

Yumna Kurdi

Assistant Professor
Virtual Technology and Design
University of Idaho

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EDUCATION

- Doctor of Philosophy in Architectural Engineering/Construction** **2022**
Penn State University, University Park, PA
- Master of Science in Architecture** **2014**
Carnegie Mellon University, Pittsburgh, PA
- Bachelor of Science in Architecture/Architectural Engineering** **2010**
Jordan University of Science and Technology, Irbid, Jordan

TEACHING EXPERIENCE

Assistant Professor **2023 - present**
Virtual Technology and Design (VTD), College of Art and Architecture
University of Idaho, Moscow, ID

Teaching Assistant

Department of Architectural Engineering
Penn State University, University Park, PA

- Teaching assistant for AE 473 Building Construction Management and Control.
Supervisor: Prof. Somayeh Asadi.
- Teaching assistant for AE 579 Sustainable Building Project Leadership.
Supervisor: Prof. Somayeh Asadi.

Fall **2020**, Fall **2021**

Summer **2020**

Lecturer

Department of Architecture and Design
Jordan University of Science and Technology, Irbid, Jordan.

2017

I taught the following courses:

- ARCH 461 Mechanical Systems
- ARCH 341 Landscape Design
- ARCH 512 Computer Aided Design in Architecture II
- ARCH 555 Building Design and Energy Consumption
- ARCH 593A Special Topics in Architecture A - Regenerative Sustainability in The Built Environment
- ARCH 593C Special Topics in Architecture C - Sustainability in The Built Environment

Invited as a Guest Lecturer

- Presenting as a guest lecturer and engaging with the class as a reviewer for the Collaborative Studio (ARCH 442 | ARCH 491 | LARCH 414).
 - “Penn State LEED policy for design and construction” **2019, 2020**
- Presenting as a guest lecturer and engaging with the class as a reviewer ARCH 412
 - “Penn State’s Office of Physical Plant Sustainability Initiative for Design and Construction” **2020**
 - “Living Building Challenge and Penn State sustainability policy for design and construction” **2019**
 - “Penn State LEED policy for design and construction” **2018**
- Presenting as a guest lecturer for AE 579. Supervisor: Prof. Somayeh Asadi. **2019**
 - “Introduction to Building Simulation Tools: DesignBuilder and EnergyPlus”
- DesignBuilder training for AE - 597A. Supervisor: Prof. Somayeh Asadi. **2015**

RESEARCH EXPERIENCE

Graduate Assistant in Areas of National Need (GAANN) Fellow - Integrated Delivery of Ultra-High-Performance Buildings **2020 - Present**

Department of Architectural Engineering
Penn State University, University Park, PA
Supervised by Prof. Somayeh Asadi

- Topic: Co-simulation and optimization for solar PV potential and design for buildings at the urban scale: Correlation between electricity demand and supply.

Sustainability Researcher, Graduate Research Assistant **2017 – 2020**

Office of Physical Plant (OPP)
Penn State University, University Park, PA
Supervised by John Bechtel, Assistant director of design and construction and Prof. Somayeh Asadi
Topic: Evolving Penn State's (PSU)'s sustainability policy for design and construction.

- Organizing the following educational/ professional development events:
 - 30+ sustainability for design and construction meetings, educational presentations and guest lectures.
Topics sample:
 - Living Building Challenge, Passive House, WELL, Sustainable Sites, Net Zero, LEED, BREEAM.
 - Integrative design
 - Living Building Challenge half-day Workshop
 - Living Building Challenge feedback session
 - PSU LEED v4 policy workshop
 - LEED v4 feedback workshop
 - Regenerative/ Integrative design session
- Participating in the sustainability meetings of several PSU's active design and construction projects.
- Proposal for incorporating sustainability strategies:
 - A collaboration between OPP, Global Building Network, Sustainability Institute: \$35000. The goal is to hire sustainability consultant to perform a sustainability pre-design workshop for a residence halls renovation project on Penn State Campus. John Bechtel, Yumna Kurdi.

