

ABBIE B. LIEL

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Department of Civil, Environmental and Architectural Engineering
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EDUCATION

Stanford University, Ph.D., Civil and Environmental Engineering (Structural Engineering), June, 2008

University College London, M.Sc., Building and Urban Design and Development, September, 2004

University College London, M.Sc., Civil and Environmental Engineering, *with distinction*, September, 2003

Princeton University, B.S.E., Civil and Environmental Engineering, certificate from the Woodrow Wilson School of Public and International Affairs, *summa cum laude*, June, 2002

ACADEMIC EMPLOYMENT HISTORY

Civil Engineering Honorary Visiting Researcher, Department of Civil and Environmental Engineering, University of Auckland, Aug. – Dec. 2015

Associate Professor, Dept. of Civil, Environmental and Architectural Engineering, **University of Colorado**, Boulder, 2015– present

Assistant Professor, Dept. of Civil, Environmental and Architectural Engineering, **University of Colorado**, Boulder, 2008 – 2015

Graduate Research Assistant, Dept. of Civil and Environmental Engineering, **Stanford University**, 2004 – 2008

Visiting Researcher, Earthquake Research Institute, **University of Tokyo**, 2006

Undergraduate Research Assistant, Dept. of Civil and Environmental Engineering, **Princeton University**, 2000 - 2002

HONORS AND AWARDS

National / International

Civil Engineering Honorary Visiting Research Award, *University of Auckland*, 2015

Shah Family Innovation Prize, Awarded by the *Earthquake Engineering Research Institute*, 2015

Outstanding Paper *Earthquake Spectra*, 2013

Outstanding Paper of 2012 (Runner-up) in *Journal of Performance of Constructed Facilities*, 2013

National Science Foundation CAREER Award, 2012

Selected as Next-Generation Hazards and Disaster Researcher, 2009

Research Fellowship, Japan Society for the Promotion of Science, 2006

Winner, Student Paper Competition, Earthquake Engineering Research Institute, 2006

Recipient, Graduate Research Fellowship, National Science Foundation, 2004 – 2008

Marshall Scholar, 2002 – 2004

University of Colorado

Outstanding Faculty Advisor Award, College of Engineering, 2015

Dean's Award for Outstanding Junior Faculty Member, College of Engineering, 2013 (Awarded 2014)

Faculty Teaching Award, Dept. of Civil, Environmental and Architectural Engineering, 2013

CU IMPART (Implementation of Multicultural Perspectives and Approaches in Research and Teaching) Faculty

Fellowship Award for Diversity, CU Office of Diversity, Equity and Community Engagement, 2012
Young Researcher Award, Dept. of Civil, Environmental and Architectural Engineering, 2011
Nominated for Peebles Innovation in Education Award, College of Engineering and Applied Science, Spring 2010

Other

Engineering News Record, Top 20 under 40, Rocky Mountain Region, 2015
Profiled in American Society of Engineering Education *PRISM* Magazine, 20 under 40 (<http://www.asee-prism.org/20-under-40-sep/>), Sept. 2014
Stanford Graduate Fellowship, Stanford University, 2004 – 2008
Princeton University: Pyne Prize, 2002 (highest undergraduate honor); Angus Civil Engineering Prize, 2002; Hayes-Palmer Engineering Prize, 2002; Van de Velde Public Policy Award, 2001

RESEARCH FUNDING (Total Approx. \$2,734,000 as of July, 2015)

Current: Risks of Damage to Buildings and Infrastructure due to Human –Induced Earthquakes (July 2014 – January 2016) \$49,629, *CU Innovation Seed Grant*.

Current: RIPS Type 1: The Interdependence of Built, Social and Information Infrastructures for Community Resilience: A Participatory Process (October 2014 – September 2016) \$299,219 (PI: Abbie Liel co-PIs: Shideh Dashti, Bruce Goldstein, Amy Javernick-Will, Leysia Palen Senior Personnel: Leah Sprain). *National Science Foundation*. (Liel Portion: \$67,000)

Current: Performance of Buildings on Liquefiable Soils: Evaluation and Mitigation (June 2014 – May 2017) \$353,492 (PI: Shideh Dashti, co-PI: Abbie Liel). *National Science Foundation*. (Liel Portion: \$159,000)

Current: CAREER: A Multi-scale Methodology for Assessing the Reductions in Seismic Risk Possible through Building Retrofit Design and Policy, from Buildings to Communities (June 2013 – May 2018) \$400,000 (PI: Abbie Liel). *National Science Foundation*.

Current: Integrating Hazard Resistant Design with Green Building Design for Life-Cycle Improvements in Building Sustainability (Sept. 2012 – Aug. 2015) \$225,855 (PI: Abbie Liel). *National Science Foundation*.

