Corrosion Engineering
A Division of ErgonArmor

TECHNICAL INFORMATION

CORROSION ENGINEERING SPECIFICATION FOR INSTALLATION

FURALAC® MEMBRANE

1. SCOPE

1.1 This specification governs the installation of FURALAC Membrane Lining System as manufactured by Corrosion Engineering for the protection of concrete and steel structures.

1.2 This specification shall also be used with the following product data sheets:
CE-139 - PENNTROWEL® Epoxy Primer
CE-227 - PENNGUARD® Block Primer
CE-196 - TUFCHEM® II Membrane
CE-295 - FURALAC Membrane

1.3 The thickness of the FURALAC Membrane as set forth in this specification is 1/8" - 3/16" (125 - 187 mils). Other thicknesses and different reinforcement mats or woven roving may be specified depending upon the service conditions.

1.4 For hydrofluoric acid or strong caustic service conditions, inert synthetic veils are available for use with this membrane system. Contact Corrosion Engineering for details.

2. SYSTEM DESCRIPTION AND MATERIALS

2.1 System Description

2.1.1 The FURALAC Membrane System is a multi layer glass mat reinforced lining system consisting of 3 main components - the primer, the stress relieving layer, and the laminate membrane.

2.1.2 The system is installed in the following steps:

A) - Primer - varies with substrate
B) - Flexible base layer
C) - 1.5 oz glass mat (cloth layer #1)
D) - FURALAC Membrane saturant
E) - 1.5 oz glass mat (cloth layer #2)
F) - FURALAC Membrane saturant
G) - 1.0 oz glass mat (cloth layer #3)
H) - FURALAC Membrane saturant
I) - FURALAC Membrane final seal coat
J) - Sand broadcast layer

2.2 Concrete Substrates

2.2.1 Primer: PENNTROWEL® Epoxy Primer, Data Sheet CE-139.
Flexible base layer: TUFCHEM® II Membrane, Data Sheet CE-196.
Furan laminate membrane: FURALAC Membrane, Data Sheet CE-295.

2.2.2 All of the materials in 2.2.1 are manufactured by Corrosion Engineering.

2.3 Steel Substrates

2.3.1 Primer: PENNGUARD® Block Primer, Data sheet CE-227
Flexible base layer: TUFCHEM II Membrane, Data sheet CE-196.
Furan laminate membrane: FURALAC Membrane, Data sheet CE-295.

2.3.2 All of the materials in 2.3.1 are manufactured by Corrosion Engineering.

3. SURFACE PREPARATION

3.1 Concrete Substrate

3.1.1 When the application of the FURALAC Membrane is to be onto a concrete substrate, the concrete shall be prepared in accordance with the "Surface Preparation" section of the latest edition of Corrosion Engineering Specification for Installation PENNCHEM® 97 and TUFCHEM II Membranes On Concrete (CES-334).

3.2 Steel Substrate

3.2.1 When the application of the FURALAC Membrane is to be onto a steel substrate, the steel shall be prepared in accordance with the "Surface Preparation" section of the latest edition of Corrosion Engineering Specification for Installation TUFCHEM II and PENNCHEM 97 Installation On Steel (CES-326).

4. PRIMING

4.1 Concrete Substrate

4.1.1 The prepared concrete shall be primed in accordance with section "*4. PRIMING*" of the latest edition of Corrosion Engineering Specification for Installation PENNCHEM 97 and TUFCHEM II Membranes (CES-334).

4.2 Steel Substrate

4.2.1 The prepared steel shall be primed in accordance with section 4.1 of the latest edition of Corrosion Engineering Specification for Installation TUFCHEM II and PENNCHEM 97 Installation On Steel (CES-326).

5. APPLICATION

5.1 The temperature of the prepared substrate and the ambient air temperature immediate to the surface to be lined shall be between 50°F - 90°F, and the surface temperature shall be at least 5°F above the moisture condensation dewpoint.

