Aritro De

Architect & Building Science Researcher

Building science | Thermal comfort | Energy efficiency

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PROFESSIONAL SUMMARY

Building science professional with a background in architecture, specializing in energy efficiency, thermal comfort, and indoor environmental quality (IEQ). Experience in policy analysis, energy modeling, and software development for sustainable buildings. Contributions to developing thermal comfort standards, lifecycle assessments, and optimization tools for occupant comfort and energy efficiency.

CORE SKILLS

Building Science and Energy Modelling | Design Builder, OpenStudio, One Click LCA, Tally (Basic), ASHRAE 55 standard, ECBC Compliance
Software | Microsoft Office Suite, Adobe Suite, Python, Autodesk AutoCAD, Revit, SketchUp, Rhinoceros 3D, R (Basic)
Data Analysis & Optimization | Single and multi-objective optimization, predictive modeling, machine learning (for thermal comfort)
Soft Skills | Critical Thinking, Team Collaboration, Project Management, Technical Writing

PROFESSIONAL EXPERIENCE

The University of Texas at Austin, Austin • Graduate Research Assistant 01/2025 - Present

Currently focusing on air quality through indoor/outdoor measurements. Involved in literature studies and overall health due to air quality and pollutants at the Misztal Sniffer Lab, (Dr. Pawel Misztal).

Involved in customer discovery and commercialization efforts for a lab to market technology; accepted at NSF I-Corps (with Prof. Javad Mohammadi – part of class)

Pledge4Earth, Remote • Project Associate – Sustainability; part-time 01/2025 - Present

Contributed to the assessment of state-level preparedness for implementing Energy Conservation Codes (ECBC/ENS) in partnership with TERI and Pledge4Earth, commissioned by the Bureau of Energy Efficiency (BEE). Evaluated regulatory gaps, institutional capacity, and integration into building byelaws through government stakeholder engagement.

Environmental Design Solutions Pvt. Ltd., New Delhi • Policy Analyst 07/2023 - 07/2024

Contributed to projects in thermal comfort standards, energy-efficiency tool development, Indoor Air Quality data analysis, and educational course content development.

1. Assisted in creating a **$500K proposal** for the Low Carbon Comfort and Cooling Collective (LC4) project for **USAID**, focused on low-carbon cooling equipment, strategies, and environments in South Asia.
2. Developed thermal comfort strategies for affordable housing, contributing to **India's 2050 Action Plan for Thermally Comfortable Affordable Housing**.
3. Formulated and edited **training modules on the Energy Conservation Building Code (ECBC)** 2017 for electrical engineers of Indian Railways, impacting **1000+ engineers** towards energy efficiency.

4. Assisted in creating user interfaces and life-cycle cost models for energy efficiency tools for Pidilite Industries that promoted their sustainable building products – **Home Energy Efficiency Tool**.

Selected Projects:

Thermally Comfortable Affordable Housing (GIZ India Funded)

Created the Design Standards and provided recommendations through the Action Plan 2050, ensuring thermal comfort in affordable Indian households.

Low Carbon Comfort and Cooling Collective (LC4) and Demand Flexibility proposals for the United States Agency for International Development (USAID), South Asia Regional Energy Partnership (SAREP)

Conducted a comprehensive analysis of existing collectives, funding opportunities, and power utilities to develop a strategic roadmap and stakeholder framework for initiating and sustaining an energy demand flexibility collective.

Cleaner Air and Better Health Project (USAID Funded)

Conducted air quality analysis for various building types, monitored data continuity, identified pollution trends and causes, and collaborated on dashboard integration with industry-standard thresholds.

Indian Institute for Human Settlements, Bengaluru • Research Intern 01/2022 - 07/2022

Focused on occupant comfort and machine learning for building environmental quality optimization.

1. Developed a predictive model using machine learning to forecast operative temperatures, **reducing cooling load requirements by up to 60%.**
2. Conducted research on thermal comfort parameters, presenting findings at the FARU and Building Simulation and Optimization 2022 conferences, with **Best Paper Award recognition**.

EDUCATION

Master of Science in Sustainable Design • University of Texas at Austin, Austin, TX
(2024 - Present)

Bachelor of Architecture • School of Planning and Architecture, New Delhi, India
(2018 - 2023)
Dissertation: Impact of Ceiling Fans on thermal comfort in Institutional Buildings in the Composite Climate of Delhi
Thesis: Inter-modal Transit and Commercial Hub, Yeshwantpur, Bengaluru, India (Design Project)

HONORS AND RECOGNITION

1. **Best paper award** at the 15th International Conference at FARU 2022
2. **Grand and Divisional winners** in Solar Decathlon India 2020-21
3. **Regional winners** for the AIS Design Olympiad 2022
4. **National finalist - Student category** at Climate LaunchPad 2021
5. **National Talent Search Exam (NTSE) – State Scholar**
6. **Scholarship for Top Class Education for Students with Disabilities** by Department of Empowerment of Persons with Disabilities, Government of India

COURSES AND CERTIFICATIONS

1. **Construction Life Cycle Assessment Specialist –** OneClick LCA - 2024
2. **Introduction to ESG** by Corporate Finance Institute - 2024
3. **Renewable Energy and Green Building Entrepreneurship** by Duke University - Coursera
4. **Net Zero Energy and Water Buildings** by Solar Decathlon India

5. **ECBC Compliance through Energy Simulation - Introduction to Energy Modeling** by Energy Conservation Building Code (ECBC), BEE, India
6. **Registered Architect**, Council of Architecture, India - **CA/2024/169036**

PUBLICATIONS

1. Jain, G. et al. (2024) A comparative study of embodied carbon and thermal performance of new lightweight construction technologies to conventional construction technology in affordable housing in India. | ASHRAE Store. Available at: https://rb.gy/apbn49 (Accessed: 20 August 2024).
2. De, A., Raj, A., Rana, D., Anand, P., Sharma, S. K., Seth, V., & Sugga, P. S. (2023). Smart Cities Mission: Promises & Performance: The Environmental Sustainability of Smart Cities in India. In International Journal of Scientific & Engineering Research (Vol. 14, Issue 1, pp. 328–340). IJSER Publishing. https://doi.org/10.14299/ijser.2023.01.01
3. De, A., Thounaojam, A., Vaidya, P., Sinha, D., Raveendran, M.S., Gopikrishna, . and Uthej, D. (2022) 'Implementing At-Scale Adaptive Thermal Comfort Controls for Mixed Mode Building Using Machine Learning', FARU Journal, 9(2), p. 12-19. Available at: DOI: 10.4038/faruj.v9i2.172
4. De, A. et al. (2022) Predicting operative temperature with machine learning (ML), IBPSA Publications. Available at: https://publications.ibpsa.org/conference/paper/?id=bso2022_63 (Accessed: 20 August 2024).