Graduate Research Assistant **2015 - 2016**

Department of Architectural Engineering
Penn State University, University Park, PA
Supervised by Prof. Somayeh Asadi

- Developing an energy simulation model for a net zero energy house (GridStar).
- Preparing training modules for Asset Score tool (Asset Score is a simple energy modeling tool for buildings developed by the Department of Energy in the US).
- Preparing, organizing and facilitating 3 training workshops:
 - Yumna Kurdi, Lisa Shulock, Somayeh Asadi: "How to use Asset Score tool", Harrisburg, Norristown, Pittsburgh PA.
- Preparing DesignBuilder Assignment for AE 597 students. Supervisor: Prof. Somayeh Asadi.

Graduate Assistant **2013 - 2014**

Department of Architecture
Carnegie Mellon University, Pittsburgh, PA
Supervised by Prof. Azizan Aziz

- Topic: Energy Savings Project in the US, Building Energy Portfolio.
- Supervised by Dr. Francesca Torello
- Topic: History of Islamic Architecture.

PUBLICATIONS

Journal Papers

- Yumna Kurdi, Baraa J. Alkhatatbeh, and Somayeh Asadi. 2022. "The Role of Demand Energy Profile on the Optimum Layout of Photovoltaic System in Commercial Buildings." *Energy and Buildings* 271: 112320. <https://doi.org/10.1016/j.enbuild.2022.112320>.
- Yumna Kurdi, Baraa J. Alkhatatbeh, Somayeh Asadi, and Houtan Jebelli. 2022. "A Decision-Making Design Framework for the Integration of PV Systems in the Urban Energy Planning Process." *Renewable Energy* 197 (April): 288–304. <https://doi.org/10.1016/j.renene.2022.07.001>.

Journal Papers (Under review or preperation)

- Yumna Kurdi, Baraa J. Alkhatatbeh, and Somayeh Asadi. "Two-Phase Optimization Framework to Support Decision-Making of PV-BESS Design on an Urban Scale" *Renewable and Sustainable Energy Reviews*. (Under review)
- Yumna Kurdi, Baraa J. Alkhatatbeh, and Somayeh Asadi. "The Effect of Using Solar Storage on The PV Layout Optimization to Improve the Self-Sufficiency, Self-Consumption and The Load Variance Over the Grid: Electricity Transaction Scenarios" (Under preparation)

Book Chapter

- Yumna Kurdi and Somayeh Asadi. (2022). The Impact of Large Deployment of Distributed Solar Photovoltaic at the Urban Scale on the Building Performance and the Correlation Between Energy Supply and Demand Over the Grid. In: Sadat-Mohammadi, M., Nazari-Heris, M., Asadi, S., Mohammadi-Ivatloo, B., Jebelli, H. (eds) *Renewable Energy for Buildings. Green Energy and Technology*. Springer, Cham. https://doi.org/10.1007/978-3-031-08732-5_2

Conference Proceedings (Full Paper Peer-Reviewed)

- Yumna Kurdi, David R Riley, Shideh Shams Amiri, Somayeh Asadi, Julie Dinh-Ngoc, Remi Goulet, Stanley Gatland and Parhum Delgoshai, (2016) "On the Performance of a Net Zero Energy House: A Case Study of the GridStar House in the Navy Yard, Philadelphia", Proceedings of the 2016 Construction Research Congress. American Society of Civil Engineers, San Juan, Puerto Rico; 2016:1213-1222.

Conference Proceedings (Abstract Peer-Reviewed)

- Yumna Kurdi, John Bechtel, Somayeh Asadi: "Evolving Pennsylvania State University's Sustainability Policy Within a Regenerative Paradigm," 2018 AASHE Conference, Pittsburgh, PA.

Reports

- John Bechtel, Yumna Kurdi: "Penn State (PSU) LEED v4 Policy 2019 Update v 1.0.", Office of Physical Plant Design and Construction Standards.

