

## **ANDRES LEPAGE, Ph.D., P.E., S.E., FACI**

Professor  
Director of Laboratories  
Civil, Environmental & Architectural Engineering  
The University of Kansas  
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### **EDUCATION**

**Ph.D.**, Civil Engineering, 1997  
University of Illinois, Urbana-Champaign, Illinois  
**M.S.**, Civil Engineering, 1991  
Universidad Simón Bolívar, Caracas, Venezuela  
**B.S.**, Civil Engineering, 1987  
Universidad Rafael Urdaneta, Maracaibo, Venezuela

### **PROFESSIONAL REGISTRATION**

**S.E.**, Registered Structural Engineer, 2003 – Present  
State of Washington  
**P.E.**, Registered Professional Engineer, 1998 – Present  
State of Washington  
**P.E.**, Registered Professional Engineer, 1987 – Present  
Venezuela

### **HONORS AND AWARDS**

**Miller Professional Development Award for Research** (2019), School of Engineering, The University of Kansas.  
**ENR Top 25 Newsmakers in 2018** (2019), Engineering News-Record, BNP Media, Manhattan, New York.  
**Chair's Council Associate Professor** (2018), Department of Civil, Environmental and Architectural Engineering, The University of Kansas.  
**Miller Professional Development Award for Research** (2015), School of Engineering, The University of Kansas.  
**Outstanding Faculty Award** (2013), Earthquake Engineering Research Institute (EERI) and Structural Engineers Association (SEA) Student Chapters, College of Engineering, Penn State University.  
**Fellow** (2007), American Concrete Institute.

**Teaching Excellence Award** (1990), Universidad Católica Andrés Bello, Caracas, Venezuela, Civil Engineering Class of 1990.

**Academic Excellence Award** (1988), Universidad Rafael Urdaneta, Maracaibo, Venezuela, Decade-Best Grade Point Average, Special Award Celebrating the 10<sup>th</sup> Anniversary of the School of Civil Engineering.

## **ACADEMIC EXPERIENCE**

**Professor and Director of Laboratories** (July 2019 – Present)

Department of Civil, Environmental and Architectural Engineering  
The University of Kansas, Lawrence, Kansas

**Associate Professor and Director of Laboratories** (July 2015 – Present)

Department of Civil, Environmental and Architectural Engineering  
The University of Kansas, Lawrence, Kansas

**Associate Professor** (August 2013 – June 2015)

Department of Civil, Environmental and Architectural Engineering  
The University of Kansas, Lawrence, Kansas

**Assistant Professor** (January 2006 – June 2013)

Department of Architectural Engineering  
Penn State University, University Park, Pennsylvania

**Adjunct Professor** (March 2000 – June 2000)

Department of Civil and Environmental Engineering  
Seattle University, Seattle, Washington

**Research Assistant** (January 1995 – September 1996)

School of Civil Engineering  
Purdue University, West Lafayette, Indiana

**Teaching Assistant** (January 1993 – December 1994)

Department of Civil and Environmental Engineering  
The University of Illinois, Urbana-Champaign, Illinois

**Adjunct Professor** (July 1991 – December 1991)

Department of Civil Engineering  
La Universidad del Zulia, Maracaibo, Venezuela

**Adjunct Professor** (July 1989 – December 1989)

Department of Civil Engineering  
Universidad Católica Andrés Bello, Caracas, Venezuela

**TEACHING EXPERIENCE**

**A. Department of Civil, Environmental and Architectural Engineering, The University of Kansas, Lawrence, Kansas, August 2013 – Present**

Undergraduate:

CE 563 – Design of Reinforced Concrete Structures

Graduate:

CE 761 – Matrix Analysis of Framed Structures

CE 864 – Seismic Performance of Structures

**B. Department of Architectural Engineering, Penn State University, University Park, Pennsylvania, January 2006 – June 2013**

Undergraduate:

AE 124S – Introduction to Architectural Engineering

AE 402 – Design of Concrete Structures for Buildings

AE 431 – Advanced Concrete Design for Buildings

AE 481W – Comprehensive Architectural Engineering Senior Project I (Co-Taught)

AE 482 – Comprehensive Architectural Engineering Senior Project II (Co-Taught)

Graduate:

AE 530 – Computer Modeling of Building Structures

**C. Department of Civil and Environmental Engineering, Seattle University, Seattle, Washington, March 2000 – June 2000**

Undergraduate:

CEEGR 221 – Mechanics of Materials I

**D. Department of Civil and Environmental Engineering, The University of Illinois, Urbana-Champaign, Illinois, January 1993 – December 1994**

Graduate:

CE 398SA – Structural Analysis Special Topics (Computer Laboratory Sessions)

**E. Department of Civil Engineering, La Universidad del Zulia, Maracaibo, Venezuela, July 1991 – December 1991**

Undergraduate:

Reinforced Concrete I

**F. Department of Civil Engineering, Universidad Católica Andrés Bello, Caracas, Venezuela, July 1989 – December 1989**

Undergraduate:

Reinforced Concrete I

**RESEARCH EXPERIENCE**

**Selected Research Projects**

1. Title: *Development of Hooked, Headed, and Straight Bars in Compression*  
Sponsor: CRSI Education and Research Foundation  
Budget: \$90,000  
Date: January 2020 – August 2022  
(Co-Principal Investigator)
2. Title: *Development Length and Splice Strength of High-Strength Reinforcing Bars in High-Strength Concrete*  
Sponsor: CRSI Education and Research Foundation, Commercial Metals Company, Nucor Corporation  
Budget: \$330,000  
Date: January 2020 – December 2022  
(Co-Principal Investigator)
3. Title: *Splicing, Coupling, and Anchorage of Large High-Strength Steel Reinforcing Bars in Earthquake-Resistant Structures*  
Sponsor: Electric Power Research Institute  
Budget: \$650,000  
Date: January 2020 – December 2023  
(Co-Principal Investigator)
4. Title: *Development of Large High-Strength Headed Reinforcing Bars*  
Sponsor: Charles Pankow Foundation, ACI Foundation, BarSplice Products, Dextra, Headed Reinforcement Corporation, Pentair, and CRSI Education and Research Foundation  
Budget: \$380,000  
Date: August 2018 – August 2021  
(Co-Principal Investigator)
5. Title: *Cyclic Response of Concrete Coupling Beams Reinforced with High-Strength Steel Bars – Phase II*  
Sponsor: MMFX Technologies Corporation  
Budget: \$20,000  
Date: June 2017 – May 2018  
(Principal Investigator)
6. Title: *Investigating Mechanical Splicing of Reinforcing Steel*  
Sponsor: Electric Power Research Institute  
Budget: \$49,994  
Date: January 2017 – October 2017  
(Co-Principal Investigator)

7. Title: *Reinforced Concrete Coupling Beams with High-Strength Steel Bars*  
Sponsor: Charles Pankow Foundation  
Budget: \$150,000  
Date: January 2017 – February 2019  
(Principal Investigator)
8. Title: *Deformation Capacity of Concrete Structural Walls Reinforced with Grade 100 Steel Bars*  
Sponsor: CMC Steel Arizona  
Budget: \$50,000  
Date: September 2016 – March 2018  
(Principal Investigator)
9. Title: *Deformation Capacity of Concrete Structural Walls Reinforced with ASTM A1035 Steel Bars*  
Sponsor: MMFX Technologies Corporation  
Budget: \$55,000  
Date: July 2016 – December 2017  
(Principal Investigator)
10. Title: *Cyclic Response of Concrete Coupling Beams Reinforced with High-Strength Steel Bars – Phase I*  
Sponsor: MMFX Technologies Corporation  
Budget: \$20,000  
Date: February 2016 – August 2017  
(Principal Investigator)
11. Title: *High-Strength Steel Bars in Reinforced Concrete Walls: Influence of Mechanical Properties of Steel on Deformation Capacity*  
Sponsor: Charles Pankow Foundation  
Budget: \$112,000  
Date: November 2014 – April 2017  
(Principal Investigator)
12. Title: *Use of Headed Bars as Shear Reinforcement*  
Sponsor: Electric Power Research Institute  
Budget: \$400,000  
Date: August 2014 – August 2017  
(Co-Principal Investigator)
13. Title: *Guide for Limit Design of Reinforced Masonry Walls*  
Sponsor: The NCMA Education and Research Foundation  
Budget: \$149,941  
Date: August 2012 – December 2013  
(Principal Investigator)

