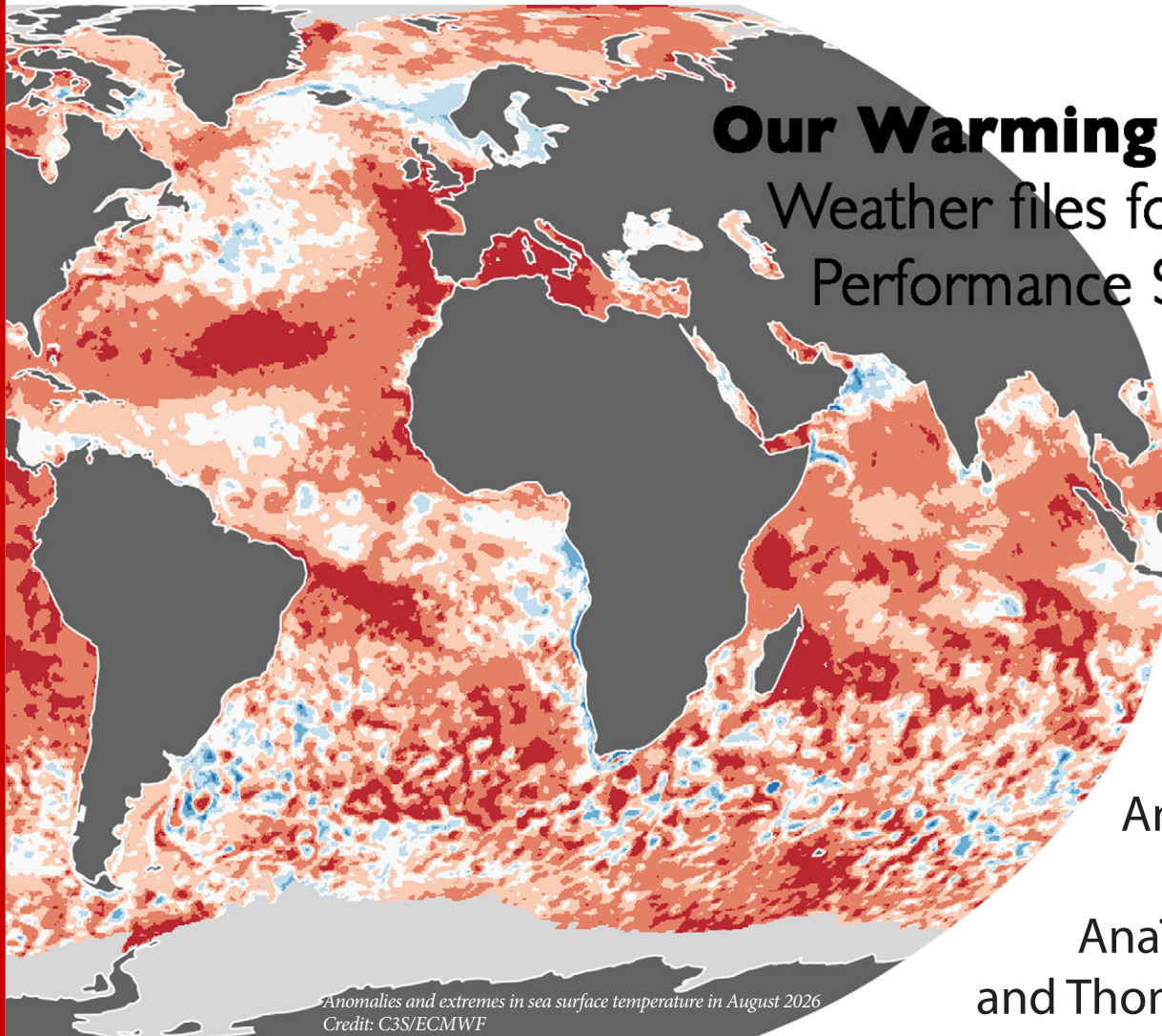


ibpsaNEWS

volume 36 number 2 <https://ibpsa.org>

Oct 2026



Anomalies and extremes in sea surface temperature in August 2026
Credit: C3S/ECMWF

Our Warming Future: Weather files for Building Performance Simulation

An interview
with
Anaïs Machard
and Thomas K. Thiis

IBPSA NEWS & ANNOUNCEMENTS

about progress towards BS27 and travel support for attending students, Calls for entries to the Student Modelling Competition and for Nominations for IBPSA Awards and Fellowships, and IBPSA's work on standards

SOFTWARE NEWS

updates from DesignBuilder, IES and OneBuilding.org, and a new interactive shape viewer for EnergyPlus models

CALENDAR OF EVENTS

8 events for your diary

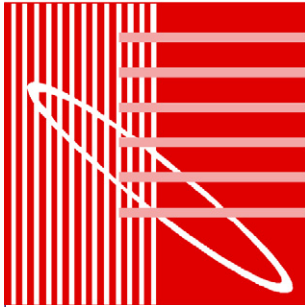
plus

'Ask A Modeler' Q&A on *Smarter modeling for an AI-driven, climate-changing world*, and a list of the latest papers published in the Journal of Building Performance Simulation



Contents

President's message	3
Best of 'Ask a Modeler': Smarter modeling for an AI-driven, changing world	4
Our Warming Climate: Future Weather Files for Building Simulation	9
Forthcoming events	12
Calendar	12
Building Simulation 2027	13
News from IBPSA Affiliates	14
IBPSA Canada	14
IBPSA DACH	16
IBPSA England	19
Software & other news	20
DesignBuilder Results Viewer v4.3 is released	20
EPShape: a 3D interactive shape viewer for EnergyPlus models	21
IES release IES VE 2026	23
New climate datasets for Luxembourg & Belgium from Climate.OneBuilding.Org	26
IBPSA announcements	27
Student Modelling Competition - BS2027	27
Call for Nominations for IBPSA Awards and Fellows	28
Student Travel Awards: Supporting students to attend BS2027	29
IBPSA Standards Committee: IBPSA's involvement in ASHRAE standards	30
Books by IBPSA Fellows	32
Building Performance Analysis (Wiley, 2018)	32
Building Performance Basics (Amazon KDP, 2022)	32
Fundamentals of Building Performance Simulation: 2nd edition announced	33
Building Performance Simulation for Design & Operation	34
About IBPSA	35
Committee chairs & contacts	35
Affiliates	36
IBPSA on social media	37
Journal of Building Performance Simulation	38
Journal of Building Performance Simulation: Journal metrics	38
Journal of Building Performance Simulation: recent papers	39



The International Building Performance Simulation Association exists to advance and promote the science of building performance simulation in order to improve the design, construction, operation and maintenance of new and existing buildings worldwide.

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President's message

Dear IBPSA Colleagues and Friends

We've had a busy year so far, and I'm glad to share some highlights with you.

Regional Affiliate Conferences

Our affiliates had a full calendar in 2026. *Conférence Francophone de l'IBPSA* took place in Lyon (18–22 May), *SimBuild* in Minneapolis (20–22 May) under the theme *From Models to Reality*, and *eSim* in Longueuil, QC - marking IBPSA-Canada's 25th anniversary of the conference series. *BuildSim Nordic* drew over 140 accepted abstracts to Umeå, Sweden (19–21 August), and *BauSIM* returned to Zurich (9–11 September), hosted by ZHAW and IBPSA-DACH. *ASim* (Singapore) and the combined *BSO-uSIM* (Glasgow) rounded out the year in November. *IBPSA-Nederland+Vlaanderen* also marked its 25th anniversary with a well-attended study day in Antwerp on moisture-safe retrofit with internal insulation. Full write-ups on these events are in this and previous issues of *ibpsaNews* - well worth a look if you missed one.

