Oct 2025

ibpsaNEWS

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BS 2025 a full report on a successful conference and the launch of the IBPSA Women's Network

SOFTWARE NEWS from DesignBuilder, Climate.OneBuilding.Org, IES and Trimble SketchUp, an opportunity for software developers to join development of Australia's Nationwide House Energy Rating Scheme (NatHERS), and a report on a Radiance workshop in Lausanne

CALENDAR OF EVENTS 11 conferences for your diary

plus Ask A Modeler Q&A, and a list of the latest papers published in the Journal of Building Performance Simulation

The newsletter of the International Building Performance Simulation Association ISSN 1993-8586

Contents

President's message

Dear IBPSA Colleagues and Friends

I'm pleased to say that Building Simulation 2025 (the 19th IBPSA conference), with around 600 participants and 400 speakers, was a great event. It was held in Brisbane, Queensland, Australia, in late August. It was great to reconnect with many of you there. Congratulations to IBPSA-Australasia and AIRAH for organizing such a great event. Everything went off like clockwork.

Papers and presentations are currently available on the BS 2025 website for registered participants. These papers will soon be added to the IBPSA Publications database **https://ibpsa.org/publications**.

One of the great things that IBPSA does every two years is recognize the accomplishments of the building simulation community through our awards. This year, awards were presented at Building Simulation 2025. Information about IBPSA's awards is available here: **http://ibpsa.org/awards**. This year's awardees can all be found on **pages 13 & 14**.

The Annual General Meeting (AGM) of the IBPSA membership was also held during the Building Simulation 2025 conference. The AGM is held annually to announce the results of the annual election and to ratify the financial report and acts of the board of directors. This year, 5 at-large directors were elected: Mike Barker, Dru Crawley, Christina Hopfe, Lori McElroy, and Wangda Zuo. All the nominated affiliate directors were elected. The first meeting of the IBPSA board for the 2025-2026 year will be in late October.

A reminder of resources from IBPSA:

- Check out our website – **www.ibpsa.org** – updated and reorganized to make finding the information you're looking for easier. We welcome any feedback that you may have.
- IBPSA is now co-sponsoring multiple ASHRAE Standards relating to building performance simulation. More on this on **page 31**.
- Your IBPSA board meets regularly. Our first meeting of the IBPSA Board will be in late October. Usually, this immediately follows the Annual General Meeting, but not enough board members were able to attend BS 2025. We welcomed the new members to the board at the AGM. Officer elections will be held at the board meeting.
- As mentioned in the previous IBPSAnews, the board has established a new Strategic Planning committee. If you are interested in participating, contact Pieter de Wilde (**pieter.de_wilde@ebd.lth.se**).
- At our last meeting, the board approved creation of the IBPSA Women's Network (see more on **page 16**), which was launched at Building Simulation 2025. For more information, contact Esther Borkowski (**estbo@dtu.dk**).

Membership and participation in our committees is open to all IBPSA members. If you are interested and can participate in regular committee meetings, please contact the appropriate committee chair (see the website **https://ibpsa.org/about/contacts** for specific contacts).

Are you a member of the IBPSA group on LinkedIn? If not, join the community of more than 12,000 people interested in building performance simulation to keep up with current information: **www.linkedin.com/groups/75552/** .

Check out the calendar of forthcoming events on **page 18**. Also, of note in this newsletter, news from the Radiance Workshop in Lausanne and the announcement about BS2027. Other useful items include software updates, book announcements, and the open call for submissions to the Journal of Building Performance Simulation.

I look forward to seeing you at the next IBPSA event!

Dru Crawley
President, IBPSA

Best of 'Ask a Modeler':

Heat and Carbon

'Ask a Modeler' is an advice column for the building simulation community. Each month, members of the IBPSA-USA Research Committee pose a question submitted by an IBPSA member to recognized experts to get their unique perspectives. Through this column, we hope to expand communication and create a sense of community among practitioners, researchers and academics at all points in their building simulation careers. Below, we are reprinting some expert advice from the past few months. We hope that sharing these questions and insights will bring value to your work and possibly make you think about building performance modeling from a new point of view.

As an energy modeler interested in reducing lifecycle carbon, what are the best methods to start to track and compare embodied carbon in my projects?

— Carbon Curious

Dear Carbon Curious,

Jay Arehart, PhD
University of Colorado Boulder
Preoptima Ltd
Jay.Arehart@Colorado.edu

As energy modelers, we know how to look at the energy demand of our projects. But in the face of the climate crisis, it's becoming more and more important to also consider the lifecycle greenhouse gas emissions. For simplicity, we will call these greenhouse gas emissions "carbon". Before we begin discussing methods for tracking, comparing, and reducing carbon, I'd like to start by defining and discussing a couple of key terms. When we think about a building project from a lifecycle perspective, we can categorize it into a few lifecycle stages: (1) extraction and manufacturing, (2) construction, (3) operation, and (4) end-of-life. We can measure the amount of carbon that is emitted from each of these lifecycle stages to tally the total lifecycle impact of a project – performing what is called a life cycle assessment (LCA).

When we just consider the operational stage of a project, we are calculating the operational carbon of a project – this is where most of the focus has been for energy modelers. To translate annual energy demand to carbon, we can use present-day emissions factors for different energy sources (e.g., electricity and fuels) to convert from energy to carbon over an assumed building lifespan (often 60 years). More advanced analysis might consider decarbonization scenarios for an electrical grid over the lifespan of a building.

Let's pause for a minute. If we only consider the operational stage of a building, we are missing other important pieces. That is, the operations do not account for the carbon from other lifecycle stages – the embodied carbon. The term embodied carbon refers to the carbon emission associated with the extraction, manufacturing, transportation, and eventual disposal of all construction materials – all of the other lifecycle stages. Of these lifecycle stages, the extraction of raw materials and manufacturing are the most carbon-intensive parts and are the easiest to find data for. Many construction products today have environmental product declarations (EPDs) which report the carbon emissions of that product on a per-unit (e.g., by mass or volume) basis. We can think of them as the nutrition label for construction materials.

The crux of assessing the embodied carbon in the design phase is performing accurate quantity take-offs. This process is often the most time consuming. From quantity take-offs, the carbon emission factors derived from industry-average or product-specific EPDs can then be matched to determine the embodied carbon of different materials, building systems, or whole-buildings.

Trade-offs exist between operational and embodied carbon. For example, if we reduce the operational carbon by increasing the envelope insulation, we need more material. If the insulation material is carbon-intensive to manufacture (e.g., spray foams), the embodied carbon will increase, and in extreme cases, may outweigh the reductions of operational carbon. It is important, when evaluating design alternatives, that comparisons are made on a functionally equivalent basis.

When in the design stage of a project, we can track the carbon of each building system and lifecycle stage. By tracking it, we can then measure how different design options compare against one another. There is more uncertainty in the design stage since the specific materials or energy demand are not yet known. As a project moves into procurement, specific construction materials or products are chosen, and the embodied carbon can be assessed more accurately. And, as the building becomes occupied and operational, the operational carbon can be measured and compared to what was modeled.

When we put the operational carbon and embodied carbon together, we can assess the whole-life carbon of a building system or project. With a LCA that is measuring whole-life carbon, a "hot-spot" analysis can be performed to identify lifecycle stages, materials, or building systems that contribute the most to the project's total carbon. For a net-zero energy building, this might be the structural system, or, for a code-minimum building in a harsh climate, it may be the carbon emitted for space heating or cooling. These hot-spot analyses give the design team the ability to focus on the areas that contribute the most to the carbon and have the highest potential to make reductions.

So, in practice, how do we assess the whole-life carbon of our projects? While we can use manual approaches, there are also several free and commercial tools available to help model the whole-life carbon of a project. The Athena Impact Estimator for Buildings is a free tool, specific to North America, that allows for the modeling of whole-life carbon from either general building information, or a bill of materials and energy demand. For those interested in incorporating carbon measurements directly into a Revit workflow, Tally is a commercially available plug-in. OneClick LCA is another commercial tool with access to a large database of EPDs and generic material data. Once bills of materials are known, and a project has moved towards procurement, the Embodied Carbon in Construction Calculator (EC3) can help match bills of materials to specific EPDs. EC3 is a free tool, with an ever-growing collection of EPDs. These are just a few of the available tools, with more and more coming available each day.

As you begin tracking both operational and embodied carbon in your projects, keep a look out for a few things. First, always evaluate design alternatives on a lifecycle basis. If you just consider the embodied, or operational carbon, you will be missing the full carbon picture. Second, it takes time to quantify embodied carbon – high-quality quantity take-offs and high-quality carbon data are necessary to ensure an accurate carbon figure. Third, there is no easy answer to reducing whole-life carbon – each region and project is unique and will require different design strategies. Thus, knowledge sharing is an important part of the process as we move towards fully decarbonizing our buildings.

I'll end by offering up a new framework for assessing the sustainability performance of our projects in the context of carbon. That is the idea of "absolute zero-carbon" buildings – those that have zero carbon emissions across their entire lifecycles. But for us to achieve this, we must begin by measuring the whole-life carbon of our buildings and then we can work to reduce it.

As heat pump water heaters reach higher adoption, what do I need to know in order to properly model them?
— Hot For Heat Pump

Dear Hot For Heat Pump,

Jeff Maguire
Researcher, NREL

What special considerations do I need to make to model a heat pump water heater?

Good question! You might have plenty of experience modeling water heaters and feel like you're a pro with plant loops, but heat pump water heaters (HPWHs) do require some additional considerations. I've been modeling HPWHs for over a decade and did my thesis on modeling HPWHs with one of the **first national scale analyses of their performance**, so I've picked up a lot of tips for modeling this technology. Heat pump water heaters have been around for decades, but in the last 10-15 years multiple major water heater manufacturers have launched and refined product lines. This article focuses on modeling residential integrated HPWHs, but many of the considerations would also apply for split HPWHs or those sized for commercial buildings. A model that gives you good results for an electric resistance tank may not provide you accurate results if you just add a heat pump. To be able to do a good job modeling a HPWH, the first step is to know how the actual equipment operates. If you don't understand how the physical equipment operates, you won't know if your model is behaving correctly or not.

How do HPWHs work?

As the name implies, HPWHs integrate a heat pump with a water storage tank. This heat pump works like any other heat pump, pulling heat out of the ambient air and moving it into the water storage tank. While the majority of the load is met through the heat pump, the tank frequently also includes backup electric resistance element(s). While the heat pump is much more efficient, it heats the tank more slowly than the elements, so the elements tend to turn on when there are large loads. Products will favor the heat pump, but at a certain point if the heat pump doesn't have the capacity to provide adequate hot water the backup elements will turn on. The exact setpoint where the heat pump and element(s) turn on is based on the onboard control logic and is specific to each manufacturer. Most HPWHs also have multiple operating modes, which may disable the backup elements entirely. The control logic to use in simulation is generally derived through comparisons to measured laboratory data.

