CASE STUDY

IMPROVING THE LOAD BEARING CAPACITY OF A MULTI STORY COMMERCIAL BUILDING

Site Profile
In the centre of Sydney stands a prominent commercial 4-story building built in 1915. The bottom floor has classrooms, and the upper floors have offices.

Figure 1. The Resinject Rigs outside the commercial 4-story building

The Situation
In 2022, tenants began reporting cracks in the walls on various floors, especially around door frames and windows. An investigation by a Structural Engineering firm suggested these issues were symptoms of subsidence. A glass panel on the fourth story collapsed because of subsidence. Following this, the project was classified as a structural emergency. The firm chose Resinject to rectify the issue.

Our Solution
Resinject proposed a tailored deep penetration solution to stabilise the foundations and minimise future risk of settlement. The injection points for this treatment were targeted at three varying depths to create piers providing strength and support for the overlaying foundations. In a process similar to keyhole surgery, Resinject's operators drilled injection points before injecting the RSJ170 expanding polyurethane resin mix through very small tubes. The liquid mix rapidly expands and solidifies which strengthens the ground and consolidates the surrounding earth. The project was completed over the weekend to ensure no disruption to the daily operations.


Figure 2. A Resinject operator completing the resin injection methodology.

After completing the proposed tailored injection solution, Resinject successfully re-supported the foundations and significantly improved load-bearing capacity from 50KPA to 400KPA – verified by prior and post-injection geotechnical testing as planned. Resinject and the Structural Engineering firm partnered to secure a cost-effective solution. The solution stabilized the foundation, prevented additional damage, and promptly addressed subsidence concerns, ensuring immediate safety.

"Resinject's attention to detail, advanced technologies, and commitment to safety were remarkable. The project was executed seamlessly, demonstrating significant improvement in foundation stability. I highly recommend Resinject for any underpinning needs" C.P, Structural Engineer.