Board Elections

As I write, the annual board election for directors has just ended. Thank you to everyone who participated in the process, and to our directors-at-large for their continued service. We thank outgoing affiliate directors, PC Thomas (Australasia) and Simon Rochier (France), for their years of service on the board of directors. We welcome Preeti Chandak (Australasia) and Matthieu Labat (France) as new affiliate directors. During our October board meeting, officers were re-elected for the coming term: Dru Crawley (President), Pieter de Wilde (Vice President), Danielle Monfet (Secretary), and Wangda Zuo (Treasurer).

Annual General Meeting — Vienna

This year, we held the AGM in Vienna – site of next year's Building Simulation 2027. As always, the full papers — agenda, financial report, and members' resolutions — are posted on the IBPSA website <https://ibpsa.org>. I'd encourage members to take a look, particularly the financial report and the resolutions ratifying the board's activities over the past year.

Looking ahead, preparations for Building Simulation 2027 in Vienna are well underway. See <https://bs2027.org> for more information. We've heard that the response to the call for papers was significant. Looking forward to seeing what the community shares next year at the conference.

IBPSA Social Media and Website

Did you know IBPSA has two LinkedIn pages? We regularly share information on our IBPSA World company page: <https://www.linkedin.com/company/25066364/>. Follow that page for updates on IBPSA and the simulation community. The second page is a public group with more than 13,000 members: <https://www.linkedin.com/groups/75552/>. Use this group to exchange information with members of the IBPSA community. As always, the IBPSA website has up-to-date information and access to all the Building Simulation and regional conference papers.

Hope to see many of you at the Building Simulation conference next year!

Dru Crawley
President, IBPSA

Best of 'Ask a Modeler':

Smarter modeling for an AI-driven, climate-changing world

'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.

When a building needs several heat pumps, should I run as few as possible at full load, or spread the demand across more units at part load?

— Load Distributor

Dear Load Distributor,

Great question. If you want to save as much energy as possible, you'll want to run your heat pumps at their most efficient point, and that point isn't necessarily at full load. We measure that efficiency with the coefficient of performance (COP): the ratio of useful heat delivered to electricity consumed, so the higher the better. The key fact, which we can summarize in a single sentence, is that a heat pump's maximum COP is not at full load, so distributing the demand across more units can give you a better overall COP. Running cost isn't the only thing that matters, of course, upfront investment plays a role too (more on that later), but let's focus on energy first. Don't worry, we'll dive into this in more detail.

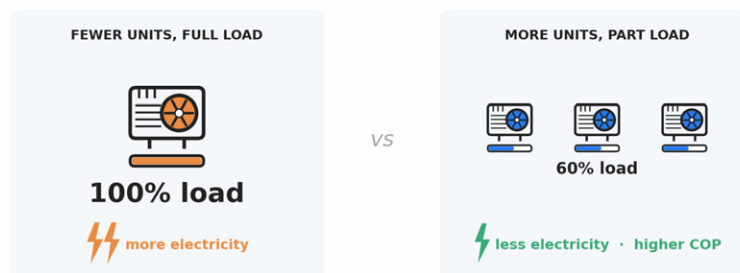
First, let's look at a single heat pump for heating. Its COP depends mainly on the following conditions: the temperature at the condenser (where heat is delivered), the temperature at the evaporator (where heat is extracted from the source), and the part-load ratio (PLR). The PLR represents the heat actually supplied by the unit relative to its available capacity at those operating temperatures. When we look more closely at how the COP evolves with the PLR, we find something perhaps counterintuitive: the maximum COP is not at full load, but at a lower one. Why? At lower loads, the heat exchangers are effectively oversized for the reduced demand, so the temperature lift the compressor must overcome shrinks and the COP climbs; only at very low loads do compressor and motor losses start to drag it back down - see the figures below:

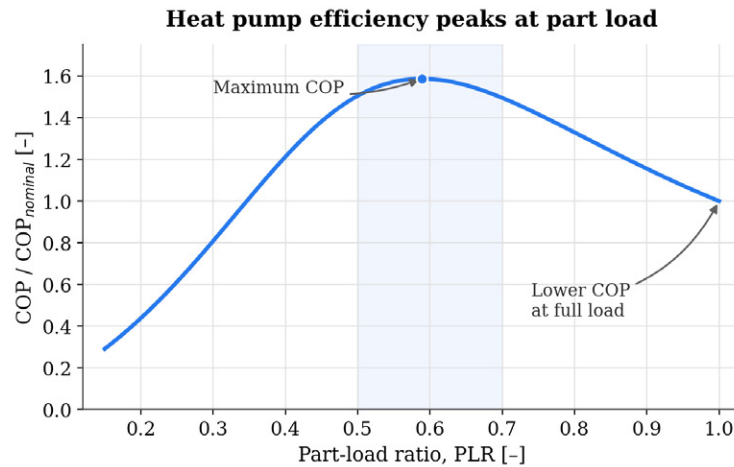


Laura Zabala Urrutia
PhD student at University
of the Basque Country
(EHU)

One pump at full load, or the load shared across several?

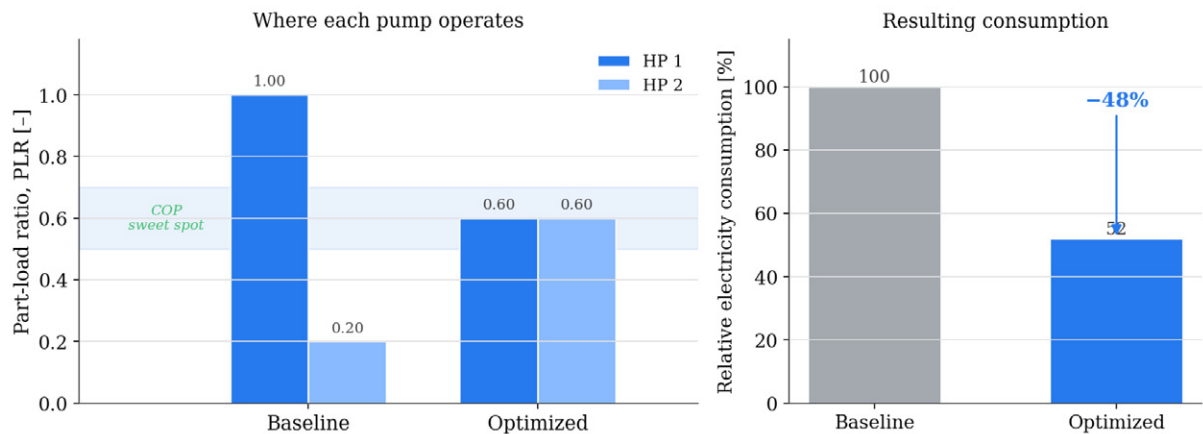
A heat pump is most efficient at part load, so sharing the demand can cut electricity use





Now that we know a single heat pump runs more efficiently at part load than at full load, delivering more heat per unit of electricity, let's see how this plays out in a cascade. When several heat pumps work together, load distribution becomes key. Most conventional heat pump cascades in buildings operate in a straightforward way: they turn on a single unit and increase its modulation until it reaches full load, then bring on the second one, and so on. But based on what we just saw, it can be more efficient to run two heat pumps at once, keeping the first near its peak-COP load and letting the second pick up the rest, rather than driving the first to full load while the second barely ticks over. This also keeps the incoming unit out of the very low part-load region, where efficiency is worst (see the figure above). Think of it like driving on the motorway: your car sips less fuel cruising at a steady, moderate speed than with your foot flat to the floor. Running several heat pumps each in their comfort zone beats pushing one to the limit while the others wait.

