

Simi Hoque, P.E., LEED AP

Associate Professor
Architectural Engineering
Drexel University
Philadelphia PA 19104
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Education

- PhD (2006) Design Methods & Theories
Department of Architecture
University of California, Berkeley CA
Graham Foundation Carter Manny Honoree
Supervisor: Yehuda Kalay
- MArch (2003) Professional Design degree
Department of Architecture
University of California, Berkeley CA
Supervisor: Yehuda Kalay with Eve Sweetser (Linguistics)
- MS (1997) Computational Mechanics
Department of Civil Engineering
Carnegie Mellon University, Pittsburgh PA
National Science Foundation Graduate Fellow
Mellon Scholar
Major Advisor: Sunil Saigal
- BA (1996) Civil Engineering
Department of Civil and Environmental Engineering
Johns Hopkins University
Beneficial Hodson Scholar
J. Truseman Scholar
Major Advisors: James Cox and Nickolas Jones

Professional Employment

- 2018-present Research Scientist
Facilities and Design Services
Children's Hospital of Philadelphia, Philadelphia PA
-
- 2016-present Associate Professor with tenure
Program Head, Architectural Engineering (since 2021)
Dept. of Civil, Architectural, and Environmental Engineering
Drexel University, Philadelphia PA
-
- 2008-2016 Assistant Professor (Building Construction Technology)
Department of Environmental Conservation
University of Massachusetts, Amherst MA
-
- 2006-2008 Lecturer, Design Studio and Research Methods
Department of Architecture
Massachusetts Institute of Technology, Cambridge MA
-
- 2005-2016 Mechanical Engineer (Building Systems)
Norian-Siani Engineering, Inc., West Concord MA
-
- 2003-2005 Intern Architect and Engineering Consultant
-
- 1997-1999 Technical Support Engineer (Electro-Thermal Analysis Group)
Ansys, Inc., Canonsburg, PA
-

Research and Scholarly Achievements

- Total of 57 refereed publications (journal + proceedings)
- Student co-authors underlined.

Refereed Journal Articles [34]:

35. Shams-Amiri, S., Mueller, M., & **Hoque, S.** (2022). Investigating the Application of a Transportation Energy Consumption Prediction Model for Urban Planning Scenarios in Machine Learning and Shapley Additive Explanations Method, *Journal of Sustainability Research*, 4(1): e220001.
34. Mostafavi, M., Fiocchi, J., Dellacasa, M., & **Hoque, S.** (2021). Resilience of Environmental Policy amidst the Rise of Conservative Populism, *Journal of Environmental Studies and Sciences*, 1-16.
33. Awada, M., Becerik-Gerber, B., White, E., **Hoque, S.**, O'Neill, Z., Pedrielli, G., Wen, J., & Wu, T. (2021). Occupant health in buildings: Impact of the COVID-19 pandemic on the opinions of building professionals and implications on research, *Building and Environment*, 207 (A), 108440.
32. Pang, Z., Becerik-Gerber, B., **Hoque, S.**, O'Neill, Z., Pedrielli, G., Wen, J., & Wu, T. (2021). How Work from Home has affected the Occupant's Well-Being in the Residential Built Environment: An International Survey Amid the COVID-19 Pandemic. *ASME Journal of Engineering for Sustainable Buildings and Cities*. 2(4).
31. Yassaghi, H., Wen, J., and **Hoque, S.** (2021). Partitioning Climate, Users and Thermophysical Uncertainties from Building Energy Use: A Monte Carlo & ANOVA Approach. *Buildings*. 12(2): 95.
30. Mostafavi, N., Heris, M.P., Gándara, F., and **Hoque, S.** (2021). The Relationship between Urban Density and Building Energy Consumption. *Buildings*. 11(10): 455.
29. Pearsall P., **Hoque, S.** et al. (2021). Advancing equitable health and well-being across urban-rural sustainable infrastructure systems. *npj-Urban Sustainability*. 1(1): 26.
28. Shams-Amiri, S., Mottahedi, S., Lee, E., and **Hoque, S.** (2021). Peeking Inside the Black-Box: Explainable machine learning applied to household transportation energy consumption. *Computers, Environment, and Urban Systems*. 88:101647
27. Yassaghi, H., & **Hoque, S.** (2021). Impact Assessment in the Process of Propagating Climate Change Uncertainties into Building Energy Use. *Energies*, 14(2), 367.
26. Awada, M., Becerik-Gerber, B., **Hoque, S.**, O'Neill, Z., Pedrielli, G., Wen, J., & Wu, T. (2021). Ten questions concerning occupant health in buildings during normal operations and extreme events including the COVID-19 pandemic. *Building and Environment*, 188, 107480.
25. DeCarolis, J. F., Jaramillo, P., Johnson, J. X., McCollum, D. L., Trutnevyte, E., Daniels, D. C., **Hoque, S.**, ... Zhou, Y. (2020). Leveraging Open-Source Tools for Collaborative Macro-energy System Modeling Efforts. *Joule*, 4(12), 2523-2526.
24. Yassaghi, H., Gurian P.L., and **Hoque, S.** (2020). Propagating Downscaled Future Weather File Uncertainties into Building Energy Use. *Applied Energy* 278: 115655.
23. Shams-Amiri, S., Mostafavi, N., Lee, E., and **Hoque, S.** (2020). Machine Learning Approaches for Predicting Household Transportation Energy Use. *City and Environment Interactions*: 100044.
22. Yassaghi, H. and **Hoque, S.** (2019). An Overview of Climate Change and Building Energy: Performance, Responses and Uncertainties. *Buildings*. 9(7): 166.
21. Yassaghi, H., Mostafavi, N., and **Hoque, S.** (2019). Evaluation of current and future hourly weather data intended for building designs: a Philadelphia case study. *Energy and Buildings*. 199, 491-511.

