

**Stephen Pessiki**  
Professor of Structural Engineering  
Department of Civil and Environmental Engineering  
Lehigh University

**Education**

Ph.D. in Civil and Environmental Engineering, Cornell University, 1990  
M.S. in Civil and Environmental Engineering, Cornell University, 1986  
B.S. in Civil Engineering, with Honors, Drexel University, 1984

**Teaching and Research Areas**

Behavior and Design of Structures; Nondestructive Evaluation of Materials and Structures; Condition Assessment of Existing Structures; Fire Effects on Structures; Earthquake Engineering; Innovative Structural Materials and Systems

**Research and Professional Experience**

Lehigh University, Department of Civil and Environmental Engineering  
Department Chair (July 2005 to June 2011)  
Professor of Structural Engineering (June 2005 to present)  
Associate Professor of Structural Engineering (July 1996 to May 2005)  
Assistant Professor of Structural Engineering (August 1990 to June 1996)

Tongji University, School of Civil Engineering  
Visiting Scholar (March 2013 to May 2013)

Lehigh University, Office of International Affairs  
Senior Faculty Advisor (September 2011 to June 2015)

Purdue University (January 2004 to May 2004)  
Visiting Professor, Department of Civil and Environmental Engineering

Cornell University (May 1990 to June 1990)  
Post-Doctoral Associate, Department of Civil and Environmental Engineering

Syracuse University (August 1989 to May 1990)  
Visiting Assistant Professor, Department of Civil Engineering

Cornell University (January 1987 to August 1989)  
Research Assistant, Department of Civil and Environmental Engineering

National Institute of Standards and Technology (August 1985 to January 1986, June 1986 to August 1986) Graduate Co-op Student

Cornell University (August 1984-May 1985)  
Teaching Assistant, Department of Civil and Environmental Engineering

Kling-Lindquist Inc. (June 1984 to August 1984)  
Structural Engineer

Ballinger Company (June 1982 to December 1983)  
Structural Engineering Group Co-op / Draftsperson

SEPTA (June 1981 to December 1981)  
Facilities Engineering Co-op Assistant

### **Honors and Awards**

Best Paper Award (Materials), 16th European Bridge Conference, Edinburgh, 2015  
Honorary Visiting Professor, University of Jinan, China, 2013-2016  
Leslie D. Martin Award of Merit, Precast / Prestressed Concrete Institute, 2010  
Honorary Member, Brazilian Society of Structural Engineers, 2009  
P.C. Rossin College of Engineering and Applied Science Teaching Excellence Award, 2007  
Leslie D. Martin Award of Merit, Precast / Prestressed Concrete Institute, 2006  
Distinguished Alumni Lectureship, Drexel University, 2005  
Senior Rossin Professor, 2004-2007  
Fellow, Precast / Prestressed Concrete Institute, 2004  
Fellow, American Concrete Institute, 2004  
Japan Society for Promotion of Science Fellowship, 2004  
Distinguished Educator, Precast / Prestressed Concrete Institute 2002  
Class of 1961 Associate Professor, 1999-2002  
College of Engineering and Applied Science Teaching Excellence Award, 1997  
Best Paper Award, ASCE Journal of Architectural Engineering, 1997  
Lehigh Award for Distinguished Teaching, 1996  
Finalist, Donald B. and Dorothy L. Stabler Foundation Award for Excellence in Teaching, 1993  
George Winter Graduate Fellowship, Cornell University, 1987  
John Perry Teaching Assistant Award, Cornell University, 1987  
L.P. Mains Memorial Scholarship, Drexel University, 1983  
Tau Beta Pi, 1983  
Chi Epsilon, 1983

### **Professional Contributions**

Member, Committee 228-Nondestructive Testing of Concrete, ACI (1996-present, Chair 2000-2006)  
Member, Committee 216 Fire Resistance and Fire Protection of Structures, ACI (2004-present)  
Member, Committee 437-Strength Evaluation of Existing Structures, ACI (2001-2010)  
Member, Educational Activities Committee, ACI, (2006-2008)  
Member, Innovative Task Group 5-Acceptance Criteria for Special Precast Structural Walls Based on Validation Testing, ACI (2003-2010)  
Member, Technical Activities Committee, PCI (2002-2008)  
Member, Industry Handbook Committee, PCI (2000-2010)  
Member, Fire Committee, PCI (2007-present, Chair 2007-2012)  
Member, Research and Development Committee, PCI (1991-2011)  
Member, Sandwich Wall Panel Committee, PCI (2000-2013); Consulting Member (2013-present)

Member, Committee on Science and the Arts, The Franklin Institute (2012-2016)  
Member, Board of Directors, Delaware Valley Section, ACI (2000-2004)  
Member, Board of Directors, Moravian Museum (2002-2005)  
Member, Board of Directors, Lehigh Valley Section, ASCE, (1994-1997)

### Peer-Reviewed Journal Publications

Al-Subaihawi, S., Pessiki, S., "Seismic Behavior of Spring Anchored Unbonded Post-Tensioned Rocking Frames," submitted to *Journal of Earthquake Engineering*, 2019.

Keller, W.J., Pessiki, S., "Enhancing Radiographic Imaging of Cementitious Materials in Composite Structures With Photon Attenuating Inclusions," *Research in Nondestructive Evaluation*, Vol. 30, No. 4, 231-251, 2019.

Al-Subaihawi, S., Pessiki, S., "Static Pushover Response of Spring Anchored Unbonded Post Tensioned Rocking Systems," accepted to *Engineering Structures*, 2018.

Shakeri, K., Khansoltani, E., Pessiki, S., "Ground Motion Scaling for Seismic Response Analysis by Considering Inelastic Response and Contribution of the Higher Modes," accepted to *Soil Dynamics and Earthquake Engineering*, 2018.

Shakeri, K., Khansoltani, E., Pessiki, S., "Ground Motion Scaling for Seismic Response Analysis Considering Inelastic Response of the Structure Along With the Contribution of Higher Modes," submitted to *Engineering Structures*, 2017.

Shakeri, K., Khansoltani, E., Pessiki, S., "Scaling Ground Motion Records for Seismic Response Analysis using Story-Shear Based Pushover Analysis," submitted to *Earthquake Engineering and Structural Dynamics*, 2017.

McGinnis, M., Pessiki, S., "Experimental Study of the Core-Drilling Method for Evaluating In-Situ Stresses in Concrete Structures," *ASCE Journal of Materials in Civil Engineering*, Vol. 28, No. 2, February 2016.

Keller, W.J., Pessiki, S., "Experimental Validation of a Numerical Model for Simulating Radiographic Imaging of Portland Cement-Based Materials," *Journal of Nondestructive Evaluation*, Vol. 34, No. 3, September 2015.

Keller, W., Pessiki, S., "Cyclic Load Tests of SFRM Insulated Steel Gravity Frame Beam-Column Connection Assemblies," *ASCE Journal of Structural Engineering*, Vol. 141, No. 10, October 2015, 12 pp.

Keller, W., Pessiki, S., "Effect of Earthquake-induced Damage on the Sidesway Response of Steel Moment-frame Buildings during Fire Exposure," *Earthquake Spectra*, Vol. 31, No. 1, February 2015, pp. 273-292.

Perez, F.J., Pessiki, S., Sause, R., "Experimental Lateral Load Response of Unbonded Post-tensioned Precast Concrete Walls," *ACI Structural Journal*, Vol. 110, No. 6, November-December 2013, pp. 1045-1055.

Pessiki, S., Bayreuther, J., "Analytical Investigation of Vehicle Fires in Precast Concrete Parking Structures," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 58, No. 3, Summer 2013, pp.111-123.

Okasha, N., Pessiki, S., "Restraint Mechanisms in Precast Concrete Double-tee Floor Systems Subjected to Fire," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 58, No. 3, Summer 2013, pp. 95-110.

Keller, W.J., Pessiki, S., "Effect of Earthquake-induced Damage to Spray-Applied Fire-resistive Insulation on the Response of Steel Moment-frame Beam-column Connections During Fire Exposure," *Journal of Fire Protection Engineering*, Vol. 22, No. 4, 2012, pp. 271-299.

Braxtan, N.L., Pessiki, S., "Post-Earthquake Fire Performance of Sprayed Fire Resistive Material on Steel Moment Frames," *Journal of Structural Engineering*, American Society of Civil Engineers, Vol. 137, No. 9, September 2011, pp. 946-953.

Braxtan, N.L., Pessiki, S., "Bond Performance of SFRM on Steel Plates Subjected to Tensile Yielding," *Journal of Fire Protection Engineering*, Vol. 21, No. 1, February 2011, pp. 37-55.

Trautner, C., McGinnis, M., Pessiki, S., "Application of the Incremental Core Drilling Method to Determine In-Situ Stresses in Concrete," *Materials Journal*, American Concrete Institute, Vol. 108, No. 3, May-June 2011, pp. 290-299.

Trautner, C., McGinnis, M., Pessiki, S., "Analytical and Numerical Development of the Incremental Core Drilling Method of Non-Destructive Determination of In-Situ Stresses in Concrete Structures," *Journal of Strain Analysis for Engineering Design*, Vol. 45, No. 8, 2010, pp. 647-658.

Naito, C.J., Sause, R., Hodgson, I., Pessiki, S., and Macioce, T., "Forensic Examination of a Non-Composite Adjacent Precast Prestressed Concrete Box Beam Bridge," *Journal of Bridge Engineering*, American Society of Civil Engineers, Vol.15, No.4, July-August 2010, pp.408-418.

Lee, B.J., Pessiki, S., "Revised Zone Method R-value Calculation for Precast Concrete Sandwich Panels Containing Metal Wythe Connectors," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 53, No. 5, September-October 2008, pp. 86-100.

Lee, B.J., Pessiki, S., "Experimental Evaluation of Precast Prestressed Concrete Three-Wythe Sandwich Wall Panels," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 53, No. 2, March-April 2008, pp. 95-115.

Lee, B.J., Pessiki, S., "Design and Analysis of Precast Prestressed Concrete Three-Wythe Sandwich Wall Panels," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 52, No. 4, July-August 2007, pp. 70-83.

Perez, F. J., Sause, R., and Pessiki, S., "Analytical and Experimental Lateral Load Behavior of Unbonded Post-Tensioned Precast Concrete Walls," *Journal of Structural Engineering*, American Society of Civil Engineers, Vol. 133 No. 11, pp. 1531-1540, November 2007.

McGinnis, M.J., Pessiki, S., "Differential Shrinkage Effects in the Core-Drilling Method," *Magazine of Concrete Research*, Vol. 59, No. 3, 155-164, 2007.

McGinnis, M.J., Pessiki, S., "Water Induced Swelling Displacements in the Core-Drilling Method," *ACI Materials Journal*, Vol. 104, No. 1, 13-22, 2007.

Ozevin, D., Greve, D.W., Oppenheim, I.J., Pessiki, S., "Resonant Capacitive MEMS Acoustic Emission Transducers," *Smart Materials and Structures*, Vol. 15, 2006, pp. 1863-1871.

Thompson, J., Pessiki, S., "Experimental Investigation of Precast, Prestressed Inverted Tee Girders with Large Web Openings," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 51, No. 6, November-December 2006, pp. 32-47.

Harries, K.A., Ricles, J.M., Pessiki, S., Sause, R., "Seismic Retrofit of Lap-Splices in Non-Ductile Columns Using CFRP Jackets," *Structural Journal*, American Concrete Institute, Vol. 103, No. 6, November-December 2006, pp. 874-884.

Lee, B.J., Pessiki, S., "Thermal Performance Evaluation of Precast Concrete Three-wythe Sandwich Wall Panels," *Energy and Buildings*, Vol. 38, Issue 8, August 2006, pp. 1006-1014.

