



Section 07560

Liquid-Applied Roofing

United Coatings™ RoofShield® I.S. Over Non-Metal Substrate

UNITED COATINGS™ ROOFSHIELD® I.S. OVER NON-METAL SUBSTRATE SPECIFICATION
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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This specification is intended to outline the requirements for application of the United Coatings™ roof coating, in conjunction with the appropriate product technical data sheets, 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. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide (TGFU R1306).
- B. 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.
- C. Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) - Architectural Sheet Metal Manual.
- D. National Roofing Contractors Association (NRCA).
- E. 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.

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- C. Provide an installed roof coating 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: Contractors must receive specialized training on the RST spray-equipment for enhanced warranties. Contact GAF Technical Support Services for more information.
 - 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.
 - 4. Installer shall be classified as an Authorized 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™ roof coating 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.

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- B. UL Listing: Provide United Coatings™ Roof Coating 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 90°F (32°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 50°F (10°C) and rising.
 - 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 50°F (10°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 110°F (43°C). If substrate temperatures exceed 110°F (43°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. 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.

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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: technicalquestions@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™ RoofShield® IS Fast Dry Elastomeric Acrylic Coating: Is a water-borne acrylic polymer dispersion system for rapid drying and high film build. RoofShield® IS Fast Dry Elastomeric Acrylic Coating was specifically designed to enhance film formation set time and deliver on-demand thickness build for fast, efficient elastomeric roof coating installations, maintenance coats, and repairs. This is a two part product that will need to be sprayed using a specialized RST sprayer, where the product will be catalyzed as it is sprayed.
 - 1. Application Rate: 3.0 to 3.5 gal per 100 ft² (12.2 to 14.3 L/10 m²).
 - 2. Application Method: RST Instant-Set Sprayer.
 - 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C).
 - 4. Dry Time to walk on (70°F (21°C), 50% relative humidity): 6 hours.

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: 2.0 gal per 200 linear feet with a 6 inch width (8.1 L per 61 linear meters with a 152 mm width), 2 coats typically required.
 - 2. Application Method: Putty knife, spatula and stiff bristle brush.
 - 3. Application Temperature (air, surface): minimum 50°F (10°C).
 - 4. Dry Time: 1-4 hours depending on application thickness
 - 5. Clean-up: Water before curing.
- B. United Coatings™ Roof Mate™ Fabric: tough, non-woven, stitch-bonded, heat-set polyester designed for roofing and flashing applications of all types. Available in 300 ft. rolls and varying widths.
 - 1. Length: 300 ft. (91 m). Widths available: 4" (102 mm), 6" (152 mm), 8" (203 mm), 12" (305 mm), 16" (406 mm), 20" (508 mm), 24" (610 mm).
 - 2. Length: 336 ft. (102 m). Width available: 40" (1.02 m).
- C. 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. Unisil Primer: A two component, water-based, 1:1 ratio primer specifically designed for optimizing the adhesion of United Coatings™ roof coatings over a concrete, metal, asphaltic, most non-TPO single-ply membranes, and existing coatings.

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1. Application Rate: 0.33 to 1.33 gal per 100 ft² (1.35 to 5.42 L/10 m²); varies depending on substrate, surface and porosity.
 2. Application Method: Brush, roller or sprayer.
 3. Application Temperature (air, surface): 50°F (10°C) – 110°F (43°C).
 4. Dry Time: 1 hour at 75°F (24°C), 50% relative humidity.
- B. Epoxy Primer: A clear, single-component epoxy primer/sealer incorporating state of the art water-based technology to produce an extremely versatile product that penetrates and seals porous substrates. It is effective at increasing the bond of acrylic, polyurethane, butyl and epoxy topcoats to a variety of surfaces. It will also help to “solidify” chalky surfaces. It is safe to use, has very little odor, and is easy to clean up.
1. Application Rate: 0.25 - 1.0 gal per 100 ft² (1.01- 4.07 L/10 m²) depending on substrate, surface and porosity.
 2. Application Method: Brush, roller or sprayer.
 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C).
 4. Dry Time: 75°F (24°C): 30 minutes
- C. Clean-Act Rinseable Primer 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: 0.20 gal per 100 ft² (0.81 L/10 m²)
 2. Application Method: pump-up sprayer.
 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C)
 4. Dry Time: 20 minutes. Should be power-washed after a minimum of 20 minutes and maximum of 2 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: 0.25 - 0.33 gallon per 100 ft² (1.02 - 1.34 L/10 m²).
 2. Application Method: Roller or airless sprayer.
 3. Application Temperature (air, surface): 50°F (10°C) – 110°F (43°C).
 4. Dry Time: 75°F (24°C), 50% relative humidity: Approximately 15 minutes.
- E. United Coatings™ Roof Mate™ 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, and structural concrete. Promotes adhesion to asphalt based products as well as resists asphalt bleed through.
1. Application Rate: 1.0 gal per 100 ft² (4.07 L/10 m²) per coat.
 2. Application Method: Airless sprayer, brush, or roller.
 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C).
 4. Dry Time: 75° F (24° C), 50% relative humidity: approximately 24 hours per coat.
- 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/10 m²).

