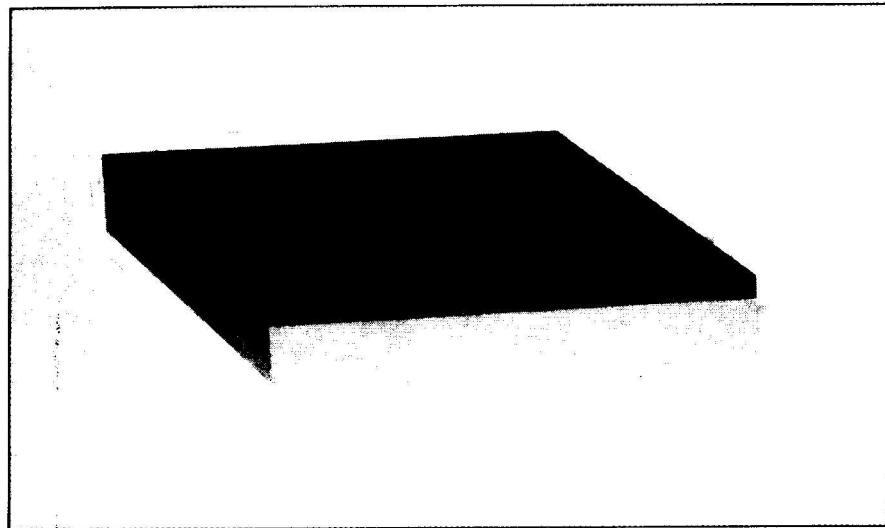


*Wood and concrete floors were damaged by
harsh chemicals and steel-wheeled carts.*

Epoxy floor coatings withstand chemicals

Richard DuMont *Eagle Ottawa Leather Co., Grand Haven, Mich.*
John Papamarcos *Senior Associate Editor*



The sulfuric acid containment area was patched with a fast-curing epoxy to depths of 2 to 3 inches. This was followed by a quarter-inch topping of highly chemical-resistant epoxy. Cut-away shows the system, designed to withstand the most corrosive chemicals present in more than just splash and spill conditions.

■ Eagle Ottawa Leather Company in Grand Haven, Mich., makes leather upholstery for the automobile industry. Much of the leather preparation takes place on the second and third floors of the building, which have about 22,000 square feet of hard maple flooring. Parts of the flooring have been replaced over the years, but some is as much as 50 years old. During processing, wet hides would drip on the wood flooring. In addition to attacking the flooring, liquid would leak through to the departments below.

Heavily loaded carts with steel wheels are used to move the hides over the floors, so a flexible sealer and coating was needed to withstand the double abuse of chemical and mechanical attack. The chemicals used in processing the hides attack many coatings used

for flooring, which limited the options available.

In one area, where there is a silicone machine, the floor had become saturated with silicone. In addition, the wood had become stained and colored with the finishing materials used on the hides. Attempts had been made to put down finishes on the floor in this area, but none had held up.

On the ground floor, there is a tank holding 90% sulfuric acid and another tank holding 68% formic acid. A significant amount of spillage had taken place over the years when smaller containers were filled from these tanks. The combination of chemical attack and mechanical damage from the steel wheels on the carts caused the concrete to be badly rutted and eroded.

Eagle Ottawa generally works 2 shifts, and it

is difficult to work on the floor while production is going on. The floor repair, sealing and coating would all have to be done within a 2-week period in July 1989 while the plant was shut down.

Special epoxies do the job

The company that was awarded the contract to refinish the floors attended the National Plant Engineering and Maintenance Show in Chicago and spoke with manufacturers of floor finishes. One company had a product that appeared to have the necessary combination of high chemical resistance and moderate resilience needed for the wood floors and other highly chemical resistant products that could be used on the concrete floor.

The wood floors were first sanded thoroughly to remove the top surface and to get down to open-grain wood. A solvent-free epoxy primer was then applied and silica sand broadcast to achieve an anti-slip texture. After allowing it to dry for 3-4 hours, an epoxy sealer was applied to a dry-film thickness of about 8 mils. This sealer is resilient and has high chemical resistance.

All of the work had to be done in a 2-week period.

On the concrete floor, badly worn areas were patched with fast curing epoxy to depths of 2 to 3 inches. The sulfuric acid containment area was patched with the same material and then followed with a quarter-inch topping of highly chemical-resistant epoxy. The balance of the areas were primed and coated with a somewhat similar quarter-inch topping, with aluminum oxide added in high wear areas.

No cracking, delamination

Inspection after 1 year showed no cracking or delamination of the sealer despite slight movement of the wood floor. The sealer has held up well to the chemicals as well as providing good wear protection. Other advantages noted for the product were the absence of odor and the ability to produce a high-build coating in 1 application. Likewise, the troweled epoxy flooring has held up well to chemical attack and wear. **PS**

ICO-Primer, ICO-Sealer Top Coat, ICO-Patch, ICO-HiGuard, and ICO-Super Guard are all products of International Coatings Inc., Rosemont, Ill.

To learn more, Circle 316

The contractor for the project was Bearle's Industrial Services, Grand Haven, Mich.