McGinnis, M., Pessiki, S., Turker, H., "Digital Image Correlation Applied to Nondestructive Evaluation of In-situ Stresses in Concrete," *Experimental Mechanics*, Vol. 45, No. 4, 2005, pp. 359-367.

Sause, R., Harries, K.A., Walkup, S., Pessiki, S., Ricles, J.M., "Flexural Behavior of Concrete Columns Retrofitted with CFRP Jackets," *Structural Journal*, American Concrete Institute. Vol. 101, No. 5, September-October 2004, pp. 708-716.

Lee, B.J., Pessiki, S., "Analytical Investigation of the Thermal Performance of Precast Concrete Three-wythe Sandwich Wall Panels," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 49, No. 4, July-August 2004, pp. 88-101.

Perez, F.J., Pessiki, S., Sause, R., "Lateral Load Behavior of Unbonded Post-Tensioned Precast Walls with Vertical Joint Connections," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 49, No. 2, March-April 2004, pp. 48-63.

Perez, F.J., Pessiki, S., Sause, R., "Seismic Design of Unbonded Post-Tensioned Precast Walls with Vertical Joint Connections," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 49, No. 1, January-February 2004, pp. 58-79.

Perez, F.J., Pessiki, S., Sause, R., Lu, L.W., "Lateral Load Tests of Unbonded Post-Tensioned Precast Concrete Walls," *Large Scale-Scale Structural Testing*, Edited by M. A. Issa, Y. L. Mo, American Concrete Institute, Farmington Hills, Michigan, 2003, pp. 161-183.

Pessiki, S., Mlynarczyk, A., "Experimental Evaluation of the Composite Behavior of Precast Concrete Sandwich Wall Panels," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 48, No. 2, March-April 2003, pp. 54-71.

Kurama, Y., Sause, R., Pessiki, S., Lu, L.W., "Seismic Response Evaluation of Unbonded Post-tensioned Precast Concrete Walls," *Structural Journal*, American Concrete Institute, Vol. 99, No. 5, September-October 2002, pp. 641-651.

Pessiki, S., Graybeal, B., Mudlock, M., "Proposed Design of High Strength Spiral Reinforcement in Compression Members," *Structural Journal*, American Concrete Institute, Vol. 98, No. 6, November-December 2001, pp. 799-810.

Pessiki, S., Harries, K.A., Kestner, J.T., Sause, R., Ricles, J.M., "Axial Behavior of Concrete Confined with Fiber Reinforced Composite Jackets," *Journal of Composites in Construction*, American Society of Civil Engineers, Vol. 5 No. 4, 2001, pp. 237-245.

Pessiki, S., Graybeal, B.A., "Axial Load Tests of Concrete Compression Members with High Strength Spiral Reinforcement," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 45, No. 2, March-April 2000, pp. 64-80.

El-Sheikh, M.T., Pessiki, S., Sause, R., Lu, L.W., "Moment-Rotation behavior of Unbonded Post-Tensioned Precast Concrete Beam-Column Connections," *Structural Journal*, American Concrete Institute, Vol. 97, No. 1, January-February 2000, pp. 122-131.

Kurama, Y.C., Sause, R., Pessiki, S., and Lu, L.W., "Lateral Load Behavior and Seismic Design of Unbonded Post-Tensioned Precast Concrete Walls," *Structural Journal*, American Concrete Institute, Vol. 96, No. 4, July-August 1999, pp. 622-632.

El-Sheikh, M.T., Sause, R., Pessiki, S., Lu, L.W., "Seismic Behavior of Unbonded Post-Tensioned Precast Concrete Frames," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 44, No. 3, May-June 1999, pp.54-71.

Kurama, Y.C., Pessiki, S., Sause, R., and Lu, L.W., "Seismic Behavior and Design of Unbonded Post-Tensioned Precast Concrete Walls," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 44, No. 3, May-June 1999, pp. 72-89.

Fleischman, R.B., Sause, R., Pessiki, S., Rhodes, A., "Seismic Behavior of Precast Parking Structure Diaphragms," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 43, No. 1, January-February 1998, pp. 38-53.

Pessiki, S., van Zyverden, W., Sause, R., Slaughter, E. S., "Proposed Concepts for Floor Framing Systems for Precast Concrete Office Buildings," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 42, No. 5, September-October 1997, pp. 66-76.

Slaughter, S., Sause, R., Pessiki, S., "Development of a Framework for Structural Floor Framing Systems to Accommodate Nonstructural Requirements," *Journal of Architectural Engineering*, American Society of Civil Engineers, Vol. 3, No. 3, September 1997, pp. 109-117.

Pessiki, S., Rowe, M., "Influence of Steel Reinforcing Bars on the Evaluation of Early-Age Concrete Strength Using the Impact-Echo Method," *Structural Journal*, American Concrete Institute, Vol. 94, No. 4, July-August 1997, pp. 378-388.

Pessiki, S., Pieroni, A., "Axial Load Behavior of Large-Scale Spirally-Reinforced High-Strength Concrete Columns," *Structural Journal*, American Concrete Institute, Vol. 94, No. 3, May-June 1997, pp. 304-314.

Pessiki, S., Kaczinski, M., Wescott, H., "Evaluation of Effective Prestress Force in 28-Year Old Prestressed Concrete Bridge Beams," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 41, No. 6, November-December 1996, pp. 78-89.

Beres, A., Pessiki, S., White, R.N., Gergely, P., "Implications of Experiments on the Seismic Behavior of Gravity Load Designed R.C. Beam-to-Column Connections," *Earthquake Spectra*, Earthquake Engineering Research Institute, Vol. 12, No. 2, May 1996, pp. 185-198.

Sause, R., Pessiki, S., Wu, S., Kurama, Y., "Modeling and Seismic Behavior of Non-Ductile Concrete Frame Structures and Retrofit Implications," *Seismic Rehabilitation of Concrete Structures*, Edited by G. M. Sabnis, A. C. Shroff, L. F. Kahn, American Concrete Institute, Farmington Hills, Michigan, 1996, pp. 231-253.

Pessiki, S., Prior, R., Sause, R., Slaughter, S., "Review of Existing Precast Concrete Gravity Floor Framing Systems," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 40, No. 2, March-April 1995, pp. 52-68.

Pessiki, S., Prior, R., Sause, R., Slaughter, S., van Zyverden, W., "Assessment of Existing Precast Concrete Floor Framing Systems," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 40, No. 2, March-April 1995, pp. 70-83.

Pessiki, S., Johnson, M., "Nondestructive Evaluation of Early-Age Concrete Strength in Plate Structures by the Impact-Echo Method," *Materials Journal*, American Concrete Institute, Vol. 93, No. 3, May-June 1996, pp. 260-271.

Pessiki, S., Johnson, M., "In-Place Evaluation of Concrete Strength Using the Impact-Echo Method," *New Experimental Techniques for Evaluating Concrete Material and Structural Performance*, Edited by D.J. Stevens and M.A. Issa, American Concrete Institute, Detroit, 1994, pp. 275-295.

Pessiki, S.P., Conley, C., White, R.N., Gergely, P., "Seismic Behavior of the Beam-Column Connection Region in Lightly-Reinforced Concrete Frame Structures," *Studi e Ricerche*, No. 11, July 1990, pp. 437-465.

Dolan, C.W., Pessiki, S.P., "Model Testing of Precast Concrete Connections," *PCI Journal*, Precast/Prestressed Concrete Institute, Vol. 34, No. 2, March-April 1989, pp. 84-103.

Pessiki, S.P., Carino, N.J., "Setting Time and Strength of Concrete Using the Impact-Echo Method," *Materials Journal*, American Concrete Institute, Vol. 85, No. 5, September-October, 1988, pp. 389-399.

#### **Peer-Reviewed Conference Proceedings** (papers are reviewed)

Pessiki, S., "Sustainable Seismic Design," Sustainable Civil Engineering Structures and Construction Materials (SCESCM), Bali, Indonesia, September 2016, 8 pp.

Pessiki, S., Shelala-Bauer, J., Naito, C., "Precast Concrete Bridge Decks with Carbon Fiber Grid Reinforcement," Proceedings, 16th European Bridge Conference, Edinburgh, 2015.

Keller, W., Pakzad, S., Pessiki, S., "Laboratory Evaluation of a Rapid Screening Test for Fatigue Crack Detection in Anchor Rods for Highway Sign Bridge Structures," Proceedings, 16th European Bridge Conference, Edinburgh, 2015.

Gross, J.H., Mohr, D.M., and Pessiki, S.P., "Creation of a Structural Engineering Professional Master's Degree Program," *Proceedings of the American Society for Engineering Education Annual Conference*, San Antonio, TX, American Society for Engineering Education, Paper 4080, pp. 1-14, 2012.

Pessiki, S., Bayreuther, J., Strenchock, K., "Analytical Investigation of Fire Loads for Precast Concrete Parking Structures," *Proceedings, Structural Engineers World Congress*, Bangalore, India, November, 2007, 10 pp. (CD ROM).

Pessiki, S., Kwon, K., Lee, B.J., "Fire Load Behavior of Steel Building Columns with Damaged Spray-applied Fire Resistive Material," *4<sup>th</sup> International Workshop on Structures in Fire*, Aveiro, Portugal, May 2006, pp. 235-245.

McGinnis, M.J., Pessiki, S., "Influence of Steel Reinforcement on In-Situ Stress Evaluation in Concrete Structures by the Core-Drilling Method," *Review of Progress in Quantitative Nondestructive Evaluation: Volume 25*, edited by D.O. Thomson and D.E. Chimenti, American Institute of Physics, New York, 2006, pp. 1358-1365.

Sause, R., Pessiki, S.P., Ricles, J.M., "Self-Centering Earthquake-Resistant Structural Systems," *Proceedings, KEERC International Seminar on Innovative Concepts and Technologies in Seismic Analysis and Design of Building Structures*, Korea Earthquake Engineering Research Center, Seoul, Korea, February, 2005.

Ozevin, D., Greve, D.W., Oppenheim, I.J., Pessiki, S., "The Characteristics of a New Transducer Design for Acoustic Emission Testing," *Advances in Civil Engineering-6<sup>th</sup> International Conference*, October 2004, Istanbul, Turkey, pp. 1014-1024.

Turker, H., Pessiki, S., "Theoretical Development of the Core-drilling Method for Biaxial Uniform Normal and Shear Stresses in Concrete Structures," *Advances in Civil Engineering-6<sup>th</sup> International Conference*, October 2004, Istanbul, Turkey, pp. 1074-1083.

Ozevin, D., Greve, D.W., Oppenheim, I.J., Pessiki, S., "Steel Plate Coupled Behavior of MEMS Transducers Developed for Acoustic Emission Testing," *26<sup>th</sup> European Conference on Acoustic Emission Testing*, September 2004, Berlin, Germany, pp. 557-564.

Lu, L.-W., Sause, R., Ricles, J.M., and Pessiki, S.P., "High Performance, Cost Effective Structural Systems for Seismic-Resistant Buildings," *Earthquake Engineering Frontiers in the New Millennium, Proceedings, U.S.-China Millennium Symposium on Earthquake Engineering*, Spencer and Hu, Eds., pp. 367-370, 2001.

Pessiki, S., Turker, H., "Theoretical Formulation of the Core Drilling Method to Evaluate Stresses in Concrete Structures," *Review of Progress in Quantitative Nondestructive Evaluation*, Edited by D.O. Thompson and D.E. Chimenti, American Institute of Physics, 1999, pp. 1731-1737.

Kurama, Y.C., Sause, R., Pessiki, S., Lu, L.W., "Seismic Behavior and Design of Unbonded Post-Tensioned Precast Concrete Walls," *Proceedings, Sixth U.S. National Conference on Earthquake Engineering*, Earthquake Engineering Research Institute, June, 1998.

