



Section 07560

Liquid-Applied Roofing

HydroStop® PremiumCoat® System over Metal Substrate

HYDROSTOP® PREMIUMCOAT® SYSTEM OVER METAL SUBSTRATE SPECIFICATION
SECTION 07560

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. This specification is intended to outline the requirements for application of the HydroStop® PremiumCoat® System, 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. 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.

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1.5 SYSTEM DESCRIPTION

- A. The HydroStop® PremiumCoat® System 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/HydroStop® 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.
 - 4. Installer shall be classified as an Authorized Contractor as defined and a 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 HydroStop® PremiumCoat® System requirements (HydroStop® PremiumCoat® System 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.

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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 HydroStop® PremiumCoat® 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 & HANDLING

- A. Store and handle HydroStop® PremiumCoat® 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 above 50°F (10°C) and rising when applying water based coatings.
- B. Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with HydroStop® PremiumCoat® 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 HydroStop® PremiumCoat® products is 110°F (43°C). If substrate temperatures exceed 110°F (43°C), HydroStop® PremiumCoat® products shall be applied during cooler periods of the day. If this is not practical, the substrate shall be cooled with water, and then HydroStop® PremiumCoat® products applied just after the water has flashed-off.
 3. No moisture may be present when applying HydroStop® PremiumCoat® products. Taking into consideration the UV curing properties of HydroStop® PremiumCoat®, allow for sufficient daylight hours necessary for curing of materials.

1.12 WARRANTY

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- A. Liquid Applied Diamond Pledge™ NDL Roof Guarantee: Manufacturers standard form, without money limitation, in which GAF agrees to repair leaks through the HydroStop® PremiumCoat® products on the roof caused by manufacturing defects, natural deterioration of, or workmanship in applying, the HydroStop® PremiumCoat® 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. Liquid Applied Emerald Pledge™ Limited Warranty: Manufacturers standard form, in which HydroStop® PremiumCoat® agrees to repair leaks through the HydroStop® PremiumCoat® products on the roof caused by manufacturing defects or natural deterioration of the HydroStop® PremiumCoat® 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
- C. 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.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- 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. HydroStop® PremiumCoat® Finish Coat: An acrylic, permanently flexible, highly UV-resistant, chemical-resistant elastomeric compound fully reinforced with a tough stitch-bonded polyester fabric designed for roofing and flashing applications of all types.
 - 1. Application Rate: 0.75-1.00 gal per 100 ft² (3.05 – 4.07 L/10 m²) per coat.
 - 2. Application Method: Roof brush or 1" (25.4 mm) nap roller.
 - 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C).
 - 4. Dry time: (touch dry) 1- 4 hours at 77°F (25°C), 40% R.H. (full cure): 7 days.
- B. HydroStop® PremiumCoat® Foundation Coat: An acrylic, permanently flexible, highly UV-resistant, chemical-resistant elastomeric compound fully reinforced with a tough stitch-bonded polyester fabric designed for roofing and flashing applications of all types.
 - 1. Application Rate: 1.00-1.50 gal per 100 ft² (4.07 - 6.11 L/10 m²) per coat.
 - 2. Application Method: Roof brush.
 - 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C).
 - 4. Dry time: (touch dry) 1- 4 hours at 77°F (25°C), 40% relative humidity (full cure): 7 days.

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2.3 FLASHINGS, FABRIC, AND BULKING AGENTS

- A. HydroStop® PremiumCoat® 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.
1. Application Rate: 2.0 gal per 200 linear feet with a 6 inch width (7.6 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 (ambient): minimum 50 °F (10 °C).
 4. Dry Time: 1-4 hours depending on application thickness
 5. Clean-up: Water before curing.
- B. HydroStop® 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 joints, etc.
1. Application Rate: 0.50 gal per 100 ft² (2.03 L/10m²) per 1 gal of HydroStop® PremiumCoat® Foundation or Finish Coat.
 2. Application Method: Brush.
 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C).
 4. Dry Time: Minimum 24 hours.
 5. Clean up: Water.
- C. HydroStop® PremiumCoat® 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 (91.5 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" (1016 mm)
- D. 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. XR-2000 Primer: White, water-based adhesion promoting primer designed to enhance the adhesion of the HydroStop® PremiumCoat® 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 50°F (10°C).
1. Application Rate: 0.75 gallon per 100 ft² (3.05 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 6 hours.
- B. Acrylex 400 Primer: A water-based, medium viscosity material, providing corrosion protection, flash rust resistance and enhanced adhesion over steel, aluminum and galvanized metal

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surfaces. Single component, premium quality exterior acrylic latex primer that is blister and stain resistant, permanently flexible and highly durable. It exhibits excellent corrosion resistance over metal substrates and alkali resistance over concrete and masonry.

