LAURA N. LOWES

Curriculum Vitæ

Department of Civil and Environmental Engineering
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EDUCATIONAL HISTORY

University of California, Berkeley, CA
Ph.D., Civil Engineering
December 1999
Dissertation: *Finite Element Modeling of Reinforced Concrete Beam-Column Bridge Connections*

University of California, Berkeley, CA
M.S., Civil Engineering
May 1993

University of Washington, Seattle, WA
B.S., Civil Engineering, *Summa Cum Laude*
June 1992

EMPLOYMENT HISTORY

University of Washington
Seattle, WA
- Chair, Dept. of Civil and Environmental Engineering, 2017-present
- Professor, Dept. of Civil and Environmental Engineering, 2015-present
- Associate Chair, Dept. of Civil and Environmental Engineering, 2015-2017
- Associate Professor, Dept. of Civil and Environmental Engineering, 2007-2015
- Assistant Professor, Dept. of Civil and Environmental Engineering, 2000-2007

Stanford University
Stanford, CA
- Assistant Professor, Dept. of Civil and Environmental Engineering, 1999-2000

University of California
Berkeley, CA
- Graduate Student Researcher, Dept. of Civil and Environmental Engineering, 1993-1999

AWARDS AND HONORS

Puget Sound Council of Engineering, Academic Engineer of the Year, 2020
ASCE Moisseiff Award, 2017
William M. and Marilyn M. Conner Endowed Professorship in Civil and Environmental Engineering, 2016 - 2021
Fellow, American Concrete Institute, 2010
Outstanding Earthquake Spectra Paper, 2007, Earthquake Engineering Research Institute
George D. Nasser Award, 2005, Precast / Prestressed Concrete Institute
Japan Society for Promotion of Science, 2002, Short-Term Fellowship
Terman Fellowship, School of Engineering, 1999-2000, Stanford University
Fellowship, 1992-1997, Fannie and John Hertz Foundation
Graduate Fellowship, 1992–1995, National Science Foundation (declined)

PUBLICATIONS

Refereed archival journal publications

h-index (6/18/202): **29**
i10-index (6/18/20): **47**
Total Google Scholar citations (6/18/20): **3169**
[1]Graduate student advised or co-advised by Lowes
[2]Postdoctoral researcher advised or co-advised by Lowes

1. Sen A[2], Lehman DE, Lowes LN (in preparation). "A New OpenSees Formulation to Enable Simulation of Flexure-Shear Failure of Reinforce Concrete Columns." *Journal of Structural Engineering, ASCE*.
2. Ahmed K[1], Lowes LN, Lehman DE (in preparation). "Calibration and Validation of a Finite Element Analysis Method for Reinforced Concrete Walls of Varying Configuration Subjected to Lateral Loading." *Engineering Structures*. *Journal of Structural Engineering, ASCE*.
3. Berman JW, Wartman J, Olsen M, Irish J, Miles S, Tanner T, Gurley KR, Lowes L, Bostrom A, Dafni J, Grilliot M, Lyda A, Peltier J (submitted). "Natural Hazards Reconnaissance with the NHERI RAPID Facility." *Frontiers in Natural Hazard Engineering.*
4. Behrouzi[1] AA, Mock[1] AW, Lowes LN, Lehman DE, Kuchma DA (submitted). "Behavior of C-shaped Slender Concrete Walls."
5. Seok S[1], Haikal G, Ramirez JA, Lowes LN, Lim J (accepted for publication). "Finite Element Simulation of Bond-Zone Behavior of Pullout Test of Reinforcement Embedded in Concrete Using Concrete Damage-Plasticity Model 2 (CDPM2)." *Engineering Structures*.
6. Seok S[1], Haikal G, Ramirez JA, Lowes LN (accepted for publication). "Rib-scale Finite Element Modeling of Bond of Bars Spliced in High-Strength Concrete." *Journal of Structural Engineering, ASCE*.
7. Lowes LN, Lehman DE, Baker[1] C (2020) "SP-339-11: Recommendations for Modeling the Nonlinear Response of Flexural Reinforced Concrete Walls Using Perform." *ACI SP-339*, Farmington Hills: American Concrete Institute.
8. Hua[1] J, Eberhard MO, Laura LN, Gu X (2019). "Modes, Mechanisms and Likelihood of Seismic Shear Failure in Rectangular Reinforced Concrete Columns" *Journal of Structural Engineering, ASCE* 145(10).

9. Marafi[1] NA, Ahmed[1] K, Lowes LN, Lehman DE (2019). "Variability in Seismic Collapse Probabilities of Solid and Coupled-Wall Buildings." *Journal of Structural Engineering, ASCE* 145(6).
10. Lowes LN, Lehman DE, Whitman[1] Z (2019). "Investigation of Failure Mechanisms and Development of Design Recommendations for Flexural Reinforced Concrete Walls" *Engineering Structures*, 186: 323-335.
11. Welt[1] T, Lehman DE, Lowes LN, LaFave J (2018). "A Constitutive Model for Confined Concrete in Slender Rectangular RC Sections Incorporating Compressive Energy" *Construction and Building Materials, 193: 344-362.*
12. Seok[1] S, Haikal G, Ramirez JA, Lowes LN (2018). "High-resolution finite element modeling for bond in high-strength concrete beam." *Engineering Structures* 173: 918-932.
13. Shegay[1] A, Motter CJ, Henry RS, Lehman DE, Lowes LN, Elwood KJ (2018). "Impact of Axial Load Ratio on the Seismic Response of Planar Walls" *Journal of Structural Engineering, ASCE* 144(8):
14. Rathje EM, Dawson C, Padgett JE, Pinelli JP, Stanzione D, Adair A, Arduino P, Brandenberg SJ, Cockerill T, Dey C, Esteva M, Haan FL, Hanlon M, Kareem A, Lowes LN, Mock S, Mosqueda G (2017). "DesignSafe: New Cyberinfrastructure for Natural Hazards Engineering" *Natural Hazards Review, ASCE* 18(3).
15. Chen J, Kuder KG, Lehman DE, Lowes LN (2017). "Creep modeling of concretes with high volumes of supplementary cementitious materials and its application to concrete-filled tubes." Materials and Structures 50(1): 89.
16. Pugh[1], J.S., Lowes, L.N., Lehman, D.E. (2017). "Accurate Methods for Elastic Seismic Demand Analysis of Reinforced Concrete Walled Buildings" *Journal of Structural Engineering, ASCE* 1843(8): 1-13.
17. Kashani[1], M.M., Lowes, L.N., Crewe, A.J., Alexander, N.A. (2016). "Computational modelling strategies for nonlinear response prediction of corroded RC bridge piers," *Advances in Materials Science and Engineering*. (IF 1.010).
18. Ni Choine, M., Kashani, M.M. Lowes, L.N., O'Connor, A., Crewe, A.J.; Alexander, N.A.; Padgett, J.E. (2016). "Nonlinear Dynamic Analysis and Seismic Fragility Assessment of a Corrosion Damaged Integral Bridge," *International Journal of Structural Integrity* 7(2): 227-239.
19. Kashani[1], M.M., Lowes, L.N., Crewe, A.J., Alexander, N.A. (2016). "A Multi-mechanical Nonlinear Fibre Beam-Column Model for Corroded Columns," *International Journal of Structural Integrity*. 7(2): 213-226.
20. Kashani[1], M.M., Lowes, L.N., Crewe, A.J., Alexander, N.A. (2016). "Nonlinear Fibre Element Modeling of RC Bridge Piers Considering Inelastic Buckling of Reinforcement," *Earthquake Engineering Structures*. (116): 163-177.
21. Kashani[1], M.M., Lowes, L.N., Crewe, A.J., Alexander, N.A. (2016). "Nonlinear Fibre Element Modeling of Corrosion Damaged RC Bridge Piers," *Earthquake Engineering and Structural Dynamics*. 163-177. (IF: 2.305)
22. Dowden, D.M., Clayton[1], P.M., Li, C.H., Berman, J.W., Bruneau, M., Lowes, L.N. (2016). "Full-scale Pseudo-dynamic Testing of Self-Centering Steel Plate Shear Walls," *Journal of Structural Engineering, ASCE* 142(1). (IF: 1.504)

23. Jeon[1], J.S., Lowes, L.N., DesRoches, R., Brilakas, I. (2015). "Framework of Aftershock Fragility Assessment – Case Studies: Older California Reinforced Concrete Building Frames," *Earthquake Engineering and Structural Dynamics* 44(15): 2617-2636. (IF: 2.305)

24. Pugh[1], J.S., Lowes, L.N., Lehman, D.E. (2015). "Nonlinear Line-Element Modeling of Flexural Reinforced Concrete Walls," *Engineering Structures* (104): 174-192. (IF: 1.838)

25. Clayton[1], P.M., Tsai[1], C.Y., Berman, J.W., Lowes, L.N. (2015). "Comparison of Web Plate Numerical Models for Self-Centering Steel Plate Shear Walls," *Earthquake Engineering and Structural Dynamics*. (DOI: 10.1002/eqe.2578) (IF: 2.305)

26. Kashani[1], M.M., Lowes, L.N., Crewe, A.J., Alexander, N.A. (2015). "Phenomenological hysteretic model for corroded reinforced bars including inelastic buckling and low-cyclic fatigue degradation," *Computers and Structures* 156: 58-71. (IF: 2.134)