20. Farzinmoghadam, M., Mostafavi, N., Hamin, E., and **Hoque S.** (2019). Developing an automated method for the application of LIDAR in IUMAT Land-use Model: Analysis of land-use changes using building form parameterization, GIS, and Artificial Neural Networks. *Journal of Green Building*. 14(1), 1-30.
19. Mostafavi, N., Gandara, F., and Hoque, S. (2018). Predicting Water Consumption from Energy Data: Modeling the residential energy and water nexus in the Integrated Urban Metabolism Analysis Tool (IUMAT). *Energy and Buildings*. 158, 1683-1693.
18. Mostafavi, N., Shojaei, H.R., Beheshtian, A., and Hoque, S. (2018). Residential Water Consumption Modeling in the Integrated Urban Metabolism Analysis Tool (IUMAT). *Resources, Conservation, and Recycling*. 131, 64-74.
17. Mostafavi, N., Farzinmoghadam, M., and Hoque, S. (2017). Urban Residential Energy Consumption Modeling in the Integrated Urban Metabolism Analysis Tool (IUMAT). *Building and Environment*. 114(0), 429-442.
16. **Hoque, S.** and Weil, B. (2016). The relationship between comfort perceptions and academic performance in university classroom buildings. *Journal of Green Building*, 11(1), 108-117.
15. **Hoque, S.** and Iqbal, N. (2015). Building to Net Zero in a Developing World. *Buildings*, 5(1), 56-68.
14. Mostafavi, N., Farzinmoghadam, M., and Hoque, S. (2014). A Framework for Integrated Urban Metabolism Analysis Tool (IUMAT). *Building and Environment*, 82(0), 702-712.
13. Beauregard, S., Hoque, S., Fiset, P. and Weil, B. (2014). Is Boston Building Better: An evaluation of green building policy. *Journal of Green Building*, 9(3), 131-150.
12. Mostafavi, N., Farzinmoghadam, M., and Hoque, S. (2013). Envelope Retrofit Analysis using eQuest, IESVE Revit Plug-in and Green Building Studio: a University Dormitory Case Study. *Journal of Sustainable Energy*, 1-20.
11. Mostafavi, N., Farzinmoghadam, M., Hoque, S., and Weil, B. (2013). Integrated Urban Metabolism Analysis Tool (IUMAT). *Urban Policy and Research*, 1-17.
10. Krem, M., Hoque, S., Arwade, S., and Breña, S. (2013). Structural Configuration and Building Energy Performance. *Journal of Architectural Engineering*, 19(1), 29-40.
9. **Hoque, S.** (2012). Building Energy Simulation Tools for Retrofitting Residential Structures. *Energy Engineering*, 109(3), 53-74.
8. **Hoque S.,** Webb, J., and Danylchuk, A. (2012). Building Integrated Aquaculture: can holistic designs increase system efficiencies and make recirculating aquaculture more successful in the northeastern United States? *ASHRAE Journal*, 54(2), 16-24.
7. Damery, D., Webb, J., Danylchuk, A., and **Hoque, S.** (2012). Natural Systems in Building Integrated Aquaculture. In S. Hernandez and C.A. Brebbia (Eds.), *Design and Nature VI* (pp. 87-93), Southampton, UK: WIT Press.
6. Fiocchi, C., Shahadat, M., and Hoque, S. (2011). Climate Responsive Design and the Milam Residence. *Sustainability*, 3, 2289-2306.
5. Beauregard, S., Berkland, S., and Hoque, S. (2011). Ever Green: A Post-Occupancy Building Performance Analysis of LEED Certified Homes in New England. *Journal of Green Building*, 6(4), 138-145.
4. **Hoque, S.** (2010). Zero Energy Homes in New England: An Evaluation of Two Homes in the Northeastern United States. *Journal of Green Building*, 5(2), 79-90.
3. Reed, T., Clouston, P., Hoque, S., and Fiset, P. (2010). An Analysis of LEED and BREEAM Assessment Methods for Educational Institutions. *Journal of Green Building*, 5(1), 132-154.
2. **Hoque, S.** and Sharma, A. (2009). Tools for sustainable development: A comparison of building performance simulation packages. In C.A. Brebbia, N. Jovanovic, & E. Tiezzi (Eds.), *Management of Natural Resources, Sustainable Development and Ecological*

Hazards II (pp. 53-64), Southampton, UK: WIT Press.

1. **Hoque, S.** and Moore, E. (2009). Case Studies in Adapting to Climate Change-Related Flooding in Bangladesh. *International Journal of Climate Change*, 1(2), 27-36.

