

Resume: Professor John B. Mander

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EDUCATION:

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|-------------|------|---|
| Ph.D. | 1984 | Civil Engineering, University of Canterbury, New Zealand
Thesis: <i>Seismic Design of Bridge Piers</i>
Advisors: Profs. M.J.N. Priestley and R. Park. |
| B.E. (Hons) | 1979 | Civil Engineering, University of Canterbury, New Zealand
<i>Senior Scholar</i> (first class honours) |
| N.Z.C.E. | 1976 | Civil Engineering, Christchurch Polytechnic, New Zealand
<i>Gold Medal prize.</i> |

EMPLOYMENT HISTORY

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| 2007- | Inaugural Zachry Professor in Design and Construction Integration I, Zachry Department of Civil Engineering, Texas A&M University |
| 7/00-12/06 | Professor and Chair of Structural Engineering, Department of Civil Engineering, University of Canterbury, Christchurch, New Zealand |
| 3/95-6/00 | Associate Professor, Department of Civil of Structural and Environmental Engineering, State University of New York at Buffalo, NY 14260, USA. |
| 1/89-2/95 | Assistant Professor, Department of Civil Engineering, State University of New York at Buffalo. |
| 1/88-12/88 | Visiting Assistant Professor, Department of Civil Engineering, State University of New York at Buffalo. |

- 1987 Deputy Group Manager and Strategic Planning Manager, Property Business Group, New Zealand Railways Corporation (N.Z.R.C.), Wellington, New Zealand.
Developed business plans including econometric model forecasts and divestment strategies for managing \$1.2 billion of corporate real estate assets.
- 1983-86 Systems Engineer, N.I.M.T. Railway Electrification Project Office, Wanganui, New Zealand.
- 1986-86 *Consultant to Railfreight Management. Successfully implemented single-manning of trains by using probabilistic risk analysis to investigate levels of safety associated with different size train crews.*
- 1984-86 *Managed computer-based critical-path construction programming of \$60 million civil engineering works.*
- 1984-86 *Project Engineer for \$5 million of retrofitting works for five tunnels for electrification, including design and construction installation of: the overhead traction system; a rock-bolt foundation support system; shotcrete strengthening of tunnel linings; and an innovative sandwich wrapped geotextile floor drainage system.*
- 1983-85 *Developed and implemented a risk-balanced design methodology for culvert renewals. Led design and construction team for the installation of \$3 million of new culvert systems.*
- 1979-83 New Zealand Railways Research Fellow (PhD Candidate), University of Canterbury, New Zealand.
- 1979 Assistant Civil Engineer, Bridge Design Office, Chief Civil Engineers Office, New Zealand Railways, Wellington, New Zealand.
Computer-aided structural analysis for retrofitting aged iron rail bridges. Design of elastomeric bearing systems for dynamic isolation.
- 1977-78 Undergraduate Student, Civil Engineering, University of Canterbury.
- 1973-76 Draughtsman, (Engineering Cadet for NZ Government) New Zealand Railways, Christchurch District Office.
Surveying and design of railroad layouts. Structural drafting of bridges and tunnels.

RESEARCH CONSULTANT TO:

- (1) New Zealand Railways Corporation (2005-2008)
 - Senior Consultant to *Ontrack* for 5 tunnel lowering projects on the Palmerston North –Gisbourne Line
 - Designed new precast concrete lining system for a deteriorated tunnel north of Dunedin.
 - Asset Management Advisor for system wide drainage and culverts

- (2) World Bank, [through BECA Consultants NZ] to the Romanian ministry of Construction. Advice on the development of a seismic retrofit code, including a new section on innovative protective systems. November 2006-April 2007

- (3) Applied Technology Council (ATC) for the following projects:
 - (a) ATC 43 sub-consultant for Federal Emergency Management Agency (FEMA): *Evaluating Earthquake Damage to Wall Buildings*. 1997-8. Contributed several major sections to publications *FEMA 307* and *FEMA 308*

 - (b) ATC 35-1 sub-consultant for United States Geological Survey (USGS): *Ground Motion and Mapping Requirements for Earthquake Design*. Responsible as advisor on energy-based structural design. 1995-97

 - (c) NCHRP 12-49 Sub-consultant for development of *“Comprehensive Specification for the Seismic Design of Bridges.”* This project is on behalf of AASHTO with the objective of writing the new seismic provisions for the *LRFD Bridge Design Specifications*. Responsible for the sections on concrete and timber design. 1998-2000

- (4) National Institute of Building Sciences (NIBS), Washington, D.C.
 - Sub-consultant to FEMA to *Develop Computational Fragility Analysis Tools for Highway Bridges*. 1998-1999

AWARDS

Fellow, Institution of Professional Engineers New Zealand

Senior Scholar, University of Canterbury, graduated with first class honours (1978).

Research Fellow at the University of Canterbury, Christchurch, N.Z., New Zealand Railways (1979-83).

PROFESSIONAL ACTIVITIES

MEMBERSHIPS

- American Society of Civil Engineers (ASCE)
 - Member of Concrete and Masonry Committee
 - Member of Wind and Seismic Effects Committee—also member of committee control group
- Institution of Professional Engineers New Zealand (Fellow IPENZ)
- American Society for Engineering Education (ASEE)
- American Concrete Institute (ACI)
- Earthquake Engineering Research Institute (EERI)
- The Masonry Society, U.S.A. (TMS)
- N.Z. Society for Earthquake Engineering (NZSEE)
- Royal Society, N.Z. (RSNZ)
- British Masonry Society (BMS)

JOURNAL EDITORSHIP

Associate Editor, *Journal of Structural Engineering*, ASCE:

- 1995-98 Committee on Concrete and Masonry Structures. This is ASCE's flagship journal. For the three-year term was responsible for handling the review process from receipt through publication of some 120 papers.
- 2002-2003 Seismic Effects Committee

Earthquake Engineering and Structural Dynamics: Editorial Board (2002-2010)

Electronic Journal of Structural Engineering: Editorial Board (2005-)

Advances in Civil Engineering, Associate Editor, Responsible for editor activities for those submission made in structural engineering. (2009-)