Current: ATC 78 Identification and Mitigation of Nonductile Concrete Buildings (Nov. 2010 – Sept. 2016). \$174,772 (PI: Abbie Liel) *Applied Technology Council* (with funding from FEMA).

Current: Hazards SEES: The Risk Landscape of Earthquakes Induced by Deep Wastewater Injection (Sept 2015-August 2019) \$2,631,954 (PI: Abbie Liel, co-PI: Liesel Ritchie, Anne Sheehan, Senior Personnel: Amy Javernick-Will, Hari Rajaram, Kristy Tiampo, Kathryn Mutz). *National Science Foundation*. (Liel Portion: \$405,609)

Current: Hybrid Sliding-Rocking Bridges for Resilient Accelerated Bridge Construction (ABC) Through a Holistic Performance-based Seismic Design (PBSD) & Life-cycle Assessment Framework (Sept 2015-August 2018) \$401,306 (PI: Petros Sideris, co-PI: Abbie Liel). *National Science Foundation*. (Liel Portion: \$179,313)

Current: Engineering Resilient Communities (Sept. 2015 – Aug. 2018), \$1 million (PI: Ross Corotis, co-PIs: Angela Bielefeldt, Abbie Liel, Keith Porter, Shieh Dashti and Amy Javernick-Will). *U.S. Department of Education GAANN Program*. [Not counted in total above].

Past: Development of Risk-Based Decision Matrix for Facility Design (Jul. 2012 – Jun. 2014) \$99,246 (PI: Ross Corotis, co-PI: Abbie Liel). *Colorado Department of Transportation*. (Liel Portion: \$40,000)

Past: Enhancing Diversity and Inclusiveness in Structural Engineering Education, \$3100. CU IMPART Fellowship.

Past: Performance-Based Design and Assessment of Buildings under Extreme Snow Loads (Oct. 2009 – Sept. 2013) \$175,000 (PI: Abbie Liel). *National Science Foundation*. REU supplement of \$6000 funded in May, 2011.

Past: Enhancing the OpenRisk Platform for Open-Source Risk Analysis through Development of Vulnerability

Models for Aftershocks and Large Earthquake Sequences (Feb. 2010 – May 2013) \$207,544 (PI: Abbie Liel). *U.S. Geological Survey*.

Past: Investigation of Structural Collapse Risk in the Cascadia Subduction Zone (May 2011 – Apr. 2013) \$61,437 (PI: Abbie Liel). *U.S. Geological Survey*.

Past: Application of Scenario Physics-Based Ground Motion Simulations to Improve Seismic Risk Assessment for Portfolios of Buildings (Feb. 2012 – Jan. 2013) \$20,000 (PI: Abbie Liel). *Southern California Earthquake Center*.

Past: Detailed Study of Diversity and Gender Balance in the Structural Engineering Profession (Mar.- Dec. 2012) \$8,421 (PI: Abbie Liel). *ASCE Structural Engineering Institute*.

Past: Spatial Variability in Building Seismic Response Investigated using Scenario Ground Motion Simulations (Jan. 2011- Feb. 2012). \$23,000 (PI: Abbie Liel). *Southern California Earthquake Center*.

Past: Integration of Physics-Based Ground Motion Simulations and Performance-Based Building Damage Estimates for Improved Assessment of Seismic Risk (Feb. 2010 – Jan. 2012) \$20,000 (PI: Abbie Liel). *Southern California Earthquake Center*.

Past: Simplified Seismic Design Provisions for Seismic Design Category “B” Buildings (Jan. 2011 – Sep. 2011) \$23,868 (PI: Abbie Liel). *National Institute of Building Sciences* (with funding from FEMA).

Past: RAPID: Recovery Process and Progress Following the 2009 L’Aquila Earthquake (Aug. 2009 – July 2011) \$39,970 (PI: Abbie Liel, co-PIs: Ross Corotis, Jeannette Sutton). *National Science Foundation*. (Liel Portion: \$27,000)

Past: Effect of Near-Fault Directivity on Building Seismic Collapse Risk (Feb. 2010 – Jan. 2011) \$62,615 (PI: Abbie Liel). *U.S. Geological Survey*.

Past: Rupture-to-Rafters Assessment of Risks of Seismic Collapse and Damage in Reinforced Concrete Frame Buildings in Southern California During a M7.8 Scenario Earthquake on the San Andreas Fault (Feb. 2009 – Jan. 2010) \$24,000 (PI: Abbie Liel). *Southern California Earthquake Center*.

