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NOTE: Procedures are for natural and colored floor hardeners. These methods do not cover placement of light-reflective, static disseminating or spark-proof products.

#### 1) The Two Application Method

This method can be used if the floor hardener is to be placed by hand or material spreader. (Standard ACI 302 Method).

- a. Screeding and fill floating (bull floating) shall take place before the emergence of bleed water.
  - b. After excess bleed water has evaporated or has been removed, but leaving sufficient moisture at the surface to hydrate cement binders in the floor hardener, evenly distribute approximately 2/3 of the hardener specified for the area. When workmen spread the hardener by hand, a sidearm motion at a low angle to the surface is correct. In no event should the hardener be applied from distances greater than 10 to 12 feet (3-4 meters). If the hardener breaks through the surface when being applied, the concrete is too plastic for product application. Delay application until surface stiffens slightly.
  - c. When the applied material darkens slightly from absorbed moisture, it should be floated, using hand wooden floats and/or power trowels with kickoff float shoes (do not use combination float and trowel blades). Care should be taken not to tear through the surface of the hardener to the underlying concrete. Delay applying more hardener until moisture from the underlying concrete has been worked completely through the hardener.
  - d. Immediately apply the remaining 1/3 of the specified amount of hardener. The moisture from the underlying concrete must be completely worked through the hardener. If this does not occur, the floor surface will delaminate.
  - e. Float as in Step c.
  - f. After the concrete has further stiffened, it should be machine or hand troweled to a blemish free finish. Care should be taken not to trowel-burn the surface.
- #### 2) The One Application Method - For Flat and Super-Flat Floors

If this method is used, a material spreader is required to place the hardener.

- a. Screeding and fill floating (bull floating) shall take place before the emergence of bleed water.
- b. After excess bleed water has evaporated or been removed, leaving sufficient moisture at the surface to hydrate binders in the floor hardener, evenly distribute the hardener specified for the area. Do not delay placement as there may not be enough moisture at the surface of the concrete to hydrate the cement binders in the floor hardeners.

- c. When the material darkens slightly from absorbed moisture, it should be floated, using hand wooden floats or power trowels with kick-off float shoes (do not use combination float and trowel blades). Care should be taken not to tear through the surface of the hardener to the underlying concrete. The moisture from the underlying concrete must be completely worked through the hardener. If this does not occur, the floor surface will delaminate.
- d. After the concrete has further stiffened, it should be machine or hand troweled to a blemish free finish. Care should be taken not to trowel-burn the surface.

#### 3) Curing

Immediately after final troweling cure with one of L&M Construction Chemicals' concrete curing compounds or curing and sealing compounds. Your selection will be determined by final surface treatment requirements found in the project specifications. To prevent surface delamination, wet curing should not begin until 24 hours after the final troweling. During interim 24 hour period, cover concrete to prevent rapid evaporation of surface moisture.

#### 4) Special Precautionary Notes

- a. The concrete used in the floor should have a slump of 4 to 5 inches and the total air content must not exceed 3 percent.
- b. Calcium chloride should not be used in the concrete in any form.
- c. Blisters: If blisters form during the finishing operation, they must be immediately ruptured before continuing the finishing operation. The formation of blisters is caused by premature closing of the concrete slab. The primary cause is from float or trowel blades being set at too great an angle with respect to the surface of a too fresh concrete slab. If blisters occur, the blades of the finishing equipment must be returned to a flatter angle and final finishing must be delayed.
- d. Delamination: The primary cause of delamination is premature closing of the concrete slab. Premature closing is caused by the float or trowel blade again being set at too great an angle with respect to the surface of the concrete slab. To reduce delamination problems delay the final troweling as long as possible and keep the angle of the blades of the finishing equipment as flat as possible during all stages of the finishing operation except the final pass.

#### Important

For application procedures regarding light reflective, spark proof or static disseminating products, contact L&M Construction Chemicals Technical Department at 1-800-362-3331.