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2. Application Method: Brush or roller.
 3. Application Temperature (air, surface): 32°F (0°C) - 120°F (49°C).
 4. Dry Time: 75° F (24°C), 50% relative humidity: 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: 0.50 to 0.67 gallon per 100 ft². (2.03 to 2.73 L/10 m²).
 2. Application Method: Low pressure sprayer or broom.

2.5 EQUIPMENT

- A. Airless Sprayer and Accessories: As recommended by GAF's Technical Services. MUST be sprayed via specialized RST Instant-Set Sprayer **ONLY**.

PART 3 EXECUTION

3.1 SUBSTRATE CONDITIONS

- A. Installer shall verify adherence to the substrate with a field peel adhesion test, achieving a minimum result of 2.0 pounds per linear inch (PLI) [0.36 kilograms per linear centimeter (kg/cm)]. Test patches will be conducted with Part A only (uncatalyzed) and will be applied with enough material to embed the fabric. 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 and Hypalon® Substrates
 2. Addendum 2 - Resurfacing TPO Substrates
 3. Addendum 3 - Resurfacing EPDM Substrates
 4. Addendum 4 - Resurfacing Granulated Asphaltic Substrates
 5. Addendum 5 - Resurfacing Structural Concrete Substrates
 6. Addendum 6 - Resurfacing Corrugated Structural Transite Panel Substrates

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 Field Services Department when all preliminary work and flashing details will be complete and the Installer is ready to proceed with application of United Coatings™ roof coating. Allow a minimum of two (2) weeks for the interim inspection to be made by the GAF's Field 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 Field Services Department. Please be advised that Technical On-Site Support for instructing Certified Contractors in the proper application of the United Coatings™ roof coating 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.

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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™ roof coating.
- 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. 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.
- D. 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™ Roofshield® I.S. Coating is damaged or punctured, repairs are to be performed using United Coatings™ Roof Mate™ Butter Grade Flashing and United Coatings™ Roof Mate™ Fabric (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™ Coating.
 - 3. If a new penetration area has been cut, embed United Coatings™ Roof Mate™ Fabric 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™ Roofshield® I.S. coating may be applied for aesthetic uniformity.

END OF SECTION

ADDENDUM 1 – Resurfacing PVC and Hypalon® Substrates

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™ roof coating. 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 roof coating. Do not proceed with the installation of the United Coatings™ roof coating 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.

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- 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.
- 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 Primer: Spray Unisil Primer over the entire surface to be coated at the rate of 0.33 gal per 100 ft² (1.34 L/10 m²).
- J. United Coatings™ Roofshield® IS must be applied with a RST Instant-Set Sprayer and recommended spray gun. The RST sprayer will need to be calibrated before the application of the coating.

RST Sprayer Catalyst Pressure Settings[◇] (PSI) for Different Temperature-Humidity Condition				
<i>Choose the temperature and humidity closest to current conditions to find an initial catalyst pressure setting[◇].</i>		Temperature, °F		
		Hot (80°F – 100°F)	Moderate (65°F – 80°F)	Cold (50°F – 65°F)
Humidity, %	Humid (50% – 80%)	50	60	70
	Moderate (30% – 50%)	45	50	60
	Dry (15% – 30%)	40	45	50

◇ Catalyst pressure needs to be optimized based on actual ambient condition, wind speed, and elevation. For best results, conduct a spray test in current conditions to confirm appropriate catalyst settings. This chart is only intended to serve as an estimated initial starting point.

3.7 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 Flashing in accordance with United Coatings™ Detail Drawings. Roof Mate™ Butter Grade Flashing shall be feathered at the edges (see current United Coatings™ Detail Drawings) so that water may flow over the various flashing details.