27. Clayton[1], P.M., Berman, J.W., Lowes, L.N. (2015). "Seismic performance of self-centering steel plate shear walls with beam-only connected web plates." *Journal of Constructional Steel Research* 106: 198-208. (IF: 1.321)

28. Jeon[1], J.S., Lowes, L.N., DesRoches, R., Brilakas, I. (2015). "Fragility Curves for Non-Ductile Reinforced Concrete Frames that Exhibit Different Component Response Mechanisms," *Engineering Structures* 85: 127-143. (IF: 1.838)

29. Kashani[1], M.M., Lowes, L.N., Crewe, A.J., Alexander, N.A. (2014). "Finite element investigation of the influence of corrosion pattern on inelastic buckling and cyclic response of corroded reinforcing bars," *Engineering Structures* 75: 113-125. (IF: 1.838)

30. Webster[1], D.J., Berman, J.W., Lowes, L.N. (2014). "Experimental Investigation of SPSW Web Plate Stress Field Development and Vertical Boundary Element Demand," *Journal of Structural Engineering, ASCE* 140(6): 4001-4011. (IF: 1.504)

31. Jeon[1], J.S., Lowes, L.N., DesRoches, R. (2014). "Numerical Models for Beam-Column Joints in Reinforced Concrete Building Frames," *ACI SP-297 Seismic Assessment of Existing Reinforced Concrete Buildings - New Developments*. Editors, K. Elwood, J. Dragovich, I. Kim. Farmington Hills: American Concrete Institute.

32. Birely[1], A.C., Lowes, L.N., Lehman, D.E. (2014). "Evaluation of ASCE 41 Modeling Parameters for Slender Reinforced Concrete Structural Walls," *ACI SP-297 Seismic Assessment of Existing Reinforced Concrete Buildings - New Developments*. Editors, K. Elwood, J. Dragovich, I. Kim. Farmington Hills: American Concrete Institute.

33. German, S., Jeon[1], J. S., Zhu, Z., Brilakis, I., DesRoches, R., Bearman[1], C., and Lowes, L. (2013). "Machine Vision Enhanced Post-earthquake Inspection," *ASCE Journal of Computing in Civil Engineering* 27(6): 622-634. (IF: 1.268, GS: 2, WoS: 0)

34. Clayton[1], P.M., Berman, J.W., and Lowes, L.N. (2013) "Subassembly Testing and Modeling of Self-Centering Steel Plate Shear Walls," *Engineering Structures* (56): 1848-1857. (IF: 1.838)

35. Lehman, D.E., Turgeon[1], J., Birely[1], A.C., Hart, C.R., Kuchma, D.A., Lowes, L.N., Marley, K.P. (2013). "Seismic Behavior of a Modern Concrete Coupled Wall," *Journal of Structural Engineering, ASCE* (139): 1371-1381. (IF: 1.504, GS: 2, WoS: 1)

36. Lowes, L.N., Lehman, D.E., Birely[1], A.C., Kuchma, D.A., Marley, K.P., Hart, C.R. "Earthquake Response of Slender Planar Concrete Walls with Modern Detailing" *Engineering Structures* Vol. 43, (2012): p 31-47. (IF: 1.838, GS: 4, WoS: 1)

37. Clayton[1], P., Winkley[1], T.B., Berman, J.W., Lowes, L.N. "Experimental Investigation of Self-Centering Steel Plate Shear Walls." *Journal of Structural Engineering, ASCE* 138(7) (2012): 952-960. (IF: 1.504, GS: 5, WoS: 1)

38. Baldvins[1], N., Berman, J.W., Lowes, L.N., Low[1], N., and Janes[1], T. "Development of Damage Prediction Models for Steel Plate Shear Walls" *Earthquake Spectra, EERI* 28(2) (2012): 405-426. (IF: 1.321, GS: 3, WoS: 2)

39. Birely[1], A.C., Lowes, L.N., Lehman, D.E. "Linear Analysis of Concrete Frames Considering Joint Flexibility" *ACI Structural Journal* 109(3) (2012): 381-391. (IF: 1.089, GS: 4, WoS: 0)

40. Clayton[1], P., Berman, J., Lowes, L.N. "Seismic Design and Performance of Self-Centering Steel Plate Shear Walls." *Journal of Structural Engineering, ASCE* 138(1) (2012): 22-30. (IF: 1.504, GS: 10, WoS: 4)

41. Birely[1], A.C., Lowes, L.N., Lehman, D.E. "A Model for the Practical Nonlinear Analysis of Reinforced Concrete Frames Including Joint Flexibility" *Engineering Structures* Vol. 34, (2012): p 455-465. (IF: 1.838, GS: 6, WoS: 5)

42. Mitra[1], N., Mitra, S., Lowes, L.N. "Probabilistic Model for Failure Initiation of Reinforced Concrete Interior Beam–Column Connections Subjected to Seismic Loading." *Engineering Structures* Vol. 33, No. 1 (2011): 154-162. (IF: 1.838, GS: 9, WoS: 4)

43. Tagawa[1] H., G. MacRae and L.N. Lowes. "Continuous Column Effects of Gravity Column in U.S. Steel Moment-Resisting Frame Structures–Part 2." *Journal of Structural and Construction Engineering, Transaction of AIJ (In Japanese).* Vol. 75, No. 650 (2010): 761-770.

44. Lowes, L.N., Oyen[1], P. Lehman, D.E. "Evaluation and Calibration of Load-Deformation Models for Concrete Walls" *ACI-SP 265: Thomas T.C. Hsu Symposium: Shear and Torsion in Concrete Structures.* Ed. A. Belarbi, Y.L. Mo, A. Ayoub. Farmington Hills: American Concrete Institute (2009): 171-198.

45. Berry[1], M.P., D.E. Lehman and L.N. Lowes. "Lumped-Plasticity Models for Performance Simulation of Bridge Columns." *ACI Structural Journal*. 105(3) (2008): 270-279. (IF: 1.089, GS: 27, WoS: 7)

46. Tagawa[1], H., G. MacRae and L.N. Lowes. "Probabilistic Evaluation of Seismic Performance of 3D One-Way and Two-Way Steel Moment Frame Structures." *Earthquake Engineering and Structural Dynamics* 37 (2008): 681-696. (IF: 2.305, GS: 6, WoS: 6)

47. Martin[1], J., J. Stanton, N. Mitra[1] and L.N. Lowes, "Experimental Testing to Determine Concrete Fracture Energy Using a Simple Laboratory Test Setup." *ACI Materials Journal*. 104(6) (2007): 575-584. (IF: 0.909, GS: 16, WoS: 4)

48. Elwood, K.J., Matamoros, A. Wallace, J.W. Lehman, D.E. Heintz, J. Mitchell, A., Moore, M. Valley, M. Lowes, L.N., Comartin, C. and J.P. Moehle. "Update to ASCE/SEI 41 Concrete Provisions." *Earthquake Spectra.* 23(3) (2007): 493-523. (IF: 1.321, GS: 81, WoS: 27)

49. Tagawa[1] H., G. MacRae and L.N. Lowes. "Seismic Reliability of 3D 1-Way and 2-Way Steel Moment Frame Structures Evaluated by Probabilistic Approach." *Journal of Structural and Construction Engineering, Transaction of AIJ (In Japanese).* 618 (2007): 65-72.

50. Tagawa[1] H., G. MacRae and L.N. Lowes. "Evaluation of Seismic Response of Multi-Story Structures Using Dynamic Stability Coefficients - Continuous Column Effects in Steel Moment Frames in Perspective of Dynamic Stability Part 1." *Journal of Structural and Construction Engineering, Transaction of AIJ (In Japanese).* 618 (2007): 57-64.

51. Brown[1], P. and L.N. Lowes. "Fragility Functions for Modern Reinforced Concrete Beam-Column Joints." *Earthquake Spectra*. 23(2) (2007): 263-289. (IF: 1.321, WoS: 7)

52. Mitra[1], N. and L.N. Lowes. "Evaluation, Calibration and Verification of a Reinforced Concrete Beam-Column Joint Model." *Journal of Structural Engineering, ASCE*. 133(1) (2007): 105-120. (IF: 1.504, GS: 62, WoS: 25)

53. Tagawa[1], H., G. MacRae and L.N. Lowes. "Evaluation of the Simplifications of 2D Moment Frames to 1D Coupled Shear-Flexural-Beam Model." *Journal of Structural and Construction Engineering, Transaction of AIJ (In Japanese).* 609 (2006): 41-48.

54. Tagawa[1], H., G. MacRae and L.N. Lowes. "Hysteresis Loop Effects on Stability and Maximum Drift of Structures." *Journal of Structural and Construction Engineering, Transaction of AIJ (In Japanese)* 602 (2006): 137-144.