Refereed Conference Proceedings [22]:

22. Yassaghi, H. and **Hoque, S.** (2021). Effectiveness of Buildings Adaptive Response Measures Under Future Climate Conditions. *ASHRAE Annual Conference*, Phoenix, AZ.
21. Shams-Amiri, S., Mostafavi, N. and **Hoque S.** (2019). Household Transportation Energy consumption modeling in the Urban Metabolism Analysis Tool (IUMAT). *RCN-SEES: Predictive Modelling Network for Sustainable Human-Building Ecosystems. An NSF Workshop on Urban Sustainability: Social Actors, Policy and Governance*, Florida State University, April 15-16, 2019.
20. Shams-Amiri, S., Mostafavi, N. and **Hoque S.** (2019). Using machine learning methods for studying the relationship between household, neighborhood characteristics and transportation energy use. *Engineering Sustainability*, University of Pittsburgh, April 7-9, 2019.
19. Shams-Amiri, S., Lee, E. and **Hoque S.** (2018). Urban residential transportation energy consumption modeling for estimating household energy consumption in the Urban Metabolism Analysis Tool (IUMAT). *3rd International Graduate Student Symposium*, Illinois Institute for Technology, November 16-18, 2018.
18. Yassaghi, H. and **Hoque S.** (2018). Climate change impacts on office buildings performance: a case study of Philadelphia. *3rd International Graduate Student Symposium at the Illinois Institute for Technology*, November 16-18, 2018.
17. Shams-Amiri, S. and **Hoque S.** (2018). Comparison of transportation energy use to household energy consumption in Philadelphia. *Indoor Air Conference*. Philadelphia, July 22-27, 2018.
16. Mostafavi, N. and **Hoque, S.** (2018). Spatial Development and Energy Consumption Patterns: Investigating the Relationship between Urban Density and Building Energy Use. *National Conference for the Association of Collegiate Schools of Planning*, Buffalo NY, Oct. 25-28, 2018.
15. **Hoque, S.** and Shams-Amiri, S. (2017). Green Building: A Case for Bangladesh? *Proceedings for ASCE – International Conference on Sustainable Architecture*, New York City, Oct. 26-28, 2017.
14. Krem, M., **Hoque, S.**, and Arwade, S. (2015). Quantifying the impact of passive design on high rise buildings. *Proceedings for Architectural Research Centers Consortium/Future of Architectural Research*, ARCC 2015 Conference, Chicago, IL.
13. Krem M., Breña S., Arwade, S., **Hoque S.**, and Nurdeen, A. M. (2015). Concepts in the Design of Lateral-Load Systems in High Rise Buildings to Reduce Operational Energy Consumption. *Proceedings of the 18th International Conference on Composite Structures*, Lisbon, Portugal.
12. **Hoque, S.** and Weil, B. (2014). Cold Comfort: the cost of thermal comfort in Academia. *Proceedings for comfort and energy use in buildings*, Windsor Conference, Windsor, UK.
11. Fiocchi, C., Weil, B. and **Hoque, S.** (2014). Improving Accuracy of Building Energy Modeling Simulation Programs with Weather Files Compensation Factors. *ASHRAE Transactions*, Vol. 120, pt. 2, ASHRAE Annual Conference, Seattle WA.
10. **Hoque, S.** (2013). Low Energy Design: An evaluation of a vacation home in Panama. *Proceedings of the BESS-SB13 Conference*. Cal-Poly, Pomona, CA: Building Enclosure Sustainability Symposium.
9. **Hoque, S.** and Griffith, K. (2013). Evolving Computational Design in the Architecture Studio: An examination of scripted creativity. *Proceedings of the 2013 BTES Conference:*

- Tectonics of Teaching* A. Zarzycki and R. Dermody (eds.) Roger Williams University, Bristol, RI 97-106.
8. Krem, M., Hoque, S., and Arwade, S. (2012). Effect of built form configuration on energy and structural performance of skyscraper buildings. *Proceedings of the Building Enclosure Science and Technology Conference*. Atlanta, GA: Nat. Inst. of Building Sciences.
 7. Berkland, S. and Hoque, S. (2012). Lessons Learned: Outreach Efforts in Building Science Education. *Proceedings of the ACEEE 2012 Summer Study on Energy Efficiency in Buildings*. Washington, D.C.: American Council for an Energy-Efficient Economy.
 6. Kingsley, R. and Hoque, S. (2011). Energy Retrofit Advocacy for Historical Structures. *ICSDC 2011: Integrating Sustainable Practices in the Construction Industry* by Chong & Hermreck (eds), Kansas City, Kansas, 482-487.
 5. Fiocchi, C. and Hoque, S. (2011). Sustaining Modernity: An Analysis of a Modern Masterpiece, the Gropius House. *Proceedings for the 13th Canadian Conference on Building Science and Technology*, Winnipeg, Canada: NBEC, 12-24.
 4. Beauregard, S., Berkland, S., and Hoque, S. (2010). Ever Green: A Post-Occupancy Evaluation of LEED Certified Homes. *REHVA World Clima 2010 Conference*. Turkey.
 3. Hoque, S. (2009). An Evaluation of Two Net Zero Energy Case Study Homes in the Northeastern United States. *Proceedings for the International Seminar on Theorizing Sustainable Building Design*. August 12-13, Lancashire UK.
 2. Hoque, S. (2009). Borrowers, Bricoleurs and Builders of Architecture. *Proceedings of the 25th National Conference on the Beginning Design Student*, 87-92.
 1. Schreyer, A. and Hoque, S. (2009). Interactive Three-Dimensional Visualization of Building Envelope Systems Using Infrared Thermography and SketchUp." *Proceedings from the 2009 InfraMation Conference*, Las Vegas, Nevada.