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- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 12 inches (305 mm) minimum width of United Coatings™ Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. Encapsulate all fasteners using United Coatings™ Roof Mate™ Butter Grade Flashing. 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 Flashing shall be applied around the base of the penetration, extending at least 6 inches (152 mm) onto the vertical and 6 inches (152 mm) onto the base. Embed a 12 inches (305 mm) width of Roof Mate™ Fabric using additional Roof Mate™ Butter Grade Flashing, 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 Flashing and Roof Mate™ Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. After flashing work has been completed and the coating has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 12 inches (305 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing PVC & Hypalon® Substrates 10 Year System:
 - 1. Before application of the United Coatings™ roof coating, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI (0.36 kg/cm). Test patches will be conducted with Part A only (uncatalyzed) and will be applied with enough material to embed the fabric.
 - 2. Conduct moisture survey and remove/replace all wet areas.
 - 3. Repair membrane including seams, penetrations, flashings, curbs, and terminations with like materials.
 - 4. Power wash roof to ensure it is free of dirt, debris, oil and other contaminants that could negatively affect adhesion. United Cleaning Concentrate is recommended to clean the roof. Allow the roof to completely dry.
 - 5. Prime with Unisil Primer at the rate of 0.33 gal per 100 ft² (1.34 L/10 m²).
 - 6. Treat all penetrations, drains, curbs, and scuppers as listed above.
 - 7. Treat seams.
 - a. **Loose seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of United Coatings™ Roof Mate™ Butter Grade Flashing at 2.0 gal per 100 ft² (8.14 L/10 m²), United Coatings™ Roof Mate™ Fabric, and 2.0 gal per 100 ft² (8.14 L/10 m²) United Coatings™ Roof Mate™ Butter Grade Flashing.
 - b. **Vertical and Horizontal seams:** to be treated with 2.0 gal per 100 ft² (8.14 L/10 m²) of United Coatings™ Roof Mate™ Butter Grade Flashing.
 - 8. Calibrate RST Sprayer pressure settings and spray Part A and Catalyst at the rate of 3.0 gal per 100 ft² (12.22 L/10m²).

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9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. and correct any unsatisfactory conditions. The specified United Coatings™ dry coating thickness is approximately 25 mils in the field of the roof.

ADDENDUM 2 – Resurfacing TPO Substrates

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™ roof coating. 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 roof coating. Do not proceed with the installation of the United Coatings™ roof coating 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.
- 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 Primer: Unisil Primer over the entire surface to be coated at the rate of 0.33 gal per 100 ft² (1.34 L/10 m²).
- J. United Coatings™ Roofshield® IS must be applied with a RST Instant-Set Sprayer and recommended spray gun. The RST sprayer will need to be calibrated before the application of the coating.

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RST Sprayer Catalyst Pressure Settings[◇] (PSI) for Different Temperature-Humidity Condition				
<i>Choose the temperature and humidity closest to current conditions to find an initial catalyst pressure setting[◇].</i>		Temperature, °F		
		Hot (80°F – 100°F)	Moderate (65°F – 80°F)	Cold (50°F – 65°F)
Humidity, %	Humid (50% – 80%)	50	60	70
	Moderate (30% – 50%)	45	50	60
	Dry (15% – 30%)	40	45	50

◇ Catalyst pressure needs to be optimized based on actual ambient condition, wind speed, and elevation. For best results, conduct a spray test in current conditions to confirm appropriate catalyst settings. This chart is only intended to serve as an estimated initial starting point.

3.7 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 Flashing in accordance with United Coatings™ Detail Drawings. Roof Mate™ Butter Grade Flashing 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 12 inches (305 mm) minimum width of United Coatings™ Roof Mate™ Fabric and United Coatings™ Roof Mate™ Butter Grade Flashing. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. Encapsulate all fasteners using United Coatings™ Roof Mate™ Butter Grade Flashing. 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 6 inches (152 mm) onto the vertical and 6 inches (152 mm) onto the base. Embed a 12 inches (305 mm) width of Roof Mate™ Fabric using additional Roof Mate™ Butter Grade Flashing, 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 Flashing and Roof Mate™ Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. After flashing work has been completed and the coating has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 12 inches (305 mm) Roof Mate™ Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.

