



## STAUF USA Perma-Flex System Case Study

Hangar at Holly Springs – Marshall County Airport; Holly Springs, Mississippi

**Objective:** Prepare the concrete surface and install an epoxy floor that would withstand normal wear and tear from airplanes and mechanics, including but not limited to abrasion and harsh chemicals.

**Problem:** The surface in question was a 15-year-old, 3,600 sq. ft. rough-poured concrete floor that had endured significant deterioration over the years. The concrete had numerous cracks and flaking areas that needed a major overhaul before an epoxy floor could be poured.



In this particular scenario, the Stauf team knew right away that this hangar was going to take extra work to properly prepare the concrete. To begin, the work area was emptied out and cleaned, making sure the planes and machinery would not interfere with the floor preparation and installation.

A thorough evaluation was done of all cracks and rough areas in the concrete. A surface profile of CSP 2-3 was needed to start the project. This was accomplished by using a special heavy duty concrete grinder by Lägler that was attached to a HEPA dust extractor vacuum to keep project clean and dust free.



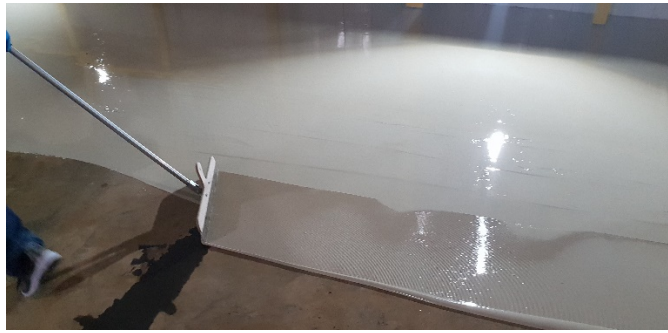
Repairing cracks and flaking areas was the next priority. Stauf's QFF-560, a Portland cement based floor patch, was used, but the water for mixing was substituted with a two component epoxy, Stauf's ERP-270. This particular combination dries to form a patch that will bond under any moisture condition, and will not allow moisture to penetrate from the ground to the new floor. The components were mixed and then spread with a flat trowel. Once dried, the surface was vacuumed and tacked with water to remove any fine dust.



The floor was then primed with a 2 component water based epoxy, Stauf's EHS-265. This coat has a 45 minute working time once mixed, and can be walked on in 2 hours. It will penetrate deep into the concrete, giving all coatings that follow the most extreme bond possible. It is white when applied, but will dry clear. After applying this coat, there is no need to sand the surface. At this point, the surface will be clean and ready for the next coat in the process.



Stauf's 2 component urethane leveling compound, ULC-500 can be tinted to a wide variety of colors. Once the tinted layer is applied, a solid color surface is much easier to build on. This product can be applied at any thickness and will cure in under 4 hours. While applying this product, spike rolling is required within 30 minutes of spreading the product in order to release any air bubbles that may have formed. It can be applied with either a hand trowel or a stand up trowel for ease of application. This layer bridges any cracks and will help prevent any future cracks from showing through on the new epoxy surface. Colder temperatures will prolong the drying time of this product, but once dry, a buffer should be used to sand the surface. By using a 60 grit screen and quickly moving over the surface, any blemishes in the floor should smooth out. Another thorough vacuuming and tacking (this time, with acetone) will remove any fine dust.



The next step is to apply the colored epoxy base coat, Stauf's CCI-600. This is a special 2 component, 100% solid epoxy resin base coat with no VOC, and no smell. The working time is about 25 minutes. After 3 minutes of mixing, it is recommended to pour on the floor immediately to prolong the pot life of the product. Like in the previous coat, a hand trowel for cutting in, and a stand up trowel for the large areas were used. This coat will also need to be spike rolled within 45 minutes of spreading. The drying time will be 12-18 hours depending on the temperature of the room. Once dry, the surface was buffed with an 80 grit screen. The screen should be replaced every 400-500 square feet of surface prepared. If there is a spot that will not smooth out, a hand grinder can be used to smooth that area. Once again, the surface was then vacuumed and tacked with acetone.



On this project, we needed extra protection for UV light, due to the large doors facing the southwest. So, we rolled on a coat of CCO-640, Stauf's exterior urethane base coat. This coat dries within 1 hour of mixing and applying with a short nap roller. Once dried, the surface was screened again with an 80 grit screen and tacked with acetone to make sure it was completely clean.

This hangar project required the installation of a few heavy duty vinyl floor logos at this point in the process. The logo was designed and sent to the printer about 2 weeks ahead of time so it would be ready by the time of installation. Sticking the logos down to the epoxy surface, and then using a flexible plastic blade to press out any bubbles or wrinkles ensured that the graphics looked sharp on the floor.





The last step was to apply a 100% solids urethane top coat of Stauf's CCO-650. Once applied, this coat will dry in approximately 4 hours. The working time is about 25 minutes once mixed. It is best to have 2 or more installers rolling this top coat once it is mixed. When this last coat is dry, the Perma-Flex system application is complete and the new extremely durable, easily cleaned surface is ready for the heavy impact of airplanes, machinery and tools for years to come.

