CURRICULUM VITAE (CV)

M. M. LEKHON ALAM, MS. ARCH, Assoc. AIA

Instructor of Environmental Design | College of Architecture, Planning and Design
Ph.D. Candidate (ABD) | Environmental Design and Planning
Kansas State University, Manhattan, Kansas, USA

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RESEARCH & TEACHING INTERESTS

- **Design Studios:** Teaching Graduate and Undergraduate Design Studios
- **Architecture & Sustainable Environmental Design:** Climate Design, Building Energy Performance (building systems analysis with a focus on issues of sustainability and meeting climate-change mitigation needs), Energy Simulation and Computer Modeling, Environmental Systems in Architecture, Sustainable (Green) Building Design
- **Environmental/Social Resilience**: Environmental Issues & Ethics, Ecological Planning, Environmental Impact Assessment. Natural & Socio-economic Aspects of Resilient Planning/Design, Critical Regionalism
- **Green Infrastructure:** Green Roofs, Rainwater Management, Ecological Green Infrastructure Planning, Design, Monitoring & Maintenance, Natural & Cultural Systems Analysis, Ecoregional Design

EDUCATION

2018-present	**Doctor of Philosophy in Environmental Design and Planning** *(Expected Defense: March-April 2022)* College of Architecture, Planning and Design (APDesign) Kansas State University, Manhattan, Kansas <u>Dissertation:</u> *Climate Change Mitigation Potential of Green Roofs: Quantifying urban heat island indicators and a green roof's capacity to sequester carbon in the Flint Hills Ecoregion.* <u>Committee:</u> Assoc. Prof. Lee R. Skabelund (Chair), Assoc. Prof. Michael Gibson, Distinguished Prof. Dr. Charles W. Rice, and Timothy Todd.
Aug 2018	**Master of Science in Architecture (MS. ARCH)** Dept. of Architecture, College of Architecture, Planning and Design Kansas State University, Manhattan, Kansas <u>Thesis:</u> *A critical analysis of Bengali modern and traditional architecture using the "Deep Beauty" framework.* <u>Committee:</u> ACSA Distinguished Prof. Gary Coates (Chair), Prof. Dr. David Sachs, and Assoc. Prof. R. Todd Gabbard
Dec 2014	**5-year Professional Degree of Bachelor of Architecture (B.Arch.)** Architecture Discipline, Khulna University, Khulna, Bangladesh <u>Design Project:</u> *An Urban Linkage Hub: Multi-modal transport interchange terminal near the river Turag, Dhaka, Bangladesh.* <u>Thesis Supervisor:</u> Assistant Prof. S.M. Nazimuddin Payel

HONORS AND AWARDS

2021   **Research scholarships of $3,500** - from BuildEx, the maker of Buildex Haydite®
(a ceramic structural lightweight aggregate that saves material, energy, labor and
transportation costs).

2021   **Nana Kirk Travel Scholarship** - to support attendance at the virtual conference, EDRA52
Detroit-2021.

2020   **Landscape Architecture Foundation (LAF) Case Study Investigation (CSI) - Research Grant:
$5,000** (One of 10 projects selected from around the world). Award received in company
with Professor Lee R. Skabelund.
I worked with Prof. Skabelund as the graduate student research assistant from Kansas State
University. www.lafoundation.org/news/2019/12/2020-csi-teams

2018   Prestigious **John F. Helm award from the Kansas State University, Dept. of Architecture** - for
outstanding performance in course work, leadership and service as teaching assistant, and
for an outstanding master's thesis project.

2015   Obtained the highest average grade point (4.00) in all sessional core courses (Including
Architectural Design) for the 4th and 5th academic year and received the **"Head's List"
certificate (given for recognition of excellent studio work)** from Khulna University
Architecture Discipline.

2014   Won the **3rd National Position** in an International Design Competition on "Urban
Revitalization of Mass Housing" organized by UN-HABITAT-2014.

2014   Research-based competition project, "Creating an Urban Oasis," **selected as one of the top
10 national projects** and published by Bangladesh University of Engineering and Technology
Alumni.

ACADEMIC AND TEACHING EXPERIENCE

2022-present   ### Instructor of Environmental Design
Department of Architecture, College of Architecture, Planning, & Design
Kansas State University, Manhattan, Kansas

Course: ENVD 202 | Environmental Design Studio 2
https://catalog.k-state.edu/preview_course_nopop.php?catoid=23&coid=116424
Foundation studies introducing principles, processes, and vocabularies of environmental
design. Instruction in two- and three-dimensional visualization of objects and spaces.
Instruction in the use of instrument-aided drawing, freehand drawing, and model building to
represent and communicate design ideas at different scales of observation.