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- 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

A. Resurfacing TPO Substrates 10 Year System:

- 1. Before application of the United Coatings™ roof coating, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI (0.36 kg/cm). Test patches will be conducted with Part A only (uncatalyzed) and will be applied with enough material to embed the fabric.
- 2. Conduct moisture survey and remove/replace all wet areas.
- 3. Repair membrane including seams, penetrations, flashing, curbs, and terminations with like materials.
- 4. Power wash roof to ensure it is free of dirt, debris, oil and other contaminants that could negatively affect adhesion. United Cleaning Concentrate is recommended to clean the roof. Allow the roof to completely dry.
- 5. Prime using Unisil Primer at the rate of 0.33 gal per 100 ft² (1.34 L/10 m²).
- 6. Treat all roof penetrations, drains, curbs, and scuppers.
- 7. Treat seams:
 - a. **Loose seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of United Coatings™ Roof Mate™ Butter Grade Flashing at 2.0 gal per 100 ft² (8.14 L/m²), United Coatings™ Roof Mate™ Fabric, and 2.0 gal per 100 ft² (8.14 L/m²) United Coatings™ Roof Mate™ Butter Grade Flashing.
 - b. **Vertical and Horizontal seams:** to be treated with 2.0 gal per 100 ft² (8.14 L/m²) of United Coatings™ Roof Mate™ Butter Grade Flashing.
- 8. Calibrate RST Sprayer pressure settings and spray Part A and Catalyst at the rate of 3.0 gal per 100 ft² (12.22 L/10m²).
- 9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. and correct any unsatisfactory conditions. The specified United Coatings™ dry coating thickness is approximately 25 mils in the field of the roof.

ADDENDUM 3 – Resurfacing EPDM Substrates

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™ roof coating. 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 roof coating. Do not proceed with the installation of the United Coatings™ roof coating 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.

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- 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.
- 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 Primer: Prime with CleanAct Primer at the rate of 0.20 gal per 100 ft² (0.81 L/10 m²) **AND THEN PRIME** using TPO Red Primer at the rate of 0.25-0.33 gal per 100 ft² (1.02-1.34 L/m²) over the entire surface to be coated.
- K. United Coatings™ Roofshield® IS must be applied with a RST Instant-Set Sprayer and recommended spray gun. The RST sprayer will need to be calibrated before the application of the coating.

RST Sprayer Catalyst Pressure Settings[◇] (PSI) for Different Temperature-Humidity Condition				
<i>Choose the temperature and humidity closest to current conditions to find an initial catalyst pressure setting[◇].</i>		Temperature, °F		
		Hot (80°F – 100°F)	Moderate (65°F – 80°F)	Cold (50°F – 65°F)
Humidity, %	Humid (50% – 80%)	50	60	70
	Moderate (30% – 50%)	45	50	60
	Dry (15% – 30%)	40	45	50

◇ Catalyst pressure needs to be optimized based on actual ambient condition, wind speed, and elevation. For best results, conduct a spray test in current conditions to confirm appropriate catalyst settings. This chart is only intended to serve as an estimated initial starting point.

3.7 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.

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- B. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 12 inches (305 mm) minimum width of United Coatings™ Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. Encapsulate all fasteners using United Coatings™ Roof Mate™ Butter Grade Flashing. 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 6 inches (152 mm) onto the vertical and 6 inches (152 mm) onto the base. Embed a 12 inches (305 mm) width of Roof Mate™ Fabric using additional Roof Mate™ Butter Grade Flashing, 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. After flashing work has been completed and the coating has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 12 inches (305 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing EPDM Substrates 10 Year System:
 - 1. Conduct moisture survey and remove/replace all wet areas.
 - 2. Repair membrane including seams, penetrations, flashing, curbs, and terminations with like materials.
 - 3. Power wash roof to ensure it is free of dirt, debris, oil and other contaminants that could negatively affect adhesion. United Cleaning Concentrate is recommended to clean the roof. Allow the roof to completely dry.
 - 4. Before application of the United Coatings™ roof coating, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI (0.36 kg/cm). Test patches to be applied with the rates listed below.
 - 5. Prime using CleanAct Primer at the rate of 0.20 gal per 100 ft² (0.81 L/10 m²) **AND THEN PRIME** using TPO Red Primer at the rate of 0.25-0.33 gal per 100 ft² (1.02-1.34 L/m²) over the entire surface to be coated.
 - 6. Treat all roof penetrations, drains, curbs, and scuppers.
 - 7. Treat seams.
 - a. **Loose seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of United Coatings™ Roof Mate™ Butter Grade Flashing at 2.0 gal per 100 ft² (8.14 L/10 m²), United Coatings™ Roof Mate™ Fabric, and 2.0 gal per 100 ft² (8.14 L/10 m²) United Coatings™ Roof Mate™ Butter Grade Flashing.
 - b. **Vertical and Horizontal seams:** to be treated with 2.0 gal per 100 ft² (8.14 L/10 m²) of United Coatings™ Roof Mate™ Butter Grade Flashing.
 - 8. Calibrate RST Sprayer pressure settings and spray Part A and Catalyst at the rate of 3.0 gal per 100 ft² (12.22 L/10 m²).

