



Section 07560

Liquid-Applied Roofing

United Coatings™ Surface Seal SB over Metal Substrate

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

1.4 DEFINITIONS

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

1.5 SYSTEM DESCRIPTION

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

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- B. Final determination of the fitness of the system, or its components, for any given metal roof may not be made by any representative of GAF/United Coatings™ other than a member of GAF's Field Services Department.
 - C. Provide an installed 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:
 - 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 roof coating 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 above 40°F (5°C) and rising when applying coating.
- 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 40°F (5°C) during the duration of the job.
 - 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 Diamond Pledge™ NDL Roof Guarantee: Manufacturers standard form, without money limitation, in which GAF agrees to repair leaks through the United Coatings™ products on the roof caused by manufacturing defects, natural deterioration of, or workmanship in applying, the United Coatings™ roofing system.
 - 1. Warranty Duration:
 - a. Ten (10) Years Labor and Material
 - b. Fifteen (15) Years Labor and Material
 - c. Twenty (20) Years Labor and Material
- B. 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:

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- 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 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™ Surface Seal SB Roof Coating: Solvent-based, sprayable, thermoplastic rubber liquid, which cures to form a seamless rubber membrane. It is highly reflective, flexible and nearly impervious to water.
 - 1. Application Rate: 1.0 - 1.5 gal per 100 ft² (4.07 - 6.11 L/10 m²) per coat.
 - 2. Application Method: Airless sprayer, brush, or roller.
 - 3. Application Temperature (air, surface): 40°F (5°C) - 110°F (43°C).
 - 4. Dry time at 75°F (24°C) 50% relative humidity: approximately 24 hours per coat.

2.3 FLASHINGS, FABRIC AND BULKING AGENTS

- A. United Coatings™ Roof Mate™ Fabric: tough, non-woven, stitch-bonded, heat-set polyester designed for roofing and flashing applications of all types. Available in 300ft rolls and varying widths.
 - 1. Length: 300 ft. (91.5 m), Width: 4 inch (102 mm), 6 inch (152 mm), 8 inch (203 mm), 12 inch (305 mm), 16 inch (406 mm), 20 inch (508 mm), 24inch (610 mm).
 - 2. Length: 336 ft. (102 m), Width: 40 inch (1016 mm).

2.4 PRIMERS AND SEALANTS

- A. FlexSeal™: White, solvent-based synthetic elastomeric compound designed to line and waterproof interior and exterior gutters typically found in metal buildings. FlexSeal™ 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 (8.1 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°C) - 120°F (48°C).
 - 4. Dry Time: 75°F (24°C), 50% relative humidity: Approximately 24 hours.
- B. Unisil Primer: A two component, water-based, 1 to 1 ratio primer specifically designed for optimizing the adhesion of Unisil HS over a concrete, metal, asphaltic, most non-TPO single-ply membranes, and existing coatings.
 - 1. Application Rate: 0.25 - 0.33 gal per 100 ft² (1.02 – 1.34L/10 m²).
 - 2. Application Method: Brush, roller or sprayer.
 - 3. Application Temperature (air, surface): 40°F (5°C) - 110 °F (43 °C).
 - 4. Dry Time: 75 °F (24 °C), 50% relative humidity: 1 hour.

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- C. Lock-Down Primer: Single component, moisture cured, low viscosity, aluminized polyurethane primer designed to enhance adhesion of coatings to sound, stable, moderately corroded metal, or to provide a thin protective finish where desired.
 - 1. Application Rate: 0.25 gallon per 100 ft² (1.02 L/ 10m²).
 - 2. Application Method: Roller or airless sprayer.
 - 3. Application Temperature (air, surface): 50°F (10°C) – 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

2.5 EQUIPMENT

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

PART 3 EXECUTION

3.1 SUBSTRATE CONDITIONS

- A. Installer shall verify 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)]. 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

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.

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.