5.2 The application of the FURALAC Membrane is not to be performed in direct hot sunlight.

5.3 The TUFCHEM® II Membrane shall be stored and mixed in accordance with Section 5. of the latest edition of Corrosion Engineering Specification For Installation PENNCHEM® 97 and TUFCHEM® II Membranes (CES-334).

5.4 After mixing the TUFCHEM II Membrane, it shall be troweled onto the hardened primed substrate to a thickness of 1/16" (60 mils) unless otherwise specified.

5.5 One layer of 1.5 oz. chopped strand glass mat shall be carefully rolled into the applied layer of the TUFCHEM II Membrane while it is still wet. Be sure to eliminate any wrinkles. Use of a serrated roller typically used in the FRP laminating industry is strongly suggested. Overlap edge seams of the mat 2". Use this wet base layer to serve as an adhesive for holding the chopped strand glass mat in place. Do not saturate the glass mat with the TUFCHEM® II Membrane. Allow this installation to cure to a firm rubbery state - typically 12 - 16 hours.

5.6 Mix FURALAC Membrane Resin together with FURALAC Membrane Hardener as per the labels on the containers. The mix ratio of FURALAC Membrane Resin to FURALAC Membrane Hardener is 100 : 3.5 (by weight) and 100 : 3.2 (by volume). (One U.S. gallon Resin : 0.5 cup Hardener.) Mix only sufficient Resin and Hardener to saturate the layer of reinforcing glass mat that was placed into the TUFCHEM II Membrane. **IT IS TO BE NOTED THAT THE POT LIFE OF THE LAMINATING FURALAC MEMBRANE RESIN / HARDENER MIXTURE IS VERY SHORT. GOVERN THE SIZE OF THE WORK AREA ACCORDINGLY.**

5.7 The mixed FURALAC Membrane Resin and FURALAC Membrane Hardener shall be removed from the mixing container and immediately rolled onto the glass mat layer embedded into the TUFCHEM II Membrane. **IF THE MIXED RESIN / HARDENER IS LEFT IN THE MIXING CONTAINER IN A MASS, A VIOLENT EXOTHERMIC REACTION MAY OCCUR, CAUSING SEVERE BURNS.**

5.8 Once the layer of glass mat has been fully saturated with the laminating FURALAC® Membrane Resin/Hardener mixture, a second layer of 1.5 oz. chopped strand glass mat shall be rolled onto the wet surface using a serrated roller, and again overlapping all seams 2".

5.9 This second layer of mat is to also be saturated with the laminating FURALAC Membrane Resin/Hardener saturant as per sections 5.6 and 5.7.

5.10 Roll into this second saturated mat layer, one layer of 1 oz chopped strand glass mat reinforcing and saturate this thin surface veil with the laminating FURALAC Membrane Resin / Hardener mixture. Overlap all edge seams 2". Let the application cure hard - typically 3 - 4 hours.

5.11 Apply a final thin coat of the laminating FURALAC Membrane Resin/Hardener mixture with a roller. Into this wet coat shall be lightly broadcast #3Q sand at a coverage rate on the order of 350 sq. ft. / gallon

of sand. This is to enhance the bonding of the subsequent chemical-resistant masonry lining that is to be installed.

5.12 Allow the membrane system to cure for 24 hours at a minimum of 70°F.

5.13 In order to maximize the intercoat adhesion between the various layers, it is important that steps 5.6 through 5.11 are performed without interruption especially when ambient installation temperatures are above 80°F.

5.14 The thickness of the cured FURALAC Membrane will be between 1/8" - 3/16" (125 - 187 mils).

6. SAFETY PRECAUTIONS / DISCLAIMER

6.1 Read and follow the hazard information, precautions and first aid directions on the individual product labels and material safety data sheets before using. While all statements, technical information, and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user.

6.2 Please contact Corrosion Engineering for specific recommendations at +1-610-833-4000 or fax +1-610-833-3040.

www.furalac.com