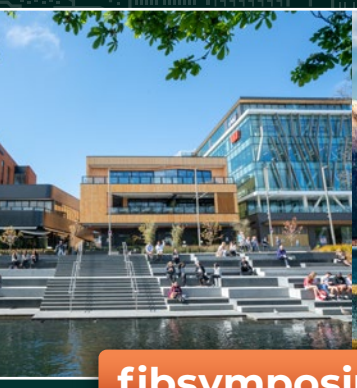
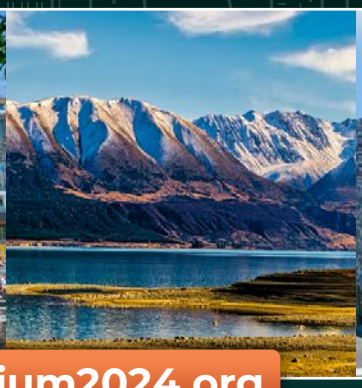
fib SYMPOSIUM 2024 ReConStruct
Resilient Concrete Structures

Christchurch, New Zealand
11–13 November 2024

SYMPOSIUM PROGRAMME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Saturday 9th November

08.30 – 17.00	**Registration open** @ Reception desk

Sunday 10th November

08.00 – 19.00	**Registration open** @ Reception desk
17.30 – 19.00	**Icebreaker Reception** in the Exhibition Area

DAY 1 Monday 11th November

08.00 – 18.00	**Registration & Exhibition open**
08.30	**Mihi Whakatau & Opening** Room: Auditorium
	Keynote Session *Chair: Alessandro Palermo* Room: Auditorium
09.30	**Keynote 1** **fib Model Code 2020: Empowering Sustainable Concrete Solutions with Future-Oriented Standards** *Agnieszka Bigaj-van Vliet*
10.15	**Keynote 2** **Design, implementation and monitoring of TMD in Shanghai Center Tower under wind loading** *Xilin Lu*
11.00	**Morning Tea** in the Exhibition Area
	Plenary Session *Chair: David Fernandez-Ordoñez* Room: Auditorium
11.30	**Invited Speaker 1** **Future Directions in Seismic Design, Assessment, and Construction Practices: Insights from the February 2023 Türkiye Earthquake Sequence** *Alper İlki*
12.00	**Invited Speaker 2** **Recent achievements and future perspective in Japanese national model code for concrete structures in civil engineering field: introduction of JSCE standard specifications for concrete structures** *Takumi Shimomura*
12.30	**Lunch** in the Exhibition Area

DAY 1 Monday 11th November

	1A Special Session: Alternative binder systems and novel processing technologies	1B Special Session: Lessons from the 2023 Pazarcik-Elbistan (Turkey) Earthquake Sequence	1C Special Session: NDT/SHM as basis for the condition assessment for reinforced concrete structures	1D New and innovative structural designs	Monitor Presentations Details of the presentations and presenters can be found on page 12
					Room: Bealey 4 + 5
	Chairs: Allan Scott & Naoshi Ueda	*Chairs: Santiago Pujol Llano & Alper İlki*	*Chairs: Sylvia Keßler & Christian Grosse*	*Chairs: Akio Kasuga & John Hilton*	
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	
13.30	**01A.1 Alternatives to Portland cement – can we benefit both the environment and human development?** *John Provis*	**(13.30) 01B.1 Outline of field investigation results by the Turkey-Japan joint reconnaissance team** *Koichi Kusunoki*	**01C.1 Assessment of reinforced concrete structures: Exploring the Reliability of NDT/SHM** *Sylvia Keßler*	**01D.1 Lightweight Hollow Core Carbon Reinforced Slab System** *Steffen Marx*	**13.30 – 14.30** **M1.1E Novel Concrete** *Chair: Ali Kashani* **M1.1F Strengthening and Repair** *Chair: Allistair Russell* **M1.1G Projects and construction** *Chair: Joanna Markowska*
13.45		**(13.47) 01B.2 Seismic performance and damage level evaluated with Japanese standards of RC buildings damaged by the 2023 Turkey Earthquake** *Seitaro Tajiri*	**01C.2 Unmasking Structural Health: A Bold Exploration into the Uncharted Realms of Reliability Assessment in SHM** *Daniel Kanzler*	**01D.2 Implementation of Functionally Graded Concrete (FGC) in New Zealand: Proof of Concept Tests** *Jade Matravers & Tony Xie*	
14.00	**01A.2 The future of cement - the next steps and visions for the future** *Horst-Michael Ludwig*	**(14.04) 01B.3 Collapse of Reinforced Concrete Buildings - Implications from the 2023 Turkey Earthquakes** *Halil Sezen*	**01C.3 Proof-of-Concept of a Bayesian Updating Approach for Corrosion Degrees on the Basis of Crack Measurements** *Constantijn Martens*	**01D.3 Crack development in non-metallic textile-reinforced concrete members under cyclic loading with regard to serviceability** *Martin Classen*	
14.15	**01A.3 Alternate pathways to decarbonize cement & concrete industry** *Vineet Shah*	**(14.21) 01B.4 Analyzing Ground Motion Data for Building Damage Potential** *Ayhan Irfanoglu*	**01C.4 Integrated sustainability and quality assurance concepts for subway constructions based on inspection and monitoring** *Christian Grosse*	**01D.4 Assessment on Concrete Structure Environmental Performance Potential (CSEPP) of Ultra High Performance Concrete Composite Bridges** *Hui Teng Ng*	
14.30	**01A.4 Transforming Gold Mine Tailings into Sustainable Concrete** *Kushal Ghosh*	**(14.38) 01B.5 The Lack of Robustness of Buildings in Turkey and New Zealand** *Santiago Pujol*	**01C.5 Detection of damages in prestressed concrete structures using distributed fiber optic sensors** *Agnieszka Wiater*	**01D.5 CO_2 savings through individual void formers in concrete slabs** *Patrick Forman*	**14.30 – 15.30** **M1.2E UHPC** *Chair: Ekkehard Fehling* **M1.2F Precast concrete** *Chair: Dave McGuigan* **M1.2G Structural performance** *Chair: Ben Matthews*
14.45	**01A.5 The potential for utilising locally available kaolinitic clays in low-carbon MgO-based binder systems** *Banujan Balaskandan*	**(14.55) 01B.6 Non-interacting masonry infills as a solution for improving the seismic behavior of infilled RC frames: Experimental results** *Marko Marinkovic*	**01C.6 Evaluation of air coupled impact-echo for the non destructive monitoring of concrete structures** *Aurélia Muller*	**01D.6 Experimental study on the flexural behavior of steel-tubed reinforced ultra-high strength concrete columns** *Nobuaki Hirata*	
15.00	**01A.6 Development of geopolymer systems using thermally treated bauxite tailings and rice husk ash** *Taehwan Kim*		**01C.7 Detecting Non-Visible Tendon Breaks – A New Approach Using Coda Wave Interferometry** *Noah Sträter*	**01D.7 Study on mechanical properties of a new joint with concrete-filled steel tube keys between shear walls and coupling beams** *Zhijun Zhou*	
15.15	**01A.7 Strength Development of Geopolymer Mortar Incorporating Waste Clay Brick Powder** *Shaila Sharmin*	**(15.12) 01B.7 Expected Cost of the Improved Seismic Resilience Based on the Data from 2023 Kahramanmaraş Earthquakes** *Cemalettin Donmez*	**01C.8 Intelligent wall-climbing robot with stereo camera for real-time and high-accuracy concrete crack inspection** *Bing Xiong*	**01D.8 Rethinking the seismic design of RC buildings for improved post-earthquake reparability** *Timothy Sullivan*	
15.30	**Afternoon Tea** in the Exhibition Area				