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3. Previous photographs of the roof, including test patch results, as applicable
4. United Coatings™ products and application equipment required to repair roof areas where destructive tests are to be performed by GAF's Field Services Department.
- C. Special care shall be taken to avoid shading when spraying dark United Coatings™ roof coating colors. When applying a dark United Coatings™ roof coating color, Installer shall always spray wet material onto wet material to ensure that spray lines do not appear. United Coatings™ strongly recommends the installation of any dark-colored finish coat by spraying two lighter coats (instead of one heavy coat) using a smaller tip size. Installer should also use the roof ribs or standing seams to terminate each spray pass.
- D. Installer shall take special care when moving spray hoses and other equipment on the roof so that flashing work and encapsulated fastener heads are not damaged. Also, all spray equipment shall remain on the ground for the duration of the job.
- E. 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™ roof coating is damaged or punctured, repairs are to be performed using FlexSeal™ and United Coatings™ Roof Mate™ Fabric (where necessary) as follows:
 1. Damaged areas are to be cut, cleaned and dried.
 2. Apply FlexSeal™ and feather out onto the existing United Coatings™ Surface Seal SB roof coating.
 3. If a new penetration area has been cut, embed United Coatings™ Roof Mate™ Fabric into the FlexSeal™ according to standard United Coatings™ Surface Seal SB specifications.
 4. Once the FlexSeal™ has cured, the appropriate United Coatings™ Surface Seal SB color 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 United Coatings™ roof coating 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 inch (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 ¼ inch (6 mm). New crickets shall be sealed by placing a continuous bead of FlexSeal™ 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™ is still wet using fasteners. This procedure shall apply to installation of all new crickets and curbs.

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- 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 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 FlexSeal™ over the entire broken rib area to be capped prior to attaching the cap with fasteners. Then, FlexSeal™ 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 United Coatings™ 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 United Coatings™ roof coating, 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 (20.68 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 United Coatings™ products. In some cases, a sand injection system may be required during the pressure washing to obtain proper adhesion for United Coatings™ 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 (0.08 mm) over an area greater than 1 square foot (0.1 m²). Residual asphalt shall be coated with Unisil 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. Roof panels which are corroded to the point where holes are present shall be replaced. Rusty areas shall be primed with Lock-down Primer.
- I. Pitch Pans: For most situations, pitch pans shall be capped with sheet metal so they can be sealed with United Coatings™ products.
- J. Neoprene Pipe Boots: United Coatings™ 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™ prior to mechanical attachment with fasteners. Contact GAF's Technical Services Department for more information.

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- K. Open Ridge Vents: Open ridge vents (as shown in detail drawings) may begin to corrode on the inside, and over time, may leak. United Coatings™ 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 United Coatings™ roof coating due to inside air “blowing-out” through roof panel seams. When this condition occurs, it may not allow for proper curing of the United Coatings™ roof coating material which may cause blisters.
- L. Condensate Lines: United Coatings™ 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.

3.7 FLASHING APPLICATION

- A. After completion of substrate preparation, all flashing details, horizontal seams, penetrations and curbs shall be flashed by either 3-course flashed with FlexSeal™ with 6 inch (152 mm) or 12 inch (305 mm) United Coatings™ Roof Mate™ Fabric or United Coatings™ UniTape Seam Tape in accordance with United Coatings™ Detail Drawings. Flashing shall be feathered at the edges 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 inch (305 mm) minimum width of and United Coatings™ Roof Mate™ Fabric and FlexSeal™. If a 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.
- 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 inch (305 mm) minimum width of and United Coatings™ Roof Mate™ Fabric and FlexSeal™. 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 FlexSeal™.
- E. Curb Flashings: All curb flashings, including cricket details, shall be flashed with at least a 12 inch (305 mm) width of United Coatings™ Roof Mate™ Fabric and FlexSeal™. Encapsulate all fasteners using FlexSeal™. Do not bridge fasteners. United Coatings™ Fabric shall be cut around all fasteners so the fabric lies flat.
- F. Penetrations: FlexSeal™ shall be applied around the base of all penetrations, extending at least 6 inch (152 mm) onto the vertical and 6 inch (152 mm) onto the base. Embed a 12 inch (305 mm) width of United Coatings™ Roof Mate™ Fabric using additional FlexSeal™. Cut United Coatings™ Roof Mate™ Fabric to accommodate the shape of the penetration. Both the top and bottom of neoprene pipe boots shall be flashed using FlexSeal™ as described above.
- G. Skylights: Curb skylights shall be treated in the same fashion as Curb Flashings. After flashing work has been completed and FlexSeal™ has cured, treat deteriorated fiberglass skylight panels with United Coatings™ Acrysheen Sealer.
- H. Gutters: Trowel or brush apply FlexSeal™ to the interior or exterior gutters incorporating 12 inch (305 mm) United Coatings™ Roof Mate™ Fabric at all gutter seams. Gutter shall be completely clean and dry before applying FlexSeal™.
- I. Ponding Water Areas: Contact the GAF’s Technical Services Department for information.
- J. Fasteners: All fasteners shall be covered in United Coatings™ UniCap Fastener Covers and fully encapsulated with FlexSeal™. In some cases, brushing may be required to obtain the proper feathering around fasteners.