55. Pagni[1], C.A. and L.N. Lowes. "Fragility Functions for Older Reinforced Concrete Beam-Column Joints." *Earthquake Spectra* 22(1) (2006): 215-238. (IF: 1.321, GS: 29, WoS: 14)

56. Banks[1], G., L.N. Lowes and J. Stanton. "Analysis and Design for End Effects in Twisted Double Tees." *PCI Journal* 50(3) (2005): 40-59. (IF: 0.569, GS: 0, WoS: 1)

57. Lowes, L.N., J.P. Moehle and S. Govindjee. "A Concrete-Steel Bond Model for Use in Finite Element Modeling of Reinforced Concrete Structures." *ACI Structural Journal* 101(4) (2004): 501-511. (IF: 1.089, GS: 40, WoS: 20)

58. Lowes, L.N. and A. Altoontash[1]. "Modeling Reinforced Concrete Beam-Column Joints Subjected to Cyclic Loading." *Journal of Structural Engineering, ASCE* 129(12) (2003): 1686-1697. (IF: 1.504, WoS: 47)

59. Lowes, L.N. "Modeling the Response of Reinforced Concrete Bridge Beam-Column Joints. Subjected to Earthquake Loading." *Transportation Research Record* 1814 (2002): 253-261. (IF: 0.5544, GS: 1, WoS: 0)

60. Lowes, L.N. "A Concrete-Steel Bond Model for Use in Finite Element Modeling of Reinforced Concrete Structures." *ACI SP-205: Finite Element Analysis of Reinforced Concrete Structures*. Ed. K. Willam and T. Tanabe. Farmington Hills: American Concrete Institute (2001): 251-272.

61. Lowes, L.N. and J.P. Moehle. "Evaluation and Retrofit of Beam-Column T-Joints in Older Reinforced Concrete Bridge Structures," *ACI Structural Journal* 96(4) (1999): 519-532. (IF: 1.089, GS: 10, WoS: 10)

Conference proceedings and other non-journal articles – Fully refereed

1. Pugh[1], J.S., Lowes, L.N., Lehman, D.E. "Seismic Design of Concrete Walled Buildings," *Proceedings of the 2nd European Conference on Earthquake Engineering and Seismology: 24-29 August 2014, Istanbul, Turkey*. 12 p.

2. Birely[1] AC, Lowes LN, Lehman DE, Aviram A, Kelly DJ. "ASCE/SEI 31/41 Evaluations of Buildings Damaged in the 2010 Maule, Chile Earthquake," *Proceedings of the 10th National Conference in Earthquake Engineering*, EERI, Anchorage, AK, 2014. (DOI: 10.4231/D35Q4RM6H)

3. Aviram A, Kelly DJ, Birely[1] AC, Lowes LN, Lehman DE. "Disparate damage levels from the 2010 Maule, Chile earthquake in two similar reinforced concrete shear wall buildings," *Proceedings of the 10th National Conference in Earthquake Engineering*, EERI, Anchorage, AK, 2014. (DOI: 10.4231/D3222R64X)

4. Clayton[1] PM, Dowden DM, Li C-H, Berman JW, Bruneau M, Tsai K-C, Lowes LN. "Advances in Self-Centering Steel Plate Shear Wall Testing and Design," *Proceedings of the 10th National Conference in Earthquake Engineering*, EERI, Anchorage, AK, 2014. (DOI:10.4231/D3GM81P60)
5. Kashani[1] MM, Lowes LN, Crewe AJ, Alexander NA. "Implementation of Corrosion Damage Models in Nonlinear Fiber Beam-Column Element," *Proceedings of the 10th National Conference in Earthquake Engineering*, EERI, Anchorage, AK, 2014. (DOI:10.4231/D30P0WR52)
6. Pugh[1], J.S., Lowes, L.N., Lehman, D.E. "Seismic Design of Slender Concrete Walls," *Proceedings of the 10th National Conference on Earthquake Engineering and Seismology: 21-25 July 2014, Anchorage, Alaska*. (DOI: 10.4231/D3D795B64)
7. Tagawa[1], H., MacRae, G., Lowes, L.N. "Continuous Column Effects on Seismic Response and Stability of U.S. Steel Moment-Frame Structures," *Proceedings of the 12th Japan-Korea-Taiwan Joint Seminar on Earthquake Engineering for Building Structures: 26-27 November 2010, Kaohsiung, Taiwan*. Pg. 103.
8. Lowes, L.N. Li[1], J., "Fragility Functions for Reinforced Concrete Moment Frames," *Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering: 25-29 July 2010, Toronto, CA.* Oakland: EERI, July 2010. Paper 738. 10 p.
9. Birely[1], A., Lowes, L.N., Lehman, D.E., Marley, K.P., Hart, C.R., Kuchma, D. "Investigation of the Seismic Response of Slender Concrete Walls," *Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering: 25-29 July 2010, Toronto, CA.* Oakland: EERI, July 2010. Paper 773. 10 p.
10. Birely[1], A., Lowes, L.N., Lehman, D.E. "Practical Linear and Nonlinear Models of Reinforced Concrete Beam-Column Joints in Existing Structures," *Proceedings of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering: 25-29 July 2010, Toronto, CA.* Oakland: EERI, July 2010. Paper 694. 11 p.
11. Berman, J.W., Clayton, T.M., Lowes, L.N., Bruneau, M., Fahnestock, L.A., and Tsai, K.C. "Development of a Recentering Steel Plate Shear Wall and Addressing Critical Steel Plate Shear Wall Research Needs" *Proceedings of the Joint 9^th National Conference on Earthquake Engineering and 10^th Canadian Conference on Earthquake Engineering, Toronto, CA, July 2010.* Oakland: EERI, July 2010. 12 p.
12. Brown[1], P., J. Ji, P. Oyen[1], A. Sterns[1], D.E. Lehman, L.N. Lowes, D. Kuchma and J. Zhang. "Seismic Behavior, Analysis and Design of Complex Wall Systems." *Proceedings of the 8NCEE: 18-22 April 2006, San Francisco, CA.* Oakland: EERI, April 2006. Paper 532. 12 p.
13. Lowes, L.N., N. Mitra[1], A. Theiss[1] and C. Paspuleti[1]. "Modeling Non-Ductile RC Components and Application to the PEER Van Nuys Testbed." *Proceedings of the 8NCEE: 18-22 April 2006, San Francisco, CA.* Oakland: EERI, April 2006. Paper 1792. 9 p.
14. Mitra[1], N. and L.N. Lowes. "Modeling the Behavior of Reinforced Concrete Beam-Column Building Joints Subjected to Earthquake Loading." *Proceedings of the 8NCEE: 18-22 April 2006, San Francisco, CA.* Oakland: EERI, April 2006. 10 p.
15. Tagawa[1], H., G. MacRae, L.N. Lowes and A. Wada. "Dynamic Instability by Link-Element Deformation in Framed-Tube Structures." *Proceedings of the 8NCEE: 18-22 April 2006 San Francisco, CA.* Oakland: EERI, April 2006. 11 p.
16. Lowes, L.N. and A. Altoontash[1]. "Modeling the Response of RC Beam-Column Joints." *Proceedings of the 7NCEE: 21-26 July 2002 Boston, MS.* Oakland: EERI, July 2002. 10 p.

17. Lowes, L.N. "Finite Element Modeling of Reinforced Concrete Beam-Column Connections," *Modeling of Inelastic Behavior of Reinforced Concrete Structures under Seismic Loads.* Ed. B. Shing and T. Tanabe. New York: American Society of Civil Engineers, June 2001. pp. 276-296.
18. Lowes, L.N., Govindjee, S. and J.P. Moehle. "Analysis of Reinforced-Concrete Beam-Column Bridge Joints," *Proceedings of the Sixth U.S. National Conference on Earthquake Engineering, Seattle, WA, 31 May – 4 June 1998.* Oakland: EERI, 1998. Paper 85. 12 p.

Conference proceedings and other non-journal articles – Refereed by abstract only

1. K Ahmed[1], LN Lowes, DE Lehman. "Investigation of Flange Effect and Opening Location in Structural Walls Using Nonlinear Continuum Analysis." *Proceedings of the 17th World Conference on Earthquake Engineering, Sendai, Japan, September 13-17, 2020.*
2. Lowes LN, Lehman DE. "Recommendations for Modeling Slender Reinforced Concrete Walls Using PERFORM," *Proceedings of the 11th National Conference on Earthquake Engineering. Los Angeles, CA,* June 25-29, 2018.
3. Lowes LN, Lehman DE. "Modeling Recommendations for Flexure-Controlled Reinforced Concrete Walls: Proposed Updates to ASCE 41", *Proceedings of the 11th National Conference on Earthquake Engineering. Los Angeles, CA,* June 25-29, 2018.
4. Marafi NA, Ahmed K, Lehman DE, Lowes LN (2018). "Collapse Analysis of RC Walls with Openings and Sensitivity of Model Parameter Uncertainties." *Proceedings of the 11th National Conference on Earthquake Engineering. Los Angeles, CA*
5. J. Hua[1], M. Eberhard, LN Lowes. "A multi-Mechanism Seismic Shear Strength Model for Reinforce Concrete Columns." *Proceedings of 15th the East Asia-Pacific Conference on Structural Engineering and Construction Xi'an China, October 2017.*
6. M. M. Kashani[1], L.N. Lowes, A. J. Crewe, N. A. Alexander. "Constitutive Modeling of Corrosion-Damaged Reinforce Bars Subject to Monotonic and Cyclic Loading" Proceedings of the 7th International Conference on Bridge Maintenance, Safety and Management, Shanghai, China, July 7-11, 2014.
7. M. M. Kashani[1], A. J. Crewe, N. A. Alexander, L. N. Lowes and M. O. Eberhard "Experimental investigation and computational modelling of corrosion induced mechanical-geometrical degradation of reinforcing bars," *Proceedings of ICOSSAR 2013, 11th International Conference on Structural Safety and Reliability, Columbia University, New York, NY June 16-20 2013*.
8. J.S. Jeon[1], R. DesRoches, I. Brilakis & L.N. Lowes "Comparison of fragility curves for an older RC frame with column and beam-column joint shear models," *Proceedings of ICOSSAR 2013, 11th International Conference on Structural Safety and Reliability, Columbia University, New York, NY June 16-20 2013*.
9. J.S. Jeon[1], R. DesRoches, I. Brilakis & L.N. Lowes "Aftershock Probabilistic Seismic Demand Model of Damaged Non-Ductile Reinforced Concrete Frames in California," *Proc. Structures Congress, Pittsburg, PA, SEI, May 2013.* pp 2638-2649.
10. Clayton[1], P.M., Dowden, D.M., Li, C.H., Berman, J.W., Bruneau, M., Lowes, L.N., Tsai, K.-C. (2013) "ASCE 31/41 Evaluation of Damaged Chilean Walled Buildings," *Proc. Structures Congress, Pittsburg, PA, SEI, May 2013,* pp. 2056-2067.

