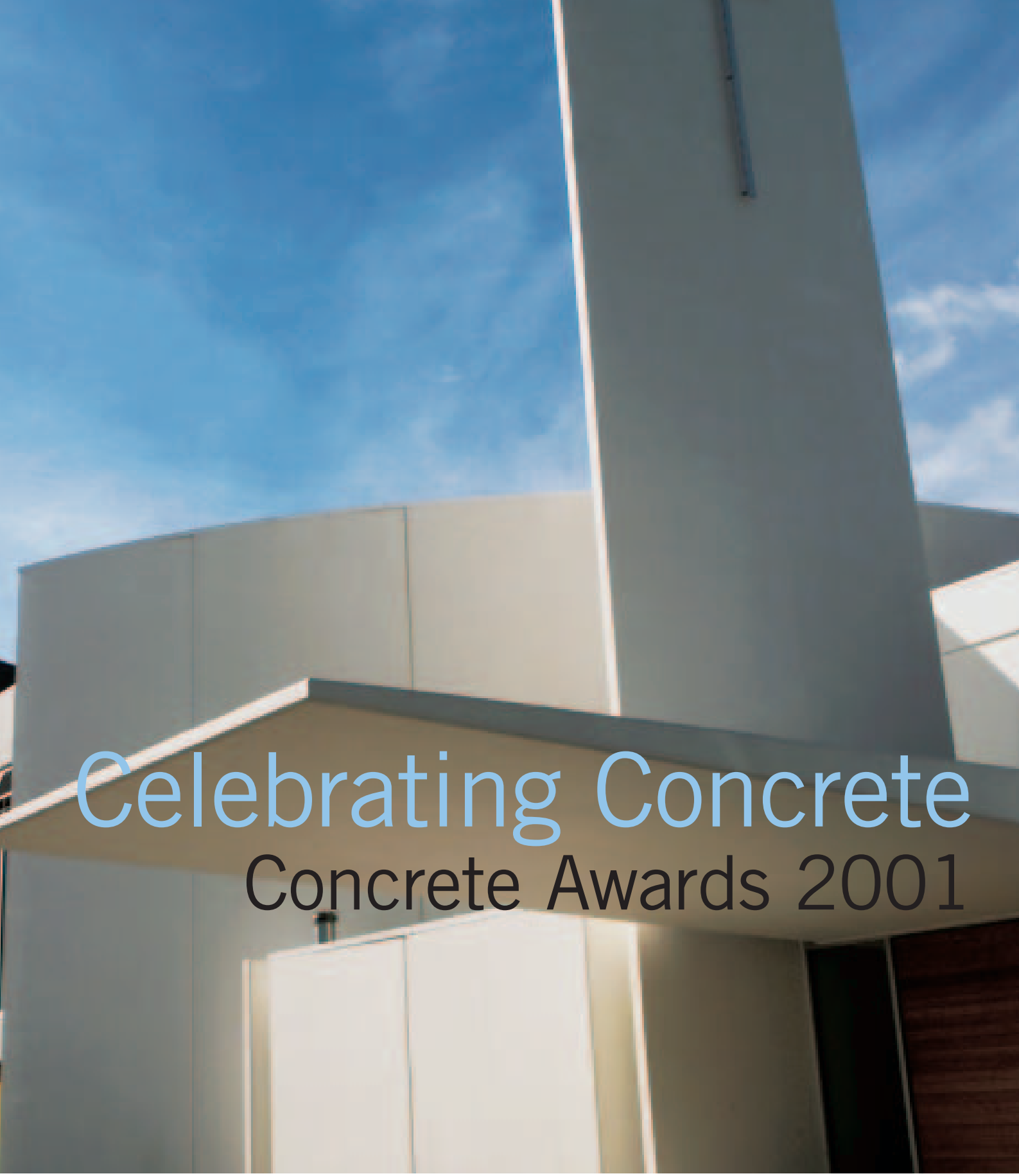


Celebrating Concrete

Concrete Awards 2001

Architect:
Architecture Warren & Mahoney

Consulting Engineer:
Structure Design

Contractor:
Hawkins Construction

Subcontractor:
Construction Techniques Ltd
Stevenson Precast Systems
Busck Prestressed Concrete

