

SOLARGARD[®] HY-BUILD SYSTEM

WATERPROOFING SYSTEM FOR METAL ROOFS

PART 1 – General

1.01 General

- A. This document is intended to provide only **general** guidelines regarding the application of listed materials as furnished by Republic Powdered Metals, Inc. These general guideline specifications are **NOT** intended as project-specific specifications and should not be used as such. The information contained herein may be used, and modified where necessary, by the owner, architect, and contractor in preparing specifications for particular roofing projects. It is the responsibility of the owner, architect, and/or contractor to ensure that these general guideline specifications are consistent with the contractual and construction requirements relating to the project.

1.02 Quality Assurance

- A. Applicator’s Qualifications
 - 1. Applicator shall have knowledge and general understanding of building design as well as Republic’s products specified for the project.
 - 2. Applicator shall have business stability and own, or have access to, the equipment necessary for successful completion of the project
 - 3. Technical service on application and suitability of Republic’s materials is available by contacting Republic Powdered Metals, Inc., 2628 Pearl Road, Medina, Ohio 44256.

1.03 Submittals

- A. In the normal course of bidding, descriptive literature and technical data on all materials proposed for usage under this specification will be submitted. A roof survey shall be submitted by the bidder identifying total area to be coated, along with pictures of panel profile, seams, and details including any repairs to seams, protrusions, and general conditions of the existing roof along with a completed Notice of Award to Republic.

1.04 Product Storage and Handling

- A. Storage of Materials:
 - 1. Store materials in accordance with manufacturer’s recommendations.
 - 2. Store acrylic latex materials so that they will not freeze.
- B. Handling and Protection of Materials: Meet requirements of manufacturer’s recommendations for handling and protection of materials during installation. Handle products so that they are not contaminated by foreign materials.
- C. Damaged Materials: Contaminated or damaged materials shall not be used in the installation and shall be immediately removed from site upon discovery.
- D. Exercise caution when working with solvent based materials within the limitations described by the manufacturer.

PART 2 – Products as Manufactured by Republic Powdered Metals, Inc.

2.01 Coating System

A. SOLARGARD HY-BUILD

1. Description

SOLARGARD HY-BUILD is a water-based, acrylic, elastomeric roof coating formulated to provide a tough, durable, flexible, breathing film for the protection of masonry and metal substrates. SOLARGARD HY-BUILD will resist the effects of weather, water, abrasion, and substrate movement.

2. Performance Requirements

Weight per gallon (ASTM D 1475)	11.1 ± 0.2 lbs.
Specific gravity (ASTM D-1475)	1.33 ± 0.02
Solids by weight (ASTM D-1353)	63% ± 1%
Solids by volume	51% ± 1%
Elongation @ 77°F (ASTM D-2370)	150% ± 25%
Flexibility @ 0°F (ASTM D-1737)	Passes 1/8 inch mandrel

Tensile Strength @ 77°F (ASTM D-2370)	450 ± 50 psi
Shore “A” Hardness (ASTM D-2240)	70 ± 10
Dry time (ASTM D-1640)	1 hour
Flash point (ASTM D-3278)	None
Clean-up	Water

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2.02 Accessory Materials

- A. SOLARGARD Seam Sealer is a white, single-component, high solids urethane sealer for waterproofing metal building seams, sealing fastener heads, penetrations, etc.
- B. SOLARGARD Acrylic Sealer is a high solids acrylic elastomeric sealer designed to provide waterproofing protection at seams, fasteners and penetrations. **Note: All rusted areas must be primed prior to the application of SOLARGARD Acrylic Sealer.**
- C. REPUBLIC Metal Primer is a water-based acrylic metal primer for treating rusted areas on metal.
- D. PERMAFAB is a 100% stitchbonded polyester fabric used as reinforcement in flashings and faulty seam repairs.