Past: Who is at Risk in Seismically Vulnerable Reinforced Concrete Structures Worldwide? Socioeconomic Characteristics of Building Occupants (Jan. 2009 – Dec. 2009). \$2,400. (PI: Abbie Liel). *Natural Hazards Center*.

TEACHING

Courses Taught

Dept. of Civil, Environmental and Architectural Engineering, University of Colorado, Boulder

Course	Semester	Num. of Students	Course Rating		Instructor Rating		How Much Learned		Hours Spent	
			This Course	Dept. Avg.	This Course	Dept. Avg.	This Course	Dept. Avg.	This Course	Dept. Avg.
CVEN 5111 Structural Dynamics	F 14	22	5.3	5	5.7	5.2	5.3	5	12-Oct	7-9
	F 12	22	5.7	4.9	5.9	5.1	5.5	4.9	7-9	7-9
	F 11	22	5.3	4.8	5.6	5.1	4.9	4.8	10-12	7-9
	S 11	26	5.1	4.8	5.5	5.1	5.3	4.8	7-9	7-9
CVEN 4525/5525 Analysis of Framed Structures	F 11	42	5.1	4.5	5.6	4.8	5.2	4.6	10-12	7-9
	F 10	42	5.2	4.4	5.6	4.7	5.4	4.5	10-12	7-9
	F 08	26	5.7	4	5.9	4.7	5.6	4.5	10-12	7-9
CVEN 6595 Earthquake Engineering	S15	14	5.9	5	5.9	5.2	5.7	5	10-12	7-9
	S 14	19	5.8	4.9	5.9	5.2	5.5	5	10-12	7-9
	S 13	21	5.3	4.9	5.6	5.1	5.4	4.9	10-12	7-9
	S 12	23	5.5	4.9	5.6	5.1	5.3	4.9	10-12	7-9
	F 10	18	5.5	4.8	5.7	5.1	5.6	4.8	10-12	7-9
	F 09	14	5.2	4.8	5.3	5.0	5.3	4.8	10-12	7-9
CVEN 3227 Probability, Statistics and Decision Making	S 15	103	4.7	4.8	5.5	5.1	4.7	4.9	6-Apr	7-9
	S 13	109	4.2	4.7	4.8	4.9	4.4	4.8	7-9	7-9
	S 10	85	4.9	4.4	5.6	4.7	4	4.5	4-6	4-6
AREN 2830 (Special Topics) Building Performance: Safety, Sustainability, Style and Society	S 14	7	5.7	4.5	5.8	4.9	5.6	4.6	4-6	7-9
CVEN 5835 (Special Topics) Special Topics: Nonlinear Structural Analysis (with Victor Saouma)	S 10	5	5.5	4.8	6	6	5	4.8	7-9	7-9
Average			5.3		5.6					

Complete set of electronic course notes (powerpoint format) has been prepared and made available to students for each class (approximately 100-200 pages/class).

Notation: In teaching evaluation results below, + indicates department averages obtained from the Faculty Course Questionnaire Section Report. These averages are for the same course level and tenured/tenure track faculty only.

Dept. of Civil and Environmental Engineering, Stanford University

[1] Design of Reinforced Concrete Structures (Winter 2007)

[2] TA for: Advanced Structural Analysis (Fall 2006, Fall 2007) and Nonlinear Structural Analysis (Spring 2006)

Student Advising

Since 2008, 4 postdoctoral scholars, 11 Ph.D. students, 12 M.S. thesis students, 17 M.S. report students, 13 undergraduate research students

Independent Study

Advised 2 undergraduate and 4 graduate independent study students (last updated: Feb., 2016).

Academic Advising and Other Activities

Academic advisor for approximately 60 B.S. students in Civil or Architectural Engineering (2008-2014).

Prepared FE Review sessions in Fall, 2009 (Dynamics); Fall, 2011 (Probability and Statistics)

and Spring, 2012 (Probability and Statistics)

Education Development Activities

Participant in Effective College Teaching Workshop, Richard Felder, Hosted by University of Colorado at Boulder,

Feb, 2009.

Participant in Workshop on Civil Engineering Education and Structural Art. Hosted by Princeton University. July, 2009, June 2011.

Attended and presented research at American Society of Engineering Education Conference, June 2014.

