

# Jeewan Lee, Ph.D.

100 E Queen St, Hampton, Virginia 23668 U.S.A. | 1.785.312.2156 | jeewan.lee@hamptonu.edu

## EDUCATION

- 2017 **Doctor of Philosophy (Ph.D.) in Architecture with Honors**  
The University of Kansas, USA
- Dissertation Title: "The Effect of Shading Louvers and Compact Silencers as Noise Barriers in a Ventilated Double Skin Façade"
  - Research areas: Environmentally-responsive building envelop systems, Human-centered built environment, Building systems Integration, Modular building systems, Optimized Indoor environmental quality, Building performance simulation
- 2015 **Master of Arts in Architecture (M.A.)**  
The University of Kansas, USA
- 2009 **Master of Architecture (M.Arch.)**  
The University of Utah, USA
- 2003 **Bachelor of Science in Architectural Engineering (B.S.A.E.)**  
Myongji University, Republic of Korea (summa cum laude)

## ACADEMIC APPOINTMENTS

- 2020-present **Assistant Professor**  
Department of Architecture, College of Architecture, Myongji University, South Korea
- 2016-2020 **Assistant Professor**  
Department of Architecture, School of Engineering and Technology, Hampton University, VA
- 2012-2016 **Graduate Teaching and Research Assistant**  
School of Architecture and Design / School of Engineering, University of Kansas, KS

## PROFESSIONAL EXPERIENCE

- 2010-2012 **National Research Foundation of Korea (NRF)**
- The NRF is a grant organization supported by the Ministry of Science and Future Planning in the Republic of Korea (total annual budget: \$ 5.236 billion)
  - Researcher, in charge of research grants related to international organization programs involving OECD, UNDP, IIASA, CERN, ISTC, NRF-Japan, and NRF-Australia collaboration projects as a researcher (annual research budget: \$5 million)
- 2008-2009 **Blue Ground Development & Architecture**
- Intern designer: participated in schematic design development for residential and commercial building renovation projects in Salt Lake City.
- 2007-2008 **YeCheon Architecture**
- Intern designer: participated in schematic design development for a residential building and a master plan of resort accommodations.
- 2006-2007 **HyunJin General Construction, Ltd.**
- Architectural engineer: administer construction projects of high-rise apartment housing involving construction management at the head office
    - HyunJinEvervill in Jechon, Republic of Korea: B2-17F (377 units)
    - HyunJinEvervill in Yangju, Republic of Korea: B2-17F (415 units)
    - HyunJinEvervill in Gumi, Republic of Korea: B2-37F (1,375 units)
- 2003-2005 **ShinWon General Construction, Ltd.**
- Architectural engineer: administer construction projects of mid-rise apartment housing involving foundations, reinforced concrete structure construction, interiors, landscaping, and post-occupancy evaluations
  - Construction projects: medium-rise apartment buildings
    - Morning City in Seocho, Republic of Korea: B2-15F (88 units)
    - Morning City in Seocho, Republic of Korea: B2-10F (40 units)
    - Morning City in Seocho, Republic of Korea: B1-5F (17 units)

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## PROFESSIONAL LICENSE

2003-present Licensed architectural engineer, Republic of Korea (License number: 02203070356W)