14. Title: *Flexural Strength and Deformation Capacity of Concrete Beams, Columns, and Walls Reinforced with High-Strength Reinforcement*  
Sponsor: Applied Technology Council (ATC)  
Budget: \$21,000  
Date: September 2011 – September 2013  
(Principal Investigator)
15. Title: *Cyclic Response of Concrete Members Reinforced with Advanced High-Strength Steel*  
Sponsor: SAS Stressteel, Inc.  
Budget: \$73,209  
Date: January 2011 – December 2012  
(Principal Investigator)
16. Title: *Limit Analysis for Limit Design of Reinforced Masonry Walls*  
Sponsor: The NCMA Education and Research Foundation  
Budget: \$72,766  
Date: August 2010 – July 2012  
(Principal Investigator)
17. Title: *Development of Structural Engineering Analysis and Design Method and Experimental Evaluation of Bolt-A-Blok Masonry Wall Systems for Residential and Commercial Buildings – Phase II*  
Sponsor: Bolt-A-Blok, Inc.  
Budget: \$60,000  
Date: February 2010 – December 2011  
(Co-Principal Investigator)
18. Title: *Limit Design of Special Masonry Shear Walls Used as the Primary Seismic Force-Resisting System in Buildings – Development of Trial Designs*  
Sponsor: KPFF Consulting Engineers.  
Budget: \$15,000  
Date: October 2010 – June 2010  
(Principal Investigator)
19. Title: *Development of Guidelines for Structural Engineering Analysis and Design of Bolt-A-Blok Masonry Wall Systems – Phase I: Wall Component Design*  
Sponsor: Bolt-A-Blok, Inc.  
Budget: \$55,000  
Date: January 2009 – June 2009  
(Co-Principal Investigator)
20. Title: *Limit Design of Special Masonry Shear Walls Used as the Primary Seismic Force-Resisting System in Buildings – Development of Code Change Proposal*  
Sponsor: KPFF Consulting Engineers.  
Budget: \$15,000  
Date: January 2009 – September 2009  
(Principal Investigator)

**Graduate Student Supervision****Ph.D. Students**

1. A. Almarshad, *Data Fusion Method for Estimating Structural Response History*, Ph.D. in Civil Engineering, The University of Kansas, completion expected June 2020. (Co-Chair)
2. A. S. Weber-Kamin, *Cyclic Response of Concrete Coupling Beams Reinforced with High-Strength Steel Bars*, Ph.D. in Civil Engineering, The University of Kansas, completion expected June 2020. (Chair)
3. S. Ameen, *Cyclic Response of Concrete Coupling Beams Diagonally Reinforced with High-Strength Steel Bars*, Ph.D. in Civil Engineering, The University of Kansas, completed December 2018. (Co-Chair)
4. E. A. Burgos, *Earthquake-Resistant T-Shaped Concrete Walls with High-Strength Reinforcement*, Ph.D. in Civil Engineering, The University of Kansas, completed August 2018. (Chair)
5. M. S. Huq, *High-Strength Steel Bars in Earthquake-Resistant T-Shaped Concrete Walls*, Ph.D. in Civil Engineering, The University of Kansas, completed July 2018. (Chair)
6. H. Tavallali, *Cyclic Response of Concrete Beams Reinforced with Ultrahigh Strength Steel*, Ph.D. in Architectural Engineering, Penn State University, completed August 2011. (Chair)

**Master of Science/Engineering Students**

7. A. Almarshad, *Displacement Estimation of Building Structures Using Acceleration and Strain Measurements (Thesis)*, Master of Science in Civil Engineering (M.S.), The University of Kansas, completed March 2017. (Co-Chair)
8. B. S. Frederick, *Evaluation of Limit Design for Earthquake-Resistant Masonry Walls (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed July 2014. (Co-Chair)
9. K. Tretiakova, *Cyclic Response of Concrete Columns Reinforced with SAS 670 Steel Bars (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed August 2013. (Chair)
10. R. E. Sanchez, *Limit Design of Earthquake-Resistant Masonry Walls (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed August 2012. (Chair)
11. S. J. Pfund, *Cyclic Response of Concrete Beams Reinforced with ASTM A1035 Grade 120 Steel Bars (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed August 2012. (Chair)

12. J. Wiest, *Judicial Center Annex in Rockville, MD (Honors Thesis)*, Master in Architectural Engineering (M.A.E.), Penn State University, completed May 2012. (Chair)
13. H. Ota, *Experimental Study of Mortarless Post-Tensioned Masonry Walls and Development of Design Guidelines (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed August 2011. (Co-Chair)
14. K. Gromowski, *Papadakis Integrated Sciences Building at Drexel University, Philadelphia, PA (Honors Thesis)*, Master in Architectural Engineering (M.A.E), Penn State University, completed May 2011. (Chair)
15. J. M. Shoemaker, *Acceleration Response of Rigid and Flexible Nonstructural Components in Buildings Subjected to Strong Ground Motions (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed December 2010. (Chair)
16. J. Setthachayanon, *An Experimental Study of Autoclaved Aerated Concrete Lintels Strengthened with Externally Bonded Glass FRP (Project)*, Master of Engineering in Architectural Engineering (M.Eng.), Penn State University, completed December 2009. (Co-Chair)
17. K. McKitish, *Redesign of House of Sweden in Georgetown, Washington, D.C. (Honors Thesis)*, Master in Architectural Engineering (M.A.E), Penn State University, completed December 2009. (Chair)
18. M. W. Hopper, *Analytical Models for the Nonlinear Seismic Response of Reinforced Concrete Frames (Thesis)*, Master of Science in Architectural Engineering (M.S.), Penn State University, completed December 2009. (Chair)
19. L. Lynch, *Redesign of Aquablue at the Golden Mile in Hato Rey, Puerto Rico (Honors Thesis)*, Master in Architectural Engineering (M.A.E), Penn State University, completed May 2009. (Chair)
20. A. Bradford, *Optimization of Building Systems and Processes for the Center for Science and Medicine in New York City (Honors Thesis)*, Master in Architectural Engineering (M.A.E), Penn State University, completed May 2008. (Chair)
21. M. Longenecker, *Alternative Lateral-Resisting Systems for Whiteland Village in Exton, PA (Honors Thesis)*, Master in Architectural Engineering (M.A.E), Penn State University, completed December 2007. (Chair)

#### **Visiting Scholar Supervision**

1. S. Delgado, Project Title: *A Method for Damage Control of Earthquake-Resistant Reinforced Concrete Moment Frames*, Ph.D. Candidate at Universidad de los Andes (Mérida, Venezuela), Visiting Scholar at Penn State University, August 2007 to September 2008. (Co-Chair)



**PUBLICATIONS****Refereed Major Publications**

1. Lepage, A., Yasso, S., and Darwin, D. (2020). "Recommended Provisions and Commentary on Development Length for High-Strength Reinforcement in Tension," FIB Bulletin: Advances on Bond in Concrete, International Federation for Structural Concrete. (*in press*)
2. Sperry, J., Darwin, D., O'Reilly, M., Lepage, A., Lequesne, R. D., Matamoros, A., Feldman, L. R., Yasso, S., Searle, N., DeRubeis, M., and Ajaam, A. (2018). "Conventional and High-Strength Steel Hooked Bars: Detailing Effects," ACI Structural Journal, American Concrete Institute, 115(1), 247-257.
3. Kelly, D. J., Lepage, A., Mar, D., Restrepo, J. I., Sanders, J. C., and Taylor, A. W. (2017). "ATC-98 Project on Seismic Design of Concrete Structures with High-Strength Reinforcement," ACI Special Publication 313: Design of Concrete Structures against Earthquake and Tsunami Disasters, American Concrete Institute, pp. 6.1-6.10.
4. Sperry, J., Darwin, D., O'Reilly, M., Lequesne, R. D., Yasso, S., Matamoros, A., Feldman, L., and Lepage, A. (2017). "Conventional and High-Strength Hooked Bars - Part 2: Data Analysis," ACI Structural Journal, American Concrete Institute, 114(1), 267-276.
5. Sperry, J., Yasso, S., Searle, N., DeRubeis, M., Darwin, D., O'Reilly, M., Matamoros, A., Feldman, L. R., Lepage, A., Lequesne, R. D., and Ajaam, A. (2017). "Conventional and High-Strength Hooked Bars - Part 1: Anchorage Tests," ACI Structural Journal, American Concrete Institute, 114(1), 255-265.
6. Cheng, M. Y., Hung, S. C., Lequesne, R. D., and Lepage, A. (2016). "Earthquake-Resistant Squat Walls Reinforced with High-Strength Steel," ACI Structural Journal, American Concrete Institute, 113(5), 1065-1076.
7. Cheng, M. Y., Wibowo, L. S. B., Lequesne, R. D., and Lepage, A. (2016). "Deformation Capacity and Strength of RC Frame Members with High-Strength Materials," ACI Special Publication 311: James K. Wight: A Tribute from his Students and Colleagues, American Concrete Institute, pp. 6.1-6.18.
8. Kelly, D. J., Darwin, D., Fields, D. C., Frosch, R. J., Lepage, A., Sanders, J. C., and Whittaker, A. (2014). "Roadmap for the Use of High-Strength Reinforcement in Reinforced Concrete Design," ATC-115, Applied Technology Council, 197 pp.
9. Tavallali, H., Lepage, A., Rautenberg, J. M., and Pujol, S. (2014). "Concrete Beams Reinforced with High-Strength Steel Subjected to Displacement Reversals," ACI Structural Journal, American Concrete Institute, 111(5), 1037-1048.