Sharing the load keeps both pumps near peak efficiency



With this in mind, my colleagues and I developed a heuristic optimization to find the optimal thresholds for a heat pump cascade. In simple terms: we discretize the possible threshold values, simulate a full year of cascade operation for each combination, and pick the one with the lowest electricity consumption. We applied it to a real installation, first presented at SimBuild 2024 (https://publications.ibpsa.org/proceedings/simbuild/2024/papers/simbuild2024_2153.pdf): a building in Slovenia where three air-to-water heat pumps meet the heating demand. Comparing simulations of a conventional cascade (driving units to full load) against the optimized one, we found electricity savings of up to 13.8% a year. A real plus of this approach, which saves you a few headaches, is that it needs no new hardware and no real-time actuation: you optimize the cascade once and program the new threshold values into the existing controller. Straightforward.

Now let's take it one step further. Everything so far happens at the operation level, but imagine bringing this thinking into the design phase. Choosing how many heat pumps to install is usually decided on upfront capital expenditure (CAPEX) alone, where a single large unit looks cheapest. But when we add the operational expenditure (OPEX) over the system's life, the picture changes. We explored this in more detail in a follow-on paper (www.tandfonline.com/doi/abs/10.1080/19401493.2025.2531023), where we found that two or three smaller units recover their higher initial cost in about 3.5 years once the optimized cascade is applied, making them the more cost-effective choice in the long run.

In short: don't be afraid to share the load. Whether you're operating an existing cascade or designing a new plant, giving each heat pump room to breathe pays off, in energy and in economic terms.

How can we make Demand Response programs more attractive to residential customers?

— *Load Manager*

Dear Load Manager,

Flexible buildings need flexible people

Imagine two neighbors participating in the same demand response event. Their thermostats are both lowered by 2°C (about 4°F) during a winter peak period. One never notices. The other immediately overrides the setting and wonders whether to leave the program altogether.

The difference isn't the house. It's the occupant.

While demand response can involve many flexible resources - from electric vehicle charging to water heating - residential HVAC systems are among the most common and high-impact demand response resources. As a result, occupant comfort often becomes a central consideration when designing and evaluating these programs.

For years, demand response programs have focused on the flexibility of buildings and appliances. Researchers have developed increasingly sophisticated strategies to reduce energy demand during periods of high grid demand, often demonstrating peak-load reductions of 20–30% in simulation studies. Yet despite this technical potential, the amount of demand response capacity in electricity markets remains relatively small.

The challenge is no longer proving that demand response can work—the challenge is designing programs that people actually want to participate in.

Comfort for whom?

Many residential demand response programs still rely on a one-size-fits-all approach. A thermostat setback that is barely noticeable for one household may be unacceptable for another.

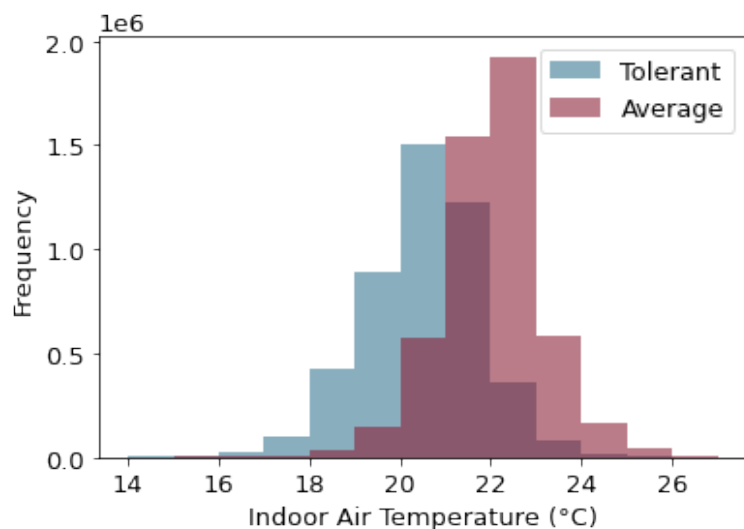
In reality, comfort is highly personal and influenced by:

- Individual temperature preferences
- Daily schedules and occupancy patterns
- Age, gender, and other demographic factors
- Housing characteristics and building performance
- Financial circumstances and energy costs



*Kathryn Kaspar, PhD
Concordia University*

Importantly, a lower thermostat setting in winter does not necessarily indicate greater tolerance for cold temperatures. Some occupants may maintain lower temperatures because they genuinely prefer them, while others may be trying to reduce their energy bills. Treating these households as equally “flexible” can lead to incorrect assumptions about both comfort and demand response potential, highlighting the importance of understanding not only individual comfort preferences, but also the factors that drive occupant behavior.



Distribution of indoor temperatures observed for two distinct occupant groups during the winter heating season in Quebec. The differences illustrate the range of temperature preferences observed across households (Kaspar et al., 2024)

What makes a successful demand response program?

Discomfort is one of the biggest barriers to long-term participation in demand response programs.

Enrollment is often treated as the primary measure of success, but enrollment is only the first step. A successful program is one in which participants:

- Remain enrolled over time
- Feel comfortable during demand response events
- Retain the ability to override controls when needed
- Continue participating in future events

Importantly, maintaining occupant comfort does not necessarily mean sacrificing energy savings. Rather, it requires demand response strategies that recognize and accommodate differences in occupant preferences, behaviors, and circumstances. The solution is not necessarily more overrides, more incentives, or more control—it is a better understanding of occupants.

Designing for real people, not ideal ones

Recognizing different comfort preferences can improve the balance between energy savings and thermal comfort in three important ways.

1. Know your occupants, then act accordingly

Rather than applying the same thermostat adjustment to every home, programs can tailor actions based on observed behavior and preferences. A tiered participation structure makes this practical—occupants self-select into the level of intervention they’re comfortable with, and homes that tolerate larger setbacks provide greater flexibility while more sensitive households receive smaller ones. The program captures real flexibility from those who have it, rather than assuming it from everyone.

2. Target the right homes at the right time

Not every home needs to participate in every event at the same intensity. On the coldest days, when comfort thresholds are most likely to be tested, programs could reduce the depth of setbacks or prioritize homes with historically tolerant occupants. Smarter targeting shifts load where it costs occupants the least—and produces savings that are more realistic and more reliable than a blanket approach.

3. Protect comfort to protect participation

A slightly smaller load reduction today may be worthwhile if it helps retain participants for years to come. Occupants who feel comfortable and respected are more likely to trust the program, remain enrolled, and continue providing flexibility when it is needed.

Redefining Success

The goal of demand response should not be to maximize load reduction during a single event. The goal should be creating a program that people are willing to participate in repeatedly, which delivers the most significant long-term benefits to the electrical grid.

Recognizing occupant comfort preferences shifts demand response from a technology problem to a human one. The most valuable flexibility resource in a home may not be the thermostat itself, but the occupant's willingness to provide flexibility.

The future of demand response depends less on finding flexible appliances and more on understanding flexible people.

Ask a Modeler is looking for volunteers! If you'd like to write for or edit our column, please email askamodeler@ibpsa.us. We also want to hear your interesting, entertaining, or just plain odd questions about life and building performance simulation. Send us your questions or read our past columns at <https://ibpsa.us/ask-a-modeler>. Note that questions requiring an immediate response should be submitted to the community of experts at unmethours.com/questions. ■



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Our Warming Climate:

Future Weather Files for Building Performance Simulation

Introduction by Eleonora Brembilla

Every year we break new temperature records in what has now become the new norm. I have heard someone describing the 2026 summer as the ‘coolest of the rest of our lives’. The consequences of such dramatic change are only starting to hit us and yet there seems to be too little action taken to prevent them. What can the building performance simulation community do? To help us in understanding the creation and use of future weather files, I interviewed two experts on the subject, Anaïs Machard and Thomas K. Thiis, respectively working with the IEA Annex 80 group and with the Future Weather Generator tool.