PART 3 – Execution

3.01 Preparation for Coating

- A. Roof Panels
 1. Loose rust, mill scale, and paint must be removed by any of the following: HAND TOOL CLEANING to include scraping, sanding, and wire brushing; POWER TOOL CLEANING to include power sanding, power wire brushing, or power grinding; WATER BLASTING to include high pressure water blast at not less than 2,000 psi.
 2. Roof surfaces containing heavy soot, dirt, chemical contaminants, oil, grease, or wax deposits must be cleaned with a surface cleaner and rinsed thoroughly with high pressure water blast. **Note: New galvanized panels must be weathered a minimum of six months or treated with a phosphoric acid wash to remove factory oil film.**
 3. Severe chalking, if evident, must be removed to ensure adhesion as must all debris, dust and dirt by using high pressure water wash.
 4. Remove all loose existing acrylic and asphalt coatings and all existing sealants and mastics prior to installing SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer. **Note: If using SOLARGARD Acrylic Sealer for detail work, all rusted areas must be primed prior to the application of SOLARGARD Acrylic Sealer.**
 5. If metal panel finish is Kynar 500 or similar, please contact the Republic Technical Department for recommendations.
 6. If previously coated, including factory finish, check for adhesion and compatibility of any remaining, tightly adhered, existing coating. To check adhesion of the existing coating film, conduct adhesion test per ASTM D 3359-09. A test application is the best method of determining compatibility with and adhesion of a new coating to a previously coated surface. After application and curing of the SOLARGARD test area, an X-Cut Tape Test per ASTM D3359-09 is used to determine adhesion and compatibility of the SOLARGARD to the substrate. Contact Republic's Technical Department for further information.
 7. Roof panels exhibiting holes and/or posing safety concerns should be replaced with new metal panels with a similar panel design.
 8. Closely inspect underside of all metal panels for corrosion at endlaps, curbs and penetrations. Replace as required.
- B. Priming
 1. Prime all rusted areas using REPUBLIC Metal Primer at a rate of 100-200 sq. ft./gal. (8-16 wet mils). **Note: If using SOLARGARD Acrylic Sealer for detail work, all rusted areas must be primed prior to the application of the SOLARGARD Acrylic Sealer.**
 2. When REPUBLIC Metal Primer has been applied longer than 72 hours prior to application of SOLARGARD HY-BUILD, REPUBLIC Metal Primer may need to be reapplied. All surfaces, which have been primed, must be clean and free of dirt, grease, oil and other foreign matter, which could prevent proper adhesion of SOLARGARD HY-BUILD.
- C. Roof Penetrations
 1. The base of all roof penetrations and curbs, i.e. stacks, vents, etc., must be sealed using SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer at the rate of 30 - 40 lineal ft./gal. in a three course combination with PERMAFAB. A three-course combination consists of sealer/fabric/sealer.
- D. Seams
 1. All end-lap (horizontal) and faulty side-lap (vertical) seams must be treated with SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer back-brushed into any open seam areas. SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer is best applied by brush. (In typical situations one (1) gallon will cover approximately 60 - 100 lineal ft./gal. at a thickness of 1/8").
 2. Seams with openings greater than 1/8", reinforce SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer with PERMAFAB in a three-course combination. Approximate coverage for SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer will be 30 - 40 lineal ft./gal.
 3. Seams with greater than 1/4" openings must be drawn together with a self-tapping sheet metal screw and neoprene washer.

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4. At all vertical seams apply SOLARGARD HY-BUILD at a rate of 1 gal./100 sq. ft. (16 wet mils). Spray equipment is the recommended application method on a metal roof.

E. Ridge Caps

1. All seams on and around ridge cap must be sealed using SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer and PERMAFAB in a three-course combination. Approximate coverage for SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer will be 30-40 lineal ft./gal.
2. All seams around ridge ventilators must be sealed using SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer and PERMAFAB in a three-course combination. Approximate coverage for SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer will be 30 - 40 lineal ft./gal.

F. Fasteners

1. Encapsulate all fasteners with SOLARGARD Seam Sealer or SOLARGARD Acrylic Sealer (one gallon will encapsulate approximately 150 - 200 fasteners).
2. Replace stripped or missing fasteners using an oversize "repair type" fastener. BUILDEX TRAXX[®] or TEKS[®], FABCO[®], FAB-LOK[®], or others. Add additional fasteners, where necessary, to draw uplifted sheets together.

