

Spanbild case study: Christchurch Stadium Project

A NEW HOME FOR CANTERBURY RUGBY



Project: \$20 million temporary stadium to seat 17,000

Key deliverable: 100 day project, using quality, affordable structures with reusable/moveable elements

Spanbild Projects involvement:

Purpose-designed VIP modules, players' facility centre, ablution amenity units, and match operations modules

Success measures: Created and delivered new, unique designs; demonstrated range of capabilities and innovative responses to design challenges; achieved all project requirements on budget, in well under 100 day time limit

Hailed by Canterbury Earthquake Recovery Minister Gerry Brownlee as a project that sends a strong signal that Canterbury is open for business, the new Christchurch Rugby Stadium is also a comprehensive demonstration of the capabilities of a wide range of Canterbury-based businesses.

Built in less than 100 days, the 17,000 seat, \$20 million temporary stadium was a highly public showcase of the approach that will be crucial to the city's rebuild campaign: combining a team of dynamic and adaptable companies, using a variety of new techniques and even repurposed materials to deliver a fast and cost effective solution for the community.

Spanbild Projects general manager Tim Blake says the company is extremely proud to have played a role in the development of the stadium. Despite facing a wide range of challenges – and some extremely long days – in order to achieve an incredibly pressured deadline, Tim says the project brought the company's entire team together, combining their diverse capabilities to deliver some unique solutions.

"There are few projects that could better highlight what is possible in Canterbury with the right team and the right approach. And there would be few prouder moments for the entire company when the Crusaders first ran out onto the pitch in front of a capacity crowd of happy Cantabrians."

"I'd say Spanbild's work was absolutely impeccable. We couldn't have wished for a better outcome. It really was a stellar performance."

Daryl Maguire, Associate Principal, Populous

Case study

Selection for the team

After the Government announced it would be underwriting a new stadium for Canterbury rugby to replace the earthquake damaged AMI stadium in late 2011, project managers RCP appointed Hawkins Construction as main contractors for the construction.



A locally owned company, Hawkins has significant experience in stadium building, including the recently-completed Forsyth Barr Stadium in Dunedin. The project team also included Populous, an international architecture collective specialising in designing stadiums and arenas, whose team had also been involved in the redevelopment of Auckland's Eden Park and Wellington's Westpac Stadium.

Facing a wide range of unique requirements for the project, Hawkins was well aware of the key capabilities of the Spanbild group of companies, which includes leading nationwide brands Totalspan, Versatile and Portabuild. Hawkins and Spanbild had already collaborated on a number of projects in response to the Christchurch earthquakes, including a 250 home emergency housing project for the Department of Building and Housing.

Initially calling on Spanbild to provide the Stadium's players' facility and ablution units - utilising the company's proven experience in modular portable building design and construction, the project team also needed a company to step in at late notice to design and develop the VIP lounges after another supplier's factory was damaged by an aftershock.

“That’s where Spanbild really saved the day,” says Daryl Maguire, associate principal of project architects Populous. “Without them, we wouldn’t have had a VIP area for the stadium. And although the team had to work many hours to make it possible, they had a real ‘can-do’ attitude. They made it happen.”

ACCOMMODATING THE BEST IN THE GAME

The 650m² players' and match operations centre was a key aspect of the stadium design. Housing some of the game's best players and visiting international stars, the temporary structure needed to be cost effective - and ultimately portable - while still projecting the quality and attention to detail the Crusaders and All Blacks demand when hosting players, staff and media.

An adaptation of a Versatile wooden frame design was selected for the building. This boasted a unique roofing structure to accommodate a longer angled roofline to reflect the overall stadium aesthetic.

But before the building could be constructed, a purpose-built foundation had to be developed to meet a high earthquake specification and protect the structure against the affects of liquefaction. With little definitive information yet available on the new earthquake code, the Spanbild design team created another first - a raft structure layered on an extensively prepared sub-surface, giving the whole building strength and support.

The design - now one recognised in the latest earthquake building standards - enabled the company to provide an easy maintenance solution for the building's subfloor surfaces.

“The player’s facility required a lot of to-and-fro with a new design paradigm needed in the foundation, and a building that had to be exceptionally strong while still in keeping with the quality we wanted for the whole stadium.”

