

INLAND COATINGS CORPORATION

SYSTEM SPECIFICATION FOR MODIFIED BITUMEN ROOFING

IMB350M-6

June 2010

This specification provides a strong, flexible, synthetic rubber membrane that is resistant to water, corrosion and weather extremes. It can be used for new and aged (3 years or older) Modified Bitumen (MB) or smooth Built-up (BUR) systems.

It provides a white, reflective finish coat that is an Energy Star labeled product and dramatically reduces roof temperatures. This keeps the building cooler and eliminates expansion and contraction related problems. The end product shall be a seamless, elastomeric system protecting the roof against leaks and degradation by the elements.

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, including but not limited to seams, penetrations, drains and scuppers. All preparatory work will then be encapsulated with DF 1000 Rubber Deck Filler and RC 2000 Rubber Roof Coating.

1.02 SUBSTRATE CONDITIONS

- A. The pre-existing roofing system must be intact with no material or structural defects. It must be adequately bonded to the substrate and the insulation must be free from moisture. If moisture is suspected, obtain a moisture content survey. Remove and replace moist and inadequately bonded insulation.
- B. All pre-existing roofing must have sufficient slope (at least 1/4" to the foot) to eliminate ponding water.
- C. This specification does not apply to roofs that have been covered with gravel or coal tar substrates.
- D. The substrate must be free of splits, blisters, grease, oils and debris. It is not recommended that Inland products be applied over brittle or friable membranes.
- E. The Inland system is not intended for use on heavy traffic bearing substrates. If foot traffic is expected, a rooftop walkway system shall be used which is approved by Inland.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide primary products, including Inland DF 1000 Rubber Deck Filler, RC 2000 Rubber Roof Coating, etc., by a single manufacturer which has produced these 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.

1.04 SUBMITTALS

- A. Submit Manufacturer's literature and samples to the Owner or Owner's Representative. Literature on the protective coating, deck filler 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 MSDS.
- B. Submit a sample copy of the Coating Manufacturer's warranty to meet project specification.

1.05 PRELIMINARY PROJECT REVIEW

- A. Immediately after contract award, contractor shall submit a complete and accurate Bid Report to the Inland Warranty Department for approval. This should include pages 1 & 2 of the Inland Project Profile report, 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 penetrations, scuppers and drains.
 4. Any unusual flashing or problem areas.

1.06 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 140 degrees Fahrenheit or below 40 degrees Fahrenheit, or when the dew point is less than 5 degrees Fahrenheit above 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.

1.07 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 on the Project Profile form.
- B. 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.

1.08 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 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 the project.
- B. The Inland Roofing System must be applied to the full area of the roof. A Warranty will not be issued for installations over a section of any roof unless otherwise approved in advance by the Inland Warranty Department.
- C. 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.
- D. 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.

1.09 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 RUBBER ROOF COATING

A. Rubber Roof Coating products physical specifications and minimum performance criteria shall be as follows:

1. RC 2000 Rubber Roof Coating

Drying Time: 1 – 3 hours
Elongation: 500 percent (ASTM D-412)
Tensile Strength: 1520 PSI (ASTM D-412)
Coverage Rates: 80 – 100 sq. ft/gal
Permeance: .166 perms (ASTM E-96)
Reduction: None
Specific Gravity: 1.02
Flash Point: 101° F.
Solar Reflectance (white): 80+%

2. DF 1000 Rubber Deck Filler

Drying Time: 2 – 6 hours
Coverage Rate: 65 – 70 sq. ft./gal.
Elongation: 700% (ASTM D-412)
Tensile Strength: 1000 PSI
Specific Gravity: 1.0
Flash Point: 105° F.

3. RC 2200 Rubber Seam Compound
(Brush, Trowel or Spray Grades)

Elongation: 530 percent (ASTM D-412)
Tensile Strength: 1780 PSI (ASTM D-412)
Permeance: .148 perms (ASTM E-96)
Reduction: None
Specific Gravity: 1.03 to 1.05
Flash Point: 81° F. to 101° F.

4. RPM Series Polyester Mesh

A. Stitchbonded polyester mesh for reinforcement of seams and penetrations. Provides high strength and good elongation, while conforming 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)

5. CR 2100 Rubber Skylight Coating

A. 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
Permeance: .166 perms (ASTM E-96)
Reduction: None
Specific Gravity: .87
Flash Point: 101° F.