DAY 1 Monday 11th November

	2A Special Session: Nonlinear modeling, seismic assessment, and rehabilitation of reinforced concrete structures (part 1)	2B Special Session: Structural Engineering of 3D concrete printed elements: status and future challenges	2C Special Session: Using natural resources as a cement replacement for a lower carbon concrete	2D Structural health monitoring	Monitor Presentations Details of the presentations and presenters can be found on page 12
					Room: Bealey 4 + 5
	Chairs: Adolfo Matamoros & Insung Kim	*Chairs: Giuseppe Loporcaro & Costantino Menna*	*Chairs: Enrique del Rey Castillo & Vineet Shah*	*Chairs: Antoni Cladera & Paola Darò*	
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	
16.00	**(16.00-16.20)** **O2A.1 Seismic Evaluation of Building Inventories using AI, HAZUS, and Shakecast** *Insung Kim*	**O2B.1 Sustainable Resilience for 3D Concrete Printed Homes in New Zealand: a three years research government funding overview** *Giuseppe Loporcaro*	**O2C.1 Natural pozzolans in Germany** *Christopher Hoffmann*	**O2D.1 Prestressed Members Subjected to Prestressing Analysis Using Stress Release Technique** *Jakub Kralovanec*	**16.00 – 17.00** **M2.1E Structural testing** *Chair: Ernesto Hernandez* **M2.1F Concrete mixes** *Chair: Jessey Lee* **M2.1G Alternative reinforcing** *Chair: Marta del Zoppo*
16.15	**(16.20-16.40)** **O2A.2 Evaluation of performance metrics for seismic assessment of RC Frames** *Adolfo Matamoros*	**O2B.2 A structural engineering perspective on extrusion-based 3D concrete printing: from green to solid state** *Jacques Kruger*	**O2C.2 Pilot Study on Natural Pozzolans as Cement Replacements for Low-Carbon Concrete** *Kavishan Ranatunga & Enrique del Rey Castillo*	**O2D.2 Experimental investigation using an innovative wireless sensor technique to measure concrete strains in situ and in real time** *Giorgio Mattarollo & Norbert Randl*	
16.30		**O2B.3 Current Developments in the Application of Extrusion-based 3D Concrete Printing** *Pathmanathan Rajeev*	**O2C.3 Low-Carbon Concrete with New Zealand Pozzolans** *Cameron Woods*	**O2D.3 openLAB – A large-scale demonstrator for advancing digital twin developments of bridges** *Steffen Marx*	
16.45	**(16.40 – 17.00)** **O2A.3 Evaluation of ASCE/SEI 41 procedures for assessing the seismic vulnerability of an earthquake-damaged reinforced concrete wall building** *Laura Lowes*	**O2B.4 Seismic Performance of Large-Scale 3D Printed Concrete Panels: An Experimental and Analytical Study** *Costantino Menna*	**O2C.4 Classification and Quantification of Pore Structure of Hempcrete** *Haemin Song*	**O2D.4 Exploring Bridge Structural Response similarities: Data-Driven SHM Through MEMS Clinometer Clustering over a Network of 25+ Reinforced Concrete Bridges** *Monica Longo*	
17.00	**(17.00-17.20)** **O2A.4 Repair of heavily damaged walls by replacement of concrete and reinforcing steel** *Gonzalo Muñoz*	**O2B.5 Analytical investigation on the structural performance of RC column with 3D-printed concrete permanent formwork** *Tarek Sabra*	**O2C.5 Development of wood-geopolymer composites for masonry units: Effect of alkaline solution ratio and wood type** *Firesenay Zerabruk Gigar*	**O2D.5 Maximizing Predictive Maintenance Efficiency across Extensive Infrastructure Networks: Optimized Approaches Integrating Model-driven and Data-driven Solutions in Practical Applications** *Paola Darò*	**17.00 – 18.00** **M2.2E Sustainable design** *Chair: Ferdinand Oswald* **M2.2F Design codes** *Chair: Marcelo Melo* **M2.2G Structural health monitoring** *Chair: Trevor Yeow*
17.15	**(17.20 – 17.40)** **O2A.5 Experimental Assessment of Large-Scale Anchored FRP-Strengthened RC Shear Controlled Walls Subjected to Cyclic Loads** *Aniket Borwankar*	**O2B.6 The Contribution Of 3D Printed Lost Formworks to the Compressive Capacity of Structural Columns** *Luis De La Flor Juncal*	**O2C.6 Strength and Permeability of Concrete using Lithium Slag as a Supplementary Cementitious Materials** *Md Tanvir Ehsan Amin*	**O2D.6 Vibration-Based Damage Detection in a Reinforced Concrete Plane Member Using a Small Exciter** *Seiji Nagata*	
17.30	**(17.40- 18.00)** **O2A.6 Calibration of ACI 369.1-22 model using the nonlinear three-dimensional simulation of instrumented RC structure** *Adolfo Matamoros*	**O2B.7 A Rapid Reinforcement Technique using FRP and Steel Wire Mesh in 3D Printed ECC Beams** *Manfang Lin*	**O2C.7 High-Temperature Fracture Behaviour Of One-part Geopolymer Incorporating Lead Smelter Slag and Steel Fibre: Digital Image Correlation (DIC) Analysis** *Nghia Tran*	**O2D.7 Health Monitoring During Construction of Century Pavilion in 10th China Flower Expo** *Zhisheng Wei*	
17.45		**O2B.8 Is 3D Printed Concrete a Game Changer?!** *Wafaey Swelin*		**O2D.8 Advancements in Digital Twin Development for Bridges in Germany** *Steffen Marx*	

	18.15 – 19.30 **Early Career Networking Event** Dobson Foyer *(Drinks and Nibbles provided)*	**18.15 – 19.30** **Net Zero Roadmap Session** Room: Bealey 2 *(Drinks and Nibbles provided)*	**17.30 – 20.00** **University of Canterbury Structural Engineering Lab Tour** *Meet at the Registration desk at 17.30*