## PUBLICATIONS

- Journal**
- 2020 **Lee, J.H.**, Chang, J.D., and Robert Coffeen. Applications of Compact Silencers to a Ventilated Double-Skin Façade for Noise Reduction and Ventilation Performance, *Noise Control Engineering Journal* (ISSN 0736-2501, under review)
- 2020 Shah S.K., Tariq Z., Lee, Y., Chang J.D., and **Lee, J.H.** Machine Learning-Based Real-Time Data Access for Personal Indoor Environmental Quality: A Case of Seoul Metropolitan City, *Journal of Green Building*. (ISSN 1552-6100, under review)
- 2020 **Lee, J.H.** and Battaglia, L., Performance Evaluation of Shipping Container Potentials For Net-Zero Residential Buildings, *Journal of Green Building*, Volume 15 (1): 137–152 (ISSN 1552-6100, <https://doi.org/10.3992/1943-4618.15.1.137>)
- 2020 **Lee, J.H.**, Chang, J.D., and Robert Coffeen. Acoustical Evaluation of a Double Skin Façade as a Noise Barrier in Naturally-Ventilated Facade, *Journal of Acoustics* (ISSN: 2633-5034, <https://doi.org/10.20900/joa20190002>)
- 2019 **Lee, J.H.** Acoustical Perceptions of Building Occupants on Indoor Environmental Quality in Naturally-Ventilated Glazed Building Facades, *Journal of Acoustics* (ISSN: 2633-5034, <https://doi.org/10.20900/joa20190004>)
- 2016 **Lee, J.H.**, Ventilation and Sound Attenuation Potential of Double-Skin Facades in Urban High-Rises, *Journal of Council on Tall Buildings and Urban Habitat*, Issue I, 2016 (ISSN: 1946-1186) pp. 32-37
- 2016 **Lee, J.H.**, Chang, J.D., and Robert Coffeen, The Effects of Horizontal Shading Device Orientation and Surface Material and the Use of a Compact Silencer in Forming Acoustical Barriers for a Ventilated Glass Double-Skin Façade, *Journal of the Acoustical Society of America* (<https://doi.org/10.1121/1.4949791>)
- Peer-Reviewed Proceeding**
- 2019 Battaglia, L. and **Lee, J.H.**, Interdisciplinary and Research-Based Architecture Education through Net-Zero Student Competition on Modular Container School Design, *Proceeding of the Architectural Engineering Institute (AEI)*, The American Society of Civil Engineers (ASCE) 2018 (ISBN: 978-0-7844805-0-2, <https://doi.org/10.1061/9780784482261.019>)
- 2018 **Lee, J.H.**, Noise Reduction and Air Behaviors in Ventilated Single-Glazed Façades with Glass Fiber-based Shading Louvers and Compact Silencers, *Proceeding of Inter-Noise 2018* pp.162-170 (ISBN: 978-1-7325986-0-7)
- 2016 **Lee, J.H.**, Alshayeb, M., and Chang, J.D., A Simulation Study on Renewable Energy Harvesting of Photovoltaic Systems Integrated with Shading Devices, *Proceedings of 32<sup>nd</sup> International Conference on Passive and Low Energy Architecture (PLEA)*, Cities, Buildings, People: Towards Regenerative Environments, Vol. 1/3, 2016 pp. 488-494 (ISBN: 978-0-692-74961-6)
- 2016 **Lee, J.H.**, Haider, Mohamed, and Chang, J.D., The Effect of Position of Vertical Glass Fins inside a Double Skin Façade Air Cavity as Acoustical Barriers and Ventilation Potentials, *Procedia Engineering*, Vol. 145, 2016 pp. 892-899 (ISSN: 1877-7058, <https://doi.org/10.1016/j.proeng.2016.04.116>)
- 2016 Haider, Mohamed, Alshayeb, Mohammed, **Lee, J.H.**, and Chang, J.D., The Effect of Exterior and Interior Roof Thermal Radiation on Buildings Cooling Energy, *Procedia Engineering*, Vol. 145, 2016 pp. 987-994 (ISSN: 1877-7058, <https://doi.org/10.1016/j.proeng.2016.04.128>)
- 2015 **Lee, J.H.** and Chang, J.D., Influence of Vertical Shading Device Orientation and Thickness on the Natural Ventilation and Acoustical Performance of a Double-Skin Façade, *Proceedings of 4<sup>th</sup> International Conference on Sustainable Design, Engineering and Construction*, Vol. 118, 2015 pp. pg 304-309 (ISSN: 1877-7058, <https://doi.org/10.1016/j.proeng.2015.08.431>)
- 2015 **Lee, J.H.**, Alshayeb, M. and Chang, J.D., A Study of Shading Device Configuration on the Natural Ventilation and Energy Performance of Double Skin Façade, *Proceedings of 4<sup>th</sup> International Conference on Sustainable Design, Engineering and Construction*, Vol. 118, 2015 pp. 310-317 (ISSN: 1877-7058, <https://doi.org/10.1016/j.proeng.2015.08.432>)
- 2014 **Lee, J.H.** and Chang, J.D., Influence of Vent Perforation on the Ventilation and Acoustical