Dec 2021-
Jan 2022   **Invited Co-Instructor** (helping design a new green roof design course)
Kansas State University Global Campus intersession course
Course/Topic: LAR 741 | Green Roof Design
https://eis.global.ksu.edu/CreditReg/CourseSearch/Course.do?open=true&sectionId=140171

"Implementing green roofs" worldwide to mitigate climate change—provides possible solutions at global and regional levels to deal primarily with global warming. A green or living roof is defined as the use of vegetation coverage on the roof of a building which has many benefits at economic, ecological, and societal levels. The performance of these complex and dynamic anthropogenic patches in specific climatic zones are significantly different. This course will help participants understand the importance of green roofs in a regional and global context, explain the production of net ecosystems, discuss practical transitions from concepts, performance evaluation, and maintenance.

2016-present	**Graduate Teaching Assistant (GTA) & Green Roof Research Assistant**

Department of Architecture, College of Architecture, Planning, & Design
Kansas State University, Manhattan, Kansas

Courses and Corresponding Class/Studio Sessions Assisted:

Fall 2021	GTA & Green Roof Researcher at KSU (https://www.k-state.edu/greenroofs/)
Fall 2020	Plant Selection (LAR 353)
Sp. 2020/2021	Ethics & Environmental Dilemmas (LAR 322)
Fall 2019	Professional Practice (ARCH 853, 854 & 855)
Sp. 2019	History of the Designed Environment II (ENVD 251)
Fall 2018	Professional Practice (ARCH 853, 854 & 855)
Sp. 2018	History of the Designed Environment II (ENVD 251)
Fall 2017	History of the Designed Environment I (ENVD 250)
Spring 2017	History of the Designed Environment II (ENVD 251)
Fall 2016	Environmental Systems in Architecture (NAAB Accredited)- ARCH413 A

Responsibilities & Topical Foci:
Assisted professors in the formulation of technical and pedagogical documents pertinent to sustainable environmental design technology curriculum.

Environmental Ethics and Sustainable Design: Explained concepts of sustainability, resource conservation, and ecological literacy to help students explore how various forms of resource use are more or less sustainable. Evaluated assignments (papers, research projects & exams) and assessed student-led discussions to develop critical- and systems-thinking. It was an interdisciplinary course; organized around the topic of environmental sustainability and sustainable design & ethics.

Building Performance Analysis: Took an individual environmental lab session (Environmental System in Architecture) in Fall 2016 where simulation software tools like Revit, Rhino, DIVA-for-Rhino, etc., were explained and taught to assess and optimize student design solutions.

Building Science and Technology: Assisted ENVD 250 & 251 classes; helped prepare exam questions & course outlines, evaluated exam papers, and answered students' questions about the historical development of building science and technology.

Facilitating Graduate Design Studios: Collaborated with allied design professionals and the larger community at established firms such as Perkins & Will, GENSLER, BNIM, etc. to help students understand and appreciate professional, legal, and ethical responsibilities.

Managed and administrated database(s) of cohorts, using K-state online portals to monitor grading and attendance.

Mar 2016 –
Aug 2016

Lecturer (full-time) for the Department of Architecture
Dhaka University of Engineering and Technology (DUET), Gazipur, Bangladesh
<https://www.duet.ac.bd/m-m-lekhon-alam/>

Courses and Corresponding Class/Studio Sessions Taught:
- Architectural Design Studios III & V
- Green Building Technology
- Basic Physical Planning
- History of Architecture III

Responsibilities:
Taught students and assisted professors in the 3rd year architectural design studio, where the focus was to develop abilities to construct architectural systems from architectural agendas. Also, co-supervised thesis projects in the design studio of the 5th year. Prepared class lectures, notes, and exam questions.

