



# METAL ROOF RESTORATION SAMPLE DESIGN GUIDELINES

## URETHANE



### **Elastomeric Roofing Systems, Inc**

6900 Bleck Dr. Rockford, MN 55373  
800.403.7747 -or- 763.565.6900 fax: 763.565.6901

**ERSYSTEMS.COM**

email: [ersinfo@ersystems.com](mailto:ersinfo@ersystems.com)

## **METAL ROOF RESTORATION SAMPLE DESIGN GUIDELINES - URETHANE SYSTEM**

### **PART 1 - GENERAL**

#### **1.01 DESCRIPTION**

- A. This guideline includes the installation of the liquid applied polyurethane coating roof system to rustproof, waterproof, and restore metal roofs. The three-step process effectively protects the metal, seals seams & fasteners and renews the metal surface to extend the useful life of the roof. The system shall include waterproofing all metal roof panels, flashings, valleys, ridges, joints and junctions integrally related to the roof.
- B. Work included is labor, materials, equipment, accessories and related services to complete the application in accordance with guidelines and details as approved by ERSystems.
- C. Work excluded is replacement of roof accessories such as gutters, drains, vents and other penetrations including structural roof repair.

#### **1.02 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: ERSystems will furnish upon request, certification that the material meets the physical properties stated in this guideline.
- B. Contractor Qualifications: All work to be completed must be done by an ERSystems preferred applicator.
- C. No deviation from this guideline will be accepted without prior written approval of ERSystems.

#### **1.03 SUBMITTALS**

- A. A warranty pre-notification form is required prior to the installation of the warranted systems.

#### **1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Deliver material in original, unopened packages and containers.
- B. Containers are to be labeled with manufacturer's name, product name, description, and identification.
- C. Store materials in a dry area above 40° F., and protect from water and direct sunlight.
- D. Any materials damaged in handling or storage must **not** be used.
- E. Deliver MSDS for each product specified. Consult MSDS and Product Data Guideline for each product used before beginning work.

#### **1.05 JOB CONDITIONS (CAUTIONS AND WARNINGS)**

- A. All mechanical equipment, vents, skylights, etc., should be in place before the roofing system is installed.
- B. Mechanical units (blowers, HVAC) should be prevented from distributing solvent fumes into the building.
- C. Coatings should be protected from traffic and other abuse until completely cured and installation is complete.
- D. Application of coatings with spray equipment may require some masking and possible erection of wind screens to prevent over-spray and drift damage. Protect surfaces of unrelated areas from coatings and over-spray possibility.
- E. Application made to dry, clean surfaces only. In planning work consider environment and weather related conditions such as frost, mist, dew, condensation, humidity and temperature. Temperature should be above 35°F., more than 5°F. above the dew point and rising, for best application results.
- F. Sufficient safety belts and lines should be provided. A wet surface or a surface that is not thoroughly cured can be very slippery. All work environments should comply with current OSHA regulations.

#### **1.06 WARRANTY**

- A. ERSystems warrants that materials provided are free from defects in manufacturing. ERSystems will replace any material found to be defective.
- B. ERSystems/Contractor Coating System Warranty is available through preferred contractors and at a cost. Consult ERSystems for further details of the Coating System Warranty Program.

### **PART 2 – PRODUCTS**

#### **2.01 GENERAL**

- A. The components of the coating system are to be products of ERSystems, 6900 Bleck Dr., Rockford, MN 55373, or products approved by ERSystems as compatible; or approved equal.

#### **2.02 PRIMER: PRIMER SURFACER POLYURETHANE RUSTPROOFING**

- A. See Data Sheet

#### **2.03 SEALER: HER - POLYURETHANE SEALER FOR SEAMS, FASTENERS, PENETRATIONS**

- A. See Data Sheet

#### **2.04 FINISH COAT: ERATHANE 300 – ALUMINUM PIGMENTED, POLYURETHANE FINISH COATING**

- A. See Data Sheet

## **2.05 ERATHANE 300 - White: POLYURETHANE REFLECTIVE FINISH COATING**

- A. See Data Sheet

## **2.06 RELATED MATERIALS FROM ERSystems**

- A. Gap/Joint Sealant: Permathane SM7108.
- B. Gap/Joint Fabric: Polysoft II Polyester Knit Fabric.
- C. Fasteners: Self Drilling & Self Tapping Metal.
- D. Butyl Seam Tape: Insta-Seal Butyl Tape.

NOTE: See Product Data Guidelines for additional information and detailed instruction on each product.

## **PART 3 – APPLICATION**

### **3.01 SUBSTRATE INSPECTION**

- A. A proper substrate shall be provided to receive ERSystems coatings. Metal surfaces must be dry, clean, and free of loose debris. Adhesion test of the coating to the metal roof substrate is required where the bond to the metal may be questionable; such as with Kynar 500 based finishes.

### **3.02 SURFACE PREPARATION**

- A. Walk the roof deck and tighten all loose fasteners. Replace missing fasteners and any fasteners that are stripped with oversized fasteners.
- B. Metal panels, which no longer have integrity due to excessive rust and deterioration, must be replaced.
- C. Panels with vertical seam gaps of 1/8" or more must be stitched as tight as possible with additional screws. Any horizontal seams where the perlin screws are more than 2" from the overlap must be stitched tight at the seam with a minimum of 6 per 3' panel. Light gauge metal panels may flex open at the horizontal lap seam when walked on. Additional stitch screws and/or fabric reinforcement may be required in the pan of the panel to reduce deflection. Permathane SM7108 may be used to seal gaps prior to stitching metal with appropriate fasteners.