PUBLICATIONS

<u>Summary</u>	<u>Total</u>	<u>Total at A&M</u>
Refereed Journal papers	101	46
Refereed Research Reports	40	5
Book chapters	14	1
Peer reviewed conference papers	100	42
Other conference papers	37	

REFEREED JOURNAL PAPERS

- 101 Scott, R.M., Mander, J.B., and Bracci, J.M., (2011) “Compatibility strut and tie modeling: Part I—Formulation,” *ACI Structural Journal*, *accepted, in press*
- 100 Scott, R.M., Mander, J.B., and Bracci, J.M., (2011) “Compatibility strut and tie modeling: Part II—Modeling,” *ACI Structural Journal*, *accepted, in press*
- 99 Rodgers, G.W., Mander, J.B., Chase, J.G., (2012) "Modeling Cyclic Loading Behavior of Jointed Precast Concrete Connections Including Effects of Friction, Tendon Yielding and Dampers" *Earthquake Engineering and Structural Dynamics*, on-line, DOI: 10.1002/eqe.2183
<http://onlinelibrary.wiley.com/doi/10.1002/eqe.2183/pdf>
- 98 Rodgers, GW, Solberg, KM, Mander, JB, Chase, JG, Bradley, BA and Dhakal, RP (2010). “High-Force-to-Volume Seismic Dissipators Embedded in a Jointed Precast Concrete Frame,” *Journal of Structural Engineering*, ASCE, *on-line*:
<http://ascelibrary.aip.org/getpdf/servlet/GetPDFServlet?filetype=pdf&id=JSENXX000001000001000242000001&idtype=cvips&prog=normal>
- 97 Mander, J.B., Sircar, J., and Damnjanovic, I., (2012) “Direct loss model for seismically damaged structures,” *Earthquake Engineering and Structural Dynamics*, Vol. 41, pp 571-586
- 96 Urmson, C.R., and Mander, J.B., (2012) “Local Buckling Analysis of Longitudinal Reinforcing Bars,” *ASCE Journal of Structural Engineering*, 138 (1), pp 62-71.
- 95 Rodgers, G.W., Mander, J.B., Chase, J.G., (2011) “Semi-Explicit Rate-Dependent Modeling of Damage Avoidance Steel Connections Using HF2V Damping Devices,” *Earthquake Engineering and Structural Dynamics*, Vol. 40, pp 977-992.
- 94 Karthik, M.M., Mander, J.B and Rosowsky, D.V., (2011) “Lumber-Boxed Concrete Structural System—Concept and Preliminary Analysis,” *ASCE Journal of Structural Engineering*, 137 (11), pp1381- 1389.

- 93 Karthik, M.M., and Mander, J.B., (2011) "Stress-Block Parameters for Unconfined and Confined concrete Based on a Unified Stress-Strain Model" *ASCE Journal of Structural Engineering*, Vol. 137, No. 2, pp 270-273.
- 92 Mander, T.J., Mander, J.B., and Hite Head, M. (2011) "Modified Yield-Line Theory for Full-Depth Precast Concrete Bridge Deck Overhang Panels," *ASCE Journal of Bridge Engineering*, Vol. 16, No. 1, pp 12-20.
- 91 Mander, T.J., Mander, J.B., and Hite Head, M. (2011) "Compound Shear- Flexural Capacity of Reinforced Concrete-Topped Precast Prestressed Bridge Decks," *ASCE Journal of Bridge Engineering*, Vol. 16, No. 1, pp 4-11.
- 90 Damjanovic I., Aslan Z., and Mander, J. (2010) "Market-Implied Spread for Earthquake CAT Bonds: Financial Implications of Engineering Decisions," *Risk Analysis*, Vol. 30, No. 12, pp 1753-1770.
- 89 Mander, T.J., Mander, J.B., and Hite Head, M. (2010) "Strength Analysis of Precast Bridge Decks with Full-Depth Precast Overhang Panels," *Transportation Research Record: Journal of the Transportation Research Board*, No. 220, pp. 70–76.
- 88 Mander, T.J., Henley M.D., Scott R.M., Hite Head M., Mander J.B., and Trejo D. (2010), "Experimental Performance of Full-Depth Precast Prestressed Concrete Overhang Bridge Deck Panels," *Journal of Bridge Engineering*, ASCE, Vol. 15, No. 5. pp 503- 510
- 87 Dhakal, R.P., Mander, J.B., Xu, L., (2010) "Seismic Financial Loss Estimation of Steel Moment Frame Buildings," *International Review of Civil Engineering (IRECE)*, Vol. 1, No. 2, May [on line].
- 86 Hamid N.H., and Mander, J.B., (2010) "Lateral Seismic Performance of Multi-Panel Precast Hollowcore Walls", *Journal of Structural Engineering*, ASCE, Vol. 136, No. 7, pp 795-804.
- 85 Mulligan, K. J., Chase, J.G., Mander, J.B., Rodgers, G.W., and Elliott, R.B., (2010), "Nonlinear models and validation for resettable device design and enhanced force capacity", *Structural Control and Health Monitoring*, Vol. 17, pp 301-316
- 84 Bothara, J., Dhakal, R.P., and Mander, J.B., (2010) "Seismic performance of an unreinforced masonry building: an experimental investigation" *Earthquake Engineering and Structural Dynamics*, Vol. 39, pp. 45-68.
- 83 Chey, M-H; Rodgers, GW, Chase, JG and Mander, JB (2010). "Using Upper Storeys as Semi-Active Tuned Mass Damper Building Systems – A Case Study Analysis," *Bulletin of the New Zealand Society of Earthquake Engineering*, Vol 43, No. 2. pp 126-133.
- 82 Chey, MH, Chase, JG, Mander, JB and Carr, AJ (2010). "Semi-active tuned mass damper building systems: Design," *Earthquake Engineering & Structural Dynamics*, Vol. 39, No. 1, pp 119-139.
- 81 Chey, MH, Chase, JG, Mander, JB and Carr, AJ (2010). "Semi-active tuned mass damper building systems: Application," *Earthquake Engineering and Structural Dynamics*", Vol. 39, pp 69-89.

