



IM496S
September 2020

INLAND COATINGS

SILICONE SYSTEM SPECIFICATION FOR METAL ROOFING

This specification provides a durable Silicone coating system for restoring metal roofs that are in structurally sound condition. It provides very effective waterproofing, sealing seams, fasteners and penetrations. The end product shall be a seamless, elastomeric system protecting the roof against leaks and degradation by the elements.

It provides a white, reflective finish coat that dramatically reduces roof temperatures. This keeps the building cooler and eliminates many expansion and contraction related problems.

Note: As Inland's high reflectance systems have a significant cooling effect on roofing surfaces, the building envelope should be evaluated to ensure that the insulation and vapor barrier are adequate to prevent condensation development on interior surfaces.

Part 1. - GENERAL

1.01 DESCRIPTION

- A. Work included: The contractor will provide all labor, materials and tools as required to prepare and complete the installation with new materials as specified. All workmanship shall conform to the material manufacturer's recommendations and accepted industry standards.
- B. The installation to include sealing of roof joints with RC-1850 Silicone Seam Compound, including but not limited to seams, curbs, and penetrations. All preparatory work will then be encapsulated with RC-1800 Silicone Roof Coating.

1.02 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide primary products, including Inland RC-1800 Silicone Roof Coating and RC-1850 Silicone Seam Compound, etc., by a single manufacturer which has produced silicone products successfully for not less than ten (10) years. Provide secondary products only as recommended and approved by Inland Coatings Corporation.
- B. Contractor Qualifications: A single qualified Contractor shall perform all work addressed in this section. On System Warranted projects, the Contractor must be trained and certified by Inland Coatings Corporation for application of the Metal Roof Coating System.
- C. Adhesion Test: Prior to estimating coating restoration project, conduct an adhesion test in accordance with Inland adhesion testing procedures to determine if a primer or other specific surface preparation is required.

1.03 SUBMITTALS

- A. Submit Manufacturer's literature and samples to the Owner or Owner's Representative. Literature on the roof coating, seam sealer, reinforcement mesh and other related products shall be submitted for review before work is started. Literature shall show material specifications, physical properties, installation instructions, Manufacturer's estimated application rate for required dry film thickness per warranty requirements and SDS.
- B. Submit a sample copy of the Coating Manufacturer's warranty to meet project specification.

1.04 PRELIMINARY PROJECT REVIEW (System Warranted Projects)

- A. Immediately after contract award, contractor shall submit a complete and accurate Bid Report to the Inland Warranty Department for approval. This should include the Pre-Inspection Warranty Form, a copy of the roof drawing and the following pictures with detailed descriptions:

1. Distant shot of entire building.
2. Roof height shot of overall project.
3. Close-up of horizontal and vertical seams.
4. Any unusual flashing or problem areas.

1.05 JOB CONDITIONS

- A. Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's requirements as follows:
1. Do not begin work if rain is expected within six hours of application.
 2. Do not begin work if surface temperature is above 120 degrees Fahrenheit or below 40 degrees Fahrenheit, or when the dew point is within 5 degrees Fahrenheit of the surface temperature.
 3. No moisture, dirt, oils or other contaminants can be present when applying products.
 4. Do not atomize coating when wind velocity is above 15 m.p.h.

1.06 FIELD QUALITY CONTROL

- A. The overall weather conditions, including roof surface temperature, ambient air temperature, relative humidity, dew point and wind velocity shall be recorded daily by the Contractor. This data shall be submitted to Inland Coatings with the system warranty information.
- B. Inspections: A minimum of two (Beginning and Final) inspections, by an approved manufacturer's representative, will be required on all projects requiring a System Warranty. The first shall be conducted at the beginning of the project after all surface preparation is completed and prior to the application of any Inland products. The Final inspection will be conducted at the end of the project, after all product applications are completed.
- C. Verification of Coating Thickness: The wet film thickness shall be measured and recorded daily, along with the quantity of product and total square feet applied. This data shall be submitted to Inland Coatings with the system warranty information.