Eleonora Brembilla (EB): Thank you for participating in this interview and for your important work on future weather files for building performance simulation. Can you briefly introduce yourself (and your research group)?

Anaïs Machard (AM): My name is Anaïs Machard; I work at the Scientific and Technical Center for Buildings (CSTB) in France. CSTB is a public research and innovation organisation that bridges the gap between academic research and building practitioners. We support the transition towards sustainable and climate-resilient buildings. I conducted my PhD on the convergence of mitigation and adaptation to climate change in building performance simulation. I spent part of my PhD developing a methodology to include heatwaves in future weather files. I later shared and coordinated this work through the “Weather Data” Working Group that we created within IEA Annex 80 “Resilient Cooling for Buildings” (<https://annex80.iea-ebc.org>). This collaboration resulted in a data paper providing reference future weather files for building performance simulation across all major world climate zones.



Anaïs Machard, PhD
Centre Scientifique et
Technique du Bâtiment
(CSTB)

Today my research work still focuses on the adaptation of buildings to climate change, including building design and retrofit. This includes building performance simulation with future prospective weather files to both assess building vulnerability to heatwaves and evaluate passive and active solutions to reduce indoor overheating. We also conduct large scale in-situ monitoring campaigns to assess occupants’ thermal sensation and their adaptative actions during heatwaves. The RENOPTIM project campaign was a pilot project assessing indoor overheating in 80 dwellings in France resulting in the major French database on this topic. I am part of the Energy and Environment Department in a dedicated research team of people working on this topic. We work closely with a climatologist who develops our internal climate services platform. We have access to different prospective scenarios for more than one hundred cities in France also including urban heat island effects.

Thomas K. Thiis (TKT): I’m Thomas K. Thiis, professor at the Norwegian University of Life Sciences (NMBU), in the Department of Building and Environmental Engineering. Our group, Climate and Building, works on how climate acts on buildings through wind-driven rain, snow, solar radiation and temperature, and what that means for loads, durability, energy use and comfort. Much of this is done with my close colleague Arnkell Jonas Petersen at NMBU, whose contribution has been central to our climate-data work.

At NMBU we have a long-standing interest in climate data for buildings, convinced that a simulation is only ever as good as the boundary conditions behind it. That interest led us to produce a set of Typical Meteorological Years covering Europe (*Energy and Buildings*, <https://linkinghub.elsevier.com/retrieve/pii/S0378778825015440>), which underpins much of our future-weather work.

This work is also carried out with Eugénio Rodrigues of the CURA Lab at the University of Coimbra (<https://cura-lab.adai.pt>), a cooperation spanning more than thirteen years. Eugenio and his team developed the Future Weather Generator, a widely used open tool for morphing weather files to future climates, and that expertise has shaped this work throughout.

EB: We have just had another record-breaking summer in the northern hemisphere, with temperatures higher than ever and wildfires in several countries. What role do you envision for weather files in improving the resilience of our built environment?

AM: I think that significant progress has been made in the development of prospective weather files for building performance simulation. When I started my PhD in 2017, the work of Vahid Nik and Drury Crawley stood out; they were among the few researchers proposing future weather files including extreme events and not only future typical years. At that time, four climate models from the CMIP5 ensemble were available on the CORDEX platform, at a three-hour temporal resolution for multi-year climate data until 2100. This finally provided sufficient temporal resolution to reassemble future weather files for building performance simulation. It has been ten years since then and today many researchers are using these data. One of the key challenges today is selecting the climate projections that are most relevant for building applications. While future climate data are becoming increasingly available, their use still requires substantial climatological expertise, creating a gap between climate science and building practice. As a result, the main challenge is no longer generating climate data but translating them into weather files and decision-support tools that practitioners can readily use. In France, we worked with the national weather data provider METEO FRANCE and the energy efficiency agency ADEME to assemble future typical and extreme weather files for eight French climate zones by 2050 and 2100. These files have been freely accessible online for the past year and comply with the TRACC, the French reference warming trajectory for climate change adaptation. However, in practice we observe that these weather files are not enough for building practitioners as they need files specific to their cities of interest, including urban heat island effects, and other specificities. In my opinion, the next step is therefore not only to improve the quality of future weather data, but also to work closely with practitioners to deliver meaningful, localized and accessible weather files tailored to their needs.

TKT: Weather files are the boundary condition for everything we simulate, so they quietly decide what we are actually designing against. The traditional file is a typical year assembled from past decades: it looks backward, and deliberately smooths away the extremes. A summer like the one we have just had barely registers in it.

The files we have produced are future files, but they too describe a typical year, now shifted to a future climate. These are exactly right for energy simulation: they capture how annual heating and cooling demand evolves as the climate warms, including cooling emerging in regions that never needed it. That is an important part of resilience, but it is not the whole of it.

The other part is the extremes. To size equipment - cooling plant, ventilation, drainage — engineers normally work with extreme conditions tied to a return period, a one-in-twenty or one-in-fifty year event. Future weather files of that kind, extremes with a defined return period under a changing climate, are still sparsely available. Closing that gap is the task ahead. Building resilience against heat waves and record summers means bringing those future extremes into planning, not only future averages.

EB: Can you guide us through the main key steps needed to generate a future weather file, and summarise the strengths and limitations of the method you are using?

AM: There are different methods to generate future weather files that have been described in several research reviews. The method I developed during my PhD and that we currently use at CSTB is based on climate



Thomas K. Thiis
Professor, Norwegian
University of Life Sciences
(NMBU)

projections from an ensemble of climate models available through the CORDEX platform. We conduct bias-adjustment using ERA5-Land reanalysis and then have access to multi-year bias-adjusted climate data from which we can select periods including heatwaves or any other climatic hazard relevant for building performance simulation. We also use the tool Urban Weather Generator to include urban heat island effects for urban areas. We recently developed a method to select future heatwaves based on occurrence probability in the future. The particularly useful feature is the possibility of generating heatwave scenarios associated with different return periods (e.g. 3, 5 or 10-year events). This method proposes a risk-based approach rather than relying only on a single typical year or most extreme scenario. The strength is that this method allows flexibility to choose the most representative heatwave according to the case study objectives. The main limitation is the complexity of the workflow and the expertise required to process climate projections, perform bias correction and interpret uncertainty across climate models.

TKT: We use the morphing method. The starting point is a typical weather file for the recent observed climate — ours are Typical Meteorological Years built from the CERRA reanalysis for a fixed baseline period, 1986 to 2005. Onto this we add the climate-change signal from climate models: the “delta”, the difference between a future period and the model’s own historical period, taken variable by variable and month by month from CMIP5 and CMIP6 projections.

One step is easy to overlook but decisive; the model’s baseline must match that of the weather file, or you bake in a near-constant offset that at mid-century can be 20–30% of the whole warming signal.

Model selection matters just as much: individual models carry large internal variability, so we keep only those reproducing both summer and winter against a reanalysis reference, average over ~30-year periods to damp that variability, and read the spread across models as genuine uncertainty rather than trusting any single run.

We then apply the deltas by morphing - shifting and stretching each variable so the mean change is imposed while the realistic hour-to-hour structure of the observed year is preserved.

The strengths are transparency, low computational cost, and physically realistic sequences. The limitation is inherent: morphing stretches the present rather than generating new conditions, so shifts in variability and extremes are only partly captured, and it inherits the biases of the underlying models.

