Cementitious Roofing Systems (CRS) Specification

Part 1 – General

1.1 Summary

This specification is specific to cementitious roofing systems herein called CRS. This specification defines CRS as a spray polyurethane foam roof with a protective layer of modified cement applied. All other definitions of cement, cementitious, or other roofing systems are not within the scope of this specification. Application is strictly limited to roofing systems in sound condition where the surface is in need of rejuvenation due to normal wearing and age.

When applied monolithically, meeting minimum film thickness standards in all areas, and without misses, gaps, holidays, etc., the Ecodur Roofing System will protect the surface from further degradation by elements such as UV, water, and normal wear.

1.2 Intended Use

This document and the information contained herein are intended to aid qualified specifiers in the creation of project-specific specifications. Castagra makes no warranty, express or implied, as to the suitability of this specification for a specific project.

1.3 Warranty

Warranties, including Labor and Material may be available with pre-approval. All applications must be submitted by a Castagra Licensed Company at least 14 days prior to project commencement.

1.4 Contractor Qualifications

Contractor shall be a Castagra Certified Applicator with a minimum of 5 years of roof coating experience. Contractor shall possess a strong general knowledge of standard roofing practices and system construction. Contractor shall be in good standing with Castagra with no unresolved application failures.

1.5 Manufacturer Qualifications

Manufacturer shall have a minimum of 10 years of experience in the manufacture of nature-based coating and waterproofing products.

1.6 Project Qualifications

It is the responsibility of the contractor to verify that the system to be coated is in a condition reasonably described as Clean, Dry, and Tight. To ensure this condition, testing is required including but not limited to Adhesion Testing, Moisture Scanning, and Core Sampling. The surface must be well adhered to the SPF and all layers within the system must be well adhered to each other. Decking must be structurally sound with no soft spots, rot, rust, or other structural damage.

1.7 Project Conditions

Substrate conditions must remain clean and dry throughout application. For application temperatures outside the range of 35° to 110°F, please consult a Castagra representative. If rain occurs during application, use a moisture scanner to ensure conditions are dry prior to restarting work.

Part 2 – Products

2.1 Manufacturer

Castagra Products, Inc.
PO Box 41270
Reno, NV, 89504
888-388-2935
info@Castagra.com
www.Castagra.com

2.2 System Description

When installed correctly to a suitable substrate, the Ecodur CRS system will create a very strong monolithic waterproofing system that is easy to maintain and will eliminate the need for tear-off. It is applied directly to the substrate in one or more distinct layers, building strength and protecting existing surfaces from UV, water, and other damage. The reflective topcoat will help reduce cooling costs, energy consumption, and HVAC wear while helping to protect the foam from damaging temperatures.

2.3 Materials

A Ecodur+: Castor oil and gypsum-based roof coating with anti-sag additives to reduce self-leveling over uneven surfaces, elevation changes, and vertical surfaces, or:
B Ecodur 201R: Castor oil and gypsum-based roof coating.
C Soladur 800 (or Soladur 700): Water-based acrylic reflective topcoat
D Other materials not provided by manufacturer, including but not limited to substitutions, reinforcing fabric, additives, etc. must be submitted to the manufacturer, in writing, no later than 14 days prior to project commencement.

2.4 Product Handling and Storage

A. ECODUR PRODUCTS

Do not allow products to freeze. Keep containers in a cool, dry location away from direct UV exposure. Keep containers tightly closed. Shaking may be required on containers that have settled for prolonged periods. Consult Castagra if application temperatures will be outside of 35° to 110°F.

B. SOLADUR PRODUCTS

Do not allow products to freeze. Keep containers in a cool, dry, well-ventilated location away from direct UV exposure. Keep containers tightly closed. Do not store above 90°F. Apply only at temperatures above 40°F and rising with less than 90% humidity and no threat of rain for 48 hours. Do not apply to surfaces over 100°F.

Part 3 – Execution

3.1 Contractor Responsibility

Proper execution of the project, including but not limited to all sections included in this specification is the responsibility of the installer. Do not proceed with installation until all unsatisfactory conditions have been remedied. Castagra assumes no responsibility for application failures.

3.2 Project Inspection

A A moisture survey must be performed. All wet, damaged, or otherwise unsuitable materials must be removed and replaced. If more than 10% of the total project area needs replacement, it is likely not a good candidate for liquid-applied roof rejuvenation.

B All repairs, structural or component related, to be performed prior to proceeding when possible. If repairs are to be performed in conjunction with application, consult Castagra.

C All obstacles, including but not limited to obsolete equipment, uncurbed HVAC, ducting, and anything else that prevents proper cleaning and coating must be removed.

3.3 Surface Preparation

A Any weak, damaged, or brittle areas, including but not limited to chemical spills, mechanical damage, foam blisters, previous repairs, etc. must be removed and repaired prior to coating.

B All seams must be inspected. Improperly adhered sheets may require mechanical fastening.

C All caked-on dirt/debris, especially in low areas must be removed using a wire brush. The coating must contact the substrate directly.