1. Application Rate: 0.33 – 0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²) depending on substrate, surface and porosity.
 2. Application Method: Brush, roller or conventional 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, 20-30 minutes
- C. StableRust Primer: a water-based acrylic primer for metal to stabilize and protect metal surfaces.
1. Application Rate: 0.33 – 0.50 gal per 100 ft² (1.34 – 2.04 L/10 m²).
 2. Application Method: Brush, roller or sprayer.
 3. Application Temperature (air, surface): 50°F (10°C) – 110°F (43°C).
 4. Dry Time: (to touch) 20-30 minutes at 75°F (24°C), 50% relative humidity; to coat: 1 hour at 75°F (24°C), 50% relative humidity.
- D. 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 gal per 100 ft² (1.02 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: (to touch) 75°F (24°C), 50% relative humidity: Approximately 1 hour. (To cure) 75°F (24°C), 50% relative humidity: Approximately 12 hours.
- E. UniBase Primer: A low viscosity, highly penetrating, advanced acrylic polymer adhesive and primer designed to act as a bonding primer to enhance the adhesion over built-up, granulated cap sheets, modified bitumen roofing, concrete or previously coated surfaces, also acting as an excellent asphalt bleed blocker.
1. Application Rate: 0.50 - 1.0 gal per 100 ft² (2.03 - 4.08 L/10 m²) per gallon on properly prepared surfaces.
 2. Application Method: Brush, roller or sprayer.
 3. Application Temperature (air, surface): 50°F (10°C) - 110°F (43°C)
 4. Dry Time: 1-2 hours at 70°F (21°C), 50% relative humidity.
- 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.
1. Application Rate: 2.0 gal per 200 linear feet with a 6 inch width (7.6 L per 61 linear meters with a 152 mm width); 2 coats typically required.
 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% relative humidity: Approximately 24 hours.

2.5 EQUIPMENT

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

PART 3 – EXECUTION

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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 Metal Substrate.
 - 2. Addendum 2 – Resurfacing Metal Substrate with HydroStop® and Kymax™.
 - 3. Addendum 3 – Resurfacing Historic Standing Seam Metal 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 Field Services Department when all preliminary work and flashing details will be complete and the Installer is ready to proceed with application of HydroStop® PremiumCoat® System. 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 HydroStop® PremiumCoat® 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 HydroStop® PremiumCoat® 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. HydroStop® PremiumCoat® 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 HydroStop® PremiumCoat® Roofing Membrane colors. When applying HydroStop® PremiumCoat® Foundation Coat, Installer shall always spray wet material onto wet material to ensure that spray lines do not appear. HydroStop® 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.

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- 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 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 HydroStop® PremiumCoat® membrane is damaged or punctured, repairs are to be performed using HydroStop® PremiumCoat® Finish Coat or HydroStop® PremiumCoat® Butter Grade and HydroStop® PremiumCoat® Fabric (where necessary) as follows:
 - 1. Damaged areas are to be cut, cleaned and dried.
 - 2. Apply HydroStop® PremiumCoat® Butter Grade Flashing or HydroStop® PremiumCoat® Finish Coat with HydroStop® Hydrofiber Bulking Agent, and feather out onto the existing HydroStop® PremiumCoat® membrane.
 - 3. If a new penetration area has been cut, embed HydroStop® PremiumCoat® Fabric into the HydroStop® PremiumCoat® Butter Grade Flashing or HydroStop® PremiumCoat® Finish Coat with HydroStop® Hydrofiber Bulking Agent according to standard HydroStop® PremiumCoat® specifications.
 - 4. Once the HydroStop® PremiumCoat® Butter Grade Flashing has cured, HydroStop® PremiumCoat® Finish Coat may be applied for aesthetic uniformity.

END OF SECTION

ADDENDUM 1 – Resurfacing Metal Substrate

3.6 PREPARATION OF SUBSTRATE

- A. Preparation of the Roof substrate is the responsibility of the Installer. Installer shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with installation of the HydroStop® PremiumCoat® roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- B. Installation of sheet metal crickets: Sheet metal crickets shall be installed according to manufacturer's specifications [minimum 26 gauge (0.455 mm) metal - heavier gauge required for larger crickets] on the high side of all curb units. Vertical ribs shall be cut a minimum of 2 inches (51 mm) from the cricket to allow both the cricket flanges to mount flush to the metal panel and facilitate water drainage. Cut vertical ribs shall then be treated in the same fashion as a void larger than a 1/4 inch (6 mm). New crickets shall be "sealed" by placing a continuous bead of FlexSeal™ Sealant under the flanges before they are mechanically attached to the curb unit and metal roof panel. Then, the cricket flanges shall be stitch-screwed to the curb unit and metal roof panel while the FlexSeal™ Sealant is still wet using fasteners. This procedure shall apply to installation of all new crickets and curbs.
- 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 HydroStop® PremiumCoat® products. Ponding water is defined as water which does not properly drain and remains on the roof surface for more than 48 hours after precipitation stops.