6. RST Series Roofing Seam Tape

- A. 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

7. RS 2030 Roofing Sealer

- A. Clear, flexible coating for use on asphaltic surfaces to prevent bleed and discoloration.

Drying Time: 1 – 3 hours
Coverage Rates: 250 sq. ft/gal
Reduction: None
Specific Gravity: 1.02

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 Corporation
2619 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. Applicator shall address the following:
- Test patches
 - Treatment of Deteriorated/damaged MB/BUR
 - Treatment of ponding water areas
 - Thorough cleaning
 - Miscellaneous items
- C. Test Patches: Test patches shall be prepared in representative areas to check adhesion and ensure that the level of bleed or discoloration from the asphaltic substrate is minimal. Apply Inland RC 2000 White at a rate of 1 gallon per 100 s.f. Surface should be allowed to cure for a minimum of 24 hours prior to evaluating. If bleed or discoloration is present, the surface must be primed with Inland RS-2030 Roof Sealer. See section 3.04 "Priming".
- D. Treatment of Deteriorated/Damaged MB/BUR: Any areas that are buckled, blistered or torn must be repaired using similar materials. Wet insulation must be replaced. Repaired areas must be allowed 30 days to weather before applying Inland products. All fresh repairs made with MB or BUR products shall be primed with Inland RS 2030 Roofing Sealer to prevent bleed or discoloration.

All areas where the MB or BUR has significantly cracked or crazed (i.e., gaps in width and/or depth in excess of 1/16") must receive a substrate repair coat of DF-1000 Rubber Deck Filler to fill the cracks and bring the substrate to a smooth, workable surface. Heavy cracking may require multiple coats and must be reinforced with RPM Series Polyester Mesh. A minimum of 24 hours drying time should be allowed before applying other Inland products.

Note: Repair coat(s) of DF-1000 are in addition to the standard coat of DF-1000 specified in section 3.03 (Coating Application).

- E. 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).
- F. Thorough Cleaning: The entire roof surface shall be carefully power washed with an approximate working pressure of 2,000 PSI to remove dirt, chalking or loose materials. Care must be taken to prevent substrate damage and to ensure that water is not forced into the roof system. If algae or fungus are present, use bleach to treat these areas. Surface must be thoroughly rinsed with fresh water and completely dry prior to any product applications.
 - 1. Heavy deposits of dirt or contamination may require additional cleaning or mechanical scrubbing with a stiff bristle broom or brush. Remove oils or grease from the substrate with hot water and mild detergent.
- G. 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 **FLASHINGS AND PENETRATIONS**
(Method 1 with RPM Series Polyester mesh)

- A. Flash all roof penetrations, drains, scuppers and splits with DF 1000 Rubber Deck Filler, then embed RPM 400 Polyester Mesh (4" wide). Cover the RPM 400 mesh with a liberal second coat of DF 1000 Rubber Deck Filler.
- B. Seams: All seam areas that are not tightly bonded or in good condition shall be coated with Inland DF 1000 Rubber Deck Filler and Inland RPM 400 Polyester Mesh. Apply DF 1000 Rubber Deck Filler at a coverage rate of 15 sf/gal. (A 5" wide pattern should yield 34 lft/gal @ 40 mils DFT). The above coverage rates are to be achieved in a two-coat application and are the minimum Dry Film Thickness (DFT) requirements under this specification.
 - 1. The application of DF 1000 should be centered on the seam, overlapping an adequate distance on either side of the seam.
 - 2. Embed RPM 400 Polyester Mesh (4" wide) into the seam area. Back-brush the 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 DF 1000 is then applied over the RPM 400 Polyester Mesh.
- C. Skylights: Coat all fiberglass skylight panels with CR 2100 Rubber Skylight Coating at a rate of 100 sf/gal. This is best accomplished using a roller or brush.
- D. Gutters: Apply RC 2200 Rubber Seam Compound and RPM 400 Polyester Mesh to all interior gutter seams. Gutter must be clean and dry before application.