Books [1]

1. Hoque, S. (2010). *Borrowers, Bricoleurs, and Builders*. Germany: Lambert Academic Publishing.

Articles in Trade Journals [2]

1. Harb, R. and Hoque, S. (2009). No Fossil Fuels Here. *Northeast Sun*, 4, 14-17.
2. Hoque, S. (2008). "LEED certifiable vs. LEED certified" from www.greenerbuildings.com

Recent Selected Workshops [8]

1. International Network of Networks for Well-Being in the Built Environment Workshop (co-PI), National Science Foundation. Online, March 2021 and February 2022.
2. ACCELNET Award Kick-off Meeting (co-PI), National Science Foundation. Alexandria, VA. October 2020.
3. 7th Arab-American Frontiers of Science, Engineering, and Medicine Symposium, Community Resilience co-chair, National Academy of Science, Egypt, November 2019.
4. How Does Infrastructure Shape Equity and Well-being across the Urban-Rural Gradient? Workshop (co-PI), National Science Foundation. Philadelphia, PA. September 2019
5. Human-Building Interaction Workshop (panelist), National Science Foundation. Los Angeles California, June 2019.
6. National Workshop on Architectural Faculty in Environmental Sustainability Research (co-PI), National Science Foundation. Toronto, Canada. May 2019.
7. 6th Arab-American Frontiers of Science, Engineering, and Medicine Symposium (panelist), National Academy of Science, Kuwait, November 2018.
8. Women in Sustainable Buildings Networking Conference (co-PI), National Science Foundation, Dalian China, July 2018.

Table 1. Sponsored research and other awards (2008-present, PI is listed first)

- Total awards, 2008-2021: \$5.4M

Project Title	Dates	Investigators¹	Supporting Agency	Amount	Attributable Amount
Eureka! STEM outreach program at Drexel	2021	S. Hoque	Pfizer Foundation for Corporate Giving	\$5000	\$5000
Addressing asthma and energy burden in Philadelphia households	2021-2022	S. Hoque L. Schinasi (Drexel)	Drexel College of Engineering Longsview Fellowship	\$12.5K	\$12.5K
Climate Impacts in Desert Cities (Jordan)	2021	S. Hoque	Drexel University Climate Year Grant	\$2000	\$2000
Collaborative Research: CPS: TTP Option: Medium: i-HEAR: immersive Human-on-the-loop Environmental Adaptation for stress Reduction	2021-2023	S. Hoque J. Wen (Drexel) S. Giroto (St. Johns U) O. Boric (UHM) V. Lubecke (UHM) T. Wu (ASU)	National Science Foundation	\$1.2M	\$500K (42%)
Collaborative Research: Climate Impacts on the Urban Built Environment	2020-2023	S. Hoque M. Bilec (Pitt)	National Science Foundation	\$450K	\$225K (50%)
AccelNet: Collaborative Research: An International Network of Networks for Well-being in the Built Environment (IN2WIBE)	2020-2023	J. Wen (Drexel) S. Hoque	National Science Foundation	\$650K	\$243K (37%)
CAREER Design Supplement	Summer 2020	S. Hoque	National Science Foundation	\$4000	\$4000
How Does Infrastructure Shape Equity and Well-being across the Urban-Rural Gradient?	Sept. 2019	M. Gilbert (Temple) S. Hoque W. Solecki (Hunter) Pearsall (Temple)	National Science Foundation	\$50,000 (Temple)	--
ECR: BCSER: IID-MID – Cultivating Sustainable Citizenship	2020-2022	S. Hoque	National Science Foundation	\$350K	\$350K
National Workshop on Architectural Faculty in Environmental Sustainability Research (WAFES)	May 2019	J. Choi (USC) S. Hoque D. Holmes (BU) J. Raven (CUNY) H. Ali (UTSA)	National Science Foundation	\$50,000 (USC)	--
International Workshop on Connecting Women Faculty in Sustainable Building Research (Dalian China + Syracuse, NY)	July 2018 + Sept. 2018	J. Wen (Drexel) S. Hoque Z. O'Neill (TAMU) B. Becerik-Gerber (USC)	National Science Foundation	\$50K + \$10K	\$60K
CAREER: Development of an Integrated Analytical Framework for Urban Sustainability	2016-2021	S. Hoque	National Science Foundation	\$508,714	\$508,714
Funded 2016-21 Total				\$3.35M	\$1.9M

