
**GUIDELINE SPECIFICATION
for
HEF-FM (FLEXIBLE MEMBRANE)
FLEXIBLE FLUID PROOFING EPOXY MEMBRANE
ELASTO-FLEX™ SYSTEM**

The specification information below is intended for use by architects, engineers and other specifiers in defining the requirements of an epoxy fluid applied flooring and wall coating system utilizing RBC Epoxy Hallemite Product Line.

**RBC Epoxy
Hallemite® Product Line
1 Weingeroff Blvd.
Cranston, RI 02910
800-272-7752
401-941-0150 Fax**

PART 1 – GENERAL

1.01 SCOPE – The specialty contractor shall furnish all materials, tools, equipment, appliances, transportation, labor and supervision required to install the epoxy flooring system.

1.02 SUBMITTALS

- A. Manufacturer’s Data: Contractor shall submit the manufacturer’s system data sheet(s) and surface preparation instructions for each product and system.**
- B. Maintenance Instructions: Contractor shall submit copies of manufacturer’s written instructions for recommended maintenance practices.**
- C. Samples: Contractor shall submit representative samples for approval prior to commencement of work. Samples shall be submitted to show product and system color and texture.**
- D. Warranty: Contractor shall submit a sample of their written Warranty prior to execution of work. The Warranty shall be for one year. The Warranty shall be effective from of the date of “majority of completion”.**

1.03 PRE-QUALIFICATION

- A. Contractor Qualification - The Specialty Flooring Contractor shall be an approved installer of RBC Epoxy Hallemite Product Line.**

- B. **Workman's Qualification** – Workmen engaged in the installation shall have successfully completed a program of instruction in the methods of installation required. The curriculum shall include identification of potential installation problems, safe handling of materials and proper installation techniques. The lead installer shall have installed epoxy flooring systems for a minimum of five years.

1.04 RELATED MATERIALS – NEW and EXISTING CONCRETE

- A. **Concrete Finish** – smooth trowel, soft broom, or wood float finish.
- B. **Curing Compound** – Avoid the use of liquid curing compounds, sealers, hardeners, or other surface bond breaking materials when ever possible. If used, additional surface preparation may be required.
- C. **Minimum Cure Time** – Minimum cure time for new PCC is 28 days (fly ash is 56 days).
- D. **Vapor Barrier** – To avoid the loss of bond (between the epoxy and the concrete substrate) caused by hydrostatic pressure a functional vapor barrier is recommended under concrete slab on grade.
- E. **The concrete substrate should be flat or sloped-to-drain.** (As an example, the epoxy topping will follow the contour concrete, if sloping to drain is desired an underlayment may be required.)

PART 2 – MATERIALS and EQUIPMENT

2.1 EPOXY, AGGREGATE and INSTALLATION STEPS

HEF FM – Flexible Fluid-Proofing Epoxy Membrane Elasto-Flex System.

2.2 PRODUCTS and INSTALLATION SEQUENCE

Approved Manufacturer:

**RBC Epoxy
Hallemite Product Line
1 Weingeroff Blvd.
Cranston, RI 02910
(P) 800-272-7752**

Approved Materials:

HEF FM – Flexible Fluid-Proofing Epoxy Membrane Elasto-Flex System is comprised of the following installation sequence and materials dependant on level of chemical resistance and if reinforcing is required:

OPTION I

INSTALLATION SEQUENCE	FLEXIBLE MEMBRANE	FLEXIBLE (MER) MEMBRANE (Mechanical Equipment Room)	FLEXIBLE RUBBER CHIP (Flexi-Deck)
Primer	HEF Elasto-Flex Clear	HEF Elasto-Flex Clear	HEF Elasto-Flex Clear
1st Membrane Coat	HEF Elasto-Flex Clear	HEF Elasto-Flex P8	HEF Elasto-Flex P8
2nd Membrane Coat	HEF Elasto-Flex Clear	HEF Elasto-Flex P8	HEF Elasto-Flex P8
Receiving Coat			HEF Elasto-Flex P8
Rubber Chips			Colored Rubber Chips
1st Wear Coat		HEF UV P8	
Lockcoat/Topcoat			HEF Elasto-Flex P8
Optional Topcoat			Polyester Aliphatic Urethane HU 1186 P8 (For Chemical Resistance)

OPTION II – FIBERGLASS REINFORCED

INSTALLATION SEQUENCE	FLEXIBLE MEMBRANE	FLEXIBLE (MER) MEMBRANE (Mechanical Equipment Room)
Primer	HEF Elasto-Flex Clear	HEF Elasto-Flex Clear
Fiberglass-Woven or Fiberglass-Serim	6 oz or 1.6 oz	6 oz or 1.6 oz
Saturant Coat	HEF Elasto-Flex Clear	HEF Elasto-Flex P8
2nd Membrane Coat	HEF Elasto-Flex Clear	HEF Elasto-Flex P8
3rd Membrane Coat	HEF Elasto-Flex Clear	
1st Wearcoat		HU 1186P (For Chemical Resistance)

2.3 **INSTALLATION PROCEDURES** – Detailed installation procedures are proprietary and available only to RBC Epoxy approved specialty flooring contractors of the Hallemite Product Line.

