Srijan Kumar Didwania

Email: srijandidwania@gmail.com

Education

- MS in Built Environment, Arizona State University, US (GPA – 4.00 / 4.00) (2014 – 2015)
- B.Tech. in Civil Engineering, Malaviya National Institute of Technology Jaipur, India (2007 – 2011)

Publications

- 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
- **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.
- 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.
- 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.

Skills

Skill	Proficiency Level
Whole Building Simulations - **eQUEST, EnergyPlus, DesignBuilder, CBECC-Res**	Advanced
Component simulation tools - **LBNL WINDOW, COMFEN**	Advanced
Optimization using Genetic algorithm - **GenOpt with EnergyPlus**	Advanced
Coding, Statistics, Machine/Deep Learning, Tool Development – **Python, Excel/VBA**	Advanced
HTML, CSS, JavaScript	Basic
Hygro-thermal Simulations using **WUFI**	Basic

Professional experience

Senior Simulation Specialist (Jan 2020 to Present)
Simulation Specialist / Energy Analyst (Jan 2016 to Dec 2019)
M.S. Addison and Associates LLC, USA

- Calibration and energy analyses of retrofit projects including high rise commercial buildings, schools and prison campuses (> 7 million SQFT, Details available on request).
- Energy analyses of new construction projects especially Hospitals and Multifamily, including T-24 compliance, ASHRAE compliance, LEED and Utility rebate modeling (> 2.5 million SQFT, Details available on request).
- Worked on a research project "Building Energy Calibration based on Parameter Estimation and Machine Learning", funded by DOE.
- Development of spreadsheet/VBA/Python based tools to support analyses at various pre- & post-processing stages of the project.
- Approximate Work Hours Breakup (~8000 hrs modeling, ~1000 hrs coding, ~4000 hrs Analysis and reporting, ~2000 hrs coordination and management)

Research Associate (June 2012 to June 2014)
Centre for Advanced Research in Building Science and Energy, CEPT University, India

- Simulation and analyses (using Energy Plus and GenOpt) for design of voluntary '**Window Labeling Program in India'**. The research is published in IBPSA Conference Proceedings.
- Case study for comparison of Radiant Cooling Systems with VAV systems with respect to energy consumption, installation cost and Life Cycle Cost for four climate zones of India, using EnergyPlus as the simulation tool. The research is published in ASHRAE Conference Proceedings.

- Developed an excel based tool to compare the Life Cycle Cost of two design alternatives with respect to envelope characteristics by integrating library of material properties, cost, and pre-simulated energy consumption data of various design combinations from EnergyPlus.
- Contributed to the development of Indian Version of COMFEN tool under US-India CBERD initiative in collaboration with **'Lawrence Berkeley National Laboratory'**.
- Worked on hygrothermal testing of materials and simulation tool 'WUFI' at '**Oak Ridge National Laboratory'** to facilitate establishment of hygrothermal testing facility at CEPT University.
- Developed a '**Comfort tool'** for representation of comfort conditions based on PMV and Adaptive model.
- 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**).
- Comparison of low energy cooling systems like 'Direct and In-direct Evaporative Cooling', 'Radiant Cooling', 'Dehumidification System', 'Displacement Ventilation', and 'UFAD', using EnergyPlus.

Graduate Management Trainee

Consolidated Construction Consortium Limited   (2011 – 2012)
- Worked with planning and execution team for construction of 'Green & Intelligent Building' for ONGC and 'Fully Automated Multi-Level Underground Car Parking' that featured a unique top-down construction strategy.

Internship

Infosys Technologies Ltd - Green Initiative   (Summers 2010)
- Developed calibrated models for four existing buildings (using Design Builder and EnergyPlus) to suggest measures for improving energy efficiency.

Research Experience

Arizona State University, USA   (August 2014 to Dec 2015)
- Application of a diagnostic model deduced from metered energy consumption data to improve energy efficiency in commercial buildings.
- Commissioning of a dual-axis solar tracker.
- Energy Simulations to support decision making during initial design stage for a Net Zero Energy Building at ASU campus.

Malaviya National Institute of Technology Jaipur, India   (2011)
- Carried out a study on "Optimization of Building Envelope", as part of the regular curriculum to investigate the application of an optimization program (GenOpt) for identification of the optimum envelope configuration by minimizing the energy consumption and Life Cycle Cost (LCC).

IIIT Hyderabad, **India**   (Summers 2009)
- Coupling GenOpt with EnergyPlus and developing an online tutorial.
- Optimization of WWR for different types of buildings in different climate zones

Awards & Achievements

- Recipient of 'Design Excellence Award - Fall 2014', Design School, Arizona State University.
- 3rd Prize in 'NATIONAL LEVEL SUSTAINABLE ENERGY QUIZ (2010)', MNIT Jaipur in collaboration with ISHRAE.
- All India 2nd Prize in 'BIRLA WHITE YUVARATNA AWARDS 2009', for a case study on White Cement focusing upon its Energy saving aspects, through parametric energy simulations.
- Qualified among the top 1% of the candidates in IIT-JEE (One of the toughest competitive exams in the world) and AIEEE throughout India (2007)

