

# Specifications for Chemical Resistant Brick Flooring – ICO Hi Grout

## Part 1 Scope

### Product and Application

This specification describes the application acid brick pavers by the “bricklayers method” over a thin set epoxy grout.

#### 1.1 Acceptable Manufacturers

**ICO Hi Grout** as manufactured by International Coatings of Franklin Park, IL or approved equivalent epoxy resin grout and jointing system.

#### 1.2 Performance Criteria

1. Compressive Strength (ASTM C-307) : Maximum - 6165 psi
2. Tensile Strength (ASTM D-638) : Minimum - 1285 psi
3. Tensile Elongation, resin only (ASTM D-638) : Minimum - 6% elong
4. Flexural Strength (ASTM C-580) : Minimum - 1940 psi
5. Hardness, Shore D (ASTM D-2240) : Maximum - 80
6. Bond Strength to Quarry Tile : >1000 psi (Tile fails)
7. Gardner Impact (ASTM D-2794) : >160 inch pounds
8. Water Absorption (ASTM D570) : Maximum - 0.3% in 24 hrs
9. Loading Ratio, Aggregate to liquid
  - By Volume : Maximum 2:1
  - By Weight : Maximum 3:1
10. Chemical Resistance: must be able to withstand at least 72 hour immersion in the following chemicals: 20% acetic acid, 37% hydrochloric acid, 50% hydrogen peroxide, 85% phosphoric acid, 98% sulfuric acid, 50% sodium hydroxide, 15% sodium hypochlorite, 98% Oxonia, Enforce, and Ultrasil 76.

#### 1.3 Materials

1. Component “A” shall be a novolac epoxy resin of the bisphenol F type containing special flexibilizers for enhanced thermal shock resistance.
2. Component “B” shall be a blend of cyclo-aliphatic amines with non-blushing characteristics.
3. The filler shall be the same for the bedding and jointing material – an 80 mesh cleaned silica sand.
4. The compatible waterproofing membrane shall be ICO Lastic, as manufactured by International Coatings of Franklin Park, IL, a 100% solids epoxy - modified urethane liquid material.
5. The compatible expansion joint material is ICO Lastic Gun Grade as manufactured by International Coatings of Franklin Park, IL - a 100% solids epoxy - modified urethane liquid with special thickeners for trowellability.

## 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.

## 1.5 Material Application

### A. Priming

Prime floor with ICO Primer LV at a coverage rate of 250 - 300 SF/gallon. Allow to dry tack free.

### B. Waterproof Membrane (Optional)

Apply ICO Lastic at a coverage rate of 25 SF/gallon by roller or squeegee, to obtain a minimum thickness of 60 mils.

### C. Setting Bed Mixing and Application

1. Mix ICO Hi Grout Parts A and B in the prescribed ratios, followed by addition of prescribed aggregate in an amount not to exceed 3 times the weight of the liquid.
2. Trowel setting bed on floor with a quarter inch notched trowel to obtain a final 1/8" minimum bed thickness after brick is in place. Do not trowel on material more than seven feet ahead of bricklayer.
3. Mix only enough material that can be trowelled on floor and covered with brick within 45 minutes (at 75°F). Any material that has started to gel must be removed.

### D. Setting Floor Brick

1. All floor brick shall be dry, free of dirt and dust and at temperature of at least 60°F when laid. Brick shall be free from cracks, scum, warpage, and chips. Final culling and selection of brick to comply with these requirements during installation shall be the responsibility of the contractor.
2. Mix ICO Hi Grout in accordance with manufacturer's printed instructions. Remove dust from sides of each paver before applying mortar. Butter the floor brick with freshly mixed mortar on two sides, using a bricklayer's trowel. Apply the mortar so that it forms a "V" profile one side and one end of brick. This will assure a full joint when the brick is placed.
3. Brick shall be laid in a \stack\ \running\ bond pattern.
4. The brick shall be placed in the setting bed by exerting pressure on the top of the brick and at the same time positioning the brick horizontally. Excess mortar shall extrude out of joint and be smoothed with a pointing trowel or masonry pointing tool to insure a smooth joint. Discard cut-off extruded joint material.
5. Set brick level, with plane of slope, and with previously laid brick. Take special precautions to avoid projecting or sagging corners of brick.
6. Joints alongside pavers shall not be less than 1/8" wide and not be more than 3/16" wide, uniform and continuous.