SERVICE AND OTHER PROFESSIONAL ACTIVITIES

Licensed Professional Engineer in the State of California. California Professional Civil Engineer, License No. 75961

Consulting Activities

Research Consultant, Applied Technology Council

Project Management Committee for ATC-78, *Identification and Mitigation of Non-ductile Concrete Buildings*, 2010 – present

Working group for ATC-63, *Quantification of Building System Performance and Response Parameters*, and ATC-63-1, *Development of Structural Component Equivalency Methodologies*, 2005 – 2010

Research Consultant, Building Seismic Safety Council, National Institute of Building Sciences

Working group for *Development of Simplified Seismic Design Procedures*, 2010 – 2012

Professional Committees

Committee on Reform of Structural Engineering Education, Structural Engineering Institute, American Society of Civil Engineers, 2015 - present

Advisory and Steering Committee Member, Concrete Coalition for Earthquake Engineering Research Institute, 2014- Present; Lead Public Policy and Advocacy Working Group 2014- Present

Affiliate Member, Structural Engineers Association of Colorado, 2013 – Present

Member of Sub-Committee on Snow Loads, 2012 – Present

Founding Member, Young Professionals Committee, Structural Engineering Institute, American Society of Civil Engineers, 2011- Present

Associate Member, Committee on Seismic Rehabilitation (ASCE 31/41), American Society of Civil Engineers 2010- 2013

Professional Affiliations

American Society of Civil Engineers, Earthquake Engineering Research Institute, Elected Member of Consortium of Universities for Research in Earthquake Engineering.

Other Professional Activities

Associate Editor: ASCE Natural Hazards Review

Proposal Reviewer: National Science Foundation (CMMI Panel Reviews in May, 2009; May, 2011 and November, 2011; June, 2015), USGS External Grants Program (Panel Review Aug. 2009), CU Innovation Seed Grants (Panel Review March, 2011); UK Natural Environment Research Council's Increasing Resilience to Natural Hazards in China program (2015)

Journal Paper Reviewer: ASCE Journal of Structural Engineering, Earthquake Spectra, Earthquake Engineering and Structural Dynamics, ASCE Natural Hazards Review, Structural Safety, Engineering Structures, Bulletin of the Seismological Society of America, ASCE Journal of Bridge Engineering, Journal of Earthquake Engineering, Bulletin of Earthquake Engineering, Structure and Infrastructure Engineering, International Journal of Forensic Engineering, Natural Hazards, Journal of Advanced Concrete Technology, American Concrete Institute Special Publications, Structures

Conference Committees: Scientific Committee for 12th International Conference on Applications of Statistics and Probability in Civil Engineering (2015), **Local co-chair for 2017 ASCE Structures Congress, to be held in Denver**

Conference Paper Reviewer: 19th Analysis and Computation Specialty Conference (2010 ASCE Structures Congress), ICASP 2011 (International Conference on Applications of Statistics and Probability in Civil Eng.), ICOSAR 2013 (11th

International Conference on Structural Safety & Reliability), ICVRAM 2014 (2nd International Conference on Vulnerability and Risk Analysis and Modeling & 6th International Symposium on Uncertainty Modeling and Analysis), 10NCEE (10th US National Conference on Earthquake Engineering), ICASP 2015 (12th International Conference on Applications of Statistics and Probability in Civil Engineering), American Society of Engineering Education (ASEE) 2016 Annual Conference

Other Activities: Cambridge University Press (Book Abstract); 2014 - Project Review Panel for “Conceptual Seismic Design Guidance for New Framed Infill Buildings” (prepared by GeoHazards International); 2015 - judge in the 2015 *Engineering News Record* Mountain States Best Projects competition;

Student Organizations

Advisor, Student Chapter, Habitat for Humanity, 2010 – present

Faculty Advisor, Student Chapter, Bridges to Prosperity, 2011 – present

Faculty Advisor, Student Chapter, Earthquake Engineering Research Institute, 2011 – present

Other

Focus Group Leader, Committee on Undergraduate Women’s Leadership at Princeton Univ., 2010-2011 Faculty

PUBLICATIONS

Notation: * indicates current or former University of Colorado graduate student, ^ University of Colorado undergraduate student or REU student working with us, ~University of Colorado postdoctoral fellow. Links to all publications are available on my website (<http://civil.colorado.edu/~liel>).

Journal Articles

[28] Welsh-Huggins, Sarah J.* and **Abbie B. Liel**, “A Life-Cycle Framework for Integrating Green Building and Hazard-Resistant Design: Examining the Seismic Impacts of Buildings with Green Roof Systems”, *Structure and Infrastructure Engineering*, In Press.