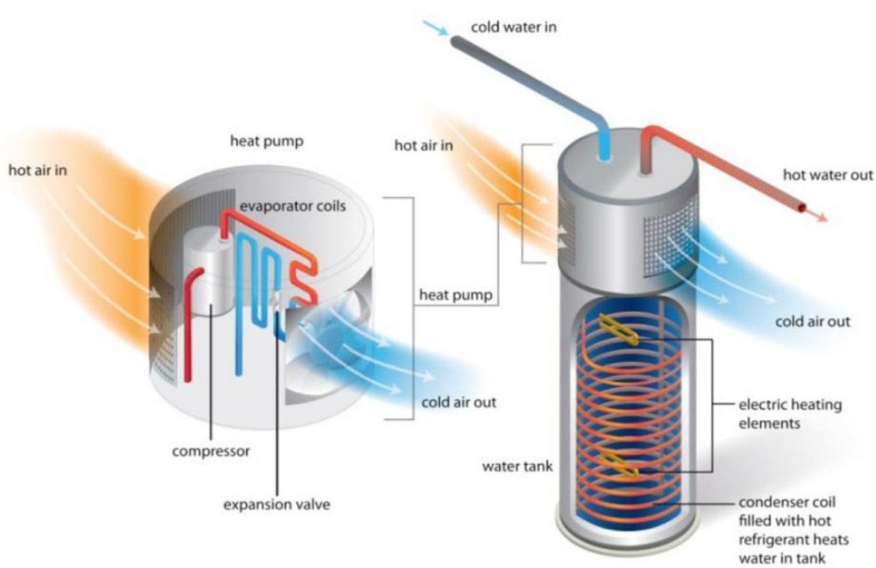


Figure 1:
Schematic of a HPWH. The HP evaporator sits on top of the tank, and wrapped condenser coils transfer heat into the tank. Backup heating elements are frequently included and may trigger depending on the water heating load and operating mode. (Image by NREL.)

What additional information do I need to model a HPWH?

There are two critical pieces of information you need to model HPWHs: you need to know the performance of the heat pump under the full range of conditions and how the HPWH controls which heat source is operating. Performance maps are generally derived through detailed laboratory testing under a broad range of ambient conditions and then validated against additional data not used in the derivation. If you're modeling residential integrated products, the EnergyPlus example files for HPWHs include a performance map derived from extensive comparisons to **laboratory data**. This performance map could be used for any systems with a similar heat pump (primary concern is using the same refrigerant), split or integrated. However, it would not be appropriate to use with HPWHs using a different refrigerant such as CO2. For the control logic, you can either derive your own based on measured data or look at what's used in existing HPWH models to inform your setpoint and deadband assumptions. There are existing models in **OpenStudio-HPXML** and **ResStock**, tools designed to be able to model residential buildings all across the U.S., for a HPWH from a major manufacturer that you could pull control logic from. You could also look at **HPWHSim**, a tool designed specifically for HPWH modeling, to see what control logic they use for different products.

What else should I watch out for?

Timestep lengthsize matters much more for a HPWH than it does for gas or electric tanks. Larger timesteps have two main implications: the water draw profile may be spread out across the entire timestep and the HPWH has fewer opportunities to make a control decision. Some BEM tools have a separate timestep for the water heater to address the less frequent control decisions. EnergyPlus includes an adaptive timestep algorithm where it will take larger timesteps when nothing is happening and smaller timesteps when control decisions are being made (generally during hot water draw), but for tools that don't, it's important to have small enough timesteps for the model to accurately figure out which heat source needs to trigger during recovery. Larger timesteps may smooth out demand for hot water such that the model uses the wrong heat source. If a large draw happens across a 10 minute window, for example, modeling with hourly timesteps will require that same event to be evenly distributed across the whole time step. This flow rate matters because it affects the internal tank temperature dynamics. A large draw over a 10 minute window might require the backup element to turn on, but if this draw was averaged over an hour, the heat pump could keep up with the rate of demand. Shorter timesteps can avoid this problem, with 1 minute timesteps being ideal for capturing the real spikes in hot water usage, especially in residential buildings. You also want to use a stratified tank model when modeling HPWHs rather than a mixed tank. Mixed tanks are assumed to be a single uniform temperature, while stratified tanks account for vertical differences in tank temperature. The heat pump performance depends on the temperature of water adjacent to the condenser, which is generally in the bottom half of the tank. Assuming a fully mixed tank will not accurately represent the temperature of the lower half of the tank, especially during recovery from draws, which will affect the COP and capacity calculations using the performance map.

Now that you know the pitfalls you'll encounter, you too can become an expert in HPWH modeling. Happy modeling!

We want to hear your interesting, entertaining, or just plain odd questions about life and building performance simulation. IBPSA members can submit questions to **info@ibpsa.us** *to be answered by prominent building performance simulation experts. Note that questions requiring an immediate response should be submitted to the community of experts at* **unmethours.com**. *Read our other past columns at* **www.ibpsa.us/category/aam**. *If you are interested in replying to a question as a featured expert or have any other feedback about Ask a Modeler, please email* **info@ibpsa.us.** ■

Building Simulation 2025

A conference for action and impact

Last August, the global simulation community came together for the biennial Building Simulation Conference, hosted by IBPSA Australasia and AIRAH in sunny Brisbane, Australia.

Taking place from 24-27 August, with two additional workshops on the 28th, Building Simulation 2025 included more than 400 speakers across nine parallel sessions, with more than 500 in-person delegates (80% from outside Australia) and close to 50 delegates attending virtually.

This report is adapted with permission from "Global experts unite at Building Simulation 2025" *originally published in HVAC&R News, with additional content from Priya Gandhi, Nicki Parker, and Quentin Jackson.*

A conference for action and impact

With a tagline of "carbon and climate responsive", the BS2025 conference organisers set a clear expectation for the almost 600 total delegates of what to look forward to in Brisbane. Unique among global chapters in this regard, IBPSA Australasia is largely led by and for industry professionals, rather than academics and researchers.

Setting an intention to strengthen the connection between research outcomes and real-world applications in both directions, the Organising Committee Quentin Jackson (IBPSA Australasia President and Principal, Aurecon), Nicki Parker (IBPSA Australasia Treasurer and Associate, Aurecon), and Priya Gandhi (IBPSA Australasia Vice President and Associate Director, Atelier Ten), together with the Scientific Committee Chair PC Thomas (IBPSA Australasia Education Chair and Director, Team Catalyst) put together a program focused not only on sharing the latest in simulation, but one that actively facilitates connections between attendees – one of the most valuable aspects of any international conference.

Topics covered in the presentations included addressing climate adaptation, accounting for human behaviour, retrofitting existing buildings, how to best teach simulation, the interactions between policy outcomes and simulation, urban planning, artificial intelligence, outdoor environments, indoor environments, and more beyond.

Conference Chair Quentin Jackson said about BS2025: "*The keynotes and papers showed that collaboration, trust, diversity and leadership drive change in driving to a climate responsive future. I was impressed by the quality of papers and the diversity of thought, and this was amped by the launch of the IBPSA Women's Network at the close of the conference*".

The bigger picture: three days of outstanding keynotes

The conference opened with a Welcome to Country from local Yuggera-Toorabul man, Yulu Buhman. In Australia, this is a ceremony performed by a local Aboriginal person of significance, to acknowledge and give consent to events taking place on their traditional lands. It is a sign of respect with a history prior to colonisation.

Quentin (left) hosted the opening plenary session which kicked off with a message that couldn't be more important for people working in a highly specialised technical field like simulation. Associate Professor Jen Martin (right) from the University of Melbourne shared her passion for scientific communication, noting that even the most astounding technological breakthroughs mean nothing unless we can clearly articulate them to the wider world.

Conference Co-chair Priya Gandhi explained that "*Bringing in Jen at the very beginning of the conference was strategic – the value of this 'soft skill' cannot be overstated. It is not enough to be technically brilliant, we need to be able to effectively share insights and solutions with non-experts in order to have real impact.*"

Following Martin was Professor Zoltán Nagy from Eindhoven University of Technology, whose presentation focused on the oft-overlooked human element of simulation. Nagy talked about how occupant-centric approaches can improve energy performance while maintaining comfort, how coordinated building portfolios enable substantial demand response, and how bottom-up city-scale modelling can reveal critical climate policy trade-offs invisible at building level.

Those who attended the plenary session on day two of the conference will have the dulcet tones of Scientific Conference Committee Chair PC Thomas singing "Money money money" burnt into their eardrums, probably for the rest of their lives. When he wasn't doing his best ABBA impression, Thomas gave a fascinating insight into the history and development of Australia's NABERS rating scheme for commercial buildings - and notably how it has allowed Australia to make real, measured improvements in the operational performance of its building stock.

During the same session, simulation superstar Pieter de Wilde (left) from Sweden's Lund University shared his insights on how AI is affecting building simulation, with a specific focus on machine learning, large language models and digital twins.

The Wednesday keynote speaker was Associate Professor Michael Donn from the Wellington School of Architecture (right). Donn encouraged those working in building simulation to question whether their current approach is providing information that is useful to building designers. His recommendation to attendees was that the goal should not be to eliminate the performance gap, but to understand why it exists, and to seek out the big lessons rather than getting lost in the details.

Later on Wednesday, a panel of experts talked again about the Australian success story that is the NABERS scheme. Priya Gandhi, Vice President IBPSA Australasia and Associate Director, Atelier

Ten, led a conversation with NABERS Sector Lead Ryan Flack, Atelier Ten Associate Jennifer Elias, Team Catalyst Director GS Rao, DeltaQ Director of Operations and Global Initiatives Grace Foo, M.AIRAH, and Kani Quest Principal Consultant Noni Nuriani.

The panel offered attendees from around the world the opportunity to understand how NABERS drove improvements in building performance, and whether a similar system could work for them.

The conference closed with Winitha Bonney OAM, an innovation and change management expert, who delivered an empowering message and call to action to all attendees: get out of your comfort zone, use change and uncertainty to your advantage, and find your place in the world.

IBPSA Women's Network launch

The BS2025 organisers collaborated with the IBPSA World Equality, Diversity & Inclusion (ED&I) Committee to integrate ED&I initiatives into the conference to make the conference more accessible and inclusive. An ED&I-themed breakfast was held on day two, and the IBPSA Women's Network was launched on the final day. Please see **page 16** for more details..

Mind-blowing breakthroughs

Energy efficiency was front of mind at BS2025, with many presenters sharing cutting-edge research aimed at reducing energy use and improving building performance. Among these was Qianru Bi, whose study focused on photovoltaic vacuum glazing (PVVG) – a type of glass design that provides the insulation benefits of multiple-glazing while also generating power that can be used in the building. Bi's research found that integrating PVVG into commercial buildings could reduce cooling needs by up to 91% under certain conditions and orientations, with a payback period as little as 7 years.

Dr Huijun Mao presented on another fascinating innovation taking hold in China: the use of water spray to reduce cooling requirements in glass-roofed public buildings in hot-humid areas. Mao's study found that simply spraying water mist above the glass roof reduced solar radiation and lowered indoor temperatures by several degrees, with the biggest expense being the consumption of water due to evaporation.

Philipp Schluter from Camfil spoke about how simulation can be used to model life-cycle costs for HVAC filtration systems, taking into account factors such as labour, energy use, carbon emissions, and reduced occupant sickness, as well as initial capital expenditure.

Schluter pointed out that few – if any – existing energy use models take air filtration into account when modelling energy performance, despite the fact that energy use associated with filters is likely responsible for around 3.6 million tons of carbon dioxide in Australia annually. He argued that a more comprehensive modelling framework would help building owners and managers make more informed decisions about filter selection.

The social aspect of building simulation

While some of the high-tech projects on display at BS2025 stole the limelight, the conference also included some fascinating insights into how simulation can be used for social good in a wide range of situations.

One example of this was delivered by Professor Neveen Hamza, whose presentation focused on improving the thermal performance of housing in mountainous rural China using corn husks as insulation. Internal temperatures in the houses – which were made from uninsulated concrete blocks – regularly dropped below zero during winter. While the corn husks were far from a perfect solution, they managed to increase internal temperatures by several degrees, showing what could be achieved with zero waste and minimal cost.

Another fascinating insight came from Elaina Rose Render, whose research examines the potential for using building simulation to repair damaged structures in warzones without necessarily needing to knock them down and rebuild from scratch. In her presentation, Render explained how existing disaster-response simulation – including using drones to conduct detailed building scans – could be further adapted to operate in conflict zones, potentially saving billions of dollars in reconstruction efforts, while also improving the energy performance of existing homes in these areas.