DAY 2 Tuesday 12th November

08.00 – 17.30	**Registration & Exhibition open**				
	Keynote & Plenary Session *Chair: Rick Henry* Room: Auditorium				
08.30	**Keynote 3** **In-the-field Experiences and Research into the Development of Seismic Design Requirements of Concrete Structures in New Zealand: drivers, expectations, and outcomes** *Des Bull*				
09.15	**Preserving the Past, Securing the Future: The Seismic Retrofit of Te Matapihi - Wellington Central Library** *Adam Thornton*				
09.35	**Enhanced Seismic Resilience: A Pathway to the Wider Implementation of Dissipative Controlled Rocking in Bridges** *Brandon McHaffie*				
10.00	**Morning Tea** in the Exhibition Area				
	3A Special Session: Nonlinear modeling, seismic assessment, and rehabilitation of reinforced concrete structures (part 2)	**3B Special Session: Decarbonisation of the Built Environment**	**3C Special Session: Seismic strengthening of concrete diaphragms**	**3D Special Session: Performance Evolution and Control of Concrete Structures**	**3E Corrosion and impact on structural performance**
	Chairs: Adolfo Matamoros & Insung Kim	*Chair: Cyril Giraud*	*Chairs: Enrique del Rey Castillo & Lucas Hogan*	*Chairs: Chao Jiang & Xiguang Liu*	*Chairs: Kaveh Andisheh & Alberto Meda*
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	Room: Bealey 4 + 5
10.30	**03A.1 Effects of Loading History on the Behavior of Reinforced Concrete Columns** *Adolfo Matamoros*	**03B.1 Government Action** *Nick Leggett*	**03C.1 Recent progress on seismic strengthening of concrete diaphragms with FRP ties** *Enrique Del Rey Castillo*	**(10.30) 03D.1 Chloride diffusivity and life cycle analysis of typical low-carbon cementitious materials** *Zhilu Jiang, Chuanqing Fu & Zheng Dong*	**03E.1 Estimation of the risk of rupture by corrosion of external prestressing tendons injected with cement grout** *Bruno Godart*
10.45	**03A.2 Calibration of Different Analytical Models for Concrete Coupling Beams And Walls Against Experimental Data for Performance Based Design** *Jeff Dragovich*	**03B.2 Infrastructure Sustainability Rating Scheme** *Kerry Griffiths*	**03C.2 Implications of ongoing research for design of FRP seismic strengthening of diaphragms in New Zealand** *Rhys Allan Rogers*	**(10.45) 03D.2 Statistic investigation on sulfate ions distribution in concrete by a mesoscale model** *Jinyang Feng*	**03E.2 Experimental and analytical study on the bending capacities of RC beams under non-uniform corrosion** *Xiaoxu Zhu*
11.00	**03A.3 Updated modeling parameters and acceptance criteria for concrete structural walls** *Saman Abdullah*	**03B.3 Low-carbon Cement and Concrete** *Chris Johnstone*	**03C.3 Multi-layer anchored and unanchored CFRP Shear Strengthening of Reinforced Concrete Diaphragms** *Aniket Borwankar*	**(10.57) 03D.3 Effect of coarse aggregate on compressive mechanical properties of irradiated concrete** *Hui Liu*	**03E.3 Quantifying the influence of chloride-induced corrosion on the bending moment capacity of a prestressed girder considering different exposure scenarios** *Karel Van Den Hende*
11.15	**03A.4 Resurrection of a 13-story earthquake damaged tower building, 66 Oxford Terrace, Christchurch** *Grant Thomas & Peter Boardman*	**03B.4 Large Concrete Products Manufacturing Case Study** *Jackson MacFarlane*	**03C.4 Evaluation and retrofit design practices for concrete diaphragms in the U.S., using FRP as a seismic strengthening solution** *Garrett Hagen & Aniket Borwankar*	**(11.09) 03D.4 A novel crack detection equipment for existing concrete structures and its validation testing** *Ruilin Wang*	**03E.4 Effects of Severe Chloride-Induced Corrosion with Spalling on the Structural Performance of RC Structures in Marine Environments: An Experimental Study** *Kyle Didacus Cabatit*
11.30	**03A.5 Experimental study on the FRP ties used in precast diaphragm strengthening subjected to incompatible rotation of the floor support beam** *Mohammad Sadegh Salimian Rizi*	**Open Discussion**	**03C.5 Collapse of a reinforced concrete building with insufficient diaphragm and discussion on diaphragm strengthening for avoiding such failures** *Alper İlki*	**(11.21) 03D.5 New Opportunities for Single-Photon Sensing in Civil Engineering** *Jinyi Liu*	
11.45	**03A.6 Seismic retrofit of non-ductile reinforced concrete frame buildings** *Zaid Al-Sadoon*		**Open Discussion**	**(11.33) 03D.6 Impact resistance performance of freeze-thaw damaged RC columns under different axial compression ratios** *Xiguang Liu* **(11.48) 03D.7 Re-simplified calculation methods for bending bearing capacities of corroded RC beams** *Chao Jiang & Deng-Feng Shang*	
12.00	**Lunch & Poster Session** in the Exhibition Area				

DAY 2 Tuesday 12th November

	4A Special Session: Concrete bridge performance in flood/ cyclones	4B Resilient and low-damage seismic design	4C Mechanics, analysis, and design	4D Special Session: Fatigue of Concrete in an Experimental-Virtual-Lab	4E Codes, standards, & guidelines
	Chairs: Jonathan Watkins & Moustafa Al-ani	*Chairs: Zhao Bin & Mustafa Mashal*	*Chairs: Gyorgy Balazs & Yiqiu Lu*	*Chairs: Nadja Oneschkow & Bianca Kern*	*Chairs: Giuseppe Mancini & Fernando Stucchi*
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	Room: Bealey 4 + 5
13.00	**04A.1 Performance of Concrete Bridges in Cyclone Induced Floods in Queensland Australia** *Wayne Roberts*	**04B.1 Low damage seismic isolation of the Parahaki Bridge** *Oliver de Lautour*	**04C.1 A mechanics-based approach for modelling dowel cracking in RC beams** *Yuguang Yang*	**04D.1 Wake-up call for creep dimensioning: The case of cyclic loading** *Bianca Kern*	**04E.1 Service life design of concrete structures considering Belgian production and climate: developing a full-probabilistic calibration as ERC proposal for Belgium** *Sam Coppens*
13.15	**04A.2 Performance of the New Zealand's bridge stock during Cyclone Gabrielle** *Jonathan Watkins*	**04B.2 Integral seismic performance of self-centering concrete wall structures incorporating innovative low-damage infill walls** *Hao Wu*	**04C.2 Towards a reliability-based design concept for concrete discontinuity regions using strut-and-tie models** *Kito Luyten*	**04D.2 The effect of concrete moisture on the fatigue resistance of HPC under uniaxial and triaxial loading** *Martin Markert*	**04E.2 Robustness of code formulae for development and splice length of reinforcing bars** *Dorian Borosnyoi-Crawley*
13.30	**04A.3 Enhancing Bridge Resilience: Lessons Learned from Cyclone Gabrielle's Impact on New Zealand's North Island** *Sabina Piras*	**04B.3 Residual drift-based seismic vulnerability assessment of RC bridges** *Shaowei Wu*	**04C.3 Spring models for the design of fastening systems: Requirements and challenges** *Sebastian Geiger*	**04D.3 Moisture-induced damage mechanisms in high-strength concrete due to compressive fatigue loading** *Mohamed Abubakar Ali*	**04E.3 Validation of Various Australian Standard Concrete Code (AS3600) Shrinkage Prediction Models** *George Fanourakis*
13.45	**04A.4 Challenges and adaptations of Auckland Bridges recovery** *Gang Yu*	**04B.4 Enhancing seismic and climate resilience of existing buildings through low-damage external exoskeletons** *Simone D'Amore*	**04C.4 Numerical investigation of anchorage mechanism of rebar hook using 3D-RBSM** *Navoda Abeygunawardana*	**04D.4 DEM-Based Analysis of Fatigue-Induced Damage Using a Cycle-Jump Technique** *Sebastian Rybczynski*	**04E.4 A Practical Design Method for Increasing Shear Resistance In Existing Concrete Sections Using Post Tensioned Bars** *Chris Ross*
14.00	**04A.5 New Zealand rail bridge flood damage and recovery - case study of Rangitata River bridge MSL57** *Liam Coleman*	**04B.5 Strain ageing effects in reinforcing bars subjected to earthquake damage** *Koshin Okamura*	**04C.5 A novel analytical model to determine the composite action between concretes cast at different times: experimental validation** *Jules Smits*	**04D.5 Experimental investigation and incremental modeling of the load sequence effect in plain concrete under mode II loading** *Henrik Becks*	**04E.5 Bridging the gap between shear strength design models with apparent contradictory initial hypotheses** *Antoni Cladera*
14.15	**04A.6 Innovative Bridge Deck-to-Pier Connections for Improved Tsunami Resilience** *Rosie Pagel*	**04B.6 Study of A Novel Precast RC Shear Wall with Replaceable Self-Centering Energy-Dissipation Components** *Huanjun Jiang*	**04C.6 Load-bearing behavior of prestressed concrete towers with dry horizontal and vertical joints based on warping theory** *Max Götze*	**04D.6 Influence of different microfibers on the flexural fatigue characteristics of high-strength concrete** *Niklas Schäfer*	**04E.6 New Guidelines for Maintenance of Existing Post-tensioned Prestressed Concrete Bridges** *Hiroshi Mutsuyoshi*
14.30	**04A.7 Cyclone Gabrielle Rail Bridge Impact – Napier to Wairoa** *Rudolph Kotze*	**04B.7 Penalty Method for Optimisation of Reinforced Concrete Structures in Serviceability and Ultimate Limit State** *Jeff Larsen*	**04C.7 Global resistance methods on the design with nonlinear finite element analysis of hybrid fiber reinforced industrial pavement supported on piles** *Joaquim Barros*	**04D.7 Does the fatigue resistance really decrease with higher concrete strength?** *Nadja Oneschkow*	**04E.7 Research on experimental similarity criterion and snowdrifts on two-span single-pitch roofs** *Qingwen Zhang*
14.45	**Open Discussion**	**04B.8 Modeling and seismic response of self-centering reinforced concrete frames with viscous dampers** *Fanfu Bu*	**04C.8 Enhancing the bearing capacity of concrete slabs through the load redistribution capacities of masonry walls** *Shana Van Hout*	**04D.8 Shifted experimental S-N curves for fatigue verification of structures to consider different bond conditions** *Lukas Heußner*	**04E.8 Fire resistance of group of fasteners with focus on concrete cone failure** *Hitesh Lakhani*
15.00	**Afternoon Tea** in the Exhibition Area				