2015-2016

Lecturer (full-time) for the Department of Architecture
Stamford University Bangladesh, Dhaka, Bangladesh
<http://www.stamforduniversity.edu.bd/>

Courses and Corresponding Class/Studio Sessions Taught:
- Architectural Design Studio VI, IX, and X
- Architectural Graphics & Computer-Aided Design (CAD)
- History of Architecture (European)
- Climate and Sustainable Design Principles

Responsibilities:
Taught students and assisted professors in the 3rd & 5th year architectural design studios. Co-supervised thesis project in the design studio of the 5th year. Participated as 3rd-year Thesis Jury Member. (2015)

PROFESSIONAL/DESIGN WORK EXPERIENCE

2016

Design Consultant | Prepared a complete master plan integrating new structures with the existing ones of Bangladesh Agricultural University.
Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh

Responsibilities:
Suggested innovative designs with sustainable features, digital master planning of new & existing university buildings, and developing animation using 3D design software like Lumion, 3DS Max, SketchUp, etc.)

2014-2015   **Junior Architect |** Building construction project for middle-income households in the urban area (Dhaka), Bangladesh for Creators, The Design Syndicate.

Responsibilities:
Authored and led an independent case study on local housing policies for low-income communities in Dhaka City. Implemented interviews with local people and officials to collect qualitative and quantitative data. Identified potential problems of low-cost housing and suggested possible solutions and approaches for sustainable development.

RESEARCH EXPERIENCE AND PROJECTS

2018-present   **Green Roofs & Building Performance Analysis**
Department of Architecture, Kansas State University, Manhattan, Kansas

My Ph.D. research focuses on three experimental green roof beds in relation to thermal loading and building energy performance (using sensor readings and simulations) and carbon sequestration potential (by analyzing soil microbiology and root biomass) to explore climate change mitigation within the built environment. I seek to quantify the bulk heat flows through an experimental green roof system using computer simulation software WUFI® Plus (version 3.2.0) and in-situ measurements. <u>My research lies at the intersection of thermodynamics (utilizing a theory of the famous scientist Dr. Daniel Hillel), architectural design, and material science.</u> My research aims to provide an estimate of urban heat loads and CO_2 reductions through use of simulations and observation of surface and sub-surface temperature dynamics, thermal changes, root biomass, and laboratory analysis of soil PLFA, respiration, total carbon and nitrogen, and soil nematode communities.

2021-present   **Experiences of Natural Environment and Mental Health**
Co-Investigator | Kansas State University, Manhattan, Kansas

We measure how urban landscape is associated with psychological wellbeing using Virtual Reality (VR) in the lab setting. The project is funded by the K-State Graduate School's Small Grant Program.

2020   **Kansas State University Memorial Stadium Green Roofs, Manhattan, KS**
Research Assistant | Landscape Architecture Foundation (LAF)
Case Study Investigation (CSI)

The Landscape Architecture Foundation (LAF) selected the K-State Memorial Stadium Green Roof project as a 2020 Case Study Investigation (CSI) project.
I worked as a research assistant with K-State CSI Research Fellow Lee R. Skabelund. Our LAF-CSI research project examined the two prairie-like green roofs (each roof is ~2,050 square meters) in relation to social, environmental, and economic benefits within the Flint Hills Ecoregion, USA. Our research methods, findings, and energy performance benefits were published by LAF in Sep. 2021.

2016-2018	**Investigating Sustainable Design Solutions** (Master's Thesis) Dept. of Architecture, Kansas State University, Manhattan, Kansas

Alam, M. M. (2018). *A critical analysis of Bengali modern and traditional architecture using the "Deep Beauty" framework*.
The thesis is related to building construction science, where I investigated sustainable solutions and problem-solving strategies through the use of traditional architecture.

2014	**Resilient Design** Dept. of Architecture, Khulna University, Bangladesh

"Unstoppable Schooling: Continuing Education with Disaster,"—a research-based design competition project to mitigate the impact of extreme weather and other external threats.
<https://issuu.com/m.m.lekhonalam>

2014	**Sustainable Housing Design** (Winner of an International Design Competition) Dept. of Architecture, Khulna University, Bangladesh

The **UN-HABITAT** Jury committee mentioned that the project was unique because of its Cultural Viability and Neighborhood Environmental Sustainability.
<https://issuu.com/m.m.lekhonalam>

PEER-REVIEWED JOURNAL/ CONFERENCE/ POSTER PRESENTATIONS

2021	Skabelund, Lee R., and **M. M. Lekhon Alam**. "Kansas State University Memorial Stadium Green Roofs." *Landscape Performance Series*, Landscape Architecture Foundation, 2020. https://doi.org/10.31353/cs1691
2021	**Alam, M. M.,** Skabelund, L. R., Gibson, M. D., L. R., Rice, C. W., Todd, T. C., Lin, J. S., Ha, J., Decker, A. (2021). Climate Change Mitigation Potential of Green Roofs: Exploring a green roof's capacity to sequester carbon in the Flint Hills Ecoregion, (*In press:* Cities Alive 2021 Conference Proceeding Paper)

