

Casie C. Venable, PhD

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Education

PhD, Civil Engineering

Focus in Civil Systems and Disaster Recovery

Dissertation: Post-Disaster Housing Safety – (Mis)Alignments Between Household Perceptions and Engineering Assessments

Advisors: Dr. Amy Javernick-Will and Dr. Abbie Liel

Graduate Certificate in Engineering for Developing Communities

Graduate Mentoring Certificate

GPA: 3.95

University of Colorado Boulder

Degree Conferred: August 2020

Certificate Awarded: May 2018

Certificate Awarded: November 2018

Master of Science, Civil Engineering

Focus in Civil Systems and Global Development

GPA: 3.91

University of Colorado Boulder

Degree Conferred: May 2018

Bachelor of Science, Civil Engineering

Honors Global Scholar Diploma

Study Abroad: Riva San Vitale, Switzerland

GPA 3.99

Virginia Tech

Degree Conferred: May 2016

Bachelor of Science, Construction Engineering and Management

GPA 3.99

Virginia Tech

Degree Conferred: May 2016

Honors and Awards

- USAID/OFDA Humanitarian Shelter and Settlements Fellow 2019
 - American Society of Civil Engineers Top 10 New Faces of Civil Engineering-Professional 2018
 - Graduate Assistantship in Areas of National Need Fellow, University of Colorado Boulder 2016-2020
 - College of Engineering Outstanding Senior; Department of Civil Engineering Outstanding Senior; Myers-Lawson School of Construction Outstanding Senior, Virginia Tech 2016
 - Marshall Scholarship Finalist 2015
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Professional Experience

Doctoral Researcher

Boulder, CO, USA and Eastern Visayas, Philippines

University of Colorado Boulder

August 2016 – July 2020

- Designed and am currently implementing multi-year research study to investigate the safety of housing constructed following Typhoon Haiyan in the Eastern Visayas Region, Philippines
- Co-authored successful National Science Foundation and University of Colorado grant proposals
- Completed seven months of field data collection (interviews, surveys, observations, and housing assessments) in 10 communities that included over 600 participants
- Assessed household perceptions of the safety of their house using surveys and statistical analysis
- Used structural analysis methods to quantify housing safety in typhoons and earthquakes
- Identified and understood discrepancies in household perceptions and engineering assessments of housing safety through semi-structured interviews
- Managed team of 8 local field assistants, 5 translators, and 3 undergraduate research assistants
- Collaborated with NGOs and local governments for feedback and integrating findings into programs
- Disseminated findings through workshops, conferences, peer-reviewed publications, and blog posts
- Findings will improve the design and construction of post-disaster shelter and impact how NGOs and local governments facilitate shelter programs to enhance household resilience

Research Assistant **International Federation of Red Cross and Red Crescent Societies**
Ecuador *May 2017 – August 2017*

- Designed research program to assess the communication and use of the Ecuador Shelter Cluster's Key Messages for safe reconstruction after the 2016 earthquake
- Developed survey instrument and administered over 100 household surveys
- Conducted interviews with over 20 local and international NGOs that responded to the earthquake
- Analyzed data and authored final report on the adoption of the Shelter Cluster's Key Messages

Engineer Intern **Thornton Tomasetti**
Washington, DC, USA *May 2015 – August 2015*

- Contributed to the design and construction of eight buildings in the Washington, DC metro area
- Designed specific building components (e.g., walkway awning, staircase, and beam replacement)
- Reviewed shop drawings from concrete and steel subcontractors

Chapter President **Bridges to Prosperity, Virginia Tech Chapter**
Blacksburg, VA, USA *January 2015 – May 2016*

- Directed chapter activities, including bridge design and construction, coordination with Bridges to Prosperity and Virginia Tech leadership, budget allocation, fundraising, and student recruitment
- Led weekly chapter meetings and officer meetings to advance student development

Project Manager **Bridges to Prosperity, Virginia Tech Chapter**
Guatemala Program *September 2013 – March 2014*