DAY 2 Tuesday 12th November

	5A Special Session: Sustainable Structural Strengthening	5B Shear analysis and design	5C Concrete durability	5D Special Session: Post-installed connections	5E Experimental tests on structural members
	Chairs: Norbert Randl & Marta Del Zoppo	*Chairs: Ciro Del Vecchio & Marianna Polak*	*Chairs: Harald Mueller & Jean Michel Torrenti*	*Chairs: Samuel Caloba Aguiar & Suman Narayan*	*Chairs: Marco di Prisco & George Fanourakis*
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	Room: Bealey 4 + 5
15.30	**05A.1 Rehabilitation of a prestressed concrete bridge using UHPC** *Milan Kalny*	**05B.1 The Canadian shear design provisions for UHPFRC reinforced and prestressed members** *Steve Foster*	**05C.1 Understanding the behavior of concrete blocks exposed to 20 years of marine environment with accelerated laboratory experiments** *Mickael Saillio*	**(15.30) 05D.1 Seismic C2 performance of post-installed fasteners in tension: Low-strength undercut anchor compared to other anchor types** *Dorian Borosnyoi-Crawley*	**05E.1 Experimental and numerical study on long-span retard-bonded-prestressed RC frame with openings** *Yang Zhang*
15.45	**05A.2 Light UHPFRCC jacketing with recycled steel fibres** *Marta Del Zoppo*	**05B.2 Influence of Compressive Membrane Action on Shear Capacity of RC Members without Shear Reinforcement** *Annkathrin Sinning*	**05C.2 Corrosion Resistance of Self-Healing Concrete Using Alkaliphilic Bacteria** *Nami Ishizaki*	**(15.45) 05D.2 Tensile behaviour of post-installed fasteners in early age concrete with and without steel fibres** *Tilak Pokharel*	**05E.2 Experimental Investigation of Key Structural Parameters for Structural Design of 3D-Printed Concrete** *Henrik Brøner Jørgensen*
16.00	**05A.3 A stochastic programming approach for budget allocation to structural strengthening and post-earthquake buildings repair in seismic areas** *Simona Mancini*	**05B.3 Rigid Plastic Upper Bound Shear Capacity Model for RC Members without and with Very Small Amounts of Shear Reinforcement** *Frederik Autrup*	**05C.3 Theoretical prediction of chloride profile based on probabilities of particle movement and its application to real data from existing bridges** *Peter Paulík*	**(16.00) 05D.3 Fire Design of Post-installed Anchors with EN1992-4 and EOTA TR082** *Raymond Chong*	**05E.3 Large-Scale Experiments of Voided Shear Walls with Pre-Walls** *Boyan Mihaylov*
16.15	**05A.4 Treatment of Uncertainties in the Semi-Probabilistic Design of Precast Concrete Structures with Reclaimed Elements** *Ben Matthews*	**05B.4 Shear capacity of RC slabs without shear reinforcement. A review of the available literature and Code provisions** *Ioannis Prionas*	**05C.4 Application of Digital Image Correlation (DIC) Method to Evaluate the Water Absorption in Different Qualities of Concrete** *Muhammad Usman*	**(16.15) 05D.4 Fatigue resistance of anchors in concrete under shear load with lever arm** *Thilo Froehlich*	**05E.4 Experimental survey on corroded reinforced concrete and prestressed concrete beams** *Alberto Meda*
16.30	**05A.5 Strengthening concrete members with cementitious composites** *Giorgio Mattarollo & Norbert Randl*	**05B.5 Analytical model for punching shear assessment due to column removal incorporating dynamic effects** *Juan Sagaseta*	**05C.5 Concrete Technology, Durability and Sustainability in the Department of Transport and Main Roads Queensland Australia** *Wayne Roberts*	**(16.30) 05D.5 The Australian journey for harmonising design, prequalification and installation of fastenings into concrete with international practice** *Jessey Lee*	**05E.5 Experimental and Numerical Investigation on Uniaxial Compressive Performance of Hollow Circular High-strength Precast CFST Piles** *Clarissa Jasinda*
16.45	**05A.6 The restoration of steel-reinforced concrete structures with high-performance textile-reinforced mortars** *Melanie Groh*	**05B.6 Punching shear behaviour of flat slab systems: Experimental investigations on flat slab cutouts with external loading conditions** *Matthias Kalus & Martin Classen*	**05C.6 Reevaluating the Significance of Concrete Cover Depth in Mitigating Carbonation-Induced Corrosion Damage** *Sylvia Keßler*	**(16.45) 05D.6 Design and construction aspects of shear-friction applications (concrete overlays) using the EOTA TR 066** *Suman Narayan*	**05E.6 Analyzing structural behavior of prestressed continuous beams with tendon breakage tested in combination of bending, torsion and shear** *Joonas Tulonen*
17.00	**05A.7 Compressive tests on slender RC columns retrofitted with Fibre/ Textile Reinforced Concrete** *Giorgio Mattarollo*	**05B.7 Finite element modeling of punching shear behavior of concrete slabs with shear reinforcement** *Marianna Polak*	**05C.7 Limit of Chloride Ion Concentration on Corrosion of Steel Bar in PAE-Based Polymer Cement Mortar** *Kandai Fujishima*	**(16.55) 05D.7 Retrofitting Concrete Structures with Post-installed Rebars in New Zealand: Design methods and Compliance pathways** *Samuel Caloba Aguiar*	**05E.7 Study on the combined effect of grout compressive strength and rebar embedment variation in a grouted mechanical coupler** *Emanuele Naccini & Sam Adshead*
17.15	**05A.8 Strengthening of Existing Multi-span Bridges for Widening Using FRP Techniques** *Larry Qi Yang*	**05B.8 Basis for a Simplified Topology Optimisation Strategy for Reinforced Concrete Beams Based on Inclined Stirrups** *Iyad Ahmed*	**05C.8 Investigation on bond failure mechanism of corroded rebars in concrete by X-ray CT method** *Kanta Kozuka*	**(17.05) 05D.8 Influence of different modelling approaches on the predicted concrete edge failure of fasteners** *Johannes Holder* **(17.20) 05D.9 Repair and Strengthening of Concrete Bridges with Post-installed Anchors** *Nick Benham & Jonathan Watkins*	**05E.8 Experimental study on the maximum punching capacity of slab-column connections** *Jaroslav Halvonik*
18.30- late	**Fib Symposium Gala Dinner** @ Rakaia Room, Te Pae Christchurch Convention Centre				

