



*Case Study From Lythic Solutions
Booth #S13007*

Utility Saves Money and Improves Protection With Lythic™ SPD Protector

LEED Gold Project Gets Durable Exposed Concrete Floor That Stands Up to Tough Treatment

The new Operations Center of the Eugene Water & Electric Board (EWEB), Eugene OR, has 50,000 square feet of bright, glossy exposed concrete floor in its offices, common areas, and even its oil-and-grease prone vehicle service bays and workshops. The shine was achieved without diamond grinding, using a revolutionary new stain-protector product, Lythic™ SPD Protector.

Under the contract, the center had to be a LEED Gold project. The owner wanted an exposed concrete floor that is durable, resists staining, and has an attractive, glossy appearance. It was originally specified for hardening using a magnesiumfluorosilicate hardener. However, it was feared that the extensive water-flushing needed by this product would allow the chemicals to contaminate the building's eco-friendly septic system, where they could damage the bacteriological process used to break down human waste and stop the system from functioning.

Instead, the contractor suggested densifying with more eco-friendly Lythic™ Densifier, which does not require flushing, and then adding both protection and gloss using Lythic SPD Protector.

Lythic SPD raises the bar on protecting slab surfaces from acidic etching agents and staining substances that can damage concrete's appearance. Most stain protectors are only designed to delay damage for a short period, perhaps an hour, to allow cleanup before the stain protection fails. Lythic SPD has been laboratory tested to resist etching by muriatic acid and staining by oil for a full 24 hours of exposure. Moreover, it is guaranteed not to peel. Yet, the product does not feel like a coating. It is clear, breathable, and thin enough to maintain a real concrete look and feel.

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The concrete floor of the new Operations Center of the Eugene Water & Electric Board (EWEB) is exposed concrete, protected against staining and etching by Lythic SPD Protector, formulated with colloidal silica for extra toughness.

The troweled floor of the Operations Center was not polished or even ground, only cleaned with sanding screens. It was then densified with Lythic Densifier with colloidal silica, which bonds virtually pure silica to the slab. This forms an ideal “landing pad” for SPD – Silica Polymer Dispersion – a two-part polymer that contains a high concentration of nano-sized colloidal silica – twice as much silica as the densifier, in fact. Since colloidal silica readily bonds to itself, Lythic Densifier and Lythic SPD have a mutually reinforcing property.

The combination of silica and polymers in SPD appear to have a “best of both worlds” effect. The silica makes the polymer tougher, better adhering to concrete, and more shinnable, while the polymer protects the surface against liquid intrusion in a way that silica alone cannot.

SPD was rolled on at a thickness of approximately 1-1.5mils. It is self-leveling surface and resists most streaking; any unevenness disappears during burnishing.

After allowing it to cure a minimum of twelve hours, the SPD surface was burnished with a high-speed floor burnisher and a fine diamond pad - 1500-grit or 3000-grit - to achieve gloss. (A hogshair pad can also be used.) The resulting finish has good reflectivity and a slightly wet look. It can be re-burnished with a



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diamond impregnated pad to restore gloss after approximately two years of heavy foot traffic.

After finishing, the floor was used to store materials for the shop. Residues accumulated, and the floor became slippery. The GC requested a finish with more slip-resistance, so it was re-burnished with a medium-grit diamond pad. It was thought that this treatment might dull the appearance, but it actually improved both gloss and traction, proving the toughness of the treatment.

To protect this floor with an epoxy system would have cost \$4-5 per square foot, a cost that was unacceptable to the owner. Protection with Lythic SPD Protector cost \$0.70 per square foot.



Floors in EWEB's shops and service bays are exposed to tough conditions that could include acidic or corrosive liquids, a variety of solvents, and oil and grease-based materials. Lythic SPD protector keeps the concrete from being damaged, and provides a surface that is easy to maintain and has good traction.

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About Lythic Solutions: Lythic Solutions, Inc. (www.lythic.net) is a concrete technology company formed by veteran concrete polishing professionals. The



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company is dedicated to bringing to market advanced products for concrete polishing and other concrete finishing applications.

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