EB: *What are your tips for building designers and consultants facing the choice between such a variety of weather files: present, future, representative, extreme and whatnot?*

AM: I think it is important to understand the implications of climate change by considering not only typical weather files, but also different severe weather conditions. Climate change affects not only average temperatures, but also the frequency, intensity and duration of extreme events. For this reason, relying exclusively on typical years may underestimate thermal stress, while focusing only on worst-case scenarios may not reflect the conditions buildings are most likely to experience during their lifetime. Recent observed heatwaves can provide valuable and tangible stress-test scenarios for practitioners. Events that were considered exceptional a few decades ago may become relatively common in the future. For example, the 2003 heatwave was considered exceptional when it occurred, and it was incorporated into the French building environmental regulation in 2012. Today, climate projections suggest that heatwaves of comparable severity could become relatively common in southern France by 2050. This illustrates how recent observed heatwaves can serve as meaningful proxies for future climate conditions. Another important aspect is the use of weather files that account for urban heat island effects. In urban areas, nighttime temperatures are often 2°C to 5°C higher than in surrounding rural environments, which reduces the potential for nighttime ventilative cooling and increases indoor overheating risk. Overall, my main recommendation would be to adopt a risk-based approach by considering heatwave events with different probabilities of occurrence rather than relying on a single

future typical year or extreme scenario. We are increasingly working on methods to relate observed and future heatwaves to recurrence periods, providing a practical framework for interpreting climate risk and selecting appropriate design scenarios.

TKT: The key is to match the file to the question, and to stop treating the future as far away: it is only 25 years to 2050. A building designed now will spend most of its life in a mid-century climate, so the mid-century future file belongs in essentially every project. But it should sit alongside the present TMY, not replace it: a warmer mean does not remove cold years, and the heating demand in a building's first years, the years just ahead of us, may still be the situation that governs the heating design. So, use both as routine.

How many scenarios you need to consider depends on how far ahead you look. At mid-century the emission pathways have barely diverged, so a single moderate scenario, RCP4.5, is enough. Only for long-lived buildings reaching towards the end of the century do the pathways fan out enough to bracket with low, moderate and high (RCP2.6, RCP4.5, RCP8.5).

Remember that these are representative-year files for annual demand, not tools to size equipment against rare events!

My strongest tip, though, is simply this: use future files in every project. Too much of Europe's Renovation Wave is designing tomorrow's buildings with yesterday's weather, and designing against the past is no longer good enough.

EB: Thank you again for your answers and for your contribution to building performance simulation research. We wish you a resilient future! ■

Forthcoming events

Date(s)	Event	Further information
2026		
16-18 November 2026	ASim Singapore	https://asim2026.sg
23-24 November 2026	BSO-uSIM 2026 Glasgow, Scotland, UK	www.bso-usim2026.org
2027		
23-27 January 2027	ASHRAE Winter Conference Chicago, Illinois, USA	www.ashrae.org/conferences/2027-winter-conference
08-09 April 2027	CIBSE Technical Symposium London, UK	www.cibse.org/events/cibse-technical-symposium
19-22 April 2027	International Building Physics Conference Wellington, New Zealand	https://ibpc2027.org
24-28 May 2027	SimBuild Seattle, Washington, USA	https://simbuild.ibpsa.us
12-16 June 2027	ASHRAE Annual conference New Orleans, Louisiana, USA	www.ashrae.org/conferences/2027-annual-conference-new-orleans
29 August - 01 September 2027	BS2027 Vienna, Austria	https://bs2027.org

29 August -
01 September 2027
Vienna, Austria
<https://bs2027.org>



Building Simulation 2027: Strong response and new opportunities

The Building Simulation 2027 conference has received an excellent response, with **1,450 abstracts submitted** from researchers and practitioners around the world. The review process is now underway, and we look forward to sharing the results with authors in the coming months.

As preparations for the conference continue, we are also **welcoming proposals for workshops until mid-January 2027**. Workshops will provide an opportunity to explore emerging topics, share expertise, and foster discussion within the international building simulation community. Further information on submitting a proposal is available on the conference website: www.bs2027.org.

We are also **looking for sponsors** to support Building Simulation 2027 and contribute to making the event a success. Sponsorship offers organisations an opportunity to engage with the international building simulation community and showcase their work.

Finally, the **Student Modelling Competition** will be starting soon. Students interested in participating can find further information and updates on the conference website.

Important Dates

- Notification of Abstract acceptance: 25 October 2026
- Full Paper submission deadline: 15 January 2027
- Notification of paper review: 22 March 2027
- Opening of registration: 15 January 2027
- Early Bird deadline: 31 March 2027
- Regular registration deadline: 31 July 2027
- Late registration deadline: 15 August 2027

We look forward to welcoming the Building Simulation community to BS2027 in Vienna! ■

News from IBPSA Affiliates

IBPSA Canada

Report on eSim 2026

The eSim 2026 Conference, held at the Université de Sherbrooke – Longueuil Campus, Longueuil, Québec, Canada, from June 17–19, 2026, brought together researchers, government officers, industry professionals, and students to advance the field of building performance simulation and sustainable built environments. The conference featured an engaging program of pre-conference workshops, inspiring keynote presentations, technical sessions, industry exhibits, networking opportunities, and a technical tour, fostering meaningful knowledge exchange, interdisciplinary collaboration, and lasting professional connections. More than 220 participants from 12 countries attended the conference, representing 62 distinct institutions and organizations. A total of 162 papers were presented across 27 technical sessions.



Workshops

1. *Modelling and simulation of building energy systems using the Modelica language* by Kun Zhang and Massimo Ciminno.
2. *Modeling urban climate with CFD based models* by Clément Nevers.
3. *From Data to Flexibility: Data-Driven Modeling and Model Predictive Control (MPC) for Energy Flexibility in Real Buildings* by Navid Morovat and José Candanedo.

4. *Hands-on Technical Workshop on the Passive House Approach: Design, Construction, and Energy Modeling* by Raphael Boisjoly.



Keynote Talks

- Professor Chen Qingyan (Fellow of the Royal Society, Hong Kong Global STEM Scholar, The Hong Kong Polytechnic University)
- Dr David Waller (Director General, CanmetENERGY-Ottawa)
- Dr Olivier Rouch (Fluid Dynamics Simulation expert, AtkinsRealis)

IBPSA Canada Student Travel Awards

IBPSA Canada's award committee, consisting of Karine Lavigne, Yuxiang Chen, Burak Gunay and Dahai Qi, reviewed applications for the student travel award along with other supporting documents and awarded five student travel awards (each valued \$1,000). The IBPSA Canada board presented the awards at the eSim conference in Université de Sherbrooke – Longueuil Campus to:

- Yuxin Lu (Carleton University)
- Zahra Behzad (Carleton University)
- Chun Yin Siu (University of Toronto)
- Andre A. Markus (Carleton University)
- Sara Sadeghi (Carleton University)

eSim 2026 Outstanding and Best Paper Awards

eSim 2026 Conference organizers selected the following five papers, three as outstanding papers and two as best papers at the conference from a shortlist based on the reviewer ratings and recommendations.

- Best paper award for “Field Deployment and Evaluation of MPC with Sequential Parameter Estimation” by Andre Markus, Jayson Bursill, Burak Gunay, Grace Dhaliwal.
- Best paper award for “Can Building Energy Graphs Help? Studying Peak-Demand Prediction Under Geographic and Climatic Shift” by Agata Dalach, Zijian Wang, Stavros Nousias, André Borrmann.
- Outstanding paper award for “Low-order Modelica model for latent thermal energy storage” by Alixe Degelin, Kenny Couvreur, Win Beyne, Michaël Wetter, Michel de Paepe, Ilya T’Jollyn.
- Outstanding paper award for “From Steady Setpoints to Rich Data : Neural ODEs Insights” by Gabriel Sabbagh, Massimo Cimino, Benoit Delcroix, Luis Rueda.
- Outstanding paper award for “Wi-Fi-based demand-controlled ventilation for airport terminals” by Milad Babadi-Soultanzadeh, Liangzhu (Leon) Wang, Mohamed Ouf, Guillermo Quesada Ramos, Hirohito-Hugues Séraphin, Louis Bennett. ■

IBPSA DACH



BauSIM2026: celebrating 20 years of BauSIM

The hosts: Institute of Computational Physics and the Institute of Facility Management

The ICP Institute of Computational Physics is part of the ZHAW School of Engineering and specializes in computer simulations. For over 20 years, a team of physicists, mathematicians, and engineers has been applying methods and findings from basic research to industrial challenges, developing Multiphysics computer models based on the finite element method.

