PART 1 – GENERAL

1.1 DESCRIPTION

A. This specification outlines the installation process for the Inland Polyurethane Roof Coating Restoration, intended for waterproofing and restoring existing metal roof systems. It includes product descriptions, application methods, and required site conditions.

B. This document provides a comprehensive overview of typical conditions encountered on metal roof systems. It may not cover all project-specific scenarios. For unique or complex conditions, consult the Inland Technical Department. It is the responsibility of the building owner or their designated representative to determine the suitability of this guideline for a particular project.

1.2 SCOPE OF WORK

A. The contractor shall supply all necessary labor, materials, equipment, and tools required to prepare and complete the installation using new materials as specified. All workmanship must adhere to the manufacturer's recommendations and comply with recognized industry standards.

1.3 SUBSTRATE CONDITIONS

A. The performance of the Inland Polyurethane Roof Coating Restoration is dependent on the condition of the existing roofing substrate. The substrate must be evaluated and verified by a qualified representative of the owner, who has expertise with similar low-slope roofing system and products.

B. The existing roofing system must be sound, watertight, free from material or structural defects, and it must have been installed according to the original manufacturer’s published specifications or in accordance with recognized industry standards. If deficiencies are identified, they must be corrected to meet the required standards.

C. The existing roofing system must provide positive drainage to prevent the accumulation of ponding water.

D. The substrate must be free of debris and contaminants that will interfere with adhesion.

E. Do not proceed with aftermarket coating until surface preparation has been tailored to address variables associated with "new" or relatively unweathered roofing materials. This includes, but is not limited to, metal roof panels with galvanizing oils, siliconized or Kynar/PVDF finishes, etc.

F. Adhesion Test: It is strongly advised to perform adhesion tests prior to bidding to determine if a primer or other specific surface preparation is needed. Documentation confirming a successful adhesion test is mandatory for all system warranties. An approved adhesion test must demonstrate a minimum pull strength of 2 pounds per linear inch (PLI) of a fabric, with failure occurring cohesively within the coating or within the substrate itself.

1.4 QUALITY ASSURANCE

A. Contractor Qualification: The contractor should be adequately trained, possess comprehensive roofing knowledge, and have a proven track record of successfully completing projects of similar size and scope.

B. Prior to installation, thoroughly review all Technical Data Sheets and specifications to ensure a comprehensive understanding of all details and requirements.
C. The contractor shall record the overall weather conditions daily, including roof surface temperature, ambient air temperature, relative humidity, dew point, wind velocity, and production locations.

1.5 DELIVERY, STORAGE & HANDLING

A. Deliver only approved materials to the job site, ensuring all containers have unbroken seals and legible, intact labels.
B. Materials shall be delivered in sufficient quantities to avoid work delays.
C. Store and handle materials in a manner that prevents contamination. Keep materials in a dry, well-ventilated, weather-tight area with temperatures ranging from 45°F to 95°F. Protect materials from direct sunlight by keeping them covered. Avoid stacking material pallets and limit the unnecessary placement of stockpiled materials on the existing roof. Ensure that all storage and handling practices comply with the manufacturer's guidelines and applicable regulatory requirements. When possible, store materials indoors.
D. The owner's representative shall reject any damaged materials or materials that do not meet specific requirements. Rejected materials must be promptly removed from the job site and replaced.
E. Record and preserve lot numbers.

1.6 JOBSITE CONDITIONS

A. The contractor shall be responsible for examining site conditions prior to application of all materials. The contractor shall immediately report any unsatisfactory conditions to the owner's representative and not begin any work until conditions have been addressed.
B. Investigate and correct all leaks before proceeding with the new polyurethane roof coating restoration.
C. No coating products or accessories are to be applied over wet substrates or insulation. All wet roofing materials are to be removed and replaced.
D. Proceed with roofing work only when existing and forecasted weather conditions permit work to be performed in accordance with manufacturer's requirements as follows:
    1. Avoid application when freezing temperatures, rain, high humidity, dew, or condensation are expected within 8-hours after application, as the conditions may interfere with proper curing.
    2. Do not begin work if surface temperature is above 130°F or below 50°F, or when the ambient temperature is within 5°F of the dew point.
    3. Do not start work if there is a possibility that temperatures could drop below 40°F within 24 hours after application.
    4. No moisture, dirt, oil or other contaminants can be present when applying products.
    5. Do not atomize coating when wind velocity is above 15 miles per hour.
    6. The drying time varies based on temperature, humidity and application rate.

