

SECTION 07 5710 - SPRAY POLYURETHANE FOAM ROOFING**PART 1 - GENERAL****1.1 SUMMARY**

- A. Provide spray polyurethane foam roofing where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Sections:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division I of these Specifications.

1.2 SUBMITTALS

- A. General: Submit in accordance with Section 01 3300.
 - 1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
 - 2. Installation Procedures: Submit manufacturers recommended installation procedures.
 - 3. Samples:
 - a. Submit three 4" x 4" minimum samples of roofing system in thickness used on Project.

1.3 QUALITY ASSURANCE

- A. A representative from the coating manufacturer shall inspect the roof after completion to assure that the detail work at the protrusions, drains, parapets, and edges has been complete in conformance with good practice. The inspector shall also check the thickness of the coating with an optical comparator.
- B. UL Listing: Provide spray polyurethane foam roofing system and component materials which have been tested for application and slopes indicated and are listed by Underwriters' Laboratories, Inc. (UL) for Class A external fire exposure.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle foam-in-place insulation components in accordance with manufacturer's written recommendations.

1.5 SPECIAL WARRANTY

- A. Manufacturer's Single-Source Warranty: Submit executed copy of roofing manufacturer's standard "No Dollar Limit" agreement including flashing endorsement, signed by an authorized representative of spray polyurethane foam roofing system manufacturer, on form which was published with product literature as of date of contract documents, for **20 years after date of substantial completion**.
 - 1. Warranty includes roofing membrane, flashings, roofing membrane accessories, roof insulation, fasteners, substrate board, walkway products, manufacturer's expansion joints, manufacturer's edge metal products, and other single-source components of roofing system marketed by manufacturer.

- B. Special Project Warranty: Upon completion of the Work and as a condition of its acceptance, deliver to the Architect two original copies of the following "Warranty and Maintenance Agreement", signed by the Contractor and the roofing subcontractor:
1. The undersigned hereby propose, and upon execution of this document by Owner, agree for a period of 2 years after Substantial Completion of the Work to make immediate repairs as required to stop leaks or correct defects in the work of this Section, within 24 hours after receipt of notice from Owner by telephone, telegram, or letter; and further agree to make such repairs without reference to or consideration of cause or nature of such leaks or defects.
 2. As a further condition of this 2-year Warranty and Maintenance Agreement, undersigned hereby agree to repair or replace any other damaged products and finishes damaged as a result of water penetration, to return the building to its original condition, and to notify roof system manufacturer in writing within 30 days that such repairs were made.
 3. Conditions including open seams, buckles, curled edges, fishmouths, splits, wrinkles, etc., will be considered as evidence of poor and/or defective workmanship and products.
 4. Repairs required within stated period will be provided without cost to Owner; except that repairs required consequent to an act of God, abuse, alterations, or failure of the substrata or supporting structure (other than caused by defects in work of this Section) will be paid for by Owner promptly upon completion of the repair in each instance.
 5. Repairs completed at Owner's cost shall be invoiced to Owner at prevailing rates, and shall include an itemized breakdown of quantities plus unit cost for labor and materials, and shall include not more than 15% markup for overhead and profit.
 6. This Warranty and Maintenance Agreement shall be in addition to warranty requirements of Contract Documents and enforcement of its provisions shall not deprive the Owner of any action, right, or remedy otherwise available to him.

PART 2 - PRODUCTS

2.1 SINGLE SOURCE

- A. All primer, polyurethane foam, and coating shall be manufactured by the same manufacturer providing the warranty.

2.2 PRIMER

- A. Primer to be black in color and applied at an application rate of 1/4 gallon to 1/2 gallon per 100 square feet.
1. Basis-of-design Product: Ultra-Bond 13 by General Coatings Inc.
 2. Substitutions: Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.
- B. Galvanized metal surfaces shall be primed with Ultra-Bond 20 by General Coatings Inc. or an approved equal.