10. Kelly, D. J., Lepage, A., Mar, D., Restrepo, J. I., Sanders, J. C., and Taylor, A. W. (2014). "Use of High-Strength Reinforcement in Earthquake-Resistant Concrete Structures (NIST GCR 14-917-30)," Prepared by NEHRP, ATC, and CUREE for NIST, National Institute of Standards and Technology, Gaithersburg, Maryland, 230 pp.
11. Geschwindner, L. F. and Lepage, A. (2013). "Notes on the Nodal and Relative Lateral Stability Bracing Requirements of AISC 360," AISC Engineering Journal, American Institute of Steel Construction, 50(3), 169-179.
12. Rutenberg, J. M., Pujol, S., Tavallali, H., and Lepage, A. (2013). "Drift Capacity of Concrete Columns Reinforced with High-Strength Steel," ACI Structural Journal, American Concrete Institute, 110(2), 307-318.
13. Lepage, A. and Sanchez, R. E. (2012). "Practical Nonlinear Analysis for Limit Design of Reinforced Masonry Walls," The Open Civil Engineering Journal, Bentham Open Journals, 2012(6), 107-118.
14. Lepage, A., Shoemaker, J. M., and Memari, A. M. (2012). "Accelerations of Nonstructural Components during Nonlinear Seismic Response of Multistory Structures," Journal of Architectural Engineering, American Society of Civil Engineers, 18(4), 285-297.
15. Song, C., Pujol, S., and Lepage, A. (2012). "The Collapse of the Alto Rio Building during the 27 February 2010 Maule, Chile, Earthquake," Earthquake Spectra, Earthquake Engineering Research Institute, 28(S1), S301-S334.
16. Lepage, A., Tavallali, H., Pujol, S., and Rutenberg, J. M. (2012). "High-Performance Steel Bars and Fibers as Concrete Reinforcement for Seismic-Resistant Frames," Advances in Civil Engineering Journal, Hindawi Publishing Corporation, Volume 2012, Article ID 450981, 13 pp.
17. Rutenberg, J. M., Pujol, S., Tavallali, H., and Lepage, A. (2012). "Reconsidering the Use of High-Strength Reinforcement in Concrete Columns," Engineering Structures, Elsevier, 37(4), 135-142.
18. Memari, A. M., Lepage, A., and Setthachayanon, J. (2010). "An Experimental Study of Autoclaved Aerated Concrete Lintels Strengthened with Externally Bonded Glass FRP," Journal of Reinforced Plastics and Composites, SAGE Journals, 29(22), 3322-3337.
19. ACI Innovation Task Group 6. (2010). "Design Guide for the Use of ASTM A1035/A1035M Grade 100 (690) Steel Bars for Structural Concrete (ITG-6R-10)," American Concrete Institute, 94 pp.
20. Lepage, A., Hopper, M. W., Delgado, S. A., and Dragovich, J. J. (2010). "Best-Fit Models for Nonlinear Seismic Response of Reinforced Concrete Frames," Engineering Structures, Elsevier, 32(9), 2931-2939.

21. Dragovich, J. J. and Lepage, A. (2009). "FDE Index for Goodness-of-Fit between Measured and Calculated Response Signals," *Earthquake Engineering and Structural Dynamics*, John Wiley & Sons Ltd, 38(15), 1751-1758.
22. Browning, J., Warden, B., Matamoros, A., and Lepage, A. (2008). "Global and Local Seismic Drift Estimates for RC Frames," *Engineering Structures*, Elsevier, 30(5), 1262-1271.
23. Lepage, A. and Delgado, S. A. (2008). "Optimal Hysteresis Model Parameters for the Seismic Response of Reinforced Concrete Frames," *Revista Técnica de la Facultad de Ingeniería Universidad del Zulia*, 31(3), 284-293. (ISSN 0254-0770)
24. ACI Innovation Task Group 4 and Other Contributors. (2007). "Structural Design and Detailing for High-Strength Concrete in Moderate to High Seismic Applications (ACI ITG-4.3R-07)," American Concrete Institute, 66 pp.
25. Hueste, M. B. D., Browning, J., Lepage, A., and Wallace, J. W. (2007). "Seismic Design Criteria for Slab-Column Connections," *ACI Structural Journal*, American Concrete Institute, 104(4), 448-458.
26. ACI Innovation Task Group 4 and Other Contributors. (2007). "Specification for High-Strength Concrete in Moderate to High Seismic Applications – An ACI Standard (ACI ITG-4.1-07)," American Concrete Institute, 16 pp.
27. Boggs, D. and Lepage, A. (2006). "Wind Tunnel Methods," *ACI Special Publication 240: Performance-Based Design of Concrete Buildings for Wind Loads*. ACI Special Publication Sponsored by ACI Committee 375, American Concrete Institute, pp. 125-142.
28. ACI Innovation Task Group 4 and Other Contributors. (2006). "Materials and Quality Considerations for High-Strength Concrete in Moderate to High Seismic Applications (ACI ITG-4.2R-06)," American Concrete Institute, 30 pp.
29. Matamoros, A., Garcia, L. E., Browning, J., and Lepage, A. (2004). "Flat-Rate Design Method for Low- and Medium-Rise RC Structures," *ACI Structural Journal*, American Concrete Institute, 101(4), 435-446.

**Other Publications (*refereed unless otherwise noted*)**

1. Lee, H.-J., Lin, J.-X., Lequesne, R. D., Lepage, A., and Wang, J.-C. (2019). "Experimental Study on Minimum Interior Joint Depth for Special Moment Frames with High-Strength Reinforcement and Concrete," *Proceedings of The 21st Japan-Korea-Taiwan Joint Seminar on Earthquake Engineering for Building Structures (SEEBUS 2019)*. Hsinchu, Taiwan, December 6-7, 10 pp. (*not refereed*)

2. Almarshad, A., Li, J., and Lepage, A. (2019). "Drift Estimation of Building Structures under Nonstationary Wind Using Sensor Data Fusion," Proceedings of the 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure (ISHMII-9). St. Louis, Missouri, August 4-7, 7 pp.
3. Suwal, A., Matamoros, A., and Lepage, A. (2018). "Performance of a Nonductile RC Building for the FEMA P695 Far-Fault Ground Motion Data Set," Proceedings of the 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, California, June 25-29, 10 pp.
4. Huq, M. S., Burgos, A. E., Lequesne, R. D., and Lepage, A. (2018). "High-strength steel bars in T-Shaped concrete walls," Proceedings of the 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, California, June 25-29, 11 pp.
5. Ameen, S., Weber-Kamin, A. S., Lequesne, R. D., and Lepage, A. (2018). "Diagonally-reinforced concrete coupling beams with high-strength steel bars," Proceedings of the 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, California, June 25-29, 11 pp.
6. Huq, M. S., Lequesne, R., and Lepage, A. (2018). "Earthquake-Resistant T-Shaped Concrete Walls with High-Strength Steel Bars," DesignSafe-CI, Dataset, October 19, DOI 10.17603/DS28D72. (*not refereed*)
7. Matamoros, A., Suwal, A., and Lepage, A. (2018). "Evaluation of ASCE-41 Modeling Parameters and Acceptance Criteria through an RC Building Case Study," ASCE/SEI Proceedings of the Structures Congress: Blast, Impact Loading, and Response; and Research and Education, Fort Worth, Texas, April 19-21, pp. 130-137.
8. Ameen, S., Lequesne, R. D., Lepage, A., Weber-Kamin, A. S., and Huq, M. S. (2017). "Behavior of Diagonally-Reinforced Concrete Coupling Beams with High-Strength Steel Bars," Proceedings of the 16<sup>th</sup> World Conference on Earthquake Engineering, Santiago, Chile, January 9-13, 8 pp.
9. Huq, M. S., Lepage, A., Lequesne, R. D., Weber-Kamin, A. S., and Ameen, S. (2017). "Influence of Mechanical Properties of High-Strength Steel on Deformation Capacity of Reinforced Concrete Walls," Proceedings of the 16<sup>th</sup> World Conference on Earthquake Engineering, Santiago, Chile, January 9-13, 8 pp.
10. Suwal, A., Matamoros, A., and Lepage, A. (2017). "Collapse Simulation of Non-Ductile RC Frame Building," Proceedings of the 16<sup>th</sup> World Conference on Earthquake Engineering, Santiago, Chile, January 9-13, 8 pp.
11. Suwal, A., Matamoros, A., and Lepage, A. (2016). "Effect of Modeling Parameters on Collapse Simulation of RC Building," Proceedings of the 16<sup>th</sup> U.S.-Japan-New Zealand Workshop on the Improvement of Structural Engineering and Resiliency (ATC-15-15), Nara, Japan, June 27-29, 9 pp.

