

Specifications for Quarter Inch Seamless Epoxy Floor Food & Beverage Plants

Part 1 : Scope

Product and Application

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

1.1 Acceptable Manufacturers

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

1.2 Performance Criteria

1. Compressive Strength (ASTM C-579)
 - Maximum : 6000 psi
2. Tensile Strength, filled (ASTM C-307)
 - Minimum: 200
3. Tensile Elongation, unfilled (ASTM D-638)
 - Minimum: 9%
4. Tensile Elongation, filled (ASTM C-307)
 - Minimum: 3%
5. Hardness, Shore D (ASTM D-2240)
 - Maximum: 75
6. Bond Strength to Quarry Tile
 - Exceeds 1000 psi (quarry tile fails)
7. Vapor Transmission Rate, unsealed (ASTM E-96)
 - Maximum: .03 perms
8. Gardner Impact (ASTM D-2794)
 - Must exceed 160 inch pounds
9. 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 Applicator Requirements

1. Applicator shall be certified by material manufacturer to apply product and have a minimum of five year's experience in applying similar systems.

1.5 Surface Preparation

1. Concrete Finishing

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.

2. 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 $\frac{1}{2}$ " and greater should be v-notched to a $\frac{1}{2}$ " width by $\frac{1}{2}$ " 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 $\frac{3}{4}$ " width and $1\frac{1}{4}$ " depth centered over the original crack. Remove all dust and debris and fill as specified for expansion joint application.

3. 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, steel posts and pump

4. 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.

5. Expansion Joints

1. Cut back and/or remove any joint backing or filler strips to a minimum of $1\frac{1}{2}$ " 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.

1.6 Material Application

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. Reprime any dry-appearing areas. Use **ICO Primer FC** below 50°F (down to 32°F).
2. Any deep holes (> ½" deep) should be patched with 100% solids epoxy patching compound, **ICO Patch** and allowed to dry tack free.
3. **Trowelled System**
 - a. Mix **ICO Guard 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.
 - B. Dump contents out onto floor and screed out with screed rake, screed box or other measuring device.
 - C. Power trowel or hand trowel to level surface, followed by back rolling with an isopropyl alcohol-moistened fine nap roller to close the surface.
 - d. Broadcast in suitable grit to obtain preselected texture.
4. **Slurry/Broadcast System**
 - a. Mix one gallon of **ICO Guard Part A and Part B** liquid with one gallon of 35 mesh silica sand and dry pigment.
 - B. 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.
 - c. Sweep off excess sand, sand lightly, then apply **ICO Guard Coating** at 80 SF per gallon to complete the floor.
5. **Coving**

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 Guard Cove Mix** or add suitable thickener to **ICO Guard 51** flooring mix.
6. **Expansion Joints**
 - a. Remove disposable joint filler from the expansion joints by saw cutting the overlayment above all expansion joints exposing the full width and length.
 - b. 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.
 - c. 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.

7. Trenches

- a. All concrete trenches should be ground to roughen the surface.
- b. Apply **ICO Guard Liner** to 1/8" thickness on all walls and floor. in ICO Primer, followed by ICO Guard Liner.

Note: For application temperatures between 40-50°F, use **ICO Guard FC 51**. For temperatures of 32°F-40°F, use **ICO Guard Cold Cure**.

1.7 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.

1.8 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.

1.9 Warranty

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