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- K. Gutter Straps: All gutter straps that are fastened above roof panels shall be covered in FlexSeal™ and fasteners covered with United Coatings™ UniCap Fastener Covers and fully encapsulated with FlexSeal™.
- L. Vertical Seams:
 - 1. Overlap Seams: Requires treatment with FlexSeal™ only.
 - 2. Trapezoidal Seams: Requires treatment with FlexSeal™ only.
 - 3. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or are double locked.
- M. Horizontal Seams: All horizontal seams shall be reinforced with a layer of FlexSeal™, one (1) layer of United Coatings™ Roof Mate™ Fabric and then a final layer of FlexSeal™ to completely encapsulate the fabric. FlexSeal™ shall be feathered at least 1 inch (25 mm) beyond each side of the 6 inch (152 mm) width to allow water to flow over the seam. United Coatings™ Roof Mate™ Fabric shall be cut around all fasteners so it lies flat. For ribbed roof panels, the United Coatings™ Roof Mate™ Fabric shall be applied over panel ribs in continuous lengths. A minimum 2 inch (51 mm) overlap is required for all splices in United Coatings™ Roof Mate™ Fabric. Horizontal seams shall be secured with fasteners on the high side of every other corrugation spaced no more than 12 inch (305 mm) on the center. When using United Coatings™ Roof Mate™ system the horizontal seam shall be made flush by installing two fasteners per flute.
- N. Cinch Straps at Panel End laps: Re-tighten cinch straps, as necessary. Surround each strap and fastener head with a bead of FlexSeal™. Fully inject FlexSeal™ into the cinch strap water channel to displace all air and moisture within the channel. Then seal the entire lap, strap and fastener heads with a 12 inch (305 mm) width of FlexSeal™. Feather the FlexSeal™ to prevent ponding water at the high side of the lap. The use of United Coatings™ Roof Mate™ Fabric is not required for cinch straps at panel end laps.
- O. Ridge Caps: Except as noted, all ridge caps shall be flashed with a 6 inch (152 mm) or 12 inch (305 mm) width of United Coatings™ Roof Mate™ Fabric and FlexSeal™. All voids and open areas in the ridge cap shall be filled with polyurethane foam prior to application of United Coatings™ Roof Mate™ Fabric and FlexSeal™. Metal “Z” closures which are located within 2 inch (51 mm) of the ridge cap edge remove all exposed sealant and apply a liberal bead of FlexSeal™ to all sides of the “Z” closure where they intersect with both the roof panel and ridge cap.

3.8 FIELD OF ROOF APPLICATION AND RATES

- A. Resurfacing Metal Substrate 10 Year System:
 - 1. Tighten and/or replace existing fasteners.
 - 2. 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.
 - 3. Before applying the Surface Seal SB 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.
 - 4. Primers: For rusty metal, prime with Lock-Down Primer at the rate of 0.33 – 0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For residual asphalt, prime with Unisil primer at the rate of 0.25 - 0.33 gal per 100 ft² (1.02 – 1.34 L/10 m²).
 - 5. Treat seams:
 - a. **Horizontal seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of FlexSeal™ at 2.00 gal per 100 ft² (8.15 L/m²), United Coatings™ Roof Mate™ Fabric, and 2.00 gal per 100 ft² (8.15 L/m²) FlexSeal™.
 - b. **Vertical seams:** Overlap and Trapezoidal seams to be treated with 2.00 gal per 100 ft² (8.15 L/m²) of FlexSeal™. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or are double locked.