- 80 Sircar, J., Damnjanovic, I., Mander, J.B., and Aslan, Z., (2009), “Catastrophe Bonds for Transportation Assets Feasibility Analysis for Bridges,” *Transportation Research Record: Journal of the Transportation Research Board*, No. 2115, pp 12–19.
- 79 Mander, T.J., Rodgers, G.W., Chase, J.G., Mander, J.B., MacRae, G.A., and Dhakal, R.P.,(2009), “Damage Avoidance Design Steel Beam-Column Moment Connection Using High-Force-to-Volume Dissipators,” *ASCE Journal of Structural Engineering*, Vol. 135, No. 11, pp 1305-1433.
- 78 Hann, CE, Singh-Levett, I, Deam, BL, Mander, JB, and Chase, JG, (2009). “Real-Time Structural Health Monitoring of a Non-linear Four Storey Steel Frame Structure,” *IEEE Sensors Journal*, Vol. 9.,No. 11, pp 1339-1346 (*invited special edition on SHM*)
- 77 Rodgers, G.W., Chase, J.G., Mulligan, K. J., Mander, J.B., Elliott, R.B., (2009) “Customising Semi-Active Resettable Device behavior for Abating Seismic Structural Response,” *Bulletin of the New Zealand Society for Earthquake Engineering*, Vol. 42, No. 3, pp 147-156.
- 76 Toranzo, L. A., Restrepo, J. I., Mander, J. B. and Carr, A. J. (2009) 'Shake-Table Tests of Confined-Masonry Rocking Walls with Supplementary Hysteretic Damping', *Journal of Earthquake Engineering*, Vol. 13, No. 6, pp 882-898.
- 75 Solberg, K., Mashiko, N., Mander, J.B., and Dhakal, R.P., (2009) “Performance of a Damage-Protected Highway Bridge Pier Subjected to Bi-Directional Earthquake Attack,” *Journal of Structural Engineering*, ASCE, Vol. 135, No 5, pp 469-478.
- 74 Mulligan, K. J., Chase, J.G., Mander, J.B., Rodgers, G.W., Elliott, R.B., Franco-Anaya, R., and Carr A.J, (2009), “Experimental validation of semi-active resettable actuators in a 1/5th scale test structure,” *Earthquake Engineering & Structural Dynamics*, Vol. 38 No. 4, pp 517-536
- 73 Chen, X, Chase, JG, Mulligan. KJ., Rodgers. GW and Mander, JB. (2008), “Novel Controllable Semiactive Devices for Reshaping Structural Response” *IEEE/ASME Transactions on Mechatronics*, Vol. 13, No. 6, pp 647-657.
- 72 Li, L., Mander, J.B., and Dhakal, R.P., (2008) “Bidirectional Cyclic Loading Experiment on a 3D Beam–Column Joint Designed for Damage Avoidance” *ASCE, Journal of Structural Engineering*, Vol 134 (11), pp 1733-1742.
- 71 Rodgers, G.W., Solberg, K.M., Chase, J.G., Mander, J.B., Bradley, B.A., Dhakal, R.P., and Li, L., (2008) “Performance of a damage-protected beam-column subassembly utilizing external HF2V energy dissipation devices,” *Earthquake Engineering & Structural Dynamics*, Vol. 37, No. 3, pp 1549-1564.
- 70 Madan, A., Reinhorn A.M., and Mander, J.B., (2008) “Fiber Element Model of Post-Tensioned Hollow Block Masonry Shear Walls Under Reversed Cyclic Lateral Loading” *Journal of Structural Engineering*, ASCE, Vol. 134, No.7, pp 1101-1114.
- 69 Solberg, K.S, Dhakal, R.P., Mander, J.B., Li, L., Bradley, B.A., (2008) Seismic Performance of Damage-Protected Beam Column Joints, *American Concrete Institute, ACI Structural Journal*, March-April, pp 205-214.
- 68 Bradley, B.A., Dhakal, R.P., Mander, J.B., and Li, L., (2008) “Experimental multi-level seismic performance assessment of 3D RC frame designed for damage avoidance,” *Earthquake Engineering & Structural Dynamics*, Vol. 37, pp1-20.

- 67 Solberg, K.S, Dhakal, R.P., Mander, J.B., Bradley, B.A., (2008) “Computational and rapid expected annual loss estimation methodologies for structures,” *Earthquake Engineering and Structural Dynamics*, Vol 37, pp 81-101.
- 66 Rodgers, GW, Mander, JB, Chase, JG, Leach, NC, and Denmead, CS (2008). “Spectral analysis and design approach for high force-to-volume extrusion damper-based structural energy dissipation,” *Earthquake Engineering and Structural Dynamics*, Vol. 37, No. 2, pp 207-223.
- 65 Wu, WH, Chase, JG, Hann, CE and Mander, JB (2007). “A New Routh-Hurwitz Method to Compute the Optimal H_{∞} Norms For State Feedback Problems,” *Journal of Control* (translated from Chinese), Vol.8 (10), pp.1544-1551.
- 64 Bothara, J.K., Mander, J.B., Dhakal, R.P., Khare R.K., and Maniyar M.M. (2007) “Seismic Performance and Financial Risk of Masonry House,” *ISET Journal of Earthquake Technology*, Vol. 44, No. 3. Paper # 493, pp 421-444
- 63 Khare, R.K., Dhakal, R.P., Mander, J.B., Yati, N.B.A. and Maniyar, M.M., (2007) “Mitigation of seismic financial risk of reinforced concrete walls by using damage avoidance design,” *ISET Journal of Earthquake Technology*, Vol. 44, No. 3. Paper # 491, pp 391-408
- 62 Dhakal, R.P., Singh, S., and Mander, J.B., (2007) “Effectiveness of earthquake selection and scaling method in New Zealand”, *Bulletin of the New Zealand Society of Earthquake Engineering*, Vol 40 No 3, pp 160-171.
- 61 Bradley, B.A., Dhakal, R.P., Cubrinovski, M., Mander, J.B., and MacRae, G.A., (2007) “Improved seismic hazard model with application to probabilistic seismic demand analysis,” *Earthquake Engineering and Structural Dynamics*, Vol. 36, pp 2211-2225.
- 60 Rodgers, GW, Chase, JG, Mander, JB, Leach, NC and Denmead, CS (2007). “Experimental Development, Tradeoff Analysis and Design Implementation of High Force-To-Volume Damping Technology,” *Bulletin of the New Zealand Society of Earthquake Engineering*, Vol. 40 (2), pp 35-48
- 59 Mander J.B., Dhakal R.P., Mashiko N., and Solberg K.M., (2007) “Incremental dynamic analysis applied to seismic financial risk assessment of bridges,” *Engineering Structures*, Vol 29, pp 2662-2672
- 58 Kim, J-H. and Mander J.B., (2007) “Influence of transverse reinforcement on elastic shear stiffness of cracked concrete elements,” *Engineering Structures*, Vol. 29, pp 1798-1807
- 57 Dhakal, R. P., Mander, J. B., and Mashiko, N., (2007) “Bidirectional Pseudodynamic Tests of Bridge Piers Designed to Different Standards,” *ASCE, J. Bridge Engrg.* 12, 284
- 56 Rodgers G.W., Mander J.B., Chase J.G., Mulligan K.J., Deam B.L., and Carr A.J., (2007) “Re-shaping hysteretic behaviour - spectral analysis and design equations for semi-active structures,” *Earthquake Engineering & Structural Dynamics*, Vol 36 (1) , pp 77-100
- 55 Chase, JG, Mulligan, KJ, Gue, A, Alnot, T, Rodgers, GW, Mander, JB, Elliott, RB, Deam, BL, Cleeve, L and Heaton, D (2006). "Re-Shaping Hysteretic Behaviour Using Semi-Active Resettable Device Dampers," *Engineering Structures*, Vol. 28, No. 10, pp 1418-1429
- 54 Dhakal, R. P., Mander, J. B., and Mashiko, N., (2006) “Identification of critical ground motions for