Somervell Presbyterian Church, Remuera, Auckland

Winner: The Concrete Award
Winner: The Monte Craven Architectural Concrete Award

Submitted by Hawkins Construction Ltd

Architectural form and engineering function combine in a wonderful celebration of the materiality of concrete in the Somervell Presbyterian Church on Remuera Road. The client's brief – to design a modern, striking, low-maintenance, affordable building – has been superbly met. Concrete was chosen for the building because it proved to be more economical than other systems investigated. Additionally, the use of precast concrete provided a high-quality finish that eliminated the need for plastering. Above all the cantilevered spire and canopy entrance make a strong statement on the architectural capacity of concrete.

The Concrete Award

Judges' Comment

This building is constructed almost entirely of tall, thin precast panels; supporting timber and precast concrete flooring and a light steel roof structure and cladding. The two remarkable features of the building:

1. a striking 16.5-metre spire cantilevered from ground level and consisting of cast in-situ concrete to the first level from piles and a ground beam, and a precast top portion
2. a cast in-situ, post-tensioned concrete canopy cantilevered over the main entrance.

The building represents concrete used in a manner that combines the best of concrete technology and materials to achieve demanding design criteria. In spite of its seemingly delicate appearance, concrete has been used to provide an affordable, low-maintenance structure. The innovative use of traditional construction systems and materials has resulted in a superb example of the use of concrete to create a structure that succeeds in terms of architectural form and engineering function while fulfilling the client's expectations.

The Monte Craven Architectural Concrete Award

Judges' Comment

The judges considered this structure of considerable merit architecturally. The demands for elegance and superior surface finish (both in texture and flatness) to the prominent spire and entrance canopy are very challenging as they are designed to be the features that are most memorable. These features, executed in concrete, also demanded very exacting tolerances for trouble-free fabrication and long-term durability.

The structure has an inspirational and spiritual impact in architectural forms which are timeless in clean, crisp attractiveness and popularity. The building fulfils all definitions of what the Award is designed to reward. It is a fine example of concrete manifesting itself gently and with finesse.

Otira Viaduct, Arthur's Pass, State Highway 73

Winner: The Prestressed Concrete Award

Submitted by Beca Carter Hollings and Ferner Ltd

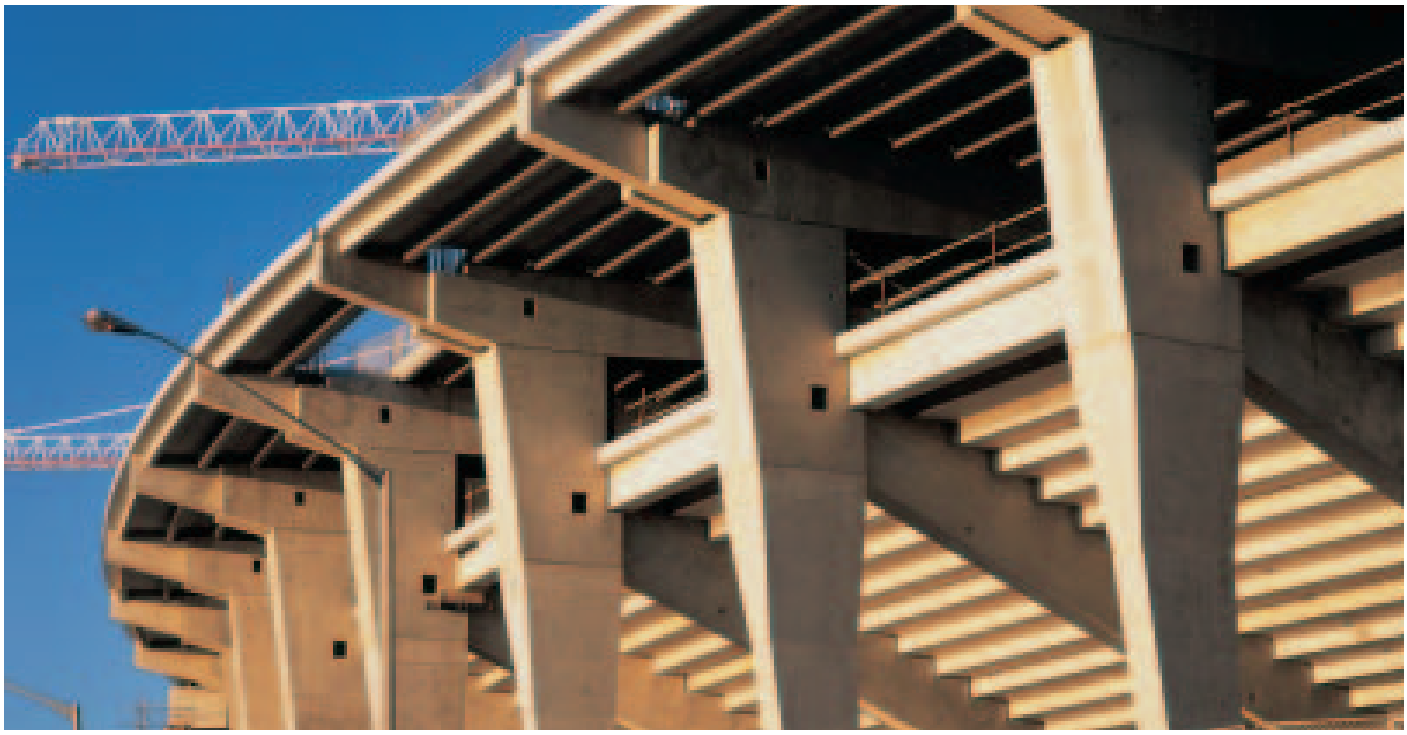
Set in majestic mountains high in Arthur's Pass National Park, the Otira Viaduct is a 445-metre-long prestressed concrete box girder bridge. Constructed to bypass an actively eroding mountainside which threatened to cut the main highway between Christchurch and the West Coast, the Viaduct has been hailed for its minimisation of conservation and environmental impacts.