1.07 WARRANTY

Provide Inland Product or System Warranty per the requirement of the Building Owner and/or Architect. In order to obtain any Inland System Warranty, the following conditions apply:

- A. Determination of the appropriateness of the Inland Roofing System for any given metal roof must be obtained from Inland's Warranty Department prior to offering any Inland System Warranty. Inland will refuse to offer a warranty on any Inland System being installed over an unfit, unsound or inappropriate substrate. A project approval letter must be received from Inland prior to beginning a System Warranted project.
- B. The Inland Roofing System must be applied to the full area of the roof. A System Warranty will not be issued for installations over a section of any roof unless otherwise approved in advance by the Inland Warranty Department.
- C. Contractor shall provide Inland Warranty Department at least two (2) weeks notice for scheduling of on-site technical support or inspections.
- D. All gutters and roof areas which pond water for more than 48 hours after precipitation ceases are excluded from the coverage under the Inland Warranty.
- E. All required forms, applicable warranty fees and the completed Warranty Registration Form, signed by the Contractor and Building Owner, must be returned to the Inland Warranty Department no later than 30 days after the completion of the project.

1.08 PRODUCT HANDLING

- A. Deliver only approved materials to the job site. Deliver materials in original sealed containers with seals unbroken and labels legible and intact.
- B. Store and handle materials in a manner that shall ensure there is no possibility of contamination. Store in a dry, well-ventilated, weather-tight place, at temperatures between 50° F and 90° F. Do not stack material pallets more than two high. Do not subject existing roof to unnecessary loading of stockpiled materials. In all cases the storage and handling of materials shall conform to the requirements of the manufacturer and all applicable safety regulatory agencies.

- C. Any damaged materials, or materials not conforming to the specific requirements, shall be rejected by the owner. Rejected materials shall be immediately removed from the job site and replaced at no cost to the owner.

Part 2. PRODUCTS

2.01 SILICONE ROOF COATINGS

- A. Silicone Roof Coating products physical specifications and minimal performance criteria shall be as follows:

1. RC-1800 Silicone Roof Coating

Tack Free Time: 1 – 2 hours
Elongation: 250%
Tensile Strength: 325 PSI
Solids Content: 96% (by volume)

2. RC-1850 Silicone Seam Compound

Tack Free Time: 1 – 2 hours
Elongation: 275%
Tensile Strength: 130 PSI
Solids Content: 95% (by volume)

3. RPM Series Polyester Mesh

Stitchbonded polyester mesh for reinforcement of seams and penetrations. Provides high strength and good elongation and conforms well to irregular surfaces.

Tensile Strength: 57.1 PSI (ASTM D1682)
Elongation: 61% (ASTM D1682)
Mullen Burst: 176 lbs. (ASTM D3786)
Trapezoid: 16 lbs. (ASTM D1117)

4. CR 2100 Rubber Skylight Coating

Clear, flexible rubber coating that provides excellent adhesion and water resistance for fiberglass skylight panels.

Drying Time: 1 – 3 hours
Elongation: 400 percent (ASTM D-412)
Tensile Strength: 1520 PSI (ASTM D-412)
Coverage Rates: 80 – 100 sq. ft/gal
Reduction: None
Specific Gravity: .87
Flash Point: 101° F.

5. RC 300 Roofing Cleaner/Degreaser

An alkaline cleaner that is biodegradable and non-flammable, which cleans and degreases various roofing surfaces.

6. RST Series Roofing Seam Tape

A strong, flexible seam tape for reinforcement of seams and penetrations. Provides good elongation and conforms well to irregular surfaces.

Solid Content (ASTM D1729-69): 99.8%
Tensile Strength (ASTM D-412): 35 PSI
Elongation/webbing: 200%
Cold Temperature Flexibility: Passes
Moisture Vapor Transmission: 0.75 perms

2.02 Manufacturer

- A. The following roof coating manufacturers have been approved for the project. No substitutions by secondary, indirect manufacturers will be allowed.

