

# KARA D. PETERMAN

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## EDUCATION

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<b>Ph.D.</b>	<i>The Johns Hopkins University</i> , Baltimore, MD, USA	2011-2014
	Major: Structural Engineering Thesis Title: Behavior of Full-Scale Cold-Formed Steel Buildings under Seismic Excitations Advisor: Ben Schafer	
<b>M.S.</b>	<i>The Johns Hopkins University</i> , Baltimore, MD, USA	2009-2011
	Major: Structural Engineering	
<b>B.S.</b>	<i>Swarthmore College</i> , Swarthmore, PA, USA	2005-2009
	Major: Engineering, (conc: structural engineering); Minor: Statistics	

## RESEARCH

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<b>Assistant Professor</b>	<i>University of Massachusetts Amherst</i> , Amherst, MA, USA	Fall 2016
	<ul style="list-style-type: none"><li>• Faculty position to begin in September of 2016</li><li>• Cold-Formed Steel Research Consortium (CFSRC) Affiliated Researcher</li></ul>	
<b>Postdoctoral Research Associate</b>	<i>Northeastern University</i> (Advisor: Jerome Hajjar), Boston, MA, USA	2014-present
	<ul style="list-style-type: none"><li>• Experimental research in thermal break strategies for cladding systems in steel buildings. Interacted across industries, working to formal recommendations</li><li>• Developed 3D thermal models of mitigated cladding systems</li><li>• Responsible for material procurement, sensor plan design and implementation, specimen and test rig fabrication, and data analysis leading to design recommendations.</li></ul>	
<b>Research Assistant</b>	<i>The Johns Hopkins University</i> , Baltimore, MD, USA	2009-2014
	<ul style="list-style-type: none"><li>• Managed full-scale NEES testing of two cold-formed steel buildings for project PI at an off-site lab for four months.</li><li>• Responsible for material procurement, on-site supervision of a team of contractors, QA/QC inspection, and sensor plan design and implementation.</li><li>• Comprehensively developed testing apparatuses and protocols for sub-system level testing.</li><li>• Extensive data analysis leading to design recommendations</li></ul>	
<b>Undergrad. Research Assistant</b>	<i>University of Massachusetts Amherst</i> , Amherst, MA, USA	2008
	<ul style="list-style-type: none"><li>• Rehabilitation of historic wrought-iron truss bridges</li><li>• Characterized bridges via extensive testing and ANSYS modeling</li></ul>	

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TEACHING

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<b>Assistant Professor</b>	<i>University of Massachusetts Amherst, Amherst, MA USA</i>	2016-present
	<ul style="list-style-type: none"> <li>• Strength of Materials (Fall 2016)</li> <li>• Advanced Topics in Steel Design (Spring 2017)</li> </ul>	
<b>Teaching Assistant</b>	<i>The Johns Hopkins University, Baltimore, MD, USA</i>	2009-2010
	<ul style="list-style-type: none"> <li>• Statics and Strength of Materials (Fall 2009, Fall 2010)</li> <li>• Perspectives on the Evolution of Structures (Spring 2009)</li> </ul>	
<b>Teaching Assistant</b>	<i>Swarthmore College, Swarthmore, PA, USA</i>	2007-2008
	<ul style="list-style-type: none"> <li>• Statics and Dynamics (Spring 2007, Spring 2008)</li> <li>• Mechanics of Materials (Fall 2008)</li> </ul>	

HONORS

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	<i>Departmental Service Award, Johns Hopkins University, Civil Engineering</i>	2012
	Awarded for outstanding service to the civil engineering department	
	<i>Departmental Teaching Award, Johns Hopkins University, Civil Engineering</i>	2010
	Awarded to the outstanding teaching assistant within the civil eng. dept.	
	<i>Creel Family Fellowship, Johns Hopkins University, Whiting School of Engineering</i>	2010
	<i>Robert S. Pond, Sr. Fellowship, Johns Hopkins University, Whiting School of Engineering</i>	2009

PROFESSIONAL

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<b>Intern</b>	<i>National Institutes of Health (NIH), Bethesda, MD, USA</i>	Summer 2007
	<ul style="list-style-type: none"> <li>• Developed software for use in the medical industry</li> <li>• Tested software for robustness and ADA-compliance</li> </ul>	
<b>Intern</b>	<i>Structures Consulting Engineers, Swarthmore, PA, USA</i>	Winter 2008
	<ul style="list-style-type: none"> <li>• Responsible for site visit reports and preparing evaluations</li> </ul>	