DAY 3 Wednesday 13th November

08.00 – 17.30	**Registration & Exhibition open**				
	Keynote Session *Chair: Iria Donak* Room: Auditorium				
08.30	**Keynote 4** **The future of design standards – has simplification become unaffordable?** *Steve Denton*				
09.15	**Keynote 5** **Models and Standards for Simulating the Earthquake Response of Flexure-Controlled Reinforced Concrete Walls for Design and Evaluation** *Laura Lowes*				
10.00	**Morning Tea** in the Exhibition Area				
	6A Special Session: Seismic strengthening of concrete structures using Fibre Reinforced Polymers (FRP)	**6B Special Session: Circular Economy approach in making Concrete Structures Sustainable**	**6C Special Session: Peer Exchange for Resilient-Eco & Socially-Sustainable bridges and structures (PxRESS-1)**	**6D Seismic design and retrofit**	**6E Low-carbon concrete and innovative materials**
	Chairs: Enrique del Rey Castillo & Andrew Gaul	*Chair: Jamil Khan*	*Chairs: Steven Nolan & Sabina Piras*	*Chairs: Minehiro Nishiyama & Tim Sullivan*	*Chairs: James Mackechnie & Bruno Godart*
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	Room: Bealey 4 + 5
10.30	**O6A.1 The Italian Experience – The increasing use of FRP strengthening solutions after recent earthquakes** *Ciro Del Vecchio*	**(10.30)** **O6B.1 The circular economy and bridges: proposals to take this forward** *John Hilton*	**O6C.1 Bridging the Gap Between Risk and Resilience** *Ben Baty*	**O6D.1 How healthy are Japanese piles and foundation members?** *Susumu Kono*	**O6E.1 Approach to Find Suitable CO_2 Capturing Amines for the Prevention of Steel Corrosion in Carbonation Environment of Cement-Based Materials** *Ryosuke Saito*
10.45	**O6A.2 The Turkish Experience – Resilience in a newly industrializing country through FRP strengthening** *Alper İlki*	**(10.55)** **O6B.2 Circular Design Framework for Concrete Bridges** *Jamil Khan*	**O6C.2 Reducing the environmental impact of bridges using a common LCA framework** *Emily Lorenz*	**O6D.2 Behaviour of Reinforced Concrete Encased Steel Lattice Elements under Cyclic Loading** *Amir Moshref*	**O6E.2 Addressing the Implementation Challenges of a Performance-Based Approach for Sustainable Concrete: Insights from the Swiss approach** *Fabrizio Moro*
11.00	**O6A.3 Seismic strengthening with FRP in the US - current state of design guidelines and path forward** *Ravi Kanitkar*		**O6C.3 The 200-year Bridge: Resilient, Economical, Environmentally & Socially Sustainable** *Steven Nolan*	**O6D.3 Damage states and fragility curves for lightly reinforced concrete walls** *Priyana Rajbhandari*	**O6E.3 Enhancing mechanical properties of recycled aggregate concrete prepared with waste soaking solution from acetic acid pre-soaking treatment** *Wiracha Thaue*
11.15	**O6A.4 Whole-of-Building Approach to Improve Seismic Retrofits of Reinforced Concrete Buildings in New Zealand** *Santiago Pujol*	**(11.20)** **O6B.3 Steel reuse for the transition of the construction industry to a circular economy** *Kaveh Andisheh & Fanqin Meng*	**O6C.4 Key Focus Areas to Assure the Longevity of Resilient and Sustainable Concrete Structures in Australia** *Scott Munter*	**O6D.4 Preliminary Study on Lateral Response of Lightly Reinforced Concrete Non-Rectangular Walls** *Tian-hua Deng*	**O6E.4 Life Cycle Assessment of an Innovative Fireproof and Thermal Insulating Geopolymer** *Konstantina Oikonomopoulou*
11.30	**Open Discussion**		**O6C.5 Future Proofing Concrete Infrastructure through Climate Resilient Composite Technologies** *Omar Alajarmeh*	**O6D.5 Butterfly-shaped wooden Estone blocks for seismic retrofitting** *Yuji Ishikawa*	**O6E.5 Design of high-strength and high-elastic modulus strain-hardening cementitious composites: Towards prestressed structures** *Long Liang*
11.45		**(11.40)** **O6B.4 A Qualitative Sustainability Assessment of Peka Peka to Ōtaki (PP2Ō) Expressway Project Bridges using a Circular Design Framework** *Laura Chen*	**O6C.6 Project Case Study: Repair of Gisborne Port Breakwater Utilizing GFRP Rebar** *Peter Renshaw*		**O6E.6 Properties of calcined clays in cementitious systems** *Horst-Michael Ludwig*
12.00	**Lunch** in the Exhibition Area				

