

# SOLARGARD<sup>®</sup> ULTRA

## WATERPROOFING SYSTEM FOR MODIFIED BITUMEN 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 to Republic identifying total area to be coated, along with pictures of close up surface conditions, seams, and all details including any repairs to seams, protrusions, and general conditions of the existing roof along with a completed Notice of Award prior to Republic’s acceptance of the project.

#### 1.04 Product Storage and Handling

- A. Storage of Materials: Store in accordance with manufacturer’s recommendations.
- 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.

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

#### 2.01 Coating System

##### A. SOLARGARD ULTRA

##### 1. Description

SOLARGARD ULTRA is a high solids, water-based, heavy bodied elastomeric coating formulated with a proprietary acrylic latex polymer. The high build, reflective coating is VOC compliant, asbestos free, and is used primarily as a reflective surface coat and waterproofer for smooth surface asphalt BUR, and modified bitumen roof systems. Do not use in areas that pond water per NRCA Guidelines.

##### 2. Performance Requirements

Weight per gallon (ASTM D 1475)	7.2 ± 0.5 lbs
Specific gravity (ASTM D 1475)	.91 ± 0.2
Solids by weight (ASTM D 1644)	64% ± 1%
Solids by volume (ASTM D 2697)	60 ± 1%
Elongation @ 73°F (ASTM D 2370)	290% ± 25%
Flexibility @ -15°F after 1000 hrs. (ASTM D 522)	Passes ½ inch mandrel bend
Tensile strength 73°F	167 ± 1 psi
Dry time (ASTM D 1640)	1 hour to touch 24 hrs to recoat
Flash point (ASTM D 3278)	None
Clean up	Water

#### 2.02 Accessory Materials

- A. REPUBLIC WB Primer is a water-based asphalt primer for asphalt built-up and modified bitumen roofs.
- B. PERMAFAB is a 100% stitchbond polyester fabric used in conjunction with Republic coatings for repairing torn flashings, seams, and minor surface breaks.

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- C. SOLARGARD Seam Sealer is a single component polyurethane sealer formulated to provide a tough, flexible repair for waterproofing.
- D. PERMAFLEX is a water-based, non-fibered, polymer modified, elastomeric asphalt emulsion roof coating.

## PART 3 – Execution

### 3.01 Preparation for Coating

#### A. Cleaning

1. Remove all loose dirt, dust, debris, etc., by mechanical brush, stiff broom, vacuum, power washing, etc. All surfaces must be clean and dry. Surfaces exhibiting algae growth must be cleaned with a bleach/water solution and rinsed thoroughly.
2. Flashings, blisters, and other damaged areas must be repaired and allowed to cure for 24 hours prior to applying the SOLARGARD ULTRA to the entire roof.
3. Check for adhesion and compatibility of any remaining, tightly adhered, existing coating with SOLARGARD ULTRA. A test application is the best method of determining compatibility with and adhesion to a previously coated surface. An X-Cut Tape Test is used to determine adhesion of the existing coating to the substrate. Contact Republic's Technical Department for further information.

**Note:** Permanent or continuous ponded areas must be eliminated, 1/4" per foot slope minimum. These areas must be corrected via the addition of tapered insulation, additional roof and/or through wall drains or the relocation of existing scuppers.

#### B. Flashings

All faulty or failed flashings must be repaired using PERMAFAB and SOLARGARD Seam Sealer. *If flashings are damaged beyond repair, flashing must be replaced with granular modified bitumen cap sheet. The membrane should be installed per the manufacturer's written specification, to bring the flashings back to a water tight condition.*

1. Cant strips should be provided at vertical surfaces to receive flashing.
2. PERMAFAB should be unrolled and cut to a maximum length of ten feet prior to setting in place.
3. Apply 2 gal./100 sq. ft. (32 wet mils) SOLARGARD Seam Sealer to all areas.
4. Embed PERMAFAB into the coating from 4" onto the roof surface to a minimum of 8" above roof surface. Adjacent pieces should be lapped a minimum of 4". Roll or brush for proper adhesion and removal of all voids.
5. Apply a top coat at 2 gal./100 sq. ft. (32 wet mils) SOLARGARD Seam Sealer over the PERMAFAB and a minimum of 2" beyond edges.
6. Estimate 30-40 lineal ft./gal. when three coursing using SOLARGARD Seam Sealer.
7. Install metal counter flashing as required.