[27] Sattar, Siamak* and **Abbie B. Liel**. “Seismic Performance of Non-Ductile Reinforced Concrete Frames with Masonry Infill Walls: II. Collapse Assessment”, *Earthquake Spectra*, In Press. [doi: 10.1193/091514EQS141M]

[26] Sattar, Siamak* and **Abbie B. Liel**. “Seismic Performance of Non-Ductile Reinforced Concrete Frames with Masonry Infill Walls: I. Development of a Finite-Element Enhanced Strut Modeling Approach”, *Earthquake Spectra*, In Press. [dx.doi.org/10.1193/090914EQS139M]

[25] Kozak, Derek L.* and Abbie B. Liel. “Reliability of Steel Roof Structures under Snow Loads”. *Structural Safety*, 54, 46-56, 2015. [doi:10.1016/j.strusafe.2015.02.004]

[24] DeBock, D. Jared* and **Abbie B. Liel**. “A Comparative Evaluation of Probabilistic Regional Seismic Loss Assessment Methods, Using Scenario Case Studies.” *Journal of Earthquake Engineering*, 19(6), pp. 905-937, 2015. [DOI: 10.1080/13632469.2015.1015754]

[23] Lin, Yolanda C.*, Abhishek Paul*, Ross B. Corotis, and **Abbie B. Liel**, “A Framework Methodology for Risk-Based Decision Making: Applications to Transportation Agencies,” *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, In Press. [DOI: 10.1061/AJRUA6.0000819]

[22] Raghunandan, Meera*, **Abbie B. Liel**, and Nicolas Luco. “Aftershock Collapse Vulnerability Assessment of Reinforced Concrete Frame Structures”, *Earthquake Engineering and Structural Dynamics*, 44(3), pp. 419-439, 2015. [DOI: 10.1002/eqe.2478]

[21] Raghunandan, Meera*, **Abbie B. Liel**, and Nicolas Luco. “Collapse Risk of Buildings in the Pacific Northwest due to Subduction Earthquakes”, *Earthquake Spectra*, 31(4), pp. 2087 -2115, 2015. [<http://dx.doi.org/10.1193/012114EQS011M>]

- [20] Baradaran Shoraka, Majid, K.J. Elwood, T.Y. Yang, and **Abbie B. Liel**. “Collapse Assessment of Non-Ductile, Retrofitted and Ductile Reinforced Concrete Frames” *ACI Special Publication*, 297, pp. 1-20, 2014.
- [19] Vigh, LG, Deierlein, GG, Miranda, E, **Liel, AB** and Tipping, S. “Component model calibration for cyclic behaviour of a corrugated shear wall,” *Thin Walled Structures*, 75, pp. 53-62, 2014. [DOI: 10.1016/j.tws.2013.10.011]
- [18] DeBock, D. Jared*, Jack W. Garrison*, Kevin Y. Kim^, and **Abbie B. Liel**. “Incorporation of Spatial Correlations Between Building Response Parameters In Regional Seismic Loss Assessment,” *Bulletin of the Seismological Society of America*, 104(1), pp. 214-228, 2014. [doi: 10.1785/0120130137]
- [17] DeBock, D. Jared*, **Abbie B. Liel**, Curt B. Haselton, John D. Hooper, and Richard Henige. “Importance of Seismic Design Accidental Torsion Requirements for Building Collapse Capacity,” *Earthquake Engineering and Structural Dynamics*, 43(6), 831 – 850, 2014. [DOI: 10.1002/eqe.2375]
- [16] **Liel, Abbie B.** and Gregory G. Deierlein, “Cost-Benefit Evaluation of Seismic Risk Mitigation Alternatives for Older Reinforced Concrete Frame Buildings,” *Earthquake Spectra* 29(4), pp. 1391-1411, 2013. [DOI: 10.1193/030911EQS040M].
- [15] **Liel, Abbie B.**, Ross B. Corotis, Jeannette Sutton, Guido Camata, Enrico Spacone, and Rose (Bricker-Ford) Holtzman*. “Setting Priorities for Rebuilding and Recovery: the Example of L’Aquila, Italy,” *Earthquake Spectra* 29(3), pp. 843-868, 2013. [doi: 10.1193/1.4000158]
- [14] Strobel, Kristen M.^ and **Abbie B. Liel**. “Snow Load Damage to Buildings: Physical and Economic Impacts,” *Proceedings of ICE - Forensic Engineering*, 166(3), pp. 116-133, 2013. [doi: 10.1680/feng.12.00023]
- [13] Vigh, LG, Deierlein, GG, Miranda, E, **Liel, AB** and Tipping, S. “Seismic performance assessment of steel corrugated shear wall system using non-linear analysis,” *Journal of Constructional Steel Research* 85, pp. 48 – 59, 2013. [doi: 10.1016/j.jcsr.2013.02.008]
- [12] Raghunandan, Meera* and **Abbie B. Liel**. “Effect of Ground Motion Duration on Earthquake-Induced Structural Collapse,” *Structural Safety* 41, pp. 119-133, 2013. [doi: 10.1016/j.strusafe.2012.12.002]
- [11] **Liel, Abbie B.** and Gregory G. Deierlein. “Using Collapse Risk Assessments to Inform Seismic Safety Policy for Older Concrete Buildings,” *Earthquake Spectra* 28(4), pp. 1495-1521, 2012. [doi: 10.1193/1.4000090]
Recognized as Outstanding *Earthquake Spectra* Paper of 2012 Award by the Earthquake Engineering Research Institute.
- [10] Ramirez, C.M., **A.B. Liel**, J. Mitrani-Reiser, C.B. Haselton, A.D. Spear, J. Steiner, G.G. Deierlein, and E. Miranda. “Expected Earthquake Damage and Repair Costs in Reinforced Concrete Frame Buildings,” *Earthquake Engineering and Structural Dynamics*, 41(11), pp. 1455-1475, 2012 [DOI: 10.1002/eqe.2216].
- [9] Champion, Casey P.* and **Abbie B. Liel**. “The Effect of Near-Fault Directivity on Seismic Collapse Risk,” *Earthquake Engineering and Structural Dynamics*, 41(10), pp. 1391-1409, 2012. [DOI: 10.1002/eqe.1188].
- [8] Geis, Jamie M.*, Kristen M. Strobel^ and **Abbie B. Liel**, “Snow-Induced Building Failures,” *ASCE Journal of the Performance of Constructed Facilities*, 26(4), pp. 1-12, 2012 [doi:10.1061/(ASCE)CF.1943-5509.0000222]. **Nominated for Outstanding Paper of 2012 Award in *Journal of Performance of Constructed Facilities* (runner up).**
- [7] **Liel, Abbie B.** and Kathryn P. Lynch*, “Vulnerability of Reinforced Concrete Frame Buildings and Their Occupants in the 2009 L’Aquila, Italy Earthquake,” *ASCE Natural Hazards Review*, 13(1), pp. 1-16, 2012. [10.1061/(ASCE)NH.1527- 6996.0000047]
- [6] Lynch, Kathryn P.*, Kristen L. Rowe^/*, and **Abbie B. Liel**, “Seismic Performance of Reinforced Concrete Frame Buildings in Southern California,” *Earthquake Spectra*, 27(2), pp. 399-418, 2011. [doi:10.1193/1.3570684]
- [5] **Liel, Abbie B.**, Curt B. Haselton and Gregory G. Deierlein, “Seismic Collapse Safety of Reinforced Concrete