Unfunded or Pending Proposals (2016-2021)					
LEAP HI: Integrated Modeling of Networked Buildings, Infrastructure, and People to Understand Evolving Resilience (Sept. submission)	2021-2025	I. Tien (GA-Tech) S. Hoque Rosan (Temple) Baroud (Vanderbilt) Graeden (Talus Inc.)	National Science Foundation	\$2M	\$375K (19%)
Collaborative Research: SCH: An integrated approach to reducing asthma and energy burden in Philadelphia	2021	S. Hoque Leah Schinasi Anup Das James Lo	National Science Foundation	\$916K	\$916K
SRS RN: Transforming Pennsylvania - a Convergent Human-centered Alliance for a new Rural-Urban System (CHARUS)	2021	J. Wen (Drexel) S. Hoque H. Pearsall (Temple) M. Bilec (Pitt) R. Dilworth (Drexel)	National Science Foundation	\$15M	\$6M (40%)
EAGER: SAI Emerging critical infrastructures during COVID-19: The role of public schools in supporting communities during crisis	2021	M. Gilbert (Temple) S. Hoque H. Pearsall (Temple)	National Science Foundation	\$300K (Temple)	\$65K (22%)
SRS:RN Advancing equitable health and well-being across urban-rural sustainable infrastructure systems	2021	M. Gilbert (Temple) S. Hoque L. Roman (Temple) E. Bronzidio (IUB) W. Solecki (Hunter)	National Science Foundation	\$150K (Temple)	--
LEAP HI: Integrated Modeling of Networked Buildings, Infrastructure, and People to Understand Evolving Resilience Across Hazards	2020	Iris Tien (GaTech) S. Hoque H. Baroud (Vanderbilt) E. Graeden (Talus, Inc.)	National Science Foundation	\$2M	\$375K (19%)
Modeling and Measuring Urban Resilience	2020	N. Mostafavi (Drexel) S. Hoque	National Science Foundation	\$300K	\$300K
FW-HTF-RM: Collaborative Research: Future Responsive Indoor Environments for Education Professionals	2020	S. Hoque J. Wen (Drexel) T. Wu (ASU) O. Boric-Lubecke (UHM)	National Science Foundation	\$2M	\$500K (25%)
Collaborative Research: Sustainable Citizenship by Design	2019	S. Hoque C. Quigley (Pitt) C. Griffin (Penn State)	National Science Foundation	\$350K	\$200K (66%)
Collaborative Research: I-DIRSE-FW: A Service-oriented Framework for Data-driven Multi-scale Models for Energy Grand Challenges	2019	S. Hoque P. Shenoy (UMass) D. Irwin (UMass) M. Berges (CMU)	National Science Foundation	\$1M	\$200K (20%)
Planning Grant: Engineering Research Center for Human-Building Interaction (HBI)	2019	B. Berckerik-Gerber (USC) S. Hoque R. Balasubmaniam (UCM) Lucas (USC) O. Boric-Lubecke (UHM)	National Science Foundation	\$150K	--
			Unfunded Total:	\$24M	\$8.5M

<i>Grants and Awards from UMass (2008-2016)</i>					
PFI-BIC: Utility Driven Smart Energy Services	2015-2018	P. Shenoy (UMass) S. Hoque (UMass) D. Irwin (UMass)	National Science Foundation	\$1M	\$1M
College of Natural Science Teaching Grant	2015	S. Hoque (UMass)	UMass	\$1,250	\$1,250
(REU Supplement)II-New: A Programmable Data-Driven Testbed for Sustainable Build	2015	P. Shenoy (UMass) S. Hoque (UMass) D. Irwin (UMass)	National Science Foundation	\$8,000	\$8,000
Professional Development Flex Grant	2015	S. Hoque (UMass)	UMass	\$1,000	\$1,000
II-New: A Programmable Data-driven Testbed for Sustainable Building Research	2014-2017	P. Shenoy (UMass) S. Hoque (UMass) D. Irwin (UMass)	National Science Foundation	\$587,012	\$587,012
DoA MS-2: Measuring how buildings and construction materials affect energy in New England	2014-2017	S. Hoque (UMass) B. Weil (UMass) P. Clouston (UMass) M. Kelty (UMass)	US Dept. of Agriculture McIntire Stennis Exp. Station	\$150,000	\$150,000
MAEEI: Improved Energy Efficiency through Environmental Control	2015-2017	S. Hoque (UMass) B. Weil (UMass) H. Kim (UMass)	MA Dept. of Energy Resources and UMass Energy Extension Initiative	\$40,000	\$40,000
DCR: Energy Impacts of Tree Removal in Massachusetts	2011-2012	B. Weil (UMass) S. Hoque (UMass)	MA Dept. of Conservation Resources	\$10,000 <i>(initial) + \$20,000 (follow-up)</i>	\$30,000
Building Energy Workshops for Low-Income Youth	2009-2011	S. Hoque (UMass)	UMass Public Service Endowment Grant	\$15,000	\$15,000
A Post-Occupancy Assessment of LEED Certified Homes	2008-2010	S. Hoque (UMass)	UMass Healey Endowment Grant	\$15,000	\$15,000
DoA MS-1: Post-Occupancy Assessment of Green Buildings	2008-2013	S. Hoque (UMass) P. Fiset (UMass) D. Damery (UMass) A. Schreyer (UMass)	US Dept. of Agriculture McIntire Stennis Exp. Station	\$250,000	\$250,000
			2008-16 Total:	\$2.1M	\$2.1M

¹ PI is listed first.

TEACHING

Awards and Distinctions

Center for Teaching and Learning Remote Teaching Award: 2020

The CTL award is a university-wide competition for faculty who utilized best practices in remote teaching during the COVID-pandemic to better engage their students. I was one of six faculty who was given this honor.

Table 2. Courses Taught. I now teach 16 credits a year (highlighted first two rows).

