

Specifications for Quarter Inch Seamless Urethane Cement Floors Food & Beverage Plants

Part 1 : Scope

Product and Application

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

1.1 Acceptable Manufacturers

ICO Ure Guard TL or Ure Guard SL, as manufactured by International Coatings of Franklin Park, IL or approved equivalent urethane cement resin flooring system.

1.2 Performance Criteria

1. Compressive Strength (ASTM C-579)
 - Maximum : 6000 psi
2. Tensile Strength, filled (ASTM C-307)
 - Minimum: 2500psi
3. Tensile Elongation, unfilled (ASTM D-638)
 - Minimum: 6%
4. Hardness, Shore D (ASTM D-2240)
 - Maximum: 75
5. Bond Strength to Concrete
 - Exceeds 400 psi (concrete fails)
6. Vapor Transmission Rate, unsealed (ASTM E-96)
 - Maximum: .03 perms
7. Gardner Impact (ASTM D-2794)
 - Must exceed 160 inch pounds
8. Water Absorption (ASTM D-570)
 - Maximum: 0.2% in 24 hours

1.3 Materials

1. Component "A" shall be a polyurethane resin, polyol.
2. Component "B" shall be a polyisocyanate.
3. The filler shall be a blend of silica sand, cement and lime. The **maximum** fill ratio of aggregate: liquid is 4:1 by weight or 2:1 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. .

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 c" and greater should be v-notched to a ½" width by ½" 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 ¾" width and 1¼" 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, steels 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 1½" 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** 100% solids epoxy primer 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. **Trowelled System**
 - a. Mix **ICO Ure Guard TL Part A** with dry tint and **ICO Fill Ure Guard TL** in the prescribed amounts with a paddle-style mixer for at least 60 seconds, followed by adding Part B and mixing for an additional 30 -60 seconds until completely uniform.
 - b. Immediately dump contents out onto floor and screed out with screed rake, screed box or other measuring device to a minimum one quarter inch thickness.
 - c. Hand trowel to level surface, followed by back rolling with a fine nap roller moistened with mineral spirits.
 - d. Broadcast in suitable grit to obtain preselected texture.
 - e. (Optional) When dry, apply one coat of **ICO Ure Guard TL/SL Coating**, aromatic polyurethane coating at no greater than 5 mils(300SF/gal) for enhanced gloss and cleanability.
3. **Slurry/Broadcast System**
 - a. Mix **ICO Ure Guard SL, Part A**, with dry tint and **ICO Fill Ure Guard SL**, for about 60 seconds with a low speed, paddle-style mixer, followed by adding Part B and mixing for another 30 – 60 seconds.
 - b. Immediately dump out onto floor, spread with a screed box or screed bar to about 3/16" thick, followed by spike rolling the floor, and then seeded to excess with silica quartz at about one half pound per SF to achieve full quarter inch thickness. Allow to dry.
 - c. Sweep off excess sand, then apply **ICO Ure Guard TL/SL Coating** at no greater than 8 mils(200SF/gal) per coat.
4. **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 Ure Guard Cove Mix**.
5. **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.

Note: Apply only at temperatures from 40-90°F.

1.7 Protection of Finished Work

1. Prohibit foot traffic on floor for 12 hours after laying (at 70°F). At 50°F, this time should be extended to 24 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 mineral spirits.
- 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.