Harries, K.A., Ricles, J.M., Sause, R., Pessiki, S., and Walkup, S.L., "Seismic Retrofit of Non-Ductile Reinforced Concrete Building Columns Using FRPC Jackets," *Proceedings, Sixth U.S. National Conference on Earthquake Engineering*, Earthquake Engineering Research Institute, June, 1998.

Pessiki, S., Wang, J., "A Coring Method for the Nondestructive Evaluation of Effective Prestress in Prestressed Concrete Structures," *Review of Progress in Quantitative Nondestructive Evaluation*, Edited by D.O. Thompson and D.E. Chimenti, Plenum Press, New York, 1996, Vol. 15, pp. 1831-1838.

Sause, R., Pessiki, S., Kurama, Y., Wu, S., "Seismic Behavior and Retrofit Implications for Two Non-Ductile Concrete Frame Structures," *Proceedings, Fifth U.S. National Conference on Earthquake Engineering*, Earthquake Engineering Research Institute, 1994, Vol. 3, pp. 809-818.

Prior, R., Pessiki, S., Sause, R., Slaughter, S., "Development of New Floor Systems for Precast Concrete Structures," *Proceedings, XII FIP International Congress (Federation Internationale de la Precontrainte)*, 1994, pp. 626-632.

Pessiki, S., Johnson, M., "Nondestructive Determination of Concrete Strength in Plate Structures by the Impact-Echo Method," *Review of Progress in Quantitative Nondestructive Evaluation*, Edited by D.O. Thompson and D.E. Chimenti, Plenum Press, New York, 1994, Vol. 13, pp. 2139-2146.

Beres, A., White, R.N., Gergely, P., Pessiki, S.P., El-Attar, A., "Behavior of Existing Non-Seismically Detailed Reinforced Concrete Frames," *Proceedings, Tenth World Conference on Earthquake Engineering*, 1992, Vol. 6, pp. 3359-3363.

### **Book Chapters**

Pessiki, S., Revision to: Section 19, Chapter 4: "Analyzing Structural Fire Damage," Fire Protection Handbook, National Fire Protection Association, 20<sup>th</sup> Edition, 2008.

Grosse, C.U., Reinhardt, H.W., Beutel, R., Pessiki, S., "Chapter 4: Impact-Echo," Advanced Testing of Cement-Based Materials during Setting and Hardening - Final Report of RILEM TC 185-ATC, Edited by H.W. Reinhardt and C.U. Grosse, 2005, 362 pp. (ISBN: 2-912143-81-0).

### **Editorship**

Pessiki, S., Olson, L., "Innovations in Non-Destructive Testing of Concrete," ACI-SP168, American Concrete Institute, Farmington Hills, Michigan, 360 pp., 1997.

### **Committee Documents**

Requirements for Design of a Special Unbonded Post-Tensioned Precast Shear Wall Satisfying ACI ITG-5.1 (ACI ITG-5.2-09) and Commentary, ACI Standard Reported by ACI Innovation Task Group 5, Beres, A., Dolan, C., Klemencic, R., Pessiki, S.P., Wallace, J.W., Cleland, N.M., Mujumdar, V.S., Shield, C.K., Wyllie, Jr., L.A., Hawkins, N.M., Nakaki, S.D., Ghosh, S.K., 2010.

Acceptance Criteria for Special Unbonded Post-Tensioned Precast Structural Walls Based on Validation Testing (ACI ITG-5.1-07), Reported by ACI Innovation Task Group 5, Beres, A., Dolan, C., Klemencic, R., Pessiki, S.P., Wallace, J.W., Cleland, N.M., Mujumdar, V.S., Shield, C.K., Wyllie, Jr., L.A., Hawkins, N.M., Nakaki, S.D., Ghosh, S.K., 2008.

### **Conference Proceedings**

Pakiding, L., Pessiki, S., Sause, R., Rivera, M., "Unbonded Post-tensioned Cast-in-place Concrete Walls for Seismic Resistance," 2015 Structures Congress, Portland OR, April 2015.

Trautner, C.A., McGinnis, M.,J., Pessiki, S., "The Incremental Core Drilling Method to Determine In-situ Stresses in Concrete," Society for Experimental Mechanics Annual Conference & Exposition, Connecticut, June 2011.

Hodgson, I., Pessiki, S., "Thermal Induced Cracking in a Concrete Dam Structure," *Proceedings, Structural Faults and Repair – 2010, 13<sup>th</sup> International Conference*, Edinburgh, Scotland, June 2010.

Leo, N., Pessiki, S., "Bond of SFRM to Steel Structures Subjected to Tensile Yielding," *Proceedings, Structural Faults and Repair – 2008, 12<sup>th</sup> International Conference*, Edinburgh, Scotland, June 2008.

Hodgson, I., Pessiki, S., "Estimation of Dead and Live Load Stresses in Steel Hanger Rods Utilizing Field Measurements, Lab Testing, and Finite Element Analysis," *Proceedings, Structural Faults and Repair – 2008, 12<sup>th</sup> International Conference*, Edinburgh, Scotland, June 2008.

Naito, C., Hodgson, I., Sause, R., Pessiki, S., "Forensic Evaluation Of 45 Year Old Prestressed Concrete Box Beams From The Lakeview Drive Bridge Collapse," *Fourth International Conference on Bridge Maintenance, Safety and Management*, Seoul, Korea, July, 2008.



Pessiki, S., Hodgson, I., "Field Evaluation of Dead and Live Load Hanger Rod Stresses in a Continuous Steel Girder Bridge," *Fourth International Conference on Bridge Maintenance, Safety and Management*, Seoul, Korea, July, 2008.

Pessiki, S., McGinnis, M., "Nondestructive Evaluation of Effective Prestress Using the Core-Drilling Method," *Fourth International Conference on Bridge Maintenance, Safety and Management*, Seoul, Korea, July, 2008.

Roy, S., Park, Y.-C., Sause, R., Pessiki, S.P. and Schmidt, T., "Measurements in Traffic Signal Structure using 3D Image Correlation," *Proceedings of International Conference on Health Monitoring of Structure, Material and Environment (HMSME 2007)*, Nanjing, China, October 16-18, pp. 100-108, 2007.

McGinnis, M., Pessiki, S., "Review of the Core-Drilling Method for Evaluating Concrete Stresses," *Proceedings of International Conference on Health Monitoring of Structure, Material and Environment (HMSME 2007)*, Nanjing, China, October 16-18, pp. 632-637, 2007.

Pessiki, S., Irwin, D., "Prediction of Early-age Concrete Strength in a Precast Plant Using the Impact-echo Method," *Advanced Testing of Fresh Cementitious Materials*, Stuttgart, August 2006, pp. 301-308.

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Pessiki, S., "Evaluation of Building Components at the Waynesborough Country Club," report to Davis, Bucco and Ardizzi, August 2009, 83 pp.

Pessiki, S., Ozevin, D., "Evaluation of the Tension Force in External Post-Tensioning Bars in a Steel Pier Cap," report to Specialty Engineering, Inc., ATLSS Project A102.2, 2004, 14 pp.

Pessiki, S., Abruzzo, J., Stefan, P., "Load Test to Evaluate Structural Repairs - Stroheim and Romann Building, report to LZA Technology, November 2001, 7 pp.

Pessiki, S., "Analytical Investigation of the Cause of the Partial Collapse of a Steel Structure Under Construction," report to Salvino Steel Company, November 1999, 7 pp.

Pessiki, S., "Field Investigation of Concrete Roof Deck and Steel Roof Trusses - Calo Building at Lehigh Landing, report to Allentown Economic Development Corporation, December 1998, 22 pp.

Pessiki, S., Furtaw, C.E., "Experimental Investigation of Alleged Defects in the Masonry Lintels - Steinberg Conference Center University of Pennsylvania, report to Davis-Giovinazzo Construction Company, January 1998, 75 pp.

Pessiki, S., "Finite Element Analysis of Crane-Induced Stresses in the Masonry Cabin Structure at Slater Steels Facility," report to Barclay Construction Hamilton Limited, May 1997, 31 pp.

Pessiki, S., "Large-Scale Model Test Fixture Engineering and Design Report," Chapter 5 - Structural Design of the Test Frame, report to Naval Surface Warfare Center by Chant Engineering Co., Inc., May 1995.

Pessiki, S., Yen, B., Mazzeo, P., "Final Report - Inspection and Conceptual Engineering Study of SEPTA Bridge 7.70 on the Manayunk Branch," Chapter VI - Finite Element Analysis, report to SEPTA by Urban Engineers, Inc., February 1992.

Pessiki, S., Yen, B., Mazzeo, P., "Progress Report - Inspection and Conceptual Engineering Study of SEPTA Bridge 7.70 on the Manayunk Branch," Chapter VI - Finite Element Analysis, report to SEPTA by Urban Engineers, Inc., September 1991.

#### **Invited Presentations** (presenter in italics)

*Pessiki, S., Alfurayh, A., "Enhanced Radiographic Void Detection in Grouted Post-tensioned Construction Using Photon Attenuating Inclusions," Post-tensioning Institute Convention, Minneapolis MN, May 2018.*

*Pessiki, S., "Sustainable Seismic Design," Keynote Lecture, 3rd International Conference on Sustainable Civil Engineering Structures and Construction Materials, Bali, September 2016.*

Bali, 5-7 September 2016

*Pessiki, S., "The Evolution of Self-Centering Low-Damage Seismic Structural Systems – Concept, Research and Implementation in Practice," Universiti Teknologi Petronas, May 2015.*

*Pessiki, S., "Post-earthquake Fire Response of Steel Building Structures – Recent Research at Lehigh University," Universiti Teknologi Petronas, May 2015.*

*Pessiki, S.*, "Sustainable Seismic Systems," Universitas of Gadjah Mada, May 2015.

*Pessiki, S.*, "Innovative Seismic Lateral Force Systems," Post-tensioning Institute Convention, Norfolk VA, May 2014.

*Pessiki, S.*, "Self-Centering Low-Damage Seismic Structural Systems – Concept, Research and Implementation in Practice," Structural Engineers Association of Pennsylvania, Annual Convention, Harrisburg, June 2014.

*Pessiki, S.*, "Self-Centering Low-Damage Seismic Structural Systems – Concept, Research and Implementation in Practice," College of Civil Engineering, Tongji University, Shanghai, China, May 2013.

*Pessiki, S.*, "Self-Centering Low-Damage Seismic Structural Systems – Concept, Research and Implementation in Practice," University of Jinan, Jinan, China, April 2013.

*Pessiki, S.*, "Experiences with Concrete Cracking During Construction," Daewoo Engineering and Construction Company, Seoul, April 2013.

*Pessiki, S.*, "Energy Efficient Precast Concrete Wall Panels," College of Civil Engineering, Tongji University, Shanghai, China, April 2013.

*Pessiki, S.*, "Overview of Fire Research at Lehigh University," College of Civil Engineering, Tongji University, Shanghai, China, September 2012.

*Pessiki, S.*, "Recent Innovations in Seismic Hazard Mitigation in Building Structures," Franklin Institute, Committee on Science and the Arts, Philadelphia, October 2012.

(Plenary Lecture) *Pessiki, S.*, "New Developments in Seismic Design of Building Structures," 2012 Conference on Civil, Offshore and Environmental Engineering, Kuala Lumpur, June 2012.

*Pessiki, S.*, "Sustainable Seismic Design – A Blue Ocean Strategy," 2012 Conference on Civil, Offshore and Environmental Engineering, Kuala Lumpur, June 2012.

*Pessiki, S.*, "New Developments in Seismic Design of Building Structures," Universiti Tun Hussein Onn, Malaysia, June 2012.

*Pessiki, S.*, "Thoughts on Cement Materials for Deep Water Wells," BP Technology Workshop – Enhancing Cement Technology, Houston, May 2012.