The IFM Institute of Facility Management is an interdisciplinary teaching and research institute at the ZHAW Zurich University of Applied Sciences. We aim to contribute to the sustainable and healthy development and management of living and working environments. Our research focuses on sustainable real estate, digital FM, healthy workplaces, and FM in healthcare.

Keynote speakers

Welcome note - Wednesday 09 September: Michael Kauer, ZHAW IFM

Michael Kauer opened the conference with an inspiring speech describing the development of the conference venue (the Toni-Areal, a transformation project in the heart of the city of Zurich, where old industrial sites were converted into educational campus and entrepreneurship environments).

Keynote 1 - Wednesday 09 September: Professor Kristina Orehounig, TU Vienna

Professor Orehounig began by celebrating 20 Years of BAUSIM and the journey to decarbonise our buildings. Kristina Orehounig is an architect and building scientist with extensive expertise in sustainability, focusing on low-carbon buildings and urban systems. In her work she integrates building physics, energy systems, and human comfort to develop scalable solutions that reduce CO₂ emissions while enhancing the quality of living and working environments.

She has been Professor of Building Science and Human Ecology at TU Wien since September 2023, where she also teaches in the Bachelor and Master of Architecture and the Master of Building Science and Environment programmes. She will host the Building Simulation 2027 conference in Vienna and invited all participants to this event.

Keynotes 2 - Thursday 10 September:

Professor Andrea Gonzales, ZHAW Department N offered her insights into Smart Building Management: Investment, Operations & Data. She covered areas from ancient building operation to optimisation and pointed out the relevance for the Real Estate industry.

Professor Luca Baldini, ZHAW Department A explained Building Design in a New Age – From Simplified Thinking to Systemic Understanding, where he also showed the importance of new building design in education programmes.

Dr Matteo Spada, ZHAW, Department T holds an MSc in Physics from the University of Bologna and a Ph.D. in Earth Sciences from ETH Zurich. Before ZHAW, he worked as researcher at INGV, Italy, and the Paul Scherrer Institute, Switzerland. Matteo asked What Happens When Normal Operation Is No Longer Normal? He showed the consequences from Sustainable to Resilient Buildings and Districts.

Professor Andreas Witzig, ZHAW, Department T explained a new Agentic AI and Building Performance Simulation environment based on open source and invited the building simulation community to join his initiative.

Workshops

The conference offered three distinct workshops during the three days.

Workshop 1 Wednesday 09 September:

IDA Districts: From GIS data to a dynamic district energy model – a hands-on workshop with IDA Districts

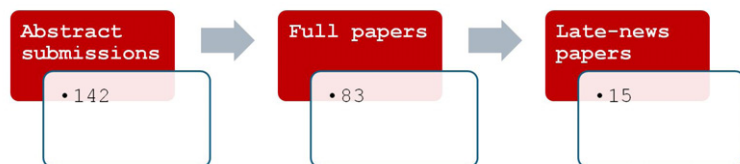
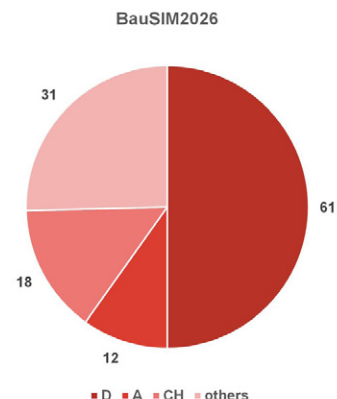
Workshop 2 Wednesday 09 September:

IDA ICE: True integration of airflows into thermal building simulation models

Workshop 3 Friday 11 September:

COMSOL Multiphysics Simulations in Architecture, Engineering, and Construction

Statistics



Best paper

The paper *An Open Source Pipeline for Estimating Residential Heating and Cooling Demands in Germany* by Martin Stengel, TH Rosenheim was awarded by the reviewers as Best paper at BauSIM2026. Congratulations!

Social events

Prior to the conference opening, attendees enjoyed an early registration and mixer event on 9 September. This provided a relaxed setting for networking over light refreshments. On Thursday, 10 September, the banquet at LaSalle featured a relaxing atmosphere for networking and social interaction among participants. The conference concluded on 11 September with another light lunch on the roof terraces of the Toni-Areal, offering attendees one last opportunity to network before departing.

Impressions



IBPSA England



CIBSE Building Simulation Awards 2026

IBPSA England is pleased to publicise CIBSE's 2026 Building Simulation Awards. Are you aware of someone who has made significant contributions to the field of building simulation and deserves recognition? Nominations for the 2026 CIBSE Building Simulation Awards will close on Friday 23rd October (extended deadline). These prestigious awards, presented annually by CIBSE Building Simulation Group (BSG), will be showcased at the CIBSE HQ in mid-November. Nominations are now open for the two awards:

CIBSE Building Simulation Award

The CIBSE Building Simulation Award focuses on the use of building simulation in projects and aims to encourage innovation in building simulation techniques. Entries should provide information on a project that has a simulation or modelling aspect, giving details about why simulation and modelling were important.

CIBSE Building Simulation Young Modeller Award

The CIBSE Building Simulation Young Modeller Award is judged by a panel of industry experts and recognises the outstanding contributions of young engineers, apprentices and sustainability consultants working with building performance simulation.

Each entry for the awards will be reviewed by a panel of expert reviewers before the final shortlist is selected. The finalists will have the opportunity to present their projects online in front of an audience and the judging panel. The winners will be announced at this year's Build2Perform event.

Deadline for submissions: 23rd October 2026 (extended deadline).

Submit Your Entry Today by following one of the links below:

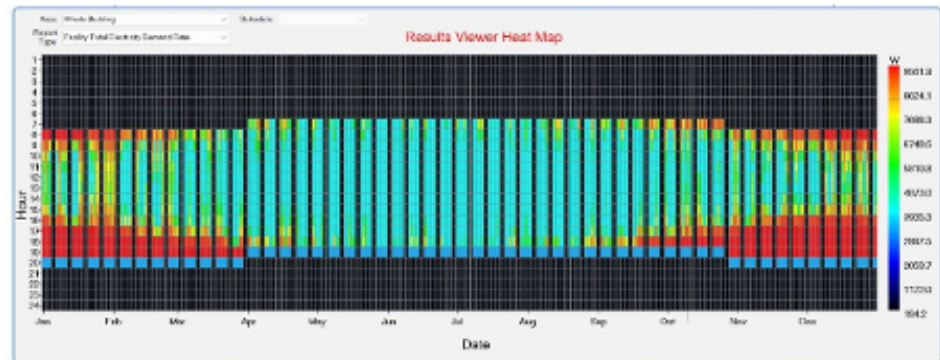
- CIBSE Building Simulation Award 2026: www.cognitofirms.com/CIBSE1/CIBSEBuildingSimulationAward2026
- CIBSE Building Simulation Young Modeller Award 2026: www.cognitofirms.com/CIBSE1/CIBSEBuildingSimulationYoungModeller2026

For more information contact buildingsimulation.competition@cibse.org. You can find details about past awards at www.cibse.org/get-involved/special-interest-groups/building-simulation-group/building-simulation-awards. ■

Software & other news



DesignBuilder Results Viewer v4.3 is released



DesignBuilder have announced the latest update to Results Viewer, introducing a range of new features and usability improvements to enhance users' results analysis experience:

- Support for the EnergyPlus SQLite output file format
- Support for long description text when loading results from the Simulation Manager
- Ability to export any number of report variables to CSV
- Improved report filtering making it easier to find the data you need
- Extension of the Create Composite Plot tool with new options to generate plots across all datasets and intervals and provide support for single-variable use
- Many other usability enhancements and bug fixes

The full revision history is available on the Downloads page. We encourage all Results Viewer users to upgrade to the latest version to take advantage of these improvements.