Another interesting topic covered during the conference was the idea of using simulation techniques to model the social acceptability of new technologies. Professor Massimo Fiorentini applied this concept to thermal energy storage in Switzerland, finding that although phase-change materials offer the best size-to-performance ratio for energy storage, the public's greater understanding of and comfort with water means that this technology is more likely to be socially accepted, and could potentially prove more cost effective in the long term.

The future is in good hands

Transferring knowledge and supporting the next generation of simulation experts in research and industry was another important facet of the conference, with many student delegates presenting and in attendance.

On Tuesday, Carleton University Professor Ian Beausoleil-Morrison led a panel focused on educating the next generation of building performance simulation professionals. Moderated by Dr Pamela Fennell from University College London, the highly experienced panel of both academics and practitioners (Ian Beausoliel-Morrison, PC Thomas, Veronica Garcia Hansen, Nicki Parker and Rajan Rawal) shared their thoughts on how we should move collectively forward to improve how we prepare people for this domain.

"It's clear that educators just simply don't have enough time within the curriculum to teach students about the highly complex interaction of building physics with real world buildings" said Nicki Parker. *"As a practitioner, it takes many years to master the art of building simulation, and, with almost 20 years of experience, I still learn about the nuances of buildings and in particular HVAC control strategies every day. We certainly have the skillset amongst our community, and so it's now about transitioning students from academia to the industry in the quickest but most robustly scientific ways."*

The focus on students did not stop there. The IBPSA Australasia student modelling competition received 35 expressions of interest from teams around the world. The brief was based on the Bundanon Art Museum & Bridge in New South Wales, Australia – a building constructed and in operation since 2021 (thanks to The Bundanon Trust and Atelier Ten for permission). Students took on four modelling challenges covering facade, HVAC, off-grid operations, and embodied carbon.

The two shortlisted teams were invited to the conference to present their work. Congratulations to our 2025 winners, CEPT University team (Akarshna A K, Niyati Jogi, Samiksha Bhardwaj, Swetha R, Vasudev Pandya and Vishal Yadav) and the runner-up team from Carnegie Mellon School of Architecture (Yuqing Huang, Jiwon Kim, Leo Ma, Mackenzie Wilhelm, Minghao Xu advised by Yiqun Pan). The judges and attendees were impressed with the level of detail and rigor in their work.

Finally, recognising that international travel is a barrier for many, IBPSA Australasia held a Student Travel Grant Competition. Out of more than 20 submissions, travel grants were awarded to four outstanding submissions. Congratulations to Alireza Norouziasas (Norwegian University of Science and Technology, Norway), Cheng Cui

(University College London, England), Hashani De Silva (University of Cincinnati, USA), and Vali Shishebori (Victoria University, Australia).

Recognising leadership and contributions

A highlight of every conference is the awards ceremony recognising the outstanding achievement and contribution of IBPSA members from around the world. Congratulations to all the winners and the brand new IBPSA Fellows.

Distinguished Service Award 2025

Andreas Athienitis

Godfried Augenbroe Award 2025

Kathryn Hinkelman

IBPSA Fellows 2025

Carrie Brown

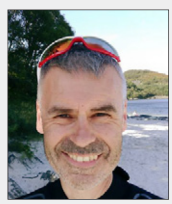
Liam Buckley

Ralph Evins

Naiping Gao

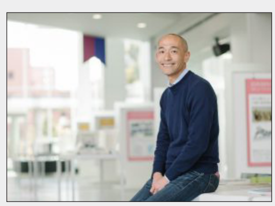
Gregor Henze

Gongsheng Huang



Nick Kelly

Zhe Tian



Yohei Yamaguchi

Innovative Applications Awards 2025

Schneider Electric | University of Colorado Boulder

Schneider Electric / University of Colorado Boulder

Yi Zhang (jEPlus)

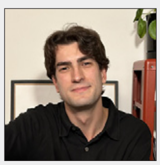
Journal of Building Performance Simulation Best Paper Award 2025

AixLib: an open-source Modelica library for compound building energy systems from component to district level with automated quality management
Laura Maier, D Jansen, F Wüllhorst, M Kremer, A Kümpel, T Blacha, and D Müller

Outstanding Young Contributor Award 2025

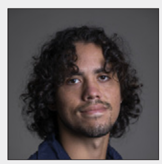
Yu Qian Ang

IBPSA Student Travel Awards 2025

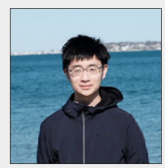


Gustavo Bittencourt

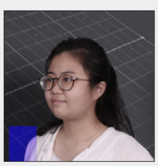
Mathilde Gallant



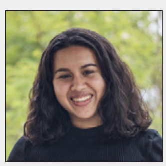
Juan Flores Garcia



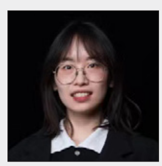
Jingwen Gu



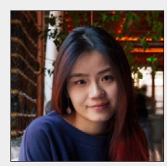
Li Lee Kwan



Dipashreya Sur



Yi Wu



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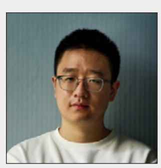
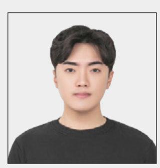


Yanxiang Yang



Daemin Yoon

A final word

The BS2025 Committee would like to thank all attendees, presenters, scientific committee members, the 50+ session chairs, the IBPSA Australasia board members, and the incredible staff of AIRAH and the conference AV team who made everything run so smoothly.

This conference sought to be as sustainable in its operation as possible: posters were displayed on large screens to avoid the need to print, and to our surprise were a hit (note: for future conferences have a few more screens spread throughout the venue!). We also donated to the Great Barrier Reef Foundation in place of speaker gifts.

The partnership of AIRAH as conference organisers and a professional conference venue with dedicated AV support certainly made hosting the conference smooth and professional. To our both surprise and delight there were a huge number of papers which made the conference jampacked with content, and made us think that perhaps in the off year of this conference affiliates should look at running mini local versions to enable people to present where the cost of travel or the task of being in front of hundreds of international professionals is a little too daunting. All in all we would recommend hosting to anyone, but don't underestimate the time involved and particularly running the Scientific Committee (PC is still working away after the conference putting proceedings together…).

Reflecting on the whole event, Nicki Parker said "*It's been a crazy few years to get to this point, and I'm certainly wondering what to do with my spare time now! But the whole organising team are so thrilled about how it went, and we hope that delegates got as much out of it as we did. It was reassuring that we do have many of the answers to solving the challenge of more environmentally responsible cities, and I felt privileged to be part of many of those conversations. This task cannot be done alone and this community needs to continue to work together (which I know they will) to push design and engineering in the right direction.*"

Looking forward to seeing you in Vienna in 2027! **https://bs2027.framer.ai**

International Building Performance Simulation Association Australasia

Building Simulation 2025

Equality, Diversity and Inclusion

The organising committee of Building Simulation 2025 collaborated with the IBPSA-World Equality, Diversity, and Inclusion (ED&I) committee to integrate a large number of ED&I initiatives within the conference, detailed on the conference's **ED&I webpage**. The ED&I committee, led by Professor Rob McLeod, has drafted the IBPSA ED&I Action Plan, which encompasses specific goals aimed at making IBPSA's conferences and events more inclusive. To this end, the conference also featured an ED&I-themed breakfast centred around the concept of belonging. During this event, participants were encouraged to network while sharing their views and experiences of inclusivity and belonging within the simulation community.

Networking at the Sunrise breakfast: Belonging. From left to right: Kaining Shen (UNSW), Yunxi Zhu (Politecnico Milano), Mara Geske (Bauhaus-Universität Weimar), Noni Nuriani (UNSW/Kani Quest), Danielle Monfet (ÉTS-Montréal), Sami Zheng (CEO of AIRAH), and Veronika Richter (RWTH)

Launching the IBPSA Women's Network

The final day of the conference saw the announcement of a new global initiative to support, encourage, and recognise women and all those who identify as women within the simulation community: the IBPSA Women's Network.

IBPSA-World Equality, Diversity, and Inclusion Committee Chair Rob McLeod and the inaugural Women's Network Leader Esther Borkowski introduced the attendees to the purpose and aims of the ED&I committee and the women's network. The ED&I committee was formed in 2021 with the aim of ensuring that, as a global organisation, our policies and practices reflect our diverse memberships, as well as supporting best practices in ED&I across the organisation. In his opening speech, Rob called for all of us to stand together and commit to making IBPSA World as diverse and inclusive as possible, including removing barriers to participation and providing forums where we can listen to diverse viewpoints and support one another to reach our fullest potential. As Esther explained in her talk, the IBPSA Women's Network was established to allow women to connect with each other and to create opportunities for women to stay and grow in our field. The network's mission is to support women's professional development, representation and participation in building performance simulation research and practices. It is the network's vision for the future that women are present at every career stage, and that gender is never a barrier to recognition and leadership. Esther invites all women and allies to join the network and work together to make IBPSA a place where women's contributions are visible, valued, and celebrated.

The launch event included a panel discussion hosted by Noni Nuriani, IBPSA Australasia board member and principal consultant of Kani Quest. Five outstanding women from different regions and at different career stages came together to discuss navigating and working in a male-dominated industry. Panellists discussed the role of mentorships as a career accelerator, the importance of female role models in inspiring the younger generation, the significant impact of male allies in creating opportunities and supporting their careers, overcoming cultural challenges women encounter in professional and social settings, and the internal pressure women impose on themselves. The discussions highlighted the importance of establishing support networks for women and promoting policy reform that fosters inclusivity and gender diversity.

From left to right: Veronika Richter (RWTH Aachen University), Danielle Monfet (Professor, ETS-Montreal & IBPSA-World Secretary), Grace Foo (Director, DeltaQ), Martina Ferrando (Research Fellow, Department of Energy), and Parastoo Mohebi (PhD candidate, HKUST) shared experiences and insights from their careers and offered advice relevant to all genders.

The IBPSA Women's Network is open to all who identify as women, including cis and trans women, as well as non-binary people who feel this space is meaningful for them. Allies of all genders are warmly encouraged to participate in and support this initiative. If you'd like to participate in the IBPSA Women's Network, please join the Telegram group via **this link**, or email Esther at **estbo@dtu.dk** or your regional ED&I representative.

Forthcoming events

Date(s)	Event	Further information
2026		
31 January - 04 February 2026	**ASHRAE Winter conference** Las Vegas, NV, USA	**www.ashrae.org/conferences/ashrae-conferences**
26-27 March 2026	**CIBSE Technical Symposium** Loughborough, UK	**www.cibse.org/cibse-technical-symposium-2015**
18-22 May 2026	**Conférence Francophone de l’IBPSA** Lyon, France	**https://conference2026.ibpsa.fr/index.php**
20-22 May 2026	**SimBuild** Minneapolis, Minnesota, USA	**https://simbuild.ibpsa.us**
14-18 June 2026	**ISIAQ Indoor Air** Singapore	**www.indoorair2026.org**
17-19 June 2026	**eSim** Longueuil, QC, Canada	**https://event.fourwaves.com/esim2026/pages**
27 June - 01 July 2026	**ASHRAE Annual conference** Austin, TX, USA	**www.ashrae.org/conferences/2026-annual-conference-austin**
19-21 August 2026	**BuildSim Nordic Conference** Umeå, Sweden	**https://buildsimnordic2026.ibpsa-nordic.org**
16-18 November 2026	**Asim** Singapore	**https://asim2026.sg**
2027		
19-22 April 2027	**International Building Physics Conference** Wellington, New Zealand	**https://ibpc2027.org**
29 August - 01 September 2027	**BS2027** Vienna, Austria	**https://bs2027.framer.ai**

Note that the dates in this calendar may, but do not necessarily, include pre and/or post-conference workshop days

20-22 May 2026
Minneapolis, USA
https://simbuild.ibpsa.us

From Models to Reality: Bridging Simulation and Operational Performance

SimBuild is the preeminent event for building performance simulation in the US. It provides a forum for sharing and publishing scientific work, announcing breakthroughs in research and software development, informing policymakers, and bridging research and practice. It is a place where building performance simulation practitioners, researchers, and students can network with peers, clients, and employers. IBPSA-USA will host the SimBuild 2026 conference May 20th to 22nd, 2026, in Minneapolis.