1.7 PRECAUTIONS

A. All rooftop HVAC units, vents, or blowers must be disconnected or modified appropriately to prevent water or condensation from contaminating roof surfaces and to prevent fumes from entering the building.
B. The contractor is responsible for safeguarding all nearby surfaces from overspray, brushing, or rolling of the coatings. Wind screens can be used to reduce the wind drift of the coating. Special care is required during spraying, particularly around vehicles. Items that cannot be relocated must be covered and protected.
C. Ensure that work areas remain clean and safe throughout the coating installation process. Remove excess materials, trash, and debris from the job site daily.
D. Ensure compliance with OSHA guidelines for the correct safety measures.

1.8 WARRANTIES

A. Inland warrants that the supplied material will meet or exceed the published physical properties.
B. Extended warranties are available upon request. The owner is responsible for reviewing and accepting the terms of all extended warranties.
C. All necessary forms, documents, applicable warranty fees and inspections (if required) must be completed before extended warranties can be issued.
D. Applications for systems warranties must be submitted before the project begins.
E. The contractor must provide the Inland Technical Department with at least two (2) weeks' notice to schedule onsite technical support or inspections.
F. System warranties apply only to full-roof areas. Prior approval from the Inland Technical Department is required for system warranties that cover sections of roof areas.
G. Edge metal, wall panels, gutters and rain-carrying components are excluded from warranty coverage.
H. System warranties are not available for residential projects.

PART 2 – PRODUCTS

2.1 DESCRIPTION

A. The components of the Inland Polyurethane Roof Coating Restoration shall be manufactured or supplied by Inland Coatings, Inc.
B. Components not manufactured or supplied by Inland Coatings, Inc. may be reviewed and accepted at the discretion of the Inland Technical Department. Inland does not warrant or guarantee their performance or suitability.

2.2 MATERIALS

A. **Polyurethane Coating**
   1. AldoThane 386 – a UV- stable, high-solids, single-component, moisture-cure, aliphatic polyurethane elastomeric coating.

B. **Polyurethane Mastic** – a high-solids, single-component, moisture-cure, polyurethane elastomeric mastic designed for sealing fasteners, laps/seams, penetrations and other detail work.
   1. AldoThane 385
C. **Accessories**
   1. T272 Fabric – a soft, easily conformable, stitch-bonded polyester fabric.
   2. IN-Slope Ponding Water Eliminator – a lightweight roof-sloping compound.
   3. Universal Curb Kit – a versatile roof penetration sealing system.
D. **Primer** (Rusted Areas)
   1. AldoPrime 710 – a rust inhibitive primer for ferrous metal substrates.
E. **Rust Treatment**
   1. RRC-600 – a phosphoric acid-based conditioner and converter.

2.3 EQUIPMENT

A. Polyurethane roof coatings are most effectively applied using airless spray systems. When selecting the appropriate equipment, several factors must be considered. Inland recommends consulting Graco, Titan Tool, or an equipment specialist to determine the best solution for your specific project requirements.
B. Additional equipment includes long nap, non-shedding, rollers and brushes resistant to solvents, a pressure washer and various common hand and power tools.

PART 3 – EXECUTION

3.1 EXAMINATION

A. A thorough inspection of the entire roof area designated for the new polyurethane roof coating must be conducted. The installation of any Inland products shall not proceed until all unsatisfactory conditions are addressed and rectified in a manner acceptable to Inland.

3.2 EXISTING CONDITIONS

A. Any defects or leaks in the existing metal roof system should be repaired using methods approved by the original manufacturer or in accordance with published industry standards. Refer to the most recent version of SMACNA's *Architectural Sheet Metal Manual* for guidance and best practices. The Inland Technical Department is also available for assistance. Any issues with the existing substrate that adversely affect the polyurethane roof coating restoration are not covered under the warranty
B. All wet insulation and roofing materials must be removed and replaced before the application of the coating.
C. It is strongly recommended to remove all abandoned or non-functional equipment from the roof surface.
D. The contractor shall make every effort to eliminate all ponding water areas on the roof prior to the application of Inland products. Ponding water is water that remains on the roof surface for more than 48 hours under conditions that would normally allow for drying.

3.3 SURFACE PREPARATION

A. Metal Roof Panels
   1. All panels must be structurally sound, stable and securely fastened.
   2. Repair or replace dented or damaged panels in a manner that eliminates ponding water or “bird bath” areas. Clean all newly installed metal panels with phosphoric acid before coating.

B. Fasteners
   1. All fasteners must be tightly secured and correctly seated using neoprene washers.
   2. Retighten or replace loose, stripped or missing fasteners with oversized screws and neoprene washers.

C. Seams, Penetrations, and Flashings
   1. Inspect all seams for any openings. Any opening exceeding 1/16” between roof panels, flashings, penetrations, etc., must be closed or made flush with additional fastening.
   2. Remove all abandoned and non-functional equipment from the roof.
   3. Install crickets on the high side of all penetrations to maintain uninterrupted water flow.

