



Installation Instructions

KEY LASTIC CHIP 100 FLOORING

I. GENERAL INFORMATION

KEY LASTIC CHIP-100 FLOORING is a resilient decorative resin flooring system consisting of 100% solids resilient epoxy resins and colored vinyl chips. **KEY LASTIC CHIP-100 FLOORING** is finished with clear catalyst-cured coats of resin available in a satin or gloss finish. The installed system can be textured or smooth as desired. Easy maintenance minimizes bacterial growth. **KEY BROADCAST CHIPS** are available in a series of pre-blended patterns or solid colors.

II. SURFACE PREPARATION

Surface Preparation is the most critical portion of any successful resinous flooring system application. All substrates must be properly prepared to a minimum CSP-3 surface profile as outlined in **KEY RESIN COMPANY'S TECHNICAL BULLETIN #1**. Specific attention should be paid to the following:

- A. Concrete Placement--An efficient vapor barrier should be directly under slabs on or below grade to prevent moisture migration
- B. Curing and Finishing Techniques of the Concrete Substrate
- C. Age of Concrete
- D. Previous Contamination of the Substrate
- E. Present Condition of the Substrate
- F. Make sure the floor is free of excessive moisture vapor transmission—use moisture vapor control system if necessary

Also, the temperature and humidity conditions of the area to receive the flooring system should be checked. An optimum room temperature of 75°F with a minimum slab temperature of 60°F is required for proper cure of the resin flooring system.

III. MATERIAL QUANTITIES

A. Guideline System Requirements for 1000 ft²

<i>Key Lastic Chip 100 Flooring System – 1/8"-3/16"</i>	<i>Qty./ 1000 ft²</i>
1. Key #502 100% Solids Epoxy Primer	4 gallons
2. Key #580 Flexible Epoxy Binder	25 gallons
3. Key #589 SL Resilient Epoxy Binder	30-60 gallons*
4. Key Self-Leveling Filler	450-900 lbs.*
5. Key #470 Polyaspartic (pigmented) <i>(Note: Key #515 may be substituted when installing a full broadcast system)</i>	6-10 gallons
6. Key Broadcast Chips (full broadcast) <i>(Note: Partial broadcast may require 3-25 pounds)</i>	150 pounds
7. Key #470 Polyaspartic (clear)	8-12 gallons
8. Key #467-HS (clear, satin)	2 gallons
9. Key WFA-240 Additive (optional)	16 – 64 ounces**

9A. Key NSA, Fine mesh (optional)

4-16 ounces**

*For 3/16" system, use 60 gallons and 900 lbs.

**Add 8-32 ounces by volume WFA-240 or 2-8 ounces by volume NSA-Fine to 1 gallon of Key #467-HS Satin (or as needed to match approved sample).

IV. INSTALLATION

Note: Cove Base is typically installed before the flooring system, though it may be installed at some point during the floor installation sequence at the discretion of the flooring contractor. Cove base is installed as a rigid mortar (not resilient), refer to Key Mortar Cove Base (1/8"-3/16") installation instructions, and factor in the necessary topcoat resins and broadcast chips needed to match the appearance and topcoats of the flooring system.

A. Priming

While priming is optional on broadcast systems, Key Resin Company recommends that every flooring system be installed with a primer to insure maximum adhesion to the prepared substrate. Priming will also help to seal air in the concrete and reduce outgassing and air bubbling in the finished system. If excessive moisture vapor emissions rate or moisture content exists, substitute Key Epocon SL for Key #502, and follow the directions outlined in the system data sheet and installation instructions.

1. Mixing **Key #502 Low Modulus Epoxy Primer**
 - a. Stir each component prior to mixing.
 - b. Mix two (2) parts by volume of Part A (Base) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
 - c. If thinning is desired, add no more than one pint of xylene per gallon of epoxy at time of mixing.
 - d. ***Mix only that amount of material that can be mixed, immediately poured out in strips and backrolled in 30 minutes. Mixed material left in the pail longer than 5 minutes will have accelerated reaction and reduced working time.***
2. Application
 - a. Pour primer onto the prepared concrete.
 - b. Spread with either a flat trowel or squeegee to a coverage of 250-275 ft² per gallon.
 - c. Back roll with a short nap roller.
3. Allow Primer to sit until tacky, or allow to cure hard if waiting overnight to apply Key #580, 12 to 16 hours. Primer may be lightly broadcasted with 30 mesh sand for extended recoat time.

B. Flexible Epoxy Crack-Isolation Membrane Basecoat

1. Mixing **Key #580 Flexible Epoxy**
 - a. Stir each component prior to mixing.
 - b. Mix one (1) part by volume of Part A (Base) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
2. Application
 - a. Place mixture on primed surface and spread at a rate of approximately 40 ft² per gallon.
 - b. Gently back roll using short nap roller.
 - c. Allow to cure overnight. May require minimum of 16-18 hours cure at 75 F degrees. Maximum recoat window without sanding/solvent wipe is 48 hours.