seismic performance assessment of structures”, Earthquake Engineering and Structural Dynamics, Vol. 35, No. 8, July, pp 989-1008

[2007Otto Glogau Award, NZ Society for Earthquake Engineering](#)

- 53 Dhakal, R. P., Khare R.K., and Mander, J. B., (2006) “Economic payback of improved detailing for concrete buildings with precast hollow-core floors”, Bulletin of the NZ Society for Earthquake Engineering, Vol. 39, No. 2, pp 105-119.
- 52 Dhakal, R. P., and Mander, J. B., (2006) “Financial loss estimation methodology for natural hazards” Bulletin of the NZ Society for Earthquake Engineering, Vol. 39, No. 2, pp 91-105.
- 51 Xiao X., Wu H., Yaprak T.T., Martin G.R., and Mander J.B., (2006) “Experimental Studies on Seismic Behavior of Steel Pile-to-Pile-Cap Connections”, ASCE Journal of Bridge Engineering, Vol 11, Issue 2, pp. 151-159
- 50 Chase, JG, Mulligan, KJ, Gue, A, Alnot, T, Rodgers, GW, Mander, JB, Elliott, RB, Deam, BL, Cleeve, L., and Heaton, D., (2006). "Re-Shaping Hysteretic Behaviour Using Semi-Active Resettable Device Dampers," Engineering Structures, Vol 28 (10), pp 1418-1429.
- 49 Macpherson, C.J., Mander, J.B., and Bull, D.K., (2005) “Reinforced Concrete Seating Details of Hollowcore Floor Systems,” Journal of the Structural Engineering Society of New Zealand, Vol. 1, pp 38-46.
- 48 Chase J.G., Spieth H.A., Blome C.F., and Mander J.B., (2005) “LMS-based structural health monitoring of a non-linear rocking structure” Earthquake Engineering and Structural Dynamics, Vol. 34, No 8, pp 909-930.
- 47 Chase J.G., Hwang K.L., Barroso L.R., and Mander J.B., (2005) “A simple LMS-based approach to the structural health monitoring benchmark problem” Earthquake Engineering and Structural Dynamics, Vol. 34, No 6, pp 575-594
- 46 Kim, J-H., Mander, J. B., (2005) “Theoretical shear strength of concrete columns due to transverse steel” Journal of Structural Engineering, ASCE, v 131, n 1, pp 197-199
- 45 Shama, A.A., and Mander J.B., (2004) "Behavior of Timber Pile-to-Cap Connections under Cyclic Lateral Loading" Journal of Structural Engineering, ASCE, Vol 130 (8), pp 1252-1262
- 44 Ajab J.J., Pekcan, G., and Mander, J.B., (2004) “Rocking Wall–Frame Structures with Supplemental Tendon Systems” Journal of Structural Engineering, ASCE, Vol 130 (6), pp 895-903.
- 43 Mander, J.B., (2004) “Beyond Ductility: The Quest Goes On”, Bulletin of the New Zealand Society of Earthquake Engineering, Vol 37, No. 1, pp 35-44.
- 42 Shama, A. A., Mander, J. B. Chen, S. S. (2003) “Simplified Seismic fatigue Evaluation for Rigid Steel Connections”, Earthquake Engineering and Engineering Vibration, Vol 2, No 2, pp 245-253.
- 41 Holden, T., Restrepo, J., and Mander J.B., (2003) “Seismic performance of precast reinforced and prestressed concrete walls,” Journal of Structural Engineering, ASCE, Vol 129 (3), pp 286-296.