D. Rust Treatment
   1. Wire brush any loose or scaling rust down to stable metal.
   2. Optional: Apply RRC-600 to all areas showing corrosion using a hand pump or garden sprayer on affected spots. Apply generously to areas with severe rust. Allow at least 45 minutes before power washing the roof. Roof sections with severe or widespread rust should be given extra time for the rust remover to work. In these instances, for roofs with a slope of 4/12 or less, leave the rust remover overnight for optimal effectiveness.

3.4 CLEANING

A. Verify local building regulations regarding the proper disposal of rinse water, as many areas prohibit discharge into sewer systems or water containment areas.

B. Thoroughly clean the substrate to eliminate dirt, dust, debris, algae growth, and any remnants of previous paint or coatings that may impede the coating process. It may be necessary to use a stiff bristle broom or mechanical scrubber to loosen contaminants. A pressure washer with a minimum working pressure of 3,000 psi and clean water, must be used.

C. A non-hazardous cleaning detergent may be used to enhance cleaning and degreasing. However, all cleaning agents and contaminants must be completely removed to prevent adhesion issues.

D. Multiple cleaning applications may be necessary.

E. Care should be taken to avoid damaging the existing roof or worsening any existing leak situations during the pressure washing process.

F. Rinse all surfaces thoroughly with clean water until all residues are removed and the rinse water runs clear.

G. A clean white rag should show no visible residue when wiped across the surface.

H. The roof surface must be allowed to dry completely before proceeding to the next step.

3.5 SLEEPERS

A. Units resting on wood blocking, sleepers, or directly on the roof surface must be lifted to allow for proper cleaning, priming, and coating of the membrane beneath.
B. Once the coating has fully dried, an approved slip sheet may be used, if deemed necessary by the Contractor, to protect the coated surface. Do not install slip sheets into wet or uncured coating.

3.6 PRIMER APPLICATION (RUSTED METAL)

A. All existing rusted areas in sound condition shall be primed with AldoPrime 710 at a rate of 0.5 gallons per 100 square feet. Areas with medium to heavy rust shall receive two coats.

3.7 FASTENER SEALING

A. Completely encapsulate all fasteners with a generous application of polyurethane mastic. The cured film should be thick enough to fully obscure the fastener head profile.

3.8 VERTICAL SEAM SEALING

A. Apply polyurethane mastic, at least 2 inches wide, centered over the seam, at a minimum thickness of 1/16 inch (63 wet mils).
B. Vertical seam sealing is not required when seams are mechanically locked.

3.9 HORIZONTAL SEAM SEALING (CHOOSE 1 METHOD)

A. Apply polyurethane mastic, at least 4 inches wide, centered over the seam, at a minimum thickness of 1/16 inch (63 wet mils). Shape the mastic with a central crest and gradually taper the edges outward.
B. Three-Course Method
    1. If existing hex-head fasteners interfere with the fabric installation, replace them with pan-head or truss-head style fasteners to allow the fabric to lay flat.
    2. Apply polyurethane coating, at least 6 inches wide, centered over the seam, with a minimum thickness of 24 wet mils.
    3. Immediately embed a 4-inch strip of fabric into the wet coating, ensuring it is centered over the seam. Use a dry brush to work the fabric into the coating until fully saturated. The fabric must be smooth, free of wrinkles and blisters.
    4. Allow coating to dry to the touch.
    5. Apply a second layer of polyurethane coating at 24 wet mils to fully encapsulate the fabric.
C. Three-Course Method – Mastic | Fabric | Mastic
    1. Apply polyurethane mastic at least 6 inches wide, centered over the seam, at a minimum thickness of 1/16 inch (63 wet mils). Shape the mastic with a central crest and gradually taper the edges outward.
    2. Immediately embed a 4-inch strip of fabric into the wet mastic, ensuring it is centered over the seam. Use a dry brush to work the fabric into the coating until fully saturated. The fabric must be smooth, free of wrinkles and air pockets.

3. Allow mastic to dry to the touch.
4. Apply a second layer of polyurethane mastic at 1/16 inch (63 wet mils) to fully encapsulate the fabric.

3.10 FLASHING & PENETRATION SEALING (CHOOSE 1 METHOD)

Encapsulate all flashing edges, including but not limited to pitch pans, pipe boots, pre-fabricated accessories, field-fabricated flashings and patches, and scuppers.

