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Editorial

This issue of *Building Services Engineering Research and Technology* contains eight papers that address recent advancements in the field of the simulation of building behavior. The papers represent a selection of those presented at the IBPSA Building Simulation 2003 conference which was held from 11th to 14th August 2003 in Eindhoven (Netherlands). The conference was the eighth in a series of double-blind peer reviewed conference hosted by IBPSA (International Building Perforance Simulation Association). The first conference was held in Vancouver (1989), followed by conferences in Nice (1991), Adelaide (1993), Madison (1995), Prague (1997), Kyoto (1999), Rio de Janeiro (2001) and Eindhoven (2003). The next, conference will be held in Montreal in 2005. IBPSA was founded to advance and promote the science of building performance simulation in order to improve the design, construction, operation, and maintenance of new and existing buildings worldwide. There were 195 papers presented at the 2003 conference, 13 of which have been expanded and improved for publication in this Journal (eight papers are published here with the remaining five appearing in the next issue, volume 25 number 4).

Research in building simulation is founded on a wide range of disciplines, including mathematics and the physical, material, human behavioral, environmental, and computer sciences. The research presented in the papers published here, draws on these disciplines for the development of new models of building processes, the validation of building simulations, and the application of building simulation.

New models are described for; the thermal performance of a ventilated window system (Lead *et al*); a ducted wind turbine for use in the micro-generation of building electricity supply; and finally a model for the effect of ponds on the urban thermal environment (Robitu *et al*).

The application of building simulation is described with respect to; the analysis of simulated building performance data via data mining methods (Morbitzer *et al*); the model based multi-objective optimum supervisory control of HVAC systems (Nassif *et al*); the exergy analysis of a low temperature heating system; the design (Haves *et al*) and operation (Carrilho da Graca *et al*) of a naturally ventilated building; and finally, the matching of modeling complexity and detail to the degree of building performance analysis required.

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