

## 5. Technical publications:

Papers presented by *Contech Group* Technical Staff:

Wymer P, Poser M: *State of the Art Grouting for Post-tensioned Structures*. NZ Concrete Industry Conference, Rotorua Convention Centre, October 2008.

Blackler A, Polley E, Jackson H W: *Ormiston Rd Cable stayed Bridge – Cutting Edge Bridge Design and Construction in New Zealand*. NZ Concrete Industry Conference, Rotorua Convention Centre, October 2008.

Lawson M, *Extending the Life of Concrete Structures – Latest Trends and Developments in Electrochemical Repair Techniques*. NZ Concrete Industry Conference, Wairakei, September 2007

Kurtovich M, Graham J; *Rehabilitation of the Eastern Interceptor – Repairs to a Live and Critical Auckland Sewer Using High Performance Calcium Aluminate Concrete*. NZ Concrete Industry Conference, Auckland, September 2005

Wymer P; *Cementing New Zealand's Position as Innovators in Concrete Construction*. NZ Concrete Industry Conference, Auckland, September 2005

Stevenson C, Jackson H; *Hawera Water Tower Restoration*. NZ Concrete Industry Conference, Queenstown, October 2004

Milburn J, Sharp D; *Wellington Railway Station Refurbishment*. NZ Concrete Industry Conference, Queenstown, October 2004

Higgins P, Kurtovich M; *Repairing Critical Assets Using High Performance Calcium Aluminate Cements*. NZ Concrete Society Conference, Wairakei, October 2003.

Lawson M, Barker R; *Repairing a Large Diameter Interceptor Using an Innovative By-Pass Technique and High Performance Calcium Aluminate Concrete*. NZ Waste & Water Association, Environz 03 Auckland September 2003

Lawson M, Latham D, Kooistra B, Mandeno W; *Seaview Wharf: A Concrete CP Case Study*. Coasts & Ports Australasian Conference, Auckland September 2003

Wymer P, Robinson R, Sharp D; *Ground Anchor Practice in New Zealand – A Review of Applications, Design and Execution*; NZ Geomechanics Society Symposium, Geotechnics on the Volcanic Edge, Tauranga, March 2003.

Irwin RW and Rahman A; *FRP Strengthening of Concrete Structures – Design Constraints and Practical Effects on Construction Detailing*; NZ Concrete Society Conference, Wairakei, October 2002.

Lawson M, Voon YL, Lim CB, Irwin RW; *Long-Term Rehabilitation For Marine Structural Concrete Using Impressed Cathodic Protection System*; Proceedings of the Contec-2001 Construction Technology Conference Towards an Innovative Construction, Sabah, Malaysia, October 2001.

Marchant J; *Revival of Post-Tensioned Slabs on Grade*; NZ Concrete Society Conference, Rotorua, October 2001.

Jackson H, Band N; *Shelly Beach Overbridge Lengthening and Strengthening*; NZ Concrete Society Conference, Rotorua, October 2001.

Irwin RW; *Heritage Engineering – Our Professional Obligation; Practical Developments in Achieving our Goals*, Heritage Engineering Conference, Auckland, February 2000.

Restrepo JI, Gray AD and Radosavljevich B; *Seismic Retrofitting of the Aotea Quay Overbridge in Wellington*; Proceedings of the Australasian Structural Engineering Conference *Structuring the Future*, Auckland, September 1998.

Irwin RW, Crome BA and Winkler N; *Stay Cable Technology and Applications for Bridges, Towers and Stadiums*; Proceedings of the Australasian Structural Engineering Conference *Structuring the Future*, Auckland, September 1998

Cederman J , Irwin RW, Wang YC and Restrepo JI; *Design Aspects of Structural Retrofitting using Advanced Composite Materials*; Proceedings of the Australasian Structural Engineering Conference *Structuring the Future*, Auckland, September 1998

Gray AD & Steel PB; *Design and Construction of Chafers Marina Floating Prestressed Concrete Breakwater*, Wellington, NZ; Proceedings 13<sup>th</sup> FIP Congress, Amsterdam, May 1998