DAY 3 Wednesday 13th November

	7A Strengthening and repair	7B Projects and construction methods	7C Composite materials and alternative reinforcing	7D Precast and prestressed concrete	7E Mechanics, analysis, and design
	Chairs: Susumu Kono & Carl Ashby	*Chairs: Peter Paulík & Joanna Markwoska*	*Chairs: Milan Kalny & Joaquim Barros*	*Chairs: Henrik Brøner Jørgensen & Dene Cook*	*Chairs: Pathmanathan Rajeev & Gianluca Ranzi*
	Room: Auditorium	Room: Dobson 1	Room: Dobson 2 + 3	Room: Dobson 4	Room: Bealey 4 + 5
13.00	**07A.1 External Biopolymer Layers for Effective Crack Sealing on Cementitious Substrates** *Didier Snoeck*	**07B.1 New Nowra Bridge, NSW, Australia - Incremental Launch Design** *Wayne Juno*	**07C.1 Cyclic Testing of Carbon Fiber-Reinforced Polymer-Reinforced Concrete Columns** *Yiqiu Lu*	**07D.1 Experimental Study on Anchorage Designs' Influence on Shear Capacity of Looped Wire Rope Connections between Wall-Elements in the Same Plane** *Henrik Brøner Jørgensen*	**07E.1 A New Panel Element Tester for the Investigation of Reinforced Concrete Behavior under Non-proportional Load Paths** *Elias Merhi*
13.15	**07A.2 Effect of Adhesive on Effective Bond Length of EB FRP-RC Beams** *Hewawasam Haggallage Nadeeshani Haggalla*	**07B.2 Seismic Strengthening of Concrete Reservoirs** *Lewis Thomas*	**07C.2 Experimental investigations of bent basalt fiber composite tendons for prestressing graded concrete components** *David Nigl*	**07D.2 Safe Working Load of Strand Lifting Eyes for Precast Concrete Construction** *Hossein Askarinejad & John Marshall*	**07E.2 Crack width calculation – nonlinear FE-analysis compared to analytical calculation** *Christina Krenn*
13.30	**07A.3 Integrating An External Post-Tension Strengthening System Into An Existing Box Girder Bridge Using Ultra High Performance Fibre Reinforced Concrete Blisters** *Chris Ross*	**07B.3 Construction of Natural Draught Cooling Tower at Ohaaki Geothermal Power Station** *Jeff Marchant*	**07C.3 Confinement model for GFRP spirally confined concrete columns** *Ernesto Hernandez*	**07D.3 SH94 Homer Tunnel Avalanche Shelter** *Peter Routledge*	**07E.3 Evaluation of corner crack widths in dapped-end connections and knee beam-column joints** *Boyan Mihaylov*
13.45	**07A.4 Local Strengthening of Poorly Executed Plain Tunnel Linings: Design And Construction Features** *Marco di Prisco*	**07B.4 Aerial demolition method for prestressed concrete bridges above intersections with heavy traffic** *Shinsuke Watanabe*	**07C.4 Fatigue Behavior of Lightweight Concrete Bridge Deck Slabs Reinforced with GFRP (Glass Fiber Reinforced Polymer) Bars** *Agnieszka Wiater*	**07D.4 Experimental Research on Ultimate Bearing Capacity for Local Component of Prestressed Concrete Containment Vessel** *Dabing Gao*	**07E.4 Energy based Calculation of Crack Widths and required Reinforcement for Crack Control** *Ekkehard Fehling*
14.00	**07A.5 Simplified Computation Model for RC Elements Strengthened with CFRPs on Low Stiffness Adhesives** *Arkadiusz Kwiecien*	**07B.5 Integration of industrial robots for sustainable and efficient production of concrete elements with advanced formwork towards industry 4.0** *Peter Gappmaier*	**07C.5 Numerical investigation of the seismic performance of bridge piers made of titanium alloy reinforced ultra-high performance concrete (TARUHPC)** *Heider Mendoza*	**07D.5 Leak-tightness functional failure study of prestressed concrete containment vessels under thermal-pressure coupling conditions** *Lujie Zhuang*	**07E.5 Integrating 3D Modelling and Non-linear Numerical Simulations in Concrete Additive Manufacturing** *Jiri Rymes*
14.15	**07A.6 Design and construction of slab replacement work between the Kaga and Katayamazu Interchange** *Go Yokota*	**07B.6 Incrementally Launched Concrete and Steel Bridges - Case Studies and New Developments** *Tony Simmonds*	**07C.6 CFRP Prestressing in bridge girders of I and U sections** *Gyorgy Balazs*	**07D.6 Validation of CSCT strain-based shear failure criteria for prestressed concrete members without shear reinforcement** *Minkook Park*	**07E.6 Effect of bond on the shear capacity of reinforced concrete beams: Comparison of different FE-models** *Johannes Holder*
14.30	**07A.7 Transformation of singular joint deformations into multiple cracks in carbon-reinforced concrete pavements** *Maximilian Weiß*	**07B.7 Case study on using a Launching Gantry to Erect Precast Segmental Concrete Box Girders in a Built-up Industrial Environment** *Adrien Krempp*	**07C.7 Failure Modes of Bent FRP Anchor with Shallow Embedment** *Junrui Zhang*	**07D.7 Standardization of Precast Concrete Beams for Road Bridge Decks** *Culpa António*	**07E.7 AI Based Surrogate Model for Nonlinear Modelling of Reinforced Concrete Structures** *Jiri Rymes*
14.45	**07A.8 Concrete repair and retrofitting of columns without mechanical anchorage, an analytical and experimental study** *Tom Molkens*	**07B.8 Mitigating Stormwater Pollution with Permeable Concrete** *Adrianna Hess*	**07C.8 Time-Dependent Behavior of FRP-Reinforced Concrete: A Comprehensive Numerical Investigation** *Yilin Wang*	**07D.8 Numerical study on axial capacity of steel-plate grouted connections with shear keys** *Xinyu Hu*	**07E.8 Use of distributed fibre optic sensing to measure structural behaviour in reinforced concrete direct tension specimens** *Jacob Yager*
15.00	**Afternoon Tea** in the Exhibition Area				

DAY 3 Wednesday 13th November

	Plenary Session *Chair: Moustafa Al-Ani* Room: Auditorium
15.30	**Invited Speaker 3** **Acceleration strategies to increase the early strength of concrete** *Horst-Michael Ludwig*
16.00	**Invited Speaker 4** **Towards a green concrete future: a New Zealand perspective** *Allan Scott*
16.30	**Symposium Closing**
18.00 – late	**Concrete NZ 2024 Conference Awards Dinner** @ Rakaia Room, Te Pae Christchurch Convention Centre

Monitor Presentations
Monday 11 November
Session 1 · Room: Bealey 4 + 5

	1.1E Novel Concrete	1.1F Strengthening and Repair	1.1G Projects and construction
	Chair: Ali Kashani	*Chair: Allistair Russell*	*Chair: Joanna Markowska*
13.30	**M1.1E.1 Reactivity of dehydrated cement pastes to be re-used into cement-based systems** *Christian Paglia*	**M1.1F.1 Importance of Mortar Skin Characteristics in Concrete Surface Layer in Analysis of Delamination Behavior between FRP Sheet and Concrete** *Mitsuhiko Ozaki*	**M1.1G.1 Botany Rail Duplication – Innovative Methods for Bridge Construction** *Miho Mihov*
13.40	**M1.1E.2 How is Carbon Nanotube liquid additive technology improving concrete durability, design life and providing a sustainable alternative?** *Tasha Eagle*	**M1.1F.2 Seismic strengthening of frame structures with web-type plate** *Qingxia Yue, Shurong Li & Xin Zhang*	**M1.1G.2 CRL Karanga-a-Hape Underground Railway Station** *John Mitchell*
13.50	**M1.1E.3 Enhancing geopolymer composites with miscanthus fibers: an investigation of thermal behavior, mechanical strength, and microstructural characteristics** *Hussein Nasreddine*	**M1.1F.3 Seismic upgrading of RC frames as a constrained optimisation problem: a rational solution based on Genetic Algorithms** *Enzo Martinelli*	**M1.1G.3 Central Plant and Tunnel Project - Designing for resilience and the future** *Yin Lao*
14.00	**M1.1E.4 Study on Self Curing of Concrete Using Highly Concentrated Aqueous Solution as Mixing Water** *Kenji Harada*	**M1.1F.4 Modelling the impact of steel corrosion on the long-term shear strength in RC structures: the CCCM perspective** *Antoni Cladera*	**M1.1G.4 The Design of the Bridges for two grade-separated rail crossings for The Parkes Special Activation Precinct Enabling Works** *Wayne Juno*
14.10	**M1.1E.5 Effect of environmental conditions on shrinkage-induced cracking of 3D-printed mortar** *Dengyu You*	**M1.1F.5 Pull-out and bond performance of deformed bars in concrete subjected to freeze-thaw cycles after steel corrosion** *Ryuhei Hayakawa*	**M1.1G.5 Advanced formwork systems - design and construction aspects** *Florian Dieterle & Barry Pike*
14.20	**Discussion**	**Discussion**	**Discussion**
	1.2E UHPC	**1.2F Precast concrete**	**1.2G Structural performance**
	Chair: Ekkehard Fehling	*Chair: Dave McGuigan*	*Chair: Ben Matthews*
14.30	**M1.2E.1 HPC and UHPC with reduced climate footprint based on alkali-activated material** *Alexander Wetzel*	**M1.2F.1 Simplified Approaches for the Structural Analysis of Precast Concrete Sandwich Panels** *Ehab Hamed*	**M1.2G.1 Enhancing Impact Resistance in Nuclear Power Plant Structures: A Comprehensive Study on Reinforced Concrete Panels** *Hyukjun Ahn*
14.40	**M1.2E.2 Engineering Properties and Optimal Design of Ultra-High Performance Alkali-Activated Concrete** *Yifei Cui*	**M1.2F.2 Numerical investigation on shear capacity of truss connectors for precast concrete sandwich panels** *Jiayin Yu*	**M1.2G.2 Bending response of the GFRP-reinforced concrete pontoon deck with cutout** *Shahrad Ebrahimzadeh*
14.50	**M1.2E.3 Analytical studies on the flexural behaviors of UHPC composite sandwich panels under different connector configurations** *Feng Xiong*	**M1.2F.3 Decreasing environmental and increasing economic impact within the prefabricated industry – Automated design and production of structurally optimised concrete components** *Peter Gappmaier*	**M1.2G.3 Improved design by synergized soil-structure interaction** *Julia Ober*
15.00	**M1.2E.4 Full-scale test and finite element analysis of RBP-UHPC variable section cantilever beam** *He Linyi*	**M1.2F.4 Buckling of prestressed concrete bridge girders** *V.N Heggade*	**M1.2G.4 Effect and mechanism of diaphragms on girder performance of simply supported T-girder bridge** *Chengxu Yu*
15.10	**M1.2E.5 Development and Potential of using UHPFRC for Infrastructure in Thailand** *Ralf Winterberg*	**M1.2F.5 Ultimate Load Capacity of Unbonded Prestressed Concrete Beams Reinforced with Enlarged Section Considering Secondary Stress** *Chenchen Wei*	**M1.2G.5 Evaluating Seismic Inertia Demand of Precast Concrete Diaphragms: A US-NZ Comparison** *Tingting Yu*
15.20	**Discussion**	**Discussion**	**Discussion**