- 40 Shama, A.A., and Mander J.B., (2003) "The seismic performance of braced timber pile bents", *Earthquake Engineering and Structural Dynamics*, Vol 32 No 3, pp 463-482.
- 39 Mander, J.B., (2003) "Improving Linkages Between Earthquake Engineering Research and Practice" *Bulletin of the New Zealand Society for Earthquake Engineering*, Vol. 36, No. 2, pp 94-102.
- 38 Pekcan, G., Mander, J.B., and Chen, S.S. (2002), "Seismic Retrofit of Steel Deck-Truss Bridges: Experimental Investigation," *Advances in Structural Engineering*, Vol. 5, No. 3, pp 173-183.
- 37 Shama, A.A., Mander J.B., and Chen, S.S., (2002) "Seismic Investigation of Steel Pile Bents: II. Retrofit and Vulnerability Analysis", *Earthquake Spectra*, Vol 18, No. 1, pp 143-160.
- 36 Shama, A.A., Mander J.B., Blabac, B.A., and Chen, S.S., (2002) "Seismic Investigation of Steel Pile Bents: I. Evaluation of Performance", *Earthquake Spectra*, Vol 18, No. 1, pp 121-142.
- 35 Shama, A.A., Mander J.B., and Aref A.J. (2002) "Seismic Performance and Retrofit of Steel Pile to Concrete Cap Connections," *ACI Structural Journal*, Vol 99, No 1, pp 51-61.
- 34 Dutta, A., and Mander, J.B., (2001) "Energy Based Methodology for Ductile Design of Concrete Columns" *Journal of Structural Engineering*, ASCE, Vol 127 (12), pp 1374-1381.
- 33 Shama, A., Mander, J.B., Chen, S.S., and Aref, A., (2001) "Ambient vibration and seismic evaluation of a cantilever truss bridge," *Engineering Structures*, Vol 23, pp 1281-1292
- 32 Kim, J,H, and Mander, J.B., (2000) "Cyclic Inelastic Strut-Tie Modeling of Shear-Critical Reinforced Concrete Members", *American Concrete Institute*, SP Vol. 193, pp 707-728.
- 31 Kim, J,H, and Mander, J.B., (2000) "Seismic detailing of reinforced concrete connections." *Structural Engineering and Mechanics*, Vol. 10, No. 6, pp 589-601
- 30 Mander, J.B., Allicock, D.R., and Friedland, I.M., (2000) "Seismic Performance of Timber Bridges," *Transportation Research Record 1740*, Paper No. 00-1231, pp 75-84.
- 29 Madan, A., Reinhorn, A.M. and Mander, J.B., (2000) "Interaction of In-Plane Shear and Flexure in Masonry Walls with Unbonded Longitudinal Reinforcement," *Journal of The Masonry Society*, Vol. 18, No. 1, pp. 45-64.
- 28 Madan, A., Reinhorn, A.M. and Mander, J.B., (2000) "Hysteretic Behavior of concrete Masonry Shear Walls with Unbonded Reinforcement," *Journal of The Masonry Society*, Vol 18, No. 1, pp. 31-44.
- 27 Pekcan, G., Mander, J.B., and Chen, S.S. (2000), "Balancing Lateral Loads Using a Tendon-Based Supplemental Damping System," *Journal of Structural Engineering*, ASCE, Vol 126, No.8, pp 896-905.
- 26 Pekcan, G., Mander, J.B. and Chen, S.S. (2000) "Experiments on Steel MRF Building with Supplemental Tendon System", *Journal of Structural Engineering*, ASCE, Vol. 126, No. 4, pp 437-444.
- 25 Dutta, A., Mander, J.B. and Kokorina, T. (1999), "Retrofit for Control and Repairability of Damage," *Earthquake Spectra*, Vol. 15, No. 4, pp 657-679
- 24 Pekcan, G., Mander, J.B. and Chen, S.S. (1999) "Fundamental Considerations for the Design of Non-Linear Viscous Dampers", *Earthquake Engineering and Structural Dynamics*, 28, pp 1405-1525.

- 23 Mander J. B., and Cheng, C-T., (1999), "Replaceable Hinge Detailing for Bridge Columns," American Concrete Institute, SP Vol. 187, pp 185-204.
- 22 Mander, J.B., (1998) "Shear Controversy", Journal of Structural Engineering, Vol. 124, No. 12, pp 1374.
- 21 Madan, A., Reinhorn, A.M., Mander, J.B. and Valles, R.E., (1997), "Modeling of Masonry Infill Panels for Structural Analysis", Journal of Structural Engineering, Vol. 123, No. 10, pp. 1295-1302.
- 20 Kunnath, S.K., Mander J. B. and Fang, L., (1997) "Parameter Identification for Degrading and Pinched Hysteretic Structural Concrete Systems," Engineering Structures, Vol. 19, No. 3, pp. 224-323.
- 19 Mander, J.B., Kim, D.K. and Chen, S.S., (1996) "Seismic Performance and Retrofitting of Steel Bearings", ACI SP-164, pp. 323-336.
- 18 Kim, D.K., Mander, J.B. and Chen, S.S., (1996) "Temperature and Strain Rate Effects on the Seismic Performance of Elastomeric and Lead-Rubber Bearings", ACI SP-164, 1996, pp. 309-322.
- 17 Madan, A., Reinhorn, A.M. and Mander, J.B., (1996) "Flexural Behavior of Reinforced Masonry Shear Walls With Unbonded Reinforcement," Journal of The Masonry Society, Vol. 14, No. 1, pp. 87-98.
- 16 Bracci, J.M., Reinhorn, A.M. and Mander, J.B., (1995), "Seismic Retrofit of Reinforced Concrete Buildings Designed for Gravity Loads: Performance of Structural Model", ACI Structural Journal, Vol. 92, No. 6, pp 711-723.
- 15 Bracci, J.M., Reinhorn, A.M. and Mander, J.B., (1995), "Seismic Resistance of Reinforced Concrete Frame Structures Designed for Gravity Loads: Performance of Structural System", ACI Structural Journal, Vol. 92, No. 5, pp 597-609.
- 14 Kunnath, S.K., Hoffmann, G.W., Reinhorn, A.M. and Mander, J.B. (1995), "Gravity Load-Designed Reinforced Concrete Buildings - Part II: Evaluation of Detailing Enhancements," ACI Structural Journal, Vol. 92, No. 4, pp 470-478.
- 13 Kunnath, S.K., Hoffmann, G.W., Reinhorn, A.M. and Mander, J.B. (1995), "Gravity-Load-Designed Reinforced Concrete Buildings - Part I: Seismic Evaluation of Existing Construction," ACI Structural Journal, Vol. 92, No. 3, pp. 343-354.
- 12 Pekcan G., Mander J.B., and Chen S.S., (1995), "The Seismic Response of a 1:3 Scale Model R.C. Structure with Elastomeric Spring Dampers," Earthquake Spectra, Vol. 11 No. 2, pp. 249-267.
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TEACHING ACTIVITIES

2007- At Texas A&M University

- CVEN 444 (501) Structural Concrete Design
- CVEN 621 Advanced Reinforced Concrete Design
- CVEN 671 Behavior and Design of Prestressed Concrete Structures