Client:
Transit New Zealand
Contractor:
McConnell Smith Ltd
Subcontractor:
Williams Allied Concrete

Judges' Comment

Of prime interest is the structure's superstructure – an elegant, sweeping structure neatly fitting into an environmentally sensitive location and consisting of a balanced cantilevered continuous box girder. The bridge consists of four spans, with the centre span of 134 metres making it the longest span concrete structure in New Zealand. This structure incorporated the use of external prestress tendons, the first known use for a new bridge in New Zealand. These full-length strand cables were provided to control midspan stresses in the structure.

Special precautions were taken to control deflections. These included monitoring of concrete density and the use of additional prestress to achieve accurate load balancing.



WestpacTrust Stadium, Waterloo Quay, Wellington

Concrete Award Commendation

Submitted by Stresscrete Ltd

Wellington's WestpacTrust Stadium continues to win awards but the entry in the Concrete Award draws attention to the materials used in its construction rather than the design. Stresscrete says this was the first major structure to be built in New Zealand with lightweight aggregate concrete. This lightweight concrete was used for all the precast components in the main Stadium bowl. Situated close to active earthquake fault lines, the Stadium required an innovative seismic damping system – a density of 1850 kilograms per cubic metre reduced the seismic load.

Judges' Comment

At their discretion the judges under the Rules of the New Zealand Concrete Society Concrete Awards permit any entry to receive a Commendation.

The judges were especially impressed by the use of lightweight concrete in this structure. The successful execution of the structure in concrete required a lightweight concrete to be used. The subsequent savings in foundation cost and complexity, the reduction in seismic loading, reduced transport and craneage costs, fewer joints, longer spans, and the creation of greater space by reducing the number of supports were all direct consequences of using lightweight concrete.

The judges considered that the use of lightweight concrete in itself was of considerable benefit but the significance of introducing a new concrete type to New Zealand, supporting it with appropriate advocacy and demonstrating its merits in a major structure, was also meritorious and advanced the understanding of concrete technology in New Zealand.

Architect:
Architecture Warren & Mahoney in association with Bligh Lobb, Brisbane
Consulting Engineer:
Holmes Consulting Group
Contractor:
Fletcher Construction Company

Concrete Awards – Promoting Concrete

The Concrete Society has established the Concrete Awards to increase knowledge and understanding of all aspects of the use of concrete. A secondary objective is to support the development and use of concrete in a manner that is appropriate to the natural and social environment and the needs of society. Judges are looking for innovation and excellence in design and construction. All types of projects are eligible for the Awards and winners have ranged from buildings to bridges to a ferrocement water tank.