12. Dill, S., Lepage, A., Frederick, B., and Hochwalt, J. (2014). "Limit Design of Earthquake-Resistant Masonry," Proceedings of the 9<sup>th</sup> International Masonry Conference, Guimarães, Portugal, July 7-9, 9 pp.
13. Kelly, D. J., Lepage, A., Mar, D., Restrepo, J. I., Sanders, J. C., and Taylor, A. W. (2014). "Use of High-Strength Reinforcement for Earthquake-Resistant Concrete Structures," Proceedings on the 10<sup>th</sup> U.S. National Conference on Earthquake Engineering, Anchorage, Alaska, July 21-25, 11 pp.
14. Dill, S. and Lepage, A. (2013). "To the Limit: Alternative Design Approach for Earthquake-Resistant Masonry," Smart Dynamics of Masonry Magazine, Spring, 2 pp. (*not refereed*)
15. Tavallali, H., Lepage, A., Rutenberg, J., and Pujol, S. (2011). "Drift Limits of Concrete Frame Members Reinforced with High-Performance Steel Bars and Fibers," 6<sup>th</sup> International RILEM Conference on High Performance Fiber Reinforced Cement Composites (HPFRCC 6), Ann Arbor, Michigan, RILEM Bookseries, Volume 2, Springer, June 19-22, pp. 329-337.
16. Lepage, A., Dill, S., Haapala, M., and Sanchez, R. (2011). "Seismic Design of Reinforced Masonry Walls: Current Methods and Proposed Limit-Design Alternative," Proceedings of the 11<sup>th</sup> North American Masonry Conference, Minneapolis, Minnesota, June 5-8, 13 pp.
17. Lepage, A. and Sanchez, R. E. (2011). "Analytical Tools for Limit Design of Shear Walls," National Concrete Masonry Association, Concrete Masonry Designs, Concrete Masonry Designs Magazine, May/June, 1 pp. (*not refereed*)
18. Tavallali, H., Lepage, A., Rutenberg, J., and Pujol, S. (2011). "Cyclic Response of Concrete Frame Members Reinforced with Ultrahigh Strength Steel," ASCE/SEI Proceedings of the Structures Congress, Las Vegas, Nevada, April 14-16, pp. 560-570.
19. Lepage, A., Shoemaker, J. M., and Memari, A. M. (2011). "Demands on Nonstructural Components during Nonlinear Seismic Response of Multistory Structures," Proceedings of Architectural Engineering Conference: Building Integration Solutions, Oakland, California, March 30-April 2, pp. 398-405.
20. Memari, A. M. and Lepage, A. (2011). "Introduction of an Innovative Bolted Mortarless Concrete Masonry System: Review of Preliminary Test Data and Strength Evaluation," Part of Book, Advances in Materials Science Research, Editor: Maryann C. Wythers, Nova Publishers, Volume 4, Chapter 3, pp. 91-144. (*not refereed*)
21. Rutenberg, J., Pujol, S., Tavallali, H., and Lepage, A. (2010). "Cyclic Response of Concrete Columns Reinforced with High-Strength Steel," Proceedings of the 9<sup>th</sup> U.S. National and 10<sup>th</sup> Canadian Conference on Earthquake Engineering, Toronto, Canada, July 25-29, pp. 2169-2177.

22. Lepage, A., Tavallali, H., Pujol, S., and Rautenberg, J. (2008). "Towards Earthquake-Resistant Concrete Structures with Ultra High-Strength Steel Reinforcement," Proceedings of the 14<sup>th</sup> World Conference on Earthquake Engineering, Beijing, China, October 12-17, 8 pp.
23. Lepage, A., Delgado, S. A., and Dragovich, J. J. (2008). "Appropriate Models for Practical Nonlinear Dynamic Analysis of Reinforced Concrete Frames," Proceedings of the 14<sup>th</sup> World Conference on Earthquake Engineering, Beijing, China, October 12-17, 8 pp.
24. Lepage, A., Neuman, S. L., and Dragovich, J. J. (2006). "Practical Modeling for Nonlinear Seismic Response of RC Wall Structures," Proceedings of the 8<sup>th</sup> U.S. National Conference on Earthquake Engineering, San Francisco, California, April 18-22, 10 pp.
25. Warden, B., Browning, J., Matamoros, A., and Lepage, A., (2006). "Correlating Nonlinear Response with Approximate Linear Analysis," Proceedings of the 8<sup>th</sup> U.S. National Conference on Earthquake Engineering, San Francisco, California, April 18-22, 10 pp.
26. Lepage, A. (2005). Discussion of "Proposed Revisions to ACI 318-02, Building Code Requirements for Structural Concrete and Commentary," American Concrete Institute, Concrete International, 27(3), 169-173. (*not refereed*)
27. Lepage, A., Aschheim, M., and Senescu, R. (2004). "Shear-Yielding Steel Outriggers for High-Rise Construction," Proceedings of the 13<sup>th</sup> World Conference on Earthquake Engineering, Vancouver, Canada, August 1-6, 12 pp.
28. Browning, J. and Lepage, A. (1999). Discussion of "Nonlinear Analyses of an Instrumented Structure Damaged in the 1994 Northridge Earthquake (by Li, Y., and Jirsa, J. O.)," Earthquake Spectra, 15(1), 175-179. (*not refereed*)
29. Lepage, A. (1998). "Nonlinear Drift of Multistory RC Structures during Earthquakes," Proceedings of the 6<sup>th</sup> U.S. National Conference on Earthquake Engineering, Seattle, Washington, May 31-June 4, 12 pp.
30. Sozen, M. A. and Lepage, A. (1996). "Earthquake-Resistant Design in Regions of Moderate Seismicity," Proceedings of the 2<sup>nd</sup> International Symposium on Civil Infrastructure Systems, Hong Kong, China, December 9-12, 6 pp.
31. Lepage, A. (1996). "Seismic Drift Estimates for RC Structures," Proceedings of the 11<sup>th</sup> World Conference on Earthquake Engineering, Acapulco, Mexico, June 23-26, 8 pp.

### **Technical Reports**

1. Weber-Kamin, A. S., Ameen, S., Lequesne, R. D., and Lepage, A. (2019). Reinforced Concrete Coupling Beams with High-Strength Steel Bars. Charles Pankow Foundation, RGA #03-17, December, 424 pp.