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Performances of Double Skin Façades, *Proceedings of the 13<sup>th</sup> International Conference on Indoor Air Quality and Climate*, Vol. 2/6, 2014 pp. 789-796 (ISBN: 978-1-63439-731-5)

## Research Report

- 2019 Harris, J. and **Lee, J.H.**, Simulation Study on Net-Zero Educational Facility. The Governor's School for Science and Technology, Hampton, Virginia.
- 2019 **Lee, J.H.** and Battaglia, L., Net-Zero Millennial Container House. The Solar Decathlon Design Challenge, The US Department of Energy and National Renewable Energy Laboratory.
- 2017 **Lee, J.H.**, Assessment for Thermal Comfort, Indoor Air Quality, and Day-lighting Performance in HU Classrooms, Hampton University (HU) faculty research funding.
- 2016 Cai, H., **Lee, J.H.**, Alshayeb, M. J., Mohamed, H. I., and Mahlab, S. F., Harvesting the Otherwise Wasted Heat of LED Lights in Green Buildings, Summary of Phase I Results to the Environmental Protection Agency – P3 Program.

## Poster

- 2019 **Lee, J.H.** and Battaglia, L., Net-Zero Millennial Container House. The Solar Decathlon Design Challenge, The US Department of Energy and National Renewable Energy Laboratory, April 12-14 2019.
- 2017 Battaglia, L. and **Lee, J.H.**, Feasibility Study of High-Performance Shipping Container Elementary School, ARCC-EAAE 2018 International Conference Architectural Research for a Global Community, PA, May 16-19, 2018 (ISBN: 978-1-7325986-0-7) pg 376.
- 2015 **Lee, J.H.**, Chang, J.D. and Cai, Hongyi., A Study of Shading Devices Control on the Natural Ventilation Efficiency and Daylight Harvesting of a Double Skin Façade, ISIAQ Conference on Healthy Buildings 2015 America, Colorado, July 19-22 2015.
- 2015 **Lee, J.H.** and Chang, J.D., A Statistical Study of Indoor Acoustical Perception based on Noise Transmission via Ventilation Windows, ISIAQ Conference on Healthy Buildings 2015 America, Colorado, July 19-22 2015.

## PRESENTATION

### Scholarly Oral Presentation

- 2019 **Lee, J.H.**, Environment-Human-Interactive Façade Systems to Enhance Indoor Environmental Quality, The NSF-funded National Research Workshop on Architectural Faculty in Environmental Sustainability Research, Ryerson University, Toronto, May 28-29, 2019.
- 2018 **Lee, J.H.** and Battaglia, L., Campus in a Box: An Interdisciplinary Initiative, American Institute of Architects' (AIA) Architecture Exchange East 2018, Richmond, Virginia, November 9, 2018.
- 2018 **Lee, J.H.**, Noise Reduction and Air Behaviors in Ventilated Single-Glazed Façades with Glass Fiber-based Shading Louvers and Compact Silencers, Inter-Noise 2018, Chicago, August 26-29, 2018.
- 2016 **Lee, J.H.**, Integration of Research and Design-Build Projects, 9th International Conference on Indoor Air Quality Ventilation & Energy Conservation in Buildings, Seoul, October 23-26 2016.
- 2016 **Lee, J.H.**, The Effect of Orientation and Surface Material of Vertical Shading Louvers in Forming Acoustical Barriers for a Ventilated Double Skin Facade, 9th International Conference on Indoor Air Quality Ventilation & Energy Conservation in Buildings, Seoul, October 23-26 2016.
- 2016 **Lee, J.H.**, The Performance of Compact Silencers in Double Skin Facade's Vents for Noise Transmission Controls and Ventilation Potentials, 9<sup>th</sup> International Conference on Indoor Air Quality Ventilation & Energy Conservation in Buildings, Seoul, October 23-26 2016.
- 2016 **Lee, J.H.**, A Simulation Study on Renewable Energy Harvesting of Photovoltaic Systems Integrated with Shading Devices, PLEA 2016, LA, July 11-13 2016.
- 2016 **Lee, J.H.**, The Effects of Horizontal Shading Device Orientation and Surface Material and the Use of a Compact Silencer in Forming Acoustical Barriers for a Ventilated Glass Double Skin Facade, 171st Conference on Acoustical Society of America, Salt Lake City, May 23-27 2016.