**All tight flashing seams need to be addressed by coating the seams of the flashings with SOLARGARD ULTRA at 2 gal./100 sq. ft (32 wet mils), 4 inches wide, centered over the flashing seams.**

#### C. Blisters

1. Make an incision in delaminated plies in a manner to allow the delaminated area to be folded back. Sponge out water and allow area to dry. Trowel a liberal application of SOLARGARD Seam Sealer into the opening, pressing the delaminated plies into place. *If flaps are brittle, cut them off. Because of the thickness of typical roofing plies, if a brittle blister needs to be removed it will need to be replaced with granular modified bitumen cap sheet. The membrane should be installed per the manufacturer's written specifications, to bring the roof membrane back to level with the existing membrane. Once repair is fully cured, 3-course the perimeter of the repair (SG SS / Permafab / SG SS).*
2. Apply SOLARGARD Seam Sealer at 32–38 wet mils and 8" wider than the blister area.
3. Embed PERMAFAB cut about 6" wider than the blister area and top coat with 32–38 wet mils of SOLARGARD Seam Sealer over the PERMAFAB and a minimum of 2" beyond edges.

#### D. Splits

1. Apply SOLARGARD Seam Sealer at 32–40 wet mils over the area 8" beyond the width of the split in each direction.
2. Cut PERMAFAB 6" wider than the split on each side and embed in the SOLARGARD Seam Sealer.
3. Apply 32–40 wet mil top coat of SOLARGARD Seam Sealer over the PERMAFAB and a minimum of 2" beyond edges.

**NOTE:** If splits are extensive and continuous in one direction, determine cause before proceeding as more extensive repairs may be indicated.

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## E. Alligatoring

1. Apply SOLARGARD SEAM SEALER or PERMAFLEX at 2 gal./100 sq. ft. (32 wet mils) over entire area and 8" beyond the width of the alligatored area in all directions.
2. Cut 40" PERMAFAB wider than the alligatored area in each direction and embed in the coating. Brush for proper adhesion and removal of all voids.
3. Apply a second coat of SOLARGARD SEAM SEALER or PERMAFLEX at 2 gal. /100 sq. ft. (32 wet mils) over the PERMAFAB and taper a minimum of 2" beyond edges in each direction.

## F. Fishmouths

1. Cut fishmouth to provide a smooth edge and apply SOLARGARD Seam Sealer 6" beyond the width of the fishmouth in each direction.
2. Cut PERMAFAB 4" wider than the fishmouth in each direction and embed in coating, brush for proper adhesion and removal of all voids.
3. Apply a top coat of SOLARGARD Seam Sealer over the PERMAFAB and a minimum of 2" beyond edges.

## G. Roof Penetrations

1. The base of all circular roof penetrations, i.e. stacks, vents, etc., and curb penetrations must be sealed using SOLARGARD Seam Sealer embedded into PERMAFAB.

## H. Drains

1. Remove existing clamping ring and clean membrane under surface of clamping ring.
2. Apply Republic WB Primer at 100-200 sq. ft./gal. (8-16 wet mils) covering all existing membrane. Allow to cure.
3. Apply SOLARGARD ULTRA at 1 gal./100 sq. ft. (16 wet mils) covering all existing membrane.
4. Cut a 40"x40" section of PERMAFAB fabric and embed into wet SOLARGARD without wrinkles.
5. Apply a second coat of SOLARGARD ULTRA at 2 gal./100 sq. ft. (32 wet mils) and allow to cure.
6. Note: Clamping ring must be reinstalled if rain is in the forecast to ensure rainwater does not enter the building below the membrane at the drain.

## I. Seams – Modified Bitumen

1. All tight seams to be addressed by coating the seams with SOLARGARD SEAM SEALER or PERMAFLEX at 2 1/2 gal./100 sq. ft. (40 wet mils), 4 inches wide, centered over the seams.
2. If faulty, three course by applying SOLARGARD SEAM SEALER or PERMAFLEX at 32 wet mils to seam area 6" wide, embed 4" PERMAFAB fabric, and apply SOLARGARD SEAM SEALER or PERMAFLEX at 32 wet mils.
3. Coverage rate for seam detail coat is approximately 30-40 lineal ft./gal. when three coursing.