*Pessiki, S.*, Hodgson, I. "Deck Cracking Investigation – SR0309 Over Church Road," 2010 Transportation Management Training Workshop, Harrisburg, March 2010.

(Keynote Presentation) *Pessiki, S.*, "Integration of Research and Practice in Precast Concrete Structures in the United States," Second Encontro Nacional de Pesquisa, Projeto e Producao em Concreto Pre-Moldado, São Carlos, Brazil, November 2009.

*Pessiki, S.*, "Unbonded Post-tensioned Seismic Systems for Precast Concrete Structures," Department of Structural Engineering, University of São Paulo (EESC-USP), São Carlos, Brazil, November 2009.

*Pessiki, S.*, "Unbonded Post-tensioned Seismic Systems for Precast Concrete Structures," Department of Structural Engineering, Federal University of Ceará (UFC), Fortaleza, Brazil, November 2009.

*Pessiki, S.*, "Structural and Thermal Performance of Precast Concrete Sandwich Wall Panels," Brazilian Society of Structural Engineers Conference, São Paulo City, Brazil, November 2009.

*Pessiki, S.*, "Structural Fire Effects on Structures," Brazilian Society of Structural Engineers Conference, São Paulo City, Brazil, November 2009.

(Keynote Presentation) *Pessiki, S.*, "Research Needs for the Fire Design of Precast Concrete Building Structures in U.S. Practice," International Federation for Structural Concrete (fib) Symposium, Fire Design of Concrete Structures – From Materials Modelling to Structural Performance, Coimbra, Portugal, November 2007.

(Keynote Presentation) *Pessiki, S.*, "Structural Fire Safety in the Civil Engineering Curriculum," National Workshop on Structures in Fire: State-of-the Art and Research Needs," Michigan State University, East Lansing, June 2007.

*Hodgson, I.*, *Naito, C.*, *Sause, R.*, *Pessiki, S.*, "Evaluation of Prestressed Box Beams From the Lake View Drive Bridge Over I-70," International Bridge Conference, Western Pennsylvania Transportation Research Forum, Pittsburgh, June 2007.

*Sause, R.*, *Pessiki, S.*, "Seismic Behavior and Design of Precast Post-tensioned Concrete Walls," PCI Convention, Grapevine TX, October 2006.

*Pessiki, S.*, *Okasha, N.*, *Lee, B.J.*, "Restraint Forces in Precast Concrete Structures Under Fire Loading," PCI Convention, Grapevine TX, October 2006.

*Pessiki, S.*, "Current Research on Structures in Fire," Institute for Infrastructure and Environment, School of Engineering & Electronics, University of Edinburgh, Edinburgh Scotland, June 2006.

*Pessiki, S.*, "Design of Building Structures for Earthquakes – Traditional Approaches and New Directions, Invited Seminar, School of Civil Engineering, Purdue University, November 2005.

*Pessiki, S.*, "Design of Building Structures for Earthquakes – Traditional Approaches and New Directions, Invited Seminar for Delaware Valley Association of Structural Engineers, November 2005.

*Pessiki, S.*, "Structural Design of Precast Concrete for Fire – Current Research and Code Development," PCI Convention, Palm Springs CA, October 2005.

*Sause, R.*, *Pessiki, S.*, "Seismic Behavior and Design of Precast Concrete Walls," PCI Convention, Palm Springs CA, October 2005.

*Sause, R.*, *Pessiki, S.*, "Past Research at Lehigh University on Self-Centering Precast Concrete Walls," *US-Taiwan Workshop on Self-Centering Structural Systems*, Taipei, Taiwan, June 2005.

*Pessiki, S.*, "Lateral Load Tests of Unbonded Post-Tensioned Precast Concrete Walls," Invited Seminar, Department of Civil, Construction, and Environmental Engineering, North Carolina State University at Raleigh, April 2005.

*Sause, R.*, *Pessiki, S.P.*, *Ricles, J.M.*, "Self-Centering Earthquake-Resistant Structural Systems," *KEERC International Seminar on Innovative Concepts and Technologies in Seismic Analysis and Design of Building Structures*, Korea Earthquake Engineering Research Center, Seoul National University, Seoul, Korea, February 2005.

*Sause, R.*, *Pessiki, S.*, "Lateral Load Tests of Unbonded Post-tensioned Precast Concrete Walls," PCI Convention, Atlanta GA, October 2004.

*Pessiki, S.*, "Structural Design for Fire Resistance – Research Needs and Code Development," PCI Convention, Atlanta GA, October 2004.

*Pessiki, S.*, "Fire-Resistant Structural Design of Precast Concrete Buildings" Tokyo University of Science, Noda, Japan, July 2004.

*Pessiki, S.*, "Precast Concrete Building Systems in the United States," National Institute for Land and Infrastructure Management, Tsukuba, Japan, June 2004.

*Pessiki, S.*, "Evaluation of Early-Age Concrete Strength in the Precast Concrete Plant Using the Impact-Echo Method," Invited Seminar, Department of Civil Engineering Seminar, University of Minnesota, April 2003.

*Pessiki, S.*, Lee, Y.J., "Proposed Method to Estimate R-values of Precast Concrete Sandwich Wall Panels," American Concrete Institute Convention, Vancouver, British Columbia, April 2003.

*Perez, F.J.*, *Pessiki, S.*, Sause, R., Lu, L.-W., "Lateral Load Tests of Unbonded Post-tensioned Precast Concrete Walls," American Concrete Institute Convention, Vancouver, British Columbia, April 2003.

*Pessiki, S.*, Irwin, D., Taylor, N., "Evaluation of Early-Age Concrete Strength in the Precast Concrete Plant Using the Impact-Echo Method," American Concrete Institute Convention, Vancouver, British Columbia, April 2003.

*Perez, F.J.*, *Pessiki, S.*, Sause, R., Lu, L.-W., "Seismic Behavior of Unbonded Post-tensioned Precast Walls with Horizontal Joints," American Concrete Institute Convention, Vancouver, British Columbia, April 2003.

*Perez, F.J.*, Sause, R., *Pessiki, S.*, and Lu, L.-W., "Lateral Load Behavior of Unbonded Post-Tensioned Precast Concrete Walls," *International Conference on Advances in Building Technology*, Hong Kong, December 2002.

*Pessiki, S.*, Graybeal, B., Mudlock, M., "Design of High Strength Spiral Reinforcement in Concrete Compression Members," *International Conference on Advances in Building Technology*, Hong Kong, December 2002.

*Perez, F.*, Sause, R., *Pessiki, S.*, "Lateral Load Behavior of Unbonded Post-tensioned Precast Concrete Walls," American Concrete Institute Convention, Phoenix, Arizona, October 2002.

Lee, Y.-J., *Pessiki, S.*, "Proposed Method to Estimate R-values of Precast Sandwich Wall Panels," PCI Annual Convention, Nashville, Tennessee, October 2002.

Sause, R., *Pessiki, S.*, *Perez, F.*, "Large-Scale Experimental Evaluation of the Lateral Load Response of Unbonded Post-tensioned Precast Concrete Walls," PCI Annual Convention, Nashville, Tennessee, October 2002.

*Pessiki, S.*, Sause, R., "Large-Scale Ship Hull Experiments," John W. Fisher Tribute and Symposium, Lehigh University, August 2002.

*Pessiki, S.*, Lee, B.-J., "Lateral Load Tests of Three-wythe Precast Concrete Sandwich Panels," PCI Annual Convention, Reno, Nevada, October 2001.

Sause, R., *Pessiki, S.*, *Perez, F.*, "Large-Scale Experimental Evaluation of the Lateral Load Response of Unbonded Post-tensioned Precast Concrete Walls," PCI Annual Convention, Reno, Nevada, October 2001.

Lu, L.-W., Sause, R., Ricles, J.M., *Pessiki, S.P.*, "High Performance, Cost Effective Structural Systems for Seismic-Resistant Building Construction," China-U.S. Millennium Symposium on Earthquake Engineering, Beijing, China, November 2000.

Sause, R., *Pessiki, S.*, Zhao, C., "Seismic Behavior of Unbonded Post-Tensioned Walls," American Concrete Institute Fall Convention, Toronto, Canada, October 2000.

*Pessiki, S.*, Mlynarczyk, A., "Composite Behavior of Precast Concrete Sandwich Wall Panels," PCI Annual Convention, Orlando, Florida, September 2000.

Sause, R., *Pessiki, S.*, Zhao, C., "Lateral Load Behavior of Unbonded Post-tensioned Walls with Ductile Vertical Joint Connectors," PCI Annual Convention, Orlando, Florida, September 2000.

*Pessiki, S., Graybeal, B., Mudlock, M., "Design of High Strength Spiral Reinforcement in Prestressed Concrete Piles," PCI Annual Convention, Orlando, Florida, September 2000.*

*Lu, L-W., Pessiki, S., Ricles, J., Sause, R., "High-Performance, Cost-Effective Structural Systems for Seismic Hazard Mitigation," Second International Ocean and Atmosphere Conference, Taipei, Taiwan, July 2000.*

*Wilden, H., Pessiki, S., "PRESSSS Research Program," Delaware Valley Section, American Concrete Institute, Philadelphia, Pennsylvania, January 1999.*

*Pessiki, S., Lee, B-J., "Analytical Studies of the Thermal Performance of Precast Concrete Sandwich Wall Panels," PCI Annual Convention, Palm Springs, California, October 1999.*

*Pessiki, S., Sause, R., Perez, F., "Lateral Load Behavior of Unbonded Post-Tensioned Walls with Ductile Vertical Joint Connectors," PCI Annual Convention, Palm Springs, California, October 1999.*

*Sause, R., Zhao, C., Pessiki, S., "Analytical Predictions of Behavior of the PRESSSS Phase III Five-Story Precast Building," PCI Annual Convention, Palm Springs, California, October 1999.*

*Pessiki, S., "Current Research on Concrete Structures at Lehigh University," Joint Meeting, Lehigh Valley Section of American Society of Civil Engineers, and Delaware Valley Chapter of American Concrete Institute, November 1998.*

*Pessiki, S., Thompson, J., "Behavior of Precast Concrete Inverted Tee Girders with Multiple Web Openings," PCI Annual Convention, Atlanta, Georgia, October 1998.*

*Sause, R., El-Sheikh, M., Pessiki, S., Lu, L.W., "Seismic Behavior of Unbonded Post-Tensioned Precast Concrete Frames," PCI Annual Convention, New Orleans, Louisiana, October 1997.*

*Pessiki, S., Graybeal, B., "Confinement Effectiveness of High Strength Spiral Reinforcement in Prestressed Concrete Piles," PCI Annual Convention, New Orleans, Louisiana, October 1997.*

*Sause, R., Pessiki, S., Lu, L.W., Kurama, Y., "Seismic Analysis and Behavior of Precast Concrete Walls," PCI Annual Convention, New Orleans, Louisiana, October 1997.*

*Pessiki, S., "Nondestructive Evaluation of Concrete," Fourth Faculty Enhancement Workshop, Teaching the Materials Science, Engineering, and Field Aspects of Concrete, National Science Foundation Center for Science and Technology of Advanced Cement-Based Materials (ACBM), Lehigh University, Bethlehem, Pennsylvania, July 1997.*

*Pessiki, S., Sause, R., Lu, L.W., Kurama, Y., "Seismic Behavior of Unbonded Post-Tensioned Precast Concrete Walls," PCI Annual Convention, Orlando, Florida, October 1996.*

*Sause, R., Pessiki, S., Fleischman, R.B., "Influence of Diaphragm Behavior on Performance of Precast Parking Structures During Northridge Earthquake," PCI Annual Convention, Orlando, Florida, October 1996.*