Restrepo JJ, Wang YC, Irwin RW and DeVino B; *Fibreglass/Epoxy Composites for the Seismic Upgrading of Reinforced Concrete Beams with Shear and Bar Curtailment Deficiencies*; International Conference on Composite Materials, Napoli, June 1998

Irwin RW and Cederman J; *Jointless Post-tensioned Slabs on Grade*: NZ Concrete Construction, April/May 1998  
Lawson MJ; *Cathodic Protection of Reinforced Concrete: NZ Experience - an Update*; Sesoc Journal, vol 11, No. 1, April 1998

Smith CV; *Engineered Anchor Systems for Masonry Reinforcement*; Sesoc Journal, vol 11, No. 1, April 1998

Gray A D and White B; *Seismic Retrofitting of Aotea Quay Overbridge*, Wellington; IPENZ Conference 1997 Proceedings, February 1997

Irwin, R.W & Munn, C.J: *Practical Advances in the Application of Electrochemical Repair Technology to Reinforced Concrete Structures*; Third ACI/Canmet International Symposium on Advances in Concrete Technology, Auckland, August 1997, pps 43 – 64

Munn, C.J & Irwin, R.W, *The Theory of Corrosion of Reinforcement in Concrete*; Seminars on Electrochemical Repair of Concrete, New Zealand March 1996

Munn, C.J & Irwin, R.W, *Cathodic Protection of Reinforced Concrete*; Seminars on Electrochemical Repair of Concrete, New Zealand March 1996.

Fyfe, E.R, Irwin, R.W, & Watson, R.J, *Composites for Civil Structures & their Application Internationally*, "The Concrete Future" Conference, Auckland, September 1995.

Irwin, R.W & Munn, C.J, (1) *Deterioration of RC Structures Located in Marine Environments*, (2) *Condition Surveys of RC Marine Structures*, (3) *Techniques for Rehabilitation of RC Marine Structures*, (4) *Preparation of Contract Documentation for Concrete Rehabilitation Contracts*, South Pacific Ports Association Workshops on Marine Concrete Structures, Tahiti, September 1995.

Riley, P.B, Gregory, J.B, Wymer, P.A, *The Rehabilitation of Waitakere Dam*, IPENZ Conference, Nelson, February 1994.

Leach, L. & Robinson, R.A, *The Restoration of Historic Fairfield Bridge*, Hamilton, NZ Concrete Society "Concrete 93" Conference Proceedings TR14, October 1993.

Hobbs, S.W, & Lawson, M.J, *The Effectiveness of Repair Techniques on Queen's Wharf, Lautoka*, NZ Concrete Society `Concrete 92' Conference Proceedings TR13, October 1992.

Gregory, J.B, & Wymer, P.A, *Waitakere Dam Strengthening - Upgrading of a Concrete Gravity Dam using Post-tensioned Ground Anchors*, NZ Concrete Society `Concrete 92' Conference Proceedings TR13, October 1992.

Francis, D.V, & Robinson, R.A, *Strengthening of a Floor Slab using Bonded Steel Plates*, NZ Concrete Society `Concrete 92' Conference Proceedings TR13, October 1992.

Irwin, R.W, *Structural Repair and Strengthening Techniques for Damaged and Deteriorated Structures*, CRE Seminar, Singapore, February 1992.

Lay, K.S, Smith, C.V, Irwin, R.W, & Godson, I.B. *The Field Performance of Impressed Current Cathodic Protection Systems*, 2nd International Conference on Inspection, Appraisal, Repairs & Maintenance of Buildings & Structures, Jakarta, September 1992.

Tettamanti, M, Irwin, R.W, & Smith, C.V, *Cathodic Protection of Reinforced Concrete Buildings: Two Years of Experience at Westminster Court Apartment Building*, NACE Corrosion 92 Asia Conference, Singapore, September 1992.

