

Installation Guide Specification: ENVIRONMENTAL COATINGS, INC. – METAL and TRANSITE ROOFS

I. GENERAL

1.01 SUMMARY

Environmental Coatings Inc. Encasement and Preservation of Metal and Transite Roofs

- A. Provide labor, materials, equipment and supervision necessary to install (spray-apply, brush or roller) Environmental Coatings Inc. (ECI) coating systems as outlined in this specification to preserve and extend the service life of metal roofing, lower energy costs, help reduce carbon emissions, and add to life-cycle cost benefits.
- B. ECI's application instructions for each product used are considered part of these specifications, are available on line at www.eciproducts.com and should be followed when installing this roof system. Any questions should be directed to ECI at 973-509-9456.

1.02 SUBMITTALS

- A. Submit product data sheets, and any literature requested verifying compliance of materials.
- B. Submit current safety data sheets.

1.03 QUALITY ASSURANCE

- C. Supplier Qualifications: ECI's liquid applied encasement system for metal roofs, is approved for use on the restoration project.
- D. The product manufacturer shall have been in business for a minimum of twenty (20) years.
- E. Applicator Qualifications: The applicator can and should be approved by ECI to apply the system. ECI's applicator approval is required for any warranty to be issued for the installation.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- F. Containers and Packaging: All materials should be checked to make sure they are in origin sealed containers, clearly marked with: ECI's logo; full product name; and batch number(s).

- G. Storage: Store materials between 40°F and 100°F with careful handling to prevent damage to products. If temperature conditions exceed these ranges, action must be taken to insure product is stored properly. Do not store at high temperatures or in direct sunlight.
- H. Protection: Protect all materials from freezing, high temperatures, and damage during transit, handling, storage, and installation.
- I. Verify dates of manufacture and verify that material is within one year of its shelf life. Contact manufacturer if there is a question on manufacture date.

1.05 PROJECT CONDITIONS

- A. The minimum recommendations for material usage listed on this specification are for ideal conditions. The number of gallons per 100 square feet may need to increase due to uneven (corrugated surfaces), rough surface texture, wind conditions while spraying and/or other variables.
- B. Bolts and other fasteners must be thoroughly evaluated and then addressed with replacement, caulking, or spot priming. Consult an ECI technical consultant regarding the need for technical information and assessments.
- C. Structural cracks should be referred to the Consultant and ECI's technical representative.
- D. This Installation guide specification makes no representations or warranties about conditions of any support decking. If there is plywood decking examine to make sure it has no dry rot, and is in sound condition.
- E. Do not apply materials unless surface to receive ECI's roofing system is clean, dry and prepared as specified.
- F. Install all material in strict accordance with all published regulations and guidelines of the manufacturer and safety regulations of local, state, and/or federal agencies that may have jurisdiction.
- G. The entire system must be fully adhered to the surface to which it is applied. Voids left under the system by creating bridges or other means are unacceptable and will void the warranty.
- H. Do not proceed with application of coating or sealing materials when the surface temperature is less than 50°F. Our coating system should not be applied if weather will not permit it to dry prior to exposure to precipitation

or freezing temperatures that are expected within 72 hours.

- I. Puddling of any coating on the roof surface is not acceptable.
- J. Instructions for use of all roofing materials and application equipment should be kept on site during the application process. The instructions should be followed at all times.
- K. To prevent the ponding of water on some roofs where a curb or other obstacle may prevent water from running off of the surface, install metal scuppers or outside drains as necessary.

1.06 DETAIL WORK

- A. This specification does not fully outline procedures for preparation and finishing of drains, vents, ducts, flashing, parapet walls, sheet metal work, etc. The contractor should outline this work before any work commences, and all work shall be performed observing good trade practices.

II. PRODUCTS

2.01 ENVIRONMENTAL COATINGS INC- ROOF ENCASUREMENT SYSTEM

- A. The roofing system is a 100% acrylic, elastomeric, spray, brush or roller applied encasement system manufactured by Environmental Coatings Inc.
- B. ASTM E-84 Class "A" Rating EQUAL TO NFPA 255, ANSI/UL #723.
- C. The testing of the coating shall be done to ensure the system passes the following:
 - 1. The roofing system shall have good resistance to ponding water.
 - 2. The roofing system shall contain no plasticizers.
 - 3. The roofing system shall contain no migrating fire retardants.
 - 4. The roofing system shall have a Class A fire rating on a noncombustible deck when tested according to the procedures outlined in ASTM E-162.
 - 5. The roofing system shall also meet the following physical property requirements:

◆□**ASTM E-119-98**, Fire Test of encased fireproofing on steel columns, (3-hour test firing, this demonstrates no negative effect on the performance of encased fireproofing insulation).