*Pessiki, S., Sause, R., "ATLSS: Current Research in Precast and Prestressed Concrete," PCI Annual Convention, Reno, Nevada, October 1995.*

*Sause, R., Pessiki, S., Lu, L.W., "Behavior of Unbonded Post-Tensioned Precast Concrete Frame and Wall Connections," PCI Annual Convention, Reno, Nevada, October 1995.*

*Pessiki, S., "Seismic Retrofit of Non-Ductile Concrete Frame Structures," Peter Gergely Symposium, Cornell University, Ithaca, New York, August 1995.*

*Pessiki, S., Sause, R., Wu, S., Kurama, Y., Snyder, S., "Seismic Performance and Retrofit of Non-Ductile Concrete Frame Structures," Building and Fire Research Laboratory Technical Symposia Series - Guidelines, Policies and Methodologies for Improving the Seismic Performance of Buildings, April 1995.*

*Pessiki, S., Sause, R., Slaughter, S., "Gravity Load Floor Systems for Precast Concrete Structures," American Concrete Institute Spring Convention, Salt Lake City, March 1995.*

*Pessiki, S., Sause, R., Lu, L.W., El-Sheikh, M., Kurama, Y., "Analytical Modeling of Unbonded Post-Tensioned Precast Concrete Frame and Wall Connections," American Concrete Institute Spring Convention, Salt Lake City, March 1995.*

*Pessiki, S., Rowe, M., "Impact-Echo Tests of Early-Age Concrete Slabs with Steel Reinforcement," 74th Annual Meeting, Transportation Research Board, Washington D.C., January 1995.*

*Pessiki, S., "Education Curriculum Group Report," Second Faculty Workshop, Teaching the Materials Science, Engineering, and Field Aspects of Concrete, National Science Foundation Center for Science and Technology of Advanced Cement-Based Materials, Northwestern University, July 1994.*

*Prior, R., Pessiki, S., Sause, R., Slaughter, S., "New Floor Systems for Precast Concrete Structures," XII FIP International Congress / PCI Convention, (Federation Internationale de la Precontrainte), Washington D.C., May 1994.*

*Pessiki, S., Mueller, P., "ATLSS: Current Research in Precast and Prestressed Concrete," XII FIP International Congress / PCI Convention, (Federation Internationale de la Precontrainte), Washington D.C., May 1994.*

*Fisher, J., Yen, B.T., Pessiki, S., "Assessing the Performance of Aging Bridge Structures," Keynote Address, American Society for Nondestructive Testing Spring Conference, New Orleans, Louisiana, March 1994.*

*Prior, R., Pessiki, S., Sause, R., Slaughter, S., van Zyverden, "Identification and Preliminary Assessment of Existing Precast Concrete Floor Framing Systems," Precast/Prestressed Concrete Institute Annual Convention, San Diego, October 1993.*

*Pessiki, S., "In-Place Determination of Concrete Strength During Construction," Joint Meeting, Lehigh Valley Section of American Society of Civil Engineers, and Delaware Valley Chapter of American Concrete Institute, October 1992.*

*Pessiki, S., "Drexel University Experiences and Current Research," Seminar to senior class of Civil Engineering students, Drexel University, February 1992.*

*Pessiki, S.P., Conley, C., White, R.N., Gergely, P., "Seismic Resistance of the Beam-Column Connection Region in Lightly-Reinforced Concrete Frame Structures," Conference on "Rescue of America's Infrastructure: Building Restoration," Mayaguez, Puerto Rico, July 1989.*

*Pessiki, S.P., Carino, N.J., "Monitoring Setting Time and Early-Age Strength of Concrete Using the Impact-Echo Method," Engineering Foundation Conference on "Properties of Concrete at Early Ages," Santa Barbara, January 1988.*

*Pessiki, S.P., Carino, N.J., "Measurement of the Setting Time and Early-Age Strength of Concrete by the Impact-Echo Method," 66th Annual Meeting, Transportation Research Board, Washington D.C., January 1987.*

### **Conference Presentations**

*Pessiki, S., Alfurayh, A., "Enhanced Radiographic Void Detection in Grouted Post-tensioned Construction Using Photon Attenuating Inclusions," PTI Convention, Minneapolis, May 2018.*

*Pessiki, S., Cook, D., "Analytical Investigation of Fire Loads for Steel-Framed Open-Deck Parking," 2011 Fire and Evacuation Modeling Technical Conference, Baltimore, August 2011.*

*Hodgson, I., Pessiki, S., "Thermal Induced Cracking in a Concrete Dam Structure," Structural Faults and Repair – 2010, 13<sup>th</sup> International Conference, Edinburgh, Scotland, June 2010.*

Pessiki, S., Hodgson, I., "Evaluation of Cracking in Replacement Concrete Bridge Decks," Structural Faults and Repair – 2010, 13<sup>th</sup> International Conference, Edinburgh, Scotland, June 2010.

Leo, N., Pessiki, S. (presented by I. Hodgson), "Bond of SFRM to Steel Structures Subject to Tensile Yielding," Structural Faults and Repair – 2008, 12<sup>th</sup> International Conference, Edinburgh, Scotland, June 2008.

Pessiki, S., Hodgson, I., Estimation of Dead and Live Load Stresses in Steel Hanger Rods Utilizing Field Measurements," Structural Faults and Repairs – 2008, 12<sup>th</sup> International Conference, Edinburgh, Scotland, June 2008.

Pessiki, S., Okasha, N., Lee, B.J., "Development of Restraint Mechanisms in Precast Concrete Double-Tee Floor Systems Subjected to Fire Loading," American Concrete Institute Convention, Atlanta, April 2007.

Pessiki, S., Irwin, D., "Prediction of Early-age Concrete Strength in a Precast Plant Using the Impact-echo Method," *Advanced Testing of Fresh Cementitious Materials*, Stuttgart, August 2006.

Pessiki, S., Ozevin, D., "Evaluation of the Effective Prestress Force in External Post-tensioning Bars in a Steel Pier Cap," *Structural Faults and Repair – 2006, International Conference and Exhibition*, Edinburgh, Scotland, June 2006.

McGinnis, M.J., Pessiki, S., "The Core Drilling Method for Measuring In-situ Stress in Concrete Structures – A Review," *Structural Faults and Repair – 2006, International Conference and Exhibition*, Edinburgh, Scotland, June 2006.

Pessiki, S., Kwon, K., Lee, B.J., "Fire Load Behavior of Steel Building Columns with Damaged Fire Resistive Insulation," *Structural Faults and Repair – 2006, International Conference and Exhibition*, Edinburgh, Scotland, June 2006.

Pessiki, S., Kwon, K., Lee, B.J., "Fire Load Behavior of Steel Building Columns with Damaged Spray-applied Fire Resistive Material," *4<sup>th</sup> International Workshop on Structures in Fire*, Aveiro, Portugal, May 2006.

Oppenheim, I.J., Greve, D.W., Ozevin, D., Hay, D.R., Hay, T.R., Pessiki, S.P., Tyson, N.L., "Structural Tests Using a MEMS Acoustic Emission Sensor," *Smart Structures and Materials 2006: Smart Systems and Nondestructive Evaluation for Civil Infrastructures*, San Diego, March 2006.

Ozevin, D., Pessiki, S., Greve, D.W., Oppenheim, I.J., "A MEMS Transducer for Detecting Acoustic Emission Events", *Fourth IEEE International Conference on Sensors*, California, November 2005.

Pessiki, S., Walsh, M., Lee, B.J., "Behavior of Precast Concrete Corbels in Fires," PCI Convention, Palm Springs CA, October 2005.

Ozevin, D. Pessiki, S., Greve, D.W., Oppenheim, I.J., "Adapting the cMUT Transducer for Detecting Acoustic Emission Events", *IEEE International Ultrasonics Symposium*, Rotterdam, Netherlands, September 2005.

McGinnis, M.J., Pessiki, S., "Influence of Steel Reinforcement on In-Situ Stress Evaluation in Concrete Structures by the Core-Drilling Method," *Review of Progress in Quantitative Nondestructive Evaluation*, Bowdoin College, Brunswick, Maine, July 2005.

McGinnis, M., Pessiki, S., "Evaluation of Stresses in Concrete Structures Using 3D Digital Image Correlation and Industrial Photogrammetry, ACI Convention, New York City, April 2005.

Thompson, J.M., Pessiki, S., "Design of Inverted Tee Girders with Regularly Spaced Web Openings for Service Systems, ACI Convention, New York City, April 2005.

Ozevin, D., Greve, D.W., Oppenheim, I.J., Pessiki, S., "Design, Characterization and Experimental Use of the Second Generation MEMS Acoustic Emission Device," *Smart Structures and Materials 2005: Smart Systems and Nondestructive Evaluation for Civil Infrastructures*, San Diego, March 2005.

Ozevin, D., Greve, D.W., Oppenheim, I.J., Pessiki, S., "Resonant Type MEMS Transducers Excited by Two Acoustic Emission Simulation Techniques," *Smart Structures and Materials 2004: Smart Systems and Nondestructive Evaluation for Civil Infrastructures*, San Diego, March 2004.

Greve, D.W., Neumann, J.J., Oppenheim, I.J., Pessiki, S., Ozevin, D., "Coupling of MEMS Ultrasonic Transducers," *Second IEEE International Conference on Sensors*, Toronto, Canada, October 2003.

Greve, D.W., Neumann, J.J., Oppenheim, I.J., Pessiki, S., Ozevin, D., "Robust Capacitive MEMS Ultrasonics Transducers for Liquid Immersion," *IEEE International Ultrasonics Symposium*, Hawaii, October 2003.

Pessiki, S., Mayrosh, J., "Experimental Study of Attenuation of Acoustic Emission Signals in Welded Steel Plate Girders," *Structural Faults and Repair – 2003, 10<sup>th</sup> International Conference and Exhibition*, London, July 2003.

Connor, R., Pessiki, S., "Long-Term Wireless Remote Monitoring of the Lehigh River Bridge," *Structural Faults and Repair – 2003, 10<sup>th</sup> International Conference and Exhibition*, London, July 2003.

Harries, K.A., Ricles, J.M., Pessiki, S., and Sause, R., "Rehabilitation of Lap Splices in Non-Ductile Reinforced Concrete Columns using CFRP Jackets," *Structural Faults and Repair – 2003, 10<sup>th</sup> International Conference and Exhibition*, London, July 2003.

Ozevin, D., Pessiki, S.P., Jain, A., Greve, D.W., Oppenheim, I.J., "Development of a MEMS Device for Acoustic Emission Testing," *Smart Structures and Materials 2003: Smart Systems and Nondestructive Evaluation for Civil Infrastructures*, San Diego, March 2003.

Pessiki, S., Mayrosh, J., "Experimental Study of the Attenuation of Acoustic Emission Signals in Welded Steel Plate Girders," *Structural Materials Technology: NDE/NDT for Highway Bridges and Topical Conference*, ASNT /FHWA, Cincinnati, September 2002.

Connor, R., Santosuosso, B., Pessiki, S., "Structural Monitoring of the SR33 Bridge," *Structural Materials Technology: NDE/NDT for Highway Bridges and Topical Conference*, ASNT /FHWA, Cincinnati, September 2002.

Ricles, J.M., Sause, R., Pessiki, S., and Lu, L-W., "Self-Centering Earthquake Resistant Structural Systems for Buildings," *Building for the 21<sup>st</sup> Century: Technology, Livability, Productivity*, London, UK, Council on Tall Buildings and Urban Habitat, July 2002.

Thompson, J., Pessiki, S., "Experimental Investigation of Inverted Tee Girders with Multiple Web Openings," *American Concrete Institute Convention*, Detroit, April 2002.

Pessiki, S., Sause, R., "Structural Tests of Large-Scale FRP Composite Midship Hull-Deck Sections," *Office of Naval Research Hull Life Assurance Workshop*, Carderock, Maryland, April 2001.