2. Weber-Kamin, A. S., Lequesne, R. D., and Lepage, A. (2019). "RC Coupling Beams with High-Strength Steel Bars: Summary of Test Results," SL Report 19-1, The University of Kansas Center for Research, Inc., Lawrence, Kansas, January, 132 pp.
3. Poudel, A., Lequesne, R. D., and Lepage, A. (2018). "Diagonally Reinforced Concrete Coupling Beams: Effects of Axial Restraint," SL Report 18-3, The University of Kansas Center for Research, Inc., Lawrence, Kansas, September, 39 pp.
4. Huq, M. S., Weber-Kamin, A. S., Ameen, S., Lequesne, R. D., and Lepage, A. (2018). "High-Strength Steel Bars in Earthquake-Resistant T-Shaped Concrete Walls," SM Report No. 128, The University of Kansas Center for Research, Inc., Lawrence, Kansas, September, 373 pp.
5. Lequesne, R. D., O'Reilly, M., Darwin, D., Lepage, A., Al-Sabawy, A., Guillen, E., and Spradling, D. (2017). "Advanced Nuclear Technology: Use of High-Strength Headed Bars as Shear Reinforcement for Structural Concrete," Electrical Power Research Institute, Report No. 3002010486, December, 261 pp.  
[Also published as Lequesne, R. D., et al., (2018). SM Report No. 126, The University of Kansas Center for Research, Inc., Lawrence, Kansas, January, 244 pp.]
6. Huq, M. S., Weber-Kamin, A. S., Ameen, S., Lequesne, R. D., and Lepage, A. (2017). "High-Strength Steel Bars in Reinforced Concrete Walls: Influence of Steel Mechanical Properties on Deformation Capacity," Charles Pankow Foundation, RGA #06-14, December, 318 pp.
7. O'Reilly, M., Pippen, S., Darwin, D., and Lepage, A. (2017). "Advanced Nuclear Technology: Investigating Mechanical Splicing of Reinforcing Steel," Electric Power Research Institute, Report No. 3002014096, October, 66 pp.
8. Sperry, J., Al-Yasso, S., Searle, N., DeRubeis, M., Darwin, D., O'Reilly, M., Matamoros, A., Feldman, L., Lepage, A., Lequesne, R., and Ajaam, A. (2015). "Anchorage of High-Strength Reinforcing Bars with Standard Hooks," SM Report No. 111, The University of Kansas Center for Research, Inc., Lawrence, Kansas, June, 244 pp.
9. Frederick, B. S. and Lepage, A. (2014). "Examples for the Use of Limit Design Following Appendix C of TMS 402-13," Final Report to the National Concrete Masonry Association (NCMA), July, 155 pp.
10. Tretiakova, K. and Lepage, A. (2013). "Cyclic Response of Concrete Columns Reinforced with Ultrahigh Strength Steel Bars (SAS Stressteel Grade 97)," Final Report to SAS Stressteel Inc., August, 153 pp.
11. Sanchez, R. E. and Lepage, A. (2012). "Limit Analysis for Limit Design of Reinforced Masonry Walls," Final Report to the National Concrete Masonry Association (NCMA), August, 299 pp.
12. Memari, A. M., Ota, H., and Lepage, A. (2011). "Structural Analysis and Design of Bolt-A-Blok Wall Systems, Phase II: Structural Testing and Simplified Design Guidelines," Final Report to Bolt-A-Blok Inc., September, 275 pp.

13. Lepage, A. and Sanchez, R. E. (2011). "A Primer on Limit Analysis for Limit Design of Reinforced Masonry Walls," Preliminary Report to the National Concrete Masonry Association (NCMA), August, 42 pp.
14. Tavallali, H. and Lepage, A. (2011). "Cyclic Response of Concrete Beams Reinforced with Ultrahigh Strength Steel Bars (SAS Stressteel Grade 97)," Final Report to SAS Stressteel Inc., August, 310 pp.
15. Memari, A. M. and Lepage, A. (2010). "Structural Analysis and Design of Bolt-A-Blok Wall Systems, Phase I: An Exploratory Study," Final Report to Bolt-A-Blok Inc., February, 130 pp.
16. Lepage, A. (1996). "A Method for Drift-Control in Earthquake-Resistant Design of RC Building Structures," Ph.D. Thesis Submitted to the Graduate College of the University of Illinois, Urbana-Champaign, Illinois, 251 pp.
17. Lepage, A. (1991). "Evaluación de Métodos para el Diseño de Columnas Rectangulares de Concreto Armado en Flexión Biaxial," Master of Science Thesis Submitted to the Universidad Simón Bolívar, Caracas, Venezuela, 178 pp.

#### **Technical Presentations**

1. Lee, H.-J., Lin, J.-X., Lequesne, R. D., Lepage, A., and Wang, J.-C. (2019). "Experimental Study on Minimum Interior Joint Depth for Special Moment Frames with High-Strength Reinforcement and Concrete," 21st Japan-Korea-Taiwan Joint Seminar on Earthquake Engineering for Building Structures (SEEBUS 2019). Hsinchu, Taiwan, December 7. (Presented by Lee)
2. Lepage, A. (2019). "Introduction to Civil Engineering", The University of Kansas, Lawrence, December 3. (Presenter)
3. Almarshad, A., Li, J., and Lepage, A. (2019). "Drift Estimation of Building Structures under Nonstationary Wind Using Sensor Data Fusion," 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure (ISHMII-9). St. Louis, Missouri, August 6. (Presented by Almarshad)
4. Lepage, A. (2019). High-Strength Bars as Concrete Reinforcement in Structural Bars: From Research to Building Codes. Invited Lecture, National Center for Research on Earthquake Engineering (NCREE) at National Taiwan University, Taipei, Taiwan, July 25. (Presenter)
5. Lepage, A. (2019). "Upcoming Changes to Building Code Requirements for Reinforced Concrete," The University of Kansas Civil, Environmental and Architectural Engineering Professional Development Series, Kansas City, Missouri, March 3. (Presenter)



6. Schultz, A. E., Matamoros, A., and Lepage, A. (2018). "From Acceleration to Velocity for Displacement," A Session to Remember Mete Sozen, 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, June 28 [Presented by Schultz]
7. Suwal, A., Matamoros, A., and Lepage, A. (2018). "Performance of a Nonductile RC Building for the FEMA P695 Far-Fault Ground Motion Data Set," A Session on Retrofit of Concrete Structures, 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, California, June 27 [Presented by Matamoros]
8. Huq, M. S., Burgos, A. E., Lequesne, R. D., and Lepage, A. (2018). "High-strength steel bars in T-Shaped concrete walls," A Session on Recent Findings in High-Strength Steel and Engineered Cementitious Composites, 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, California, June 28 [Presented by Lequesne]
9. Ameen, S., Weber-Kamin, A. S., Lequesne, R. D., and Lepage, A. (2018). "Diagonally-reinforced concrete coupling beams with high-strength steel bars," A Session on Recent Findings in High-Strength Steel and Engineered Cementitious Composites, 11<sup>th</sup> U.S. National Conference on Earthquake Engineering, Los Angeles, California, June 28 [Presented by Lequesne]
10. Lepage, A. (2018). "Upcoming Changes to Building Code Requirements for Reinforced Concrete," The University of Kansas Civil, Environmental and Architectural Engineering Professional Development Series, Kansas City, Missouri, April 23. [Presenter]
11. Lepage, A. and Lequesne, R. D. (2018). "High-Strength Steel in Structural Concrete: From Research to Building Codes," 63<sup>rd</sup> Annual Structural Engineering Conference, The University of Kansas Civil, Environmental and Architectural Engineering, Lawrence, Kansas, March 1. [Presenter]
12. Yasso, S., Lepage, A., Darwin, D., Lequesne, R., and O'Reilly, M. (2017). "Development Length of Straight Bars in Tension Using High-Strength Materials," American Concrete Institute, Spring Convention, Detroit, Michigan, March 27. [Presented by Yasso]
13. Suwal, A., Matamoros, A., and Lepage, A. (2017). "Collapse Simulation of Non-Ductile RC Frame Building," 16<sup>th</sup> World Conference on Earthquake Engineering. Santiago, Chile, January 9-13. [Presented by Matamoros]
14. Matamoros, A., Suwal, A., and Lepage, A. (2016). "Effect of Modeling Parameters on Collapse Simulation of RC Building," 16<sup>th</sup> U.S.-Japan-New Zealand Workshop on the Improvement of Structural Engineering and Resiliency (ATC-15-15), Nara, Japan, June 27-29. [Presented by Matamoros]