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9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. and correct any unsatisfactory conditions. The specified United Coatings™ dry coating thickness is approximately 25 mils in the field of the roof.

ADDENDUM 4 – Resurfacing Granulated Asphaltic Substrates

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™ roof coating. Any wet or deteriorated areas shall be removed and replaced.
- B. GAF recommends that new asphaltic membranes and repairs age at least 30 days; 90+ days is ideal.
- C. Do NOT apply over gravel surfaced substrates.
- D. 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 roof coating. Do not proceed with the installation of the United Coatings™ roof coating until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- E. 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.
- F. 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.
- G. Deteriorated Seams: Repair all delaminated or open seams using method acceptable to the manufacturer.
- H. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- I. 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.
- J. Membrane cleaning: If it is a new asphaltic substrate (less than 5 years) the surface may be cleaned using pressured air and dry broom. NOTE: If there is excessive dirt accumulation on new asphaltic membranes that cannot be removed by the dry cleaning method, it must be Power washed and cleaned with UCC (United Cleaning Concentrate). For aged substrates (5 or more years) the roof substrate must be carefully pressure washed with water. Use an approximate working pressure of 2,000 psi (13.79 MPa), 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.
- K. Application of Primer: Prime with Roof Mate MB Plus at the rate of 1.0 gal per 100 ft² (4.07 L/10 m²).
- L. United Coatings™ Roofshield® IS must be applied with a RST Instant-Set Sprayer and recommended spray gun. The RST sprayer will need to be calibrated before the application of the coating.

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RST Sprayer Catalyst Pressure Settings[◇] (PSI) for Different Temperature-Humidity Condition				
<i>Choose the temperature and humidity closest to current conditions to find an initial catalyst pressure setting[◇].</i>		Temperature, °F		
		Hot (80°F – 100°F)	Moderate (65°F – 80°F)	Cold (50°F – 65°F)
Humidity, %	Humid (50% – 80%)	50	60	70
	Moderate (30% – 50%)	45	50	60
	Dry (15% – 30%)	40	45	50

◇ Catalyst pressure needs to be optimized based on actual ambient condition, wind speed, and elevation. For best results, conduct a spray test in current conditions to confirm appropriate catalyst settings. This chart is only intended to serve as an estimated initial starting point.

3.7 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 Flashing in accordance with United Coatings™ Detail Drawings. Roof Mate™ Butter Grade Flashing 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 12 inches (305 mm) minimum width of United Coatings™ Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. 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 12 inches (305 mm) width of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. Encapsulate all fasteners using United Coatings™ Roof Mate™ Butter Grade Flashing. 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 6 inches (152 mm) onto the vertical and 6 inches (152 mm) onto the base. Embed a 12 inches (305 mm) width of Roof Mate™ Fabric using additional Roof Mate™ Butter Grade Flashing, 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. After flashing work has been completed and the coating has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 12 inches (305 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.

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- 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