Mlynarczyk, A., Pessiki, S., "Composite Behavior of Precast Concrete Sandwich Wall Panels," *American Concrete Institute Convention*, Philadelphia, Pennsylvania, March 2001.

Pessiki, S., Turker, H., "Theoretical Formulation of the Core Drilling Method to Evaluate Stresses in Concrete Structures," *Twenty-Sixth Annual Review of Progress in Quantitative Nondestructive Evaluation*, Montreal, Quebec, Canada, August 1999.

Pessiki, S., Graybeal, B., "Confinement Effectiveness of High Strength Spiral Reinforcement in Prestressed Concrete Piles," *American Concrete Institute Convention*, Los Angeles, California, October 1998.



Lu, L.W., Ricles, J.M., Sause, R., Pessiki, S., "Current Research at Lehigh University of Seismic Hazard Mitigation of Bridge Structures," Trilateral (China, Japan, U.S.) Symposium on Lifeline Earthquake Engineering, Kunming, China, August 1998.

Harries, K.A., Kestner, J.T., Pessiki, S., Sause, R., Ricles, J., "Axial Behavior of Reinforced Concrete Columns with FRPC Jackets," Second International Conference of Composites in Infrastructure, Tucson, January 1998.

Pessiki, S., Harries, K.A., Sause, R., Ricles, J.M., Walkup, S.L., Kestner, J.T., "Seismic Retrofit of Reinforced Concrete Building Columns Using FRP Composite Jackets," American Concrete Institute Convention, Atlanta, November 1997.

Fleischman, R.R., Sause, R., Rhodes, A.B., Pessiki, S., "Diaphragm Deformations in Precast Parking Structures," Structures Congress XIV, American Society of Civil Engineers, Chicago, 1996.

Kurama, Y., Pessiki, S., Sause, R., Snyder, S., Wu, S., "Seismic Performance and Retrofit of Non-Ductile Concrete Frame Structures," American Concrete Institute Convention, Montreal, November 1995.

Pessiki, S., Wang, J., "Nondestructive Evaluation of Effective Prestress Force in Prestressed Concrete Bridge Beams," Twenty-Second Annual Review of Progress in Quantitative Nondestructive Evaluation, University of Washington, Seattle, Washington, August 1995.

Pessiki S., Kaczinski, M., Wescott, H., "Remaining Prestress Force in 28-year-Old Concrete I-Beams," 12th International Bridge Conference, Pittsburgh, June 1995.

Sause, R., Pessiki, S., Kurama, Y., Wu, S., "Seismic Behavior and Retrofit Implications for Two Non-Ductile Concrete Frame Structures," Fifth U.S. National Conference on Earthquake Engineering, Earthquake Engineering Research Institute, Chicago, July 1994.

Pessiki, S., Derrah, S., "Acoustic Emission Monitoring of Fatigue Crack Growth in HSLA-80 Steel Box Beams," Structures Congress XII, American Society of Civil Engineers, Atlanta, April 1994.

Pessiki, S., Johnson, M., "In-Place Determination of Concrete Strength by the Impact-Echo Method," Structures Congress XII, American Society of Civil Engineers, Atlanta, April 1994.

Pessiki, S., Lu, L.W., Yen, B., "Experiences with an Undergraduate Structural Engineering Laboratory," Structures Congress XII, American Society of Civil Engineers, Atlanta, April 1994.

Kurama, Y., Pessiki, S., Sause, R., Wu, S., "Seismic Behavior of Non-Ductile Concrete Frame Structures," Structures Congress XII, American Society of Civil Engineers, Atlanta, April 1994.

Higgins, C., Pessiki, S., Clausen, D., "Electromagnetic Assessment of Square Reinforcing Steel," Structural Materials Technology / NDT Conference, NJDOT/FHWA, Atlantic City, February 1994.

Pessiki, S., Derrah, S., "Monitoring Fatigue Cracking in Large-Scale Steel Box Beams Using Acoustic Emission," Structural Materials Technology / NDT Conference, NJDOT/FHWA, Atlantic City, February 1994.

Pessiki, S., Johnson, M., "Nondestructive Evaluation of Concrete Strength Using the Impact-Echo Method," Structural Materials Technology / NDT Conference, NJDOT/FHWA, Atlantic City, February 1994.

Pessiki, S., Johnson, M., "Nondestructive Determination of Concrete Strength in Plate Structures by the Impact-Echo Method," Twentieth Review of Progress in Quantitative Nondestructive Evaluation, Bowdoin College, Brunswick, Maine, August 1993.

Yen, B.T., Pessiki, S.P., Fisher, J.W., "Nondestructive Evaluation of Bridge Fatigue Crack Growth by Incorporating Acoustic Emission Monitoring," Twentieth Review of Progress in Quantitative Nondestructive Evaluation, Bowdoin College, Brunswick, Maine, August 1993.

*Pessiki, S., Lu, L.W., Yen, B.,* "An Undergraduate Structural Engineering Laboratory," American Society for Engineering Education Annual Conference, Urbana, Illinois, June 1993.

Johnson, M., *Pessiki, S.,* "Nondestructive Determination of In-Place Concrete Strength Using the Impact-Echo Method," Nondestructive Testing of Concrete in the Infrastructure, Society for Experimental Mechanics, Dearborn, June 1993.

*Pessiki, S., Sause, R., Wu, S., Kurama, Y.,* "Evaluation of Seismic Retrofit Strategies for Non-Ductile Concrete Frames," American Concrete Institute Spring Convention, Vancouver, March 1993.

*Johnson, M., Heyn, C., Pessiki, S.,* "In-Place Determination of Setting Time and Early-Age Concrete Strength Using the Impact-Echo Method," American Concrete Institute Annual Convention, San Juan, October 1992.

*Pessiki, S., Sause, R., Slaughter, S.,* "ATLSS: New Research on Floor Systems for Precast Concrete Structures," Precast/Prestressed Concrete Institute Annual Convention, Nashville, October 1992.

Beres, A., White, R.N., Gergely, P., Pessiki, S.P., El-Attar, A., "Behavior of Existing Non-Seismically Detailed Reinforced Concrete Frames," *Tenth World Conference on Earthquake Engineering*, Madrid, Spain, July 1992.

Beres, A., Pessiki, S.P., White, R.N., and Gergely, P., "Seismic Performance of Existing Reinforced Concrete Frames Designed Primarily for Gravity Loads," Sixth Canadian Conference on Earthquake Engineering, Toronto, Ontario, Canada, June 1991.

Beres, A., Pessiki, S., *White, R.N.,* and Gergely, P., "Behavior of Existing Reinforced Concrete Frames Designed Primarily for Gravity Loads," International Meeting on Earthquake Protection of Buildings, Ancona, Italy, June 1991.

*Pessiki, S.P., Conley, C., White, R.N., and Gergely, P.,* "Seismic Behavior of Beam-Column Connections in Lightly-Reinforced Concrete Frame Structures," Fourth U.S. National Conference on Earthquake Engineering, Earthquake Engineering Research Institute, Palm Springs, California, May 1990.

*Carino, N.J., Pessiki, S.P.,* "Measurement of Setting Time and Early-Age Strength of Concrete by the Impact-Echo Method," American Concrete Institute Annual Convention, San Francisco, March 1986.

## **Funded Research Projects**

"Development of Radiographic Simulation Capabilities for Civil Infrastructure," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$18,480., 1/18-9/18.

"Liberty Bridge Fire Emergency Response," Sause, R., Pessiki, S., Hodgson, I., HDR Engineering / PennDOT, \$105,856., 9/16-7/17.

"Cable Tension Shunt Field Testing," Pessiki, S., Penn-Tech International Inc., \$6,145., 1/17-2/17.

"Optimization of Post-tensioned Concrete Design/Detailing Practices for Radiographic Inspection," Pessiki, S., Keller, W., FHWA, \$65,175., 10/14-6/17.

"Experimental Verification of a Concrete Model for Numerical Simulation of Radiographic Testing," Pessiki, S., Keller, W., Pennsylvania Infrastructure Technology Alliance, \$26,172., 1/14-6/15.

"Rapid Detection of Fatigue Cracking in Steel Anchor Rods Using the Impulse Response Method," Pessiki, S., Keller, W., Pakzad, S., NRC - Transportation Research Board, \$121,273., 1/14-1/16.

"Effect of Earthquake-Induced Damage on the Behavior and Performance of Steel Gravity Frame Beam-Column Connections During Fire Exposure," Pessiki, S., Keller, W., Pennsylvania Infrastructure Technology Alliance, \$47,107., 1/13-6/14.

"Unbonded Post-Tensioned Cast-in-Place Concrete Walls for Seismic Resistance," Pessiki, S., Sause, R., Charles Pankow Foundation, \$387,000., 1/11-12/14.

"Fatigue and Static Testing of Shear Key Details for a Wind Turbine Tower Base," Pessiki, S., Hodgson, I.; Tindall Corporation, \$139,550., 3/10-8/10.

"Acoustic Monitoring of a Steel Moment Frame Building," S. Pessiki, Liberty Property Trust, Pessiki, S., Hodgson, I., \$33,700., 10/09-6/10.

"Evaluation of Concrete Deck Cracking in Route 309 Bridge over Church Road," Pessiki, S., Pennsylvania Department of Transportation, \$77,198., 7/08-5/09.

"Behavior of Weld Metal at Elevated Temperatures," J. Ricles, S. Pessiki, Pennsylvania Infrastructure Technology Alliance, \$30,000.

"Inspection Methods and Techniques to Determine Non-visible Corrosion of Pre-Stressing Strands in Concrete Bridge Components," C. Naito, S. Pessiki, R. Sause, Pennsylvania Department of Transportation, \$415,869., 12/07-12/09.

"Design, Fabrication and Calibration of a Structural Fire Test Fixture," S. Pessiki, J. Ricles, Pennsylvania Infrastructure Technology Alliance, \$53,373., 9/07-6/09.

"Bond Characteristics of Spray Applied Fire Resistive Materials to Steel Structures," S. Pessiki, Pennsylvania Infrastructure Technology Alliance, \$54,463., 1/07-6/08.

"Assessment of Prestress Steel Force Losses in Full-Scale Bridge Beams Using the Core-Drilling Method," S. Pessiki, Pennsylvania Department of Transportation, \$17,325., 1/07-6/08.

"Evaluation and Peer Review of the Prestressed Box Beam Test Program for Beams from the Lake View Drive over I-70," R. Sause, S. Pessiki, C. Naito, Pennsylvania Department of Transportation, \$107,444., 3/06-6/06.

"Fire Damage Evaluation of Kromer Road Bridge," S. Pessiki, HDR Engineering / Pennsylvania Department of Transportation, \$11,876., 9/06-6/07.

"Structural Tests of Fiber Composite Ship Hull Structure," Sause, R., Pessiki, S., Office of Naval Research, \$191,430., 7/06-2/08.

"Behavior of Structural Bolts and Elevated Temperatures," Ricles, J., Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$53,138., 4/06-6/07.

"Cost-Effective Connection Details for Highway Sign, Luminaire, and Traffic Signal Structures," Sause, R., Roy, S., Pessiki, S. NCHRP Project 10-70, \$891,086., 3/06-4/10.

"Experimental Verification of the Core-Drilling Method for the Nondestructive Evaluation of Stress in Concrete Structures," Pennsylvania Infrastructure Technology Alliance, \$28,257., 6/05-4/06.

"Development of Restraint Mechanisms in Precast Concrete Structures Under Fire Loading," Pessiki, S., Varma, A., Precast/Prestressed Concrete Institute and Industry Consortium, \$34,500., 8/04-12/05.