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6. Encapsulate exposed fasteners with FlexSeal™.
 7. Apply first coat of United Coatings™ Surface Seal SB at 1.0 gallons per 100 ft² (4.07 L/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 second coat of United Coatings™ Surface Seal SB at 1.5 gallons per 100 ft² (6.11 L/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 specified United Coatings™ dry coating thickness is 20 mils in the field of the roof. All unsatisfactory areas must be repaired.
- B. Resurfacing Metal Substrate 15 Year System:
1. Tighten and/or replace existing fasteners.
 2. 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.
 3. Before applying the Surface Seal SB 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.
 4. Primers: For rusty metal, prime with Lock-Down Primer at the rate of 0.33 – 0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For residual asphalt, prime with Unisil primer at the rate of 0.25 - 0.33 gal per 100 ft² (1.02 – 1.34 L/10 m²).
 5. Treat seams:
 - a. **Horizontal seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of FlexSeal™ at 2.00 gal per 100 ft² (8.15 L/m²), United Coatings™ Roof Mate™ Fabric, and 2.00 gal per 100 ft² (8.15 L/m²) FlexSeal™.
 - b. **Vertical seams:** Overlap and Trapezoidal seams to be treated with 2.00 gal per 100 ft² (8.15 L/m²) of FlexSeal™. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or are double locked.
 6. Encapsulate exposed fasteners with FlexSeal™.
 7. Apply first coat of United Coatings™ Surface Seal SB at 1.5 gallons per 100 ft² (6.11 L/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 second coat of United Coatings™ Surface Seal SB at 1.0 gallons per 100 ft² (4.07 L/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 third coat of United Coatings™ Surface Seal SB at 1.0 gallons per 100 ft² (4.07 L/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 specified United Coatings™ dry coating thickness is 28 mils in the field of the roof. All unsatisfactory areas must be repaired.
- C. Resurfacing Metal Substrate 20 Year System:
1. Tighten and/or replace existing fasteners.
 2. 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.

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3. Before applying the Surface Seal SB 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.
4. Primers: For rusty metal, prime with Lock-Down Primer at the rate of 0.33 – 0.40 gal per 100 ft² (1.34 – 1.63 L/10 m²). For residual asphalt, prime with Unisil primer at the rate of 0.25 - 0.33 gal per 100 ft² (1.02 – 1.34 L/10 m²).
5. Treat seams:
 - a. **Horizontal seams:** to be treated with a 6 inch (15.2 cm) wide band [12 inches (30.5 cm) at the perimeter and transitions] of FlexSeal™ at 2.00 gal per 100 ft² (8.15 L/m²), United Coatings™ Roof Mate™ Fabric, and 2.00 gal per 100 ft² (8.15 L/m²) FlexSeal™.
 - b. **Vertical seams** Overlap and Trapezoidal seams to be treated with 2.00 gal per 100 ft² (8.15 L/m²) of United Coatings™ Unisil Silicone Flashing. All other vertical seams may forgo treatment **IF** the seal/tape is intact on the seam or are double locked.
6. Encapsulate exposed fasteners with FlexSeal™.
7. Apply first coat of United Coatings™ Surface Seal SB at 1.5 gallons per 100 ft² (6.11 L/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 second coat of United Coatings™ Surface Seal SB at 1.5 gallons per 100 ft² (6.11 L/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 third coat of United Coatings™ Surface Seal SB at 1.5 gallons per 100 ft² (6.11 L/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 specified United Coatings™ dry coating thickness is 36 mils in the field of the roof. All unsatisfactory areas must be repaired.