## J. Endlaps

4. All modified bitumen endlaps need to be three coursed using SOLARGARD SEAM SEALER or PERMAFLEX at 32 wet mils, embed PERMAFAB and apply SOLARGARD SEAM SEALER or PERMAFLEX at 32 wet mils prior to the coating application.
5. Coverage rate for endlap detail is approximately 30-40 lineal ft./gal.

## 3.02 SOLARGARD ULTRA Waterproofing System

### A. General

1. Power wash existing roof. Remove all loose existing coating, dirt, dust, debris, etc.
2. Check for compatibility of any remaining, tightly adhered existing coating with SOLARGARD ULTRA.
3. Flashings, blisters, modified bitumen seams and other damaged areas must be repaired prior to applying the SOLARGARD ULTRA to the entire roof.

### B. Modified Bitumen

1. Apply REPUBLIC WB Primer at the rate of 1 gal./100–200 sq. ft. Allow primer to fully dry prior to foot traffic. When REPUBLIC WB Primer has been applied longer than 72 hours prior to SOLARGARD ULTRA application, REPUBLIC WB 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 ULTRA.
2. Mix each container of SOLARGARD ULTRA 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.

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3. Refer to temperature/humidity chart. Do not apply at temperatures below 50°F or at Relative Humidity above 90% RH.
4. Apply SOLARGARD ULTRA over prepared and primed roof at the rate of 3 gal./100 sq. ft. (48 wet mils) in a two coat application. (1 ½ gal / 100 sq. ft. / coat) The whole surface, when finished, should have SOLARGARD ULTRA on it at a rate of 3 gal. /100 sq. ft. (48 wet mils minimum). DO NOT THIN!
5. Vertical surfaces require a 2 coat application to obtain specified coverage rate without sag of the coating.
6. Do not permit traffic on completed roof surfaces unless absolutely necessary, and only after complete cure.
7. Drying time will vary based on weather conditions during application. Drying times will be longer under cool temperatures, high humidity, and/or overcast conditions.

## C. SOLARGARD ULTRA Walkway Application – Traffic Areas

1. In areas where walkways are required, the following method is the only approved walkway option for warranty purposes.
2. Completely install the SOLARGARD system to specifications. Allow system to cure.
3. In the walkway area, apply SOLARGARD at 16 wet mils. Embed 40” PERMAFAB into the wet coating.
4. Apply SOLARGARD (in white or desired earth tone color) at 32 wet mils to encapsulate the PERMAFAB.
5. Immediately broadcast and backroll #20-40 mesh, angular cut, washed silica sand into the wet coating at the rate of 13 lbs./100 sq. ft.

## 3.03 The Protective Coating

### A. General

1. For optimum results, the protective coating must not be applied to wet or damp surfaces, and postponed if rain is imminent. Failure to comply can result in blistering.

### B. Application

1. SOLARGARD ULTRA may be applied by brush, ½” nap roller, or heavy-duty airless spray.
2. **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 the 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

\* Graco Heavy - Duty RAC Switch tips (GHDXXX) Grey

\* 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.

\* Do not permit traffic on completed roof surfaces unless absolutely necessary, and only after complete cure.

## 3.04 Material Requirements

## 3.05 Clean Up

- A. As work progresses, it is essential to keep equipment in clean, working condition. If spray equipment is used, flush lines with clean water followed by mineral spirits or kerosene to keep metal parts from corroding. 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.

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## PART 4 – File Data

### 4.01 Enclosures

### 4.02 Warranty Disclaimer

- A. Please note that if Republic Powdered Metals has been requested to furnish a warranty, the contractor/owner must comply with the conditions for 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 for details regarding available warranties on the SOLARGARD<sup>®</sup> ULTRA System.



2628 Pearl Road ■ Medina, Ohio 44256  
800-551-7081 ■ 800-382-1218 Fax  
[www.rpmrepublic.com](http://www.rpmrepublic.com)

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