Ideally situated near Nicollet Mall and directly connected to the Minneapolis Convention Center via the skyway, Hyatt Regency Minneapolis provides the perfect setting for both business and relaxation. Enjoy easy access to some of the city's top attractions, including Loring Park, Target Center, the Orpheum Theatre, and a vibrant dining and entertainment scene—all just a short walk away.

Event Dates:

SimBuild:	20-22 May 2026
HackSimBuild:	18-19 May 2026
Workshops and Tours:	19 May 2026

Key Dates:

Papers Due:	27 October 2025
1st Round Notification:	12 January 2026
Presentation Submission Opens:	September 2025
Registration Opens:	November 2025

Join the **IBPSA-USA mailing list** for news about SimBuild 2026

17-19 June 2026
Longueuil, QC, Canada
https://event.fourwaves.com/esim2026/pages

eSim 2026

The international building performance simulation community is cordially invited to attend eSim2026, the 14th Building Performance Simulation Conference, to be held from 17 to 19 June 2026 in Longueuil, near Montréal, QC, Canada, organized under the auspices of IBPSA-Canada. With the theme Advancing Sustainability and Climate Resilience, eSim2026 covers emerging topics in building performance simulation (e.g., the impact of extreme weather events, building-grid interaction, modelling at the urban scale, among others), focusing on novel modelling methodologies and innovative design practices.

Key Dates:

Abstract submission deadline:	1 November 2025
Abstract acceptance notification:	1 December 2025
Paper submission deadline:	1 March 2026

For updates regarding the conference program and additional information, please visit the official conference website at **https://event.fourwaves.com/esim2026/pages**

Please do not hesitate to contact us at **esim-2026@USherbrooke.ca**

We look forward to seeing you at the 14th eSim Building Performance Simulation Conference in 2026!

19-21 August 2026
Umeå, Sweden
https://buildsimnordic2026.ibpsa-nordic.org

BuildSim Nordic 2026

BuildSim Nordic is the biennial conference of IBPSA Nordic. The 2026 conference will take place at Umeå, Sweden, from 19 to 21 August. We warmly welcome members of IBPSA-Nordic, the wider IBPSA world community, and others with an interest in building simulation to join us for this exciting opportunity to be updated on the newest ideas and research. The title of the conference is Smart and Sustainable Buildings and Cities in the Nordic Countries and specific themes this time are Energy Resilience of Buildings in Cold Climate and Smart and Climate Neutral Buildings, Districts and Cities.

The conference programme will include presentations of scientific papers, keynote sessions and workshops. Topics include: Building acoustics; Building Information Modelling (BIM); Building physics; CFD and air flow; Commissioning; Daylighting, fenestration and lighting; Digital twins; Demand-side flexibility; Developments in simulation; Education in building performance simulation; Renewable energy and energy storage; Human behaviour in simulation; Hybrid systems; Indoor Environmental Quality (IEQ); Developments in software; System optimization; Urban-scale simulation; Smart buildings; Validation, calibration and uncertainty; Weather data & Climate adaptation; Zero Energy Buildings (ZEB); and Emissions and Life Cycle Analysis.

For updates regarding the conference program and additional details, please visit our conference website at **https://buildsimnordic2026.ibpsa-nordic.org** .

Please do not hesitate to contact us at **buildsimnordic-2026@ibpsa-nordic.org**
We hope to see you at BuildSim Nordic 2026!

29 August -
01 September 2027
Vienna, Austria
https://bs2027.framer.ai

Building Simulation 2027 – Save the Date!

We are thrilled to share the official announcement for Building Simulation 2027, taking place from 29 August to 01 September 2027.

The conference theme is **Rethinking Building Performance for a Resilient Future**.

More information, when available, can be found at **https://bs2027.framer.ai** .

TU Wien and TU Graz are delighted to be organising the conference, with Professor Kristina Orehounig and Professor Christina Hopfe as co-chairs.

We look forward to welcoming the international building simulation community to Vienna — a vibrant city at the heart of Europe — to exchange ideas, share pioneering research, and collectively shape the future of sustainable building design. ■

Software & other news

DesignBuilder wins ASHRAE UK "Carbon Reduction Innovation" Award

DesignBuilder are thrilled to announce that DesignBuilder Climate Analytics has received the ASHRAE UK "Carbon Reduction Innovation" Award, recognising its significant contribution to advancing decarbonisation in the built environment. Climate Analytics was developed to provide energy modellers with easy access to a global repository of high-quality, location-specific weather data and to enable them to create their own bespoke climate and weather data for specific locations, meeting the need for appropriate data which are critical for accurate building performance simulations. It includes powerful features, such as future climate morphing, Urban Heat Island simulation, and monthly updated "Actual Year" weather data, to enable users to design and test buildings that are resilient, energy-efficient, and ready for future climate scenarios.

This award acknowledges not just the technical innovation behind Climate Analytics but also its real-world impact. From supporting compliance with national building regulations to enabling calibrated digital twins and climate adaptation strategies, the tool is helping professionals across the globe make data-driven decisions that reduce carbon emissions and improve building performance. We are honoured by this recognition and remain committed to supporting our users in designing better buildings for a changing world.

You can learn more about Climate Analytics at ***https://designbuilder.co.uk/software/climate-analytics*** *.*

Streamline Your LCA: new DesignBuilder to One Click LCA export plugin released

DesignBuilder have made a significant upgrade to their One Click LCA integration with the release of a new, dedicated DesignBuilder to One Click LCA Export Plugin. This plugin directly addresses customer feedback and offers significant advantages over the export tool built into DesignBuilder v7.3.

Key improvements include:

- **Enhanced Reliability**: Leverages One Click LCA's preferred native data interchange format, ensuring reliable and accurate data transfer
- **More Complete Model Export**: Captures a fuller picture of your design by including materials for standard component blocks, PV panels, and local shading device materials, as well as those for building fabric and glazing
- **Flexible Glazing Definition**: Accurately exports glazing data, whether defined using the Simple or Material Layers method
- **Validated Accuracy**: Tested against DesignBuilder's internal embodied carbon calculations for greater confidence in your results

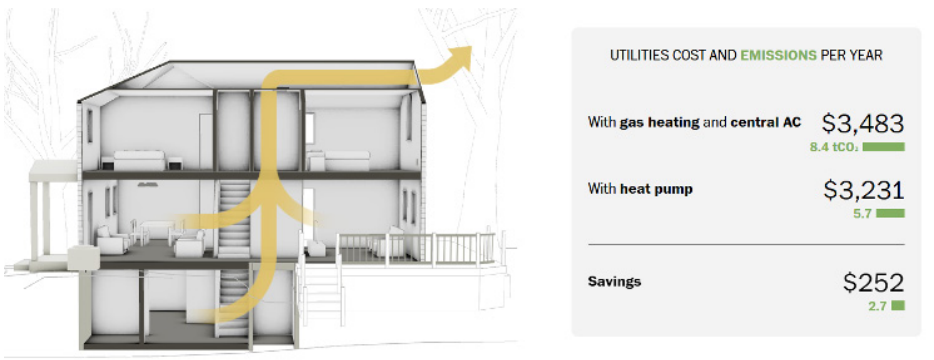
This new plugin is a preview of the enhanced One Click LCA integration that will be built directly into DesignBuilder v2025.1 as the standard export method.

The new plugin is available from the Download > Scripts and Plugins section of the DesignBuilder web site, **https://designbuilder.co.uk/download/scripts-and-plugins**.

DesignBuilder believe this new plugin will significantly improve users' LCA workflow.

Insights from a Washington Post Feature: Assessing Real-World Energy Upgrades

Image credits: The Washington Post



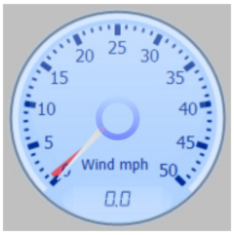
A recent Washington Post article, *Which home energy upgrades will save you money?*, showcases how DesignBuilder can bring clarity to the often complex world of energy upgrades. The analysis by Harvard's Graduate School of Design evaluated a typical 1,500-square-foot home in Maryland to quantify the impact of various retrofit options on energy costs and carbon emissions, including solar panels, heat pumps, and improved insulation. Using DesignBuilder's dynamic simulation capabilities, the team was able to:

- Accurately model baseline energy use and utility costs
- Simulate solar panel performance, accounting for real-world factors like tree shading
- Evaluate HVAC upgrades and envelope improvements in terms of both cost and carbon savings

The results clearly show homeowners the estimated energy and emissions savings for various upgrades, along with payback periods, making it easy to see which options offer the best financial and environmental value.

This study is an excellent example of how DesignBuilder empowers engineering/sustainability consultants, architects, and policymakers to go beyond compliance to make data-informed decisions about energy efficiency for real-world impact.

You can read the full Washington Post article at ***www.washingtonpost.com/climate-environment/interactive/2025/home-efficiency-emissions-cost***



New current and future climate data for Australia, New Zealand, and Norway available from Climate.OneBuilding.Org

A set of weather and climate data files developed by CSIRO Australia is now available on **Climate.OneBuilding.org**. These data include Typical Meteorological Year (TMY) for 83 locations in Australia derived from historical weather from 1990 to 2015. These are known as RMY2024 on Climate.OneBuilding.

> Zhengen Ren, Zhi Tang, Melissa James. 2024. *Typical Meteorological Year Weather Files for Building Energy Modeling User Guide*, CSIRO, Australia. **https://ahd.csiro.au/wp-content/uploads/Typical-meteorological-year-weather-files-User-Guide-v6.pdf**

Also available are projected weather files for three future climate scenarios (RCP2.6, RCP4.5, and RCP8.5), and for four future years (2030, 2050, 2070, and 2090) for 83 locations in Australia, a total of 996 weather files.

> Zhengen Ren, Zhi Tang, Melissa James. 2024. *Projected Weather Files for Building Energy Modeling User Guide*, CSIRO, Australia. **https://ahd.csiro.au/wp-content/uploads/Projected-weather-files-User-Guide-v8.pdf**

A set of weather climate data files developed by NIWA in Aotearoa New Zealand, is also now available on **Climate.OneBuilding.org**. These data include Test Reference Year (TRY) and Design Summer Year (DSY) data for 18 locations in New Zealand derived from 30 years of historical data ending in 2023, as well as three sets of future data:

- 2040 (SSP1-2.6 for TRY and DSY)
- 2050 (SSP2-4.5 for TRY and DSY)
- 2070 (SSP3-7.0 for TRY and DSY).

> Ben Lily. 2024. *Weather Files for Energy Modeling*. National Institute of Water & Atmospheric Research Ltd, Otago, New Zealand. **www.building.govt.nz/assets/Uploads/getting-started/building-for-climate-change/niwa-client-report-weather-files-for-energy-modelling.pdf**

A set of weather climate data files developed as TMY files for Norway is now available on **Climate.OneBuilding.org**. This dataset includes TMY files for all 358 municipalities in Norway, produced in conjunction with the Norwegian standard NS 3031:2025 *Energy performance of buildings: Calculation of energy and power demand*. The files are based on CERRA data from 1991 to 2020 and were produced using a TMY3-type methodology, where the FS weighting is skewed towards temperatures during the winter months (October to March). The files represent a statistically typical year for energy calculations of buildings and are therefore not suitable for evaluating extreme conditions.