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- D. Repair of Dented / Damaged Panels: Installer shall repair dented and/or damaged metal roof panels. Dents shall be mechanically removed to the maximum extent possible. If ribs are broken, Installer shall cover the broken rib area with a sheet metal cap. Sheet metal rib caps shall be sealed to the roof by applying HydroStop® PremiumCoat® Butter Grade Flashing over the entire broken rib area to be capped prior to attaching the cap with fasteners. Then, HydroStop® PremiumCoat® Butter Grade shall be used to seal all the newly created rib cap seams and fasteners. Roof panels that are severely damaged shall be removed and replaced prior to application of HydroStop® PremiumCoat® products.
- E. Re-tightening and Replacement of Fasteners: All fasteners shall be re-tightened, secured or replaced, as necessary. All stripped fasteners shall be replaced with larger diameter fasteners, and the area re-secured by adding a new fastener next to the one that was stripped. All missing fasteners shall be replaced. In evaluating a roofing substrate for the application of the HydroStop® PremiumCoat® System, it is important to note the manner in which the roof is fastened. The fastening pattern may require modification to facilitate the proper installation of the system.
- F. Thorough Cleaning / Removal of Existing Paints and Coatings: Metal substrate shall be pressure-washed with water. A minimum working pressure of 3,000 psi (20 MPa) shall be used to remove all delaminating paint and coatings dirt, dust, and waste products (oil, oil-based roof cements, solvents, grease, animal fats, etc.). A Roto-spray tip is required to expedite metal panel cleaning. All existing silicone-based sealants shall be completely removed from roof substrate prior to application of HydroStop® PremiumCoat® products. In some cases, a sand injection system may be required during the pressure washing to obtain proper adhesion for HydroStop® PremiumCoat® products. When encountering roof substrates that have living organisms such as algae, mold or fungus, a bleach solution shall be used to kill and remove these organisms during the roof cleaning.
- G. 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 ft² (0.1 m²). Residual asphalt shall be coated with Unibase Primer.
- H. Treatment of Rust Areas: Remove all loose, flaking or powdery rust by wire brushing if it has not been removed during the pressure washing. Use appropriate primer prior to coating. Roof panels which are corroded to the point where holes are present shall be replaced.
- I. Priming of Pre-Finished Metal Panels: Where roof panel surfaces are known or suspected to contain Kynar-500 or other fluoropolymers, test patches shall be prepared with and without the use of XR-2000 Primer. Based on test patch adhesion results, Installer shall apply XR-2000 Primer on pre-finished metal panels per specifications. Please note that since XR-2000 Primer has rust inhibiting properties, primer is not required where XR-2000 Primer has been used.
- J. Pitch Pans: For most situations, pitch pans shall be capped with sheet metal so they can be sealed with HydroStop® PremiumCoat® products. Contact GAF's Technical Services Department for more information.
- K. Neoprene Pipe Boots: HydroStop® PremiumCoat® recommends the installation of neoprene boots prior to flashing work being performed for certain types of pipe penetrations. Neoprene boots shall first be sealed to the roof using a bead of FlexSeal™ Sealant prior to mechanical attachment with fasteners. Contact GAF's Technical Services Department for more information.
- L. Open Ridge Vents: Open ridge vents (as shown in detail drawings) may begin to corrode on the inside, and over time, may leak. HydroStop® PremiumCoat® highly recommends either

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replacement or the installation of sheet metal caps over the open ridge vents when they are rusted on the inside and/or located in a harsh environment (e.g., salt water areas). Sheet metal caps shall be installed when leaks are suspected from the vents. Installation of a cap on the ridge vent will prevent water entry while allowing air to continue to flow through the vent. Do not seal weep holes on the vents. Inadequate roof ventilation may cause blistering in the HydroStop® PremiumCoat® roofing system due to inside air "blowing-out" through roof panel seams. When this condition occurs, it may not allow for proper curing of the HydroStop® PremiumCoat® material which may cause blisters.

- M. Condensate Lines: HydroStop® PremiumCoat® recommends the installation of condensate lines from HVAC units to gutters as part of the overall roofing contract. Type of piping used for condensate lines may vary depending on local building codes. Lines shall be securely fastened to panel ribs.
- N. Deteriorated Seams/Cracks: All delaminated or open seams need to be 3-coursed with HydroStop® PremiumCoat® Butter Grade and HydroStop® PremiumCoat® Fabric.