HONORS AND AWARDS

GAANN Fellowship - Integrated Delivery of Ultra-High-Performance Buildings Department of Architectural Engineering, Penn State University, University Park, PA.	2020 - 2022
2019 - 2020 Penn State John Roe Student Sustainability Award The Sustainability Institute, Penn State University, University Park, PA.	2019
The Partnership for Achieving Construction Excellence (PACE) Graduate Student Travel Grant Department of Architectural Engineering, Penn State University, University Park, PA.	2019
College of Engineering Graduate Students Travel Grant College of Engineering, Penn State College of Engineering, Penn State University, University Park, PA.	2018
Scholarship (6k) Graduate Programs Committee of the School of Architecture, Carnegie Mellon University, Pittsburgh, PA.	2013

TRAINING

- The Engineering Project Organization Society (EPOS) PhD Day Doctoral Consortium** **2019**
Engineering Project Organization Conference (EPOC), Vail, Colorado.
- Sustainability Training Workshop** **2018**
PHIPPS Conservatory, Pittsburgh, PA
- LENSES (Living Environment in Natural, Social, and Economic Systems) Facilitator Training** **2016**
Center for Living Environments and Regeneration

PRESENTATIONS AND PANELS

- John Bechtel, Yumna Kurdi: “Sustainability Charrettes and Penn State’s Residence Halls Renovations: Improving Building Performance and the Student Experience”, **2020**, Residential Building Design & Construction Conference (RBDCC), Penn State University, University Park, PA.
- John Bechtel, Yumna Kurdi: “Penn State Sustainability Policy”, **2019**, Big Ten and Friends Mechanical and Energy Conference, Penn State University, University Park, PA.
- Organizing and moderating the panel’s discussion: “Embracing the Living Building: The Journey Continues”, John Bechtel and Yumna Kurdi. **2019**, Energy Days, Penn State University, University Park, PA.
- John Bechtel, Yumna Kurdi: “Evolving PSU’s Sustainability Policy: Sustainable Design and Construction “, **2018**, MBA Green Builders Symposium, Pittsburgh, PA.
- Participating in The Partnership for Achieving Construction Excellence (PACE) conference Penn State University, University Park, PA.:
- Presenting: “Adopting LEED 4.0 – Evolving Penn State’s Sustainability Policy”, Yumna Kurdi, John Bechtel, Somayeh Asadi **2019**
 - Moderating round table discussion ‘Leveraging Project & Firm Networks to Deliver Facilities’ Facilitator: Somayeh Asadi, Yumna Kurdi **2018**
 - Presenting: “Updating PSU LEED Policy at Penn State”, Yumna Kurdi, John Bechtel, Somayeh Asadi **2018**
 - Moderating round table discussion ‘Moving Beyond LEED’ Facilitators: Yumna Kurdi and Mahsa Safari **2017**

INDUSTRY WORK EXPERIENCE

Architectural Design Intern

HAK Architectural and Engineering Consultants
Jeddah, Saudi Arabia

Feb 2011 – May 2011

- Designing a Residential Compound (Proposal) in Al-Dammam, KSA

Architectural Design Intern

Arabtech Jardaneh
Amman, Jordan

Jun 2009 – Sep 2009

- Assisting the Architectural Design team working on the Design Development phase of Al Saleh medical City Project at Sanaa, Yemen.

PROFESSIONAL REGISTRATION

Jordanian Engineers Association (JEA)
Member in the division of Architecture

AREAS OF INTEREST

- Architectural, computational and parametric design.
- Interactive design.
- Building science and technology.
- The built environment's energy performance, simulation and optimization.
- Project management, building construction.

SOFTWARE

2D, 3D Modeling:	AutoCAD, 3D Studio Max, Rhino/Grasshopper, Unreal engine
BIM:	Revit, Navisworks
Project Management:	Primavera, Microsoft Project
Energy Simulation Modeling:	eQuest, EnergyPlus, DesignBuilder Grasshopper plugins: Ladybug tools.
Life Cycle Assessment:	Simparo
Geographical info. systems:	ArchGIS
Programming language:	Python, Matplotlib