Download Results Viewer v4.3 at <https://designbuilder.co.uk/download/utilities>

Free DesignBuilder learning resources

Whether certifying, designing, or retrofitting buildings, DesignBuilder's free learning resources are there to help get the most out of DesignBuilder - and there are more of them than most people realise. They're organised by experience level and application, so when trying to solve a specific problem on a project, users should be able to find something useful.

Webinars: Recorded sessions covering new features, practical demos, and real project case studies. Useful if users want to see DesignBuilder used the way they'd actually use it, rather than a feature-by-feature run-through. Past sessions have covered ASHRAE 90.1/LEED workflows, Advanced HVAC, Natural Ventilation, Daylighting, and Ground modelling, among others.





Case Studies: Real projects, written up to show how other engineers, architects, and assessors used DesignBuilder to solve a specific design, compliance, or sustainability problem. DesignBuilder are always happy to hear about projects users think are worth sharing, and may feature them.

Tutorials: Short, structured videos for getting started with core workflows. Aimed at new users, but also handy for anyone who hasn't touched a particular feature for a while and wants a quick video rather than reading through documentation.

Modelling Guides: More detailed, step-by-step guidance on specific workflows and features, for both everyday tasks and more advanced analysis - the kind of thing users look for when a tutorial isn't quite enough detail.

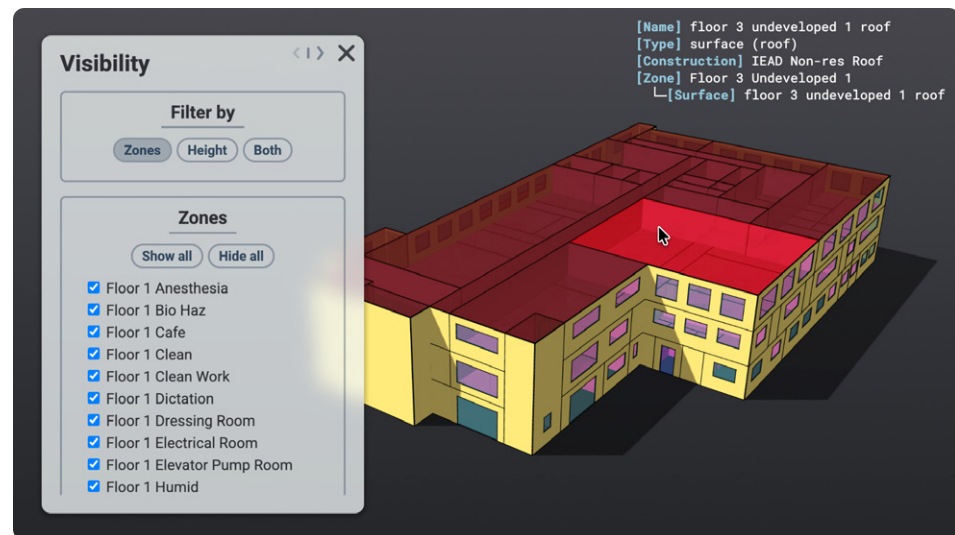
If none of these resources answers your question, DesignBuilder's Program Help and Knowledge Base cover most topics in encyclopaedic detail. Together, these free resources provide a great foundation to work more confidently with DesignBuilder. ■

Rubicell EnergyPlus Shape Viewer

EPShape (EnergyPlus Shape Viewer)

A 3D interactive web-based shape viewer for EnergyPlus models

Chul-Hong Park, postdoctoral associate at Building Simulation Lab, Seoul National University, South Korea chulhong.park@snu.ac.kr



Introduction

EPShape (<https://chp-rubicell.github.io/epshape>) is an open-source, web-based application for visualizing and inspecting EnergyPlus models. It provides a range of view customization capabilities that support comprehensive geometry analysis, efficient model inspection and debugging, and the generation of highly configurable renderings for various analytical and presentation purposes. EnergyPlus Input Data Files (IDF) can be loaded simply by dragging and dropping them onto the viewer, allowing users to examine building

geometry as well as various model components and properties, including thermal zones, surfaces, fenestrations, and constructions.

There has been a notable lack of accessible tools for directly visualizing and inspecting IDF models. Existing tools often have limited support for externally generated IDF files and require local, version-specific installation to handle variations in IDF formats across EnergyPlus versions.

EPShape was developed to address these limitations. The key characteristics of this viewer are as follows:

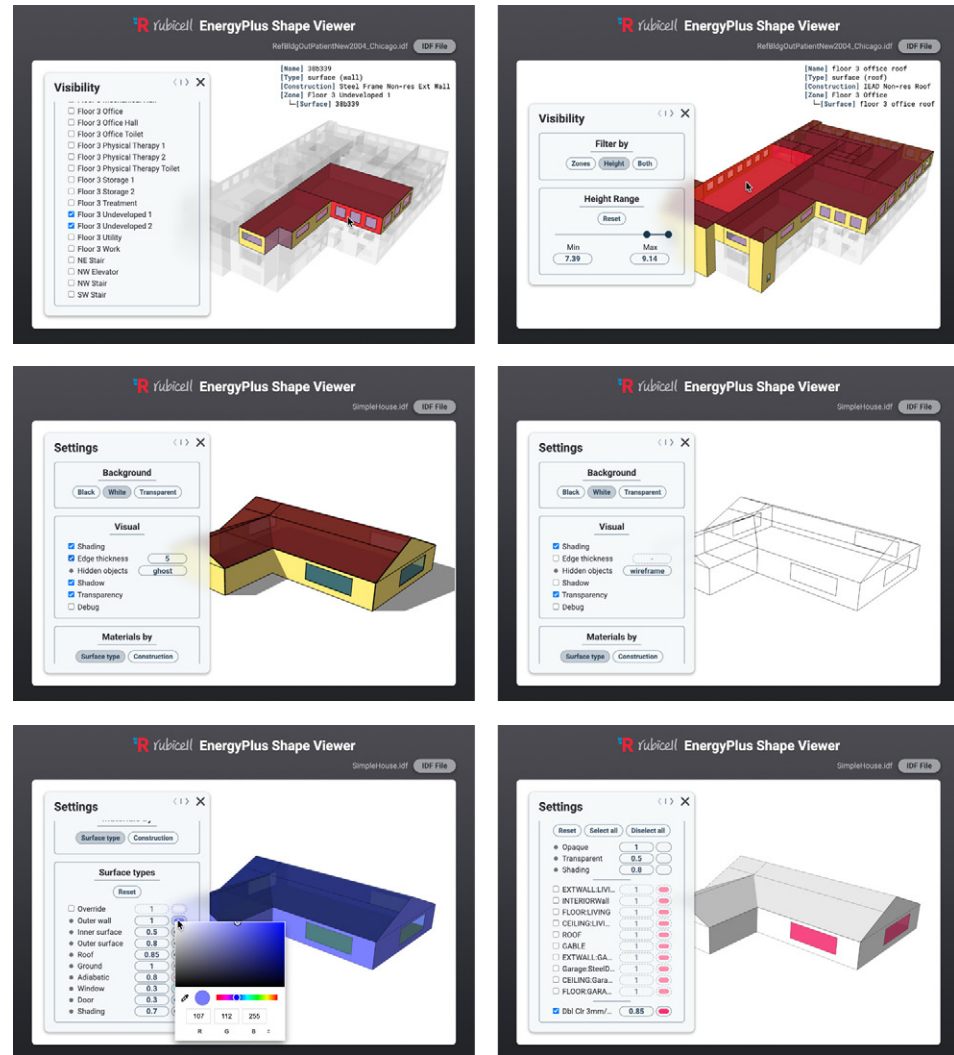
- **IDF model visualization:** Parses geometric information (zones, surfaces, fenestrations, etc.) defined in IDF models and displays them in an interactive viewer.
- **Web-based interface:** Runs directly in modern web browsers without requiring installation or additional dependencies.
- **Version compatibility:** Supports a wide range of EnergyPlus versions (tested with version 8.9.0 and later).
- **Model inspection:** Allows users to inspect the properties of surfaces, fenestrations, and shading objects by simply hovering over model components.
- **Customization:** Offers various customization options for convenient model checking and generation of high-quality images suitable for publications and presentations.