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 3-course flashed with either 6 inches (152 mm) or 12 inches (305 mm) HydroStop® PremiumCoat® Fabric embedded in HydroStop® PremiumCoat® Butter Grade Flashing in accordance with HydroStop® PremiumCoat® Detail Drawings. Flashing shall be feathered at the edges (see current HydroStop® PremiumCoat® Detail Drawings) to ensure that water flows over the various flashing details
- B. Rakes: All fixed rake details for the roof shall be secured and sealed with a 12 inches (305 mm) minimum width of and HydroStop® PremiumCoat® Butter Grade Flashing. If fixed rake metal is fastened to the top of roof panel ribs and extends back onto the roof, trim off any excess metal and follow horizontal seam flashing procedures. All voids and open areas shall be filled with polyurethane foam prior to application of HydroStop® PremiumCoat® Butter Grade Flashing and fabric.
- C. For standing seam roof panels, contact GAF's Technical Services Department for information.
- D. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 12 inches (305 mm) minimum width of and HydroStop® PremiumCoat® Butter Grade. If parapet wall flashing metal is fastened to the top of roof panel ribs and extends back onto the roof, trim off any excess metal and follow horizontal seam flashing procedures. All voids and open areas shall be filled with polyurethane foam prior to application of HydroStop® PremiumCoat® Butter Grade Flashing with fabric. Fabric must be cut around all fasteners so it lies flat. United Coatings™ Unicap Fastener Covers can alternatively be used.
- E. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of HydroStop® PremiumCoat® Fabric and HydroStop® PremiumCoat® Butter Grade Flashing. Encapsulate all fasteners using HydroStop® PremiumCoat® Butter Grade Flashing. Do not bridge fasteners. HydroStop® PremiumCoat® Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Penetrations: HydroStop® PremiumCoat® Butter Grade Flashing shall be applied around the base of all penetrations, 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 HydroStop® PremiumCoat® Fabric using additional HydroStop® PremiumCoat® Butter Grade Flashing. Cut the HydroStop® PremiumCoat® Fabric to accommodate the shape of the penetration. Both the top and bottom

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of neoprene pipe boots shall be flashed using HydroStop® PremiumCoat® Butter Grade Flashing as described above.

- G. 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.
- H. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutters incorporating 6 inches (152 mm) HydroStop® PremiumCoat® Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- I. 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing Metal Substrate 10 year System:
 - 1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the system rates listed below.
 - 2. Tighten and/or replace existing fasteners.
 - 3. Pressure 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 the roof to completely dry.
 - 4. Treat Seams:
 - a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).
 - b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
 - 5. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
 - 6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
 - 7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 0.75 gal per 100 ft² (3.06 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 0.75 gal per 100 ft² (3.06 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® PremiumCoat® System dry film thickness is approximately 13 mils in the field of the roof. All unsatisfactory conditions must be repaired.

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- B. Resurfacing Metal Substrate 15 year System:
1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the rates listed below.
 2. Tighten and/or replace existing fasteners.
 3. Pressure 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 the roof to completely dry.
 4. Treat Seams:
 - a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).
 - b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
 5. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
 6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
 7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® PremiumCoat® System dry film thickness is approximately 17 mils in the field of the roof. All unsatisfactory conditions must be repaired.
- C. Resurfacing Metal Substrate 20 Year System:
1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the rates listed below.
 2. Tighten and/or replace existing fasteners.
 3. Pressure 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 the roof to completely dry.
 4. Treat Seams:
 - a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).

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- b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
5. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
9. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
10. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® PremiumCoat® System dry film thickness is approximately 25 mils in the field of the roof. All unsatisfactory conditions must be repaired.

ADDENDUM 2 – Resurfacing Metal Substrate with HydroStop® and Kymax™

3.6 PREPARATION OF SUBSTRATE

- A. Preparation of the Roof substrate is the responsibility of the Installer. Installer shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with installation of the HydroStop® PremiumCoat® roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- B. Installation of sheet metal crickets: Sheet metal crickets shall be installed according to manufacturer's specifications [minimum 26 gauge (0.455 mm) metal - heavier gauge required for larger crickets] on the high side of all curb units. Vertical ribs shall be cut a minimum of 2 inches (51 mm) from the cricket to allow both the cricket flanges to mount flush to the metal panel and facilitate water drainage. Cut vertical ribs shall then be treated in the same fashion as a void larger than a 1/4 inch (6 mm). New crickets shall be "sealed" by placing a continuous bead of FlexSeal™ Sealant under the flanges before they are mechanically attached to the curb unit and metal roof panel. Then, the cricket flanges shall be stitch-screwed to the curb unit and metal roof panel while the FlexSeal™ Sealant is still wet using fasteners. This procedure shall apply to installation of all new crickets and curbs.
- 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 HydroStop® PremiumCoat® products. Ponding water is defined as water which does not properly drain and remains on the roof surface for more than 48 hours after precipitation stops.