C. Resilient Epoxy Basecoat

1. Mixing **Key #589 SL Resilient Epoxy**

- a. Stir each component prior to mixing.
 - b. Mix four (4) parts by volume of Part A (Base) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
 - c. Add Key Self-Leveling Filler (SLF) while continuing to mix, approximately 15 lbs. SLF per gallon of Key #589 SL. 15 lbs. SLF is a slightly heaping gallon by volume. This mix design may be altered to adjust flowability for temperature/thickness variations as needed.
 - d. **Mix only that amount of material that can be mixed, immediately poured out in strips and backrolled in 30-40 minutes. Mixed material left in the pail longer than 5-10 minutes will have accelerated reaction and reduced working time.**
2. Application
- a. Place mixture on primed surface (tacky or hard primer) and spread with cam gauge rake or ½" V-notched trowel/rake at a coverage rate of approximately 12 ft² per gallon for 1/8" slurry (for 3/16" system), or ¼" V-notched trowel/rake at rate of 20-25 ft² per gallon for 1/16" slurry (for 1/8" system).
 - b. Gently back roll if needed using short nap roller or spike roller.
 - c. Allow to cure minimum of 16 hours depending on substrate temperature. Maximum recoat window is 48 hours. Resin must be completely tack free and hard enough to withstand foot traffic before proceeding to next step.

D. Polyaspartic Bodycoat + Chip Broadcast

1. Mixing **Key #470 Polyaspartic (factory tinted or pigment packs)**

(If substituting Key #515, refer to separate mixing/application instructions document)

- a. Mix two (2) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
Note: If using Key Polyaspartic Pigment Packs (Key item #POP), mix entire 1 quart unit of Polyaspartic Pigment Pack with two gallons of Key #470 Part A and mix thoroughly. Then add Part B (Hardener) and continue mixing for three minutes. If breaking down a 3 gallon unit into smaller batches, mix the entire 1 quart unit of Polyaspartic Pigment Pack with two gallons of Key #470 Part A and mix thoroughly, then portion out the smaller batches of part A. Key Epoxy Pigment Packs (Key item #ECP) may still be used with Key #470, but will create an accelerated reaction and reduce the working time. Key Urethane Pigment Packs create a greater accelerated reaction and should not be used.
- b. Up to 15% solvent by volume (MEK or VOC compliant solvent available from Key Resin) may be added to lengthen pot life and allow for application at 200-300 ft²/gallon.
- c. Regular Cure Formulation: **Do not mix more material than can be dip & rolled or poured out in ribbons, spread and backrolled in 15 minutes, unless 10%-15% MEK solvent is added which will increase pot life to 20+ minutes. Important: This assumes temperature of 70-75F and relative humidity of 50%. Warmer temperatures and/or higher relative humidity will decrease working time.** Slower Cure Formulation (available upon request at additional cost) will add about 5 minutes working time.
- d. Key #470 Pigmented is available factory tinted to match Key Standard Epoxy Colors or approved custom colors (with minimum quantity requirements), or may be tinted on the jobsite using special "polyaspartic formula" Key Epoxy Pigment Packs.

2. Application

Note: Mixed polyaspartic resin is less reactive resting in a large mass in the mix pail versus spread in a thin film on the floor, where moisture in the air will accelerate the polymerization reaction (just the opposite with epoxies!). This allows for either using

a dip & roll procedure or pouring ribbons and spreading with squeegee and backrolling.

- a. Use dip & roll procedure or pour mixed material onto floor in a ribbon and spread using a squeegee, notched squeegee or trowel at a coverage rate of 100-160 ft²/gallon. This will yield 10-16 mils dry film thickness. Applying at too thin or thick of an application rate, over rolling or back rolling too late MAY RESULT IN BUBBLING IN THE CURED FILM.
- b. Immediately back roll gently with a short nap roller to even the surface texture of the coating.
- c. Broadcast *Key Broadcast Chips* into the wet Key #470 very carefully to match appearance of approved sample(s). For a full broadcast, approximately 150 pounds of chips will be needed for 1000 ft² of flooring, depending on broadcast technique. For a sparse partial broadcast, approximately 3-25 pounds of chips will be needed for 1000 ft² of flooring, depending on broadcast technique and degree of chip coverage desired (verify quantity with samples and/or mockup). A one gallon container holds approximately 8 pounds of chips. If terminating the system with tape as described in note above, broadcast chips up to the tape and remove after material cures for thirty (30) minutes. **Remember to only walk on the wet surface while wearing "spiked" shoes!!! Do not rotate feet while walking with spikes to avoid creating gouges in the material.**
- d. Allow the broadcasted floor to cure. After curing, sweep up loose chips, scrape/sand and vacuum particles prior to grouting. Regular Cure Formulation: Allow material to cure 2 hours (at 75F) before applying a grout coat. If cure time exceeds 8 hours, it is required to sand or screen the first coat before applying a second coat, except when the prior coat has been fully broadcasted. Slower Cure Formulation: Allow material to cure 6 hours (at 75F) before applying a second coat. If cure time exceeds 12-14 hours, it is required to sand or screen the first coat before applying a second coat, except when the prior coat has been fully broadcasted.

