

ATTACHING STEEL PLATFORM TO CONCRETE ROOF USING BELZONA 4111/4911

ID: 10241



PROBLEM

AT&T needed to install a new rooftop steel platform at a hotel in Redmond, Washington to support 5G cellular antenna equipment. During pre-installation planning, a review of the structural drawings combined with a ground-penetrating scan of the roof slab revealed a dense network of post-tension cables, electrical conduit, and reinforcing steel running directly beneath proposed anchor location. Drilling mechanical anchors through the slab presented risk of striking a post-tension tendon, which would have compromised the structural integrity of the occupied hotel below and triggered costly emergency repairs. Without a reliable attachment method, the installation faced redesign, relocation, or outright cancellation at this site.

APPLICATION SITUATION

Belzona Technology Northwest worked directly with the installing contractor to engineer a cold bond solution that would secure five carbon steel leg plates to the concrete roof deck. Because the hotel remained fully occupied throughout the project, hot work, welding, and high-noise percussive tooling were not viable options, and any disruption to hotel guests had to be minimized. Traditional mechanical anchoring had already been ruled out by the scan findings, and a full structural redesign of the platform would have delayed the network activation schedule, required additional engineering review, and significantly increased the overall project cost. Cold bonding with Belzona 4111 (Magma-Quartz) and Belzona 4911 (Magma TX Conditioner) offered a permanent, load-bearing attachment that preserved the integrity of the slab, kept the contractor on the original platform footprint, and allowed the work to proceed without impacting building operations.

APPLICATION METHOD

The application was carried out April 2026 under clear, sunny conditions at approximately 70°F, well within the recommended temperature window for the Belzona 4000 series product line. Each concrete bonding footprint was mechanically prepared using a needle gun and scabber to remove surface laitance, expose clean aggregate, and establish an open, profiled surface suitable for adhesion. The carbon steel leg plates were prepared to SSPC-SP 11 (Power Tool Cleaning to Bare Metal) to provide a clean, roughened bonding surface free of contaminants. Belzona 4911 (Magma TX Conditioner) was then applied to both the prepared concrete and the prepared steel as a bonding primer to penetrate the substrates and maximize adhesion of the paste grade material. Belzona 4111 (Magma-Quartz) was mixed and trowel applied to form the structural bond line between each leg plate and the roof slab, with the plates bedded and aligned into the wet paste to achieve full contact. All work was performed in accordance with Belzona's Instructions for Use (IFU's). Total hands-on application time for all five leg plates was approximately four hours, and the assembly was left undisturbed for a two-day cure before the steel platform was loaded.

BELZONA FACTS

The defining success of this project was the ability to structurally attach a steel platform to a post-tensioned concrete roof while preserving the integrity of the slab and the safety of the occupied hotel below. Belzona 4111 and Belzona 4911 allowed the contractor to avoid a costly redesign and re-engineering cycle, keep the installation on its original footprint, and return the assembly to service after only a two-day cure. The cold bond approach eliminated hot work, noise, and vibration in a live hospitality environment, and delivered a permanent, load-bearing solution that kept the 5G activation schedule on track.

INDUSTRY

Buildings & Structures

LOCATION

Seattle Area

APPLICATION DATE

April 2026

PRODUCTS

Belzona 4111 (Magma-Quartz)
Belzona 4911 (Magma TX Conditioner)

SUBSTRATE

Concrete

PHOTOS

1. Roof surface showing interference inside roof slab
2. Surface Prep
3. Applying Belzona 4911 Surface Conditioner
4. Final Application with 1/4" of Belzona 4111

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