11. Clayton[1], P.M., Dowden, D.M., Li, C.H., Berman, J.W., Bruneau, M., Lowes, L.N., Tsai, K.-C. (2013) "Full-Scale Testing of Self-Centering Steel Plate Shear Walls," *Proc. Structures Congress, Pittsburg, PA, SEI, May 2013,* pp. 1694-1700.

12. D.J. Webster[1], J.W. Berman, L.N. Lowes (2012). "The Elastic and Inelastic Post-Buckling Behavior of Steel Plate Shear Wall Web Plates and Their Interaction with Vertical Boundary Elements," *Proceedings of the Annual Stability Conference, Structural Stability Research Council, Grapevine, TX, April 18-21, 2012.*

13. Jeon[1], J.S., DesRoches, R., Brilakis, I., Lowes, L.N. (2012). "Modeling and Fragility Analysis of Non-Ductile Reinforced Concrete Buildings in Low-to-Moderate Seismic Zones," *Proceedings of the 2012 Structures Congress,* pp 2199-2210.

14. Clayton[1], P.M., Dowden, D.M., Winkley, T., Berman, J.W., Bruneau, M., Lowes, L.N., "Experimental Investigation of Self-Centering Steel Plate Shear Walls," *Proceedings of the 2012 Structures Congress,* pp 1586-1597.

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Books edited

1. Lowes, L.N. and F. Filippou, Editors. *ACI SP-237: Finite Element Analysis of Reinforced Concrete Structures: Proceedings of the International Workshop on Simulation of Post-Peak Response, November 2003.* Farmington Hills: American Concrete Institute. November 2006. 310p.

2. Lowes, L.N. and G. Miller, Editors. *Proceedings of the 2003 ASCE/SEI Structures Congress and Exposition: Engineering Smarter, May 2003*. 1284 p.

Technical reports

1. Price[1], K.R., D. Fields and L.N. Lowes. *Impact of High Performance Reinforcing Steel on Current Design Practice*. Report to Sponsor: Charles Pankow Foundation.
2. Maffei J, Bonelli P, Kelly D, Lehman D, Lowes LN, Moehle JP, Telleen K, Wallace J, Willford M (2013). "Analysis of Seismic Performance of Reinforced Concrete Buildings in the 2010 Chile Earthquake." Report to Sponsor: NEHRP Consultants Joint Venture. Document will be published as NIST GCR **-***-*.
3. Deierlen G, Benham P, Charney F, Lowes L, Stewart J, Willford M (2013). "Nonlinear Analysis Study and Development Program for Performance-Based Seismic Engineering." Report to Sponsor: NEHRP Consultants Joint Venture. Document will be published as NIST GCR **-***-*.
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6. Lowes, L.N., N. Mitra[1] and A. Altoontash[1]. *A Beam-Column Joint Model for Simulating the Earthquake Response of Reinforced Concrete Frames.* PEER Report 2003/10. Berkeley: PEER, University of California, February 2004. 70 p.
7. Krawinkler H, Ed. (2005). *Van Nuys Hotel Building Testbed Report: Exercising Seismic Performance Assessment.* PEER Report 2005/11. Berkeley: PEER, University of California, February 2005. 70 p.
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12. Moehle, J.P., Editor, *Preliminary Report on the Seismological and Engineering Aspects of the January 17,1994 Northridge Earthquake. Preliminary Findings from Field Investigations by a Team from the University of California, Berkeley Immediately Following the Earthquake*. Report No. UCB/EERC-94/01. Berkeley: EERC, University of California, January 1994.

Other significant research dissemination

1. https://www.youtube.com/user/NEESRWallProject. Birely AC, Turgeon JA, Mock A, Behroozi, A, Hart CR, Marley KP, Kuchma DA, Lehman DE, Lowes LN,. "NEESRWall Project" YouTube Channel. Accessed 14 August 2014.
2. AC Birely, CR Hart, KP Marley, LN Lowes, DE Lehman, DA Kuchma (2013). "Seismic Behavior of Modern Reinforced Concrete Structural Walls - Specimen PW1." NEES (distributor). Dataset. DOI: 10.4231/D3BG2H95G.
3. AC Birely, CR Hart, KP Marley, LN Lowes, DE Lehman, DA Kuchma (2013). "Seismic Behavior of Modern Reinforced Concrete Structural Walls - Specimen PW2." NEES (distributor). Dataset.DOI: 10.4231/D36Q1SH1B.
4. AC Birely, CR Hart, KP Marley, LN Lowes, DE Lehman, DA Kuchma (2013). "Seismic Behavior of Modern Reinforced Concrete Structural Walls - Specimen PW3." NEES (distributor). Dataset.DOI: 10.4231/D3SQ8QH1F.
5. AC Birely, CR Hart, KP Marley, LN Lowes, DE Lehman, DA Kuchma (2013). "Seismic Behavior of Modern Reinforced Concrete Structural Walls - Specimen PW4." NEES (distributor). Dataset. DOI: 10.4231/D3NZ80P72.
6. J Turgeon, CR Hart, KP Marley, AC Birely, LN Lowes, DE Lehman, DA Kuchma (2013). "Seismic Behavior of Modern Reinforced Concrete Structural Walls - Specimen CW1." NEES (distributor). Dataset. DOI: 10.4231/D3Z892F52.
7. AC Birely, A Mock, A Behrouzi, DA Kucham, DE Lehman, LN Lowes (2014). "Seismic Behavior of Modern Reinforced Concrete C-Shaped Walls - Specimen UW6". NEES (distributor). Dataset. DOI: 10.4231/D3C24QP0D.
8. A Behrouzi, A Mock, AC Birely, DA Kuchma, DE Lehman, LN Lowes (2014). "Seismic Behavior of Modern Reinforced Concrete C-Shaped Walls - Specimen UW7". NEES (distributor). Dataset. DOI: 10.4231/D37D2Q79C.
9. A Mock, A Behrouzi, AC Birely, DA Kuchma, DE Lehman, LN Lowes (2014). "Seismic Behavior of Modern Reinforced Concrete C-Shaped Walls - Specimen UW8". NEES (distributor). Dataset. DOI: 10.4231/D33N20F5M.

OTHER SCHOLARLY ACTIVITY

Invited lectures, seminars and webinars

1. LN Lowes, Tsinghua University, *Earthquake Behavior, Design, and Modeling of Slender Reinforced Concrete Walls,* December 2018.
2. LN Lowes, SUNY Buffalo, *Earthquake Behavior, Design, and Modeling of Slender Reinforced Concrete Walls,* April 2018.
3. LN Lowes, Holmes Consulting, *Modeling Flexural RC Walls Using OpenSees*, February 2018.
4. LN Lowes, NHERI-E-Defense Workshop, *Opportunities for Collaboration to Advance Simulation*, July 2017.
5. DE Leman, LN Lowes, SEAW Meeting, *Recommendations Modeling Slender RC Walls Using PERFORM*, January 2017.
6. DE Leman, LN Lowes and S McCabe. ATC Webinar, *Assessment of the Performance of Slender Reinforced Concrete Walls under Significant Lateral Loads*, September 2016.
7. LN Lowes and DE Lehman. Coughlin, Porter, Lundeen, *Design of Special Concrete Walls: Research Results and Design Recommendations*, January 2016.
8. 10th National Conference on Earthquake Engineering, *NEES Research Impact on Simulation of Structures*, July 2014.