LICENSES

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<b>EIT</b>	<i>Engineer in Training, Commonwealth of Pennsylvania</i>	2009
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SERVICE

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<b>Chair</b>	<i>Structural Stability Research Council, Thin-Walled Structures Task Group</i>	2015-present
	Responsible for leadership and organization of Task Group; working towards creating and disseminating tools related to thin-walled structures; responsible for editing selected chapters of SSRC Guide	

OUTREACH

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<b>Coordinator &amp; Volunteer</b>	<i>Center for STEM Research Young Scholars Program, Northeastern University</i>	2015-2016
	Created, organized, and hosted an annual laboratory for high-school students aimed at teaching thin-walled tubular stability.	
<b>Mentor</b>	<i>STEM Achievement in Baltimore Elementary Schools (SABES), Johns Hopkins University; Participated in an after school STEM program for 5<sup>th</sup> grade students, responsible for guiding workshops and assisting students with projects once a week.</i>	2013
<b>Mentor</b>	<i>Women in Science and Engineering Program (WISE), Johns Hopkins University</i>	Fall 2011

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Mentored and advised a high school student for a semester. The student spent approximately 6-8 hours a week at the university working on a final research project.

**Volunteer** *Maryland Wood Bridge Challenge* 2009-2013

Maintained and re-designed test setup for testing balsa wood bridges made by area middle and high school students. Volunteered at competition.

**Volunteer** *Expanding Your Horizons (EYH)*, Swarthmore College 2008-2009

Taught short courses on basic ideas in structural engineering to middle-school girls interested in STEM fields.

AFFILIATIONS

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Cold-Formed Steel Research Consortium (CFSRC) 2015-present

American Society of Civil Engineers (ASCE) 2005-present

Cold-Formed Steel Engineering Institute (CFSEI) 2013-present

Structural Stability Research Council (SSRC) 2009-present

ASCE/SEI Thermal Bridging Task Group 2016-present

REVIEWER

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ASCE Journal of Structural Engineering

Thin-Walled Structures

Journal of Constructional Steel Research

Journal of Earthquake Engineering

Structures

PUBLICATIONS

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**Journal** **Peterman, K.D.**, Stehman, M., Madsen, R., Nakata, N., Buonopane, S., Schafer, B.W.

**Articles** “Sub-system level response of cold-formed steel buildings under seismic excitations.” ASCE, Journal of Structural Engineering (in press, DOI: 10.1061/(ASCE)ST.1943-541X.0001578)

**Peterman, K.D.**, Stehman, M., Madsen, R., Nakata, N., Buonopane, S., Schafer, B.W.

“Fundamental system level response of cold-formed steel buildings under seismic excitations.” ASCE, Journal of Structural Engineering (in press, DOI: 10.1061/(ASCE)ST.1943-541X.0001577)

Bian, G., **Peterman, K.D.**, Torabian, S., Schafer, B.W. “Direct torsion of cold-formed steel lipped channels”. Journal of Constructional Steel Research (submitted 2 December 2014).

**Peterman, K.D.**, Nakata, N., Schafer, B.W. “Hysteretic characterization of cold-formed steel stud-to-sheathing connections.” Journal of Constructional Steel Research (DOI: 10.1016/j.jcsr.2014.05.019).

Liu, P., **Peterman, K.D.**, Yu, C., Schafer, B.W. “Impact of construction details on OSB sheathed cold-formed steel framed shear walls.” Journal of Constructional Steel Research (DOI: 10.1016/j.jcsr.2014.05.003).

**Peterman, K.D.**, Schafer, B.W. “Sheathed Cold-Formed Steel Studs Under Axial and Lateral Load.” ASCE, Journal of Structural Engineering (DOI: 10.1061/(ASCE)ST.1943-541X.0000966).