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- D. Repair of Dented / Damaged Panels: Installer shall repair dented and/or damaged metal roof panels. Dents shall be mechanically removed to the maximum extent possible. If ribs are broken, Installer shall cover the broken rib area with a sheet metal cap. Sheet metal rib caps shall be sealed to the roof by applying HydroStop® PremiumCoat® Butter Grade Flashing over the entire broken rib area to be capped prior to attaching the cap with fasteners. Then, HydroStop® PremiumCoat® Butter Grade shall be used to seal all the newly created rib cap seams and fasteners. Roof panels that are severely damaged shall be removed and replaced prior to application of HydroStop® PremiumCoat® products.
- E. Re-tightening and Replacement of Fasteners: All fasteners shall be re-tightened, secured or replaced, as necessary. All stripped fasteners shall be replaced with larger diameter fasteners, and the area re-secured by adding a new fastener next to the one that was stripped. All missing fasteners shall be replaced. In evaluating a roofing substrate for the application of the HydroStop® PremiumCoat® System, it is important to note the manner in which the roof is fastened. The fastening pattern may require modification to facilitate the proper installation of the system.
- F. Thorough Cleaning / Removal of Existing Paints and Coatings: Metal substrate shall be pressure-washed with water. A minimum working pressure of 3,000 psi (20 MPa) shall be used to remove all delaminating paint and coatings dirt, dust, and waste products (oil, oil-based roof cements, solvents, grease, animal fats, etc.). A Roto-spray tip is required to expedite metal panel cleaning. All existing silicone-based sealants shall be completely removed from roof substrate prior to application of HydroStop® PremiumCoat® products. In some cases, a sand injection system may be required during the pressure washing to obtain proper adhesion for HydroStop® PremiumCoat® products. When encountering roof substrates that have living organisms such as algae, mold or fungus, a bleach solution shall be used to kill and remove these organisms during the roof cleaning.
- G. 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 ft² (0.1 m²). Residual asphalt shall be coated with Unibase Primer.
- H. Treatment of Rust Areas: Remove all loose, flaking or powdery rust by wire brushing if it has not been removed during the pressure washing. Use appropriate primer prior to coating. Roof panels which are corroded to the point where holes are present shall be replaced.
- I. Priming of Pre-Finished Metal Panels: Where roof panel surfaces are known or suspected to contain Kynar-500 or other fluoropolymers, test patches shall be prepared with and without the use of XR-2000 Primer. Based on test patch adhesion results, Installer shall apply XR-2000 Primer on pre-finished metal panels per specifications. Please note that since XR-2000 Primer has rust inhibiting properties, primer is not required where XR-2000 Primer has been used.
- J. Pitch Pans: For most situations, pitch pans shall be capped with sheet metal so they can be sealed with HydroStop® PremiumCoat® products. Contact GAF's Technical Services Department for more information.
- K. Neoprene Pipe Boots: HydroStop® PremiumCoat® recommends the installation of neoprene boots prior to flashing work being performed for certain types of pipe penetrations. Neoprene boots shall first be sealed to the roof using a bead of FlexSeal™ Sealant prior to mechanical attachment with fasteners. Contact GAF's Technical Services Department for more information.
- L. Open Ridge Vents: Open ridge vents (as shown in detail drawings) may begin to corrode on the inside, and over time, may leak. HydroStop® PremiumCoat® highly recommends either

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replacement or the installation of sheet metal caps over the open ridge vents when they are rusted on the inside and/or located in a harsh environment (e.g., salt water areas). Sheet metal caps shall be installed when leaks are suspected from the vents. Installation of a cap on the ridge vent will prevent water entry while allowing air to continue to flow through the vent. Do not seal weep holes on the vents. Inadequate roof ventilation may cause blistering in the HydroStop® PremiumCoat® roofing system due to inside air "blowing-out" through roof panel seams. When this condition occurs, it may not allow for proper curing of the HydroStop® PremiumCoat® material which may cause blisters.

- M. Condensate Lines: HydroStop® PremiumCoat® recommends the installation of condensate lines from HVAC units to gutters as part of the overall roofing contract. Type of piping used for condensate lines may vary depending on local building codes. Lines shall be securely fastened to panel ribs.
- N. Deteriorated Seams/Cracks: All delaminated or open seams need to be 3-coursed with HydroStop® PremiumCoat® Butter Grade and HydroStop® PremiumCoat® Fabric.