1. Inland Coatings
26259 Hwy 6
Adel, IA 50003
(800) 456-8467
www.inlandcoatings.com
- B. Other manufacturers requesting approval must submit acceptable information certifying that they are the direct manufacturer from raw material into the specified product and meet the performance criteria required.

PART 3.0 - INSTALLATION

3.01 Surface Preparation

- A. Examine substrate to receive new roofing. Do not proceed with installation of the Inland Roofing System until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer (Inland Coatings Corporation).
- B. Contractor shall address the following:
 - Treatment of large gaps and cracks
 - Treatment of ponding water areas
 - Thorough cleaning
 - Miscellaneous items
- C. Treatment of Excessive Gaps: All large gaps (1/8" or larger) existing between roof panels must be closed or made flush with self-drilling fasteners w/washers. All other gaps larger than 1/8" must be either closed with self-drilling fasteners w/washers, or filled with backer rod or urethane foam.
- D. Treatment of Ponding Water Areas: Contractor shall make every effort to mechanically eliminate all ponding water areas on the roof prior to application of products ("ponding water" is defined as water which does not properly drain and remains for more than 48 hours after precipitation stops). This may include the installation of crickets, condensation lines from HVAC units, etc.
- E. Repair of Dented / Damaged Panels: Applicator shall repair dented and/or damaged metal roof panels. Dents shall be mechanically removed to the maximum extent possible. If ribs are cracked, Contractor shall cover the broken rib area with RC-1850 Silicone Seam Compound and RPM 400 (4") Polyester Mesh.
- F. Re-tightening and Replacement of Fasteners: All fasteners must be re-tightened, secured or replaced, as necessary. All stripped fasteners must be replaced with larger diameter fasteners w/washers. All missing fasteners must be replaced.
- G. Thorough Cleaning / Removal of Existing Paints and Coatings: Metal substrate must be pressure-washed with clean water. A minimum working pressure of 3,000 psi shall be used to remove all dirt, dust, previous paints/coatings which are delaminating and waste products (oil, oil-based roof cements, solvents, grease, animal fats, etc.). A rotary spray tip and/or the use of Inland RC 300 Cleaner/Degreaser will improve metal panel cleaning. All existing silicone-based sealants must be completely removed from roof substrate prior to application of products. Allow roof to dry thoroughly before application of Inland products.
- H. Treatment of Residual Asphalt: Installer shall make every effort to remove asphaltic roofing elements. Removal efforts must include use of methods such as pressure-washing, scrapers, wire brushes, power wire-wheels, or other similar tools. Residual asphaltic areas are to be coated with Inland RC-1875 Bleed Blocker.
- I. Treatment of Rust Areas: All rust areas must be thoroughly cleaned to prevent further deterioration of the metal roof panels. Remove all loose, flaking or powdery rust by wire brushing if it has not been removed during the pressure washing.
- J. Air conditioning units, blowers and evaporative coolers shall be disconnected or otherwise modified to prevent contaminating the roof surfaces with water or condensation, and to prevent solvent fumes from entering the building.

3.02 SEAMS, FASTENERS AND PENETRATIONS (Mandatory on System Warranties)
(Method 1- No mesh required)

NOTE: All gaps larger than 1/16" existing between roof panels, flashings, penetrations, etc. must be stitch screwed closed or reinforced using Methods 2 or 3.