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- 2016 **Lee, J.H.**, Simulation Study on the Position of Vertical Glass Fins inside a Double Skin Façade Air Cavity as Acoustical Barriers and Ventilation Potentials, 5th International Conference on Sustainable Design, Engineering and Construction, Tempe, May 18-20 2016.
- 2016 **Lee, J.H.**, A Simulation Study on the Position of Vertical Glass Fins inside a Double Skin Façade Air Cavity as Acoustical Barriers and Ventilation Potentials, 5th International Conference on Sustainable Design, Engineering and Construction, Tempe, May 18-20 2016.
- 2015 **Lee, J.H.**, A Comparative Study on Ventilation Potentials and Acoustical Performance of Shading Devices in a Double Skin Façade, KU BIM PULSE, Kansas, September 24 2015
- 2015 **Lee, J.H.**, Influence of Vertical Shading Device Orientation and Thickness on the Natural Ventilation and Acoustical Performance of a Double-Skin Façade, 4th International Conference on Sustainable Design, Engineering and Construction, Chicago, May 10-13 2015.
- 2015 **Lee, J.H.**, A Study of Shading Device Configuration on the Natural Ventilation and Energy Performance of Double Skin Façade, 4th International Conference on Sustainable Design, Engineering and Construction, Chicago, May 10-13 2015.
- 2014 **Lee, J.H.**, Influence of Vent Perforation on the Ventilation and Acoustical Performances of Double Skin Façades, 13th International Conference on Indoor Air Quality and Climate, Hong Kong, July 7-12 2014.

## Scholarly Poster Presentation

- 2019 **Lee, J.H.** and Battaglia, L., Performance Evaluation of Shipping Containers as Green Residential Building, National Renewable Energy Laboratory (NREL), Colorado, April 12–14, 2019.
- 2016 **Lee, J.H.**, Urban Transportation Noise and the Implication of Building Façade Design: A Case Study of Seoul Metropolitan Area, Global Impact through Design Research Symposium, University of Kansas, April 20 2016.
- 2015 **Lee, J.H.**, A Study of Shading Devices Control on the Natural Ventilation Efficiency and Daylight Harvesting of a Double Skin Façade, ISIAQ Conference on Healthy Buildings 2015 America, Colorado, July 19-22 2015.
- 2015 **Lee, J.H.**, A Statistical Study of Indoor Acoustical Perception based on Noise Transmission via Ventilation Windows, ISIAQ Conference on Healthy Buildings 2015 America, Colorado, July 19-22 2015.

## Other Presentation and Critique

- 2020-present **Lee, J.H.**, 2<sup>nd</sup> yr Studio Critique, University of Kansas Department of Architecture
- 2020-present **Lee, J.H.**, 2<sup>nd</sup> yr Studio Critique, Myongji University Department of Architecture
- 2016-2020 **Lee, J.H.**, 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> yr Studio Critique, Hampton University Department of Architecture
- 2016 **Lee, J.H.**, Effects of Shading Device and Compact Silencer for Noise Reduction in Double Skin Façade, Walter P. Moore Engineering Consultant Company, Kansas City, February 8 2016.
- 2016 **Lee, J.H.**, Implications of Building Façade Design for Ventilation Performance and Noise Transmission Loss, Berkebile Nelson Immenschuh McDowell (BNIM) architecture firm, Kansas City, September 9 2016.
- 2015 **Lee, J.H.**, Influence of Shading Device Configuration in Noise reduction in urban environments, Tremco Roofing and Building Maintenance Company, University of Kansas, September 23 2015.

