greater in thickness than 3 mils (.08 mm) over an area greater than 1 square foot (0.1 sqm.). Residual asphalt shall be coated with UniBase Primer or Roof Mate MB Plus
- F. Deteriorated Seams: Repair all delaminated or open seams using method acceptable to the manufacturer.
- G. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- H. Condensate Lines: Condensate lines shall be installed from HVAC units to gutters as part of the overall drainage system. The type of piping used for condensate lines may vary depending on local building codes.
- I. Membrane cleaning: Roof substrate must be carefully pressure washed with water. Use an approximate working pressure of 2,000 psi (depending on condition of roof) to remove all dirt, dust, chalking, loose materials, etc. Take care not to damage the roof surface or force water into the roof system. Use hot water and mild detergent to remove grease and/or oils from the roof substrate. If mildew or algae are present, use bleach to treat these areas, then pressure wash surface.
- J. Application of Smooth Asphaltic Primer: Spray United Coatings™ Roof Mate Base Coating or United Coatings™ Roof Mate MB Plus over the entire surface to be coated.
- K. Application of Granulated Asphaltic Primer: Spray Unibase Primer or United Coatings™ Roof Mate Base Coating or United Coatings™ Roof Mate MB Plus over the entire surface to be coated.

3.17 FLASHING APPLICATION

A. Preliminary work consists of substrate preparation and all flashing details. After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with either 6 inches (152 mm) or 12 inches (305 mm) Roof Mate Fabric and United Coatings™ Roof Mate Butter Grade in accordance with United Coatings™ Detail Drawings. Roof Mate Butter Grade shall be feathered at the edges (see current United Coatings™ Detail Drawings) so that water may flow over the various flashing details.

- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 6 inches (152 mm) minimum width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate Fabric and Roof Mate Butter Grade.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 6 inches (152 mm) width of Roof Mate Fabric and Roof Mate Butter Grade. Encapsulate all fasteners using United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so fabric lies flat.
- D. Penetrations: United Coatings™ Roof Mate Butter Grade shall be applied around the base of the penetration, extending at least 4 inches (101 mm) onto the vertical and 4 inches (101 mm) onto the base. Embed a 6 inches (152 mm) width of Roof Mate Fabric using additional Roof Mate Butter Grade, as necessary. Cut Roof Mate Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. The entire perimeter shall be flashed with a minimum 6 inches (152 mm) width of United Coatings™ Roof Mate Butter Grade and Roof Mate Fabric. All exposed skylight fasteners shall be encapsulated with United Coatings™ Roof Mate Butter Grade. Do not bridge fasteners. Roof Mate Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 6 inches (152 mm) Roof Mate Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- G. Ponding Water Areas: The severity of the ponding water condition will determine the requirements for additional preparation. Contact the GAF's Technical Services Department for information.
- H. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fishmouths, air pockets, etc.) to ensure that work is complete and satisfactory.

3.18 FIELD OF ROOF APPLICATION AND RATES

H. Roof Mate Coating 10 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 25 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat (white) of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat (white) of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 38 mils in the field of the roof. All unsatisfactory areas must be repaired.

3.19 FIELD OF ROOF APPLICATION AND RATES

- I. Roof Mate Coating 10 year System:
 - 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 26 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat (white) of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat (white) of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 35 mils in the field of the roof. All unsatisfactory areas must be repaired.

3.20 FIELD OF ROOF APPLICATION AND RATES

- J. Roof Mate Coating 10 year System:
 - 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 2. Spray-apply finish coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 3. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 29 mils in the field of the roof. All unsatisfactory areas must be repaired.

A. Roof Mate Coating 15 year System:

- 1. Spray-apply base coat of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 2. Spray-apply inter coat (white) of United Coatings™ Roofing Membrane at the rate of 1.5 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
- 3. Spray-apply finish coat (white) of United Coatings™ Roofing Membrane at the rate of 1.0 gal per 100 square feet. Allow at least 24 hours drying time, and then inspect the base coat for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.

4. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The specified United Coatings™ dry membrane thickness is 40 mils in the field of the roof. All unsatisfactory areas must be repaired.