JACK DAVID MADEW

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CAREER PROFILE

- Sustainability engineer specialising in building physics and integrated design to respond to a changing climate and client needs. I enjoy adopting new technologies and tools, currently specialising in thermal, daylight radiance and parametric modelling in IESVE and Rhino Pollination tools. Experience presenting on sustainability to push for greater project outcomes that may not be considered, such as higher ratings through long-term cost benefit, climate resilience informed by the best available data and human-centred design pieces.

KEY SKILLS

- Integrated design with whole-of-life analysis
- Ability to quickly adopt new technical skills
- Focus on finding new use cases for tools
- Compliance and rating delivery
- Parametric design analysis
- Thermal comfort assessments
- Daylight and glare radiance simulation
- Climate analysis and resilience assessments
- Advanced HVAC Modelling
- Flexible and sociable within a team

KEY PROFICIENCY

Software	IESVE Energy Simulation, Daylight Simulation within Honeybee Radiance and Pollination suite of tools for Grasshopper in Rhino CAD, ANSYS CFD simulation + FEA, Excel, GitHub web hosting
Carbon Accounting	EC3 EPD based calculation, New NABERS Upfront Emissions Factors, UoM EPiC database calculations in excel and integrated in Rhino Grasshopper
Languages	Conversational French, slight Chinese, Matlab

EXPERIENCE

E-Lab Consulting, Sustainability Engineer — Dec 2022 – Current

- Implementing Whole-of-Life cost-benefit analysis to understand the energy, carbon and capital costs of building façade and HVAC designs to deliver optimal outcomes for clients and climate.
- Applying Australian Compliance Codes (BASIX, NatHERS, Section J, NABERS) to a variety of commercial, residential, retail, hospital and industrial projects in a range of climates.
- Delivering on local and international sustainability ratings; Green Star, NABERS Energy, Water and Waste, and WELL Health Safety Ratings.
- Developed parametric workflow to generate modelling iterations based on project desired inputs and outputs. Utilised Thorton Tomasetti's Design Explorer to showcase hundreds of modelling iterations in parallel axis presentation to quickly optimise façade design (project example).
- Pioneered architectural model to energy model workflow using Rhino CAD program to allow for quicker and more accurate model development (reduced modelling development time by 50%).
- Incorporated climate-resilient facade and HVAC system advice, reinforced with modelling from projected weather files to ensure optimal outcomes throughout the design life
- Initiated a modelling group of 7 people within E-lab to standardise technical workflows and discuss future avenues for modelling development to benefit the company.
- Developed small 3D tools to speed up and visualise assessments; solar array generator, shade and terrain simplifier, and external glare reflectivity assessments.
- Modelled complex HVAC systems for IT Data Centres and commercial developments with specific internal conditions (dehumidification, humidification, economy cycles, chiller load modelling).
- Thermal comfort simulation in indoor, naturally ventilated, mixed mode and outdoor spaces, including the impact of direct solar heat and elevated air speeds.
- Head of Social Committee at E-lab Consulting organising social events (trivia, fun runs etc.)

ADP Consulting, Graduate Engineer Jan 2021- Dec 2022

- Experience working with a multi-disciplinary services engineering consultancy to deliver Green Star and NABERS ratings and commercial and residential Thermal Envelope assessments.
- Thermal comfort in naturally ventilated, mixed mode and outdoor spaces utilising IESVE and Ladybug tools in Grasshopper.
- From an acoustics and sustainability background, pioneered the use of trickle ventilation to deliver natural ventilation and quiet residential spaces in a noisy city environment.
- Initial experience in delivering acoustics design criteria for residential, commercial base building and fitouts, music education and medical facilities. Modelling to deliver internal acoustic environment (sound level and reverberation), acoustic separation and impact isolation.
- Began the modelling group within ADP to standardise technical workflows.

OTHER EXPERIENCE

- Sydney Motorsport (FSAE team for University of Sydney), Business and Team Manager, 2018-2021
- Mechanical Design Tutor, the University of Sydney, 2020
- Sydney Heritage Fleet (SHF), Volunteer Engineer, 2019 – 2020

EDUCATION

University of Sydney 2017-2020

- Bachelor of Mechanical Engineering (Major in Energy & Environment) with First Class Honours

People's University of China, Beijing, Jan 2016 – Jun 2016

- Mandarin Language Course Certificate at Confucius Institute

Green Star Accredited Professional (GSAP) - 2024

REFEREES

Alex Kobler: Director, E-lab Consulting

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