## AWARDS

- 2019 **The National Science Foundation (NSF)-funded National Research Workshop on Architectural Faculty in Environmental Sustainability Research (WAFES) Travel Fellowship**
- \$1,000 (Best Research Development Hackathon)
  - Ryerson University in Toronto

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- 2019 **The US Department of Energy (DoE) Solar Decathlon Design Challenge**
- Net-Zero Millennial Container House in the Division of Urban Single Family (Outstanding Achievement of Undergraduate Team)
  - The US Department of Energy (DoE) and National Renewable Energy Laboratory (NREL)
- 2017 **2017 ARCC King Medalist**
- Honored with the ARCC King Medal from Architectural Research Centers Consortium (ARCC)
- 2016 **KSEA SEED 2016**
- \$800 from the Korean-American Scientist and Engineers Association (KSEA)
  - Selected for KSEA Scientists and Engineers Early-Career Development (SEED) workshop, Silicon Valley, CA.
- 2015 **National 2015-2016 Robert J. Besal Fund Foundation**
- \$2,000 (Illumination Engineering Society, awarded)
  - Proposal for a comprehensive lighting design project using LEDs for the Besal Theme Park (BTP) as a local landmark in the outside area of Los Angeles, CA.
- 2014 **IESNA Lighting Competition**
- \$1,250 (Kansas City and Topeka Chapters of Illumination Engineering Society of North America, awarded)
  - Sustainable lighting design project using fiber optics for the Kenneth Spencer Research Library at the University of Kansas
- 2012-2016 **KU Architecture Fellowship**
- \$13,000 per year (4-year tuition-waiver and a monthly stipend)
- 2001-2003 **MyongJi Baekma Scholarships**
- \$5,000 from College of Architecture, MyongJi University (awarded)
  - Academic performance (Highest GPA)

## RESEARCH + FUNDING

- 2020 **Realtime Environmental Database Platform for Indoor Environmental Quality Controls in Green Buildings**
- PI, \$20,000 (Myongji University, awarded)
- 2020 **NSF SCC-CIVIC-PG Track A: Harnessing Data-Powered Discoveries to Sort Spatial Mismatch: A Community-Defined Simulation and Visualization Dashboard**
- \$50,000 (NSF Smart and Connected Communities (S&CC), under review)
  - CO-I in collaboration with PI (Dr. Lee) in the School of Computing and Engineering, University of Missouri-Kansas City
- 2019 **NSF SCC-PG: Early Community Intervention for Neighborhood Revitalization Using Artificial Intelligence and Emerging Technologies**
- \$150,000 (NSF Smart and Connected Communities (S&CC), awarded)
  - CO-I in collaboration with PI (Dr. Lee) in the School of Computing and Engineering, University of Missouri-Kansas City
- 2018 **NSF HBCU UP-RIA: Human Interactive Envelope (HIKE) Systems for Optimized Indoor Environmental Quality Controls**
- \$290,000 (NSF HBCU Undergraduate Program, not funded)
  - PI
- 2017 **Noise Screening Shading Louvers in Noisy Cities**
- \$15,000 (The US Environmental Protection Agency, selected by a technical committee, but not funded)
  - PI
- 2017 **Post Occupancy Evaluation of the Building Performance and Indoor Environment Quality Towards the Green-Campus of Hampton University**
- \$2,800 (PI, Hampton University, awarded: 09/2016- 08/2017)
  - PI
- 2016 **Integrative Illumination, Heating, Ventilation, and Air Conditioning (iHVAC) System for an**