9. OpenSees@Bristol, *Opportunities for Using OpenSees in Our Quest to Build Earthquake Resilient Cities*, June 2014.
10. LN Lowes and DE Lehman, EERI/NEES webinar, *Performance, Analysis and Design of Flexural Concrete Walls*, February 2013.
11. University of California, Berkeley, PEER Center, *Using OpenSees and Fiber Beam-Column Elements to Simulate the Earthquake Response of Reinforced Concrete Walls*, August 2012.
12. Workshop on Collapse Simulation of Non-Ductile Concrete Buildings, San Francisco, CA "Modeling RC Beam-Column Joints", July 2012.
13. Workshop on High-Performance Computing in Earthquake Engineering, NEES Annual Meeting, Boston. *HPC in Earthquake Engineering: Structural Engineering Challenges and Opportunities*, July 2012.
14. Georgia Institute of Technology, Atlanta, GA, *Seismic Behavior, Analysis and Design of Concrete Walls,* September 2011.
15. University of California, Berkeley, *Research to Advance Performance-Based Seismic Design of Concrete Walls*, November 2008.
16. 2007 NEES Annual Meeting, Snowbird, UT, *Nonlinear Analysis of Reinforced Concrete Walls Using OpenSees Beam-Column Elements*, May 2007.
17. *Seismic Behavior, Analysis and Design of Complex Wall Systems*. US-Japan NEES/E-Defense Collaborative Earthquake Engineering Research Program Planning Meeting. Kobe, Japan. November 2006.
18. *X-Ray Tomography Investigation of Concrete-Steel Bond*. International Workshop: Microstructure and Micromechanics of Stone Based Infrastructure Materials. Blacksburg, Virginia. October 2006.
19. *Prediction of Damage to Older RC Beam-Column Joints*. International Workshop on Performance-Based Seismic Design (PBSD) -- Concepts and Implementation. Bled, Slovenia. June 2004.
20. *Advances in Structural Simulation*. Pacific Earthquake Engineering Research Center, NSF Site Review. May 2004.
21. *Modeling the Earthquake Response of Beam-Column Joints*. 4th U.S.-Japan Workshop on Performance-Based Seismic Design Methodology for Concrete Buildings. Toba, Japan. October 2002.
22. *Numerical Simulation of Structural Response.* Pacific Earthquake Engineering Research Center, NSF Site Review. May 2001.
23. *Finite Element Modeling of Reinforced Concrete Beam-Column Connections*. Seminar on Post-Peak Behavior of RC Structures Subjected to Seismic Loads, Tokyo. October 1999.

Presentations given at conferences (presenter's name identified by bold text)

1. **LN Lowes**, DE Lehman, "Guidance on Nonlinear Modeling of RC Buildings," ACI Convention, Los Angeles, CA, October 2019.
2. **LN Lowes**, J Sumearll[1], DE Lehman, "Evaluation of Seismic Assessment Procedures for Existing Reinforced Concrete Structures Damaged in the 2016 Meinong Earthquake," ACI Convention, Los Angeles, CA, October 2019.

3. **LN Lowes**, DE Lehman, "Recommendations for Modeling Slender Reinforced Concrete Walls Using PERFORM," Eleventh US National Conference on Earthquake Engineering, June 25-29, 2018.
4. **LN Lowes**, DE Lehman, "Modeling Recommendations for Flexure-Controlled Reinforced Concrete Walls: Proposed Updates to ASCE 41", Eleventh US National Conference on Earthquake Engineering, June 25-29, 2018.
5. **K Ahmed[1]**, LN Lowes, DE Lehman. "Nonlinear Finite Element Analysis of Planar and Nonplanar Structural Walls," Engineering Mechanic Institute Conference, MIT and University of Massachusetts, Boston, MA, May 2018.
6. **K Ahmed[1]**, N Marafi, DE Lehman, LN Lowes. "Comparing the Collapse Resistance of Solid and Coupled Walls," ASCE Structures Congress 2018, Fort Worth, TX, April 2018.
7. **Marafi[1] NA**, Ahmed[1] K, Lowes LN, Lehman DE (2018). "Variability of Collapse Probability of Solid and Coupled-Wall Archetypes". Building Seismic Safety Council, KPFF Seattle, WA, January 2018.
8. **K Ahmed[1]**, A Shegay[1], DE Lehman, LN Lowes, C Motter, KJ Elwood, RS Henry. "Selection Criteria for Finite Element Software for Simulation of Flexural RC Walls" ACI Convention, Anaheim, CA, October 2017.
9. **J Hua[1]**, M Eberhard, LN Lowes. "A multi-Mechanism Seismic Shear Strength Model for Reinforce Concrete Columns." 15th The East Asia-Pacific Conference on Structural Engineering and Construction Xi'an China, October 2017.
10. **LN Lowes**, DE Lehman. "ATC 114" ACI Convention, Los Angeles, CA, October 2017.
11. **LN Lowes**, DE Lehman, Z. Whitman1, A. Behrouzi[1]. "High-Resolution Finite Element to Investigate Behavior and Design of Flexural Walls" ACI Convention Los Angeles, CA, October 2017.
12. **LN Lowes**. "Simulating Failure Mechanisms in RC Components: Successes and Current Challenges" ASCE/EW Structures Congress, Denver, CO. April 2017.
13. Z Whitman[1], **LN Lowes**, DE Lehman. "Investigation of RC Wall Failure Mechanisms Using Numerical Simulation," ACI Convention, Milwaukee, MN, April 2016.
14. **LN Lowes,** DE Lehman, C Baker[1]. "Recommendations Modeling Slender RC Walls Using PERFORM," SEAOC Convention, Maui, HI. October 2016.
15. **DE Lehman ,** LN Lowes. "Recommendations for the Analysis of Flexural Concrete Walls," ATC/SEI 2nd Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, San Francisco, CA. December 2015.
16. JS, Jeon[1], **LN Lowes**, R DesRoches "Performance Evanluation for Joints in Reinforced Concrete Buidling Frames." ATC/SEI 2nd Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, San Francisco, CA. December 2015.
17. **LN Lowes**, DE Lehman, JS Pugh[1], Z Whitman[1], C Baker[1]. "Nonlinear Analysis for Earthquake Performance Assessment of Flexural Concrete Walls," ATC/SEI 2nd Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, San Francisco, CA. December 2015.
18. JS Pugh[1], **LN Lowes**, DE Lehman. "Seismic Design of Concrete Walled Buildings," 2nd European Conference on Earthquake Engineering and Seismology, Istanbul, Turkey. August 2014. ATC/SEI

19. **AC Birely[1]**, LN Lowes, DE Lehman, A Aviram, DJ. "ASCE/SEI 31/41 Evaluations of Buildings Damaged in the 2010 Maule, Chile Earthquake," 10*th* National Conference in Earthquake Engineering, Anchorage, AK, July 2014.

20. **A Aviram**, DJ Kelly, AC Birely[1], LN Lowes, DE Lehman. "Disparate damage levels from the 2010 Maule, Chile earthquake in two similar reinforced concrete shear wall buildings," 10*th* National Conference in Earthquake Engineering, Anchorage, AK, July 2014

21. **PM Clayton**[1], DM Dowden, CH Li, JW Berman, M Bruneau, KC Tsai, LN Lowes. "Advances in Self-Centering Steel Plate Shear Wall Testing and Design," 10*th* National Conference in Earthquake Engineering, Anchorage, AK, July 2014

22. **MM Kashani**[1]**,** LN Lowes, AJ Crewe, NA Alexander. "Implementation of Corrosion Damage Models in Nonlinear Fiber Beam-Column Element," 10*th* National Conference in Earthquake Engineering, Anchorage, AK, July 2014

23. JS Pugh[1], **LN Lowes**, DE Lehman. "Seismic Design of Slender Concrete Walls," 10*th* National Conference in Earthquake Engineering, Anchorage, AK, July 2014

24. **LN Lowes**, DE Lehman. "The Observed Performance of RC Walls and Walled Buildings and Recommendations for Design" ACI Convention, Phoenix, AZ, October 2013.

25. K Price[1], **D Fields**, LN Lowes. "High Strength Reinforcement: Where does it make sense?" ACI Convention, Phoenix, AZ, October 2013.

26. **L.N. Lowes**, D.E. Lehman, J. Pugh**[1]**, D. Kuchma, A. Behrouzi, A. Mock "Behavior and Analysis of C-Shaped Walls," NEES Annual Meeting, Reno, NV. August 2013.

27. **MM Kashani**[1], A. J. Crewe, N. A. Alexander, L. N. Lowes & M. O. Eberhard "Experimental investigation and computational modelling of corrosion induced mechanical-geometrical degradation of reinforcing bars," ICOSSAR 2013, 11th International Conference on Structural Safety and Reliability, Columbia University, New York, NY June 2013.

28. **JS Jeon[1]**, R. DesRoches, I. Brilakis & L.N. Lowes "Comparison of fragility curves for an older RC frame with column and beam-column joint shear models," ICOSSAR 2013, 11th International Conference on Structural Safety and Reliability, Columbia University, New York, NY June 2013.

29. **JS Jeon**[1], R DesRoches, I Brilakis, LN Lowes "Aftershock Probabilistic Seismic Demand Model of Damaged Non-Ductile Reinforced Concrete Frames in California," ASCE Structures Congress, Pittsburg, PA, May 2013.

30. **PM Clayton**[1], DM Dowden, CH Li, JW Berman, M Bruneau, LN Lowes, KC Tsai "ASCE 31/41 Evaluation of Damaged Chilean Walled Buildings," ASCE Structures Congress, Pittsburg, PA, May 2013.

31. **PM Clayton**[1], DM Dowden, CH Li, JW Berman, M Bruneau, LN Lowes, KC Tsai (2013) "Full-Scale Testing of Self-Centering Steel Plate Shear Walls," ASCE Structures Congress, Pittsburg, PA, May 2013.

32. **L.N. Lowes**, D.E. Lehman, J. Pugh**[1]**, D. Kuchma, A. Behrouzi, A. Mock "Behavior and Analysis of C-Shaped Walls," NEES Annual Meeting, Boston, MA. July 2012.

33. **D.E. Lehman,** L.N. Lowes, A.C. Birely**[1]**, J.A. Turgeon**[1]**, D. Kuchma, C.R. Hart, K.P. Marley "Seismic Behavior of ACI-Code Designed Slender Planar and Coupled Walls," SEAOC Annual Meeting, September 2011.