D All dirt, debris, and other foreign materials must be completely removed using a power broom, blower, industrial vacuum, scraper, wire brush, etc.

E Alternate directions between multiple passes with a power broom.

F All silicone must be completely removed leaving no residue. Asphalt-based, acrylic, urethane, and most other repairs can remain only if they are properly applied, well bonded, and free from damage.

G Pressure washing is generally not required but may be necessary when grease, biological materials, or other foreign materials are present. After pressure washing, allow to dry thoroughly and confirm dryness via moisture scanning.

H Preparation, including the removal of brittle surfaces can reveal existing conditions in the roof assembly. Any unsatisfactory conditions must be remedied prior to proceeding. If anything revealed is even mildly questionable, consult Castagra before proceeding.

3.4 Application

A. Repairs

1. Where blisters were cut or wet SPF was replaced, fill with like materials, or with Ecodur products. Note: Ecodur has no maximum thickness and will cure at approximately the same rate regardless of thickness.
2. Treat cracks and other minor substrate damage by embedding reinforcing fabric a minimum of 2” on either side of the damage and extend repair to a minimum of 4” beyond the repair area in both directions.
3. Reinforce all areas of suspected movement.
4. Reinforce all transitions (parapets, curbs, etc.) where the CRS system meets other roofing materials.
5. Reinforce all areas showing signs of movement (micro-cracking, twisting, etc).

    i) Spiderwebbing is common in CRS systems and is generally not cause for concern. However, care must be taken to ensure that the cementitious layer is securely bonded to the foam layer below.

6. Repair or replace all defective penetrations, edge details, flashings, etc.
7. Many repairs can be made using Ecodur products. Please consult Castagra for specific assistance.

B. Detail

1. Using thickened Ecodur products, coat all curbs, penetrations, vents, etc. to a minimum of 60 mils at the base and a minimum of 30 mils overall. If indicators of movement are visible, use reinforcing fabric.
2. Pitch pans can be filled with Ecodur to seal fastened legs, odd penetrations, and many other anomalies. Consult Castagra for specific project assistance.
3. Reinforcement may be needed to secure CRS system to drip edges and other transitions.

C. Field

1. Apply Ecodur products, using a notched squeegee and ¾" nap roller, at a rate of approximately 125 square feet per kit as needed to level out valleys and maintain a minimum of 30 mils at the highest peaks. Coverage rates will vary depending on field conditions. Actual coverage rates may be less than listed. It is advisable to conduct a test area to determine actual coverage. A second coat may be required to reach the minimum 30 mil thickness.

    i) The cementitious layer can behave similarly to concrete and is prone to off gassing resulting in pinholes, especially when coatings are applied when temperatures are rising. A few things can be done to minimize pinholing.

        a) When possible, apply coatings when temperature is dropping
        b) After back rolling, use a spiked roller to ensure any trapped air is released
        c) Gently run a blower over the surface of the coating after back rolling to release any trapped air

2. Spray or roll Soladur 700 or 800 (or approved substitute) in two 25 mil (approximately 1.25 to 1.5 gallons per 100sf) passes for a minimum of 24 dry mils. Apply according to current product data sheets available at **www.castagra.com/soladur/**

    Curing/drying times will vary depending on temperature, humidity, sunlight exposure, application technique, and other factors.

    Ecodur may be applied at any thickness but do not apply Soladur thicker than recommended or "mud-cracking" and slow drying may occur.

3. Total system thickness (Ecodur and Soladur) shall not be less than 54 dry mils at the thinnest location.

D. Finish

1. Create pads using Ecodur at a minimum of 50 mils for each riser, sleeper, support, or any other equipment to be housed on the rooftop. Soft composite materials are preferred. All other materials should be placed on slip sheets to protect the coating from sharp edges and organic decay.

2. Create walk pads using thickened Ecodur products. Mark outlines in duct tape and remove the tape before fully cured. Apply Ecodur products at a minimum of 50 mils. Walk pads should be a minimum of 30” wide and cover all traffic, maintenance, and other areas where increased wear may occur. For best results, apply a topcoat of Soladur 700 or 800, or an approved substitution tinted “Safety Yellow”. Grip additives should be added for slip resistance. Care must still be taken when walking on a wet roof.

   Alternatively, Ecodur products can be used to secure many commercially available adhered walk pads. Test adhesion prior to application.

E. Miscellaneous

1. Castagra does not practice roof design, consultation, or act as roof inspectors. Any assistance, advice, or observations made are for the purpose of assisting the contractor and the asset owner toward a successful project. Castagra assistance, advice, and observations do not serve as warranty to the suitability of any project. It is the contractor's responsibility to conduct proper due diligence, execute proper application, and ensure project success.
2. The use of Castagra products for any purpose other than those specifically detailed is forbidden.
3. All roofing systems must be maintained. It is the responsibility of the asset owner to follow Castagra’s Owner Maintenance Guidelines available here: **https://www.castagra.com/warranty/**
4. While every attempt has been made to create a thorough and useful specification, it is impossible to foresee all potential features, obstacles, and conditions. Please consult Castagra for all project-specific questions.

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