"Unbonded Post-tensioned Steel Anchor Rods For Sign Structures," Pessiki, S., Kaufmann, E., Pennsylvania Infrastructure Technology Alliance, \$33,440., 6/04-12/04.

"Evaluation of Prestressing Methods for Carbon Fiber Reinforced Panels," S. Pessiki, C. Naito, Pennsylvania Infrastructure Technology Alliance, \$34,517., 1/04-6/06.

"Impulse Response Evaluation of Fatigue Cracking in Steel Anchor Rods," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$10,036., 9/03-6/04.

"SENSORS: Collaborative Research: MEMS for Multi-Mode Civil Infrastructure Monitoring," Oppenheim, I.,J., Greve, D.W., Pessiki, S., National Science Foundation, \$320,000., 9/03-8/06.

"Laboratory Evaluation of MEMS Transducers for Acoustic Emission Testing of Structural Materials," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$39,742., 6/03-6/04.

"Feasibility Experiments – Core Drilling Method for the Nondestructive Evaluation of Stress in Concrete Structures," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$33,185., 5/03-6/04.

"Application of MEMS Acoustic Emission Transducers to Stainless Steel and Composite Materials," Pessiki, S., Office of Naval Research, \$33,878., 8/02-4/03.

"Evaluation of Early-Age Concrete Strength in the Precast Plant Using the Impact-Echo Method," Precast/Prestressed Concrete Institute and Industry Consortium, \$16,500., 8/02-8/03.

"Development of Simplified Methods to Estimate R-values of Precast Concrete Sandwich Wall Panels," Precast/Prestressed Concrete Institute and Industry Consortium, \$15,000., 4/02-4/03.

"Development and Evaluation of MEMS Transducers for Acoustic Emission Testing of Structural Materials," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$58,010., 11/01-6/02.

"FRP Composite Hulls," Sause, R., Pessiki, S., Office of Naval Research, \$583,295., 7/01-12/03.

"Field Instrumentation, Monitoring, and Testing of the SR0033 Truss Bridge Over Conrail Railroad and the Lehigh River," Connor, R., Pessiki, S., PennDOT, URS Greiner, Dick Corporation and Pennsylvania Infrastructure Technology Alliance, \$159,809., 6/01-6/03.

"Development of Product / Material Use Approval for Reclaimed Portland Cement Concrete for State and Local Projects," Moo-Young, H.K., Pessiki, S., PennDOT, \$69,022., 3/01-3/02.

"Tests of Fiber Composite and Hybrid Ship Hull and Deck Structures," Sause, R., Pessiki, S., Office of Naval Research, \$908,819., 7/00-4/03.

"Quantitative Evaluation of Attenuation of Acoustic Emission Signals in Welded Steel Structures," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$9,910., 6/00-5/01.

"Experimental and Analytical Seismic Studies of MRF's and MRF-CBF Dual Systems with Concrete Filled Tube Members," Ricles, J., Sause, R., Lu, L.W., Pessiki, S., National Science Foundation, \$328,389., 3/00-2/03.

"Development of a Three-wythe Precast Sandwich Wall Panel," Pessiki, S., Precast/Prestressed Concrete Institute and Industry Consortium, \$23,000., 9/99-5/00.

"Development of a Core Drilling Method for the Nondestructive Evaluation of Stress in Concrete Structures," Pennsylvania Infrastructure Technology Alliance, \$14,000., 10/98-12/99.

"Composite Hull and Deck Structure Test Program", Pessiki, S., Sause, R., Naval Surface Warfare Center-Carderock Division, \$1,122,644., 9/97-12/99.

"PRESS Phase III: Analytical Predictions of Five-Story Precast Superassemblage Test Structure Performance," Sause, R., Pessiki, S., Lu, L.W., National Science Foundation, \$93,764, 1/98-12/00.

"Unbonded Post-Tensioned Precast Concrete Bridge Piers," Pessiki, S., Sause, R., Ricles, J., Pennsylvania Infrastructure Technology Alliance, \$108,000., 11/97-12/99.

"Composite Behavior of Precast Concrete Insulated Wall Panels," Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$81,000., 10/97-12/99.

"Rehabilitation of Non-Ductile Reinforced Concrete Columns Using Fiber Reinforced Composite Materials," Ricles, J., Sause, R., Pessiki, S., Pennsylvania Infrastructure Technology Alliance, \$55,000., 11/97-12/99.

"Large-Scale Experimental Evaluation of the Lateral Load Response of Unbonded Post-Tensioned Precast Walls with Horizontal Connections," Pessiki, S., Sause, R., L.W., National Science Foundation, \$150,552., 3/97-2/98.

"Confinement Effectiveness of High Strength Spiral Reinforcement in Prestressed Concrete Piles," Pessiki, S., Precast/Prestressed Concrete Institute and Industry Consortium, \$21,000., 9/96-5/98.

"Analytical Investigation of the Seismic Response of Precast Concrete Panel Structures with Ductile Connectors," Sause, R., Pessiki, S., ATLSS Center, \$60,000., 9/96-5/98.

"Repair of Concrete Bridge Elements Using Composites," Pessiki, S., Sause, R., Ricles, J., ATLSS Center, \$70,000., 9/95-5/97.

"Axial Load Behavior of Tied High Strength Concrete Columns," Pessiki, S., Portland Cement Association, \$20,000., 11/94-11/95.

"Influence of Diaphragm Behavior on Performance of Precast Parking Garages During Northridge Earthquake," Sause, R., Pessiki, S., National Science Foundation / Special Solicitation for Investigation into the Cause and Effects of the Northridge Earthquake of January 17, 1994, \$52,137., 9/94-8/95.

"Seismic Rehabilitation of Non-Ductile Reinforced Concrete Columns Using Advanced Composite Jacketing," Ricles, J., Sause, R., Pessiki, S., National Science Foundation / Repair and Rehabilitation Research for Seismic Resistance of Structures, \$144,400., 9/94-2/96 (REU Supplement, \$18,751.), 8/97-2/98.

"Axial Load Behavior of Large-Scale Spirally-Reinforced High-Strength Concrete Columns," Pessiki, S., ATLSS Center, \$75,000., 11/93-5/95.

"Residual Strength and Repair of Damaged and Deteriorated Offshore Structures," Ostapenko, A., Ricles, J., Pessiki, S., Mineral Management Service and Industry Consortium, \$400,000., 10/93-10/95.

"Seismic Response Evaluation of Precast Structural Systems for Various Seismic Zones and Site Characteristics," Pessiki, S., Sause, R., Lu, L.W., National Science Foundation / Phase II(b) Precast Seismic Structural Systems (PRESS), \$177,641., 9/93-12/95.

"Development and Evaluation of New Floor Framing Systems for Gravity Loads," Pessiki, S., Sause, R., Slaughter, S., ATLSS Center, \$120,000., 1/92-12/97.

"Acoustic Emission Monitoring of Structural Performance," Pessiki, S., ATLSS Center, \$60,000., 4/92-6/93.

"Evaluation of Retrofit Strategies for Non-Ductile Concrete Frame Structures," Pessiki, S., Sause, R., National Science Foundation / Repair and Rehabilitation Research for Seismic Resistance of Structures, \$83,956., 9/91-8/94.

"In-Place Determination of Early-Age Concrete Strength in Slabs and Walls Using the Impact-Echo Method," Pessiki, S., National Science Foundation / Research Initiation Award, \$70,000., 6/91-5/93.

"Computer-Controlled and Integrated Experimentation," Pessiki, S., ATLSS Center, \$30,000., 6/91-6/92.

**Funded Laboratory Development Project**

"An Undergraduate Structural Engineering Laboratory," Pessiki, S., Lu, L.W., Yen, B.T., National Science Foundation / Instrumentation and Laboratory Improvement Program, \$46,277., 4/91-3/93.

### **Ph.D. Program Supervision**

Abdulrahman Alfurayh (Structural Engineering, 2021) Radiographic Inspection of Concrete Structures – Simulation and Experiment, self-support and PITA grant RA.

Leary Pakiding (Structural Engineering, 2016) Experimental and Numerical Studies of Seismic Resistant Unbonded Post-Tensioned Cast-in-Place Concrete Walls, supported as Fulbright Scholar, Pankow Foundation Grant RA, and TA.

Wesley Keller (Structural Engineering, 2012) Thermomechanical Response of Steel Moment-Frame Beam-Column Connections during Post-Earthquake Fire Exposure, supported as Gibson Fellow and TA.

Nicole Leo (Structural Engineering, 2010) Post-earthquake Fire Behavior of Steel Building Columns, supported as Gibson Fellow and PITA project RA.

Michael McGinnis (Civil Engineering, 2006) Experimental Development of the Core-Drilling Method, supported as PITA project RA.

Didem Ozevin (Civil Engineering, 2005), Development of MEMS Transducers for Acoustic Emission Testing of Structural Materials, supported as National Science Foundation, ONR, and PITA project RA.

Felipe Perez (Civil Engineering, 2004) Seismic Behavior of Unbonded Post-tensioned Precast Concrete Walls, supported as National Science Foundation and ATLSS project RA, Co-Advised.

James Thompson (Civil Engineering, 2004), Behavior and Design of Precast Prestressed Concrete Inverted Tee Girders with Multiple Web Openings for Service Systems, supported as ATLSS RA.

Byoung-Jun Lee (Civil Engineering, 2003), Development of a Precast Prestressed Concrete Three-Wythe Sandwich Wall Panel, supported as PCI Fellowship and PITA project RA.

Hakan Turker (Civil Engineering, 2003) Development of a Core Drilling Method for the Nondestructive Evaluation of Stress in Concrete Structures, supported by Government of Turkey and PITA.

Magdy El-Sheikh (Civil Engineering, 1997) Seismic Analysis, Behavior, and Design of Unbonded Post-tensioned Precast Concrete Frames, supported as National Science Foundation project RA, Co-Advised.

Yahya Kurama (Civil Engineering, 1997) Seismic Analysis, Behavior, and Design of Unbonded Post-tensioned Precast Concrete Walls, supported as National Science Foundation project RA, Co-Advised.

Shaojie Wu (Civil Engineering, 1995) Seismic Performance and Retrofit of Non-Ductile Concrete Frames, supported as National Science Foundation project RA, Co-Advised.

### **M.S. / M.Eng. Program Supervision**

Abdulrahman Alfurayh (Structural Engineering, 2017) Evaluation of Photon Attenuating Inclusions in Post-tensioning Grout, self-support and FHWA grant RA.

Safwan Al-Subaihawi (Structural Engineering, 2017) Post-tensioned Timber Rocking Walls Using Disc Springs, self-support.

Fahim Rustamy (Structural Engineering, 2017) Modeling of Steel Tube Columns with Various Fire Protection Systems Under Real and Standard Fire Loadings, supported as Fulbright Scholar RA.

Tripti Pradhan (Structural Engineering, 2014) Finite Element Modeling of Impact-Generated Stress Wave Propagation in Concrete Plates for Non-Destructive Evaluation, self-supported.

Tobi Showunmi (Structural Engineering, 2013) Finite Element Modeling of the Use of Infrared Thermography for the Nondestructive Evaluation of Steel-Concrete Composite Construction, supported as Lehigh University GA.

Moises Rivera (Structural Engineering, 2013) Experimental Laboratory Procedures for the Construction and Testing of Seismic Resistant Unbonded Post-tensioned Special Reinforced Concrete Walls, supported in part by Charles Pankow Foundation grant, Co-advised.

Mujahid Noor (Structural Engineering, 2013) Compression Behavior, Strength, and Ductility of Confined Concrete after Inelastic Tensile Cyclic Loading, supported by Fulbright Fellowship, Co-advised.

Sonam Srivastava (Structural Engineering, 2012) Analytical Lateral Load Response of Unbonded Post-Tensioned Cast-in-place Concrete Special Structural Walls With Bonded or Debonded Longitudinal Mild Steel Reinforcement, supported in part by Charles Pankow Foundation grant, Co-advised.

