

Knowledge Domain & Professional Skills

- Building Physics, HVAC, Energy Efficiency, and Life Cycle Cost Analysis
- Expertise using whole building simulation tools - eQUEST, EnergyPlus, CBECC
- Building component modeling tools like LBNL WINDOW & COMFEN, optimization tool GenOpt
- Statistics, Machine Learning & Tool Development using Python & VBA

Publications

- Didwania, Srijan K., T. Agami Reddy, and Marlin S. Addison. "Synergizing Design of Building Energy Performance Using Parametric Analysis, Dynamic Visualization, and Neural Network Modeling." *Journal of Architectural Engineering* 29.4 (2023): 04023033. <https://doi.org/10.1061/JAEIED.AEENG-1521>
- Didwania, S., Rawal, R., Shukla, Y., Bansal, N.K., "Relevance of Radiant Space Cooling in Indian context". ASHRAE conference on Energy and Indoor Environment for Hot Climates, Qatar, February 2014.
- Kris Subbarao, Srijan K. Didwania, T. Agami Reddy & Marlin Addison (2021) A rigorous physics-based enhanced parameter estimation (EPE) methodology for calibration of building energy simulations, Science and Technology for the Built Environment, DOI: [10.1080/23744731.2021.2011615](https://doi.org/10.1080/23744731.2021.2011615)
- Rawal, R., Didwania, S., Shukla, Y., Manu, S., Panchal, P., "Deployment of energy simulation for design of voluntary Window Labeling Program in India". BS2013, 13th IBPSA conference, France, August 2013. DOI: [10.26868/25222708.2013.1469](https://doi.org/10.26868/25222708.2013.1469)
- Rajan, R., Vadodaria, K., Shukla, Y., Didwania, S., Singh, M., "Review and Application of Methodologies Available for 33 ULBs in Maharashtra, India". White Paper, CARBSE, CEPT University, India, March 5, 2014.
- Rawal, R., Shukla, Y., Didwania, S., Singh, M., Mewada, V., "Residential Buildings In India: Energy Use Projections and Savings Potential". Technical Report, CEPT-GBPN, September 2014.

Professional experience

Principal – SYNGINEERS, India (www.syngineers.in)

(Jan 2023 to Present)

Senior Simulation Specialist - M.S. Addison and Associates LLC, USA

(Jan 2016 to Dec 2022)

- Calibration and energy analyses of retrofit projects including high rise commercial buildings, schools, and prison campuses (> 7 million SQFT, Details available on request).
- Energy analysis of new construction projects, like Offices, Hospitals, Schools and Multifamily, Warehouse, etc. for Design Optimization, T-24 compliance, ASHRAE compliance, LEED and Utility rebate modeling (> 4 million SQFT, Details available on request).
- Research project "Building Energy Calibration based on Parameter Estimation and Machine Learning", funded by DOE under SBIR grant.
- Development of VBA/Python based statistical and automation tools to support energy modeling & analyses at various pre- & post-processing stages.

Research Assistant – CARBSE, CEPT University, India

(June 2012 to June 2014)

- Simulation and analyses for design of voluntary 'Window Labeling Program in India'.
- Case study for relevance of Radiant Cooling Systems in Indian context.
- Contributed to the development of Indian Version of COMFEN tool under US-India CBERD initiative in collaboration with 'Lawrence Berkeley National Laboratory'.
- Hygrothermal testing of materials and simulation tool 'WUFI' at 'Oak Ridge National Laboratory' to facilitate establishment of hygrothermal testing facility at CEPT University.
- Worked as part of Survey team (15 office buildings in 5 cities of India) for subjective thermal comfort assessment, to facilitate development of adaptive comfort model in Indian context.
- Energy simulations for 'Residential baseline study in India' (A CEPT and GBPN initiative).

- Energy modeling for advanced low energy cooling systems like 'Direct and In-direct Evaporative Cooling', 'Radiant Cooling', 'Dehumidification System', 'Displacement Ventilation', and 'UFAD', using EnergyPlus.

Internship

Infosys Technologies Ltd - Green Initiative

(Summers 2010)

- Developed calibrated models for four existing buildings (using Design Builder and EnergyPlus) to analyze and suggest energy efficiency measures.

Education

- MS in Built Environment, Arizona State University, USA (2014 – 2015)
- B.Tech. in Civil Engineering, Malaviya National Institute of Technology Jaipur, India (2007 – 2011)

References*

Dr. T. Agami Reddy

Dr. Rajan Rawal

Dr. Jyotirmay Mathur

Dr. Satish Kumar

Marlin Addison

**Contact Details upon request*