Buildings: II. Comparative Assessment of Non-Ductile and Ductile Moment Frames,” *ASCE Journal of Structural Engineering* 137(4), pp. 492-502, 2011. [doi:10.1061/(ASCE)ST.1943-541X.0000275]

[4] Haselton, Curt B., **Abbie B. Liel**, Gregory G. Deierlein, Brian S. Dean, and Jason H. Chou “Seismic Collapse Safety of Reinforced Concrete Buildings: I. Assessment of Ductile Moment Frames,” *ASCE Journal of Structural Engineering* 137(4), pp. 481-491, 2011. [doi:10.1061/(ASCE)ST.1943-541X.0000318]

[3] Haselton, C.B., J.W. Baker, **A.B. Liel**, and G.G. Deierlein, “Accounting for Ground Motion Spectral Shape Characteristics in Structural Collapse Assessment through an Adjustment for Epsilon,” *ASCE Journal of Structural Engineering* 137(3), pp. 332-344, 2011. [doi:10.1061/(ASCE)ST.1943-541X.000010]

[2] **Liel, Abbie B.**, Curt B. Haselton, Gregory G. Deierlein and Jack W. Baker, “Incorporating Modeling Uncertainties in the Assessment of Seismic Collapse Risk of Buildings,” *Structural Safety* 31(2), pp. 197-211, 2009 [doi:10.1016/j.strusafe.2008.06.002]. Recognized as one of the most cited articles in *Structural Safety* since 2007 (<http://www.journals.elsevier.com/structural-safety/most-cited-articles/>).

[1] **Liel, Abbie B.** and David P. Billington, “Engineering Innovation at Bonneville Dam,” *Journal of Technology and Culture* 49(3), pp. 727-751, 2008. [DOI: 10.1353/tech.0.0088]

Journal Articles Near Submission

N/A

Magazine Articles

[1] **Abbie B. Liel** and SEI Young Professionals Committee. “Diversity in the Structural Engineering Profession: Challenges and Opportunities”, *Structure Magazine*, October, 2014.