A. Resurfacing Granulated Asphaltic Substrates 10 Year System:

1. Before application of the United Coatings™ roof coating, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI (0.36 kg/cm). Test patches will be conducted with Part A only (uncatalyzed) and will be applied with enough material to embed the fabric.
2. Conduct moisture survey and remove/replace all wet areas.
3. Repair membrane including seams, penetrations, flashing, curbs, and terminations with like materials.
4. If it is a new asphaltic substrate (less than 5 years), the surface may be cleaned using pressured air and dry brooms. NOTE: If there is excessive dirt accumulation on new asphaltic membranes that cannot be removed by the dry cleaning method, it must be Power washed and cleaned with UCC (United Cleaning Concentrate). For aged substrates (5 or more years) the roof substrate must be power washed to ensure it is free of dirt, debris, oil and other contaminants that could negatively affect adhesion. United Cleaning Concentrate is recommended to clean the roof. Allow the roof to completely dry.
5. Prime with Roof Mate Base Coat at the rate of 1.0 gal per 100 ft² (4.07 L/10 m²).
6. Treat all roof penetrations, drains, curbs, and scuppers.
7. Treat seams:
 - a. **Loose seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of United Coatings™ Roof Mate™ Butter Grade Flashing at 2.0 gal per 100 ft² (8.14 L/10 m²), United Coatings™ Roof Mate™ Fabric, and 2.0 gal per 100 ft² (8.14 L/10 m²) United Coatings™ Roof Mate™ Butter Grade Flashing.
 - b. **Vertical and Horizontal seams:** to be treated with 2.0 gal per 100 ft² (8.14 L/10 m²) of United Coatings™ Roof Mate™ Butter Grade Flashing.
8. Treat “alligatored” areas or surface cracks.
9. Calibrate RST Sprayer pressure settings and spray Part A and Catalyst at the rate of 3.0 gal per 100 ft² (12.22 L/10 m²).
10. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. and correct any unsatisfactory conditions. The specified United Coatings™ dry coating thickness is approximately 25 mils in the field of the roof.

ADDENDUM 5 – Resurfacing Structural Concrete Substrates

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™ roof coating. The concrete must contain less than 8% moisture. 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™ roof coating until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. **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.
- D. **Pitch Pans:** Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.

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- E. 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.
- F. Substrate 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. Allow roof to completely dry.
- G. Application of Primer: Prime with Epoxy Primer at the rate of 0.3-0.4 gal per 100 ft² (1.22-1.63 L/10 m²).
- H. United Coatings™ Roofshield® IS must be applied with a RST Instant-Set Sprayer and recommended spray gun. The RST sprayer will need to be calibrated before the application of the coating.

RST Sprayer Catalyst Pressure Settings[◇] (PSI) for Different Temperature-Humidity Condition				
<i>Choose the temperature and humidity closest to current conditions to find an initial catalyst pressure setting[◇].</i>		Temperature, °F		
		Hot (80°F – 100°F)	Moderate (65°F – 80°F)	Cold (50°F – 65°F)
Humidity, %	Humid (50% – 80%)	50	60	70
	Moderate (30% – 50%)	45	50	60
	Dry (15% – 30%)	40	45	50

◇ Catalyst pressure needs to be optimized based on actual ambient condition, wind speed, and elevation. For best results, conduct a spray test in current conditions to confirm appropriate catalyst settings. This chart is only intended to serve as an estimated initial starting point.

3.7 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 Flashing in accordance with United Coatings™ Detail Drawings. Roof Mate™ Butter Grade Flashing 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 12 inches (305 mm) minimum width of United Coatings™ Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. Encapsulate all fasteners using United Coatings™ Roof Mate™ Butter Grade Flashing. Do not bridge fasteners. Roof Mate™ Fabric shall be cut around all fasteners so fabric lies flat.

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- D. Penetrations: United Coatings™ Roof Mate™ Butter Grade shall be applied around the base of the penetration, extending at least 6 inches (152 mm) onto the vertical and 6 inches (152 mm) onto the base. Embed a 12 inches (305 mm) width of Roof Mate™ Fabric using additional Roof Mate™ Butter Grade Flashing, 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 Flashing and Roof Mate™ Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. After flashing work is completed and the coating has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 12 inches (305 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing Structural Concrete 10 Year System:
 - 1. Before application of the United Coatings™ roof coating, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI (0.36 kg/cm). Test patches will be conducted with Part A only (uncatalyzed) and will be applied with enough material to embed the fabric.
 - 2. Conduct moisture survey to ensure concrete contains less than 8% moisture.
 - 3. Repair or replace damaged or deteriorated sections with like materials, allowing cementitious products to cure properly.
 - 4. Power wash roof to ensure it is free of dirt, debris, oil, and other contaminants that could negatively affect adhesion. United Cleaning Concentrate (UCC) is recommended to clean the roof. Allow roof to completely dry.
 - 5. Prime with Epoxy primer at the rate of 0.3-0.4 gal per 100 ft² (1.22-1.63 L/10 m²).
 - 6. Treat structural joints with backer rod and urethane or silicone sealant, then treat with Roof Mate™ Butter Grade Flashing and Roof Mate™ Fabric.
 - 7. Control joints in excess of 1/16" (1.6 mm) shall also be caulked with a compatible caulk.
 - 8. Treat all roof penetrations, drains, curbs, and scuppers with Roof Mate™ Butter Grade Flashing and Roof Mate™ Fabric.
 - 9. Calibrate RST Sprayer pressure settings and spray Part A and Catalyst at the rate of 3.0 gal per 100 ft² (12.22 L/10 m²).
 - 10. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. and correct any unsatisfactory conditions. The specified United Coatings™ dry coating thickness is approximately 25 mils in the field of the roof.