- A. **Fasteners:** Coat all fasteners with a liberal amount of RC-1850 Silicone Seam Compound. All fasteners must be totally encapsulated.
- B. **Vertical Seams:** Gaps smaller than 1/16" do not require the use of reinforcing mesh and can be sealed with RC-1850 Silicone Seam Compound. All vertical seams should be coated with RC-1850 Silicone Seam Compound at a coverage rate of 40 sf/gal. (A 3" to 4" wide pattern should yield 140 to 120 lft/gal @ 35 mils DFT). This to be accomplished in a one-coat process, with the RC-1850 back-brushed into the seam and the seam area filled and free of voids.
 - 1. The application of RC-1850 Silicone Seam Compound should be centered on the metal seam, overlapping an adequate distance on either side of the seam.
- C. **Horizontal Seams:** All horizontal seams should be coated with RC-1850 Silicone Seam Compound at a coverage rate of 24 sf/gal. (A 5" wide pattern should yield 58 lft/gal @ 55 mils DFT). The RC-1850 should be back-brushed into the seam and the seam area filled and free of voids.
 - 1. The application of RC-1850 Silicone Seam Compound should be centered on the metal seam, overlapping an adequate distance on either side of the seam.
- D. **Penetrations and Flashings:** Flash all curbs, crickets, rakes, parapet walls, ridge caps, vent pipes, pinholes on metal panel, skylights, etc. with RC-1850 Silicone Seam Compound at a coverage rate of 24 sf/gal. (A 5" wide pattern should yield 58 lft/gal @ 55 mils DFT).
- E. **Gutters:** Apply RC-1850 Silicone Seam Compound to all gutter seams at a coverage rate of 24 sf/gal. (A 5" wide pattern should yield 58 lft/gal @ 55 mils DFT).

3.03 SEAMS, FASTENERS AND PENETRATIONS (Mandatory on System Warranties)
(Method 2 with RPM Series Polyester mesh)

- A. **Fasteners:** Coat all fasteners with a liberal amount of RC-1850 Silicone Seam Compound. All fasteners must be totally encapsulated.
- B. **Vertical Seams:** All vertical seams should be coated with RC-1850 Silicone Seam Compound at a coverage rate of 40 sf/gal. (A 3" to 4" wide pattern should yield 140 to 120 lft/gal @ 35 mils DFT). The above coverage rates are to be achieved in a two-coat application, with the first coat back-brushed into the seam, with the seam area filled and free of voids.
 - 1. The application of RC-1850 Silicone Seam Compound should be centered on the metal seam, overlapping an adequate distance on either side of the seam.
 - 2. Embed RPM 200 Polyester Mesh (2" wide) into the seam compound. Back-brush the RPM 200 using a stiff bristle brush to prevent wrinkling or air pockets under the fabric. Allow seam area to cure a minimum of two hours. A liberal second coat of RC-1850 is then applied over the RPM 200 Polyester Mesh.
- C. **Horizontal Seams:** All horizontal seams should be coated with RC-1850 Silicone Seam Compound at a coverage rate of 24 sf/gal. (A 5" wide pattern should yield 58 lft/gal @ 55 mils DFT). The above coverage rates are to be achieved in a two-coat application.
 - 1. The application of RC-1850 should be centered on the metal seam, overlapping an adequate distance on either side of the seam to accommodate the width of the polyester mesh.
 - 2. Embed RPM 400 Polyester Mesh (4" wide) into the seam compound. Back-brush the RPM 400 polyester using a stiff bristle brush to prevent wrinkling or air pockets under the fabric. Allow seam area to cure a minimum of two hours. A liberal second coat of RC-1850 Silicone Seam Compound is then applied over the RPM 400.
- D. **Penetrations and Flashings:** Flash all curbs, crickets, rakes, parapet walls, ridge caps, vent pipes, pinholes on metal panel, skylights, etc. with RC-1850 Silicone Seam Compound, then embed RPM 400 Polyester Mesh (4" wide). Cover the RPM 400 mesh with a liberal second coat of RC-1850 Silicone Seam Compound.

- E. **Skylights:** Apply two coats of CR 2100 Rubber Skylight Coating to all fiberglass skylight panels at a rate of 100 sf/gal per coat. This is best accomplished using a roller or brush. Note: CR 2100 should not be applied over silicone coatings as adhesion related problems can result.
- F. **Gutters:** Apply RC-1850 Silicone Seam Compound to all gutter seams at a coverage rate of 24 sf/gal. (A 5" wide pattern should yield 58 lft/gal @ 55 mils DFT). The above coverage rates are to be achieved in a two-coat application, with RPM 400 embedded into the first coat. Gutter must be clean and dry before application.