Course Name and Institution	Course Description
Architectural Engineering Design I & II <i>Drexel University (2016-present)</i>	Design and analysis of sustainable building systems, including architectural, structural, mechanical, electrical and plumbing systems. <u>Requirement</u> for all AE undergraduate students.
Introduction to HVAC Systems <i>Drexel University (2020-present)</i>	Introduction to building science and heating, ventilation and cooling systems design taught from a sustainability and energy efficiency framework. <u>Requirement</u> for all AE undergraduate students.
STEM Teaching and Learning <i>Drexel University (2019-2020)</i>	Undergraduate and graduate <u>elective</u> student training program for Eureka STEM outreach program. Focus on developing materials and curriculum for middle school girls' summer experience.
Urban Metabolism <i>Drexel University (2017-2018)</i>	Graduate <u>elective</u> course on flows and stocks that characterize urban environments, co-taught with Dr. Mostafavi (while he was my post-doctoral student)
CAEE Senior Design <i>Drexel University (2018-2019)</i>	Capstone course for seniors in CAEE department. <u>Requirement</u> for all CAEE students. Co-taught with Dr. Robert Brehm.
Building Physics 1 Energy and Buildings University of Massachusetts (2008-2016)	Design and analysis of sustainable buildings. <u>Requirement</u> for Architecture graduate students and for upper level BCT undergraduate students
Building Physics 3 Environmental Control Systems and Lab University of Massachusetts (2008-2016)	Design and analysis of mechanical and plumbing systems with eQuest modeling lab. <u>Requirement</u> for Architecture and Building Systems graduate students
Sustainable Indoor Environmental Systems Introduction to MEP Systems University of Massachusetts (2012-2016)	Fundamentals of sustainable MEP systems. <u>Requirement</u> for BCT and Architecture undergraduate students

Teaching Lectures and Design Critiques

1. Norwich Design Build Project. Studio Critic May 2021. 16 students.
2. "Sustainability in the Built Environment." Guest lecture for CAEE 220, Drexel University.
3. "Powers of Ten in Research." Guest lecture for Dept. of Civil, Architectural, and Environmental Engineering, Drexel University [Faculty Friday Talks 2018]
4. "Responsive Facades." Guest Lecture for Intensive Study Abroad Design Workshop at Politecnico Milano, Lecco Italy. September 2017.
5. "Mega-Cities and Urban Sustainability." Guest lecture for BCT 150-The Built Environment (UMass-Amherst), 2008, 2010, 2012, and 2013.
6. "Research on Building Systems." Departmental Seminar for Environmental Conservation (UMass-Amherst), November 2010.

7. "Building Energy." Guest Lecture for Physics 118-Energy and Society (UMass-Amherst), October 2010.
8. Masters of Science Thesis. Critic for thesis presentations (MIT), May 2010. 12 students.
9. "The Principles of Green Building." Graduate student seminar for Civil Engineering (UMass-Amherst), May 2009.
10. 1st Year Undergraduate Design Studio. Critic for final architectural design review (Smith College), Northampton MA, December 2008.
11. "Buildings and the Environment." Guest lecture for NRC 100-Environment and Society (UMass-Amherst), December 2008.
12. 2nd Year Graduate Design Studio. Critic for urban design review (Rhode Island School of Design), Providence RI, October 2008.

Mentoring

Table 3. Graduate students who are my principal advisees (or co-advisee*)

Name	Level	Matriculation	Product	Current Position
Ramyar Tajik	Ph.D. (Drexel)	2021-present	Research/dissertation	
Maya Mueller	Ph.D. (Drexel)	2021-present	Research/dissertation	
Shideh Shams-Amiri	Ph.D. (Drexel)	2017-present	Research/dissertation	
Hamed Yassaghi	Ph.D. (Drexel)	2016-2021	Research/dissertation	Senior Engineering Analyst (Industry)
Kunlun Ren	M.S. (Drexel)	2018-2020	Coursework	(M.Arch student)
Nariman Mostafavi	Post-doc (Drexel) Ph.D. (UMass)	2011-2016	Research/dissertation	Assistant Teaching Professor at Drexel
Soroush Farzinmoghadam*	Ph.D. (Urban Planning, UMass)	2011-2016	Research/dissertation	Assistant Professor at WPI
L. Carl Fiocchi	Ph.D., UMass	2010-2016	Research/dissertation	Assistant Professor at UMass-Amherst
Mohamed Krem*	Ph.D. (Civil Engineering, UMass)	Completed 2013	Research/dissertation	Engineer (Industry)
Sandy Beauregard	M.S. (UMass)	Completed 2013	Research/thesis	Engineer (Industry)
Emma Morzuch	M.S. (UMass)	Completed 2012	Research/thesis	Consultant (Industry)
Stephanie Berkland	M.S. (UMass)	Completed 2012	Research/thesis	Sustainability Consultant (Industry)
Ryan Harb	M.S. (UMass)	Completed 2010	Practicum	Sustainability Strategist

In addition, since 2016 I have been a member of the thesis committee of 6 PhD students (5 from Drexel and 1 external): Gabriel Grajewski, Richard Kimball, Farhad Amiri Faad (Concordia Univ., Montreal), Fatemeh Nasrollahi, Chunyi Wang, Tom Ben-David