NOTE: Metal fasteners are available from ERSystems.

### **3.03 CLEANING**

- A. Prepare the roof surface by high-pressure washing, rinse well and let dry. Use tri-sodium phosphate (TSP) solution if the metal surface is especially dirty, oily, etc. Water pressure of 2000 psi to 3000 psi will be required to remove loose rust, dirt, paint and miscellaneous soils.
- B. Galvanized metal surfaces may require an acid etch to remove debris, which may interfere with proper bonding. The dilute acid solution must be thoroughly rinsed from the roof.
- C. If rust is a hard scale, it may require power brushing to remove and get down to a sound substrate.
- D. If silicone products have been used in attempts at waterproofing, they must be removed prior to coating applications.
- E. If asphalt based roof coatings have been previously used to repair roof seams and fastener heads, do not apply solvents to clean these areas. Remove asphalt coating with power washing, scraping or brushing.
- F. After pressure washing and cleaning, remove all loose coatings, scale and other foreign matter with a putty knife or other appropriate tool. Brush clean and apply coating directly over the tightly bound coating which remains. Let dry completely before proceeding.

### **3.04 PRIMING**

- A. Coat all rusty surfaces with ERSystems Primer Surfacer. Apply Primer Surfacer at .5 gallon per square for modest rust.
- B. Under normal drying conditions, Primer/Surfacer may be re-coated within 1-3 hours and must be recoated before 24 hours.
- C. Primer dry film thickness (DMT) shall be 3.0 mil minimum, 4 mil average.

### **3.05 SEAMS, FASTENERS & PENETRATIONS**

- A. Waterproof seams: Apply HER by pumping a bead 1" to 1½" wide into place along the vertical seam. Fill the underside of the seam with HER by brushing perpendicular to the seam with a 3" to 4" wide brush and then feather the HER to a 3" width along the seam. HER shall be approximately 60 wet mils (1/16") thick directly over the area of the seam. Horizontal seams are sealed in the same manner as vertical seams. Two coats may be required in some areas to achieve DMT specified. Horizontal seams may be reinforced with Polysoft II polyester fabric embedded into the HER at areas where excessive movement of the panels is known to exist or where gaps between the panels exist even after additional fasteners are added.
- B. Fasteners: HER shall be applied at 60 wet mils over all fastener heads, extending 1½" in all directions around the fastener head.
- C. Penetrations & Flashings: Seal with HER by applying a 60 wet mil thickness for 3" to 4" around the base of the penetration. PolySoft II fabric may be embedded in the HER to bridge gaps and reinforce the membrane.
- D. Gutters and valleys: Seal with HER by applying a 60 wet mil thickness over the area to be sealed and for 3" to 4" up and beyond the area to be sealed. If necessary embed PolySoft II polyester fabric of the appropriate width, and brush or roll additional HER

over the fabric, making certain all wrinkles are rolled out of the fabric. Let HER cure for 24 hours prior to applying Finish Coat.

- E. Skylights: Edges shall be sealed with HER as described above.
- F. Typical roofs will require .4 to .5 gallons per square of HER to complete the waterproofing of seams and fasteners. Waterproofing penetrations, valleys and repair areas will require additional HER. Application of 60 wet mils requires approximately 4 gallons per 100 sf.
- G. Inspection of all HER applications should be done to ensure that work is satisfactory and complete, and that the sealing of gaps and bolt heads have been accomplished.
  - HER DMT over seams, fasteners and penetrations and repair areas shall be 50 dry mils minimum.
  - The roof is watertight at this point.

### **3.06 FINISH COAT:**

- A. Apply Erathane 300 (Aluminum Gray) or Erakote at 1 gallon per square for 5 year warranty and 1.5 gallons per square for 10 year warranty. Apply Erathane 300 (White) 1.5 gallon per square for 5 year warranty and 2 gallons per square for 10 year warranty. Finish coat MUST be applied in two coats for maximum coverage.
- B. Initial cure of Finish Coat will typically be 6 to 12 hours, the time required between coats.
- C. Erathane 300 (aluminum Gray) Finish coat/Erakote dry film thickness shall be 10 mils, 8 mils minimum (5 yr.) and 15 mils, 12 minimum (10 yr.).
- D. Erathane 300 (White) Finish coat dry film thickness shall be 19 mils, 7 minimum (5 yr.) and 25 mils, 20 minimum (10 yr.).

### **PROTECTION AND CLEAN-UP**

#### **PROTECTION**

- A. The roof system and all components must be protected from all other trades at the job site.
- B. All damage to the system must be repaired to comply with ERSystems guidelines prior to final inspection for warranty approval. The cost of all related repairs will be borne by the trades and/or subcontractors responsible for the damages.

#### **CLEAN-UP**

- A. Site clean up is the responsibility of the contractor.
- B. All debris, containers, materials, equipment, and protection materials must be removed from the premises and properly disposed of. All work and storage areas must be in an undamaged and acceptable condition upon completion of clean up.