
**GUIDELINE SPECIFICATION
for
HEF-IF (INDUSTRIAL FLOOR)
3/16 – 1/4 INCH MORTAR 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-IF – Industrial Floor – 3/16 to 1/4 Inch Mortar 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-IF – Industrial Floor – 3/16 to 1/4 Inch Mortar System is comprised of the following installation sequence and materials dependant on level of chemical resistance required:

INSTALLATION SEQUENCE	LEVEL I	LEVEL II	LEVEL III
Primer	HEF UV Clear	HEF UV Clear	HEF UV Clear
Bond Coat	HEF UV P15	HEF CRD P15	HEF CRA P15
Mortar Aggregate	Tri-Blend Aggregate	Tri-Blend Aggregate	Tri-Blend Aggregate
Groutcoat/ Lockcoat	HEF UV P15	HEF CRD P15	HEF CRA P15
Optional Clear and Pigmented Topcoats	<ol style="list-style-type: none"> 1. Pigmented Standard HEF UV P8 Optional Non-Skid Aggregate 2. Pigmented Orange Peel HEF UV OP P8 	<ol style="list-style-type: none"> 1. Clear Standard HEF CRD Clear Amber Optional Non-Skid Aggregate 2. Pigmented Standard HEF CRD P8 	<ol style="list-style-type: none"> 1. Clear Standard HEF CRA Clear Amber Optional Non-Skid Aggregate 2. Pigmented Standard HEF CRA P8 3. Polyester Aliphatic Urethane HUF 1186 Clear 4. Polyester Aliphatic Urethane HUF 1186P

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 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 55°F and 90°F 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 60°F. Hot material will have a drop in viscosity and corresponding decrease in working time.

PART 5 – SYSTEM DATA SHEET REPERENCES

5.1 TEST DATA

AMERICAN SOCIETY OF TESTING and MATERIALS (ASTM)

Physical Property	Test Method	Result
Tensile Strength	ASTM D 638	5,000 psi
Tensile Strength	ASTM C 307	2,650 psi
Compressive Strength	ASTM D 695	17,520 psi
Compressive Strength	ASTM D 579	12,900 psi
Bond Strength To Concrete	ASTM D 4541	>400 psi
Impact Strength	MIL D 3134	Passing No Chipping, Cracking or Delaminating
Hardness	ASTM D 2240 Shore D	75 - 80
Electrical Conductivity		Non-Conductive
Flexural Strength	ASTM D 790	6,300 psi
Flexural Strength	ASTM D 580	4,550 psi
Linear Expansion	ASTM D 696	2 x 10 ⁻⁵
Abrasion Resistance	ASTM D 4060 CS 17 Wheel 1000Gram Load, 1000 Cycles	23 mg
Coefficient of Friction Smooth	ASTM D 2047	0.7
Water Absorption, max	ASTM D 570	0.04%
Flammability	ASTM D 635	Self Extinguishing
Flame Spread NFPA-101	ASTM E 84	Class A
UV Exposure	ASTM D 4587 QUV @ 72 hours	1.25 – 1.60
Yellow Index	ASTM D 1925	<15 @ 2,000 hours
VOC Content		Zero