> Petersen, A. J., Thiis, T. K., & Fuglestvedt, H. F. 2025. *TMY files for Norway based on CERRA data from 1991-2020* (1.042) [Data set]. NMBU. **https://doi.org/10.5281/zenodo.15096452**

Each climate location .zip contains: EPW (**EnergyPlus weather format**), CLM (**ESP-r weather format**), WEA (**Daysim weather format**), and PVSyst (**PV solar design weather format**), along with DDY (ASHRAE 2025 design conditions in EnergyPlus format), RAIN (hourly precipitation in mm, where available), and STAT (expanded EnergyPlus weather statistics). For locations in Australia, we also include a NatHERS format file (Nationwide House Energy Rating Scheme **www.nathers.gov.au/nathers-accredited-software/nathers-climate-zones-and-weather-files**).

Climate.OneBuilding.org thanks the building simulation community for their support – we are now seeing more than 25,000 weather files downloaded daily, more than 25 GB. For more information or to download any of the weather data (no cost), go to **Climate.OneBuilding.org** . ■

Calling all software developers: Australian home energy rating EOI opportunity!

Software developers have a unique opportunity to support a major expansion of Australia's Nationwide House Energy Rating Scheme (NatHERS), with stage 1 of the expansion of **energy ratings for existing homes** having commenced in July 2025.

With demand for home energy ratings anticipated to ramp up following a planned stage 2 release in mid-2026, the NatHERS team is inviting expressions of interest from developers with innovative solutions to help streamline the rating assessment process and improve user experience.

Learn how you can get involved with this exciting new program of work by visiting the NatHERS website **www.nathers.gov.au/user-interface-protocol** which has all the information on development and accreditation of a software user interface.

You can email the team with questions via **uip@nathers.gov.au**, and **sign up** for the NatHERS newsletter **www.nathers.gov.au/blog** to keep up to date with all the latest on the UIP and the scheme's expansion. ■

Trimble SketchUp seeks feedback on new analysis and visualisation capabilities

SketchUp Labs program announces a series of new and updated extensions for feedback from SketchUp subscribers:

- SketchUp Daylight Analysis: A rapid solution for running daylight studies on unstructured SketchUp models.
- SketchUp Space Finder: A solution for organising unstructured SketchUp models into models with a standardised space definition framework

- SketchUp Diffusion: A way to convert SketchUp scenes into realistic visualisations using Generative AI.

SketchUp Daylight Analysis (launching in Labs in October 2025)

This Labs release seeks feedback from:

- Users of daylight analysis
- SketchUp Extension Developers

The new feature aims to rapidly convert an unstructured SketchUp model of any building into daylight analysis results. Specifically, it incorporates the following capabilities not previously available in **Sefaira**:

- Automatically converts materials used in the SketchUp model into radiance properties
- Finds spaces either from scratch or defined using our other "Space Finder" labs feature and reports on a space-by-space basis
- Allows multiple options to be created, studied and saved for a single SketchUp model.

For daylight analysis users, we would like to know how well this meets your analysis requirements and what added capabilities are needed.

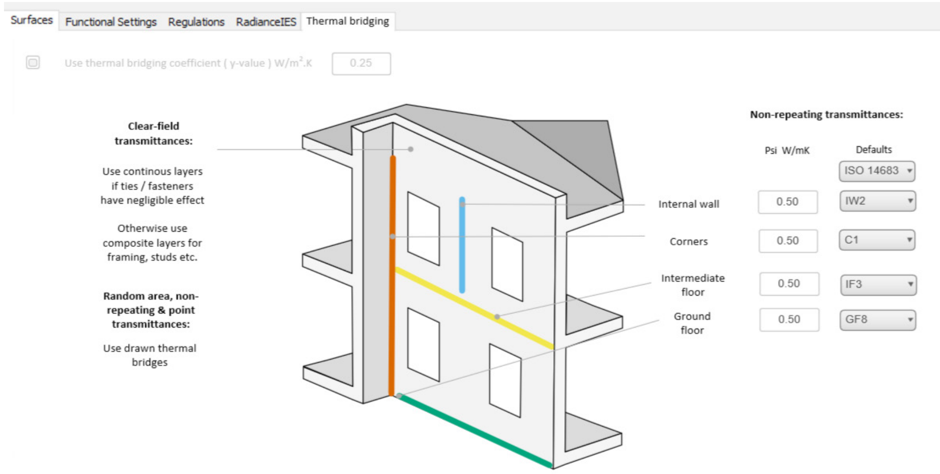
For extension developers, we are interested in understanding how to make this a platform easily accessible for building custom daylight analysis solutions and whether this is appealing to you.

What's new in IESVE 2025 Feature Pack 1?

IESVE 2025 Feature Pack 1 (FP1) delivers powerful upgrades to its APACHE simulation engine, adding robust new modelling capabilities for emerging low-carbon systems and passive strategies. These advancements are seamlessly integrated with IES's faster, automated workflows and clear graphical inputs/outputs, enabling quicker analysis and more confident decision making. New features include:

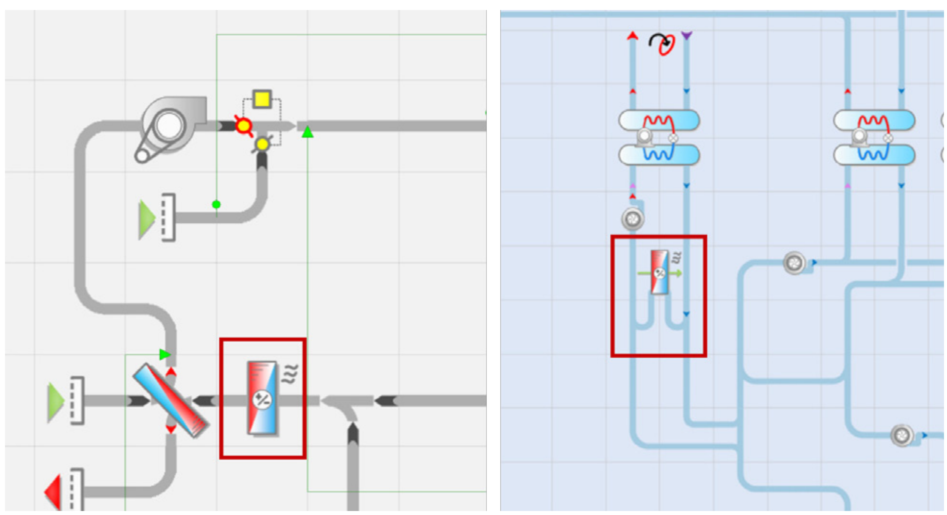
Thermal Bridging

- New Psi and Chi based calculation methods
- UK NCM Part L, ASHRAE 90.1, NECB and ISO 14683
- Linear non-repeating transmittances
- Random Bridges for Area, Linear, & Point types
- These upgrades help close the performance gap and meet tighter design standards by enabling higher-fidelity models.



Heat Acquisition & Rejection Coil (HARC)

- New HVAC coil component connecting the airside and waterside for recovering & rejecting heat
- Enhances the Heat Recovery Chiller mode of operation when there is a simultaneous demand for heating and cooling
- Bleeding edge (emerging) tech that supports net-zero hospital and lab design.
- Advanced HARC capabilities made simple – no coding or complex workarounds, just intuitive workflows.



Parametric Simulation Enhancements

- Following launch of this feature in 2024 IES has enhanced its capabilities with the addition of new parametric variables:
  - Locations
  - Construction Templates.

Additional Updates

- Next Gen Phase Change Materials (PCM) Tile from Armstrong World Industries
- Façade reveals for sunlight exposure simulation
- Scheduled Loads UI update on Chilled Water Loop
- Heat Pump curves spreadsheet.

To find out more, visit **www.iesve.com/ve2025** .

IES is now a GaiaGLD Reseller

To coincide with the release of IESVE 2025 FP1, IES has also become an official reseller of Gaia Geothermal's Ground Loop Design (GLD) software to deliver seamless data exchange for geothermal ground source heat pump system design between IESVE and Gaia GLD.

To find out more, visit **www.iesve.com/software/gaia-ground-loop-design** .

IES Senior VP Liam Buckley Receives IBPSA Fellow Award

Liam Buckley, Senior Vice President, IESVE Software at IES, was awarded the grade of IBPSA Fellow at this year's Building Simulation Conference in Brisbane, Australia, in recognition of his significant contributions to advancing the field of building performance simulation through both industrial and educational leadership over the past two decades.

Read more about Liam's contributions at **www.iesve.com/discoveries/view/58234/ibpsa-fellow-liam-buckley** .

IES Events

IES is sponsoring the ASHRAE Building Decarbonization Conference in Chicago from 22 to 24 October 2025 22nd - 24th. Find out more and book a meeting with the IES Team at **www.iesve.com/discoveries/view-event/55956/ashrae-building-decarbonization-2025** .

IES is exhibiting at the Greenbuild International Conference and Expo in Los Angeles from 4 to 7 November 2025. Stop by booth #639 or arrange a meeting with the IES Team at **www.iesve.com/discoveries/view-event/49592/greenbuild-2025** .

IES is exhibiting at Build2Perform Live, aligned with elementalLONDON, from 19th to-20th November 2025 in London. Stop by stand #B20 or find further details at **www.iesve.com/discoveries/view-event/55258/elementallondon-b2p-2025** . ■

Radiance & HDR Workshop 2025, Lausanne, Switzerland

Chui Ling Yuen & Jan Wienold, Swiss Federal Institute of Technology in Lausanne

From 27 to 29 August, the Laboratory of Integrated Performance in Design (LIPID) at EPFL hosted the annual Radiance & HDR Workshop in Lausanne. The three-day event brought together researchers, practitioners, and educators in daylighting, lighting simulation and rendering, welcoming both seasoned Radiance users and newcomers to exchange ideas, share new work, and engage in hands-on HDR imaging.

Over the first two days, participants attended a diverse set of presentations, including updates on recent developments in Radiance, as well as talks spanning material modelling, daylight and glare simulation, urban radiation modelling, and spectral and parametric techniques. These sessions were complemented by EPFL lab visits showcasing the Realistic Graphics Lab (RGL)'s goniophotometer, along with LIPID's glare simulator and daylight experiment facilities.

The final day was dedicated to HDR imaging. It began with an overview of the joint research project HiDyn, before transitioning into hands-on demonstrations covering HDR camera calibration, reference light source design, and image-merging workflows for glare assessment.

Overall, the workshop fostered lively technical exchange, strengthened community ties, and showcased both established practices and emerging advances in Radiance and HDR imaging. All workshop content will be uploaded to the Radiance website: **www.radiance-online.org**. Everyone is welcome to explore the material and stay connected with the Radiance community. ■

IBPSA Standards Committee

The IBPSA Standards Committee was formed in 2022 to provide input from IBPSA on cosponsored building performance simulation-related standards. Initially, this includes the six ASHRAE standards described below. If you know of other building performance simulation standards under development or are interested in participating on the Standards committee, contact Dru Crawley (**dbcrawley@gmail.com**).

ASHRAE uses an open, consensus-based development process. All standards undergo public review. Anyone can participate in standards development, whether a voting member or not. You may apply for membership in any committee here: **www.ashrae.org/technical-resources/standards-and-guidelines/how-to-join-project-committees**

ASHRAE standards with active IBPSA involvement are:

ANSI/ASHRAE/IBPSA Standard 140-2023 - *Method of Test for Evaluating Building Performance Simulation Software*

> **Purpose**: This standard specifies test procedures for evaluating the technical capabilities and ranges of applicability of software that simulates the performance of buildings and their systems.
>
> **Scope**: These standard test procedures apply to software that simulates the performance of a building and its systems. While these standard test procedures cannot test all algorithms within building performance simulation software, they can be used to indicate major flaws or limitations in capabilities.
>
> Under continuous maintenance and updating.