Manuscripts in Preparation

2022 (Expt.)	**Alam, M. M.,** Skabelund, L. R., Gibson, M. D., Ha, J, (in prep.). A Green Roof's Influence in Building Energy Performance: Quantifying Urban Heat Island Indicators In The Flint Hills Ecoregion. Target journal: *Energy and Buildings,* [Impact Factor: 5.879]
2022 (Expt.)	Ha, J, Kim, H, and **Alam, M. M.,** (in prep.). How we perceive biodiversity: Visual and auditory cues in the restorative process. Target journal: *Landscape and Urban Planning,* [Impact Factor: 6.142]

Poster Presentation

2022	**Alam, M. M.,** Skabelund, L. R., Gibson, M. D., Ha, J. (2022) A Green Roof's Influence in Building Energy Performance: Quantifying Urban Heat Island Indicators in The Flint Hills Ecoregion. (Abstract submitted for the ARCC-EAAE 2022 International Conference in Miami- **Expected March 2nd**)

2021   Perez, M., Skabelund, L. R., **Alam, M. M.,** Gibson, M. D. (2021). Examining heating, cooling, and insulating dynamics of different green roof depths associated with the Architecture, Planning & Design Experimental Green Roof (DSP Symposium-2021)

<u>Abstract Published</u>

2021   Ha, J, Kim, H, and **Alam, M. M.** (2021). How we perceive biodiversity: Visual and auditory cues in the restorative process. *Council of Educators in Landscape Architecture (CELA) Evolving Norms: Adapting Scholarship to Disruptive Phenomena, New Mexico.* **Abstract accepted (expected March 16th).**

2020   **Alam, M. M.,** Skabelund, L. R., Rice, C. W., Gibson, M. D., Todd, T. C., Lin, J. S. (2020). Climate Change Mitigation Potential of Green Roofs: Quantifying urban heat island indicators and a green roof's capacity to sequester carbon in the Flint Hills Ecoregion. *Council of Educators in Landscape Architecture* (Resilience | CELA 2021 Annual Conference)

2020   **Alam, M. M.,** Skabelund, L. R., Rice, C. W., Gibson, M. D., Todd, T. C. (2020). The Influence of Green Roof Type on Architectural Design Decisions: Quantifying Urban Heat Island Indicators in the Flint Hills Ecoregion. *EDRA52: Sharing Just Resources.* Detroit, MI.

2020   Lee R. Skabelund, Allyssa Decker, Priyasha Shrestha, Jialin Liu, **M. M. Lekhon Alam**, Yuting Gao, and Miguel Perez – with T Todd, MB Kirkham, TL Moore, G Kluitenberg, CW Rice, M Gibson, A Sharda, M Knapp, and HS Sangha (2020). Methods for examining plant growth, substrate moisture content, and other variables on an experimental green roof in the Great Plains, USA. *Council of Educators in Landscape Architecture* (Resilience | CELA 2021 Annual Conf.)

2019   **Alam, M. M.** (May 2019). Culture to Define a Built Form Morphology: A Traditional Bengali Household. *EDRA50: Sustainable Urban Environments.* Brooklyn, NY.

2018   **Alam, M. M.** (June 2018). National Assembly Building at Dhaka, Bangladesh: A Thoughtful Essay on Building in the Delta. *EDRA 49: The Environmental Design Research Association.* Oklahoma City, OK.

2014   **Alam, M. M.** (2014). Creating an Urban Oasis. *Bangladesh University of Engineering and Technology, BUET.* Dhaka, Bangladesh.

BOOK CONTRIBUTION (chapter section)

2021   Chapter: History and Heritage— I have written **a section** titled, "*Culture to Define a Built Form Morphology: A Traditional Bengali Household*" of this chapter with other researchers around the world.
In Next50: Collective Futures. Critical-creative perspectives on the built environment in Bangladesh. <https://www.thisstudioisopen.org/next50>
(Book to be published in February 2022.)