ADDENDUM 6 – Resurfacing Corrugated Structural Transite Panel Substrates

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™ roof coating. Any wet or deteriorated areas shall be removed and replaced.

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- 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™ roof coating until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- C. 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.
- D. Pitch Pans: Pitch pans shall be capped with sheet metal so they may be sealed with United Coatings™ products.
- E. 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.
- F. Substrate 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.
- G. Application of Primer: Prime with Epoxy Primer at the rate of 0.3-0.4 gal per 100 ft² (1.22-1.63 L/10 m²).
- H. United Coatings™ Roofshield® IS must be applied with a RST Instant-Set Sprayer and recommended spray gun. The RST sprayer will need to be calibrated before the application of the coating.

RST Sprayer Catalyst Pressure Settings[◇] (PSI) for Different Temperature-Humidity Condition				
<i>Choose the temperature and humidity closest to current conditions to find an initial catalyst pressure setting[◇].</i>		Temperature, °F		
		Hot (80°F – 100°F)	Moderate (65°F – 80°F)	Cold (50°F – 65°F)
Humidity, %	Humid (50% – 80%)	50	60	70
	Moderate (30% – 50%)	45	50	60
	Dry (15% – 30%)	40	45	50

◇ Catalyst pressure needs to be optimized based on actual ambient condition, wind speed, and elevation. For best results, conduct a spray test in current conditions to confirm appropriate catalyst settings. This chart is only intended to serve as an estimated initial starting point.

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3.7 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 Flashing in accordance with United Coatings™ Detail Drawings. Roof Mate™ Butter Grade Flashing 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 12 inches (305 mm) minimum width of United Coatings™ Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. All voids and open areas shall be filled with polyurethane foam prior to application of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing.
- C. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of Roof Mate™ Fabric and Roof Mate™ Butter Grade Flashing. Encapsulate all fasteners using United Coatings™ Roof Mate™ Butter Grade Flashing. 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 6 inches (152 mm) onto the vertical and 6 inches (152 mm) onto the base. Embed a 12 inches (305 mm) width of Roof Mate™ Fabric using additional Roof Mate™ Butter Grade Flashing, 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 Flashing and Roof Mate™ Fabric as described above.
- E. Skylights: Curb skylights shall be treated in the same fashion as curb flashings. After flashing work is completed and the coating has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- F. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutter incorporating 12 inches (305 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing Corrugated Structural Transite Panel 10 Year System:
 - 1. Before application of the United Coatings™ roof coating, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI (0.36 kg/cm Test patches will be conducted with Part A only (uncatalyzed) and will be applied with enough material to embed the fabric.
 - 2. Conduct moisture survey and remove/replace all wet areas.
 - 3. Repair or replace damaged or deteriorated sections with like materials, allowing cementitious products to cure properly.
 - 4. Power wash roof to ensure it is free of dirt, debris, oil, and other contaminants that could negatively affect adhesion. United Cleaning Concentrate (UCC) is recommended to clean the roof. Allow roof to completely dry.
 - 5. Prime with Epoxy Primer at the rate of 0.3-0.4 gal per 100 ft² (1.22-1.63 L/10 m²).
 - 6. Treat transite gaps in excess of 1/16" (1.6 mm) with a compatible caulk.
 - 7. Treat all roof penetrations, drains, curbs, and scuppers with Roof Mate™ Butter Grade Flashing and Roof Mate™ Fabric.

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8. Calibrate RST Sprayer pressure settings and spray Part A and Catalyst at the rate of 3.0 gal per 100 ft² (12.22 L/10m²).
9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. and correct any unsatisfactory conditions. The specified United Coatings™ dry coating thickness is approximately 25 mils in the field of the roof.