

# Specifications for Quarter Inch Seamless Epoxy Floor For Heavy Wear, Wet Areas

## Part 1 : Scope

### Product and Application

This specification describes the application of a three-part quarter inch, seamless epoxy floor, by the trowelled method or slurry/broadcast method.

#### 1.1 Acceptable Manufacturers

ICO Floor 51 (or 51 FC), as manufactured by International Coatings of Franklin Park, IL or approved equivalent epoxy resin flooring system.

#### 1.1A Certified Contractors

Applicator must be certified by manufacturer and have at least five years experience in installing troweled systems. A list of such applicators in any geographic area can be obtained by calling Mike Kramer at 800-624-8919.

#### 1.2 Performance Criteria

1. Compressive Strength (ASTM C-579)
  - Maximum : 8500 psi
2. Tensile Strength, unfilled (ASTM D-638)
  - Minimum : 2500 psi
3. Tensile Strength, filled (ASTM C-307)
  - Minimum : 1800 psi
4. Tensile Elongation, unfilled (ASTM D-638)
  - Minimum : 11 %
5. Tensile Elongation, filled (ASTM C-307)
  - Minimum : 1.0%
6. Hardness, Shore D (ASTM D-2240)
  - Maximum : 80
7. Bond Strength to Quarry Tile
  - Exceeds 1000 psi (quarry tile fails)
9. Vapor Transmission Rate, unsealed (ASTM E-96)
  - Maximum : .03 perms
10. Gardner Impact (ASTM D-2794)
  - Must exceed 160 inch pounds
11. Water Absorption (ASTM D-570)
  - Maximum : 0.3% in 24 hours

#### 1.3 Materials

1. Component "A" shall be an epoxy resin of the epichlorohydrin bisphenol A type containing special flexibilizers for enhanced thermal shock resistance.
2. Component "B" shall be a blend of cycloaliphatic amines with non- blushing characteristics.
3. The filler shall be a blend of 4 types of quartz, including fines, medium and angular, for optimizing filling of pores. The **maximum** fill ratio of aggregate : liquid is 5:1 by weight or 3.3:1 by volume.
4. Material shall be a resin-rich mixture not requiring any sealer or top coat.
5. Material shall be a 100% solids, solvent-free material with no detectable odor.

## 1.4 Surface Preparation

All new concrete surfaces that will be covered with the systems specified herein should have received a steel trowel, light broom finish and shall be free of all form release agents, curing agents or sealer applications. Concrete shall have cured a minimum of 28 days. If this is not practical, then consult manufacturer for recommended procedures.

### A. General

1. The moisture vapor transmission rate of any slab-on-grade shall be checked using a calcium chloride test kit. The measured vapor transmission rate shall not exceed 10 pounds. Consult manufacturer for further directions.
2. Remove any oil or grease spots with appropriate degreaser, followed by pressure washing.
3. All new concrete should be shot blasted, scarified, or ground to remove any contaminants and to obtain a minimum profile of 40 grit. The prepared surface shall have a neutral pH of 7.
4. All open cracks 1/8" and greater should be v-notched to a 1/2" width by 1/2" depth and cleaned of any debris. Such cracks should be filled with **ICO Gel** and struck off flush with the surrounding surface.
5. All straight line cracks shall be saw cut to a minimum 3/4" width and 1 1/4" depth centered over the original crack. Remove all dust and debris and fill as specified for expansion joint application.

### B. Protrusions Thru Coating Surfaces

Cut a keyway of at least 1" x 1" around the perimeter of all drains, trenches, steel posts, etc. Remove any rust, sealants or coating from the drain ring, steels posts and pump

### C. Coating System Boundaries

Cut a keyway into the concrete at all termination points, e.g., doorways. The inside edge of the saw cut should be chipped away at a 45° angle to form an undercut for the edge of the application. Do not feather edge.

### D. Expansion Joints

1. Cut back and/or remove any joint backing or filler strips to a minimum of 1 1/2" deep.
2. Insert disposable filler in the joints to prevent filling with the overlayment materials and to allow for accurate location of final saw cuts in the overlayment.

## 1.5 Material Application

### A. Priming

1. Apply **ICO Primer LV or LVFC** with brush or roller at an application rate of about 200-250 SF/gallon, depending on porosity of concrete. Allow to dry tack free. Re-prime any dry-appearing areas. Use **ICO Primer FC** below 50°F (down to 40F)

### B. Patching

1. Any deep holes (> ½" deep) should be patched with 100% solids epoxy patching compound, **ICO Patch or Patch FC** and allowed to dry tack free.

### C. Trowelled System

1. Mix **ICO Floor 51** Parts A and B in the specified prescribed amounts, using the proper measuring buckets, for 30-60 seconds followed by adding **ICO Fill** blended aggregate and dry tint for another 30-60 seconds, using a low speed paddle mixer.
2. Dump contents out onto floor and screed out with screed rake, screed box or other measuring device.
3. Power trowel or hand trowel to level surface, followed by back rolling with an isopropyl alcohol-moistened fine nap roller to close the surface.
4. Broadcast in suitable grit to obtain preselected texture.
5. (Optional) For higher gloss and better color retention, apply one coat of **Ure Guard 100** aliphatic urethane at a coverage rate of about 250-300SF/gal.

### D. Slurry/Broadcast System

1. Mix one part (by volume) of liquid resin and hardener with one part of 35 mesh silica sand and dry pigment.
2. Dump onto floor and spread at the rate of two gallons of liquid plus sand to 17 SF. Level with ¼" notched squeegee or trowel, followed by a spiked roller to level the floor. Immediately broadcast in 35 mesh sand to excess. Allow to dry.
3. (Optional) Apply **ICO Floor** slurry in a double broadcast system, with the first coat applied at about 35-40 SF/two gallon mix, then spike rolled and seeded to refusal. After drying, vacuuming and screeding, repeat said process at similar coverage rates. Allow to dry.
4. Vacuum off excess sand, lightly sand, then apply **ICO Floor Coating** at about 80SF/gallon with a flat squeegee, followed by back rolling.
5. (Optional) For higher gloss and better color retention, apply a final coat of **Ure Guard 100** at a coverage rate of 250-300SF/gal.

**Note:** for faster cures, specify **ICO Floor 51 FC**.

### E. Coving (Optional)

A 45° cant cove or radius cove can be formed at the intersection of all floor and rising vertical surfaces. The face of the cant cove is normally between 1½" and 3". Specify **ICO Floor Cove Mix**.

### F. Expansion Joints

1. Remove disposable joint filler from the expansion joints by saw cutting the overlayment above all expansion joints exposing the full width and length.
2. Insert closed cell joint backing, using a large enough diameter to provide a 30% compression. The joint backing should be forced down in the joint to a depth equal to one half the width.
3. Caulk with **ICO Lastic Gun Grade** and tool the bead to insure full and complete contact with the concrete. Finish bead should be neatly aligned with the saw cut joint edge with no gaps, strings, or bubbles.

## 1.6 Protection of Finished Work

1. Prohibit foot traffic on floor for 24 hours after laying (at 70°F). At 50°F, this time should be extended to 48 hours.

2. Rinse off any chemicals that may come in contact with the freshly laid (for first 7 days) floor immediately.

### **1.7 Cleanup**

- A. Dispose of all unused and waste materials.
- B. Tools can be washed in warm, soapy water when wet, but after drying, can only be cleaned by grinding or with a paint stripper.
- C. Unused resin can be set off with proper amount of hardener and disposed of in regular trash bins.

### **1.8 Warranty**

- Installer shall provide a one year warranty against delamination, chemical attack and normal wear and tear.

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