Book Chapters

[2] **Liel, Abbie B.** “Development of an Engineering Organization/Development of an Engineer” in *Festschrift*, 2012. (Available at http://bechtel.colorado.edu/~liel/publications_files/BillingtonFS_2012_standard.pdf)

[1] Deierlein, Gregory G. and **Abbie B. Liel**. “Benefit-Cost Evaluation of Seismic Risk Mitigation in Existing Non-ductile Concrete Buildings” in *Advances in Performance-Based Earthquake Engineering, Geotechnical, Geological and Earthquake Engineering* Vol. 13 Part 3. Michael Fardis, Ed. Springer: pg. 341-8, 2010. [DOI: 10.1007/978-90-481-8746-1_32]

Conference Proceedings

Notation: † Peer-reviewed conference proceedings. Others are peer-reviewed abstract.

[46] † Arneson, Erin*, Derya Deniz~, Amy Javernick-Will, **Abbie Liel**, and Shideh Dashti, “Information Deficits and Post-Disaster Recovery”. *Construction Research Congress*, San Juan, Puerto Rico, 2016. [Paper accepted.]

[45] Sprain, L., Liel, A., Javernick-Will, A., Palen, L., Dashti, S., and Goldstein, B. “Reimagining critical infrastructure for community resilience: Interdependent build, information, and social dimensions of critical infrastructure.” *Conference on Earth System Governance*, Canberra, Australia, 2015.

[44] DeBock, D. Jared*, and **Abbie B. Liel**. “A Move Toward Improved Portfolio Seismic Risk Assessment Methods for the Practicing Engineer.” *Second ATC-SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures*, San Francisco, CA Dec. 2015.

[43] † Soden, Robert*, Leysia Palen, Claire Chase*, Erin Arneson*, Derya Deniz~, Leah Sprain, Bruce Goldstein, **Abbie Liel**, Shideh Dashti and Amy Javernick-Will. “The Polyvocality of Resilience: Discovering a Research Agenda through Interdisciplinary Investigation & Community Engagement.” *12th International Conference on Information Systems for Crisis Response and Management, ISCRAM 2015*, Kristiansand, Norway, May 24-27, 2015. Finalist for student paper award.

- [42] †**Liel, Abbie B.**, Nicolas Luco, Meera Raghunandan* and Casey Champion*, “Modifications to Risk-Targeted Seismic Design Maps for Subduction and Near-Fault Hazards”, *12th International Conference on Applications of Statistics and Probability in Civil Engineering, ICASP12*, Vancouver, Canada, July 12-15, 2015.
- [41] †DeBock, D. Jared*, **Abbie B. Liel**, James Harris, Jeannette Torrents, “Reliability-Based Snow Load Maps for Building Design”, *12th International Conference on Applications of Statistics and Probability in Civil Engineering, ICASP12*, Vancouver, Canada, July 12-15, 2015.
- [40] Liel, Abbie B., “The ATC-78 Methodology for Evaluation and Mitigation of Nonductile Concrete Buildings,” *15th U.S.-Japan Workshop on the Improvement of Structural Engineering and Resiliency*, Big Island, Hawaii, December, 2014.
- [39] Srubar, Wil V. III, Andrew E. Siefried, Aaron T. Michel and **Abbie B. Liel**, “Next-Generation Disaster-Related Debris Estimation Models,” *International Conference on Urban Disaster Reduction*, Boulder, Colorado, September, 2014.
- [38] Welsh-Huggins, Sarah J.* and **Abbie B. Liel**. “Integrating Green and Resilient Building Design for Enhanced Disaster Recovery,” *3rd International Conference on Urban Disaster Reduction*, Boulder, Colorado, September, 2014.
- [37] †Welsh-Huggins, Sarah J. * and **Abbie B. Liel**. “Integrating Hazard-Induced Damage and Environmental Impacts in Building Life Cycle Assessments.” *2014 International Symposium of Life-Cycle Civil Engineering*. Tokyo, Japan, November, 2014, 8 pg.
- [36] †Shome, Nilesh, Nicolas Luco, Matt Gerstenberger, Oliver Boyd, Ned Field, **Abbie B. Liel** and John van de Lindt. “Aftershock risks and the recent events in New Zealand and Japan,” *National Conference in Earthquake Engineering*, Anchorage, AK, July, 2014, 10 pg.
- [35] †Raghunandan, Meera* and **Abbie B. Liel**. “Seismic Collapse Assessment of Ductile and Non-Ductile Reinforced Concrete Buildings in Alaska”. *National Conference in Earthquake Engineering*, Anchorage, AK, July, 2014, 10 pg.
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- [9] Welsh-Huggins, Sarah* and **Abbie B. Liel**. “Impact of Green Roofs on Building Seismic Resistance,” *ASCE Structures Congress*, Boston, MA, April, 2014. (Poster only.)
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- [2] Lynch, Kathryn*, Kristen Rowe*[^] and **Abbie Liel**, “Seismic Risk Assessment of Reinforced Concrete Frame Structures in Southern California due to a Magnitude 7.8 Earthquake on the San Andreas Fault,” *ATC/SEI Conference on Existing Buildings*, San Francisco, CA, December, 2009. (Presentation Only)
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- [24] “Seismic and Flood Risk Assessments and their Usefulness for Decision-Making”, *GNS Science New Zealand*, October 29, 2015.
- [23] “Seismic Performance Assessments for Existing and Modern Concrete Buildings”, *University of Canterbury*, October 19, 2015.
- [22] “Seismic Risk Assessments: Methods and Applications in the U.S”, Engineering Advisory Group, *New Zealand Ministry for Business, Innovation and Employment*, October 8, 2015.