Shunan Bo (Structural Engineering 2010) Influence of Concrete Spalling in Fires on Internal Steel Reinforcing Bar Temperatures, self-supported.

Jessica Shelala (Civil Engineering, 2010) Precast Concrete Bridge Decks Using Carbon Fiber Grid Reinforcement, supported by ATLSS Center and Pennsylvania Infrastructure Technology Alliance.

Kathryn Conlon (Structural Engineering 2009) Fire Behavior of Steel Bolted Connections, supported by Pennsylvania Infrastructure Technology Alliance, Co-Advised.

Daniel Cook (Structural Engineering, 2008) Fire Loads for Steel Parking Structures, supported by Gibson Fellowship.

Christopher Trautner (Structural Engineering, 2008) Application of the Core-Drilling Method to the Nondestructive Evaluation of Plates with Stress Gradients Through Thickness, supported by Lehigh University Presidential Scholarship and Pennsylvania Infrastructure Technology Alliance.

Nicholas Catella (Structural Engineering, 2008) Design and Construction of a Modular Furnace for Experimental Research of Structural Components Subject to Fire Loading Conditions, supported by ATLSS Center and Pennsylvania Infrastructure Technology Alliance, Co-Advised.

Kyla Strenchock (Structural Engineering, 2008) Fire Loads for Precast Concrete Structures, supported as Civil and Environmental Engineering Teaching Assistant.

Alexandra Thewis (Structural Engineering, 2007) Analytical Investigation of the Influence of Column Size on the Fire Load Behavior of Steel Building Columns, self-supported.

Nader Okasha (Structural Engineering, 2007) Analytical Evaluation of Restraint Mechanisms in Precast Concrete Double Tee Floor Systems Subjected to Fire Loading, supported by PCI Fellowship and Industry Grant.

Kihyon Kwon (Structural Engineering, 2007) An Analytical Study of the Fire Load Behavior of Steel Building Columns with Damaged Spray-Applied Fire Resistive Material, supported by Department of Civil and Environmental Engineering.

Jonathan Bayreuther (Civil Engineering, 2006) Analytical Investigation of Fire Loads for Precast Concrete Parking Structures, supported by Gibson Fellowship, ATLSS Center and Pennsylvania Infrastructure Technology Alliance.

Daniel Irwin (Civil Engineering, 2004) Nondestructive Evaluation of Concrete Strength in the Precast Plant Using the Impact-Echo Method, supported by PCI Fellowship and industry grant.

You-Jung Lee (Civil Engineering, 2003) Development of the Characteristic Section Method to Estimate Thermal R-Values for Precast Concrete Sandwich Wall Panels, supported by industry grant.

Brian Santosuosso (Civil Engineering, 2002) Comparison of Measured and Predicted Live Load Stresses in the Route 33 Deck Truss Bridge over the Lehigh River, supported by industry grant and PITA project RA.



Jacqueline Mayrosh (Civil Engineering, 2001) Experimental Study of the Attenuation of Acoustic Emission Signals in Welded Steel Structures, supported as CEE Department TA and PITA project RA.

Talivaldis Bauer (Civil Engineering, 2001) Experimental Evaluation of a Full-Scale Concrete Bridge Pier Column Under Cyclic Lateral Loading, supported as PITA project RA, Co-Advised.

Alexandar Mlynarczyk (Civil Engineering, 2000) Experimental Evaluation of the Composite Behavior of Precast Concrete Sandwich Wall Panels, supported as CEE Department TA and PITA project RA.

Satish Patel (Civil Engineering, 2000), Rehabilitation of Non-Ductile Reinforced Concrete Building Columns Against Brittle Shear Failure Using Fiber Reinforced Polymer Jackets, supported as National Science Foundation and PITA project RA, Co-Advised.

Michael Mudlock (Civil Engineering, 1999) Design of High Strength Spiral Reinforcement for Prestressed Concrete Piles, supported by industry grant and President's Scholar.

Megan Stefens (Civil Engineering, 1999) Development of Control Hardware and Software for a Large-Scale Ship Hull and Deck Structure Test System, supported as RA.

Felipe Perez (Civil Engineering, 1998) Lateral Load Behavior and Design of Unbonded Post-Tensioned Precast Concrete Walls with Ductile Vertical Joint Connectors, supported as ATLSS project RA, Co-Advised.

Benjamin Graybeal (Civil Engineering, 1998) Confinement Effectiveness of High Strength Spiral Reinforcement in Prestressed Concrete Piles, supported as PCI Fellowship and ATLSS RA.

Stephanie Walkup (Civil Engineering, 1998) Rehabilitation of Non-Ductile Reinforced Concrete Building Columns Using Fiber Reinforced Polymer Jackets, Co-Advised.

Justin Kestner (Civil Engineering, 1997) Rehabilitation of Reinforced Concrete Columns Using Fiber Reinforced Polymer Composite Jackets, supported as ATLSS project RA, Co-Advised.

Wen Lin (Civil Engineering, 1996) Axial Load Behavior of Tied High Strength Concrete Columns, supported as TA with summer support from Portland Cement Association project.

Andrew Rhodes (Civil Engineering, 1995) Seismic Performance of Precast Parking Structures, supported as National Science Foundation project RA, Co-Advised.

Annette Pieroni (Civil Engineering, 1995) Experimental Evaluation of the Behavior of Spirally-Reinforced High Strength Concrete Columns, supported as ATLSS project RA.

Steven Snyder (Civil Engineering, 1995) Analysis of Two Non-Ductile Reinforced Concrete Structures Subjected to Static lateral Load, supported as TA with summer support from National Science Foundation project, Co-Advised.

Brenda Wildrick (Civil Engineering, 1995) Use of Braiding Technology to Improve Anchorage Systems for Non-Metallic Cables, supported by Lehigh University Fellowship and TA appointment.

Willem van Zyverden (Civil Engineering, 1994) New Floor Framing Systems for Precast Concrete Office Buildings, supported as ATLSS project RA, Co-Advised.

Matthew Johnson (Civil Engineering, 1993) Nondestructive Evaluation of In-Place Concrete Strength in Plate Structures by the Impact-Echo Method, supported as National Science Foundation project RA.

Yahya Kurama (Civil Engineering, 1993) Seismic Behavior of Non-Ductile Reinforced Concrete Frame Structures, supported as National Science Foundation project RA, Co-Advised.

Richard Prior (Civil Engineering, 1993) Identification and Preliminary Assessment of Existing Precast Concrete Floor Framing Systems, supported as ATLSS project RA, Co-Advised.

Poulomi Damany (Computer Science, 1992) A Modular Approach to Designing Software for Real-Time Actuator Control for Destructive Testing, supported as ATLSS project RA.

**Post-Doctoral Associate / Visiting Researcher Supervision**

Dr. Kazem Shakeri, Response of Steel Frame Buildings to Post-earthquake Fires, supported by University of Mohaghegh Ardabili, Ardabil, Iran.

Dr. Wesley Keller, Response of Structures in Post-earthquake Fires, supported by P.C. Rossin College of Engineering and Applied Science.

Dr. Qun Xie, Numerical Modeling of Post-installed Concrete Anchors Exposed to Fire, supported by Department of Civil and Architecture Engineering, University of Jinan, Jinan, China.

Dr. Xiangling Gao, Concrete Seismic Systems, supported by Department of Building Engineering, Tongji University, Shanghai, China.

Dr. Ibrisam Akbar, Unbonded Post-tensioned Concrete Seismic Systems, supported by Technology University of Petronas, Malaysia.

Dr. Nicole Leo Braxtan, Fire Effects on Structures, supported by P.C. Rossin College of Engineering and Applied Science.

Dr. Oya Mercan, Nondestructive Evaluation of Structures, supported by P.C. Rossin College of Engineering and Applied Science.

Dr. Yoon Kuen Kwak, Behavior of Structures in Fires, supported by Department of Architectural Engineering, Kumoh National Institute of Technology, Korea.

Dr. Michael McGinnis, Fire Effects on Structures / Nondestructive Evaluation of Structures, supported by P.C. Rossin College of Engineering and Applied Science.

Dr. Byoung-Jun Lee, Fire Effects on Structures, supported by P.C. Rossin College of Engineering and Applied Science.

Dr. James Thompson, Large-Scale Ship Hull and Deck Structure Test Program, supported by Office of Naval Research grant.

Matthew Ferrell, Large-Scale Ship Hull and Deck Structure Test Program, supported by Naval Surface Warfare Center-Cardeck Division research grant, Co-Advised.

Dr. Magdy El-Sheikh, Unbonded Post-Tensioned Precast Concrete Bridge Piers, supported by Pennsylvania Infrastructure Technology Alliance research grant, Co-Advised.

Dr. Yahya Kurama, Large-Scale Experimental Evaluation of the Lateral Load Response of Unbonded Post-Tensioned Precast Walls with Horizontal Connections, supported by National Science Foundation research grant, Co-Advised.

Dr. Kent Harries, Seismic Rehabilitation of Non-Ductile Reinforced Concrete Columns Using Advanced Composite Jacketing, supported by National Science Foundation research grant, Co-Advised.

Dr. Jinlu Wang, Nondestructive Assessment of Corrosion in Offshore Tubular Steel Structures, supported by Mineral Management Service / Industry Consortium grant.

Dr. Robert Fleischman, Seismic Behavior of Precast Concrete Parking Garages, supported by National Science Foundation research grant, Co-Advised.

Zhen Zhiling, Nondestructive Evaluation of Prestress Force in Concrete Structures, supported by Central Research Institute of Building and Construction, Beijing, China.

### **Undergraduate Research / Laboratory Assistant Supervision**

Michael Drury (Spring 2017)  
Alex Keller (Spring 2015)  
Katherine Brody (Spring 2015)  
Sasha Marks (Fall 2012, Spring 2013)  
Christian Stephan (Fall 2012, Spring 2013)  
Carolyn Zelenetz (Fall 2012, Spring 2013)  
Drake Chan (Fall 2008, Spring 2009)  
Nancy Larson (Spring 2008)  
Jennifer Modugno (Spring 2008)  
Trevor Williamson (Spring 2007-Spring 2008)  
Robert Gargano (Fall 2003, Spring 2004)  
Natasha Taylor (Fall 2002, Spring 2003)  
Edward Regnier (Summer 2002)  
Robert Lawrence (Fall 1998-Summer 1999)  
Chris Gardner (Fall 1998)  
Christian Heimple (Fall 1998)  
John Tracy (Spring 1997, Fall 1998)  
Megan Kline (Fall 1997, Spring 1998)  
Michael Mudlock (Fall 1997)  
Brian Sullivan (Fall 1997)  
Mark Dufresne (Summer 1997)  
Noel Hedgecock (Summer, Fall 1997)  
Heath Mitchell (Fall 1996, Spring 1997)  
Megann Polaha (Summer 1996)  
Chris Reutlinger (Summer 1995-Spring 1997)  
Bradford Hull (Spring, Summer 1995)  
Paul Sheedy (Summer 1995)  
Gregory Smith (Spring, Summer 1995)  
Bruce Crane (Summer 1995)  
Keith Webb (Spring, Summer, Fall 1994)  
Kristen Davis (Summer 1994)  
Matthew Rowe (Summer 1994)  
Sylvia Calantonia (Summer 1993)  
David Clausen (Summer 1993)  
Chris Heyn (Spring, Summer 1992)  
Mark Shroeder (Spring 1992)  
Karen Mielich (Summer 1991)

### **Facility Development**

Developed Nondestructive Evaluation Laboratory, ATLSS Center, A-133 Imbt Laboratory  
Developed Undergraduate Structural Engineering Laboratory, 232 Fritz Laboratory