“The schedule meant that this was a project right on the limit - but Spanbild made sure it was on time,” says Daryl Maguire.



The Design Challenge

With the clock already ticking on the project's 100 day timeline, Spanbild's in-house engineering design team were given a unique challenge: to design and manage the fabrication of the stadium's VIP lounges from a few concept drawings.



Compounding the already testing programme was a wide range of distinct specifications - from earthquake and capacity ratings, to the requirement for the individual units to be built entirely offsite and craned into place.

Spanbild lead designer Andrew Horton says the company's ability to draw from experience across the Group's business units, while working in concert with a team of up to eight designers from a number of partner organisations, meant that Spanbild's design team could rise to the at-times daunting challenge.

At every stage, Spanbild was able to employ a combination of techniques developed for other building projects, or design, test and fabricate prototypes in the company's Christchurch factory. Spanbild's recent investment in a new steel roll forming unit also paid dividends, allowing the design team to work with the company's engineers and technicians to manufacture unique structures to precise specifications.

Although the pace of the programme meant designs were often being immediately built, leaving little room for error, Andrew says the peer review process developed with BECA was crucial to the project. "Having a team with a reputation like BECA review our work and come back with no changes to the designs was a great endorsement of our work."

"That really sped up the process," says RCP senior project manager Ant Beale. "None of Spanbild's designs failed the testing process, and once we'd established their performance it gave us a great deal of confidence in managing the tight deadlines."

Despite having to incorporate last-minute changes to specifications - including reinstalling new fire-rated walls at the rear of the lounges - and create entirely new solutions to manage the demands of the stadium design, such as metal sheet framing to accommodate wind loading on the narrow ablution blocks, the project was completed on time and to a highly successful specification.

"From a delivery point of view, the Spanbild team was excellent," says Daryl Maguire. "The quality of the corporate boxes was far higher than anyone was expecting. They really did an amazing job!"

Despite being temporary, Ant Beale believes the lounges match the standard of any corporate entertainment area in New Zealand.

"We've had numerous dignitaries and guests tell us that these are the best VIP lounges in New Zealand."

PORTABLE FUNCTIONALITY

Although not enjoying the same profile as the players' facility and the corporate lounges, Spanbild's portable range was an integral piece of the Stadium planning. Providing a ready-made design solution to accommodate the needs of up to 25,000 fans, the Portabuild amenities format offered the ideal structure for the stadium's ablution blocks.

A number of the highly adaptable structures were also fitted-out as support and match operations buildings, using an office format which has been widely used in Canterbury following the earthquakes.

Eighteen of the Portabuild units were constructed for the project, and transported into place around the temporary stands.



Spanbild projects – DESIGN, MANUFACTURE, BUILD



“In taking on this project, we knew we would have to focus every one of our core capabilities on delivering the right results for the Canterbury community,” says Tim Blake. “We also wanted to play to the strengths of our partnerships, working with Hawkins Construction on the building of several of the project elements, while partnering closely with project architects Populous, project managers RCP, and experts like BECA.”

“This unique project really showcases what Spanbild Projects – a rapidly developing arm of the Spanbild business – can achieve utilising the wide-ranging strengths of the whole company, while working alongside key partners in the Canterbury rebuild.”

“This is a great example of how Spanbild can provide a scalable, tailored solution to any project – regardless of size, complexity or timeline.”

“And for a proud Canterbury-based company like Spanbild, there could be little greater satisfaction than being in those stands to cheer on the Crusaders when the first whistle blew at the new home of Canterbury rugby – a project that stands as a shining example of what the region can achieve on the road to recovery.”

AN ONGOING DEVELOPMENT

After the successful launch of the new stadium, which has been endorsed by players and fans alike, Spanbild’s involvement in the project continued with the development and installation of canopies for the four food and beverage outlet locations. The steel framed design is another bespoke addition to Spanbild’s Stadium programme. Each steel support has been precisely manufactured to ensure a high quality finish, and placement of each is tailored to existing structures and sub-surface services developed in the Stadium build.

“The public hospitality area is just another aspect of the entertainment experience the Stadium provides,” says Tim Blake, “and one we were very happy to help with in order to put the finishing touches on a fantastic resource.”

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