- Conference Papers** **Peterman, K.D.**, Moradei, J., D'Aloisio, J.A., Webster, M.W., Hajjar, J.F. "Thermal and structural response of thermal break strategies in steel building systems." *Proceedings of CAMX 2016, Anaheim, CA. September 24-16, 2016*, American Composites Manufacturers Association.
- Peterman, K.D.**, Moradei, J., D'Aloisio, J. A., Webster, M. D., and Hajjar, J. F. (2016). "Thermal Break Strategies for Cladding Systems in Building Structures," *Proceedings of the Eighth International Workshop on Connections in Steel Structures*, Carter, C. J. and Hajjar, J. F. (eds.), Boston, Massachusetts, May 24-26, 2016, American Institute of Steel Construction, Chicago, Illinois.
- Peterman, K.D.**, Madsen, R.L., Schafer, B.W., "Experimental Seismic Behavior of the CFS-NEES Building: System-Level Performance of a Full-Scale Two-Story Light Steel Framed Building." 22<sup>nd</sup> International Specialty Conference on Cold-Formed Steel Structures, St. Louis, MO, November 2014.
- Peterman, K.D.**, Stehman, M.J.J., Buonopane, S.G., Nakata, N., Madsen, R.L., Schafer, B.W., "Seismic performance of full-scale cold-formed steel buildings." 10<sup>th</sup> National Conference on Earthquake Engineering, Anchorage, Alaska, July 2014.
- \***Peterman, K.D.**, Stehman, M.J.J., Buonopane, S.G., Nakata, N., Madsen, R.L., Schafer, B.W., "Stability performance of full-scale cold-formed steel buildings under seismic excitations." Structural Stability Research Council Annual Stability Conference, Toronto, ON, March 2014.
- \***Peterman, K.D.**, Bian, G., Schafer, B.W., "Experimental and computational analysis of direct torsion in cold-formed steel lipped channels." Structural Stability Research Council Annual Stability Conference, Toronto, ON., March 2014
- Liu, P., **Peterman, K.D.**, Yu, C., Schafer, B.W. "Characterization of cold-formed steel shear wall behavior under cyclic loading for the CFS-NEES building." 21<sup>st</sup> International Specialty Conference on Cold-Formed Steel Structures - Recent Research and Developments in Cold-Formed Steel Design and Construction, St. Louis, MO, October 2012.
- \***Peterman, K.D.**, Nakata, N., Schafer, B.W., "Cyclic behavior of cold-formed steel stud-to sheathing connections." World Conference on Earthquake Engineering, Lisbon, Portugal, September 24-28, 2012.
- Liu, P., **Peterman, K.D.**, Yu, C., Schafer, B.W. "Cold-formed steel shear walls in ledger framed buildings." Structural Stability Research Council Annual Stability Conference, Grapevine, TX, April 18-22, 2012. ---*Winner of the Vinnakota Award for best student paper.*
- \***Peterman, K.D.**, Schafer, B.W. "Stability of sheathed cold-formed steel studs under axial load and bending." Structural Stability Research Council Annual Stability Conference, Grapevine, TX, April 18-22, 2012.

\* indicates the paper was presented by Kara Peterman.

- Presentations** **Peterman, K.D.**, Webster, M.D., D'Aloisio, J.A, Hajjar, J.F., "The Enlightened Structure: Reducing Material-Based Carbon Emissions." Building Energy 2016, Northeast Sustainable Energy Association, Boston MA, 2016.
- Peterman, K.D.**, Nakata, N., Schafer, B.W., "Experimental performance of full-scale cold formed steel buildings under seismic excitations." Quake Summit, Reno, NV, 2013.
- Peterman, K.D.**, Schafer, B.W., "Predicting seismic behavior in cold-formed steel shear walls." Quake Summit, Boston, MA, 2012.

- Curated Datasets** **Kara Peterman**, Benjamin Schafer, Rob Madsen, Stephen Buonopane, Narutoshi Nakata (2014). "Experimental Performance of Full-Scale Cold-Formed Steel Buildings Under Seismic Excitations", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D3DB7VR05
- Peng Liu, **Kara Peterman**, Benjamin Schafer (2014). "Experimental Performance of Cold-Formed Steel Shear Walls under Cyclic Loading", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D38K74X6S
- Kara Peterman**, Benjamin Schafer (2014). "Experimental Performance of Fastener-Stud-Sheathing Connections in Cold-Formed Steel Shear Walls", Network for Earthquake Engineering Simulation (distributor), Dataset, DOI:10.4231/D3K35MF32