34. **L.N. Lowes**, D.E. Lehman, J.A. Turgeon[1], A.C. Birely[1], J. Pugh[1], D. Kuchma, C.R. Hart, K.P. Marley "NEES Small-Group Research Project: Seismic Behavior, Analysis and Design of Complex Wall Systems," NEES Annual Meeting, June 2011, Buffalo, N.Y.
35. **J. Li[1],** L.N. Lowes "Finite Element Analysis of Bond For Reinforced Concrete Structures," Third fib International Congress 2010, May 2010, Washington, D.C.
36. **J. Li[1],** L.N. Lowes "3D Motion Estimation for Reinforced Concrete Bond-Zone Using Volumetric Image Data," Annual Conference of the Engineering Mechanics Institute, 8-11 August 2010, Los Angeles, CA.
37. Baldvins[1], N., **Berman, J.W**., Lowes, L.N., Low[1], N., and Janes[1], T. "Performance Based Design Tools for Steel Plate Shear Walls" ASCE/SEI Structures Congress and North American Steel Construction Conference, Orlando, FL, April 2010. Poster presentation.
38. **L.N. Lowes**, J. Li[1], "Fragility Curves for Reinforced Concrete Moment Frames," 2009 ATC&SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, San Francisco, December 2009.
39. A. Birely[1], **L.N. Lowes**, D.E. Lehman, "A Practical Model for Beam-Column Connections Behavior in Reinforced Concrete Frames," 2009 ATC&SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, San Francisco, December 2009.
40. P. Oyen[1], **L.N. Lowes**, D.E. Lehman, "Evaluation and Calibration of Load-Deformation Models for Concrete Walls," Thomas T. C. Hsu Symposium on Shear and Torsion in Concrete Structures, ACI Fall Convention, November 2009, New Orleans, LA.
41. A. Birely[1], **L.N. Lowes**, D.E. Lehman, "Practical Modeling of Reinforced Concrete Beam-Column Joints," ACI Fall Convention, November 2009, New Orleans, LA.
42. D.E. Lehman, **L.N. Lowes**, A. Birely[1], D. Kuchma, C. Hart, K. Marley, "NEES Small-Group Research Project: Seismic Behavior, Analysis and Design of Complex Wall Systems," 2009 Annual Meeting of the Pacific Earthquake Engineering Research Center, October 2009, San Francisco, CA.
43. **L.N. Lowes**, D.E. Lehman, A. Birely[1], D. Kuchma, C. Hart, K. Marley, "Investigation of the Seismic Response of Slender Concrete Walls," 3rd International Conference on Advances in Experimental Structural Engineering, October 2009, San Francisco, CA.
44. L.N. Lowes, D.E. **Lehman**, A. Birely[1], J. Pugh, D. Kuchma, C. Hart, K. Marley, "Investigation of the Seismic Response of Slender Concrete Walls." 2009 SEAOC Convention, September 2009, San Diego, CA.
45. **J. Li**[1], L.N. Lowes, "Progressive Bond Failure Investigation Using X-Ray Tomography," The 2009 Joint ASCE-ASME-SES Conference on Mechanics and Materials, June 2009, Blacksburg, VA.
46. **J. Li**[1], L.N. Lowes, "Finite Element Modeling of Bond for Reinforced Concrete Structures," The 2009 Joint ASCE-ASME-SES Conference on Mechanics and Materials, June 2009, Blacksburg, VA.
47. **L.N. Lowes**, D.E. Lehman, A. Birely[1], D. Kuchma, C. Hart, K. Marley, "NEES Small-Group Research Project: Seismic Behavior, Analysis and Design of Complex Wall Systems," NEES and NSF CMMI Annual Meeting, Honolulu, HI, June 2009.
48. **A. Birely**[1], L.N. Lowes, D.E. Lehman, "Practical Modeling of Reinforced Concrete Beam-Column Joints," Annual Meeting of the Center for Urban Earthquake Engineering, Tokyo, Japan, March 2009.

49. "Investigation of the Seismic Behavior and Analysis of Reinforced Concrete Structural Walls." 14th World Conference on Earthquake Engineering. October 2008 Beijing, China. Presentation by A. Birely[1].
50. "Evaluation of Practical Methods for Analysis of Reinforced Concrete Walls," 2008 NEES Annual Meeting. June 2008, Portland, OR.
51. "Evaluation of Practical Methods for Analysis of Reinforced Concrete Walls," 2008 Structures Congress and Exposition. 24-26 May 2008, Vancouver, B.C.
52. "Investigation of the Seismic Behavior and Analysis of Reinforced Concrete Structural Walls Using the UIUC NEES Facility," 2007 Structures Congress and Exposition. 16-19 May 2007, Long Beach, CA.
53. "Performance-Based Design and Nonlinear Modeling of Coupled Shear Walls and Coupling Beams," Structures Congress and Exposition. 16-19 May 2007, Long Beach, CA.
54. "Evaluation of Blind Predictions of the Response of Beam-Column Joints," ACI Spring Convention, 22-26 April 2007, Atlanta, GA.
55. "Blind Prediction of the Response of Beam-Column Joints Using a Joint Super Element," ACI Spring Convention, 22-26 April 2007, Atlanta, GA. Presented by N. Mitra[1].
56. "Practical Model of RC Beam-Column Joints," PEER Center Annual Meeting. San Francisco, CA. January 2007. Poster presented by A. Birely[1].
57. "Modeling the Behavior of Large Scale Shake Table Tests Using Linear Elastic Time History Methods," NEES/UCSD Seminar on Analytical Modeling of Reinforced Concrete Walls for Earthquake Resistance. San Diego, CA. December 2006. Presentation by B. Doepker[1].
58. "Probabilistic Evaluation of Seismic Performance of 3D One-Way and Two-Way Steel Moment-Frame Structures." STESSA 2006: Behavior of Steel Structures in Seismic Areas. Yokohama, Japan. August 2006. Presented by H. Tagawa[1].
59. "Seismic Behavior, Analysis and Design of Complex Wall Systems." Eighth National Conference on Earthquake Engineering. San Francisco, CA. April 2006.
60. "Modeling Non-Ductile RC Components and Application to the PEER Van Nuys Testbed." Eighth National Conference on Earthquake Engineering. San Francisco, CA. April 2006.
61. "Modeling the Behavior of Reinforced Concrete Beam-Column Building Joints Subjected to Earthquake Loading." Eighth National Conference on Earthquake Engineering. San Francisco, CA. April 2006. Poster presented by N. Mitra[1].
62. "Dynamic Instability by Link-Element Deformation in Framed-Tube Structures." Eighth National Conference on Earthquake Engineering. San Francisco, CA. April 2006. Poster presented by H. Tagawa[1].
63. "Strut-and-Tie Modeling for Seismic Design." ACI Spring Convention. Charlotte, NC. March 2006.
64. "Strut-and-Tie Modeling of Interior Beam-Column Joints for Seismic Design." ACI Spring Convention. Charlotte, NC. March 2006.
65. "OpenSees Development and Validation Efforts at University of Washington." OpenSees Developers Symposium. Berkeley, CA. August 2005.
66. "EDP-DM-DV Relationships for RC Components." PEER Center Annual Meeting. Walnut Creek, CA. April 2005.
67. "Seismic Behavior, Analysis and Design of Complex Wall Systems." National Science Foundation and NEES Consortium Inc. NEESR-05 Informational Webcast. December 2004.

68. "Modeling the Response of RC Beam-Column Joints." 13th World Conference on Earthquake Engineering. Vancouver, B.C. Canada. August 2004. Presented by N. Mitra[1]

69. "Evaluation of 1D Simple Structural Models for 2D Steel Frame Structures." 13th World Conference on Earthquake Engineering. Vancouver, B.C. Canada. August 2004. Poster presented by H. Tagawa[1].

70. "Evaluation and Mitigation of P-D Effects on 2D Frame Behavior." The Annual Stability Conference, Long Beach, CA. March 2004. Presented by H. Tagawa[1].

71. "Evaluation and Mitigation of P-D Effects on 2D Frame Behavior." STESSA 2003: Naples, Italy. June 2003. Presented by H. Tagawa[1].

72. "Modeling the Earthquake Response of Reinforced Concrete Beam-Column Joints." 2003 ASCE/SEI Structures Congress and Exposition: Engineering Smarter, Seattle, WA. May 2003. Presented by M. Mormann[1].

73. "The Impact of Bond on the Response of RC Beam-Column Joints." US-Japan Workshop on Finite Element Analysis of Reinforced Concrete. Maui, Hawaii. November 2003.

74. "Modeling the Earthquake Response of RC Joints." International Conference on Advances and New Challenges in Earthquake Engineering Research. Harbin, China. August 2002.

75. "Modeling the Response of RC Beam-Column Joints." ASCE/SEI Structures Congress. Denver, Colorado. April 2002.

76. "A Concrete-Steel Bond Model for Use in Finite Element Modeling of Reinforced Concrete Structures," American Concrete Institute, Toronto, Canada, October 2000.

77. "Seismic Response of Anchored Headed Reinforcement," American Concrete Institute, Toronto, Canada, October 2000.

78. "Seismic Response of Anchored Headed Reinforcement," American Concrete Institute, San Diego, California, March 2000.

79. "Analysis of Reinforced Concrete Beam-Column Bridge Connections," John A. Blume Center Affiliates Meeting, Stanford, California, May 1999.