Termination points at the end of the day should be made at doorways, expansion joints, etc. If it is not possible to terminate at these points, 2" masking tape should be placed in a straight line at the ending point. Carefully trowel the material up to and slightly over the inside edge of the tape. Allow material to cure for about thirty (30) minutes and remove the tape.

E. Grout Coat

1. Mixing/Application of **Key #470 Polyaspartic (Clear)**
 - a. Follow mixing/application instructions outlined in section D.
 - b. Apply at coverage rate of 80-125 ft² per gallon, or as needed to match approved sample(s).
 - c. Allow to cure.

F. Sealing

Prior to applying Key #467-HS Satin as the final urethane topcoat, it is **required** to lightly sand or screen the cured grout coat to improve intercoat adhesion.

Important Note: Key #467-HS Gloss and Satin are different formulations, which require different part B Hardeners, do NOT interchange part B's or cure problems will occur!

It is optional to use some quantity of Key Non-Skid Additive (fine mesh) or WFA-240 aluminum oxide powder (AL/OX) which helps to further improve abrasion resistance and/or slip resistance. A suggested recommendation is 2-8 ounces by volume of Key NSA (fine) or 8-32 ounces by volume 240 mesh AL/OX.

1. Mixing **Key #467-HS Satin Urethane**

- i. Thoroughly mix each component prior to combining.
- ii. Mix four (4) parts by volume of Part A with one (1) part by volume of Part B for three minutes with a low speed electric drill and mixing paddle (Jiffy mixer). Do not thin material. Mix Part A and Part B for a minimum of 2 minutes before adding Satin Additive (SA) component, then continue mixing for 1-2 additional minutes.
- iii. Satin Finish: After mixing Part A and Part B as outlined above, add 1.0-1.5 gallons Satin Additive (SA) to 1.25 gallons mixed resin and continue mixing for 1-2 minutes. **Important:** Be sure to maintain consistent mix ratio of SA to mixed resin from batch to batch to ensure consistent satin finish.
- iv. HTS Finish (WFA-240 mesh AL/OX): After mixing Part A and Part B as outlined above, for maximum wear resistance add 8-32 ounces by volume of WFA-240 (AL/OX) powder to 1.25 gallons mixed resin after mixing SA and continue mixing for 1 minute. It is advised to use no more than 32 ounces by volume of WFA-240 AL/OX due to higher viscosity of Satin formulation. When using WFA-240 AL/OX, mix small batches (1.25 gallons) and remix as needed to keep grit suspended, particularly just prior to pouring into a paint pan if using “dip and roll” procedure.
- v. **Do not mix more material than can be used in 2 (two) hours.**

2. Application

- i. To ensure proper application thickness and consistency, it is best to use a “dip and roll” procedure and apply at 450-500 ft²/gallon. This will yield 3 mils dry film thickness. Apply in a “V” shape procedure, using aggressive pressure on the roller handle. DO NOT apply thicker than 3.5-4 mils DFT (350-400 ft²/gallon) or puddle resin, as this may cause microbubbles and a resulting white haze.
- ii. Immediately and slowly cross roll with a lint-free short nap 3/8” mohair roller to even the surface texture of the coating, again using aggressive pressure on the roller handle. All cross rolling steps must be done immediately in sequence after initial application of resin. DO NOT re-roll isolated areas more than 10 minutes after completing final cross roll procedure, as roller marks may occur! Material must be **very thoroughly** rolled, or tiny “fish eyes” (i.e., material separation) may occur. Also, “aggressive” pressure does not mean rapid rolling, but rather to bear down on the roller handle with enough force that the handle bends slightly, to insure enough pressure is used, to help reduce material separation. DO NOT rapidly roll the Key #467-HS Urethane or microbubbles may form from air entrainment. **Important:** Change roller cover every 45-60 minutes if a residue begins to build up on the ends of the roller or roller frame, accumulated older resin may cause reaction with fresh material, resulting in shortened working time and/or microbubbles.
- iii. Allow material to cure completely hard (8 to 10+ hours at 75°F, 50% RH) if applying a second coat. Key #467-HS must be hard enough to aggressively sand prior to application of a second topcoat or “fish eyes/crawling” may occur. Use diamond-impregnated buffer pad (100-150 grit is recommended), or resin-bond diamond plugs (100-150 grit), or 80-100 grit carborundum sand paper, or a black buffer pad. It is recommended that the installer test which method will work best for any particular project. If individual scratch marks are apparent, the surface has NOT been sanded thoroughly. Be sure to completely remove all residual dust with vacuum and damp mopping before coating. **Important:** Key #467-HS is a moisture cure urethane, relative humidity will significantly affect cure speed. Relative humidity range must be 30%-90% RH, low RH will slow the cure rate. Note that very high humidity (90%+) may result in moisture condensation on the substrate, which can cause numerous small bubbles to form in the urethane.
- iv. Do not open to light foot traffic for 24 hours at 75°F, 50% RH. Do not open to vehicle traffic for 72+ hours at 75°F, 50% RH. Full chemical cure and maximum resistance are achieved in five to seven (5-7) days at 75°F, 50% RH.

