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Technical Bulletin #5

Floor Patching and Leveling

I. GENERAL INFORMATION

Floor patching and leveling is an evil that is unfortunately necessary to achieve a smooth floor surface with thin-film coatings and flooring systems. Surface irregularities in the substrate will telegraph through **Key Epoxy Coatings**, **Key Mortar SL & SLT**, and **Key Quartz B-65 & B-125**. These systems sometimes require a finished seamless appearance requiring special treatment to saw-cuts, expansion joints, and surface cracks. Through compliance with these basic principles the contractor and his client can anticipate a level, well bonded, crack-resistant floor.

II. FLOOR REPAIRS

Spalls can require full depth repair or surface repair. Surface repair is more common for flooring work and the main points to remember are to "key" in the repair of *any* patch and to use material that is compatible with the floor system.

- A. Key in all perimeter edges
- B. Use compatible materials
 1. With concrete
 2. With coating system
- C. Make patch or repair cosmetically acceptable.

III. PROPER LEVELING/FILLING

- A. Avoid dissimilar materials: When leveling the substrate before applying a coating or topping, be sure that the materials being used are compatible with one another. The materials should have similar expansion and contraction characteristics. Materials should also be compatible with each other.
- B. Avoid *most* self-leveling underlayments
- C. Depth of fill can dictate material choice
- D. Material choice and depth will determine cure time.
- E. Key Resin Company recommends the following materials for leveling under its systems:
 1. *Key #502 Primer/Low Modulus Binder*
 2. *Key #510 Epoxy Binder*
 3. *Key Mortar Patch Kit*
 4. *Key Industrial Mortar.*

Never use Polyacrylate patching materials under Key Vinyl Ester Systems!!

IV. CRACK REPAIR

When treating and repairing cracks, you must identify the cause of the crack. If a crack is moving, it should be corrected or made into a joint by routing or chasing with a crack chaser (scabblor) and then filled with a flexible epoxy sealant. If not moving, the cracks must be filled with a material compatible with the coating system and finished to a smooth finish. The epoxy joint material should meet the requirements of ACI 302.1R-89.

- A. 100% solid
- B. Minimum Shore D Hardness - 50
- C. Minimum Elongation of 6%

Fill the entire crack!! Backer-rod should not be used because it decreases the lateral slab edge support provided by the semi-flexible epoxy sealant.

The application of thicker systems such as **Key Mortar SL(T)**, **Key Quartz**, or **Key Mortar STD** also require repair of cracks in the substrate. All cracks in the substrate will transmit through the finished system if they are not properly treated with the following steps:

- A. Rout the crack
- B. Completely fill the crack with *Key Joint Filler*
- C. Coat the crack using fiberglass cloth imbedded in either *Key #502 Primer/Low Modulus Binder* or *Key #400 Urethane Elastomer* extending the cloth/resin at least six (6) inches beyond either side of the crack.