Table 4. Student research, independent study, and practicum projects

Name	Project Description	Dates	Product
Anne Hanlon	Embodied Culture	Summer 2020	Drexel Star Scholar research
Zac Arnold, Kyle Breiman, Rachel Frank, Jerry Geese, Aaron Goldberg, Amanda Hetrick, Ashley Karakal, Andrei Kuriatnikov, Marc Sbeglia, George Swatek	AEI Student Design competition: Jack H. Miller Center for Musical Arts at Hope College, Holland Michigan	2018-2019	AEI student design competition
Daniel Bolton	Urban resilience	Summer 2018	Drexel Star Scholar research
Greg Paulukinas, Cody Fitzsimmons, Christopher Sager, Maria Cabrera, Xiaoyu Liu	AEI Student Design competition: Children's Hospital, Omaha Nebraska	2017-2018	AEI student design competition
Jonathan Napolitano	Embodied Energy in Historical Buildings- A Philadelphia Case Study	Summer 2017	Research Paper/publication
Mohamed El Shamy	Thermal Comfort in University Office Buildings	2015-2016	Data collection and analysis; publication
Andrew Graff	Practicum: Project Management for Sustainability	Fall 2015	paper
Jasmine Abdollahi & Taylor Marrs	Thermal Comfort in University Classrooms	Spring 2015	Data collection
Timothy Bemis	Practicum: Project Management for Sustainability	Spring 2015	paper
Patrick Duncan	Using Building Automation Software to Increase Energy Savings	Fall 2014	Honors undergraduate thesis
Rachel Kingsley	Deep Energy Retrofit of an historical Amherst Church	Spring 2011	paper

Service

My service to my school, my profession, and my community has focused on energy issues and career development in the building industry. The objective of my service endeavors is threefold: to address core issues of sustainability in the built environment, employment, and STEM education.

Awards and Distinctions

ELATES Fellow (Women in engineering leadership training program): 2021-22

Dr. Mark L. Greenberg Distinguished Faculty Award for Community-Based Learning: 2021

Engaged Advocate Award, Society of Women Engineers: 2020
Citation from the Office of the Mayor of Philadelphia: 2018
Girls Inc. of Philadelphia Strong, Smart, and Bold Honoree: 2018
UMASS Distinguished Service and Outreach Award: 2016
ACSA Best Practices in School-Based Community Outreach Programs: Recognition 2010

Outreach Presentations and Workshops

1. Franklin Institute Keynote Speaker “Be an Engineer”, June 2021
2. STEM Conference for Young Women Panelist, May 2021
3. Mastery Charter Career Day, April 2021
4. Future of Cities, Dean’s Seminar, December 2020
5. Green Energy Initiatives Panel Discussion, National Engineering Week, Drexel University, February 2020
6. Sustainable Cities Panel Discussion, College of Arts and Sciences, November 2018.
7. Academic advising speaker, UNIV E101, March and October 2019.
8. “Building Performance and Evaluation.” 2-day STEM workshop with field trip focusing on retrofitting historical buildings for improved performance to high school girls from STEM University with Girls, Inc., Philadelphia 2016, 2017.
9. “Sustainability in the Built Environment.” Presentation with field trip for Latin American environmental professionals at the Institute of Training and Development, Amherst, MA, October 2015 and May 2016.
10. “The Built Environment.” Presentation about building impacts on the environment to Boston Tech High School, Amherst MA, October 2014.
11. “Building Sustainability.” 2-day STEM workshop with field trip focusing on retrofitting historical buildings for improved performance to high school girls from Project Eureka! with Girls, Inc., Holyoke MA, July 2014.
12. “Green Buildings.” 1-day STEM workshop focusing on the analysis and measurements for assessing building performance to middle school girls from Project Eureka! with Girls, Inc., Holyoke MA, July 2013. [Co-taught with Ben Weil]
13. “Green Building.” Presentation to Latin American high school science and engineering students at the Institute of Training and Development, Amherst MA, September 2010.
14. “Engineering Sustainability.” Panel member at the Society of Women Engineers Regional Meeting, Northampton MA 2009.
15. “Green Buildings, Clean Energy.” Panel member at the Conference for Clean Energy Connections, Springfield MA, 2008.

Community Engagement and Outreach

Board Member, Energy Coordinating Agency 2020-2023

I am a member of the Board of Directors for the non-profit ECA that serves low-income neighborhoods and communities to provide affordable solutions to energy issues in residential homes, including audits, weatherization, solar installation, and job training.

Board Member, Girls Inc. of Philadelphia 2020-2023

I have been invited to join the Board of Directors for Girls Inc. of Philadelphia, to serve for the next three years. My role will be as a liaison to Drexel University and as the STEM organizer of the Eureka program.

STEM Program Director, Project Eureka! 2020-ongoing

I am the principal program coordinator for a STEM education program for girls at the Drexel University Campus. I worked with the Dean for the College of Engineering, as well as the director of CASTLE, to organize and manage a long-term partnership with the non-profit

organization Girls, Inc. to run Project Eureka!®. Eureka! aims to encourage middle and high school girls into STEM fields through workshops and field trips run by faculty and graduate students. I will work with STEM instructors from the PROFESS to develop STEM content and deliver workshops during the summer in a 4-week long program for the 30+ Eureka! middle school girls. During the academic year, I work with Girls, Inc. and CASTLE to ensure the success of the Eureka! program. This involves developing and evaluating the workshops, recruiting volunteers to assist with the workshops, and helping to organize the overall program.