Irwin, R.W, *Structural Repair and Strengthening Techniques for Damaged and Deteriorated Structures*, ACI Seminar on Reconstruction and Rehabilitation of Earthquake-Damaged Concrete Structures, Manila and Baguio City, November 1991.

Irwin, R.W, *Structural Repair and Strengthening Techniques for Damaged and Deteriorating Structures*, ACI Philippines Chapter Seminar Rehabilitation of Earthquake Damaged Structures, Manila and Baguio City, November 1991;

also at Contech Remedial Engineering Pte Ltd Seminar, February 1992, Singapore; also at Development of Bangkok Metropolitan by Use of Advanced Construction Technology Seminar, Bangkok, November 1991.

Irwin R.W; *The Future of Pre-stressing and Rehabilitation of Concrete in New Zealand*; NZ Concrete Society Conference, October 1990.

Irwin, R.W, *Outstanding NZ Concrete Structures*, NZ National Report, FIP Congress, Hamburg, May 1990.

Irwin, R.W, *Concrete Problems in Bridging - their Diagnosis and Rectification*, (jointly with Gray, A.D, & Munn, C.J, - Transit NZ Bridge Seminar - November 1990.

Irwin,R.W., *Cathodic Protection of Chloride Saturated Structures - A Practical Solution for Bridges*, Transit NZ Bridge Design Seminar - November 1990.

Irwin,R.W., *A Review of Concrete Structures Protected by Cathodic Protection*, Seminar on Cathodic Protection, May 1990.

Irwin,R.W., *Prestressing Bridges and Other Structures - A 25 Year Survey*, NZ Concrete Society Conference Proceedings, October 1989.

Robinson,R.A., *A Simple & Economic Method for Rehabilitation of Wharf Piles in Remote Tropical Areas*, Pacific Concrete Conference, Auckland, November 1988.

Lawson, M.J, *Modern Concrete Repair*, (Jointly with McSweeney K.) - Auckland Structural Group, IPENZ, June 1988.

Irwin, R.W, *Soil Nailed Walls as an Aid to Top Down Construction*, (Jointly with Ashley A. & Woodward S.) - NZ Geomechanics Society/Auckland Structural Group, March 1988.

Irwin, R.W, *Corrosion of Reinforced Steel in Concrete & its Prevention by Cathodic Protection*, (Jointly with Lawson, M.J, et al) - Pacific Concrete Conference, November 1988.

Lawson, M.J, *Investigation, Diagnosis & Rehabilitation of the Façade Panels of a multi-Storey Office Building*, (Jointly with Robinson, R.A.) NZ Concrete Society, November 1987.

Irwin, R.W, *Determination of the Rate of Deterioration and Potential Life of Concrete Subject to Carbonation and Chloride Attack*, (Jointly with Lawson M.J.) Concrete Institute of Australia Biennial Conference, May 1987.

Munn, C.J, *Compositional Variations Between Different Silica Fumes, and Their Effects on Early Structure in Cement and Concrete*, NZ Concrete Society, 1987.

Irwin, R.W, *Construction of Underwater Concrete Bulkheads & Plug*, NZ Concrete Society Annual Conference, 1986.

Irwin, R.W, *The Use of Micropiles in Confined spaces for the Strengthening of an Historical Stone Building*, (Jointly with Lawson, M.J.) Geomechanics Society, September 1986.

Irwin, R.W, *The Deterioration of Concrete by Carbonation - A New Technique for Analysis, Interpretation & Decision on Remedial Measures*, NZ Concrete Society Conference, 1986.

Irwin, R.W, *The Morality of Consultants in the Specifying of Ground Anchor Systems*, Geotechnical Branch of IPENZ, 1985.

Irwin, R.W, *Design & Construction of a Flexible Concrete Submarine Pipeline in NZ*, (Jointly with Thomson, A.K.) PCI Journal, 1984.

Irwin, R.W, *The Repair of Concrete Structures in Marine Environments*, NZ Concrete Society Conference, 1982.

Irwin, R.W, *Outstanding Concrete Structures in New Zealand, 1974 - 1978*, FIP Congress London, 1978.