80. "Analysis of Reinforced-Concrete Beam-Column Bridge Joints," Sixth U.S. National Conference on Earthquake Engineering," Seattle, Washington. June 1998.

81. "Performance and Design of Constructible Beam-Column Connections," Fourth Caltrans Seismic Research Workshop, Sacramento, California. July 1996.

82. "Behavior and Rehabilitation of Beam-Column T-Joints in Older Reinforced-Concrete Bridge Structures," 11th World Conference on Earthquake Engineering. Mexico. June 1996.

83. "Rehabilitation of Older Reinforced-Concrete Bridge Joints," SEMM Student Colloquia, University of California, Berkeley. September 1995.

84. "Behavior and Rehabilitation of Older Reinforced-Concrete T-Joints," Fourth U.S. Conference on Lifeline Earthquake Engineering, San Francisco, California. April 1995.

85. "Behavior and Retrofitting of Older Reinforced-Concrete Tee-Joints," Third Annual Caltrans Seismic Research Workshop, Sacramento, California. June 1994.

Professional society memberships.
American Concrete Institute, Fellow 2010, full member since 1999.
American Society of Civil Engineers, full member since 1999.
Earthquake Engineering Research Institute, full member since 1999.

GRADUATE STUDENTS

Chaired Doctoral Degrees

Student Name	Thesis Title	Completed	Current Employer
Kamal Ahmed, co-chair Lehman	Investigation of the Earthquake Response of Squat Concrete Walls Using Nonlinear Finite Element Modeling	In Progress	
Joshua Pugh, co-chair Lehman	Numerical Simulation of Walls and Seismic Design Recommendations for Walled Buildings	December 2012	EDG, Inc., Houston, TX
Anna Birely, co-chair Lehman	Seismic Performance of Slender Reinforced Concrete Structural Walls	December 2012	Texas A&M University
Jingjuan Li	An Investigation of Behavior and Modeling of Bond for Reinforced Concrete	June 2010	KPFF, Seattle
Nilanjan Mitra	An Analytical Study of Reinforced Concrete Beam-Column Joint Behavior under Seismic Loading	Dec. 2006	Indian Institute of Technology, Kharagpur
Hiro Tagawa co-chair MacRae		June 2005	General Building Research Corporation of Japan

Chaired Masters Degrees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)	Current Employer
R Yu, co-advisor Lehman	Thesis	Finite Element Investigation of Insulated Concrete Form Walls	In Progress	
J. Sumearll, co-advisor Lehman	Thesis	Evaluation of ASCE 41 for Exiting RC Buildings	August 2019	KPFF, Seattle
T. Tsogbadrakh, co-advisor Lehman	Project	Evaluation of Buckling Models for Simulation of Slender Wall Response	June 2017	Google, Seattle
Carson Baker, co-advisor Lehman	Project	Recommendations for Modeling Slender Wall Response using PERFORM	June 2016	CPL, Seattle
Zach Whitman, co-chair Lehman	Thesis	Investigation of the Earthquake Response of Slender Concrete Walls Using Nonlinear Finite Element Modeling	June 2015	CPL, Seattle
Kelsey Price	Project	Impact of High Performance Reinforcing Steel on Current Design Practice	Dec. 2013	MKA, Seattle
Cal Bearman	Thesis	Damage Prediction for Concrete Frames	June 2012	WJE, Seattle
Jacob Turgeon, Co-chair Lehman	Thesis	Seismic Behavior and Analysis of Coupled Reinforced Concrete Walls	June 2011	AGH, Inc., Minn., MN
Blake Doepker, Co-chair Lehman	Thesis	Evaluation of Practical Methods for the Evaluation of Concrete Walls	June 2008	
Anna Birely	Coursework only		June 2008	TAMU
Peter Brown	Thesis	Probabilistic Earthquake Damage Prediction for Reinforced Concrete Building Components	June 2008	
Claudio Osses-Henriquez, Co-chair Lehman	Thesis	Advancements on the Disturbed Stress Field Model	Aug. 2007	KPFF, Seattle
Aaron Sterns	Project		March 2006	
Danya Mohr, Co-chair Lehman	Thesis	Nonlinear Analysis and Performance-Based Design Methods for Reinforced Concrete Shear Walls	June 2007	MKA, Seattle
Paul Oyen, Co-chair Lehman	Thesis	Evaluation of Analytical Tools for Determining the Seismic Response of Reinforced Concrete Shear Walls	Aug. 2006	SGH, Los Angeles
Adam Theiss	Thesis	Modeling the Earthquake Response of Older Reinforced Concrete Building Joints	March 2005	MKA, Seattle
Catherine Pagni	Thesis	Modeling of Structural Damage of Older Reinforced Concrete Components	Aug. 2003	
Chaitanya Paspuleti	Thesis	Seismic Analysis of an Older Reinforced Concrete Frame Structure	Dec. 2002	

Other significant student supervision (membership on degree and/or reading committee)

Student Name	Level of Supervision	Completed (Year)	Current Employer
Seungwook Seok	Co-advisor (w/ Haikal and Ramirez at Purdue U).	2019	Purdue University
Anahid Behrouzi	Co-advisor (w/ Lehman, UW and Kuchma, UIUC)	2016	CalPoly, San Luis Obispo
Travis Welt	Co-advisor during 6 mo. visit to UW	2015	University of St. Thomas
Andrew Mock	PhD Committee Member (w/ Kuchma, UIUC)	2015	Stantec
Ching Yi Tsai	Co-advisor (w/ Berman) during 12 mo. visit to UW	2015	NCREE
Mehdi Kashani	Advisor during 12 mo. visit to UW	2013	University of Bristol
Olafur Haraldsson	PhD Committee Member	2015	
David Lattanzi	PhD Committee Member	2013	George Mason University
David Webster	Co-Advisor w/ Berman, UW	2013	Thornton Tomasetti
Patricia Clayton	Co-Advisor w/ Berman, UW	2013	Univ. of Texas at Austin
Jong Su Jeon	PhD Committee Member (w/ DesRoches, Brilakis, GATech)	2013	Georgia Tech
Stephanie German	PhD Committee Member (w/ DesRoches, Brilakis, GATech)	2013	Post-doctoral research, ETH Zurich
Bo-Shiuan Wang	Committee Member	2013	
Mohammad Malakoutian	PhD Reading Committee Member	2012	
Tyler Winkley	Co-advisor (w/ Berman), MS Committee Member	2011	
Keith Palmer	PhD Committee Member	2012	SGH, San Francisco
Patricia Clayton	Co-advisor (w/ Berman), MS Committee Member	2010	Univ. Texas, Austin
Jae Won Jang	PhD Committee Member	2007	
Mike Berry	PhD Committee Member	2006	Montana State Univ.
Tyler Ranf	PhD Committee Member	2007	
Alex Lindblad	PhD Committee Member	2006	Sandia Nat. Laboratory
Jung Han Yoo	PhD Committee Member	2006	
Jon Padvorac	MS Committee Member	2008	
Tyler Sprague	MS Committee Member	2006	UW
Joshua Martin	MS Committee Member	2006	WSDOT
Gregory Banks	MS Committee Member	2004	Berger/ABAM Engineering
Haoli Camarillo	MS Committee Member	2003	
Mohan Chippada	MS Committee Member	2003	
Andrew Ayling	MS Committee Member	2003	
Tomas Tomasson	MS Committee Member	2002	
Alex Lindblad	MS Committee Member	2001	Sandia Nat. Laboratory
Jae Won Jang	MS Committee Member	2001	
Ahmad El Husseini	MS Committee Member	2001	

RESEARCH ACTIVITIES

Funded Research

Funding Agency	Title	Dates
PCA	*Minimum Design Requirements for Insulated Concrete Forms Wall Systems*	1/20 – 6/21
NSF	*RAPID COLLABORATIVE RESEARCH: Japan-U.S. Collaboration on the Seismic Performance of Reinforced Concrete Structures*	11/19-12/20
NSF	*NHERI Simulation Center 2016-2020*	10/16-9/21
NSF	*NHERI Experimental Facility 2016-2020*	9/16-8/21
NSF	*NHERI Cyberinfrastructure 2015-2019*	7/15 – 6/20
NSF	*MRI: Acquisition of a 3D X-Ray Computed Tomography Scanner for Imaging of Large Size Infrastructure, Biological, and Mechanical Components*	8/14 – 7/17
Charles Pankow Found.	*Impact of High-Strength Reinforcing Steel on Current Design Practice*	1/13 – 12/14
NSF	*Collaborative Research: Machine Vision Enhanced Post-Earthquake Inspection and Rapid Loss Estimation*	8/10-7/14
Charles Pankow Found.	*Performance-Based Seismic Design of Concrete Walls*	10/09 – 9/12
NSF	*RAPID: Urgent Collection of Perishable Condition Data from Structures Affected by the Haiti Earthquake*.	4/10-3/1
NSF	*NEESR-SG: Smart and Resilient Steel Walls for Reducing Earthquake Impacts*	10/08-9/12
NSF	*NEESR-SG: Performance-Based Design of Squat Concrete Walls of Conventional and Composite Construction.*	10/08-9/11
NSF	*MRI: Acquisition of Equipment to Simulate Collapse of Engineered Systems under Extreme Loads*	2007-10
NSF via PEER Center	*Database and Simulation Models for RC Components*	2005-07
NSF	*NEESR-SG: Seismic Behavior, Analysis and Design of Complex Wall Systems*.	2004-09
NSF	*An X-Ray Tomography Investigation of Bond in Reinforced Concrete*	2004-08
NSF via the PEER Center	*Modeling of Structural Damage for Old RC Components*	2003-05
NSF	*Workshop for FEARCS: Simulation of Collapse of Concrete Structures: From Research to Practice*	2003-04
NSF via the PEER Center	*Van Nuys Testbed Simulation*	2001-03