Local Media Mentions for Eureka program (2021):

- NBC-10 (view only)
<https://mms.tveyes.com/MediaCenterPlayer.aspx?u=aHR0cDovL21lZGhhY2VudGVyLnR2ZXllcy5jb20vZG93bmxvYWRnYXRld2F5LmFzcHg%2FVXNlcklEPTIyODQwNiZnREIEPTE1NDc2NjA4jk1EU2VIZD02NDA3JlR5cGU9TWVkaWE%3D>
- ABC-6 (view only)
<https://mms.tveyes.com/MediaCenterPlayer.aspx?u=aHR0cDovL21lZGhhY2VudGVyLnR2ZXllcy5jb20vZG93bmxvYWRnYXRld2F5LmFzcHg%2FVXNlcklEPTIyODQwNiZnREIEPTE1NDc2NjA4jk1EU2VIZD01NDQwJlR5cGU9TWVkaWE%3D>
- CBS-3 (view only)
<https://mms.tveyes.com/MediaCenterPlayer.aspx?u=aHR0cDovL21lZGhhY2VudGVyLnR2ZXllcy5jb20vZG93bmxvYWRnYXRld2F5LmFzcHg%2FVXNlcklEPTIyODQwNiZnREIEPTE1NDc2NjA4jk1EU2VIZD01NDkyJlR5cGU9TWVkaWE%3D>

Engineer Mentor, Future Cities Competition, Drexel Innovation Studio (2018-2019)

As an engineering mentor for the Future Cities competition, I met with middle-school students to discuss their project and provide advice and guidance about how to make their city sustainable.

Project Director, STEM University for Girls, with Girls Inc. and Drexel (2017-2018)

I am the principal program coordinator for a summer STEM education program for girls at Drexel in Philadelphia. I created, organized and manage a partnership with the non-profit organization Girls Inc. of Philadelphia to run a STEM University for Girls outreach program for middle school girls. The program aims to encourage middle school girls into STEM fields through workshops and field trips run by faculty and students. For the past two summers, I coordinate the instructors who participate in the program. I have recruited over 50 volunteers and helped organize the week long program for the 30 STEM scholars on campus.

Program Coordinator, Project Eureka! @UMass-Amherst 2013-2016

I was the principal program coordinator for a STEM education program for girls at the UMass-Amherst Campus. I worked with the Deans for the UMass College of Natural Science, to organize and manage a long-term partnership with the non-profit organization Girls, Inc. to run Project Eureka!®. Eureka! aims to encourage middle and high school girls into STEM fields through workshops and field trips run by faculty and graduate students. Every summer, I coordinated the instructors who participate in the program. In the initial three years of the program, I recruited over 200 volunteers and helped organize the summer 4-week long program for the 60+ Eureka! scholars on campus. During the academic year, I continued to work with Girls, Inc. of Holyoke and college administrators to ensure the success of the Eureka! program. This involved evaluations of the summer's workshops, planning and

organizing a mid-year symposium to showcase the summer's work, recruiting new volunteers for the next summer, and ongoing weekend workshops with faculty and students.

Designer Selection Panel Academic Member, MassPort and DCAM, Boston 2012-2014

I was elected to a 15-person design panel for MassPort and DCAM, state agencies that manage and maintain public ports and infrastructural projects for the Commonwealth. My role in the panel is to review proposals for public design and construction contracts (between \$1 to \$10 million dollars) and to recommend (in a vote with the rest of the panel) who will get the contract.

Director, Green Building Training Program, Springfield 2009-2011

I collaborated with Putnam Vocational Technical High School (in Springfield) and the JFYNetworks (a Boston-based youth workforce training organization) to develop and deliver a semester-long training program about energy auditing and weatherization strategies that would be part of the vocational school's building construction "track". This work was funded through a UMass-Amherst Public Service Endowment Grant.

Project Director, Green Building Training Program, Springfield and Holyoke 2008-2010

I collaborated with two local non-profit organizations, YouthBuild-Holyoke and the Center for Ecological Technology to develop and deliver a 12-week green jobs training program that brings together students from UMass and low-income youth and community members to learn about the performance of energy systems in residential housing. The students in my workshops were predominantly African American, Latino, or Hispanic. I trained UMass students to co-teach the workshops.

Engineer Mentor, Future Cities Competition, Westfield Middle School 2008-2009

As an engineering mentor for the Future Cities competition, I met with middle-school students engaged over the year (once a month) to discuss their project and provide advice and guidance about how to make their city (simulation) sustainable.

Civil, Architectural, and Environmental Engineering Department Service (since 2016)

Program Head, Architectural Engineering Program (2021-present)

Chair, Cluster hire for Energy and Sustainability Faculty Search Committee (2021-22)

Chair, Department Structures/Geotech Faculty Search Committee (2019-20)

Facilities Improvement committee (2016-2017)

Architectural Engineering Institute Design Competition Committee (2018-2020)

College of Engineering and Drexel University Service (since 2016)

Diversity, Inclusion and Equity Committee, College of Engineering (2019-present)

Faculty Advisor, Society of Women Engineers Student Chapter (2019-present)

College of Engineering Awards Committee (2018-2019)

Anti-Racism Task Force, Drexel University (2020-2021)

Affiliations and Memberships

Associate Editor, *Journal of Architectural Engineering*

Co-Editor-in-Chief, the *Journal of Green Building*

Member, International Society for Indoor Air Quality

Member, American Society of Mechanical Engineers

Member, American Society of Civil Engineers

Member, Architectural Engineering Institute

Member, Building Technology Educators Society (Secretary 2016-2018)

Member, Society of Building Science Educators

Associate Member, Am. Society of Heating, Refrigeration, and Air Conditioning Engineers

Member, Society of Women Engineers

Panel Member/Grant Reviewer

National Science Foundation (yearly)

Sloan Foundation 2020

NSERC of Canada 2013, 2015

American Council for an Energy Efficient Economy 2011

Department of Energy Conservation Block Grant 2010

Department of Energy EERE Conservation Grant 2010