A. Apply polyurethane mastic at least 4 inches wide, centered over the seam, at a minimum thickness of 1/16 inch (63 wet mils). Shape the mastic with a central crest and gradually taper the edges outward.
B. Three-Course Method – Coating | Fabric | Coating
   1. Apply polyurethane coating at least 6 inches wide, centered over the seam, at a minimum thickness of 24 wet mils.
   2. Immediately embed a 4-inch strip of fabric into the wet coating, ensuring it is centered over the seam. Use a dry brush to work the fabric into the coating until fully saturated. The fabric must be smooth, free of wrinkles and air pockets.
   3. Allow coating to dry to the touch.
   4. Apply a second layer of polyurethane coating at 24 wet mils to fully encapsulate the fabric.
C. Three-Course Method – Mastic | Fabric | Mastic
   1. Apply polyurethane mastic at least 6 inches wide, centered over the seam, at a minimum thickness of 1/16 inch (63 wet mils). Shape the mastic with a central crest and gradually taper the edges outward.
   2. Immediately embed a 4-inch strip of fabric into the wet mastic, ensuring it is centered over the seam. Use a dry brush to work the fabric into the coating until fully saturated. The fabric must be smooth, free of wrinkles and air pockets.
   3. Allow mastic to dry to the touch.
   4. Apply a second layer of polyurethane mastic at 1/16 inch (63 wet mils) to fully encapsulate the fabric.

3.11 EXISTING TERMINATIONS

A. Existing gutters and rain-carrying components must be protected and shall not be coated or incorporated into the polyurethane roofing system.
B. Warranty coverage excludes coating applied to existing edge metal, fascia, and wall panels.
C. Do not apply coating to exposed masonry or brick.

3.12 FIELD COAT APPLICATION

A. Before applying the coating, ensure that all preparations have dried adequately, and that all surfaces intended for the polyurethane roof coating are clean, free of contaminants, and thoroughly dry from water and moisture.
B. Utilize a wet film gauge throughout the installation process to ensure accurate
C. Polyurethane coatings cure by reacting with moisture in the air. Typical dry time between coats is 12 to 18 hours, depending on temperature, humidity, and film thickness.

D. The surface area of metal roof panels varies depending on the panel type. It's important to consider the stretch factor when calculating coverage.
E. Apply multiple coats as necessary, especially on vertical ribs, to achieve proper coverage. Coating must be applied in a manner that prevents sagging.
F. **10-YEAR WARRANTY REQUIREMENT**
    1. Apply a two-coat polyurethane system.
    2. Base Coat: Apply AldoThane 386 coating at a rate of 1 gallon per 100 square feet (16 wet mils).
    3. Top Coat: Apply AldoThane 386 coating at a rate of 1 gallon per 100 square feet (16 wet mils).
    4. Minimum dry film thickness shall be 28 mils.
G. **15-YEAR WARRANTY REQUIREMENT**
    1. Apply a two-coat polyurethane system.
    2. Base Coat: Apply AldoThane 386 coating at a rate of 1.25 gallons per 100 square feet (20 wet mils).
    3. Top Coat: Apply AldoThane 386 coating at a rate of 1.25 gallons per 100 square feet (20 wet mils).
    4. Minimum dry film thickness shall be 35 mils.
H. **20-YEAR WARRANTY REQUIREMENT**
    1. Apply a three-coat polyurethane system.
    2. Base Coat: Apply AldoThane 386 coating at a rate of 1 gallon per 100 square feet (16 wet mils).
    3. Intermediate Coat: Apply AldoThane 386 coating at a rate of 1 gallon per 100 square feet (16 wet mils).
    4. Top Coat: Apply AldoThane 386 coating at a rate of 1 gallon per 100 square feet (16 wet mils).
    5. Minimum dry film thickness shall be 42 mils.
I. Published minimums do not account for application methods, material waste, environmental conditions, or variations in the existing roof system. Dry Film Thickness (DFT) requirements represent a minimum, not average.

3.13 WALKWAYS (OPTIONAL)

A. Walkway installation may begin only after the original application of coating has fully cured.
B. Mark out walkway paths using masking or painter's tape to create clean, straight lines. Walkways should be a minimum of 36 inches wide.
C. Apply coating at a rate of 1.5 gallons (24 wet mils) per 100 square feet.
D. Immediately broadcast granules evenly into wet coating.
E. Remove tape before the coating dries.
F. After the coating has dried, vacuum loose granules from the roof surface.
G. Walkways are maintenance items and are not included in the warranty coverage.

3.14 FIELD QUALITY CONTROL

A. Allow at least 24 hours for the surface to dry before inspecting for inadequate coverage, holidays, flaws, or defects. Any identified issues should be promptly corrected following cleaning.
B. Restrict foot traffic on newly applied polyurethane until coating has fully cured. Mark coated sections with safety tape or signage to prevent unintentional damage.
C. Protect roof coating from damage by other trades.

3.15 CLEAN UP

A. All pails, containers, equipment, protective coverings, and any other items brought on site by the contractor must be removed from the site and disposed of properly, following all federal, state, and local regulations.