NSF via the PEER Center	*Modeling of Structural Damage for Old RC Components*	2000-02
Office of Tech. Licens., Stanford	*Fiber-Optic Sensors for Model-Based Simulation and Health Monitoring of Civil Structures.*	2000-01
NSF via the PEER Center	*Development and Verification of a Bond-Zone Model*	1999-02
Caltrans	*Seismic Response of Anchored Headed Reinforcement*	1998-00

DOCUMENTATION OF TEACHING ACTIVITIES

Courses Taught & Enrollment

Course	Title	Quarter	Credit Hrs	Enrollment
CEE 500	CEE Seminar	SP20	1	21
CEE 102	CEE Careers	W20	1	24
CEE 500	CEE Seminar	SP19	1	20
CEE 102	CEE Careers	W19	1	53
CEE 500	CEE Seminar	W18	1	20
CEE 506	Nonlinear Analysis	SP17	3	11
CEE 457	Structural Analysis I	W17	3	38
CEE 506	Nonlinear Analysis	SP16	3	18
CEE 457	Structural Analysis I	W16	3	42
CEE 377	Intro. Struct. Design	F15	5	69
CEE 506	Nonlinear Analysis	SP15	3	28
CEE 457	Structural Analysis I	W15	3	32
CEE 377	Intro. Struct. Design	F14	5	66
CEE 506	Nonlinear Analysis	SP14	3	33
CEE 457	Structural Analysis I	W14	3	43
CEE 506	Nonlinear Analysis	SP13	3	32
CEE 457	Structural Analysis I	F12	3	35
CEE 506	Nonlinear Analysis	SP12	3	17
CEE 379	Elementary Structures I	W12	4	49
CEE 457	Structural Analysis I	F11	3	46
CEE 506	Nonlinear Analysis	SP11	3	17
CEE 457	Structural Analysis I	F10	3	40
CEE 506	Nonlinear Analysis	SP09	3	7
CEE 500	Seminar	W09	1	22
CEE 504	Finite Elem. Analysis	W09	3	21
CEE 392	Eng. Computing	F08	1	105
CEE 457	Structural Analysis I	F08	3	35
CEE 506	Nonlinear Analysis	SP08	3	7
CEE 457	Structural Analysis I	F07	3	48

Independent Study

Course	Title or Student Name	Quarter	# of Students (Total Credit Hrs)
CEE 506	Nonlinear Analysis	Spring 2010	1 (3)
CEE 599	Nonlinear Analysis of Concrete Structures	Spring 2006	3 (9)
CEE 499	Independent Study	2004-05	2

Teaching Development Activities

"Faculty Workshops on Teaching and Learning, University of Washington," 8 September 2004, participant.

"Faculty Fellows, University of Washington," 14 September – 21 September 2001, participant.

"Cooperative Learning and the New Paradigm for Engineering Education," 31 March 2001, participant.

"Teaching, Learning and Your Academic Career - New Century Scholars," 30 July – 4 August 2000, participant

SERVICE

Departmental service

2017-present	Chair
2015-17	Associate Chair
2014-15	CEE Structural / Geotechnical Engineering Hiring Committee
2014-15	Chair CEE Graduate Education Committee
2013-14	CEE Structural / Geotechnical Engineering Hiring Committee
2013-15	CEE Graduate Education Committee
2012-present	Faculty Mentoring Committees (Gough, Davidson, Motley)
2011-12	CEE Structural / Geotechnical Engineering Hiring Committee
2011-15	CEE Graduate Advisor, Structural Engineering and Mechanics Group
2008-11	Chair, CEE Awards Committee
2008-09	CEE Structural / Geotechnical Engineering Hiring Committee
2008-09	CEE Committee for Emeritus Office Space Policy
2006-07	CEE Strategic Hiring Plan Committee
2006-present	Chi-Epsilon Advisor
2006	Advisor for the Seismic Design Competition
2005-09	CEE Safety Committee Member
2002-04	CEE Executive Committee Member
Spring 2003	Coordinator for Structures Group Graduate Student Recruiting Weekend
Fall 2003	CEE Undergraduate Curriculum Review Committee
2001	Organizer for 2001 Evan's Lecture

College service

2018	COE *Chair,* A/B Salary Committee
2016	COE *Member*, Leadership Development Committee
2001	CEE *Member,* Chair Search Committee Member

Professional society service

Member, American Concrete Institute – Subcommittee 318-C: Safety, Serviceability, and Analysis. 2014-present. The committee is responsible for developing recommendations for changes to the ACI 318 Building Code that address safety, serviceability and analysis of concrete structures.

Member, American Concrete Institute - American Society of Civil Engineering Committee 447, Finite Element Analysis of Reinforced Concrete Structures. 2003-present (Chair 2003-2006). Activities include: organizing semi-annual meetings, supporting the development of committee documents.

Member, American Concrete Institute Committee 369: Seismic Repair and Rehabilitation. 2008-present. Activities include development of recommendations for modeling concrete frames for evaluation of existing buildings.

Associate Editor, Journal of Structural Engineering, American Society of Civil Engineering, 2010-2016 Activities include identifying reviewers, managing the review process, and making final recommendation to the editor regarding publication for submitted manuscripts addressing earthquake engineering and analysis of concrete structures.

Member, American Concrete Institute - American Society of Civil Engineering Committee 445, Sub-Committee A: Shear and Torsion: Strut-and-Tie Modeling of RC Structures. 2003-2008. Activities include: development of guideline for use of strut-and-tie modeling to support design of structures for earthquake loading.

Member, ASCE/SEI 2003 Structures Congress Organizing Committee

Member, ASCE 2003 Structural Mechanics Conference Organizing Committee

International, national or governmental service

March 2020: *Member*, University of Delaware, Department of Civil and Environmental Engineering, External Review Team

February 2020: *Member*, UC Davis Department of Civil and Environmental Engineering Visiting Committee

May 2016, NSF: CMMI, Review Panel

Fall 2015, *Member,* Organizing Committee for the 2015 PEER Annual Meeting

April 2011, NSF: CMMI, Review Panel

December 2011 – 2014: Member of the Network for Earthquake Engineering Simulation Community and Communication (NEEScomm) Simulation Steering Committee. The Simulation Steering Committee (SSC) is charged with establishing a vision and implementation plan for simulation with the NEES community, increasing awareness within the NEES community of developments and use of simulation, and providing input to NEEScomm on policy and resource needs to support simulation research and technology transfer within the community.

December 2009 – 2012: Member of the Network for Earthquake Engineering Simulation Community and Communication (NEEScomm) User's Forum. The User's Forum is charged with providing input to NEEScomm leadership on network management and research. NEEScomm has an approximately $20 million annual budget provided by NSF for management, operation, and maintenance of laboratory facilities and infrastructure for earthquake engineering research.

October 2005 – February 2008: Network for Earthquake Engineering Simulation (NEES) Consortium, Inc., Information Technology Strategy Committee (ITSC). The committee charge is with monitoring and advising the research activities of NEES Cyberinfrastructure Center (NEESit) to ensure that research activities result in products that will contribute to the advancement of earthquake engineering. NEESit has an approximately $4 million annual budget provided by NSF and administered by NEES Consortium, Inc.

January 2006, Natural Sciences and Engineering Research Council of Canada: Reviewer for the Researcher Discovery Grant Program

May – December 2005: United States Geological Survey, Advanced National Seismic System, System Response Monitoring Committee. Activities supported the ANSS National Steering Committee by reviewing pre-proposals to recommend a short-list of instrumentation projects for which full proposals should be requested, reviewing full proposals to recommend a list of instrumentations projects to be funded through the ANSS, providing advice on any modifications in the criteria and process for following year.

May 2005, NSF: Concrete and Steel Structures, Review Panel

April 2005, University of Missouri: Reviewer for Research Board Grant Program

January 2005, Natural Sciences and Engineering Research Council of Canada: Reviewer for the Researcher Discovery Grant Program

April – December 2004, United States Geological Survey (USGS), Advanced National Seismic System (ANSS), Structural Instrumentation Guideline Committee. The ANSS is a USGS initiative to modernize and broadly expand earthquake monitoring and reporting in the United States. The Structural Instrumentation Guildeline Committee developed guidelines identifying prioritize needs for data collected from ANSS monitored structures and geo-systems, provided procedures to identify and prioritize candidate structures and geo-systems, and provided recommendation on procedures and practices for instrumentation installation and operation.

March 2003, NSF: Network for Earthquake Engineering Simulation, System Integrator Site Review Panel

December 2002, NSF: Network for Earthquake Engineering Simulation, Equipment Site Review Panel

January 2002, NSF: Network for Earthquake Engineering Simulation, Equipment Site Review Panel

June 2001, NSF: Sensors and Health Monitoring of Civil Structures, Review Panel

February 2001, NSF: U.S. - Japan Urban Earthquake Hazard Mitigation Program, Review Panel

April 1999, NSF: Major Research Instrumentation Program, Review Panel