7. At high points and valleys, install brick continuously over these points to form uniform rounded surfaces. High points and valleys shall be in the form of a rounded surface so that paver will not form a sharp edge. See drawing detail 1 and 2. All high points, except at expansion joints, shall have a continuous brick course directly over the joint and 4" width running parallel to direction of high points.
8. When a 6' - 0" length of three row pavers has been laid, block these rows with a 6' - 0" long wood 2" x 6" to prevent sliding of the paves. Leave 2" x 6" in place until mortar has set to anchor the pavers.
9. Floor brick shall be placed within 30 minutes after spreading setting bed material. Excess mortar shall be removed. After the floor has been installed, the area shall remain undisturbed by traffic, to allow mortar to cure.
10. At perimeter walls, install cove base according to Drawing Details 3 or 4.
11. Where no base cove has been specified, at perimeter rooms at walls and column bases shall have an 8" stretcher course laid perpendicular to walls. Slope stretcher paver so that end of paver at wall is 1/2" above finished floor elevation. Miter corners of stretcher course neatly with saw cut units. See Drawing Detail 5.
12. Expansion joints shall have two pavers on each side of a 3/8" joint with the 8" length parallel to direction of joint. See Drawing Detail 2.
13. Where pavers abut drains, curbs, walls, pipes, sleeves and columns, pavers shall be cut with a masonry power saw to form a neat fit. Large triangular areas filled with mortar will not be permitted. See Drawing Details 6,7,8,9.
14. All cut pieces shall be washed clean and allowed to dry, prior to installation.

#### **E. Perimeter Control Joints**

1. Install control joints, using ICO Lastic Gun Grade caulk, around the periphery of the rooms, against walls, around columns and drains and around raised portions of the floor or pads.
2. Expansion joints extending across the room shall be placed over concrete joints below.
3. Immediately before applying ICO Lastic Gun Grade is installed, all contact surfaces shall be free of dust and shall be cleaned by wiping joints with a cloth soaked in toluene.
4. Joints shall be 3/8" wide and shall extend the depth of the paver. Over-fill joint to 1/8" above top of the brick.

#### **F. Cleaning and Protection**

1. Pavers shall be allowed to remain undisturbed until the resinous cement is hard. Protect from foot traffic 24 hours and wheel traffic for 48 hours (at 75°F).
2. No equipment shall be moved into or through the paver area without protecting floor surface with plywood and planking, and not before the 48-hour elapsed time.
3. Skidding of equipment or overhead mechanical work will not be permitted without protective cover over brick surface.
4. As soon as the joint material is completely set and hard, and not before the 48 hour elapsed time, the surface of the floor shall be cleaned of excess mortar and wax on the face of the pavers using 1200 to 1500 psi power sprayers with hot water above 165° but not exceeding 180°.
5. It is recommended that the wax surface shall remain on brick until all the mechanical and painting work in the area has been completed. Note that the excess mortar material becomes increasingly harder to clean from the surface of the brick, the longer it is left on

the surface beyond minimum cure time. It shall be the Contractor's responsibility to properly clean the surface and determine when this cleaning shall be done.

- a) Plug or place strainers in floor drains to prevent wax from entering the sanitary system.
6. Any remaining excess mortar shall be removed by the use of a stiff bristle, using clean, sharp sand and water.
7. The use of high pressure steam, acids, caustics, strong detergents or other chemicals will not be permitted for brick paver surfaces.