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- Overall Reduction in Building Energy Use for Space Heating, Cooling, and Lighting**
  - \$500,000 (The US Department of Energy, not funded)
  - CO-I in collaboration with PI (Dr. Hongyi Cai) for for CFD simulation modeling for indoor air behaviors, ambient temperature distributions, energy performance
- 2015 **Harvesting the Otherwise Wasted Heat of LED Lights in Green Buildings**
  - \$15,000 (The US Environmental Protection Agency, awarded: 09/2015-08/2016)
  - CO-I in collaboration with PI (Dr. Hongyi Cai) for CFD simulation modeling for indoor air behaviors, ambient temperature distributions, energy performance
- 2015 **Assessment of Noise Transmission for a Double Skin Façade Mock-Up**
  - \$1,500, Department of Graduate Studies, University of Kansas
  - PI
- 2015 **Post-Occupancy Evaluation of Indoor Environmental Quality of a Double Skin Façade**
  - KU Architecture lecture hall under the consultancy of Transsolar
  - Co-PI for quantitative data collection of indoor ambient temperature, air velocity, CO2 levels, illuminance levels, and qualitative data collection of POE survey
- 2014-2016 **KU Research Travel Fund**
  - \$3,500 from Department of Architecture, University of Kansas
  - PI
- 2014 **CFD Analysis of Overhead Supply Diffuser Air Velocity**
  - Renovated Swarthout Concert Hall at KU School of Music
  - Co-PI in collaboration with PI (Prof. Robert Coffeen) for CFD simulation modeling of indoor airflow and ambient temperature

## TEACHING EXPERIENCE

- Myongji University (Assistant Professor)**
  - 2020-present **ARC1376, 1377 – Environmental System**
    - This course addresses human needs and comfort in relation to the natural and man-made environments, including day-lighting, electrical lighting systems, building acoustics, electrical power distribution systems, alternative energy sources, and communication systems.
- Hampton University (Assistant Professor)**
  - 2019-2020 **ARC602 – Thesis II Design Research**
    - ARC 602 completes the work initiated in ARC 601, for a year long self-directed architectural inquiry identifying, characterizing and resolving an architectural problem based on a personal, visionary and meaningful interpretation of architecture. The ARC 602 studio is not about designing a comprehensive architectural 'project' as a final solution. It is a focused design investigation where parts of the claim are tested by exploring the field of possibilities through the design of multiple targeted solutions. It also requires evaluating all design products as the investigation progresses. The ARC 602 studio offers a space for design exploration enriched by formal and impromptu dialogue with peers, faculty, and other members of the larger academic and professional community. It provides the physical and intellectual locale for collaboration needed for a critical creative design research process.
  - 2017-2020 **ARC530 – Solar Decathlon Design Challenge, Jump into STEM**
    - The US Department of Energy Race to Zero Student Design Competition will employ an interdisciplinary team of Hampton Architecture students. The Millennial Container Village is envisioned as a technically sound, sustainable, economically feasible, and innovative community located in Virginia Beach, Virginia, that caters to sustainably-minded millennials. As modular container construction is currently being considered acceptable by Virginia Beach code officials, this project will provide a pilot study for the city to evaluate the pros and cons of using shipping containers for housing design in association with other partnerships.
  - 2017-2020 **ARC516 – Building Systems Integration**
    - This course is an advanced level of course in building science, which the integration of site,



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environmental benefits, structure systems, building envelope systems, mechanical systems, interior systems, renewable energy systems, automation systems, other sustainability considerations in architectural design. The core of the course is placed on appreciating how systems are related to each other in the context of aiming for a high-performance building and human comfort in various categories of major use.

□

2017-2020

## **ARC201, 202 – Design Studio**

- This course is a basic and intermediate level at complex and contextual issues of complete architecture design of the site, orientation, environmental relationships, and building systems. Continued development of program, design concept, and philosophy as part of the design process. (i.e., Pavilion, Single housing, Live/Work housing, Museum)

2017-2020

## **ARC315 – Environmental Systems**

- This introductory course addresses human needs and comfort in relation to the natural and man-made environments including climate and weather; environmental health; indoor air quality; thermal comfort; passive and active systems and design strategies for heating, ventilating, and air-conditioning, day-lighting, electrical lighting systems, electrical power distribution systems, alternative energy sources, and communication systems and life safety systems.

## **University of Kansas (Graduate Teaching Assistant)**

2012-2016

### **ARCH530 – Environmental System I**

- This introductory course addresses human needs and comfort in relation to the natural and man-made environments including climate and weather; environmental health; indoor air quality; thermal comfort; passive and active systems and design strategies for heating, ventilating, and air-conditioning; mechanical noise control, building management systems; and life safety systems.