Monitor Presentations
Monday 11 November
Session 2 · Room: Bealey 4 + 5

	2.1E Structural testing	2.1F Concrete mixes	2.1G Alternative reinforcing
	Chair: Ernesto Hernandez	*Chair: Jessey Lee*	*Chair: Marta del Zoppo*
16.00	**M2.1E.1 Experimental investigation on seismic performance of prefabricated pile-slab bridge bent** *Xinyan Jiang*	**M2.1F.1 Comparative Experimental Investigation on Mechanical Properties of Innovative Ultra Lightweight Structural Concrete** *Jamshid Esmaeili & Hossein Farahi Gargari*	**M2.1G.1 Tailored fiber placement for load path oriented reinforcements in textile reinforced concrete** *Kira Heins*
16.10	**M2.1E.2 Experimental Investigation on Shear Behaviour of Prestressed Bridge Girders** *Viktor Borzovič*	**M2.1F.2 Influence of Mechanically Treated Recycled Concrete Aggregates and Curing Method on Recycled Aggregate Concrete** *Konstantina Oikonomopoulou*	**M2.1G.2 Lime-based Textile Reinforced Mortar with natural fibers: experimental tests and mechanical characterization** *Enzo Martinelli*
16.20	**M2.1E.3 Tests on Special Anchors for RC Frames With Structural As Well As Non-Structural Masonry Infills To Resist Seismic Loads** *Matthias Roik*	**M2.1F.3 The Improvement of Permeable Concrete Mix Design Method with regards to Void Ratio** *Kento Tsuboi*	**M2.1G.3 Effect of Age on Reverse-Cycle Performance of Hybrid Fibre Reinforced Concrete Beam-Columns** *Erik Bernard*
16.30	**M2.1E.4 Experimental study on beam-column-slit slab joint to achieve proper failure mode of existing RC frame structures** *Yilin Lu*	**M2.1F.4 Use of Finite Element Thermal Modelling to Verify CIRIA 766 Requirements on Complex Structures** *Inam Khan*	**M2.1G.4 Characterisation of the Alkaline Resistance of Fibre Reinforcement Strands Produced in a Dynamic Fibre Winding Process for 3D Concrete Printing** *Tom Rothe*
16.40	**M2.1E.5 Design and Implementation of an UHPC Post Tensioning Anchorage Blister using Full Scale Prototype Testing** *Sean Whelan*	**M2.1F.5 Evaluation on bond splitting failure of reinforced concrete with 3D image analysis for aggregate spatial distribution** *Katsufumi Hashimoto*	**M2.1G.5 Numerical investigation of the bond-slip behavior between ultra-high-performance concrete and titanium alloy bars** *Heider Mendoza*
16.50	**Discussion**	**Discussion**	**Discussion**
	2.2E Sustainable design	**2.2F Design codes**	**2.2G Structural health monitoring**
	Chair: Ferdinand Oswald	*Chair: Marcelo Melo*	*Chair: Trevor Yeow*
17.00	**M2.2E.1 Incorporation of Excavation Soil Sands in Self-Compacting Concrete (SCC) for the Precasting industry: Using the Equivalent Mortar Method** *Lara Saad*	**M2.2F.1 Evaluation of the shear-effective area according to Model Code 2020 for non-rectangular cross-sections of reinforced concrete elements** *Marco Roosen*	**M2.2G.1 Studies on Characteristics of Natural Frequency of Deteriorated Bridges Using Microtremor Measurement** *Takahiro Kyutoku*
17.10	**M2.2E.2 Improving the quality of Recycled Concrete Aggregate (RCA) using Thermo mechanical treatment** *Vithushanthini Arulkumar*	**M2.2F.2 Review of NZ code modelling and deemed to satisfy provision based on Full Probabilistic Analysis (FPA)** *Inam Khan*	**M2.2G.2 A Computer Vision and Infrared Thermography Based Debonding Damage Inspection Method for Building Facades** *Linyuan Ma*
17.20	**M2.2E.3 Embodied carbon over the life cycle of reinforcing steels: Carbon emissions associated with Modules A1-A3 Product and A4-A5 Construction stages** *Andrew Wheeler*	**M2.2F.3 Analysis of fastenings in concrete using spring models: Requirements for finite-element based modelling** *Sebastian Geiger*	**M2.2G.3 Management of Prestressed Concrete Bridges Damaged by Salt Attack with Severe Corrosion of PC Cables** *Osada Koji*
17.30	**M2.2E.4 Functions of green roofs in sustainable urban environment** *Szymon Dawczynski*	**M2.2F.4 The limitations of the Concrete Capacity Design (CCD) Method in calculating the breakout area** *Michael Yamandu Eckstein*	**M2.2G.4 Characterizing Bridge Distress with Advanced Computer Vision Methods** *MiGeum Chorzepa*
17.40	**M2.2E.5 Characterising the behaviour of Hybrid Fibre-Reinforced Concrete** *Michele Win Tai Mak*	**M2.2F.5 A Comparative Assessment of the Accuracy of the Hong Kong (HKBD) and Japanese (JSCE) Concrete Code Shrinkage Prediction Models** *George Fanourakis*	**M2.2G.5 Investigation the Damage Causes of a Prestressed Concrete Box Girder Bridge** *Kotomi Katata*
17.50	**Discussion**	**Discussion**	**Discussion**