2000-2006 At University of Canterbury

- ENCI 230 – Mechanics of Materials (2003-2005) &
 - ENCI 231 – Structural Mechanics 1 (2000-2002)
 - ENCI 426 – Reinforced Concrete (2000-2002)
 - ENCI 630 – Nonlinear Structural Mechanics (2002-2005) &
 - ENCI 636 – Structural Concrete (2000-2001)
- & Developed these as new courses

1988-2000 At State University of New York at Buffalo

- CIE 429 - Reinforced Concrete Design (Fall '90 and Fall '99)
- CIE 467 - Special Topics in Structural Engineering (Spring '97)
- CIE 500 - Structural Design (Fall '88)
- CIE 515 - Advanced Structural Analysis (Fall '90 to '94)
- CIE 524 - Metal Structures (Fall '96)
- CIE 525 - Concrete Structures (Spring '89 to '98, Fall '99)
- CIE 527 - Design of Structural Systems (Fall '89, Spring '97, Fall '97)
- CIE 505 - Civil Engineering Seminar (Spring '91)
- CIE 521 - Plastic Analysis and Design (Spring '92-Spr '95, Spring '00)
- CIE 557/558 - Engineering Project (M.Eng., Spring '97 and Fall '98)
- EAS 451 - Engineering Computations (Spring '89 and '90)
- EAS 103 - Introduction to Engineering (Fall '92 and '93)
- EAS 140 - Engineering Solutions (Fall '95)

1997-98 Developed inaugural *Group Project* Master of Engineering (*MEng*) degree program in which 18 students successfully completed a comprehensive design of a major bridge: The *Peace Bridge* between Buffalo NY and Fort Erie Ontario. CIE 557/558 - Engineering Project (M.Eng., Spring '97 and Fall '98). Students worked in groups of six, and were responsible for two significantly different design options including all facets of geotechnical, foundation and structural design, as well as construction management, scheduling and project economics.

1985 Adjunct Lecturer, Wanganui Regional Community College, New Zealand
Advanced Mathematics 4051

1983 Teaching Assistant, University of Canterbury, New Zealand

- 1981-84 Fortran Programming (junior course)
National Examiner, Authority for Advanced Vocational Awards (AAVA),
Wellington, New Zealand
Structures 2, fifth year (senior) NZCE course
- 1977-81 Adjunct Lecturer, Christchurch Polytechnic, New Zealand
Mechanics, second year NZCE course
Structures 1, fourth year NZCE course
Structures 3, sixth year post-NZCE course

SHORT COURSES

“Seismic Retrofitting of Highway Bridges”, (with Prof. I.G. Buckle and G. Martin), Nashville, TN, May 28-30, 1998.

“Reinforced Concrete Design Review”, for NY State Engineers, Amherst, NY (with Prof. M. Gaus), March 9-11, 1998.

“Passive Energy Dissipation for a Seismic/Wind Design and Retrofit”, Irvine, CA, February 20-22, 1997, San Francisco, CA,

RESEARCH ACTIVITIES: GRADUATE STUDENT ADVISEMENT***Ph.D. Dissertations Completed: Major Advisor***

1. Chang, G.A., "Seismic Energy Based Damage Analysis of Bridge Columns", Ph.D., July 1993 (presently Professor of Civil Engineering, University of Panama).
2. Mahmoodzadegan, B., "Seismic Behavior of Bridge Piers Not Specifically Designed for Earthquake Loads", Ph.D. January 1995. (presently Assistant Professor, CUNY)
3. Wendichansky, D.A., "Experimental Investigation of the Dynamic Response of Two Bridges Before and After Retrofitting with Elastomeric Bearings", April 1996 (presently Associate Professor at University of Puerto Rico).
4. Kim, J.-H., "Seismic Evaluation of Shear-Critical Reinforced Concrete Columns and Their Connections", April 1996 (presently Associate Professor, Ajou University, Su-Won, South Korea).
5. Kim, D.-K., "Experimental and Theoretical Studies on the Seismic Performance of Structural Bearing Systems", August 1996 (presently Associate Professor, Seoul National University of Technology, South Korea).
6. Cheng, C-T. "Rational Flexure-Shear Force-Deformation Modeling of Concrete Bridge Columns", January 1997 (presently Associate Professor, National Institute of Technology at Kaohsiung, Taiwan),
7. Pekcan, G., "Design of Seismic Energy Dissipation Systems for Concrete and Steel Structures", September 1998. (presently Assistant Professor, University of Nevada, Reno)
8. Dutta, A., "On Energy-Based Seismic Analysis and Design of Highway Bridges", February 1999. (presently Structural Design Engineer, Simpson Gumpertz and Heger Inc., San Francisco, CA)
9. Shama, Ayman., "On the Seismic Analysis and Design of Steel and Timber Pile-to-Cap Connections", July 2000. (presently Senior Engineer, Parson Corp., NY, NY)

Ph.D. Dissertations Completed: Co-Advisor

1. Bracci, J.M. (1992) "Experimental and Analytical Study of Seismic Damage and Retrofit of Lightly Reinforced Concrete structures in Low Seismicity Zones", Ph.D. (co-advisor with A.M. Reinhorn; presently Professor and Division Head, Zachry Department of Civil Engineering, Texas A&M.)

2. Madan, A. (1996) "Nonlinear Modeling of Masonry Walls for Planar Analysis of Building Structures" (co-advisor with A.M. Reinhorn; presently Associate Professor, IIT New Delhi, India).

Ph.D. Committees: Graduated Candidates

1. Lee, H.-H. (1990) "The Hysteretic and Dynamic Behavior of Upgraded Composite Masonry Walls under Cyclic Loadings and Strong Ground Motion" (with S.P. Prawel and G.C. Lee).
2. Kartoum, A., (1991) "Experimental and Analytical Study of a Sliding Isolation System for Bridges" (with M.C. Constantinou and A.M. Reinhorn).
3. Shi, X. (1993) "Plastic Analysis of Seismic Stress Fields" (with R. Richards and S. Ahmad).
4. Berg, E. (1993) (with J. Neal and R. Richards).
5. Lobo, R. (1994) "Inelastic Dynamic Analysis of Reinforced Concrete Structures in Three Dimensions". (with A.M. Reinhorn and M.C. Constantinou).
6. Valles, R. (1995) "Evaluation, Prevention and Mitigation of Pounding Effects in Building Structures", (with A.M. Reinhorn and M.C. Constantinou).
7. Wang, Chengbao (1995) "Advanced Development of Boundary Element Methods in Material Nonlinear Analysis" (with P.K. Banerjee and D.P. Henry).
8. Reichman, Y. (1996) "Evaluation of Bridge Structures Subjected to Severe Earthquakes".(with A.M. Reinhorn and M.C. Constantinou).
9. Guin, G. (1997) "Advanced Soil-Pile-Structure Interaction and Nonlinear Pile Behavior". (with P.K. Banerjee and D.P. Henry).