ANSI/ASHRAE Standard 169-2021 - *Climatic Data for Building Design Standards*

> **Purpose**: This standard provides recognized climatic data for use in building design and related equipment standards.
>
> **Scope**: This standard covers climatic data used in ASHRAE standards, including dry-bulb, dewpoint, and wet-bulb temperatures, enthalpy, humidity ratio, wind conditions, solar irradiation, latitude, longitude, and elevation for locations worldwide. This standard also includes statistical data such as mean temperatures, average temperatures, mean/median annual extremes, daily ranges, heating and cooling degree days and degree hours, and hours and seasonal percentages within ranges of temperatures as well as bins.
>
> Under continuous maintenance and updating.

ANSI/ASHRAE/IBPSA Standard 205-2023 - *Representation of Equipment Performance Data for HVAC&R and Other Facility Equipment*

> **Purpose**: To facilitate automated sharing of equipment performance characteristics by defining data models and data serialization formats.
>
> **Scope**: This standard applies to performance data for any HVAC&R or other facility system, equipment, or component.
>
> Under continuous maintenance and updating.

ANSI/ASHRAE/IBPSA Standard 209-2024 - *Building Performance Simulation Process*

Purpose: To establish minimum requirements for the process of using simulation to evaluate building performance and inform decision-making.

Scope: This standard applies to the use of building performance simulation, including energy modeling, during the design, construction, and operation of new buildings or major renovations of, or additions to, existing buildings.

Under continuous maintenance and updating.

Proposed ANSI/ASHRAE/IBPSA Standard 229P - *Protocols for Evaluating Ruleset Application in Building Performance Models*

Purpose: This standard establishes tests and acceptance criteria for application of rulesets and related reporting for building performance models.

Scope: This standard applies to evaluating the implementation of rulesets associated with new or existing buildings, their systems, controls, sites, and other aspects described by the ruleset. It establishes requirements for:

- building performance modeling software
- software that evaluates building performance models and associated information to check the application of a ruleset

Proposed Standard 229P is currently under development.

ANSI/ASHRAE/IBPSA Standard 232-2024 - *Common Content and Specifications for Building Data Schemas*

Purpose: This standard defines metaschemas (such as data types, data elements, naming conventions, and formats) to specify and validate other standard schemas for data exchange among building performance and HVAC&R software.

Scope: This standard applies to data models and schemas specified in other standards for the design, operation, and performance of buildings.

Under continuous maintenance and updating.

A related effort is the **IBPSA-USA Building Data Exchange Committee**. The BDE Committee provides an inclusive forum to support the development of tool-agnostic consensus-based data models for building design, analysis, and operational performance. See **https://bde.ibpsa.us**.

As public review drafts for these standards become available, we will send out email messages to the IBPSA community and post on our LinkedIn group page.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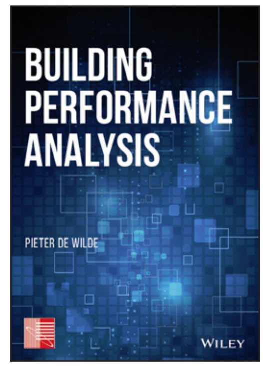
Books by IBPSA Fellows

Building Performance Analysis (Wiley, 2018)



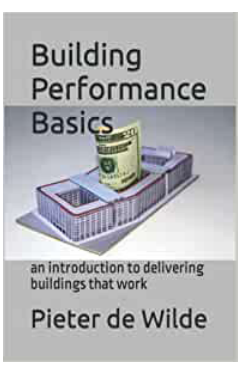
Building Performance Analysis is the go-to resource for those who want to have a deep understanding of what building performance is. The book is endorsed by IBPSA.

Offering a comprehensive and systematic overview of the concept of building performance analysis, *Building Performance Analysis* brings together many existing notions and ideas in one title. A substantial book, it has 11 chapters, 600 pages, and cites over 1600 references. Part I deals with the foundations of building performance, Part II deals with performance assessment, and Part III with the impact of applying of building performance analysis throughout the building life cycle. The book concludes with an epilogue that presents an emerging theory of building performance analysis.

Written for the building science community, it aims to make the following contributions to the field:

1. It reviews the significant body of knowledge on building performance that already exists.
2. It emphasizes that building performance has many aspects, and challenges the community to address those that get less prominence in the literature.
3. Going beyond simulation as a tool for building performance analysis, it also discusses physical measurement approaches, expert judgment, and stakeholder evaluation. It offers a review of the many analysis approaches available in each of these categories.
4. The emergent theory in the epilogue is intended as a key resource for researchers seeking to develop questions and hypothesis. This is intended as matter for discussion, debate, and deeper exploration.

Building Performance Basics (Amazon KDP, 2022)



Building Performance Basics is a short book intended as an introductory text for students at BSc and MSc level, a primer for those entering the industry, and a refresher for those who are already in practice but want to sharpen their view. As *Building Performance Analysis* (above) is rather encyclopaedic, this booklet has been written with a different tone and set-up: short and cheerful, published with Amazon KDP in order to be quick to market, brief and to the point, and more persuasive in order to champion the importance and role of building performance.

Building Performance Basics deals with core questions about building performance: Why is it important? What exactly is it? Where does it play a role? Who should champion building performance? How do we quantify it? And how much performance should we aim for?

Building Performance Basics aims to provide a solid foundation for further professional development and learning about building performance, and for claiming leadership about building performance in practice. In academic courses, it provides context to modules that introduce students to hands-on performance quantification efforts using simulation, measurement and occupant surveys. In industry, this book can be used at any time where there is a wish to refresh a role as building performance champion.

Announcing the second edition of the IBPSA-endorsed book, Fundamentals of Building Performance Simulation

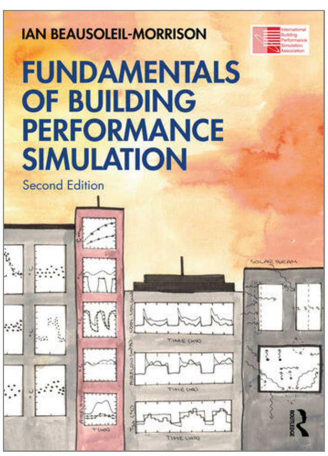
The second edition incorporates many of the ideas and helpful suggestions provided by colleagues throughout the world following publication of the first edition in 2020.

The content of all chapters has been updated and expanded. This includes many new simulation exercises and several new readings.

The most significant enhancement is in the treatment of HVAC systems. Part V of the book now includes five chapters that progress from idealized methods to the explicit representation of HVAC components and their control.

Another area of major expansion is to the culminating trials that integrate the learnings of the earlier parts of the book. There are now three culminating trials to progress from the simplest case of a free floating building to one conditioned with an air-based HVAC system. Measured data for these trials are now provided within the book and more detailed guidance is given on diagnosing possible causes for disagreement between simulation predictions and these measurements.

The second edition will be available from the publisher's website (**www.routledge.com/Fundamentals-of-Building-Performance-Simulation/Beausoleil-Morrison/p/book/9781032724782**) in late April 2025.



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Fundamentals of Building Performance Simulation

Ian Beausoleil-Morrison

Fundamentals of Building Performance Simulation, 2nd Edition compares the theory and practice of a multi-disciplinary field to the essentials for classroom learning and real-world applications. This textbook equips students and emerging and established professionals in engineering and architecture to predict and optimize buildings' energy use. The textbook will be accompanied by student and instructor digital resources including chapter introduction videos by the author, software and simulation walkthrough videos, weather data, photographs, drawings and measured data to support the culminating trials.

Integrated building design is paramount to highly energy efficient buildings. Building simulation is fundamental in this process. Prof. Beausoleil-Morrison brings us the second edition of this fantastic textbook, based on his experiential teaching method, that helps us to develop the critical view so necessary in a building simulation professional. It will become a 'must have' for all universities with courses in this area.

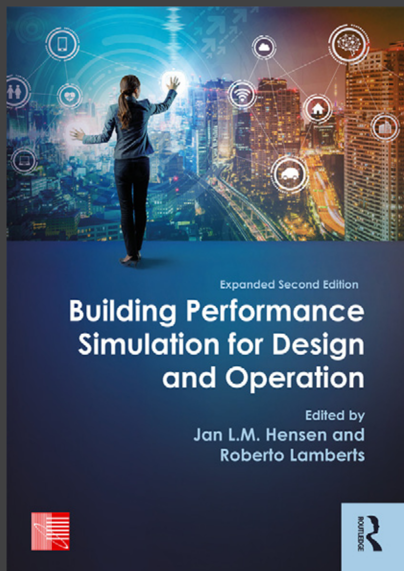
Roberto Lamberts, Laboratory for Energy Efficiency in Buildings, Federal University of Santa Catarina, Brazil

Especially in the current era of BIG DATA and AI, physics-based models are very important. They are crucial in realizing the necessary transition to a carbon-neutral society. Ian Beausoleil-Morrison teaches better than anyone what matters in Building Performance Simulation.

Helsen Lieve, KU Leuven, Belgium

Did you ever wonder what the strengths and limitations of the models in building performance simulators are? This book explains in a rigorous and approachable way the major models for building performance simulation. As building operation becomes more dynamic to facilitate renewable integration, and their energy system architectures evolve to improve grid-responsive operation, the information added in this 2nd edition about HVAC and controls is of increased importance to train simulation users. This is recommended reading for anyone who needs to be competent in building performance simulations.

Michael Wetter, Lawrence Berkeley National Laboratory, USA



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For any other purposes, please use the BLDG-SIM list. BLDG-SIM is a mailing list for users of building energy simulation programs worldwide, including weather data and other software support resources. BLDG-SIM is intended to foster the development of a community of those users. Experienced and inexperienced users of building energy simulation programs are welcome and are expected to share their questions and insights about these programs.