- Led the design of 20-meter suspended footbridge in Las Violetas, Guatemala
- Coordinated pre-construction with local foremen and US-based engineers
- Managed on-site construction of footbridge with 20+ masons and volunteers

Engineer Intern **Barton Malow**
State College, PA, USA *May 2013 – August 2013*

- Managed close-out of new residence hall on Pennsylvania State University campus
- Contributed to review of change orders and development of requests for information (RFIs)

Humanitarian and Disasters Projects

National Science Foundation; Humans, Disasters, and the Built Environment (HDBE), "Building Capacity for Safer Post-Disaster Shelter: Leveraging Local Understanding and Advanced Engineering Assessments." PIs: Amy Javernick-Will, Abbie Liel, and Matthew Koschmann. \$499,867. May 2019 – May 2022. Eastern Visayas Region, Philippines and Puerto Rico.

- Co-authored proposal, conducted fieldwork data collection and analysis, and disseminated findings

United States Agency for International Development Office of Foreign Disaster Assistance (USAID/OFDA) Humanitarian Shelter and Settlements Fellowship, "Identifying Conflicts in Local Understanding of Safe Shelter to Promote Safer Building." \$18,000. June 2019 – February 2020. Philippines.

- Researched differences in households' and engineers' perspectives of safe shelter and recommended strategies for INGOs to address differences in order to improve shelter safety

University of Colorado Boulder; 2017 Innovative Seed Grant Program (ISGP), "Post-Disaster Housing Reconstruction: Participation, Performance, and Community Resilience." PIs: Amy Javernick-Will and Abbie Liel. \$49,927. July 2017 – December 2019. Eastern Visayas Region, Philippines.

- Co-authored proposal, conducted fieldwork data collection and analysis, and disseminated findings

International Federation of Red Cross and Red Crescent Societies, "Assessment of Ecuador Shelter Cluster's Key Messages." May 2017 – August 2017. Ecuador.

- Researched the adoption, communication, and use of shelter cluster key messages after 2016 earthquake

Teaching Experience

Teaching Assistant

University of Colorado Boulder

CVEN 4555 - Reinforced Concrete Design (40 students)

August 2016 – December 2016

- Held 10 hours of office hours weekly to review course material and support student success
- Lectured in the absence of the professor (2 times)

CVEN 3227 - Probability, Statistics, & Decision for Civil Engineers (100 students) *January 2017 – May 2017*

- Co-taught the second half of the semester while professor was on maternity leave: prepared and gave lectures (6 times), oversaw class correspondence, and readied students for final exam
- Maintained 4 weekly office hours and taught example problems for additional student review
- Developed homework assignments and exams and graded student exams
- Administered service-learning experience with Habitat for Humanity for 50 students

Teaching Assistant

Virginia Tech

UH 1004 - First Year Honors Seminar (12 students)

August 2014 – December 2014

- Sole instructor for one section of first-year seminar for students in university honors program
- Led weekly courses, developed homework assignments, and graded student projects

Guest Lecturer

University of Colorado Boulder

CVEN 2837 – Introduction to Global Engineering

Spring 2019

CVEN 4897 – Professional Issues in Civil Engineering

Fall 2017/Fall 2018

Guest Lecturer

Colorado School of Mines

EDNS 479 – Engineers Engaging Communities through Community-Based Research

Spring 2020

Mentoring

University of Colorado Boulder

- Mentored three undergraduate students on their Discovery Learning Apprenticeship research projects
 - Joel Berger: Investigating Performance-Based Engineering Assessment Methods for Post-Disaster Housing
 - Ian Grams: Creating Construction Drawings for Various Shelter Designs from Philippines Post-Typhoon Haiyan
 - Jessica Hendricks: Creating a Rapid Visual Screening Tool for Post-Disaster Housing in Typhoons and Earthquakes
- Managed eight research assistants (RAs) in the Philippines over three years of data collection
 - Taught 5 of 8 RAs how to collect housing measurements and observations relevant to the creation of assessment models
 - Advised 4 of 8 RAs during four months of administering a survey to over 500 households
 - Mentored 4 of 8 RAs for three months while conducting semi-structured interviews with over 200 households

Publications and Presentations

Published Journal Articles

- (1) **Venable, C.**, Javernick-Will, A., and Liel, A. (2020). “Perceptions of Post-Disaster Housing Safety in Future Typhoons and Earthquakes.” *Sustainability*, 12 (9), 3837.