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 3-course flashed with either 6 inches (152 mm) or 12 inches (305 mm) HydroStop® PremiumCoat® Fabric embedded in HydroStop® PremiumCoat® Butter Grade Flashing in accordance with HydroStop® PremiumCoat® Detail Drawings. Flashing shall be feathered at the edges (see current HydroStop® PremiumCoat® Detail Drawings) to ensure that water flows over the various flashing details
- B. Rakes: All fixed rake details for the roof shall be secured and sealed with a 12 inches (305 mm) minimum width of and HydroStop® PremiumCoat® Butter Grade Flashing. If fixed rake metal is fastened to the top of roof panel ribs and extends back onto the roof, trim off any excess metal and follow horizontal seam flashing procedures. All voids and open areas shall be filled with polyurethane foam prior to application of HydroStop® PremiumCoat® Butter Grade Flashing and fabric.
- C. For standing seam roof panels, contact GAF's Technical Services Department for information.
- D. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 12 inches (305 mm) minimum width of and HydroStop® PremiumCoat® Butter Grade. If parapet wall flashing metal is fastened to the top of roof panel ribs and extends back onto the roof, trim off any excess metal and follow horizontal seam flashing procedures. All voids and open areas shall be filled with polyurethane foam prior to application of HydroStop® PremiumCoat® Butter Grade Flashing with fabric. Fabric must be cut around all fasteners so it lies flat. United Coatings™ Unicap Fastener Covers can alternatively be used.
- E. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of HydroStop® PremiumCoat® Fabric and HydroStop® PremiumCoat® Butter Grade Flashing. Encapsulate all fasteners using HydroStop® PremiumCoat® Butter Grade Flashing. Do not bridge fasteners. HydroStop® PremiumCoat® Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Penetrations: HydroStop® PremiumCoat® Butter Grade Flashing shall be applied around the base of all penetrations, 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 HydroStop® PremiumCoat® Fabric using additional HydroStop® PremiumCoat® Butter Grade Flashing. Cut the HydroStop® PremiumCoat® Fabric to accommodate the shape of the penetration. Both the top and bottom

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of neoprene pipe boots shall be flashed using HydroStop® PremiumCoat® Butter Grade Flashing as described above.

- G. 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.
- H. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutters incorporating 6 inches (152 mm) HydroStop® PremiumCoat® Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- I. 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing Metal Substrate with HydroStop® and Kymax™ 20 year System:
 - 1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the system rates listed below.
 - 2. Tighten and/or replace existing fasteners.
 - 3. Pressure 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 the roof to completely dry.
 - 4. Treat Seams:
 - a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).
 - b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
 - 5. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
 - 6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
 - 7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 0.75 gal per 100 ft² (3.06 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 0.75 gal per 100 ft² (3.06 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 9. Apply Kymax™ at a rate of 0.40 gal per 100 ft² (1.62 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory condition.

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10. Apply Kymax™ at a rate of 0.40 gal per 100 ft² (1.62 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory condition.
11. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® and Kymax™ system dry film thickness is approximately 17.5 mils in the field of the roof. All unsatisfactory conditions must be repaired.

Addendum 3 - Resurfacing Historic Standing Seam Metal Substrate

3.6 PREPARATION OF SUBSTRATE

- A. Preparation of the Roof substrate is the responsibility of the Installer. Installer shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with installation of the HydroStop® PremiumCoat® roofing system until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (GAF).
- B. Installation of sheet metal crickets: Sheet metal crickets shall be installed according to manufacturer's specifications [minimum 26 gauge (0.455 mm) metal - heavier gauge required for larger crickets] on the high side of all curb units. Vertical ribs shall be cut a minimum of 2 inches (51 mm) from the cricket to allow both the cricket flanges to mount flush to the metal panel and facilitate water drainage. Cut vertical ribs shall then be treated in the same fashion as a void larger than a 1/4 inch (6 mm). New crickets shall be "sealed" by placing a continuous bead of FlexSeal™ Sealant under the flanges before they are mechanically attached to the curb unit and metal roof panel. Then, the cricket flanges shall be stitch-screwed to the curb unit and metal roof panel while the FlexSeal™ Sealant is still wet using fasteners. This procedure shall apply to installation of all new crickets and curbs.
- 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 HydroStop® PremiumCoat® products. Ponding water is defined as water which does not properly drain and remains on the roof surface for more than 48 hours after precipitation stops.
- D. Repair of Dented / Damaged Panels: Installer shall repair dented and/or damaged metal roof panels. Dents shall be mechanically removed to the maximum extent possible. If ribs are broken, Installer shall cover the broken rib area with a sheet metal cap. Sheet metal rib caps shall be sealed to the roof by applying HydroStop® PremiumCoat® Butter Grade Flashing over the entire broken rib area to be capped prior to attaching the cap with fasteners. Then, HydroStop® PremiumCoat® Butter Grade shall be used to seal all the newly created rib cap seams and fasteners. Roof panels that are severely damaged shall be removed and replaced prior to application of HydroStop® PremiumCoat® products.
- E. Re-tightening and Replacement of Fasteners: All fasteners shall be re-tightened, secured or replaced, as necessary. All stripped fasteners shall be replaced with larger diameter fasteners, and the area re-secured by adding a new fastener next to the one that was stripped. All missing fasteners shall be replaced. In evaluating a roofing substrate for the application of the HydroStop® PremiumCoat® System, it is important to note the manner in which the roof is fastened. The fastening pattern may require modification to facilitate the proper installation of the system.

