

Advanced Polymer Coatings Provides Tyndall AFB with Environmental Protection

ChemLINE®
CASE STUDY

To the personnel of the Tactical Air Group at Tyndall Air Force Base in Florida, having a hanger out of commission is tantamount to being unprepared. Protecting U.S. shores against air attack is the primary reason for this tactical air group.

This base has hosted the TOP GUN Competition.



Tyndall Air Force Base with the protective ChemLine® floor coating system.



Vehicle maintenance area with ChemLine® coating.

Twenty-four hours a day, 365 days a year, the fighter jets stand primed and loaded, ready to be airborne in seconds. Personnel and equipment are trained and honed to the highest standards of their profession.

But keeping a fighter jet flying with fully armed missiles is easier for these professionals than keeping hanger floors coated and sealed, and ensuring the protection of the ground water under the base with effective secondary containment.

A Better Solution Was Needed

The officers in charge of engineering and maintenance were ready for something new after experiencing continuing failures of standard CRU urethane floor coating systems in less than 18 months. Spending \$140,000 to \$180,000 every two years to recoat the floor of a Tyndall hanger was a heavy cost to the Air Force. Floors treated with epoxy coatings and chemical-resistant urethanes failed in as little as two years. Regardless of what was tried, the coatings would flake, scale and peel. Oil had permeated the concrete and made the surfaces slippery so they were easily attacked by chemicals. Expansion joints became brittle and affected areas were hard to patch. Tyndall AFB was ready for something new.

It was decided that any new coating used had to meet the following specifications:

- Chemically resistant to Sulfuric Acid, Methylene Chloride, Alcohols, JP-5, Skydrol and a list of 40 other chemicals
- Abrasion resistant to resist steel wheel traffic
- Non-permeable to meet EPA requirements
- Electrostatic dissipative (would not build up electrical charge)
- Have a warranted service life of five years or more

ChemLine® Proves Its Mettle

APC, with its ChemLine® coating, was the only manufacturer to step forward and accept the performance guidelines of this challenge. The first test was done on the missile armament building floor where much wear and tear is evidenced by the heavy steel carts with steel wheels continuously pulled across the floor. These floors were coated with APC's ChemLine® and then exposed for the next 18 months to a grueling service of heavy impact, tremendous abrasion and chemical spillage. After this performance, the



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After two years, the ChemLine®-coated floor still looks like new.

senior base maintenance officer decided ChemLine® was the right coating system for the flooring at Tyndall AFB.

The major project then started as a crew completely removed the old floor coating by stripping and blasting with various shot-size combinations. Any cracks and loose concrete were removed and/or repaired, including filling the expansion joints with ChemLine® Caulk. All surfaces were then power washed at greater than 10,000 psig to remove all contaminants prior to coating.

ChemLine® was coated on 12 floors, covering more than 200,000 square feet of area in the base hangers, fire stations, vehicle maintenance buildings, machine shops and hobby shops. Any area where chemicals, oils or cleaning fluids were used, also was coated with ChemLine® and converted into secondary containment areas.

The largest and most difficult area was Hangar #4. This 40,000 square-foot area had an existing floor system from ¼ to ½” thick that had been subjected to a lot of oil. In addition, the old trenching system needed attention. The maintenance area required a skid-resistant finish while the specialty shops needed a surface that was smooth, clear and easy to clean. The weapons repair area required four separate applications.

APC treated each floor as a distinct customer. Not only did the floors require differing applications, but ‘each Tyndal customer’ required differing approaches to the work. So APC worked around equipment and base activities, whenever and wherever needed, such as the ‘round the clock operation of the fire station.’

Coating Application

The coating applications were done by spray, roll-on, brush and trowel as needed. Some areas required a coat of ChemLine® primer. This coating provided greater adhesion and a longer re-recoat window and was applied at a thickness of 3-5 mils. The ChemLine® primer helped fill in flooring deformities, such as pores in concrete to minimize outgassing. APC recommended that the ChemLine® coating be applied in two coats. The second was applied once the first was ‘firm to the touch’ and has just lost its tackiness. The full cure of the topcoat occurred in 5-7 days depending on the ambient temperature at the



Ultrahigh pressure wash blast at greater than 10,000 PSI does not damage ChemLine®.

base. APC used either a white or gray ChemLine® topcoat color, depending on base specification.

Tyndall AFB is now the proven leader in the military, that of a responsible citizen as well as a professional defender. It was teamwork between APC's and Tyndall's crews that accomplished the formidable task of protecting these floors without disrupting the base's primary mission. According to one base supervisor, “APC coordinated all around our 24-hour a day mission with little or no inconvenience. The effort in surface preparation was what made an outstanding finished product.”

Ongoing Success

The first floors completed over four years ago, according to the officer in charge “are performing above and beyond.” After two years of the most damaging service, problems have been almost non-existent. ChemLine® solved the problems of peeling and flaking, cracking and the need for constant repair. The 200,000 square feet of ChemLine®-treated floors have lived up to the promise. One supervisor adds, “The wear and tear problems have gone away and the use of metal tools, hoses, and equipment have had no effect on the floor. The skid-resistance surface is the best I have seen in 23 years.”