

## Abstract titles - Australasian Building Simulation 2017 Conference

### Application of CFD in buildings

Abstract Title
CFD analysis of plume height and dispersion effectiveness for strobic, manifold and individual fume exhaust discharges and aspects to be considered in design.
Porous media representation of louvers in building simulations.
Residential built fabric wall systems; what are the condensation risks?
Modelling and simulation of building HVAC systems using phase change material emulsions as working fluids.
Advances in CFD modelling for data centre cooling optimisation.
Feasibility of riblets in cooling coils.
Capabilities and limitations of proprietary and non-proprietary BIM-compatible CFD tools for information exchange.
How to overcome the CFL stability condition without using implicit schemes for predicting nonlinear moisture transfer?
Modelling constructions with phase change materials in dynamic building simulation programs.
Moisture front: investigating the effect of moisture advection in building porous materials.
Renovating a pre-1980's weatherboard home; what about condensation?
Energy in a naturally warmed air flow: Exploiting the "chimney effect" of ventilated facades' cavity.
Simulating the effect of a building fire on ventilation systems.

## Building energy simulation

Abstract Title
Differences in energy demands of the housing units in multi-family residential buildings.
Practical modelling application - ICC Sydney.
Simplified thermal transitional modelling for building energy prediction using support vector regression.
A design tool for off-grid housing in Australia.
Analysing building energy consumption in West Africa: The case of Ghanaian office buildings.
Design, evaluation and optimisation of district cooling energy performance using a dynamic-based simulation platform: case study on a Singaporean University campus.
Building energy optimisation using artificial neural network and ant colony optimisation.
Energy modelling of a gas-fired absorption heat pump in a residential home for cold climate using TRNSYS.
Numerical study of building integrated thermal energy storage systems.
Seasonal energy deficit of solar net-zero energy buildings in cold, high-latitude climates.
Development of energy profiling system based on artificial neural network models for existing buildings.
Building tuning using simulation.
Building fabric energy simulation analysis of data centre facilities.
Central chilled water plant simulation and performance benchmarking - recent international results with the Kiltech model.
Whole of life comparison of conventional roof mounted solar PV and BIPV.
PassivHaus for Australian climates.
HVAC technology simulation study for net zero energy commercial buildings in Australia.
Energy and water simulation of an aquatic centre.

## Building information modelling

Abstract Title
Parametric water analysis: testing a multitude of water reuse options.
Development of numerical modelling method for the design of data centre cooling.
Rain intrusion behind insulated modules attached to façades of old buildings. A probabilistic approach.
Bridging simulation and real world performance - case studies in building refurbishment projects.
A compartmentalisation and ventilation system retrofit strategy for high-rise residential buildings.
Performance-based urban design using computer simulation - a review of literature and applications.
Multi-objective optimisation tools for high performance building design.
From BIM to BEM: a collaborative approach.
Integration of statistical and data analytics capabilities within building simulation.
A calibrated simulation case study using manual calibration method and calibration signature method.
Establishing a knowledge base system (KBS) for post-construction building facility maintenance.
Modelling and simulation of a naturally ventilated BiPV façade coupled with PCM - energy saving evaluation.
How do early phase performance modelling results compare to detailed methods?

## Building regulation and policy

Abstract Title
Applying parametric design: the WELL standard vs. NABERS ENERGY.
Insulation studies NCC 2019.
Lighting: The potential for increased efficiency requirements in the NCC.
Understanding Australian building energy codes and building performance: A comparison study of building energy codes in Australia, America and China using building energy simulation.
Glazing studies for NCC 2019.
Building performance improvements - Opportunities for NCC 2019.
Thermal bridging - Calculations and impact.

## Calibration of models for deep retrofits

Abstract Title
Calibrated reference buildings for simplified building performance simulation.

## Lighting and daylight simulation

Abstract Title
Parametric analysis as a driver for daylighting certification and rapid design feedback applied in the tropical context of Singapore.
Developing a weighted inverse lighting algorithm to optimize facade design to achieve daylighting objectives.
Spectral composition of daylight: Comparisons between sky models and measured sky data.
Intelligent window techniques: An accumulative approach to enhance energy and visual performance in office buildings.
Examining façade design variations with equivalent daylight performance: Impact on energy consumption in office spaces.
Daylighting simulation, occupant experience and user behaviour in office buildings.
Comparing subjective glare evaluation from windows with existing evaluation methods while using innovative window design system.
Energy efficient lighting concept with daylight harvesting light tubes - coupling daylight simulations with BPS for proof of concept.
The influence of thermochromic glazing parameters on energy saving and both thermal and visual comfort criteria using moment-independent measure.
Towards automation and evolutionary optimisation in daylight modelling.

## Model-based control and controls design tools

Abstract Title
Performance prediction of an air source heat pump water heater in Canadian conditions.
Simulation of a hybrid solar-geothermal heat pump for a typical poultry shed in Peats Ridge, NSW.
Energy and exergy studies of a ground source heat pump in a public building in Wuhan, China under different control strategies.
Ground source heat pump - Numerical simulation to analyse the short circuiting effect between two legs of U tuber borehole heat exchanger pipe.
TRNSYS simulation of a gas engine-drive heat pump (GEHP) installed at an office building in Ontario, Canada.

## Occupant behaviours

Abstract Title
Implementation of occupant activity logging for consumption trend modelling and building performance assessments into standard practice: feasibility, benefits and constraints.
How architecture predefines occupant behaviour in buildings – considerations for occupant behaviour modelling.

## Thermal comfort modelling

Abstract Title
An integrated concept-to-construction approach.
Measurement and prediction of heat transfer and mass flow of a ventilated façade.
Open-plan, hot-desk spaces in green buildings: simulated visual comfort versus real user experiences.
Simulation and comparison of urban heat island mitigation strategies under Mediterranean climate: The case of Dora district, Beirut, Lebanon.
Hygro-thermal simulation for interrogating internal environments of NZ houses.
Commercial building thermal performance simulation and optimisation of chilled water plant using shuffled complex evolution.
SET comfort for 21st century warming: The benefits of ventilation and clothing levels in conditioned spaces.
Comfort versus energy saving; the effect of different building parameters on heating and cooling in Australian climates.
Numerical and experimental analysis possibility to locate material inclusions in the walls using active thermography.