2012-2016

### **ARCH531 – Environmental System II**

- This course addresses human needs and comfort in relation to the natural and man-made environments, including day-lighting, electrical lighting systems, building acoustics, electrical power distribution systems, alternative energy sources, and communication systems.

2016 spring

### **ARCH635 – Visualizing Airflow**

- This course analyzes the building performance within a visual medium using computational fluid dynamics (CFD) for understanding airflow behavior in and around buildings. In addition, thermal comfort and air quality are investigated in this animated environment.
- taught computational fluid dynamic simulation software (FloVENT)

2015 spring

### **ARCH 615 – Integrated Systems**

- This course provides a holistic understanding of building systems and active sustainable strategies. An emphasis is placed on the interconnectedness of these systems to building form, function, and performance.
- taught building energy simulation software (Sefaira)

## **COMPUTING SKILLS**

### **Graphics Software**

- AutoCAD, SketchUp, Rhino, Photoshop, Maxwell Render

### **Building Performance Analysis Software**

- VE IES (Integrated Environmental Solutions, airflow, heat, energy, renewable energy)
- FloVENT (Analysis of IAQ, airflow, and heat transfer in and around buildings)
- THERM, WINDOW (Heat transfer analysis of building envelopes)
- EASE, SoundFlow (Acoustical analysis of building envelope and indoor environments)
- EnergyPLUS, E-Quest, Sefaira (Building energy performance analysis)
- Ecotect (Environmental performance analysis in and around buildings)
- AGi32, Radiance, DaySim, Dialux (Illumination analysis in and around buildings)

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- Climate Consultant (Weather data input, psychrometric chart, design guidelines)
- CBE thermal comfort tool (Human comfort)
- Grasshopper, Ladybug, Honeybee
- OPAQUE (Evaluation the performance of the opaque envelope of the building)
- BeOPT, HEED, SBEED (Home and Small Building Energy Efficient Design, for integrated whole-building performance)

## Data Analysis Software

- SPSS (Statistics analysis)

## PROFESSIONAL SERVICE

2020	Committee Member: International Scientific Committee (Indoor Air 2020): <a href="http://www.indoorair2020.org/sub01_04.php">http://www.indoorair2020.org/sub01_04.php</a>
2019-present	JUMP INTO STEM Professor Team (sponsored by National Renewable Energy Laboratory and Oak Ridge National Lab, <a href="https://web.ornl.gov/sci/buildings/jump/">https://web.ornl.gov/sci/buildings/jump/</a> )
2019	Manuscript Reviewer: International Conference on Engineering Sciences (ICES)
2017	Manuscript Reviewer: Façade Tectonics (FT)
2016	Manuscript Reviewer International Conference on Sustainable Design Engineering and Construction (ICSDEC)

## ADVISING / GRADUATE STUDENTS

2019-2020	<b>Adviser: Jump Into STEM Student Competition: Selected as a finalist</b> <ul style="list-style-type: none"><li>▫ Amir Amzajerjian (5<sup>th</sup> year Architecture) Jarrett Thomas (3<sup>rd</sup> year Architecture) and Jai Huntley (3<sup>rd</sup> year Electrical Engineering): Human-Centered Interface for Energy Use Patterns using Artificial Intelligence</li></ul> <b>Co-Adviser: Graduate Student Research Thesis</b> <ul style="list-style-type: none"><li>▫ Terrence Harmon (5<sup>th</sup> year): Noise Transducer</li><li>▫ Amir Amzajerjian (5<sup>th</sup> year): Human-Interactive Kinetic Façade</li><li>▫ Keever Parrish (5<sup>th</sup> year): Arcology in a Box</li></ul> <b>Adviser: The Governor's School for Science and Technology</b> <ul style="list-style-type: none"><li>▫ Meiling Fan (4<sup>th</sup> year): Applications of Adaptive Building Skins to Glazed Building Envelopes in Urban Environments</li></ul>
2018-2019	<b>Co-Adviser: The US Department of Energy 2018-2019 Race to Zero Student Design Competition</b> <ul style="list-style-type: none"><li>▫ The Millennial Container Village: architectural design, interior design, lighting, energy analysis, constructability, financial analysis, envelope performance, IAQ and ventilation, MEP design, and documentations</li></ul> <b>Co-Adviser: Graduate Student Research Thesis</b> <ul style="list-style-type: none"><li>▫ Ashely Montgomery (5<sup>th</sup> year): Floating Habitat in VA</li><li>▫ Mohamed Woni (5<sup>th</sup> year): Modular Concrete Mobile House in CA</li><li>▫ Sean Dawley (5<sup>th</sup> year): Multi-functional Environmental Responsive Façade</li></ul> <b>Adviser – The Governor's School for Science and Technology</b> <ul style="list-style-type: none"><li>▫ Justin Harris (4<sup>th</sup> year): A Simulation Study on Net-Zero Educational Facility</li></ul>
2017-2018	<b>Co-Adviser: The US Department of Energy 2017-2018 Race to Zero Student Design Competition</b> <ul style="list-style-type: none"><li>▫ Elementary school: architectural design, interior design, lighting, energy analysis, constructability, financial analysis, envelope performance, IAQ and ventilation, MEP design, and documentations</li></ul> <b>Co-Adviser: Graduate Student Research Thesis</b>