15. Matamoros, A., Suwal, A., and Lepage, A. (2015). "Collapse Simulation of RC Moment Frame Building," 2nd JCI & ACI Joint Seminar, Resilience of Concrete Structures, JCI 50<sup>th</sup> Anniversary Commemorative Symposium, Tokyo, Japan, July 13. [Presented by Matamoros]
16. Lepage, A. and Dill, S. (2015). "Limit Design of Reinforced Masonry Walls: Design Examples," ASCE/SEI Structures Congress, Track 8: Masonry Topics, Portland, Oregon, April 25. [Presented by Dill]
17. Lepage, A. and Dill, S. (2015). "Limit Design of Reinforced Masonry Walls: A New Seismic Design Alternative," ASCE/SEI Structures Congress, Track 8: Masonry Topics, Portland, Oregon, April 25. [Presenter]
18. Cheng, M. Y., Lequesne, R., and Lepage, A. (2014). "Deformation Capacity and Strength of RC Frame Members Constructed with High-Strength Materials," American Concrete Institute, Fall Convention, J. K. Wight Honoring Session: A Tribute from His Students and Colleagues, Washington, D. C., October 27. [Presented by Cheng]
19. Lepage, A. and Dill, S. (2014). "Limit Design of Reinforced Masonry Walls," The Masonry Society Annual Meeting, General Session, Scottsdale, Arizona, October 11. [Presenter]
20. Kelly, D. J., Lepage, A., Mar, D., Restrepo, J. I., Sanders, J. C., and Taylor, A. W. (2014). "Use of High-Strength Reinforcement for Earthquake-Resistant Concrete Structures," 10<sup>th</sup> U.S. National Conference on Earthquake Engineering, Anchorage, Alaska, July 21-25. [Presented by Kelly]
21. Dill, S., Lepage, A., Frederick, B., and Hochwalt, J. (2014). "Limit Design of Earthquake-Resistant Masonry," 9<sup>th</sup> International Masonry Conference, Guimarães, Portugal, July 7-9. [Presented by Dill]
22. Lepage, A. (2014). "Limit Design of Masonry," The University of Kansas Civil, Environmental and Architectural Engineering Professional Development Series, Kansas City, Missouri, April 14. [Presenter]
23. Kelly, D. J., Lepage, A., Mar, D., Restrepo, J. I., Sanders, J. C., and Taylor, A. W. (2013). "Use of High-Strength Reinforcement for Earthquake-Resistant Concrete Structures," American Concrete Institute, Fall Convention, Hot Topic Session: High-Strength Reinforcing Bars—Balancing Design Requirements with Achievable Material Properties, Phoenix, Arizona, October 20. [Presented by Kelly]
24. Lepage, A. (2012). "Flexural Strength of Beams, Columns, and Walls with High-Strength Reinforcement, and Required Usable Strain," Workshop on Use of High-Strength Reinforcement in Seismic Applications, Sponsored by ATC-98 Project Technical Committee, Applied Technology Council, San Francisco, California, November 8. [Presenter]

25. Lepage, A. (2011). "Deformation Capacity of Special Reinforced Masonry Walls Using Limit Design," Webinar on the Proposed Provisions for New MSJC Appendix on Masonry Limit Design, Sponsored by the Masonry Standards Joint Committee (MSJC), July 18. [Presenter]
26. Tavallali, H., Lepage, A., Rautenberg, J., and Pujol, S. (2011). "Drift Limits of Concrete Frame Members Reinforced with High-Performance Steel Bars and Fibers," 6<sup>th</sup> Workshop on High-Performance Fiber Reinforced Cement Composites, Ann Arbor, Michigan, June 20. [Presenter]
27. Lepage, A., Dill, S., Haapala, M., and Sanchez, R. E. (2011). "Seismic Design of Reinforced Masonry Walls: Current Methods and Proposed Limit-Design Alternative," 11<sup>th</sup> North American Masonry Conference, Minneapolis, Minnesota, June 6. [Presented by Haapala]
28. Lepage, A., Shoemaker, J. M., and Memari, A. M. (2011). "Demands on Nonstructural Components during Nonlinear Seismic Response of Multistory Structures," Architectural Engineering Conference, Oakland, California, April 1. [Presented by Shoemaker]
29. Tavallali, H., Lepage, A., Rautenberg, J., and Pujol, S. (2011). "Cyclic Response of Concrete Frame Members Reinforced with Ultrahigh Strength Steel," ASCE/SEI Structures Congress, Las Vegas, Nevada, April 16. [Presented by Tavallali]
30. Rautenberg, J., Pujol, S., Tavallali, H., and Lepage, A. (2011). "Cyclic Response of Concrete Frame Members Reinforced with Ultrahigh Strength Steel," Structural Engineering Graduate Student Seminars, Penn State University, Department of Civil Engineering, University Park, Pennsylvania, March 22. [Presented by Tavallali]
31. Tavallali, H., Lepage, A., Rautenberg, J., and Pujol, S. (2010). "Ultrahigh Strength Steel: A Viable Option for Seismic Design of Concrete Beams," EERI Student Chapter Speaker Series, Penn State University, University Park, Pennsylvania, December 2. [Presented by Tavallali]
32. Lepage, A., Shoemaker, J. M., and Memari, A. M. (2010). "Demands on Nonstructural Components During Nonlinear Seismic Response of Multistory Structures," Structural Engineering Graduate Student Seminars, Purdue University, School of Civil Engineering, West Lafayette, Indiana, November 23. [Presenter]
33. Zia, P., Ghosh, S. K., Lepage, A., Lubell, A. S., Luttrell, K. A., Mast, R. F., Paulson, C., Russell, H. G., and Sanders, J. C. (2010). "ITG-6: High-Strength Reinforcing Bar," American Concrete Institute, Fall Convention, Special Technical Session, Pittsburgh, Pennsylvania, October 24. [Presented by Zia]

34. Rautenberg, J., Pujol, S., Tavallali, H., and Lepage, A. (2010). "Cyclic Response of Concrete Members Reinforced with High-Strength Steel," American Concrete Institute, Fall Convention, Special Technical Session, Pittsburgh, Pennsylvania, October 26. [Presenter]
35. Lepage, A., Dill, S., Haapala, M. W., and Sanchez, R. E. (2010). "Design of Special Reinforced Masonry Shear Walls: Current Methods and Proposed Limit-Design Alternative," The Masonry Society's 2010 Annual Meeting, General Session, Bellevue, Washington, October 16. [Presenter]
36. Rautenberg, J., Pujol, S., Tavallali, H., and Lepage, A. (2010). "Cyclic Response of Concrete Columns Reinforced with High-Strength Steel," 9<sup>th</sup> U.S. National and 10<sup>th</sup> Canadian Conference on Earthquake Engineering, Toronto, Canada, July 27. [Presented by Rautenberg]
37. Tavallali, H., Lepage, A., Rautenberg, J., and Pujol, S. (2009). "Behavior of Ultrahigh Strength Steel Reinforced Concrete Members Subjected to Large Deflection Reversals," American Concrete Institute, Fall Convention, Special Technical Session, New Orleans, Louisiana, November 9. [Presented by Tavallali]
38. Lepage, A. and Delgado, S. A. (2008). "A Shot in the Dark: Use of Nonlinear Dynamic Analysis for Computing the Seismic Response of Reinforced Concrete Structures," Structural Engineering Graduate Student Seminars, Penn State University, Department of Civil Engineering, University Park, Pennsylvania, April 9. [Presenter]
39. Lepage, A. and Delgado, S. A. (2008). "Optimal Hysteresis Model Parameters for the Seismic Response of Reinforced Concrete Frames," American Concrete Institute, Spring Convention, Special Technical Session, Los Angeles, California, March 31. [Presenter]
40. Ghosh, S. K., Bracci, J. M., Caldarone, M. A., Harman, D. K., Jansen, D. C., Matamoros, A., Taylor, A. W., Kelly, D. J., Lepage, A., and Russell, H. G., (2006). "High-Strength Concrete in Moderate to High Seismic Applications (ACI ITG 4)," American Concrete Institute, Fall Convention, Special Technical Session, Denver, Colorado, November 7. [Presented by Ghosh]
41. Lepage, A. (2006). "The Consulting Engineer," Major Night - Real World Workshop, National Society of Black Engineers, Penn State University, School of Engineering, October 10. [Presenter]
42. Boggs, D. and Lepage, A. (2006). "Wind Tunnel Methods," American Concrete Institute, Fall Convention, Special Technical Session, San Francisco, California, October. [Presented by Boggs]
43. Lepage, A., Neuman, S. L., and Dragovich, J. J. (2006). "Practical Modeling for Nonlinear Seismic Response of RC Wall Structures," 8<sup>th</sup> U.S. National Conference on Earthquake Engineering, San Francisco, California, April 20. [Presenter]

44. Warden, B., Browning, J., Matamoros, A., and Lepage, A. (2006). "Correlating Nonlinear Response with Approximate Linear Analysis," 8<sup>th</sup> U.S. National Conference on Earthquake Engineering, San Francisco, California, April 19. [Presenter]
45. Lepage, A., Aschheim, M., and Senescu, R. (2004). "Shear-Yielding Steel Outriggers for High-Rise Construction," 13<sup>th</sup> World Conference on Earthquake Engineering, Vancouver, Canada, August. [Presenter]
46. Matamoros, A., Garcia, L. E., Browning, J., and Lepage, A. (2004). "Flat-Rate Design Method for Low- and Medium-Rise RC Structures," American Concrete Institute, Fall Convention, Special Technical Session, San Francisco, California, October. [Presenter]
47. Hueste, M. B. D., Browning, J., Lepage, A., and Wallace, J. W. (2004). "Performance Based Seismic Design Criteria for Slab-Column Connections," American Concrete Institute, Fall Convention, Special Technical Session, San Francisco, California, October. [Presented by Hueste]
48. Lepage, A. (2004). "Seismic Design Using the 2003 IBC and ASCE 7-02," Structural Engineers Association of Washington (SEAW), Engineering Seminar, SEAW Earthquake Engineering Committee, Seattle, Washington, October. [Presenter]
49. Lepage, A. and Hochwalt, J. (2002). "A Practical Approach for Addressing the Deformation Compatibility of Flat Slabs," American Concrete Institute, Spring Convention, Special Technical Session, Detroit, Michigan, April. [Presenter]
50. Lepage, A. (1998). "Response of an Instrumented Seven Story Reinforced Concrete Building to Ground Motions," American Concrete Institute, Spring Convention, Special Technical Session, Seattle, Washington, April. [Presenter]