Master of Science (MS) Theses

1. Bracci, J.M. (1989) "Seismic Damage Evaluation of Reinforced Concrete Structures" (with A.M. Reinhorn).
2. Fang, L. (1990) "System Identification for Evaluating Hysteretic Response of Reinforced Concrete Structural Components Subjected to Cyclic Loads" (with A.M. Reinhorn).
3. Lao, L.F. (1990) "The Effect of Detailing on the Seismic Performance of Gravity Load Dominated Reinforced Frames" (with A.M. Reinhorn).
4. Aycardi, L.E. (1991) "The Experimental Behavior of Gravity Load Designed Reinforced Concrete Subassemblages Under Reversed Cyclic Lateral Load".
5. Panthaki, F.D. (1991) "Low Cycle Fatigue Behavior of High Strength and Ordinary Reinforcing Steels".
6. Nair, B. (1992) "An Experimental Study on the Seismic Performance of Brick-Infilled Steel Frames".
7. Kim, D.-K. (1992) "The Effects of Moment Redistribution on the Seismic Design of Structural Frames".
8. Chaudhary, M.T. (1992) "Performance of a Gravity Load Designed Reinforced Concrete Bridge Pier Model Under Reversed Cyclic Lateral Load".
9. Choudhuri, D. (1992) "The Experimental Behavior of Retrofitted Reinforced Concrete Beam-Column Joints Under Reversed Cyclic Lateral Load".
10. Shah, K. (1993) "Wind Induced Fatigue in Steel Pole Bases" (with S.S. Chen).
11. Waheed, S.M. (1993) "Experimental Behavior of a Full-Size Bridge Pier Cap-Column Subassemblage Under Reversed Cyclic Lateral Load".
12. Premus, G.J. (1993) "The Seismic Performance of 30 Year Old Steel Bridge Bearings" (with S.S. Chen).
13. Ligozio, C. (1993) "An Experimental Investigation of the Seismic Performance of a Bridge Pier Designed for Gravity Loads".
14. Kasalanati, A., "Variable Amplitude Low Cycle Fatigue Behavior of Reinforcing Steel", December 1993.
15. Pekcan, G., "Low-Cycle Fatigue Behavior of Semi-Rigid Top-and-Seat Angle Connections", February 1994.
16. Estevez, A., "Biaxial Lateral Load Resistance of a Wall Type Bridge Pier", February 1994.
17. Bhadra, S., "An Experimental Investigation of the Seismic Performance of a Retrofitted Bridge Pier Designed Only for Gravity Loads", April 1994.
18. Dutta, A., "Fatigue Failure Theories for Reinforced Concrete Bridge Columns", September 1995.
19. Jung, O., "Retrofitting of Reinforced Concrete Structures Using Wire Rope as Transverse Reinforcement", September 1995.
20. Goel, P., "Overstrength Factors for Capacity Design of Bridges," January 1996.
21. Kungunga, P.A., "Renewable Moment Resisting Beam-to-Column Connections for Precast Concrete Frame Buildings", August 1996.
22. Qi Ye, "Computational Modeling of Spring Dampers and the Seismic Retrofit of Sway Frames", January 1998.
24. Tobar Ramos, Rene E., "Digital Image-Based Measurements in Experimental Structural Mechanics", July 1998.
25. Garcia, Rudolfo, "Shaking Table Study of Rocking Column Bridge Based on Damage Avoidance Design", August 1998.
25. Kokorina, Tatiana, "Experimental Performance of Reinforced Concrete Bridge Columns with Renewable Hinges Subjected to Seismic Excitation" (August 1998).
26. Szustak, Peter W., "Development of a Soil-Structure Interaction Testing Facility and Experimental Validation of a Seismic Bearing Capacity Theory for spread Bridge Footings" (August 1998).

27. Garcia, Diego Lopez, "Evaluation of Methods of Seismic Analysis for Existing Bridges" (August 1999).
28. Allicock, Dion R., "Experimental Study of Timber Piles Subjected to Reverse Cyclic Loading" (September 1999).
29. Percassi, Stephen J., Jr., "Rocking Column Structures with Supplemental Damping Devices" (February 2000).
30. Ajrab, Jack J., "Rocking Wall-Frame Structures with Supplemental Damping Devices" (May 2000).