The jury for the Concrete Awards 2001 comprised:

Graham Rowe	Convenor, BRANZ
Alex Gray	Representing the New Zealand Concrete Society
Chris Munn	Representing the Cement & Concrete Association of New Zealand
Tim Nees	Representing the New Zealand Institute of Architects
Arthur Park	Representing the Institution of Professional Engineers of New Zealand

Other Entries

Horotiu Bridge Replacement

Submitted by Wilson Precast Construction Ltd

Wilson Precast manufactured all the precast components for the new single-span, concrete arch Horotiu Bridge over the Waikato River. It provided the main arches, starter arches, hangers and other associated components. This is believed to be the first time in New Zealand a precast arch bridge with a span of 70 metres (with the overall length of each arch section being 73 metres) has been designed and manufactured in precast concrete.

Consulting Engineer:
Opus International Consultants
Owner:
Waikato District Council
Client:
Downer Construction
Engineer:
Opus International
Contractor:
Wilson Precast Construction

Kidz First Middlemore Hospital

Submitted by W Stevenson & Sons

Stevensons' architectural masonry and paving products have played a major part in the changes at Middlemore Hospital, providing feature walls, exterior wall cladding and external paving at Kidz First.

Client:
South Auckland Health
Architect:
Chow Hill Architects
Engineer:
Holmes Consulting Group
Project Manager:
Carson Group
Contractor:
Hawkins Construction
Subcontractor:
Masonry: Bill Grace
Paving: Auckland Paving Services

The Gate Distribution Centre

Submitted by W Stevenson & Sons

50,000 square metres of Stevensons' 80-millimetre Unilock concrete paver provided a tough, durable, flexible and low-maintenance solution for this new distribution centre in Onehunga, where heavy trucks and containers place repetitive loads on the traffic areas.

Client:
Penrose Logistics Centre Ltd
Architect:
Davies Associates
Engineer:
McGuigan Syme Chilcott
Contractor:
Haydn & Rollet Construction
Subcontractor:
McKenzie Parma
Mirage Paving NZ, Executive Paving

Carter Holt Harvey Laminated Veneer Lumber (LVL) Plant

Submitted by W Stevenson & Sons

Stevensons played its part in the development of this new high-tech facility, with the supply of specially developed concrete paving to help form the log storage area at Carter Holt Harvey's new $132 million wood processing plant at Marsden Point. The 120-millimetre high-performance paver exceeds the New Zealand Standard.

Client:
Carter Holt Harvey
Engineer:
Meritec
Contractor:
Mainzeal Construction
Subcontractor:
Mirage Paving NZ

State Highway 73 – Candys Bend to Starvation Point

Submitted by Opus International Consultants (Consulting Engineer)

This 850-metre highway improvement project in Arthur's Pass National Park required significant structures to deflect rock falls and to widen the road to two lanes. The innovative solutions developed to meet the challenges of the extremely complex and challenging alpine site included: a rock chute to carry waterfall and rock debris over the new highway; a passing bay rock shelter; an 88-metre length of cantilevered half bridge; and a 48-metre propped half bridge.

Client:
Transit New Zealand
Landscape Architect:
Earl H Bennett
Subcontractor:
Fulton Hogan Civil Precast
The Pipe Company
Construction Techniques Ltd
Williams Allied Concrete

Botany Town Centre, Chapel Street, East Tamaki

Submitted by W Stevenson & Sons

Stevensons' concrete products have been used extensively in the development of this new town centre in eastern Auckland. Precast panels were used in buildings and a range of pavers were chosen for all the main traffic thoroughfares and pedestrian areas. An exposed aggregate kerbing was created for the Town Centre Drive and specially designed Stevensons styled concrete was used to complement the paving and other materials used throughout the complex.

Client:
AMP Henderson Global Investors
Landscaper:
Natural Habitats
Consulting Engineer:
Tonkin & Taylor Ltd
Contractor:
Mainzeal Property & Construction Ltd
Subcontractor:
Works Infrastructure
Mirage Paving
A J Russells Dominion Construction