2.4 **IRREGULAR SURFACES**

2.4.1 **Spalled Concrete** - Uneven spalled concrete surfaces should be “smoothed” with Hallemite Cove Paste and Farring Compound (or equal), which is a cab-o-sil filled thin patching material.

- 2.4.2 **Slope-to-Drain** – Concrete substrates that are not properly sloped to drains, trenches or sumps should be properly sloped with Hallemite HEF-OL (Overlay) System.
- 2.4.3 **Membrane** – Elasto-Flex™ is an optional fluidproof and crack dampening flexible epoxy membrane that can be placed prior to placing the epoxy flooring system to stop water and other fluids from penetrating cracks in the concrete substrate. In addition, the membrane will minimize “reflexive” cracking of the epoxy topping. See Hallemite system sheet HEF-FM (Flexible Membrane).

PART 3 – SURFACE PREPARATION

- 3.1 **GENERAL** – Surface to be bonded must be clean and sound which in all cases requires preparation.
- 3.2 **SURFACE EVALUATION** – Surface evaluation is critical and should be done prior to placement of the epoxy flooring system. The following tests can be used to evaluate the substrate condition and the effectiveness of the surface preparation.
- 3.2.1 **STRENGTH** – The direct tensile strength of the concrete substrate surface may be determined by a pipe cap pull-off test (ACI 503R) or a commercially available adhesion tester (Elcomter Adhesion Tester Module 106 – Elcometer Inc. P.O. Box 1203, Birmingham, MI 48012). The strength of the concrete substrate after surface preparation should be a minimum of 180 psi.
- 3.2.2 **CONTAMINANTS** - The presence of grease, wax, oil or other bond breaking substances may be detected by dropping a small quantity of muriatic acid onto the concrete surface. No reaction indicates that contaminants are present, and they must be removed.
- 3.3 **CONCRETE SURFACE CLEAN PROCEDURES** (See Hallemite Surface Preparation Information)
- 3.3.1 Grease, wax and oil contaminants may be removed by scrubbing with an industrial grade detergent or degreasing compound followed with gritblasting or an approved method of mechanical removal.
- 3.3.2 Weak or deteriorated concrete must be removed to sound concrete by bush hammering, gritblasting, scarifying, waterblasting or other approved methods of mechanical removal.
- 3.3.3 Dirt, dust, laitance and curing compounds are removed by gritblasting, sanding, or other approved methods of mechanical removal. Acid etching should only be used when NO other practical surface preparation method exists. Acid etching may not remove wax curing compounds. (See Hallemite Surface Preparation Information Appendix A)
- 3.3.4 Gritblasting and mechanical removal should be followed by sweeping and vacuuming. If compressed air cleaning is used, the air must be oil-free (removal of oilier may be required).

PART 4 - APPLICATION TECHNIQUE

- 4.1 **INSTALLATION** - Materials are to be installed per the proprietary installation guidelines. If “Unknown Site Conditions” exist, the Specialty Contractor may have to alter the installation instructions because of “problems” with the concrete substrate.

4.2 **STORAGE and PRECONDITIONING** – Store material between 55⁰F and 90⁰F in a dry condition and out of direct sunlight. Cure time will lengthen, and viscosity will increase as temperature drops. If necessary, precondition material to above 60⁰F. Hot material will have a drop in viscosity and corresponding decrease in working time.

5. **SYSTEM DATA SHEET REPERENCES**

5.1 **TEST DATA**

AMERICAN SOCIETY OF TESTING and MATERIALS (ASTM)

Physical Property	Test Method	Result
Elongation	ASTM D 412	150%
Bond Strength To Concrete	ASTM D 4541	>400 psi
Impact Strength	MIL D 3134 No Chipping, Cracking or Delaminating	Passing
Hardness	ASTM D 2240 Shore A	90
Electrical Conductivity		Non-Conductive
Coefficient of Friction Smooth	ASTM D 2047	0.7
Water Absorption, max	ASTM D 570	0.2%
Flammability	ASTM D 635	Self Extinguishing
Flame Spread NFPA-101	ASTM E 84	Class B
Anti-Microbial Resistance	ASTM G 21	Passes
Toxicity		Non-Toxic USDA Approved
VOC Content		Zero