G. Metal Components

1. Damaged fascia, gutters, vents, ridge caps, flashings, etc., must be replaced.

3.02 The Protective Coating

A. General

For optimum results, the protective coating must be applied after the morning dew has dried and postponed if rain is imminent.

Atmospheric conditions such as humidity, cooler temperatures, surface temperatures above 120°F, etc. are all factors in a coating's ability to cure. Air temperature must be 50°F dry and rising and must be a minimum of 5°F above the dew point.

B. Application

1. Following cleaning and preparation work, apply REPUBLIC Metal Primer to roof surface and allow to dry. If primer has been applied longer than 72 hours prior to application of SOLARGARD HY-BUILD, the primer may need to be reapplied. All surfaces which have been primed must be clean and free of dirt, grease, oil and other foreign matter which could prevent proper adhesion of SOLARGARD HY-BUILD.
2. Spray equipment is the recommended application method for SOLARGARD HY-BUILD on metal roofs.
3. **Mixing:** Mix each container of SOLARGARD HY-BUILD with a power assisted mechanical mixer before use. Mix until coating is smooth and consistent. For pails, a Jiffy Mixer attached to a low speed power drill is recommended. For drums, a 600 Series Drum Mixer is recommended. Do not hand mix. DO NOT THIN.
4. **Coverage:** SOLARGARD HY-BUILD is to be applied in one coat at 2 gal./100 sq. ft. (32 wet mils). The coverage rates shown are intended as minimum application requirements. The surface dictates actual coverage needed. On metal roofs with irregular panel and rib design, multiply feet by 1.15 to calculate actual surface area to be coated.
5. Do not permit traffic on completed roof surfaces unless absolutely necessary, and only after complete cure. Environmental or site specific conditions may require variations in cure times

6. Spray Equipment Recommendation

Pumps: Graco King 45:1, Graco Bulldog 30:1 or gas powered equivalents. Graco GH733, HydraMax 350 or GMax 7900 or other manufacturer's equivalents.

Hose/Pressure: 50' - 300' length (depending on spray rig pressure). When using hoses longer than 100' use the next larger hose ID every 50'. Every 50' of hose will reduce the spray pressure of the rig by 10% at the gun tip. i.e., 300' hose - 3/4" (50/100') to 5/8" (50/100') to 1/2" (50/100') to 3/8" (50'). Good results are generally obtained @ 2000-3000 psi at spray tip.

Gun: Graco Contractor Gun, Graco Contractor FTx gun, Graco Silver Plus or equivalent. (Tip extrusions or pole guns can be used).

*Tip Sizes:

Fan Width (in)	.039	.041	.043	.045	.047	.049
10" - 12"	539	541	543	545	547	549
12" - 14"	639	641	643	645	647	649
14" - 16"	739	741	743		747	749
16" - 18"	839	841	843		847	
Flow Rate	1.60 gpm	1.80 gpm	1.98 gpm	2.17 gpm	2.37 gpm	2.58 gpm

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* Skill and experience of the spray applicator is important to the success of the coating application. Periodic checking of the film build is necessary to ensure best results.

3.03 Material Requirements

3.04 Clean Up

- A. As work progresses, it is essential to keep equipment in clean, working condition. After each days spraying, equipment should be cleaned as follows:
 - 1. Flush lines with clean water, followed by mineral spirits or kerosene, to keep metal parts from corroding.
 - 2. General clean-up with same.
- B. At the conclusion of the project, all equipment should be cleaned and returned to its designated location. Disposal of empty, partially full or full drums should be discussed with the building owner, contractor, or engineer.

PART 4 – File Data

4.01 Enclosures

4.02 Warranty Disclaimer

- A. Please note that if Republic Powdered Metals is requested to furnish a warranty, the contractor/ owner must comply with the conditions for the warranty issuance set forth on the reverse side of the warranty document, a sample copy of which is available upon request. Republic Powdered Metals reserves the right to refuse issuance of a warranty pursuant to such conditions.

Contact Republic Powdered Metals, Inc. for details regarding available warranties on the SOLARGARD® HY-BUILD System.

