



**Denis Mitchell,
BASc, MASc, PhD, P. Eng.**

**Professor and Department Chair,
Civil Engineering, McGill University**

Summary

Professor Mitchell specializes in the behaviour and design of concrete structures. His research interests include shear and torsion design, design of disturbed regions, seismic design, seismic evaluation and retrofit, the behaviour of prestressed and high-strength concrete structures. He joined the Department of Civil Engineering and Applied Mechanics in 1976.

Professor Mitchell is heavily involved with development of codes both nationally and internationally. He also has extensive consulting and experience as an expert witness on projects such as the Montreal Olympic Stadium tower and roof structures, the Vancouver Rapid Transit structures, the Algerian National Monument Tower, evaluation of cracking in a large concrete dam, seismic evaluation and retrofit of two precast concrete structures, evaluation of large bridge pier and cap beam showing signs of distress, seismic evaluation of two multi-storey shear wall buildings, and the evaluation of the collapse of a silo

Research interests

- Behaviour of high-strength concrete components subjected to reversed cyclic loading
- Exploring innovative techniques for seismic retrofit of bridges and buildings
- Use of high-strength concrete in bridge and slab structures
- Development of code requirements for concrete design and the seismic design of buildings and bridges

Appointments

- Chair of Canadian Standards Association Committee A23.3, responsible for the Standard for the Design of Concrete Structures
- Chair of Sub-Committee on Seismic Design of the Canadian Highway Bridge Design Code
- Chair of Subcommittee on Design Provisions of Canadian National Committee on Earthquake Engineering
- Member of Standing Committee on Structural Design for the National Building Code of Canada
- Member of American Concrete Institute and American Society of Civil Engineers Committee 445, Shear and Torsion

- Member of Canadian Standards Association Committee on Repair of Concrete Buildings
- Member of Canadian Standards Association Steering Committee on Structures (Design)
- Member of Committee 318B - Building Code Committee of American Concrete Institute
- Member and former Chair of American Concrete Institute Committee 408, Development of Reinforcement
- Canadian Delegate to ISO Technical Committee TC71 on Concrete, Reinforcement Concrete and Prestressed Concrete.
- Canadian Delegate to Fédération Internationale du Béton, Commission 7 on Seismic Design.

Awards

- American Concrete Institute's Raymond C. Reese Structural Research Medal, April 1976
- American Concrete Institute's Reese Structural Research Award, February 1981
- Prestressed Concrete Institute's Martin P. Korn Award, October 1981
- Elected Fellow of the American Concrete Institute in 1981
- American Society of Civil Engineers' T.Y. Lin Award, October 1982
- Engineering Class of '51 Award for Outstanding Teaching, Faculty of Engineering, 1987
- American Society of Civil Engineers' T.Y. Lin Award, October 1987
- Elected Fellow of the Canadian Society for Civil Engineering, 1987
- Minister of State (Science and Technology), Networks of Centres of Excellence competition award for research on "High Performance Concrete," November 1989
- Canadian Society for Civil Engineering, Gzowski Medal, May 1992
- American Society of Civil Engineers' 1996 Moisseiff Award, April 1996
- American Concrete Institute's Structural Research Award March 1998
- Chair appointment "The William Scott Professor of Civil Engineering", McGill University January 1999
- Elected Fellow of the Canadian Academy of Engineering, April, 1999
- Canadian Society for Civil Engineering, Gzowski, June 2002
- CSA-International, 2002 Award of Merit, June 2002
- Chair appointment, "James McGill Professor", McGill University, January 2004
- Elected Fellow of the Engineering Institute of Canada, March 2004
- Canadian Society for Civil Engineering, Gzowski, June 2004
- Elected Fellow of the Royal Society of Canada, November 2004

Selected Recent Publications

- Mitchell, D., "Aspects of Seismic Evaluation and Retrofit of Canadian Bridges", Proceedings of "Behavior and Design of Concrete Structures for Seismic Performance", American Concrete Institute Special Publication SP-197, April 2002, pp 169-189.
- Mitchell, D., Cook, W.D., Uribe, C.M. and Alcocer, S.M., Experimental Verification of Strut-and-Tie Models, American Concrete Institute Special Publication SP-208, "Examples for the Design of structural Concrete with Strut-and-Tie Models", ACI International, October 2002, pp. 41-62.
- Mitchell, D., "Lessons from Failures", Chapter 2 of "State-of-the-Art Report on Seismic Design of Precast Concrete Building Structures", fib Bulletin 27, Commission 7, Task 7.3, International Federation for Structural Concrete, Lausanne, Switzerland, October, 2003, pp.19-34.
- Mitchell, D., "Aspects of Seismic Evaluation and Retrofit of Canadian Bridges", Proceedings of "Behavior and Design of Concrete Structures for Seismic Performance", American Concrete Institute Special Publication SP-197, April 2002, pp 169-189.
- Mitchell, D., Cook, W.D., Uribe, C.M. and Alcocer, S.M., Experimental Verification of Strut-and-Tie Models, American Concrete Institute Special Publication SP-208, "Examples for the Design of structural Concrete with Strut-and-Tie Models", ACI International, October 2002, pp. 41-62.
- Mitchell, D., Tremblay, R., Karacabeyli, E., Paultre, P., Saatcioglu, M. and Anderson, D.L., "Seismic Force Modification Factors for the Proposed 2004 NBCC" , Canadian Journal of Civil Engineering, V. 30, April 2003, pp. 308-327.
- Paterson, J. and Mitchell, D., Seismic Retrofit of Shear Walls with Headed Bars and Carbon Fiber Wrap", Journal of Structural Engineering, ASCE, Vol. 129, No. 5, May, 2003, pp. 606-614.
- Paultre, P. and Mitchell, D., "Code Provisions for High-Strength Concrete – an International Perspective", Concrete International, American Concrete Institute, Vol. 25 No. 5, May, 2003, pp. 76-90.
- Cho, S.H., Tupper, B., Cook, W.D., Mitchell, D., "Structural Steel Boundary Elements for Ductile Concrete Walls", ASCE Structural Journal, Vol. 130, No. 5, May, 2004, pp. 762-768.
- Mitchell, D. and Paultre, P., "Experiments on Seismic Response of High-Strength Concrete Members", Proceedings of 4th Structural Specialty Conference, CSCE, Montreal, June 2002, CD Rom paper ST-076, 10 p.
- Paultre, P. and Mitchell, D., "Seismic Response of High-Strength Concrete Structures", Sixth International Symposium on Utilization of High Strength/High Performance Concrete, Leipzig, Germany, June 12-20, 2002, pp. 457-471.
- Paultre, P. and Mitchell, D., "Design of High-Strength Concrete Structures in Seismic Zones", fib Symposium on Concrete Structures in Seismic Zones, Fédération Internationale du Béton, Athens, Greece, May 6-8, 2003, CD Rom paper No. 294, 12 p.
- Mitchell, D., Mutrie, J.G., Adebar, P. and Paultre, P., "Proposed Seismic Design Provisions of A23.3 – Design of Concrete Structures", CSCE Conference Proceedings, Moncton, NB, CD Rom Paper No. GCF-522, June 4-7, 2003, 10 p.