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- Joiana Hooks (5<sup>th</sup> year): An Alternative Stream of Materials for Building Components
- Jonathan Legaspi (5<sup>th</sup> year): Towards Zero in the Tropics: Central Light wells, Porous Facades, and Sunlit Roofs
- Rhea Cooper (5<sup>th</sup> year): Ventilated Double Wall Bunker for Hurricane Survival
- Alexis Jackson (5<sup>th</sup> year): Hurricane Armor: Connect to Protect
- Quentin Williamston (5<sup>th</sup> year): The Path to Equal Egress: Coming Down for the Clouds

2016-2017

## **Co-Adviser: ACSA 2016-2017 Student Design Competition**

- A House for the 21st Century: architectural design, lighting, energy analysis, envelope performance, IAQ and ventilation

## **Co-Adviser: Graduate Student Research Thesis**

- Jaylon Floyd (5<sup>th</sup> year): The Zero Tower: A Drought-Beating Building
- Zijing Liu (5<sup>th</sup> year): Garden-Centered Urban Residential Clinic

## **MEDIA**

2019-2020

### **Hampton University Student Team Selected as Finalist for JUMP into STEM Competition**

- <http://news.hamptonu.edu/release/Hampton-University-Student-Team-Selected-as-Finalist-for-JUMP-into-STEM-Competition>

2018-2019

### **The US Department of Energy, The Solar Decathlon Design Challenge Award**

- <https://www.solardecathlon.gov/2019/design/challenge-results.html>

### **Hampton University Team Wins Award from Solar Decathlon Design Challenge Weekend in Colorado**

- <http://news.hamptonu.edu/release/Hampton-University-Team-Wins-Award-from-Solar-Decathlon-Design-Challenge-Weekend-in-Colorado>

### **Hampton University Students Traveling to Colorado to Participate in Final Round of the 2019 Solar Decathlon Challenge**

- <http://news.hamptonu.edu/release/Hampton-University-Students-Traveling-to-Colorado-to-Participate-in-Final-Round-of-the-2019-Solar-Decathlon-Challenge>

2015-2016

### **The National 2015-2016 Robert J. Besal Fund Scholarship**

- <https://ceae.ku.edu/sites/ceae.ku.edu/files/files/Newsletter/CEAE%20update-fall-2016.pdf>
- <https://ceae.ku.edu/national-2015-2016-robert-j-besal-fund-scholarships/>
- <https://www.iald.org/IALD-Education-Trust/IALD-Education-Trust-Spotlight/IALD-Education-Trust-Spotlight-3rdQuarter-2015>

## **PROFESSIONAL MEMBERSHIPS**

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

International Society of Indoor Air Quality and Climate (ISIAQ)

Society of Building Science Educators (SBSE)

Illumination Engineering Society (IES)

International Association of Lighting Designers (IALD)

Acoustical Society of America (ASA)

Korean-American Scientist and Engineer Association (KSEA)

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