- ◆ **ASTM E-1494-92**, Fire Test of encased fireproofing on a steel deck, (2-hour test firing, this demonstrates no negative effect on the performance of encased fireproofing insulation).
- ◆ **Passed UPITT (University of Pittsburgh) Combustion Toxicological Testing Protocol**, (no acute lethality of thermal decomposition of products).
- ◆ **ASTM E-162-98**, Surface Flammability with Radiant Energy Source, (a DOT Standard)
(Fs x Q=Is) Fs = 1.29 Q=1.77, Is = 2.31
- ◆ **ASTM E-736-93**, Passed Cohesion/Adhesion Pull-off Testing over Fire Proofing.
- ◆ **ASTM D-4541**, Pull-off Adhesion/Cohesion of F-50/F-51 System (exceeds 300 psi).
- ◆ **ASTM D-3359**, Pull-off Adhesion (exceeds standards).
- ◆ **ASTM D-4214**, Chalking (encasement system surfaces do not chalk or crack). ELONGATION >4000% F-50
- ◆ **ASTM D-4060**, Dry Abrasion Resistance (greatly exceeds test standards).
- ◆ **ASTM D-522**, Flexibility (remains flexible - does not become brittle or crack over time).
- ◆ **ASTM D-2794**, Impact Resistance (160+ inch-lbs. - exceeds testing standard).
- ◆ **ASTM D-3273, D-3274**, Mold and Mildew Resistance (passed).
- ◆ **ASTM D-3359**, Paint-ability (passed, can be over painted).
- ◆ **ASTM D-2486**, Scrub Resistance (exceeded 1200+ cycles test limit).
- ◆ **ASTM D-2370**, Tensile Properties of Encasement System (245 psi).
- ◆ **ASTM D-3960**, Zero VOC's (below 25 ppm detection limit for specified test method).
- ◆ **ASTM D-1653**, Permeability (0.6 perms), water vapor can pass through the multi-layered protective membrane formed through the encasement process ("lets the building breathe").
- ◆ **ASTM D-1308**, Household Chemical & Water Resistance (exceeded the standards on all tests).
- ◆ **ASTM G-53**, Weathering/Aging (1,000 hours) – no chalking, cracking or peeling.
- ◆ **ASTM B-117**, Salt Fog Chamber (no blistering or rusting after 1,500 hours of exposure).
- ◆ **ASTM D-4585**, Humidity Chamber (no blistering or rusting after 1,400 hours of exposure).
- ◆ **Weatherization, Federal Specification TT-C-555B**, Passed the Wind Driven Rain Tests.

2.02 RELATED MATERIALS

- A. Flashing, adhesives, thinners, elastomeric caulking compounds, primers, and other materials shall be approved by Environmental Coatings, Inc. prior to their use on the roof. All materials used shall be reviewed by the consultant and applied in accordance with ECI's recommendations.

2.03 EQUIPMENT

- A. ECI products are prescreened at the factory and can be applied with nylon bristle brushes, roller, or airless spray equipment. Roller nap size will depend on the substrate being encased; 1/2 inch nap to 1 inch nap is recommended. Airless piston-type spray equipment may also be used for application. Equipment selection will depend on the size and nature of the encasement project. Recommended airless piston-type spray equipment should have at a minimum 3000-psi, 3:1 ratio and a 3/4-gallon capacity. One gallon per minute capacity is recommended for most roof applications.
- B. **Graco** - information line is (800) 328-0211.
- C. **Titan Tool Inc.** information line is (800) 526-5362.
- D. **Equipment Accessories:** Hose: 3/8 inch (9.53 mm) inside diameter (minimum), 1/2 inch (minimum) on long runs. Guns: Graco Silver or Golden Hydra-mastic guns. Spray Tips: **FiberTech F-50 Stabilizer Primer, FiberTech F-51 Sealer Coat.** Use self-cleaning reversible spray tip size 0.519 to 0.535 (.523-.525 is most often used for the FiberTech F-50 and .531-.533 for the FiberTech F-51) Note: For alternative equipment recommendations consult the spray equipment manufacturer directly.

III. EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with ECI's product data and product guide specification instructions.