## **PROFESSIONAL AFFILIATIONS AND SERVICES**

### **Memberships**

1. The Masonry Society (TMS)  
Member since 2008
2. Consortium of Universities for Research in Earthquake Engineering (CUREE)  
Member 2013 – 2016 (The University of Kansas)  
Member 2006 – 2013 (Penn State University)
3. American Institute of Steel Construction  
Member since 2006
4. Structural Engineers Association of Washington (SEAW)  
Member since 2003
5. Honor Society of Phi Kappa Phi  
Member since 1997

6. Earthquake Engineering Research Institute (EERI)  
Member since 1993
7. American Society of Civil Engineers (ASCE)  
Member since 1992
8. American Concrete Institute (ACI)  
Fellow since 2007  
Member since 1983

**Service to the Profession****Technical Committees**

1. Architectural Engineering Institute (AEI)
  - Committee on Seismic Effects on Nonstructural Components  
Vice-Chair, 5/2012 – Present
2. NEHRP Consultants Joint Venture
  - ATC 115 Project Technical Committee, Development of a Roadmap on Use of High-Strength Reinforcement in Reinforced Concrete Design  
Main Committee, 5/2014 – 12/2014
  - ATC 98 Project Technical Committee, Use of High-Strength Flexural Reinforcement in RC Seismic Design  
Main Committee, 9/2011 – 3/2014
3. Network for Earthquake Engineering Simulation (NEES)
  - NEES Users Forum, Member, 7/2010 – 12/2013
  - NEESComm Earthq. Reconnaissance Team, 2010 Chile Earthq., 3/2010 – 11/2010
4. American Institute of Steel Construction (AISC)
  - Adhoc Task Group on High-Strength Steel, Voting Member, 8/2017 – 12/2019
  - Task Committee TC5, Composite Design, Voting Member, 1/2008 – Present
5. The Masonry Society (TMS)
  - TMS 402/602, Building Code Requirements and Specification for Masonry Structures, Main Committee, Voting Member, 2016 – Present
  - TMS 402/602, Building Code Requirements and Specification for Masonry Structures, Seismic Subcommittee, Voting Member, 2016 – Present
  - Research Committee, M.S. Theses and Ph.D. Dissertations Competition  
Voting Member, 8/2014 – 9/2015
  - TMS 402/602, Building Code Requirements and Specification. for Masonry Structures, Flexure-Axial-Shear Subcommittee, Corresponding Member, 2013 – 2016
  - TMS 402/602, Building Code Requirements and Specification for Masonry Structures, Seismic Subcommittee, Corresponding Member, 2008 – 2016
  - Ductility Task Group, TMS 402/602 Seismic Subcommittee  
Voting Member, 10/2007 – 12/2010

**6. American Concrete Institute (ACI)**

## Voting Member in Committees

- ACI 318 Struct. Conc. Bldg. Code (Main), 7/2019 – Present
- ACI 318B Struct. Conc. Bldg. Code (Anchorage and Reinf.), 7/2019 – Present
- ACI 318H Struct. Conc. Bldg. Code (High-Strength Steel), 7/2019 – Present
- ACI 318R Struct. Conc. Bldg. Code (High-Strength Steel), 10/2014 – 7/2019
- ACI CAP-SC3 Award for Papers in Structural Research, 2/2012 – 8/2013
- ACI ITG-6 High-Strength Steel Reinforcement, 6/2007 – 8/2010
- ACI CAP-SC1 Awards for Papers in Construction, 1/2006 – 6/2006
- ACI PUBS Publications Committee (Board Appointment), 1/2005 – 4/2011
- ACI 314 Simplified Design of Concrete Buildings, 10/2004 – Present
- ACI 318H Structural Concrete Building Code (Seismic), 10/2004 – 10/2014
- ACI ITG-4 High-Strength Concrete in Seismic Regions, 10/2002 – 4/2007
- ACI 335 Composite and Hybrid Structures, 9/2002 – Present
- ACI 369 Seismic Repair and Rehabilitation, 4/2001 – 12/2009
- ACI 375 Performance-Based Wind Design, 10/1999 – Present
- ACI 374 Performance-Based Seismic Design, 10/1998 – Present

## Associate Member in Committees

- ACI 369 Seismic Repair and Rehabilitation, 1/2010 – Present
- ACI 445 Shear and Torsion, 10/2002 – Present

**7. Structural Engineers Association of Washington (SEAW)**

- Concrete Task Group, Chair, 1/2003 – 12/2005
- Earthquake Engineering Committee
  - Corresponding Member, 1/2006 – Present
  - Voting Member, 7/1998 – 12/2005

**Editorships and Manuscript Reviews**

1. Journal of Architectural Engineering, Editorial Board Member, American Society of Civil Engineers (ASCE), 9/2019 – Present
2. International Journal of High-Rise Buildings, Editorial Board Member, Council on Tall Buildings and Urban Habitat (CTBUH), 7/2011 – Present
3. Journal Papers – Peer Reviewer
  - Design Guides, American Institute of Steel Construction (AISC)
  - Earthquake Spectra (EERI)
  - Engineering Structures (Elsevier)
  - Structural Journal, Special Publication, and Concrete International (ACI)
  - Structural Journal (ASCE)
  - The Masonry Society Journal (TMS)

4. Conference Papers – Peer Reviewer
  - 13<sup>th</sup> North American Masonry Conference, 2019
  - Architectural Engineering Institute Conference, 2013
  - Architectural Engineering Institute Conference, 2011
  - 6<sup>th</sup> Intl. Conf. on Innovation in Architecture, Eng., and Construction, 2010
  - 9<sup>th</sup> U.S. National and 10<sup>th</sup> Canadian Conf. on Earthquake Eng., 2010
  - 8<sup>th</sup> U.S. National Conference on Earthquake Engineering, 2006
5. Grant Review Panels
  - ACI Foundation Concrete Research Council, Member of Review Panel for Research Proposals, Spring 2017
  - ACI Foundation Concrete Research Council, Member of Review Panel for Research Proposals, Spring 2014
  - National Science Foundation, Member of Review Panel for Program Solicitation NSF 08-519, Network for Earthquake Engineering Simulation Research (NEESR), 2008

#### **Organizing Conferences and Other Activities**

1. ATC 116 Masonry Workshop, “Solutions to the Issue of Short Period Building Performance,” External Reviewer, September 2018.
2. New Appendix for the 2013 Building Code Requirements and Specification for Masonry Structures: Limit Design Method for Special Reinforced Masonry Shear Walls (Main Author), July 2011.
3. Chile-Earthquake Research Needs Workshop, Leader of Break-Out Session (Group 8), Organized for the U.S. National Science Foundation by the Earthquake Engineering Research Institute, Arlington, Virginia, August 19, 2010.
4. Member of Advisory Panel for NIST-Sponsored Research Project “Performance-Based Design of Reinforced Masonry Shear Walls,” May 2010 to June 2013.
5. Chair of Seismic Conversion Task Group, Reorganization of “Building Code Requirements for Structural Concrete (ACI 318-14), Version 1.0,” Conversion of ACI 318-08 Chapter 21 to ACI 318-14 Chapter 18. January 2010.
6. ACI Special Technical Session on Recent Developments in Seismic Evaluation and Rehabilitation of Concrete Buildings (Co-Organizer and Moderator), Sponsored by ACI Committee 369 on Seismic Repair and Rehabilitation, American Concrete Institute, ACI 2008 Spring Convention, Los Angeles, California, April 2, 2008.
7. Member of ACI Committee 318 Ad-hoc Task Group for Overall Review of Proposed Seismic Code Provisions in ACI 318-08 (Building Code Requirements for Structural Concrete and Commentary), February – April 2007.
8. External Reviewer for Proposed Changes to ACI 318-05 (Building Code Requirements for Structural Concrete and Commentary) by Subcommittee 318-D (Flexure and Axial Loads), February 2007.