Journal Articles Submitted

- (1) **Venable, C.**, Liel, A., Kijewski-Correa, T., Javernick-Will, A. (Under Review). “Wind Performance Assessment of Post-Disaster Housing in the Philippines.”
- (2) **Venable, C.**, Javernick-Will, A., Liel, A., Koschmann, M. (Under Review). “Alignment of Household Perceptions and Engineering Assessments of Post-Disaster Housing Safety in Typhoons.”

Technical Reports

- (1) **Venable, C.**, Javernick-Will, A., Liel, A. “Household Perceptions of Shelter Safety in Typhoons and Earthquakes: Takeaways from Leyte and Eastern Samar Six Years After Typhoon Yolanda.” University of Colorado Boulder. March 2020.
- (2) **Venable, C.** “Assessing the Adoption, Use, and Communication of the Ecuador Shelter Cluster’s Key Messages.” International Federation of Red Cross and Red Crescent Societies. November 2017.

Peer-Reviewed Conference Proceedings

- (1) Goldwyn, B., **Venable, C.**, Javernick-Will, A., and Liel, A. “The Influence of Social Capital, Satisfaction, and Reconstruction Modality on Resilience-Building Actions.” Construction Research Congress. Tempe, AZ. March 2020.
- (2) Opdyke, A., Palagi, S., **Venable, C.**, and Javernick-Will, A. “Incremental Shelter and Homeowner Post-Disaster Expansions and Modifications.” International Conference on Building Resilience. Lisbon, Portugal, November 2018.
- (3) **Venable, C.**, Javernick-Will, A., and Liel, A. “Built Back Better? An Analysis of Perceived Performance of Post-Disaster Housing.” Engineering Project Organization Conference. Brijuni, Croatia, June 2018.
- (4) **Venable, C.**, Opdyke, A., Javernick-Will, A., and Liel, A. “Community Participation in Post-Disaster Shelter Programs: Examining the Evolution of Participation in Planning, Design, and Construction.” Construction Research Congress. New Orleans, LA, April 2018.

Invited Presentations

(+Given virtually due to COVID-19)

- (1) +**Venable, C.** “How can we build capacity for safe shelter? *United States Agency for International Development – Office of Foreign Disaster Assistance*. Washington, DC. March 24, 2020.
- (2) +**Venable, C.** “Household Perceptions of Shelter Safety: Six Years After Yolanda. *InterAction*. Washington, DC. March 19, 2020.
- (3) **Venable, C.** “How do we make post-disaster housing safer?” *Virginia Tech Department of Civil Engineering*. Blacksburg, VA. November 8, 2019.
- (4) Javernick-Will, A., Palagi, S., **Venable, C.**, Goldwyn, B. “After the Mess: Engineers, Resilient Infrastructure, and Communities.” *Colorado School of Mines*. Golden, CO. October 22, 2019.
- (5) **Venable, C.** “Post-Disaster Shelter: Participation, Performance, and Resilience and A Glance at the Ecuador Shelter Cluster Key Messages.” *Universidad Diego Portales-University of Colorado US Department of State Diplomacy Program*. Boulder, CO. January 18, 2018. [Given Partially in Spanish].
- (6) **Venable, C.** “An Introduction to Earthquake Engineering in the United States.” *Universidad Laica Eloy Alfaro de Manabí*. Manta, Ecuador. August 10, 2017. [Given in Spanish].