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- F. Thorough Cleaning / Removal of Existing Paints and Coatings: Metal substrate shall be pressure-washed with water. A minimum working pressure of 3,000 psi (20 MPa) shall be used to remove all delaminating paint and coatings dirt, dust, and waste products (oil, oil-based roof cements, solvents, grease, animal fats, etc.). A Roto-spray tip is required to expedite metal panel cleaning. All existing silicone-based sealants shall be completely removed from roof substrate prior to application of HydroStop® PremiumCoat® products. In some cases, a sand injection system may be required during the pressure washing to obtain proper adhesion for HydroStop® PremiumCoat® products. When encountering roof substrates that have living organisms such as algae, mold or fungus, a bleach solution shall be used to kill and remove these organisms during the roof cleaning.
- G. 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 ft² (0.1 m²). Residual asphalt shall be coated with Unibase Primer.
- H. Treatment of Rust Areas: Remove all loose, flaking or powdery rust by wire brushing if it has not been removed during the pressure washing. Use appropriate primer prior to coating. Roof panels which are corroded to the point where holes are present shall be replaced.
- I. Priming of Pre-Finished Metal Panels: Where roof panel surfaces are known or suspected to contain Kynar-500 or other fluoropolymers, test patches shall be prepared with and without the use of XR-2000 Primer. Based on test patch adhesion results, Installer shall apply XR-2000 Primer on pre-finished metal panels per specifications. Please note that since XR-2000 Primer has rust inhibiting properties, primer is not required where XR-2000 Primer has been used.
- J. Pitch Pans: For most situations, pitch pans shall be capped with sheet metal so they can be sealed with HydroStop® PremiumCoat® products. Contact GAF's Technical Services Department for more information.
- K. Neoprene Pipe Boots: HydroStop® PremiumCoat® recommends the installation of neoprene boots prior to flashing work being performed for certain types of pipe penetrations. Neoprene boots shall first be sealed to the roof using a bead of FlexSeal™ Sealant prior to mechanical attachment with fasteners. Contact GAF's Technical Services Department for more information.
- L. Open Ridge Vents: Open ridge vents (as shown in detail drawings) may begin to corrode on the inside, and over time, may leak. HydroStop® PremiumCoat® highly recommends either replacement or the installation of sheet metal caps over the open ridge vents when they are rusted on the inside and/or located in a harsh environment (e.g., salt water areas). Sheet metal caps shall be installed when leaks are suspected from the vents. Installation of a cap on the ridge vent will prevent water entry while allowing air to continue to flow through the vent. Do not seal weep holes on the vents. Inadequate roof ventilation may cause blistering in the HydroStop® PremiumCoat® roofing system due to inside air "blowing-out" through roof panel seams. When this condition occurs, it may not allow for proper curing of the HydroStop® PremiumCoat® material which may cause blisters.
- M. Condensate Lines: HydroStop® PremiumCoat® recommends the installation of condensate lines from HVAC units to gutters as part of the overall roofing contract. Type of piping used for condensate lines may vary depending on local building codes. Lines shall be securely fastened to panel ribs.
- N. Deteriorated Seams/Cracks: All delaminated or open seams need to be 3-coursed with HydroStop® PremiumCoat® Butter Grade and HydroStop® PremiumCoat® Fabric.