If you have any questions with respect to the BLDG-SIM, please contact the list owner Jason Glazer at **jglazer@gard.com** or +1 847 698 5686. This list is made possible courtesy of GARD Analytics, Inc., Ridge Park, IL, USA. For further information about this list server, see the web page located at **http://lists.onebuilding.org/listinfo.cgi/bldg-sim-onebuilding.org**. ■

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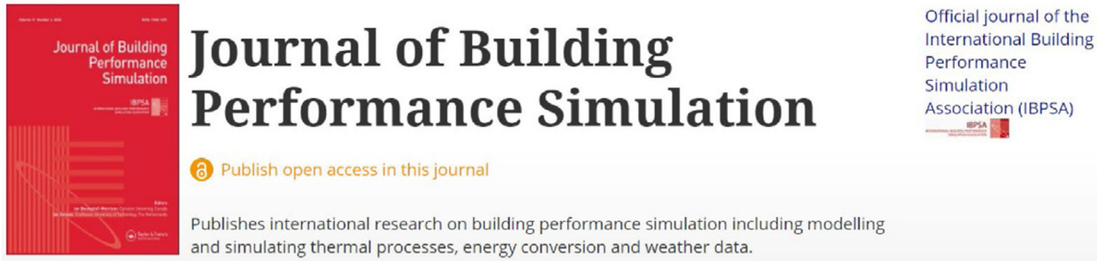

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Zeeshan, M., Ali, Z., Sajid, M., Ali, M., & Usman, M. (2022). Modelling the cooling effectiveness of street trees with actual canopy drag and real transpiration rate under representative climatic conditions. *Journal of Building Performance Simulation*, *18*(3), 256–269. https://doi.org/10.1080/19401493.2022.2080865

Gascón Alvarez, E., Feickert, K., Ismail, M. A., Mueller, C. T., & Norford, L. K. (2023). Integrated urban heat sinks for low-carbon neighbourhoods: dissipating heat to the ground and sky through building structures. *Journal of Building Performance Simulation*, *18*(3), 270–290. https://doi.org/10.1080/19401493.2023.2265335

Kelly, N. J., Flett, G. H., & Hand, J. W. (2023). Developing a statistical electric vehicle charging model and its application in the performance assessment of a sustainable urban charging hub. *Journal of Building Performance Simulation*, *18*(3), 291–310. https://doi.org/10.1080/19401493.2023.2258843

Gonzalez-Caceres, A., Hunger, F., Forssén, J., Somanath, S., Mark, A., Naserentin, V., … Hollberg, A. (2024). Towards digital twinning for multi-domain simulation workflows in urban design: a case study in Gothenburg. *Journal of Building Performance Simulation*, *18*(3), 311–332. https://doi.org/10.1080/19401493.2024.2320112

Luo, N., Luo, X., Mortezazadeh, M., Albettar, M., Zhang, W., Zhan, D., … Hong, T. (2022). A data schema for exchanging information between urban building energy models and urban microclimate models in coupled simulations. *Journal of Building Performance*

Simulation, *18*(3), 333–350.
https://doi.org/10.1080/19401493.2022.2142295

Stracqualursi, A. (2023). Climate adaptivity of urban form: an evaluation by the case study of Medina of Fès. *Journal of Building Performance Simulation*, *18*(3), 351–370.
https://doi.org/10.1080/19401493.2023.2251935

Felkner, J., Nagy, Z., Beck, A. L., Reeves, D. C., Richter, S., Shastry, V., … Rai, V. (2024). IMPACT pathways – a bottom-up modelling framework to guide sustainable growth and avoid carbon lock-in of cities. *Journal of Building Performance Simulation*, *18*(3), 371–388.
https://doi.org/10.1080/19401493.2024.2388229

Rulff, D., & Evins, R. (2024). Systematic refinement of surrogate modelling procedure for useful application to building energy problems. *Journal of Building Performance Simulation*, *18*(4), 389–423.
https://doi.org/10.1080/19401493.2024.2440418

Widén, J. (2024). Computationally efficient upscaling of Markovian occupancy models for urban-level building simulations. *Journal of Building Performance Simulation*, *18*(4), 424–451.
https://doi.org/10.1080/19401493.2024.2445134

Barone, F., Merlier, L., Bouquerel, M., & Kuznik, F. (2025). A novel airflow zonal model for urban microclimate modelling at the block scale. *Journal of Building Performance Simulation*, *18*(4), 452–477.
https://doi.org/10.1080/19401493.2024.2446514

Iliadis, P., Bellos, E., Rotas, R., Kitsopoulou, A., Ziozas, N., Nikolopoulos, N., & Kosmatopoulos, E. (2025). Comprehensive framework for dynamic energy assessment of building systems using IFC graphs and Modelica. *Journal of Building Performance Simulation*, *18*(4), 478–499.
https://doi.org/10.1080/19401493.2024.2449375

Kansal, A., & Rajasekar, E. (2024). A review on reduced order models for building and urban energy simulations. *Journal of Building Performance Simulation*, *18*(4), 500–522.
https://doi.org/10.1080/19401493.2024.2444334

Ghiaus, C. (2025). The imperative for reproducibility in building performance simulation research. *Journal of Building Performance Simulation*, *18*(4), 523–529.
https://doi.org/10.1080/19401493.2024.2441385

Zheng, W., Zabala, L., Febres, J., Blum, D., & Wang, Z. (2025). Quantifying and simulating the weather forecast uncertainty for advanced building control. *Journal of Building Performance Simulation*, *18*(4), 530–545.
https://doi.org/10.1080/19401493.2025.2453537

Song, Y., & Zhao, L. (2025). Modeling and simulation of risk-information processing in decision-making during pedestrian seismic evacuation. *Journal of Building Performance Simulation*, *18*(4), 546–565.
https://doi.org/10.1080/19401493.2025.2454258

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https://doi.org/10.1080/19401493.2025.2561864

Wang, X., He, Y., Cui, J., Zhang, X., Liu, F., Yu, H., … Zhang, Y. (2025). Numerical investigation on the impact of natural convection on a multi-inlet industrial rooftop photovoltaic system. *Journal of Building Performance Simulation*, 1–17.
https://doi.org/10.1080/19401493.2025.2560988

Lin, S. M., Hsiao, Y. T., Lu, C. T., & Chou, C. J. (2025). Numerical behavior-aware scheduling framework for residential appliance control under time-of-use tariffs. *Journal of Building Performance Simulation*, 1–17.
https://doi.org/10.1080/19401493.2025.2556690

Xiang, J., Dang, Q., Cerezo Davila, C., & Samuelson, H. (2025). Convex partition zoner: a new algorithm for automated thermal zoning. *Journal of Building Performance Simulation*, 1–20.
https://doi.org/10.1080/19401493.2025.2549981

Weber, S. O., Subramaniam, S., & Leistner, P. (2025). A parametric design integrated sampling and general training approach for optimal control oriented surrogate models of light-related quantities. *Journal of Building Performance Simulation*, 1–24.
https://doi.org/10.1080/19401493.2025.2540929

Lang-Eurisch, B., Bishara, N., & Hübler, C. (2025). Informed green façade selection: integrating LCA and microclimatic analysis for a dual-method approach. *Journal of Building Performance Simulation*, 1–16.
https://doi.org/10.1080/19401493.2025.2538039

Guillante, P., Compton, A., Gioppo, Z., Raleigh, Q., Kiesling, C., Cooper, J., … Poleacovschi, C. (2025). Development of residential building archetype models for rural Alaskan communities. *Journal of Building Performance Simulation*, 1–25.
https://doi.org/10.1080/19401493.2025.2543026

Park, C. H., Cho, S., Song, T. Y., Heo, S. Y., Lee, J., & Park, C. S. (2025). Physics-embedded hybrid modelling approach for room temperature prediction using Siamese neural network and RC model. *Journal of Building Performance Simulation*, 1–12.
https://doi.org/10.1080/19401493.2025.2542352

Heo, Y., Setyantho, G. R., & Hong, T. (2025). Toward a new paradigm for urban climate modelling: challenges and opportunities. *Journal of Building Performance Simulation*, 1–8.
https://doi.org/10.1080/19401493.2025.2540925

Dong, S., Kong, Q., & Meng, X. (2025). A fast method for simulating single room dynamic thermal loads using model order reduction. *Journal of Building Performance Simulation*, 1–20.
https://doi.org/10.1080/19401493.2025.2540921

Qi, D., Wang, L. L., Heidarinejad, M., & Hamdy, M. (2025). Adapting building performance simulation for climate resilience: accounting for urban microclimates and future climates. *Journal of Building Performance Simulation*, 1–7.
https://doi.org/10.1080/19401493.2025.2540927

Hopfe, C. J. (2025). Advances in pedagogy simulation research. *Journal of Building Performance Simulation*, 1–2.
https://doi.org/10.1080/19401493.2025.2538058

Togashi, E., Ogata, H., Ayame, H., Nakatsuka, K., Satoh, M., Ukai, M., … Iio, Y. (2025). A benchmarking framework for HVAC optimization via competitive evaluation: insights from the 2nd wccbo. *Journal of Building Performance Simulation*, 1–14.
https://doi.org/10.1080/19401493.2025.2539356

Su, A. J., Xing Yizhen Brown, C., Mermelstein, R., & Cerezo Davila, C. (2025). Dynamic thermal comfort simulation: model parameter considerations for early-stage design applications. *Journal of Building Performance Simulation*, 1–18.
https://doi.org/10.1080/19401493.2025.2539323

Dogan, T., Li, C., Tseng, H. M., Su, A. J., & Kastner, P. (2025). A bottom-up urban building energy model for evaluating thermal load electrification measures. *Journal of Building Performance Simulation*, 1–28.
https://doi.org/10.1080/19401493.2025.2536261

Zabala Urrutia, L., Febres Pascual, J., Sterling, R., & Pérez Iribarren, E. (2025). Heuristic mathematical optimization of heat pumps in cascade to reduce energy consumption. *Journal of Building Performance Simulation*, 1–14.
https://doi.org/10.1080/19401493.2025.2531023

Bui, R., Goffart, J., McGregor, F., Fabbri, A., Woloszyn, M., & Grillet, A. C. (2025). Hygrothermal behaviour of a rammed earth wall subjected to realistic conditions: investigation of the most influential parameters. *Journal of Building Performance Simulation*, 1–18.
https://doi.org/10.1080/19401493.2025.2525421

Gunay, B., Elehwany, H., Bahiraei, F., & Darwazeh, D. (2025). Development of a contextual bandits-based thermal mass preconditioning algorithm for dynamic electricity pricing. *Journal of Building Performance Simulation*, 1–20.
https://doi.org/10.1080/19401493.2025.2524379

Orman, A., Safranek, S., & Pierson, C. (2025). Evaluation of spectral light simulation tools for prediction of ipRGC-influenced light responses in real-world offices with electrochromic glazing. *Journal of Building Performance Simulation*, 1–20.
https://doi.org/10.1080/19401493.2025.2515123

Gilani, S., Ferguson, A., & Azimi, S. (2025). Energy use metrics for Canada’s housing code. *Journal of Building Performance Simulation*, 1–14.
https://doi.org/10.1080/19401493.2025.2519183

Thanh, T. N., Pham, Q. H., Trung, K. D., & Minh, P. V. (2025). Advanced 2D and 3D simulation techniques for maximizing rooftop solar power efficiency in office buildings. *Journal of Building Performance Simulation*, 1–17. https://doi.org/10.1080/19401493.2025.2519180

Huang, X., & Hu, H. (2025). Study on the intelligent predictive model of thermal comfort for sports buildings in hot-humid climates based on AI algorithms. *Journal of Building Performance Simulation*, 1–17. https://doi.org/10.1080/19401493.2025.2512939

Quang, T. V., & Doan, D. T. (2025). Online transfer learning (OTL) for accelerating deep reinforcement learning (DRL) for building energy management. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2025.2511826

Grudzińska, M., Baborska-Narożny, M., & Bandurski, K. (2025). Determining 'as built' heat loss coefficient – the impact of modelling methods of solar radiation distribution. *Journal of Building Performance Simulation*, 1–10. https://doi.org/10.1080/19401493.2025.2511814

Cui, X., Li, Y., & Shen, P. (2025). Beyond CFD: explainable machine learning for efficient assessment of urban morphology impacts on pedestrian level wind and thermal environment. *Journal of Building Performance Simulation*, 1–16. https://doi.org/10.1080/19401493.2025.2508500

Wu, X., Chen, H., Han, M., Ooka, R., Kikumoto, H., & Oh, W. (2025). Inferencing CFD simulation boundary conditions for coughing from experimental spatiotemporal airflow distribution: conception and results from LSTM. *Journal of Building Performance Simulation*, 1–22. https://doi.org/10.1080/19401493.2025.2509136

Zanetti, E., Scoccia, R., Aprile, M., & Finocchiaro, P. (2025). 2D Modelica modelling and experimental validation of a compact cross-flow heat exchanger used in a new desiccant evaporative cooling system. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2025.2505101

Bjørnskov, J., Badhwar, A., Shikhar Singh, D., Sehgal, M., Åkesson, R., & Jradi, M. (2025). Development and demonstration of a digital twin platform leveraging ontologies and data-driven simulation models. *Journal of Building Performance Simulation*, 1–13. https://doi.org/10.1080/19401493.2025.2504005