2.3 POLYURETHANE FOAM

- A. Polyurethane foam shall be a two-component polyurethane foam system formulated for use through airless equipment. Foam density to be 3.0 pcf with a minimum total thickness of 1.5".
1. Basis-of-design Product: Ultra-Thane 230 by General Coatings Inc.
 2. Substitutions: Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.4 FLUID APPLIED ELASTOMERIC COATINGS

- A. Urethane Rubber Base Coating: shall be 100% solid urethane aromatic elastomeric coating and shall be dimensionally stable and free of solvents. Minimum thickness to be 35 DFT Mils.
 - 1. Basis-of-design Product: Ultra-Tuff 2500 by General Coatings Inc.
 - 2. Substitutions: Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.
- B. Intermediate and Top Coating: shall be an acrylic elastomer coating. Minimum thickness to be 25 DFT Mils.
 - 1. Basis-of-design Product: Ultra-Flex 1000 by General Coatings Inc.
 - 2. Substitutions: Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.
- C. Thickness: the combine total minimum dry mil thickness of the base coat and top coat shall be 60 mils exclusive of granules.

2.5 CAULKING OR SEALANTS

- A. Caulking materials shall be single component polyurethane elastomeric such as "Vulkem-921", Sikaflex-1A or equal. Caulking of fabricated metal components or lapping metal joists shall use only the polyurethane sealants.

2.6 GRANULES

- A. Granules shall be GCMC #11 white granules by General Coatings Inc. or equal. Granules shall be broadcast into the top coat application while it is still wet.

2.7 EQUIPMENT AND ACCESSORIES

- A. Use equipment and accessories per the manufacturer's installation recommendations and requirements.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Thoroughly clean the surface to be foamed. The surface shall be free from solvent, grease, dust, sediment, dirt, and sticky mastic.
- B. Install sheet metal flashing as necessary to provide for a water tight system. All galvanized steel surfaces are to be primed.
- C. All roof surfaces are to be primed per manufacturer's recommendations.
- D. Install perimeter edge metal as needed per manufacturer's instructions.
- E. All surfaces not to receive foam shall be carefully masked with tape and paper to prevent over-spraying with foam and coating. All coating is to be terminated in clean straight lines.
- F. Prep areas around HVAC and roof mounted equipment as recommended by the manufacturer.

3.2 INSTALLATION

A. Environmental Conditions:

1. Comply with manufacturer's written installation instructions applicable.

B. Spray Application:

1. The sprayed polyurethane foam shall be applied in minimum ½ inch passes to achieve a minimum thickness of 1.5 inch.
2. Only as much area as can be brought to final thickness shall be attempted in a day. Phasing of the foam is strictly forbidden. If additional foam must be added after the 24 hour period, the existing foam must be primed with neoprene primer and a minimum ½ inch of foam in a single pass can be applied.
3. The foam shall be free from bumps, pinholes, and ridges. The surface shall exhibit a smooth or orange peel texture.
4. The foam thickness shall be checked every 500 square feet prior to coating application.
5. Granules shall be broadcast into the top coat application while it is still wet.

C. Fluid Applied Protective Coating:

1. General: Sprayed polyurethane foam must be protected from ultra-violet light in order to avoid degradation of the polymer. Coating also protects the foam from water and adverse weather conditions.
2. Spray Application: Coating shall be applied to the surface of sprayed polyurethane foam in two coats. A total of 48 TDM shall be applied to the roof as determined by an optical comparator exclusive of granules.
3. Urethane Base Coat Material: The base coat shall be applied at a minimum rate of 2-1/4 gallons per square to achieve minimum finished dry mil thickness of 36 mils.
4. Intermediate Coat Material: The intermediate coat shall be of contrasting color to base coat and applied at a rate of 1-1/2 gallons per square to achieve a minimum finished dry thickness of 12 TDM.
5. Top Coat Material: The top coat shall be applied at a minimum rate of 1-1/2 gallons per square to achieve a finished dry film thickness of 12 mils. Granules shall be broadcast into the top coat application at 35 lbs per square while it is still wet. In areas to receive foot traffic for access to roof mounted equipment, increase the top coat to a rate of 2 gallons per square to achieve a finished dry film thickness of 16 mils. Increase the amount of granules beyond 35 lbs per square until refusal.
6. Total thickness of base, intermediate, and top coats shall be a minimum of 60 mils exclusive of granules.

3.3 CLEAN UP

- A. Upon completion of all work covered in this specification, the contractor shall remove all equipment, material and debris, leaving the area in an undamaged and acceptable condition.

END OF SECTION 07 5710