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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 3-course flashed with either 6 inches (152 mm) or 12 inches (305 mm) HydroStop® PremiumCoat® Fabric embedded in HydroStop® PremiumCoat® Butter Grade Flashing in accordance with HydroStop® PremiumCoat® Detail Drawings. Flashing shall be feathered at the edges (see current HydroStop® PremiumCoat® Detail Drawings) to ensure that water flows over the various flashing details
- B. Rakes: All fixed rake details for the roof shall be secured and sealed with a 12 inches (305 mm) minimum width of and HydroStop® PremiumCoat® Butter Grade Flashing. If fixed rake metal is fastened to the top of roof panel ribs and extends back onto the roof, trim off any excess metal and follow horizontal seam flashing procedures. All voids and open areas shall be filled with polyurethane foam prior to application of HydroStop® PremiumCoat® Butter Grade Flashing and fabric.
- C. For standing seam roof panels, contact GAF's Technical Services Department for information.
- D. Parapet Walls: All parapet wall details within the roof system shall be secured and sealed with a 12 inches (305 mm) minimum width of and HydroStop® PremiumCoat® Butter Grade. If parapet wall flashing metal is fastened to the top of roof panel ribs and extends back onto the roof, trim off any excess metal and follow horizontal seam flashing procedures. All voids and open areas shall be filled with polyurethane foam prior to application of HydroStop® PremiumCoat® Butter Grade Flashing with fabric. Fabric must be cut around all fasteners so it lies flat. United Coatings™ Unicap Fastener Covers can alternatively be used.
- E. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inches (305 mm) width of HydroStop® PremiumCoat® Fabric and HydroStop® PremiumCoat® Butter Grade Flashing. Encapsulate all fasteners using HydroStop® PremiumCoat® Butter Grade Flashing. Do not bridge fasteners. HydroStop® PremiumCoat® Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Penetrations: HydroStop® PremiumCoat® Butter Grade Flashing shall be applied around the base of all penetrations, 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 HydroStop® PremiumCoat® Fabric using additional HydroStop® PremiumCoat® Butter Grade Flashing. Cut the HydroStop® PremiumCoat® Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using HydroStop® PremiumCoat® Butter Grade Flashing as described above.
- G. Valleys and Peaks: Seal all valleys and peaks using either 12 inches, 16 inches, or 24 inches (305, 406, 610 mm) HydroStop® PremiumCoat® Fabric and HydroStop® PremiumCoat® Foundation Coat. The HydroStop® PremiumCoat® Fabric must be centered in the valleys or on the peaks overlapping adjoining fabric.
- H. Vertical Pans: Seal all vertical pans using either 16 inches or 24 inches (406 or 610 mm) HydroStop® PremiumCoat® Fabric and HydroStop® PremiumCoat® Foundation Coat. HydroStop® PremiumCoat® Fabric must be centered in the vertical pans overlapping both adjoining 6 in (152 mm) fabrics used on the vertical seams. (Note: most historical standing seam metal roofs have standing seams that are centered on 17" or 25" (432 or 610 mm). For seams centered on 17" (432 mm) use 16" (406 mm) fabric and for 25" (635 mm) seams use 24" (610 mm) fabric).

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- I. 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.
- J. Gutters: Trowel or brush apply FlexSeal™ Sealant to the interior or exterior gutters incorporating 6 inches (152 mm) HydroStop® PremiumCoat® Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™ Sealant.
- K. 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.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing Metal Substrate 10 year System:
 - 1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the system rates listed below.
 - 2. Tighten and/or replace existing fasteners.
 - 3. Pressure 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 the roof to completely dry.
 - 4. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
 - 5. Treat Seams:
 - a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).
 - b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
 - 6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
 - 7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 0.75 gal per 100 ft² (3.06 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 0.75 gal per 100 ft² (3.06 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 - 9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® PremiumCoat® System dry film thickness is approximately 13 mils in the field of the roof. All unsatisfactory conditions must be repaired.
- B. Resurfacing Metal Substrate 15 year System:

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1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the rates listed below.
 2. Tighten and/or replace existing fasteners.
 3. Pressure 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 the roof to completely dry.
 4. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
 5. Treat Seams:
 - a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).
 - b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
 6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
 7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 9. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® PremiumCoat® System dry film thickness is approximately 17 mils in the field of the roof. All unsatisfactory conditions must be repaired.
- C. Resurfacing Metal Substrate 20 Year System:
1. Before applying the HydroStop® PremiumCoat® System, an adhesion test is required to ensure an adhesion minimum of 2.0 PLI. Test patches to be applied with the rates listed below.
 2. Tighten and/or replace existing fasteners.
 3. Pressure 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 the roof to completely dry.
 4. Prime with appropriate primer. For rusty metal, prime using Acrylex 400 at the rate of 0.33-0.67 gal per 100 ft² (1.34 – 2.73 L/10 m²), or Lock-Down at the rate of 0.33-0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For Kynar-coated metal, prime with XR-2000 Primer at the rate of 0.75 gal per 100 ft² (3.06 L/10 m²). For residual asphalt, prime with Unibase Primer at the rate of 0.5-1.0 gal per 100 ft² (2.04 – 4.07 L/10 m²).
 5. Treat Seams:

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- a. **Horizontal seams:** are to be 3-coursed with HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²), embed fabric, and apply HydroStop® PremiumCoat® Butter Grade at a rate of 2.0 gal per 100 ft² (8.15 L/10 m²).
 - b. **Vertical seams:** Overlap and trapezoidal seams requires treatment with 2.0 gal per 100 ft² (8.15 L/10 m²) of HydroStop® PremiumCoat® Butter Grade. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or is double locked.
6. Encapsulate exposed fasteners with HydroStop® PremiumCoat® Butter Grade Flashing and Fabric.
 7. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 8. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 9. Apply HydroStop® PremiumCoat® Finish Coat at a rate of 1.0 gal per 100 ft² (4.07 L/10 m²). Allow at least 24 hours drying time, and then inspect for defects, flaws or areas of insufficient coverage. Correct any unsatisfactory conditions.
 10. After a minimum of 24 hours has elapsed, inspect the final roof surface for flaws, areas of insufficient coverage, insufficient thickness, etc. The HydroStop® PremiumCoat® System dry film thickness is approximately 25 mils in the field of the roof. All unsatisfactory conditions must be repaired.

End of Addendum