3.03 **FLASHINGS AND PENETRATIONS**
(Method 2 with RST Series Roofing Seam Tape)

- A. Flash all roof penetrations, drains, scuppers and splits with RST-400 Seam Tape (4" wide). Cover the RST-400 with a liberal coat of DF 1000 Rubber Deck Filler.
- B. Seams: All seam areas that are not tightly bonded or in good condition shall be flashed with RST-400 Seam Tape. Cover the RST-400 with a liberal coat of DF 1000 Rubber Deck Filler applied at a coverage rate of 30 sf/gal. (A 5" wide pattern should yield 70 lft/gal.). The combined Dry Film Thickness (DFT) should be 35 mils and is the minimum requirement under this specification.
 - 1. The application of DF 1000 should be centered on the seam, overlapping an adequate distance on either side of the seam.
- C. Skylights: Coat all fiberglass skylight panels with CR 2100 Rubber Skylight Coating at a rate of 100 sf/gal. This is best accomplished using a roller or brush.
- D. Gutters: Apply RST-400 Seam Tape and RC 2200 Rubber Seam Compound to all interior gutter seams. Gutter must be clean and dry before application.

Note: Although RC 2000 and DF 1000 provide excellent water resistance, the products must be allowed to cure prior to being subjected to ponding water. It is recommended that standing water be blown or swept from any ponding areas for the first 14 days.

3.04 PRIMING (For asphaltic surfaces that exhibit bleed or discoloration)

Note: RS-2030 Roof Sealer is a water-based coating and should never be applied over solvent-based coatings, such as Inland RC 2000 or DF 1000, unless they are fully cured.

- A. Apply RS-2030 Roof Sealer at a rate of 1.0 gallon per 250 sq.ft. Allow RS-2030 to dry thoroughly, a minimum of 4 hours, before applying coating system. The dry film should be totally clear, with no cloudy areas visible.

3.05 COATING APPLICATION

- A. Prior to the application of Inland Rubber Coatings, all preparation materials shall be allowed to dry sufficiently to prevent damage from spray hoses, foot traffic, etc.
- B. Immediately prior to each application of Inland Rubber Coatings, 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. The color of the finish coat (The final or last coat to be applied) shall be white.
- D. The entire roof, including interior gutter surfaces, shall receive RC 2000 Rubber Roof Coating applied as follows:

Use the following application rates only if specifying a 5-Year Product Warranty

1. Apply DF 1000 at a minimum rate of 1.5 gallons per 100 sq. ft. Allow a minimum of 24 hours dry time and inspect for defects, flaws or holidays. Correct any unsatisfactory conditions prior to proceeding.
2. Apply RC 2000 White at a minimum rate of 1.0 gallons 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 or flaws. Correct any unsatisfactory conditions. The minimum dry film thickness shall be 14 mils

Use the following application rates only if specifying a 10-Year Product Warranty

1. Apply DF 1000 at a minimum rate of 1.5 gallons per 100 sq. ft. Allow a minimum of 24 hours dry time and inspect for defects, flaws or holidays. Correct any unsatisfactory conditions prior to proceeding.
2. Apply basecoat of RC 2000 Beige at a minimum rate of 1.0 gallon per 100 sq. ft. Allow a minimum of 24 hours drying time prior to allowing foot traffic or inspection of the roof surface.
3. Apply finish coat of RC 2000 White at a minimum rate of 1.0 gallon per 100 sq. ft. Allow a minimum of 24 hours drying time prior to allowing foot traffic or inspection of the roof surface. The minimum dry film thickness shall be 19 mils.

Use the following application rates only if specifying a 5-Year System Warranty

1. Apply DF 1000 at a minimum rate of 1.5 gallons per 100 sq. ft. Allow a minimum of 24 hours dry time and inspect for defects, flaws or holidays. Correct any unsatisfactory conditions prior to proceeding.
2. Apply RC 2000 White at a minimum rate of 1.0 gallons 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 or flaws. Correct any unsatisfactory conditions. The minimum dry film thickness shall be 14 mils

Use the following application rates only if specifying a 10-Year System Warranty

1. Apply DF 1000 at a minimum rate of 1.5 gallons per 100 sq. ft. Allow a minimum of 24 hours dry time and inspect for defects, flaws or holidays. Correct any unsatisfactory conditions prior to proceeding.
2. Apply basecoat of RC 2000 Beige at a minimum rate of 1.0 gallon per 100 sq. ft. Allow a minimum of 24 hours drying time prior to allowing foot traffic or inspection of the roof surface.
3. Apply finish coat of RC 2000 White at a minimum rate of 1.0 gallon per 100 sq. ft. Allow a minimum of 24 hours drying time prior to allowing foot traffic or inspection of the roof surface. The minimum dry film thickness shall be 19 mils.

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.

File Number: IMB350M-6