

Video Documentation Reveals Rusty Welds Early Fix Saves \$100,000+ in Repairs

Project Owner: *University of California,
San Francisco, CA*

Project: *Construct a solar canopy with 500 solar panels onto roof of 8-story parking structure and an array with 750 solar panels on the roof of the 4-story Genentech Hall parking structure.*

Cost of video: \$2,400

Time saved: 1 month+

Money saved: \$100,000-250,000

The UCSF parking structure and Genentech Hall classroom building are located just ¼ mile from San Francisco Bay. Due to exposure to salt air, there are special considerations for welding there. Higher cost galvanized weld rods were specified for all joints on the tube steel frames that hold the solar panel array.

This 'galvanized' specification was discussed and incorporated into the steel subcontract. However, field video of the actual welding taking place showed a steel worker using a regular non-galvanized welding rod. The project manager made a note to inspect the welds closely at the next site visit.

By that time, the welds had been painted over. But because of what he had seen on video, the project manager got down on his hands and knees to take a closer look. He saw a few areas where the paint was already flaking away, a sure sign of incipient rust.

By the time paint starts peeling, rust has permeated the welds and penetrated the steel. The welds, which are critical for seismic support, must be replaced.



Any rusted steel has to be cut out.

If rust penetration is shallow, the steel can be patched with welding material inexpensively. But if penetration is deeper, entire sections of steel would have to be cut out and replaced with new steel. Depending on the extent of the damage, repairs could cost anywhere from \$100-250,000.

Further inspection and questioning revealed that non-galvanized welding had been used everywhere. Video was used to document all of the bad welds, hold the subcontractor accountable and bring the crew back for repairs.

The entire repair was then videotaped to document compliance.

The refit process was completed in one day. Had the rust not been caught early, the project manager estimates repairs would have taken about a month and cost \$100,000 minimum.



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