- [21] “What we can learn from Seismic Performance Prediction: Applications to Cost-Benefit Analysis of Retrofitting Nonductile RC Frames and Risks of Near-Fault Ground Shaking”, *Structural Engineers Association of Northern California Technical Seminar*, April, 2015.
- [20] “Reliability-based Snow Load Maps for Colorado and Beyond.” *Rensselaer Polytechnic Institute*, April, 2015.
- [19] “Sustainable Engineering for Resilient and Sustainable Communities: Methods, Models and Metrics.” *University of Michigan*, February, 2014.
- [18] “Sustainable Engineering for Resilient and Sustainable Communities: Methods, Simulations and Applications.” *University of California, Berkeley*, January, 2014.
- [17] “Challenges in Simulating Collapse in Reinforced Concrete Structures.” *NEHRP Collapse Simulation Workshop*, San Francisco, CA, January, 2013.
- [16] “Aftershock fragility curves and tagging assessments for a mainshock damaged building.” *USGS Brown Bag Seminar Series*, December, 2012.
- [15] “State of the Art on Collapse Estimation using Analytical or Experimental Methods.” *Lisbon Workshop on Global Vulnerability Estimation Methods (GEM)*, Lisbon, Portugal, September, 2012.
- [14] “Aftershock Collapse Fragility for Mainshock-Damaged Reinforced Concrete Buildings.” *2012 Annual Meeting of the Earthquake Engineering Research Institute and the National Conference on Earthquake Engineering*, Memphis, Tennessee, April, 2012.
- [13] “Influence of Strong Motion Duration on Structural Response.” *USGS Workshop on Update of Pacific Northwest Portion of the U.S. National Seismic Hazard Maps*. Seattle, Washington, March, 2012.
- [12] “Scary News and Preventative Measures What Modern Earthquake Engineering Can Tell Us About Risk and Preparedness in Earthquake Country,” *University of Colorado, College of Engineering Alumni Event*, Santa Monica, California, Nov., 2011.
- [11] “The Case for Deterministic Scenario Analysis,” *Southern California Earthquake Center Annual Meeting*, Sept. 12, 2010.
- [10] “Engineering Innovations at Bonneville Dam,” *Princeton University*, May 28, 2010.
- [9] “Performance-Based Earthquake Engineering for Improving Building Codes and Retrofit Guidelines,” *University of Chieti-Pescara (Italy)*, March 31, 2010.
- [8] “Seismic Performance of Reinforced Concrete frame Buildings in Southern California due to the Magnitude 7.8 ShakeOut Earthquake,” *California Institute of Technology*, Nov. 18, 2009.
- [7] “Predicting the Risk of Earthquake-Induced Collapse of California’s Older Reinforced Concrete Frame Structures,” *San Francisco State University*, Mar. 11, 2008.
- [3-6] “Assessing the Risk of Earthquake-Induced Collapse of California’s Existing Reinforced Concrete Frame Structures.” Presented at: *University of California at Davis*, Feb. 29, 2008; *University of Colorado at Boulder*, Feb. 25, 2008; *Princeton University*, Feb. 13, 2008; and *University of California at Berkeley*, Jan. 28, 2008.
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- [1] “Collapse Evaluation of Reinforced Concrete Frame Buildings: Methodology, System Studies and Applications,” *Earthquake Research Institute, University of Tokyo*, July 20, 2006.

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[2] “Earthquake Engineering and Disaster Resiliency in Developing Communities,” *University of Colorado*, Engineering for Developing Communities Seminar Series, March 6, 2012.

[1] “Building Safety, Retrofit and Risk Mitigation,” *University of Colorado*, Civil Systems Program, Brown Bag Seminar Series, Oct. 11, 2010.