Poster Presentations Session
Tuesday 12 November 12.00 – 13.00

No.	Poster Title	Presenter
P.01	A Case Study of Sustainability Certification for Constructional Steels	Ladin Camci
P.02	A review of methodologies relating to Shrinkage, Tensile Strength and Young's Modulus development comparison in early age cementitious concrete curing	Matthew Montgomery
P.03	Ageing Concrete Hydraulic Structures in a Seismically Active Environment	Mohammad Okhovat
P.04	An Experimental Study on Internal Curing of Ultra High Performance Concrete Using Lightweight Scoria Sand	Jamshid Esmaeili & Meysam Aghapour
P.05	An Experimental Study on Interpretation of Core Test Results for Assessment of Concrete In-Situ Strength	Hossein Askarinejad
P.06	Application of +/-45 Degree Bidirectional FRP to Improve Shear Transfer Capacity Across Slab-to-Wall Concrete Connections	Mustafa Mashal
P.07	Application to the Danish test of a bond law deduced from a short RC tie	Maurizio Taliano
P.08	Blind simulation competitions on the assessment of the predictive performance of FEM-based approaches for the design of FRC structures	Joaquim Barros
P.09	Comparative Lifecycle Assessment of SFRC and Conventional RC Structural Slabs	Gideon Asare
P.10	Conformity Assessment Model for the Supply and Installation of Post-Tensioning Systems in Concrete Structures in Australia and New Zealand	Peter Tonkin
P.11	Contemporary Design and Construction of Post Tensioned Structures	Dave Sharp, Andrew Cathcart & Timothy Peters
P.12	Cracking Assessment Methodologies for RC Walls Analysis	Mohsen Shabankareh & Mark Foo
P.13	Design for deconstruction of concrete hollow core slabs, an experimental study.	Tom Molkens
P.14	Design of buried arch structures for earthquake effects, to Australian and New Zealand codes	Doug Jenkins
P.15	Elimination of Tilts in Multi-Story Buildings Using an Experimental Information-Analytical System and Digital Twins	Iurii Kaliukh
P.16	Enhancement of hydration and stabilization of cement clinkers using chemically modified TiB2 nanosheets	Vikash Kumar Singh
P.17	Evaluation Method of Shear Capacity at Slab-Web Interface in Hybrid Beam System	Ravi Singh
P.18	Evaluation of areal corrosion rate distribution for reinforced concrete plane members using non-invasive polarization resistance method	Toshinori Kanemitsu
P.19	Evaluation of Building Height Effect on RC Wall Systems' Response	Mohsen Shabankareh & Mark Foo
P.20	Experimental study on mechanical properties of reinforced concrete transfer beam with openings	Shurong Li
P.21	Experimental Study on the Anchorage Designs' Influence on the Shear Capacity of Looped Wire Rope Connections between Perpendicular Wall-Elements	Henrik Brøner Jørgensen
P.22	Fire Performance of Hybrid Fiber Reinforced Self-Consolidating Concrete with Recycled Ground Glass Pozzolan	Nur Yazdani
P.23	First application of use of prestressed CFRP lamellas to strengthen roof slab of building in Slovakia	Peter Kotes
P.24	Fracture Mechanism Evaluation of Lap Splice under Tension Utilizing 3D-RBSM	Naoshi Ueda
P.25	Implementation of a Low Carbon Approach for Hydraulic Concretes	Nicolas Bagneux
P.26	Incremental sequentially linear analysis to trace post-peak snap-backs for concrete	Chenjie Yu
P.27	Innovative structural instrumentation solutions for the monitoring of remote New Zealand civil infrastructure	Mike Lusby
P.28	Mass transport properties of recycled aggregate concrete under the coupling effect of chloride ion erosion and freeze-thaw cycles	Zihao Yu
P.29	Maximum Foreseeable Loss Assessment of Bridge Assets in Eastern Canada	Dario Pietra
P.30	Numerical study on assembled monolithic subway station sidewall joints with pre-grouted section steel insertion	Tianbo Hu
P.31	Propagation of Errors in Post-crack Performance Assessment of FRC Using the ASTM C1609/C1609M Beam Test	Erik Bernard
P.32	Properties of concrete containing graphite at high temperatures for thermal energy storage	In-Hwan Yang
P.33	Seismic behavior of masonry buildings with or without rigid reinforced concrete floor diaphragms	Tomislav Kišiček
P.34	Seismic Capacities of Prestressed Concrete Beam with Circular Openings	Makoto Maruta
P.35	The Influence of Concrete Modulus of Elasticity on Integral Bridge Behaviour	Sarah Skorpen
P.36	Victoria Bridge Strengthening and Refurbishment	Eoin O'Donovan& Chris Ross

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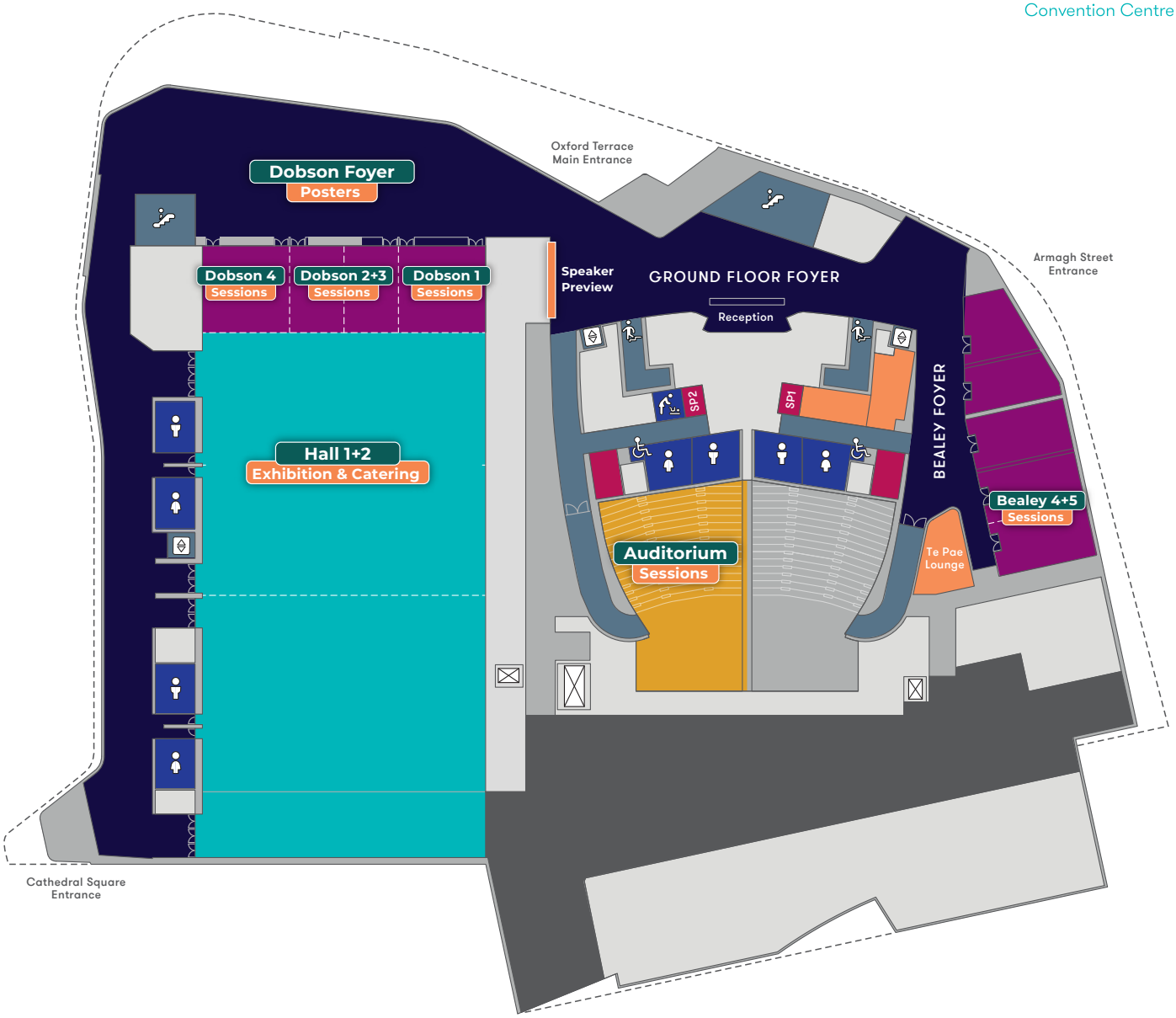

Key:

- Stairs
- Escalator
- Passenger Lift
- Back of House Lift
- Toilets
- Toilets – Accessible
- Parents Room
- Meeting Rooms
- Foyers
- Auditorium
- Halls

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Depending on your requirement, the main food may be suitable for you or a separate table will have food to suitable for you.

Please make yourself known to the catering staff who will assist or please see the Registration Desk for assistance.