3.02 EXAMINATION

- A. Inspect all surfaces that will receive the Environmental Coatings encasement system to make sure they are clean, smooth, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.
- B. Verify that all roof penetrations, and bolts are secure.
- C. Verify that all areas around the immediate vicinity of the spray area are suitably protected.
- D. Verify all roof drains, if any, and scuppers are clean and in working order.
- E. Verify that all air conditioning and air intake vents are suitably protected or closed.

3.03 PREPARATION

- A. The entire surface must be clean, sound, dry and free of any materials that would interfere with proper adhesion of the coating or sealant. All loose paint and loose rust must be removed prior to the application of coating or sealant. Achievement of this condition may require the use of industrial cleaners like ECI's Superb Cleaner, scraping, wire brushing, power brooming, vacuuming, sweepblasting, or other means, and shall always be performed observing good commercial trade practices. In areas where salts may have formed on the surface it is good practice to use a soluble salt remover or holding primer prior to coating the exposed metal decking.
- B. Spot prime any areas with signs of tight rust with **FiberTech F-50 MS Multi Surface Rust Inhibiting Primer**.
- C. Metal that has corroded to the point of being weak or broken must be replaced.
- D. Any new metal must be clean and oil-free. Prime ferrous metal with **FiberTech F-50MS Multi Surface Rust-Inhibiting Primer** at the rate of 1 gallon per 120 square feet.
- E. Tighten or replace all fasteners where necessary. In no case shall joints or seams be allowed to separate greater than 1/16 inch.
- F. Seal all joints and seams with **ECI's Butyl Seam Tape**. Seal nails and fasteners with Caps.
- G. All detail areas unable to be sealed with **ECI's Butyl Seam Tape** and Caps must be sealed with **ECI-151 Acrylic Urethane Caulk**.
- H. After allowing sealant to dry, (normally 24-48 hours), apply **FiberTech F-51 Sealer Coat** to those areas at the rate of at least 2 gallons per 100 square feet. Immediately embed 4 inch, 6 inch or 10 inch polyester reinforcing fabric into the wet coating. Work the fabric into the coating to cause good saturation of the fabric. Immediately apply a second coat of Sealer Coat to the fabric at the rate of at least 1 gallon per 100 square feet. The edges of the reinforcing fabric shall be well sealed. Overlap the edges by at least 2 inches with the Sealer Coat.
- I. Allow all coatings to dry thoroughly, (normally 8 to 24 hours), dependent upon temperature, humidity, and airflow, before further application of the system.

3.04 APPLICATION

- A. After thorough preparation as required by the roof conditions, the entire roof shall receive the Environmental Coatings Inc. Encasement system consisting of 3 gallons per 100 square feet of F-51 Sealer Coat, applied evenly in two separate coats.
- B. The first coat shall be sprayed or roller applied at the rate of 1.5 gallons per 100 square feet. Back roll initial coat.
- C. After thorough drying of the first coat (normally 8 to 12 hours), the second coat shall be applied using a crosshatch technique, at the rate of 1.5 gallons per 100 square feet.
- D. All coating edges shall be cut in evenly in a uniform manner so as to provide an aesthetically pleasing appearance.

3.05 FIELD QUALITY REQUIREMENTS

- A. Manufacturer's Field Services: Inspection/s by an Environmental Coatings Inc. Authorized Sales Representative can be made to verify the proper installation of the system. Inspections are usually agreed to prior to the application of the system and the costs of such are included in the proposal or cover letter to the contractor. Any areas that do not meet the minimum standards for application as specified herein shall be corrected at the contractor's sole expense. Payment of expenses incurred by ECI's Representative may be the responsibility of the building owner and/or contractor. Manufacturer's inspection or verification shall not constitute acceptance of responsibility for any improper application of material.
- B. **Disclaimer:** ECI's employees and/or Authorized Sales Representatives are not responsible for any liabilities resulting from the application or use of these materials.

3.06 CLEANING

- A. On areas not intended for encasement use soapy water while coatings are still wet and wipe clean. Surfaces not intended to receive ECI's Encasement system shall be protected during the application process. Should this protection not be effective, or not be provided, the respective surfaces shall be restored to their proper conditions by cleaning, repairing or replacing. All debris from completion of work shall be completely removed from the project site. Any costs related to such protection or cleaning are contractor's sole responsibility.

IV. MATERIALS

The materials listed in these recommendations are available from:

ENVIRONMENTAL COATINGS INC. 973-509-9456.

All product data sheets and SDS sheets, as well as our specification for application of this roof encasement system are listed on our website at www.eciproducts.com.