

Deepanshu Babbar

DIGITAL SUSTAINABILITY | BUILDING PERFORMANCE CONSULTING | ARCHITECTURE

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Professional Summary

Architect, practising design lead and PhD researcher combining building science with client-facing project delivery. Develop digital twins, passive-design studies and smart-control strategies for UAE buildings, supported by energy simulation, measurements and techno-economic analysis. Ready to lead digital sustainability projects for Dubai consultancies using AI workflows, project management and cross-disciplinary coordination.

Skills

Building performance: EnergyPlus, Honeybee, Ladybug Tools, Radiance, cooling demand, daylight, glare, thermal comfort, indoor environmental quality, retrofit assessment

Design and modelling: Rhino, Grasshopper, Revit, AutoCAD, SketchUp, parametric modelling, multi-objective optimisation

Consulting and delivery: digital twins, environmental sensing, techno-economic analysis, project management, consultant coordination, AI prompt design, stakeholder presentations

Professional Experience

PhD Research Scholar | IIT Delhi–Abu Dhabi | Jan 2025 - Present

Abu Dhabi, UAE

- Developed a web-based building digital twin connecting geometry, sensor data and performance models; reduced laboratory energy consumption by 28% through digital twin-informed control actions.
- Identified an 18% reduction in energy demand through a wall-orientation study; modelled 56 completed façade and shading variants across energy and daylight criteria.
- Planned environmental measurements and compared observed conditions with simulation outputs using Rhino, Grasshopper, Honeybee, Radiance and EnergyPlus.
- Conducted techno-economic studies of shading, glazing, blinds and phase-change material retrofits, comparing energy savings, implementation costs and payback.

Principal Architect and Strategic Designer | Babbar Architects & Associates | Jan 2023 - Present

New Delhi, India | Practice continued alongside M.Des and PhD studies

- Led client briefs, design development, drawings and visualisations for residential and interior projects while managing interdisciplinary coordination.
- Coordinated architectural decisions with structural and building services teams; presented design options and project changes to clients and collaborators.

Senior Architect | Sensen Designs | Jan 2020 - Dec 2022

New Delhi, India | Worked alongside B.Arch studies

- Designed ultra-luxury hill holiday homes in Uttarakhand and Himachal Pradesh and beach houses in Goa, developing plans, design details and visualisations for distinct site conditions.

Planned UK Research Collaboration

December 2026 - April 2027 | UWE Bristol, Cardiff University, University of Cambridge and UCL. Planned work: implement and evaluate transferable building digital twin frameworks and compare model adaptation across UK and UAE buildings.

Education

PhD, Energy Science and Sustainability | IIT Delhi–Abu Dhabi | Jan 2025 - Present

Thesis: Integrated Passive Design and Smart Control Strategies for Energy Efficient Buildings.

Master of Design, Industrial Design | Indian Institute of Technology Delhi | Jun 2022 - May 2024

Bachelor of Architecture | School of Planning and Architecture, New Delhi | May 2017 - May 2022

Additional Information

LEED AP BD+C: preparing, target January 2027 | English and Hindi | Interests: sustainable real estate and finance; pursuing the CFA programme.