Master of Engineering (M.Eng.) Report

1. Wojtkowski, K.M. (1990) "Experiments on Brick-Infilled Steel Frames Under Reversed Cyclic Lateral Load".
2. Chen, C.-Y. (1990) "Behavior of Confined Micro-Concrete Columns".
3. Ma, J. (1990) "Experiments on Brick Infilled Steel Frames Under Reversed Cyclic Lateral Load".
4. Carlson, Brian (1998) "A New Peace Bridge Across the Niagara River".
5. Contreras, Rosa E., "Shaking Table Experiments on Bridge Piers with Rocking Columns", July 1998.
6. Cosgrove, Arthur C. (1998) "The Design of Prestressed Concrete Arch Bridge As a Twin to the Existing Peace Bridge between Buffalo and Fort Erie".
7. Craig, Michael W. (1998) "Peace Bridge: Alternative Design Curved Cable Stay Signature Bridge".
8. Conlon, William J. (1998) "Peace Bridge Signature Bridge Alternative".
9. Heh, Wei-Ming (1998) "Peace Bridge: Construction Engineering and Management of a Proposed New Twin Segmental Prestressed Concrete Arch Bridge".
10. Holevinski, Holly A. (1998) "The Preliminary Design of an Externally Prestressed Concrete Truss Bridge for the Peace Bridge Project".
11. Keenan, Christopher T. (1998) "The Design of a Prestressed Concrete Curved Cable Stay Bridge as an Alternative to the Twinning of the Existing Peace Bridge between Buffalo and Fort Erie".
12. Kostowniak, Edward W. Jr. (1998) "Peace Bridge: Construction Engineering and Management of a Proposed New Curved Cable Stayed, Prestressed Concrete Signature Bridge".
13. Lam, Kai H. (1998) "Twin Peace Bridge".
14. Lazzaro, Donald (1998) "A New Peace Bridge Across the Niagara River".
15. Major, Timothy E. (1998) "Twin Peace Bridge Design".
16. Paksachol, Prakarn (1998) "The Design of a Double Deck Prestressed, Precast Concrete Cable Stayed Truss Bridge Foundation as a Replacing of Existing Peace Bridge, Buffalo, USA and Fort Erie, Canada".
17. Schaller, Robert (1998) "A New Peace Bridge Across the Niagara River".
18. Schoenthal, Carl L. (1998) "The Design of a Prestressed Concrete Arch Bridge as a Twin to the Peace Bridge between Buffalo, New York and Fort Erie, Ontario".
19. Schulz, Cameron (1998) "A New Peace Bridge Across the Niagara River Twin Bridge Foundation".
20. Tschiederer, Bob (1998) "Twin Peace Bridge".
21. Huang, I-Chi (1998), "Alternative Method of Constructing Seismic Resistant Steel Frames".

At the University of Canterbury:

PhD Degrees (Note University of Canterbury requires co-supervision)

1. Toranzo L, (2002) "The use of rocking walls in confined masonry structures"
2. Matthews, J., (2004) "Hollow-core floor slab performance following a severe earthquake"
3. Saunders, D., (2004) "Seismic performance of pre-1970's non-ductile reinforced concrete waffle slab structures constructed with plain round reinforcing steel".
4. Abdul Hamid , N (2007) "Rocking hollow core precast concrete wall buildings," Presently Senior Lecturer, Malaysia University of Technology, Mara.
5. Zaghlool B., (2007) "Behavior of three-dimensional concrete structures under concurrent orthogonal seismic excitations" Presently Senior Structural engineer, The O'Neil Group Pty Ltd, Victoria Australia.
6. Mulligan K., (2007) "Experimental and Analytical Studies of Semi-Active and Passive Structural Control of Buildings"
7. Chey Min Ho (2007) "Passive and semi-active tuned mass damper building systems" Presently Assistant Professor, Yanbian University of Science and Technology, China and Pyongyang University of Science and Technology' in North Korea
8. Rodgers, G.W. (2009) "Next Generation Structural Technologies: Implementing High Force-To-Volume Energy Absorbers," Presently, Post-doc, University of Otago Medical School, Christchurch, NZ

M E Theses

1. Holden (2001) "A comparison of the seismic performance of precast wall construction: Emulation and Hybrid approaches"
2. Lander M., (2001)
3. Martinez (2002) "Performance-based seismic design and probabilistic assessment of reinforced concrete moment resisting frame structures"
4. Surdarno I., (2003) "Performance of thin precast concrete wall buildings under dynamic loading"
5. Davies M., (2003) "Seismic damage avoidance design of beam-column joints using unbonded post-tensioning"
6. Murahidy A., (2003) "Design, construction, dynamic testing and computer modelling of a precast prestressed reinforced concrete frame building with rocking beam-column connections and ADAS elements"
7. Arnold D., (2004) "Development and experimental testing of a seismic damage avoidance designed beam to column connection utilising draped unbonded post-tensioning"
8. Bothera J., (2004) "A shaking table investigation on the seismic resistance of a brick masonry house"
9. Liyanage L., (2004) "Biaxial lateral loading behaviour of thin concrete walls"
10. Lindsay R., (2004) "Experiments on the seismic performance of hollow-core systems in precast concrete buildings."
11. Liew H., (2004) "Performance of hollowcore floor seating connection details"
12. Rahardjo T., (2004) "Experiments and stochastic modelling of NZ grown Pinus Radiata timber and timber piles under seismic loading"
13. Macpherson C., (2005)
14. Robertson, K.,(2006) "Probabilistic seismic design and assessment methodologies for the new generation of damage resistant structures"
15. Li L., (2006) "Further experiments on the seismic performance of structural concrete beam-column joints designed in accordance with the principles of damage avoidance"
16. Wang C., (2006) "Experimental investigation on behaviour of steel fibre reinforced concrete (SFRC)."
17. Mashiko, N. (2007) "Comparative performance of ductile and damage protected bridge piers subjected to bi-directional earthquake attack."

18. Solberg, K., (2007) “Experimental and financial investigations into the further development of Damage Avoidance Design.”

At Texas A&M University

MS Theses, Graduated

1. Sircar, J., (2008) “Loss modeling for pricing catastrophic bonds,” student funded
2. Henley, M., (2009) “Shear connections for the development of a full-depth precast concrete deck system,” Funded by USAF
3. Reddiar, MKM (2009) “Stress-strain model of unconfined and confined concrete and stress-block parameters,” student funded.
4. Brey, RW (2010) “A systematic investigation of shear connections between full-depth panels and precast prestressed bridge girders,” funded from start-up
5. Scott, R.M., (2010) “Experimentally Validated Compatibility Strut and Tie Modeling of Reinforced Concrete Bridge Piers,” funded on TxDOT project 5997.
6. Urmsom, C.R., (2010) “Ultimate Limit State Response of Reinforced Concrete Columns for Use in Performance-Based Analysis and Design,” funded from start-up.
7. Deshmukh, PB (2011) “Rapid spatial distribution seismic loss analysis for multistory buildings” Partial hourly support.
8. Ghorawat, S (2011) “Rapid loss modeling of death and downtime caused by earthquake damage to structures” Student had a TA position
9. Parkar, AS (2011) “Design and development of a continuous precast prestressed concrete bridge system for the multimodal freight shuttle project.” TTI funding from Freight Shuttle project.
10. Roy, S (2011) “Design and construction integration of a continuous precast prestressed concrete bridge system.” TTI funding from Freight Shuttle project
11. Yoon Mo Kim (2011) “Modal analysis of continuous structural system with tapered cantilever members.” Self-supported student.