

Captain Robert Falcon Scott Statue

Repair Project Update

When a 6.3-magnitude earthquake shook Christchurch on February 22, 2011, the city lost many of its heritage buildings and many heritage bridges and monuments were damaged.

Among the casualties was the statue of British Antarctic explorer, Captain Robert Falcon Scott.

The statue had stood on its plinth in Oxford Terrace for nearly 100 years.

It was sculpted by Scott's widow, Kathleen Scott, to commemorate his achievements and serves as a memorial to Scott and the men who died with him on the return journey from the South Pole in 1912.

When the 2.5-tonne statue fell, it snapped in an uneven break at its weakest point, the ankles.

This, and the fragility of marble, presented the conservation and repair team with a significant challenge.

The team, including a structural engineer, a conservator and a sculptor, has carried out extensive research to determine an approach that meets best practice for conservation and engineering.

It was decided that the best method would be to thread carbon fibre rods through the legs and down into the plinth, and to install a form of base isolation in the plinth. This will strengthen the statue and make it more resilient in the event of another large earthquake.

To minimise the risk of causing further damage to the statue, this strategy needed to be tested.



Sculptor Mark Whyte uses a plaster cast he made of one of the statue's legs and carefully copies the exact angles of the break to carve a marble replica to test the repair method on.





Sculptor Mark Whyte drills holes down into the replica marble leg for the carbon fibre rods that will strengthen the structure.

The sculptor carved a replica of one of the broken legs, copying the exact angles of the break.

The two replica pieces were then joined together, using the carbon fibre rods and a special epoxy glue.

Once this set, specialist engineers were engaged to put the repair through rigorous testing.

The replica leg was rocked back and forth on its base under an incrementally increasing loading. The design target was to withstand a 1.5-tonne load and this was achieved with only minor cracking in the structure.

That load correlates to a 1 in 1000-year earthquake event, and with the added protection of base isolation in the plinth, the engineers say cracking would not occur and the statue will be able to withstand a 1 in 2500-year earthquake event.

The replica was then tested further, to establish its breaking point. It collapsed only when it got to a 3.9-tonne loading, which equates approximately to a 1 in 2500-year earthquake



Engineers check the replica leg for cracking during the load testing process.

event, which would extend further with the base isolation in the plinth.

The project team was delighted to see the repair strategy hold up under extreme pressure.

Having achieved this significant milestone, the team is now preparing for work to begin on the statue itself.

A Resource Consent application has been lodged, and once this is approved, the statue will be moved out of storage, lifted and lowered head-first into a specially constructed frame. Inside the frame the statue will be held in place with sand. The legs will protrude from the top so that the work can be done.

It is important to note that while everything possible has been done to test the repair strategy, it is possible the statue's marble will behave differently to that which was tested. Should the repair not go according to plan, work will halt, and the team will consult further with stakeholders.

All going well, Captain Scott will be back on his plinth in September and ready to be unveiled in early October, just as the 2017 Antarctic Season gets underway.