3.04 SEAMS, FASTENERS AND PENETRATIONS (Mandatory on System Warranties)
(Method 3 with RST Series Roofing Seam Tape)

- A. **Fasteners:** Coat all fasteners with a liberal amount of RC-1850 Silicone Seam Compound. All fasteners must be totally encapsulated.

B. Vertical Seams:

- 1. Carefully apply RST-200 Roofing Seam Tape to the seam area and work into all cracks and crevices to prevent wrinkling or air pockets. Apply a liberal coat of RC-1850 Silicone Seam Compound at a coverage rate of 70 sf/gal. (A 3" to 4" wide pattern should yield 210 to 280 lft/gal @ 20 mils DFT). The combined minimum Dry Film Thickness (DFT) required under this specification shall be 40 mils.

- 2. All seaming applications should be centered on the metal seam, overlapping an adequate distance on either side of the seam.

- C. **Horizontal Seams:** Carefully apply RST-400 Roofing Seam Tape to the seam area and work into all cracks and crevices to prevent wrinkling or air pockets. Apply a liberal coat of RC-1850 Silicone Seam Compound at a coverage rate of 48 sf/gal. (A 5" wide pattern should yield 115 lft/gal @ 30 mils DFT). The combined minimum Dry Film Thickness (DFT) required under this specification shall be 50 mils.

- 1. All seaming applications should be centered on the metal seam, overlapping an adequate distance on either side of the seam.

- D. **Penetrations and Flashings:** Flash all curbs, crickets, rakes, parapet walls, ridgecaps, vent pipes, pinholes on metal panel, skylights, etc. with RST-400 Seam tape (4" wide). Cover the RST-400 tape with a liberal coat of RC-1850 Silicone Seam Compound at a coverage rate of 48 sf/gal. (A 5" wide pattern should yield 115 lft/gal @ 30 mils DFT).

- E. **Gutters:** Apply RST-400 Seam Tape to all interior gutter seams. Cover the RST-400 tape with a liberal coat of RC-1850 Silicone Seam Compound at a coverage rate of 48 sf/gal. (A 5" wide pattern should yield 115 lft/gal @ 30 mils DFT). Gutter must be clean and dry before application.

3.05 COATING APPLICATION

- A. Prior to the application of RC-1800 Silicone Roof Coating, all seaming and preparation materials shall be allowed to dry sufficiently to prevent damage from spray hoses, foot traffic, etc.
- B. Immediately prior to the application of RC-1800 Silicone Roof Coating, all dust, dirt or other contaminants shall be blown off the roof surfaces. Surface must be clean and dry prior to any coating applications.
- C. If multiple coats are applied, it is highly recommended that the base-coat be a contrasting color to the finish coat to ensure adequate coverage and mil thickness.
- D. The entire roof, including interior gutter surfaces, shall receive coating system applied as follows:

Use the following application rates when specifying a 10-Year Warranty

- 1. Apply RC-1800 Silicone Roof Coating at a minimum rate of 1.5 gallons (24 wet mils) per 100 sq. ft. Allow a minimum of 24 hours drying time prior to allowing foot traffic or inspection of the roof surface. Inspect for insufficient coverage, defects, flaws or holidays. The minimum dry film thickness shall be twenty-two (22) mils. (Recommended tip size = 635).

Use the following application rates when specifying a 15-Year Warranty

- 2. Apply RC-1800 Silicone Roof Coating at a minimum rate of 2.0 gallons (32 wet mils) per 100 sq. ft. Allow a minimum of 24 hours drying time prior to allowing foot traffic or inspection of the roof surface. Inspect for insufficient coverage, defects, flaws or holidays. The minimum dry film thickness shall be thirty (30) mils. (Recommended tip size = 635).

3.06 CLEANUP

- A. Maintain work areas in a clean, safe condition at all times during coating installation. Remove excess materials, trash and debris from the jobsite daily.
- B. At the completion of the project, clean area of any spills and containers and clean up all roofing debris, leaving jobsite in a clean and orderly condition.

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