Conference Presentations

(*Indicates Presenter)

- (1) Goldwyn, B.*, **Venable, C.**, Javernick-Will, A., and Liel, A. “The Influence of Social Capital, Satisfaction, and Reconstruction Modality on Resilience-Building Actions.” *Construction Research Congress*. Tempe, AZ. March 2020.
- (2) **Venable, C.***, Liel, A., and Javernick-Will, A. “Safety of Post-Disaster Shelter in Extreme Wind Events: Implications of Design and Construction Decisions.” *Shelter Centre Meeting*. Geneva, Switzerland. October 2019.
- (3) **Venable, C.***, Javernick-Will, A., and Liel, A. “Household Perceptions and Engineering Assessments of Shelter Safety: How and why do they differ?” *Global Shelter Cluster Meeting*. Geneva, Switzerland. October 2019.
- (4) Opdyke, A.*, Palagi, S., **Venable, C.**, and Javernick-Will, A. “Incremental Shelter and Homeowner Post-Disaster Expansions and Modifications.” *International Conference on Building Resilience*. Lisbon, Portugal, November 2018.
- (5) **Venable, C.***, Javernick-Will, A., and Liel, A. “Built Back Better? An Analysis of Perceived Performance of Post-Disaster Housing.” *Engineering Project Organizations Conference*. Brijuni, Croatia, June 2018.

- (6) **Venable, C.**, Liel, A.*, and Javernick-Will, A. “Built Back Better? An Assessment of Perceived and Assessed Performance of Post-Disaster Housing.” *Structures Congress*. Fort Worth, Texas, April 2018.
- (7) **Venable, C.***, Opdyke, A., Javernick-Will, A., and Liel, A. “Community Participation in Post-Disaster Shelter Programs: Examining the Evolution of Participation in Planning, Design, and Construction.” *Construction Research Congress*. New Orleans, LA, April 2018.
- (8) **Venable, C.*** “Bridge Construction Safety.” *Bridges to Prosperity Bridge Builder Conference*. Estes Park, CO. September 2015.

Poster Presentations

- (1) **Venable, C.***, Javernick-Will, A., and Liel, A. “Perceptions of Reconstructed Housing Safety in Ten Filipino Communities Following Typhoon Haiyan.” *Natural Hazards Workshop*. Broomfield, CO, July 2019. [Poster].

Service

- American Society of Civil Engineers Infrastructure and Research Policy Committee 2018 – Present
- American Society of Civil Engineers Legislative Fly-In, Colorado Delegation March 2019
- *Sustainability* Peer Reviewer 2019 – Present
- *Building and Environment* Peer Reviewer 2019 – Present
- *International Journal of Disaster Risk Reduction* Peer Reviewer 2018 – Present

Professional Qualifications and Affiliations

- Engineer-in-Training (EIT)
- Grassroots (formally Grade 8) Soccer Referee, United States Soccer Federation (USSF)
- American Society of Civil Engineers (ASCE)
- Phi Beta Kappa Honor Society
- Phi Kappa Phi Honor Society
- Tau Beta Pi Engineering Honor Society
- Chi Epsilon Civil Engineering Honor Society
- Sigma Lambda Chi Construction Honor Society

In the News

- [Fellowship will support grad student’s humanitarian shelter work](#). University of Colorado Boulder. May 16, 2019
- [“We don’t have to feel hopeless in the face of hazards.”](#) University of Colorado Boulder. September 13, 2018
- [Graduate student named to ASCE’s New Faces of Engineering](#). University of Colorado Boulder. February 22, 2018
- [For new face, Civil Engineering fulfills and inner need to help others](#). ASCE. February 21, 2018
- [Meet ASCE’s 2018 New Faces of Civil Engineering – Professional](#). ASCE. January 10, 2018
- [GAANN Fellowships helping students pursue their research passions](#). University of Colorado Boulder. January 30, 2017
- [2016 Outstanding Senior Awards](#). Virginia Tech. April 12, 2016

Countries of Experience

Belize, Ecuador, Guatemala, Haiti, Philippines, Switzerland, United States

Skills

Languages

English (*Native*)
 Spanish (*Proficient*)

Computer Proficiency

Coding: Matlab
Statistics: R
Structural Design: SAP2000
Structural Analysis: OpenSees
Qualitative Analysis: NVivo