



# SIKA AT WORK

## CHRISTCHURCH ARTS CENTRE, CHRISTCHURCH, NZ.

REAL LIFE TEST FOR SIKA STRUCTURAL STRENGTHENING SYSTEMS IN  
CHRISTCHURCH EARTHQUAKES

BUILDING TRUST



# CHRISTCHURCH ARTS CENTRE



BBR Contech applied SikaWrap-100G fabric seismic strengthening to the historic Arts Centre buildings in Christchurch prior to the devastating earthquakes of 2010 and 2011.



Client: The Arts Centre of Canterbury Trust · Engineer: Holmes Consulting Group · Contractor: Fletcher Construction Company · Specialist Contractor: BBR Contech

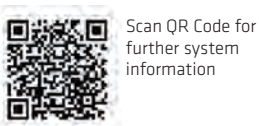
## PRE-EARTHQUAKE STRENGTHENING OF THE CHRISTCHURCH ARTS CENTRE

In September 2010 and February 2011, the Christchurch Arts Centre was subjected to significant real-life testing under extreme seismic loads.

- The building areas that had been strengthened by BBR Contech using Sika structural strengthening systems performed very well and to expectations.
- The former Arts School was one of the few heritage buildings on the site to suffer only minimal damage.

Sika's fibre-reinforced polymer (FRP) technology offers a number of significant advantages in seismic restoration projects. Lightweight and with thicknesses of just 0.5mm to 1.5mm, it's easy to apply while offering an impressive strength-to-weight ratio. It's also corrosion resistant and can be covered with a variety of plaster finishes and coatings – ideal when you're trying to achieve a close-to-original finish.

"Because the Christchurch Arts School is an historic building, we were required to remove then replace the original wall linings," says John Hare, Director of Holmes Consulting. "Using FRP with an applied thickness of just 3mm enabled us to do this with little impact on the existing linings."



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After some rebuilding of the underlying original volcanic basalt stone walls, BBR Contech applied about 200m<sup>2</sup> of SikaWrap Unidirectional glass fibre fabric. The internal linings were then reinstated to return the rooms to near original condition, with no visible sign of the restoration work beneath.

"FRP is proving an excellent alternative to concrete in projects like this," says John Hare. "Its light weight means there's no need for additional foundation work, and it also offers strength without too much stiffness. Plus its application can be targeted – it only needs to be applied to the weak points where it's needed – so it's often more cost effective too."

## NEW ZEALAND'S SEISMIC STRENGTHENING CHALLENGE

(ex NZ Herald articles – "Special reports" Feb – March 14 2013)

- NZ has 15,000 to 25,000 earthquake prone buildings
- 8% to 15% of building stock is earthquake prone
- Most were built between 1880 and 1935
- Government proposing tough new strengthening regime
- Government wants 193,000 major structures assessed by 2018
- Affordability is a huge issue for building owners



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