University service

- EVENT HEAD in NEURON'09 (a National Level Tech Fest) at MNIT Jaipur
- EXECUTIVE for Fine Arts Society at MNIT Jaipur (2009)

Project Details at M.S. Addison and Associates

➤ **Calibration and Energy Analysis for Existing Buildings (Retrofit Projects)** **(> 7 million SQFT)**

- '**GSA (General Services Administration)** – Frank M Johnson Complex, Montgomery, AL', - 462,863 SQFT
- 'GSA – Veach Baley Federal Building and Courthouse, Ashville, NC', - 373,358 SQFT
- 'GSA – Terry Sanford Federal Building, Raleigh, NC', - 364,593 SQFT
- 'GSA – Hiram H Ward Federal Building and Courthouse, Winston-Salem, NC', - 349,753 SQFT
- 'GSA – Oxford U.S. Courthouse, Oxford, MS', - 89,351 SQFT
- 'GSA – William M Colmer Federal Building and Courthouse, Hattiesburg, MS', - 64,228 SQFT
- 'GSA - Chet Holifield Federal Building, Laguna Niguel, CA', - 1,031,037 SQFT
- 'GSA - US Courthouse, Los Angeles, CA', - 886,077 SQFT
- 'GSA - Wilshire Federal Building, Los Angeles, CA', - 550,183 SQFT
- 'GSA - Santa Ana Federal Building, Santa Ana, CA', with a project area of 267,201 SQFT
- 'GSA - Richard H Chambers US Courthouse, Pasadena, CA', - 163,597 SQFT
- 'US Army - Humphreys Engineering Center - CUDE Building, Alexandria, VA', - 180,120 SQFT
- 'A80-TRACON-Atlanta Airport, Atlanta, GA', - 89,571 SQFT
- 'Air Traffic Control Tower, Atlanta, GA', - 12,000 SQFT
- 'Federal Correctional Institution, Manchester, KY', - 563,713 SQFT
- 'Federal Correctional Institution, Cumberland, MD', - 370,313 SQFT
- 'Mercy Gilbert Medical Center, Gilbert, AZ', - 353,750 SQFT
- 'Wells Fargo Bank, Chandler, AZ', - 202,378 SQFT
- 'Mountain View School District, Kingsley, PA', - 88,000 SQFT
- 'Holy Redeemer Village, Huntingdon Valley, PA', - 175,424 SQFT
- 'New Milford High School, New Milford, CT', - 272,519 SQFT
- 'Springfield Police Department, Springfield, PA', - 11,975 SQFT
- Zero Energy Homes - Irvine Smart Grid Demonstration Project

➤ **Energy Analysis for New Construction Projects, Code Compliance** **(> 2.5 million SQFT)**

- 'St. Johns Pleasant Valley Hospital, Camarillo, CA', - 54,000 SQFT
- 'California Hospital Medical Center, Los Angeles, CA', - 136,873 SQFT
- 'Mercy Hospital Southwest, Bakersfield, CA', - 160,275 SQFT
- 'Mercy Gilbert Medical Center, Gilbert, AZ', - 358,857 SQFT
- 'French Hospital Medical Center, San Luis Obispo, CA', - 88,367 SQFT
- 'Medical Office Building, Phoenix, AZ', - 130,000 SQFT
- 'Huntsman Cancer Hospital - Phase V - University of Utah, Salt Lake City, UT', - 210,560 SQFT
- 'Colony B Micro Apartments, Salt Lake City, UT', - 56,850 SQFT
- 'Univ of Utah Public Safety Building, Salt Lake City, UT,' – 26,154 SQFT
- 'Kozo House, Salt Lake City, UT', - 284,758 SQFT
- 'Lehi Block A Apartments, Lehi City, Utah', - 82,677 SQFT
- Compliance for 'Modal (Accessory Dwelling Unit / Tint House Projects)' - Many units across USA.
- 'Tucson Medical Center-Rincon, Tucson, AZ' – 132,579 SQFT
- '19th and Clay Apartments, Denver, CO', - 370,000 SQFT
- 'Univ of Utah Impact and Prosperity Center, Salt Lake City, UT', - 270,759 SQFT
- 'Univ of Utah Applied Sciences / Stewart Building, Salt Lake City, Utah', - 140,944 SQFT

- ➢ **Research Projects**
  - Building Energy Calibration based on Parameter Estimation and Machine Learning", funded by DOE, in collaboration with Golden Analytics and ASU
  - Energy Assessment of PCM in Wells Fargo Branches, in collaboration with ASU

References Contact Details

- *Prof. T. Agami Reddy*, Professor & Program Coordinator, MSBE, ASU, +1-480-727-7417, reddyta@asu.edu
- *Rajan Rawal*, Executive Director, CARBSE, CEPT University, Ahmedabad, +91-79-2630-2470 Ext: 183, rajanrawal@cept.ac.in
- *Dr.-Ing Jyotirmay Mathur*, Associate Professor & Coordinator, CEE, MNIT Jaipur, *+91-141-2713211, jyotirmay@mnit.ac.in*
- *Dr. Satish Kumar*, Former LBNL Scientist and LEED Fellow, President and Executive Director, Alliance for an Energy Efficient Economy (AEEE), +91-98-180-75006, satish1992@gmail.com