

Technical Bulletin #19-D

Key Resin Flooring Systems Application over Epoxy Fill Versus Dry Pack Mortars, Setting Beds, Proprietary Cement Toppings, Key Resin-Supplied Cement Toppings

Key Resin provides the following information pertaining to the application of Key Resin Flooring Systems over epoxy fill versus dry pack mortars, cement setting beds, proprietary cement toppings supplied by others, and Key Resin-supplied cement toppings.

1. Key Resin's primary recommendation is to use epoxy fill versus cement-based toppings, due to high physical properties, rapid cure time, ease of installation, and guaranteed compatibility with the Key Resin Flooring System materials.
2. Various proprietary cement-based toppings have been proposed by installers and general contractors for leveling and sloping a concrete slab underneath Key Resin Flooring Systems. Key Resin's requirement for an acceptable concrete substrate or any proprietary cement-based topping is that it must have minimum physical properties comparable with standard strength concrete, pertaining to the following specific properties: Minimum 3000-4000 psi (20.69-27.58 MPa) compressive strength and 225 psi (1.55 MPa) surface tensile pull-off strength. The tensile pull-off strength is the critical property to ensure polymer resin floor toppings do not disbond in the future. The surface tensile pull-off strength should be tested with a meter such as Elcometer 106/6 or DeFelsko-Posi Test AT, using 50 mm diameter dollies, as outlined in ASTM D7234, or other similar tensile pull-off test methods. The dollies should be bonded to the prepared substrate using epoxy, and the cement topping must be scored around each dolly.
3. Key Resin does not perform field testing or approval of substrates, this is the responsibility of others. A third party testing firm is recommended to ensure proper test procedures are used, or the manufacturer of the proprietary cement material must confirm these minimum physical property requirements are met.
4. If the substrate in question meets the minimum requirements, the surface must be prepared the same as the original concrete slab would be, followed with installation of the Key Resin Flooring System or Key Resin Moisture Mitigation System.
5. Key Resin recommends using epoxy fill or FlowResin Isocrete cement toppings supplied by Key Resin, because Key Resin supplied materials will be warranted for acceptable strength. When using epoxy, the resin plus aggregate mix design must be resin rich not "dry pack" consistency, using a recommended gradation of approved aggregates. The following mix design is a suggested guideline, however the aggregate type, gradation and overall mix design may need adjustment depending on the installed thickness, contact Key Resin Technical Service to review mix design:
 - a. 6 gallons epoxy (no solvent added) + 400 lbs of properly graded aggregates
 - b. Aggregate blend options
 - i. Key BMA-50 (for up to maximum ½" thickness)
 - ii. Marble chips, dry pea gravel (for ¼"+ thickness), with or without Key BMA-50

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6. If the decision is made by the facility owner or general contractor that an epoxy-based fill (underlayment) cannot be used, there are various self-leveling and trowel-grade cement-based underlayments available which exceed 225 psi (1.55 MPa) tensile pull-off strength. Key Resin Company does not guarantee, warranty, endorse or recommend any materials not manufactured or otherwise supplied by Key Resin. Only epoxy fill materials or FlowResin Isocrete cement underlayments supplied by Key Resin will receive a Key Resin guarantee or warranty. If the decision is made to use any cement underlayment supplied by others, it is advised that the contractor confirm application recommendations and warranty details with the supplier of the material and test the material after placement to confirm minimum required physical properties are achieved.

Key Resin-supplied FlowResin Isocrete cement underlayments:

1. Isocrete 1500P Self-Leveling Grade (1/4"-2", up to 3" extended with pea gravel)
2. Isocrete 4000 Trowel Grade (1/4"-6")

Contact Key Resin Technical Service if further clarification is required.

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