9. External Reviewer for Proposed Changes to ACI 318-05 (Building Code Requirements for Structural Concrete and Commentary) by Subcommittee C (Serviceability/Safety), February 2007.
10. ACI Special Technical Session on New Frontiers in Shear Design (Co-Organizer and Moderator), Sponsored by ACI-ASCE Joint Committee 445 on Shear and Torsion, American Concrete Institute, ACI 2006 Fall Convention, Denver, Colorado, November 7, 2006.
11. Collaborator with Academic Council for Preparation of Problems for the NCEES Architectural Engineering Professional Licensure Exam (AE/PE). Prepared and submitted seven peer-reviewed problems for use in the AE/PE exam, August 2006.

**Service to Institutions****The University of Kansas****Department of Civil, Environmental and Architectural Engineering**

1. CEAE Graduate Studies Committees, Spring 2019 – Present.
2. CEAE Sabbatical Committee Member, Fall 2018 – Present.
3. CEAE Laboratory Technologist Search Committee Chair, Laboratory Technologist Position, Spring 2018.
4. CEAE Laboratory Technologist Search Committee Chair, Laboratory Technologist Position, Summer 2016 – Fall 2016.
5. CEAE Laboratory Coordinator Search Committee Chair, Laboratory Coordinator Position, Spring 2016 – Summer 2016.
6. CEAE Faculty Search Committee Chair, Professor of Practice in Structural Engineering Position, Fall 2015 – Spring 2016.
7. CEAE Director of Laboratories, Summer 2015 – Present.
8. CEAE Architectural Engineering Steering Committee Member, Spring 2015 – Spring 2016.
9. CEAE Faculty Search Committee Member, Structural Faculty Positions, Fall 2014 – Spring 2015.
10. Guest lecture, ARCE 101 Introduction to Architectural Engineering, “The Structures Option in Architectural Engineering,” Fall 2014 – Fall 2016.
11. CEAE Undergraduate Recruitment Committee Member, Fall 2014 – Present.

12. CEAE Curriculum Committee Member,  
Fall 2014 – Present.
13. CEAE Scheduling and Planning of Graduate Structural Engineering Courses,  
Edwards Campus, Fall 2014 – Present.
14. CEAE Scheduling and Planning of Undergraduate and Graduate Structural  
Engineering Courses, Lawrence Campus, Fall 2014 – Present.
15. Faculty Co-Advisor to the Earthquake Engineering Research Institute (EERI)  
Student Group, Fall 2014 – Present.
16. KU Structural Engineering Conference Moderator,  
Spring 2014.
17. CE 191 Guest lecture, “Introduction to Structural Engineering”,  
Fall 2013 – Present
18. KU Structural Engineering Conference Steering Committee Member,  
Fall 2013 – Present.

**School of Engineering**

1. Engineering Senate Executive Committee,  
Spring 2019 - Present
2. Judge for the SELF Senior Capstone Presentations,  
Spring 2016
3. Judge for the SELF Engineering Leadership Fellows,  
Spring 2016
4. Faculty Rights, Privileges, and Responsibilities Committee,  
Summer 2015 – Summer 2018.
5. Judge for the 8<sup>th</sup> Annual GEA Poster and Presentation Competition, Graduate  
Engineering Association, April 16, 2015.
6. Judge for the 7<sup>th</sup> Annual GEA Poster and Presentation Competition, Graduate  
Engineering Association, April 10, 2014.

**University Level**

1. Judge for the 2015 Graduate Research Competition, Poster Presentations, Office  
of Graduate Studies, April 9, 2015.
2. Fulbright Scholars Evaluation and Interview Committee  
Fall 2014 – Fall 2015.

**Penn State University****Department of Architectural Engineering**

1. Climate and Events Committee Member,  
Spring 2008 – Spring 2012.
2. English Proficiency Doctoral Candidacy Exam Committee Member,  
Fall 2007 – Spring 2012.
3. Faculty Advisor, Student Organization of the Architectural Engineering Institute (AEI), Formerly Student Society of Architectural Engineers (SSAE), Fall 2007 – Spring 2008.
4. Guest lectures, AE 124S Architectural Engineering Orientation, “The Structures Option in Architectural Engineering,” Semester (# lectures):  
Fall 2006 (4); Spring 2007 (2); Fall 2007 (4); Spring 2008 (2); Fall 2008 (4); Spring 2009 (2); Fall 2009 (4); Spring 2010 (2); Fall 2010 (4); Spring 2011 (2); Fall 2011 (4).
5. Structural Depth Doctoral Candidacy Exam Committee Member,  
Fall 2006 – Spring 2012.
6. Structural Breadth Doctoral Candidacy Exam Committee Member,  
Fall 2006 – Spring 2012.

**College of Engineering**

1. College of Engineering Faculty Council Member,  
Fall 2009 – Spring 2012.
2. Faculty Search Committee Member for Dept. of Civil and Environ. Eng.,  
Fall 2007 – Spring 2008.
3. College of Engineering Open House, Dept. of Architectural Eng., Coordinator,  
Fall 2007 – Fall 2009.

**INDUSTRY EXPERIENCE**

- A. KPFF Consulting Engineers Inc., Seattle, Washington  
Associate, July 1998 – December 2005
- B. Andersen Bjornstad Kane Jacobs Inc., Seattle, Washington  
Project Engineer, October 1996 – June 1998
- C. Servicios de Ingeniería en Microcomputadoras SRL., Caracas, Venezuela  
Project Engineer, September 1987 – December 1991

**Selected Industry Projects**1. *Sea-Tac Rental Car Facility* (2006)

Project Consultant – KPFF Consulting Engineers, Inc.

Three 5-story buildings provide 2.1 million square feet to accommodate parking for 5,400 vehicles and office/commercial spaces. The reinforced concrete post-tensioned floor system typically consists of 5.25-in. one-way slab spanning 18 ft over beams spanning 60 ft. The beams frame into 36-ft long girders supported by 32-in. square columns with a typical clear height of 10-ft. Beams and girders are typically 24-in wide by 35.25-in. deep. Every column line (on a 36 ft by 60 ft grid) is used as part of the seismic force-resisting system designed as post-tensioned special moment frames without shear walls. Modern seismic design criteria were developed to supplement the rudimentary design provisions contained in the building code for this type of system, first of its kind in the West Coast.

2. *Olive 8, Seattle, Washington* (2005)

Project Engineer – KPFF Consulting Engineers, Inc.

The first LEED certified hotel/condo building in Seattle. The 39-story mixed-use tower includes a 349-room five-star hotel and 198 residential condominiums. The hotel occupies the first 17 floors while the condos the top 22. There are five levels of underground parking. The elevated floor slabs consist of reinforced concrete two-way flat plates. The lateral system consists of reinforced concrete structural walls (core walls) without moment frames. The design and permit of the lateral system required special peer review to evaluate the nonlinear response of the building when subjected to ground motions representative of the 2500-year seismic event.

3. *Fred Hutchinson Cancer Research Center, Seattle, Washington* (2002)

Project Engineer – KPFF Consulting Engineers, Inc.

A series of state-of-the-art research facilities: the *Cancer Care Alliance Building*, a seven-story superstructure with 150,000 square feet of treatment space, as well as a four-story basement with 147,000 square feet of parking and mechanical space; the *Administrative Building*, a 203,000-square-foot structure with six levels of office space and four levels of below grade parking; and the *Public Health Sciences Building*, a 500,000-square-foot building with three underground levels and five stories of office space above grade. The lateral force-resisting systems combine eccentric and/or concentric steel braced frames with special reinforced concrete shear walls. The buildings were designed using performance-based design to attain immediate occupancy during the 475-year seismic event.

4. *Sammamish Parkplace, Issaquah, Washington (1998)*

Project Engineer – KPFF Consulting Engineers, Inc.

Two office buildings, each six-story high, provide 1.1 million square feet of office space. Additionally, two separate parking structures provide space for more than 1800 cars. The floor construction for both office buildings consists of two-way post-tensioned concrete flat slabs. The floors for both parking structures combine post-tensioned one-way slabs and long-span beams. Lateral loads in all four structures are resisted by special reinforced concrete shear walls proportioned and detailed using displacement-based design.

5. *Harbor Steps North Towers, Seattle, Washington (1997)*

Project Engineer – Andersen Bjornstad Kane Jacobs, Inc.

Two high-rise residential towers, one rises 13 stories, the other 29 stories. The structural floor system consists of two-way post-tensioned concrete flat slabs. The lateral force-resisting system for the 13-story tower uses stand-alone special reinforced concrete shear walls around a central core. The 29-story tower uses a dual system with “skipped moment frames”, which combines interior concrete shear walls with exterior special moment-frames, where exterior columns are restrained by beams at every other floor.