ZIRCONIA™
Ending Concrete Corrosion

CeramycGuard
Project **Spotlight**

CeramycGuard Data Center Coating Projects

Zirconia has completed four data center projects using CeramycGuard coating technology; successfully repairing, sealing, and protecting concrete near high-voltage transformers and electrical equipment.

Challenge 1:
In Silicon Valley, a warehouse facility had been converted to a data center. The second-floor contained air conditioning units located directly above data center servers on the first floor. The second-floor concrete deck had been poorly installed, resulting in extensive concrete shrinkage cracking. Water leakage from the air conditioning units threatened the server units below.

Solution:
The second-floor concrete deck was ground to a CSP of 3, and pressure washed. Then all shrinkage cracks were filled with CeramycGuard. The following day, the overfilled cracks were ground flat, and the deck was autoscrubed clean of dust. The entire concrete deck was then coated with CeramycGuard, chemically bonding with the concrete. After 24 hours of curing a light flood coat of Zirconia's integral water-based silicone, QuartzSeal, was applied and allowed to cure for 24 hours. The next day a "ponding test" was performed by filling a contained area on the second floor with water (yes, over the servers). No moisture penetrated the repaired and coated concrete deck, successfully protecting the server assets below, and providing a durable solution to the data center.

Challenge 2:
In three new massive data center facilities on the Columbia River in Central Oregon, Zirconia was asked to seal and preserve concrete structure located near transformers and other critical electrical equipment. Large 750,000 volt lines emanating from hydroelectric dams entered directly into the data centers. The concrete structures in each data center were located near louvered walls, allowing moisture and extreme temperature swings into the areas.

Solution:
Because CeramycGuard forms a chemical bond with the concrete naturally, surface preparation for newly placed concrete does not require extensive grinding. The new concrete deck was lightly troweled flat (with a bull float), then left open and porous. The CeramycGuard was then applied over the concrete at an 8-mil thickness and allowed to cure for 24 hours. A light flood coat of QuartzSeal was put down to add a hydrophobicity and ease of cleaning to the concrete deck.

Zirconia's coating system is immune to ultra-violet light, hot and cold temperature swings, providing protection from the elements. Additionally, CeramycGuard is an insulator that is not conductive or combustible and cannot be harmed by electrical arching from transformers.

This coating system was used effectively for the electrical mezzanines, and saved the asset owner hundreds of thousands of dollars in surface preparation costs. These savings were driven by the ability of CG system to chemically bond into the concrete vs. needing a mechanical bond.

Finally, using an epoxy with multiple layers of floor coating, would have flooded the working areas of the facilities with toxic volatile chemicals. The CeramycGuard system has no VOC's and does not require engineering controls or OSHA precautions for workers. Zirconia provided a more durable solution in a more cost effective and timely manner, without environmental emissions.