LEADERSHIP, SERVICE AND VOLUNTEER ACTIVITIES

Journal Reviewer
Journal of Living Architecture | 2022
https://greeninfrastructurefoundation.org/jliv

Invited Critic/Jury
Kansas State University, College of Architecture, Planning, and Design

2021	ENVD 201	Environmental Design Studio 1	Fall 2021
2020	LAR 438	Design Implementation 1 (Landscape Arch. Design Studio)	Fall 2020
2020	ENVD 201	Environmental Design Studio 1	Fall 2020
2020	ENVD 202	Environmental Design Studio 2	Spring 2020
2019	ENVD 201	Environmental Design Studio 1	Fall 2019

Invited Event/Classroom Guest Speaker/Participant

2021   *Discussion on World Cities*, <u>Guest Speaker</u>: "Case Study of Bangladesh: Sustainable and Resilient Design and Planning Approaches in High-Density City" Department of Urban Studies, The College of Wooster, Ohio, USA. (4 March 2021)

2020   *LAR322: Environmental Issues and Ethics,* <u>Presenter</u>, "Climate Change Implications for the Indian Subcontinent (Global Justice through Sustainable Low Impact Development)," Kansas State University, 6 March.

2019   *PLAN415: World Cities,* <u>Guest Speaker</u>, "Implications of the Rapid Urban Growth of Dhaka City," Kansas State University, 10 May.

2018   *PLAN215 World Cities,* <u>Guest Speaker</u>, "Climate Change Mitigation Strategies and Resilient Development in Bangladesh," Kansas State University, 20 April.

Professional Affiliation

2021-Present   American Institute of Architects (AIA), USA, Associate Member

2020-Present   Environmental Design Research Association (EDRA), USA; Member

2020-Present   Council of Educators in Landscape Architecture, USA; Member

2020-Present   Green Roof for Healthy Cities, USA; Student Member

2015-Present   Institute of Architects Bangladesh (IAB); Member
(It is a professional organization for architects in Bangladesh)

Invited/Voluntary Committee Service

2019-Present   College of APDesign Post-Bac Student Group; Event Coordinator (Virtual)
Kansas State University (KSU), USA

2018-Present   Bangladeshi Student Association; Election Commissioner - KSU, USA

Invited/Voluntary Committee Service, continued…

2008-2014   Khulna University Nri-Nattyo: Drama Club; Member - Bangladesh

2008-2012   Khulna University Debating Club, Member & Participant – Bangladesh

2003-2005   Quiz Club of Laboratorians (QCL), Event Coordinator & Participant
Government Laboratory High School, Dhaka, Bangladesh

ADDITIONAL SKILLS

Technical skills
- Able to use simulation software, including **WUFI®plus and DIVA-for-Rhino.**
- Proficient in data visualization and **Virtual Reality (VR)**
- Worked professionally with architectural 3D design software like SketchUp, 3D Studio Max, Auto Cad (Computer-Aided Design), Corel Draw, Corel Photo-Paint, etc.
- **Advanced Knowledge in Modern Green Roof Technology:** Well trained (practically) in both green roof maintenance and its ecosystem management
- First-hand experience with the use of native prairie species on green roofs.
- Well skilled in Microsoft Office Suite (Word, Excel, PowerPoint, Outlook).
- Well-trained in R programming language **(RStudio).**
- **Lab Work:** Intense laboratory work experience in soil microbiology with the guidance of distinguished Professor of Agronomy, Dr. Charles W. Rice.

Soft Skills
- Designing and instructing architectural graduate-level courses.
- Research Design (**Quantitative & Qualitative**) for Building System Analysis.
- Application of architectural theory in planning/design practice.
- Teamwork (Collaboration Skills) and Independent Research.

Languages   Fluent in English, Intermediate (Reading) in Arabic, and Native in Bengali.

MM Lekhon Alam ONLINE

Undergraduate Design Portfolio Link
http://issuu.com/m.m.lekhonalam

Kansas State University
https://apdesign.k-state.edu/academics/degrees-and-programs/phd-program/current-students/

LinkedIn
https://www.linkedin.com/in/m-m-lekhon-alam-17806b129/

Dhaka University of Engineering and Technology, Bangladesh
https://www.duet.ac.bd/m-m-lekhon-alam/

CELA-2021 Conference Link:
https://thecela.org/about-the-cela/cela-2021-annual-conference/

The EDRA52 Detroit Conference-2021 link:
https://www.edra.org/events/EventDetails.aspx?alias=EDRA52

CitiesAlive Virtual 2021 Conference Link:
https://citiesalive.org/