Michalak, P., & Bobula, M. (2025). Hourly method of ISO 11855-4 for modelling of a zone with concrete core activation at constant and varying internal heat transfer coefficients. Simulation and validation measurements. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2025.2504003

Su, A. J., Ren, A., Xu, K. C., & Dogan, T. (2025). Scalable building reconstruction and window detection for urban building energy modelling applications. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2025.2501151

Rida, M., & Kelly, N. (2025). Integrating a multi-segment occupant thermal model with building simulation and computational fluid dynamics for detailed analysis of human-building thermal interactions and thermal comfort. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2025.2502800

Tarkhan, N., Crawley, D. B., Lawrie, L. K., & Reinhart, C. (2025). Generation of representative meteorological years through anomaly-based detection of extreme events. *Journal of Building Performance Simulation*, 1–18. https://doi.org/10.1080/19401493.2025.2499687

Mitchell, A., Wright, G. S., & Heidarinejad, M. (2025). Thermal resilience in passive buildings: metrics, modeling methods, tool development, and evaluation of passive and mixed mode responses. *Journal of Building Performance Simulation*, 1–18. https://doi.org/10.1080/19401493.2025.2496658

Johnen, S., Althaus, P., Stock, J., Xhonneux, A., & Müller, D. (2025). Data-driven approach on estimating the minimum required supply temperature for building heating systems: method development, extended application evaluation and sensitivity analysis. *Journal of Building Performance Simulation*, 1–15. https://doi.org/10.1080/19401493.2025.2493868

Brembilla, E. (2025). Advances in daylight simulation research. *Journal of Building Performance Simulation*, 1–2. https://doi.org/10.1080/19401493.2025.2499012

Le, T. L., Chong, H., Le, B. M., Nguyen-Xuan, H., & Kim, S. A. (2025). From hand sketches to daylight performance: a mixed-input neural prediction framework. *Journal of Building Performance Simulation*, 1–25. https://doi.org/10.1080/19401493.2025.2499689

Dhaliwal, G., Gunay, B., Beausoleil-Morrison, I., & Brown, S. (2025). Development and implementation of a data-driven model predictive controller for hydronic floors: an experimental case study. *Journal of Building Performance Simulation*, 1–18.t https://doi.org/10.1080/19401493.2025.2496659

Ang, Y. Q., Ong, L., Teo, J., Gan, J. V., & Han, J. (2025). Advancing building performance simulation education through a crowdsourced campus digital twin. *Journal of Building Performance Simulation*, 1–25. https://doi.org/10.1080/19401493.2025.2493866

Arsano, A. Y., Dumoulin, T., & Chu, C. (2025). Calibration of an analytical model for early-design stage solar heat gain prediction. *Journal of Building Performance Simulation*, 1–18. https://doi.org/10.1080/19401493.2025.2491463

Jowett-Lockwood, L., & Evins, R. (2025). Using an inverse surrogate model for determining building thermal characteristics. *Journal of Building Performance Simulation*, 1–17. https://doi.org/10.1080/19401493.2025.2487459

Rocha, A. P. de A., Goffart, J., & Mendes, N. (2025). Solar shading in building simulations: assessing the reliability of pixel counting and polygon clipping methods. *Journal of Building Performance Simulation*, 1–16. https://doi.org/10.1080/19401493.2025.2487463

Pacquaut, A., Rouchier, S., Juricic, S., Jay, A., Challansonnex, A., & Wurtz, E. (2025). Bayesian approach for the assessment of heat transfer coefficients of buildings under occupancy. *Journal of Building Performance Simulation*, 1–21. https://doi.org/10.1080/19401493.2025.2482973

Li, J., Wang, X., Cui, J., Zhang, X., Wang, P., Huai, Y., … Zhang, Y. (2025). Impact of geometric parameters on the performance of naturally ventilated photovoltaic curtain walls. *Journal of Building Performance Simulation*, 1–16. https://doi.org/10.1080/19401493.2025.2478064

Sood, D., Wolf, S., Cali, D., Korsholm Andersen, R., Li, R., Madsen, H., & O'Donnell, J. (2025). Room-level domestic occupancy simulation model using time use survey data. *Journal of Building Performance Simulation*, 1–15. https://doi.org/10.1080/19401493.2025.2465508

Sánchez-García, D., Bienvenido-Huertas, D., & O'Brien, W. (2025). accim: a Python library for adaptive setpoint temperatures in building performance simulations. *Journal of Building Performance Simulation*, 1–13. https://doi.org/10.1080/19401493.2025.2472305

Heim, D., & Kułakowski, T. (2025). Emerging thermal technologies of building facades – the missing links in energy performance simulation. *Journal of Building Performance Simulation*, 1–14. https://doi.org/10.1080/19401493.2025.2472304

Khorasani Zadeh, Z., Ouf, M., Gunay, B., Delcroix, B., & Larochelle Martin, G. (2025). Modelling thermostat use behaviour in multi-zone residential buildings: a real-world data study and simulation framework for peak demand management. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2025.2474043

Amrith, S., Korolija, I., Fennell, P., Rovas, D., & Ruyssevelt, P. (2025). Optimising building stock retrofits for urban-scale action planning: improving the feasibility without losing information. *Journal of Building Performance Simulation*, 1–16. https://doi.org/10.1080/19401493.2025.2472306

Tian, Z., Shi, X., & Wei, S. (2025). Exploring the impacts of numerosity reduction on the data-driven building energy analysis for a proposed building. *Journal of Building Performance Simulation*, 1–13. https://doi.org/10.1080/19401493.2025.2461256

Randow, J., Satke, P., Jaeschke, M., Bucher, A., Kolditz, O., Shao, H., & Schoenfelder, S. (2025). A software interface for coupled underground and facility simulations between OpenGeoSys and Modelica. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2025.2461242

Hasrat, I. R., Andersen, K. H., Jensen, P. G., Jensen, R. L., Larsen, K. G., & Srba, J. (2025). Towards model-driven heat pump control in a multi-story building. *Journal of Building Performance Simulation*, 1–24. https://doi.org/10.1080/19401493.2025.2460658

Tay, J., Wortmann, T., & Ortner, F. P. (2025). Performance-informed urban design: training a generalized surrogate model for predicting building energy demand across residential morphologies in Singapore. *Journal of Building Performance Simulation*, 1–15. https://doi.org/10.1080/19401493.2025.2457343

Zhong, F., Yu, H., Xie, X., Lin, Y., Zhu, X., Wang, Y., … Huang, S. (2025). Enhanced TimesNet algorithm with ConvNext and fusion of time–frequency domain features in fault detection and diagnosis of HVAC systems. *Journal of Building Performance Simulation*, 1–16. https://doi.org/10.1080/19401493.2025.2459714

Zheng, W., Zabala, L., Febres, J., Blum, D., & Wang, Z. (2025). Quantifying and simulating the weather forecast uncertainty for advanced building control. *Journal of Building Performance Simulation*, 1–16. https://doi.org/10.1080/19401493.2025.2453537

Li, Y., Chen, Z., Wen, J., Fu, Y., Pertzborn, A., & O'Neill, Z. (2025). A framework for calibrating and validating an HVAC system in Modelica. *Journal of Building Performance Simulation*, 1–21. https://doi.org/10.1080/19401493.2025.2452657

Song, Y., & Zhao, L. (2025). Modeling and simulation of risk-information processing in decision-making during pedestrian seismic evacuation. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2025.2454258

Walther, K., Molinari, M., & Voss, K. (2025). Controls of HVAC systems in digital twins – comparative framework and case study on the performance gap. *Journal of Building Performance Simulation*, 1–18. https://doi.org/10.1080/19401493.2024.2446517

Green-Mignacca, S., Rostami, M., & Bucking, S. (2024). Towards codification of thermal resilience upgrades in midrise residential buildings: a Canadian archetype energy model approach. *Journal of Building Performance Simulation*, 1–23. https://doi.org/10.1080/19401493.2024.2435908

Petrou, G., Mavrogianni, A., Symonds, P., Chalabi, Z., Lomas, K., Mylona, A., & Davies, M. (2024). Development of a Bayesian calibration framework for archetype-based housing stock models of summer indoor temperature. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2024.2421330

Kempe, P. (2024). Reducing the energy performance gap through stepwise verification of building and system functions. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2024.2416684

Kim, H. G., & Kim, S. S. (2024). UBEM calibration method by energy consumption disaggregation using a change-point model. *Journal of Building Performance Simulation*, 1–28. https://doi.org/10.1080/19401493.2024.2412135

Firth, S. K., Allinson, D., & Watson, S. (2024). Quantifying the spatial variation of the energy performance gap for the existing housing stock in England and Wales. *Journal of Building Performance Simulation*, 1–18. https://doi.org/10.1080/19401493.2024.2380309

Sadevi, K. K., & Agrawal, A. (2024). Thermal performance of shaded roofs: investigating the impact of material properties and efficacy of building performance simulation. *Journal of Building Performance Simulation*, 1–17. https://doi.org/10.1080/19401493.2024.2388215

Markarian, E., Qiblawi, S., Krishnan, S., Divakaran, A., Ramalingam Rethnam, O., Thomas, A., & Azar, E. (2024). Informing building retrofits at low computational costs: a multi-objective optimisation using machine learning surrogates of building performance simulation models. *Journal of Building Performance Simulation*, 1–17. https://doi.org/10.1080/19401493.2024.2384487

de Vries, S. B., Laan, C. M., Bons, P. C., & Heller, R. M. B. (2024). Model-predictive space heating control for energy flexibility – a case study using a long short-term memory neural network surrogate model and a genetic optimization algorithm. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2024.2371918

Siu, C. Y., Touchie, M., & O'Brien, W. (2024). Development and testing of an automated tool to leverage building energy models for thermal resilience analysis. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2024.2365381

Morovat, N., Athienitis, A. K., & Candanedo, J. A. (2024). Design of a model predictive control methodology for integration of retrofitted air-based PV/T system in school buildings. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2024.2362241

Pan, X., Xu, Y., & Hong, T. (2024). Surrogate modelling for urban building energy simulation based on the bidirectional long short-term memory model. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2024.2359985

Kersken, M., Rojas, G., & Strachan, P. (2024). Uncertainty of the predictions of different programs and modelling teams based on a detailed empirical validation dataset. *Journal of Building Performance Simulation*, 1–17. https://doi.org/10.1080/19401493.2024.2343883

Mahdavi, A., & Berger, C. (2024). Ten questions regarding buildings, occupants and the energy performance gap. *Journal of Building Performance Simulation*, 1–11. https://doi.org/10.1080/19401493.2024.2332245

Campagna, K., Jay, A., Pacquaut, A., & Juricic, S. (2024). Co-cooling, simulation-based exploration of a new method to measure the heat transfer coefficient of a building envelope in hot climate and summer period. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2024.2338767

Rostami, M., & Bucking, S. (2024). Adaptation to extreme weather events using pre-conditioning: a model-based testing of novel resilience algorithms on a residential case study. *Journal of Building Performance Simulation*, 1–22. https://doi.org/10.1080/19401493.2024.2307636

Baba, F. M., Cheong, K. C. T., Ge, H., Zmeureanu, R., Wang, L. (Leon), & Qi, D. (2023). Comparing overheating risk and mitigation strategies for two Canadian schools by using building simulation calibrated with measured data. *Journal of Building Performance Simulation*, 1–19. https://doi.org/10.1080/19401493.2023.2290103

Amaripadath, D., Joshi, M. Y., Hamdy, M., Petersen, S., Stone, Jr., B., & Attia, S. (2023). Thermal resilience in a renovated nearly zero-energy dwelling during intense heat waves. *Journal of Building Performance Simulation*, 1–20. https://doi.org/10.1080/19401493.2023.2253460