Why You & Your Employees Should Attend This Seminar

Accelerated Bridge Construction (ABC) is gaining popularity because it offers a number of advantages over conventional methods of construction. Prefabrication of bridge components for rapid on-site assembly is a highly effective ABC approach and has been used for a number of decades in the construction of bridge superstructures. Prefabricated bridge substructures are becoming popular especially in traffic dense areas but are mainly used in regions of low seismicity in part due to a lack of reliable ductile connections. However, in the last decade, extensive research funded by several Departments of Transportation (DoTs) in the US and Japan led to further implementation into real bridges of cast-in-place emulative connection detailing for high seismic regions. Moreover, five years of extensive research at the University of Canterbury and strong interaction with local bridge practitioners has led to the design of the first non-emulative partially precast bridge substructure which relies on controlled dissipative rocking. The bridge is located in Christchurch, Wigram-Magdala bridge and is near completion. Similarly, innovative concepts of Accelerated Bridge Construction and seismic resistant connection detailing have been implemented in some bridges of the Mackays to Peka Peka Expressway project.

The aim of the seminar is to provide a comprehensive overview of ABC substructures connection detailing and current design methodologies through worked examples and highlight constructability aspects through case studies.

This seminar will cover:
• Overview of international state of art research (including applications).
• Conceptual design and load path of different types of connections ranging from cast-in-place emulative to non-emulative “rocking type”.
• Design procedures, simplified modelling and connection detailing of ABC bridge piers through design worked examples.
• Constructability and design detailing through two case studies: Wigram-Magdala bridge link and Mackays to Peka Peka Expressway.

Other Benefits
• Comprehensive resource through the seminar notes
• Knowledgeable experienced speakers with good platform skills
• The opportunity to network with industry peers

Who Should Attend
Designers, Specifiers, Site Engineers, Contractors, Building Certifiers, Local Authorities, Consulting Engineers, Project Managers, Graduate & Intermediate Engineers

Investment details
NZCS members: $340 (GST exclusive) per person
Non NZCS-members: $440 (GST exclusive) per person (includes complimentary NZCS membership until 31 March 2017)

Seminar fees include:
• Tea and coffee on arrival
• Afternoon tea
• Comprehensive seminar notes
NZCS Seminar Series 2016
Accelerated Bridge Construction in Seismic Areas: design detail of bridge piers

Programme

1.00 - 1.30 pm
Registration

1.30 – 2.30 pm
Introduction
- Accelerated Bridge Construction in Seismic Areas (Alessandro Palermo)

Design principles and concepts overview
- Emulative cast-in-place (Alessandro Palermo)
- Non Emulative Damage Resistant Piers - Rocking Type (Alessandro Palermo / Sam White)

2.30 – 3.00 pm
Afternoon Tea

3.00 – 5.00 pm
- Design Examples (Sam White)
- Case Study One: Wigram-Magdala Bridge Link (Peter Routledge)
- Case Study Two: Mackays to Peka Peka (Jamil Khan)

5.00 – 5.30 pm
Networking and refreshments

Venues

Wellington  Tuesday 24 May 2016
InterContinental Hotel
2 Grey Street
Wellington

Christchurch  Wednesday 25 May 2016
Chateau on the Park
189 Deans Avenue, Riccarton
Christchurch

Auckland  Wednesday 1 June 2016
Ellerslie Event Centre
80-100 Ascot Avenue
(Ellerslie Racecourse)
Greenlane, Auckland

The NZ Concrete Society acknowledges the support of the following organisations for making this seminar series possible:

Presenters

Jamil Khan
Courtesy of Beca Wellington

Alessandro Palermo
Courtesy of University of Canterbury

Peter Routledge
Courtesy of Opus International Consultants Christchurch

Sam White
Courtesy of Opus International Consultants Auckland
NZCS Seminar Series 2016
Accelerated Bridge Construction in Seismic Areas: design detail of bridge piers

Speakers Profiles

Jamil Khan

Jamil Khan is a Technical Director in Structural Engineering with Beca, and has over 25 years of experience in the design, analysis and the construction of major civil structure, bridges and road projects. He has worked on a wide variety of national and international projects in New Zealand, Singapore, Malaysia, Indonesia, China, Vietnam, Dubai and Pakistan. During this time, he has acquired a wide and in-depth knowledge of design and construction of large civil structures. This strong contractor-led design and build experience has provided him in-depth understanding of construction methods to achieve cost effective and buildable solutions for these structures. On the Mackays to Peka Peka Expressway project, he worked in collaboration with the contractors to develop and implement a number of details of Accelerated Bridge Construction (ABC) technology in high seismic zone. He will be sharing some of his experiences during his presentation.

Alessandro Palermo

Alessandro is Associate Professor / Reader at the Department of Civil and Natural Resources Engineering, University of Canterbury. Alessandro lectures on conceptual design of structural systems including concrete buildings and bridges in a variety of environments and loading conditions. Alessandro is a world-renowned expert in the field of Accelerated Bridge Construction and low-damage technology and has been involved as external consultant in design and modeling of few complex concrete bridges including Wigram-Magdala bridge link. His research also broadens into the field of durability and non-corrosive reinforcement for concrete structures under harsh environment. Alessandro is author than more than 220 international papers and three patents. Alessandro has been responsible for initiating and supervising a number of research programmes for more than 2.5 million dollars, in the Department over the last 7 years. Alessandro is New Zealand fib Head Delegate, NZ Concrete Society Council member and served on AS5100 part 5 (concrete bridges) Technical Committee.

Peter Routledge

Peter is a Senior Bridge Engineer at Opus International Consultants in Christchurch and has over fourteen years’ experience in the design and construction of bridges. Peter was heavily involved in bridge inspections following the Canterbury Earthquakes of 2010-12 and was seconded to SCIRT to design strengthening and recovery solutions for numerous bridges. Notably, Peter was the lead structural engineer for the seismic strengthening of the Bridge of Remembrance Triumphal Arch, Christchurch which has recently been completed and which utilised pure rocking as a means of reducing seismic demands. He was also the lead structural engineer for the emergency propping and the eventual permanent repair and seismic strengthening of Moorhouse Avenue Overbridge which was one of the only bridges to suffer severe structural damage from the 2011 Christchurch Earthquake as a result of seismic inertia effects (rather than lateral spreading and liquefaction effects). Finally, Peter was the lead structural engineer for the design of Wigram-Magdala Link Bridge in Christchurch which is believed to be the first bridge in New Zealand and possibly the world to use low-damage PRESSS technology for the pier columns.

Sam White

Sam White is a bridge engineer at Opus International Consultants in Auckland. Sam recently completed his Masters of Engineering at the University of Canterbury, where the focus of his research was on accelerated construction and repair of precast concrete bridge substructures. The research involved experimental testing of a range of innovative precast connection details that were designed to either emulate the seismic behaviour of conventional monolithic construction, or improve on the behaviour using low-damage jointed connections. Sam was involved in post-earthquake bridge inspections in Christchurch, where he gained an appreciation of the importance of robust structural detailing and repairability to maximise post-earthquake functionality of bridge structures. Sam was awarded the NZCS Concrete Prize in 2013 to acknowledge his contribution towards enhancing knowledge in the application and use of concrete.
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If paying by cheque or bank draft please make payable to NZ Concrete Society.
For all enquiries phone (09) 536 5410

NOTE: Full payment must be received prior to each seminar.