EPShape attracted considerable interest when it was first publicly introduced in 2025 (www.linkedin.com/posts/chul-hong-park_energyplus-visualization-buildingscience-ugcPost-7370749051983622144-VXcb), and has been used in several research projects and publications.

Feature highlights and screenshots

EPShape highlights include:

- **Zone visibility control:** Zone visibility can be toggled individually, based on specified height ranges, or both. This is particularly useful for inspecting models with a large number of zones.
- **View customization:** Various view customization options are provided, including edge thickness adjustment, hidden-object appearance settings, shadow toggling, and axis display.
- **Surface appearance customization:** Surfaces can be colored by surface type or construction, and the display color and opacity of each category can be adjusted individually.
- **Reusable viewport configurations:** Viewport configurations can be copied and pasted as a text string to reproduce consistent views across different sessions or models.
- **Built-in command interface:** Advanced options and additional functionality can be accessed through the built-in command interface for more detailed control of the viewer.



Code availability and contact

More details and the source code are available in the GitHub repository (<https://github.com/chp-rubicell/EPShape>) and on Zenodo (<https://doi.org/10.5281/zenodo.16790187>). For any questions, suggestions, or feedback, please email Chul-Hong Park at chulhong.park@snu.ac.kr. ■



IES release IES VE 2026

IES's latest release is built on the physics engineers already trust, and shaped directly by user feedback, and aims to streamline the workflows that matter most. It is designed to help users move from geometry to defensible results faster, with less friction and greater confidence across key HVAC Design, Data Centre, Compliance, and BIM to BEM workflows.



A dedicated workflow for the mechanical engineer



The new HVAC Design Navigator is the most significant workflow change in this release. It's a guided, end-to-end sequence that takes engineers from fully formed geometry to sized equipment and defensible reporting in around an hour, consolidating key VE and ApacheHVAC tasks into a single flow, with clear outputs at each stage confirming you're on track.

The Navigator addresses key friction points that have historically added time for mechanical engineers working on HVAC loads and sizing and who don't need to run full whole-building energy models. Phase 1 of a new Zone Manager eases room-to-zone assignment with auto-creation and zone visualisation. HVAC sizing preferences and defaults have been decoupled from performance simulation ones. And an updated, consolidated ASHRAE 90.1, 62.1, and 55 reference database means you start every project with accurate reference data, not a manual data task, while climate filtered constructions mean you only see templates relevant to your project location.

Tabular editing for room-unit controllers rounds out the HVAC design improvements. Radiators, radiant panels, chilled ceiling panels, and direct-acting heaters and coolers can now be reviewed and edited in bulk across multiple rooms at once, replacing one-by-one editing with a spreadsheet-style interface. On heat pump conversions and decarbonisation retrofits, where controller counts run high, this represents a significant time saving on its own.

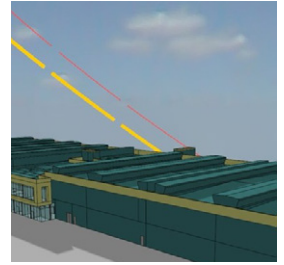
Unique data centre premium feature: liquid and hybrid cooling

As AI workloads push data centre thermal densities beyond what air cooling alone can handle, the industry is moving fast toward liquid and hybrid strategies. IES VE 2026 is first-to-market with the only dynamic simulation solution that can model these directly. A new Premium Feature, powered by ApacheHVAC, enables modelling of strategies including direct-to-chip, sidewall, rear-door, immersion tank, and top-of-rack fan. So, engineers can assess thermal, power, and cooling performance hourly across the full year, under real-world and future climate scenarios.

A new Server Rack component connects directly to a building's chilled-water loop through a heat exchanger, coolant distribution unit, and fluid pump, with support for non-water



and glycol coolants and configurable fluid properties. New data centre thermal templates are aligned to ASHRAE 90.1 and 90.4, keeping analysis consistent with the standards these projects are already designed to. For engineers working on the global data centre construction and retrofit boom, this is a new Premium Feature which no other simulation platform currently offers. Customers can also add-on in-depth upskilling and consulting support from IES's professional services team too.



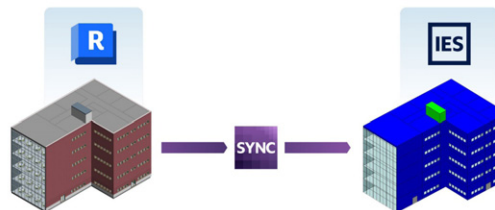
Compliance coverage that keeps pace with the codes

IES VE remains the only non-government software approved for regulatory compliance in California (Title 24), New York (ECCCNYS), and Florida. VE 2026 builds on that foundation with a series of targeted updates that keep compliance checking current without requiring engineers to reach for additional tools. This is mirrored across the globe with compliance driven tools that keep pace with the fast-moving global regulatory landscape.

A new dedicated Ventilation tab brings all ventilation inputs into a single, central home. And it's updated to cover ASHRAE 62.1 (2019, 2022, and 2025 editions) and ASHRAE 170 (2017, 2021, and 2025 editions), with a new simplified Ventilation Rate Procedure option, automatic air-density correction by altitude, and a standardised ASHRAE ventilation report available in HTML, PDF, and spreadsheet formats.

CIBSE TM59:2026 overheating assessment has been added as a simple Content Store download, with no software upgrade required. A guided, stage-by-stage Navigator with premade templates, automated room-group creation, and a dedicated analysis dialog produces a client-ready PDF report covering Approved Document O requirements, with all templates and profiles fully editable.

Connecting IES and Revit: IES Sync for Revit, a new product coming soon



IES Sync for Revit is the first step in a connected IES ecosystem that brings Revit models and IES VE workflows together without manual geometry rework. Built on a shared intelligence layer native to IES, Version 1 covers geometry import including voids and air plenums, with clear model review and validation, while Version 2 will add the ability to transfer energy-relevant data such as constructions and materials.

Parametric Simulation and Python Scripting: fewer risks, more control

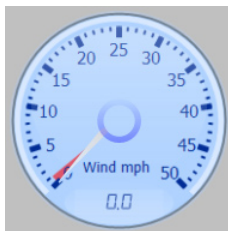
Parametric simulation has been updated to protect base models with an automatic backup before each run, to allow permutations to be previewed and exported to Excel before committing, and to return partial results if a run fails partway through. Reports now clearly



show which study they relate to, and are generated even when a permutation fails or a study is cancelled, so a lost batch no longer means starting over.

Python Scripting has been upgraded to V3.13.12, with all existing Content Store re-tested so existing code continues to run unchanged. Built-in type hints catch errors before code runs, and a growing Content Store of ready-to-use Python tools, including a new Waterside Heat Recovery Analysis Report and an Hourly Profiles Import tool, can be installed directly without any scripting required.

You can download IES VE 2026 at www.iesve.com/software/download and request a free trial at www.iesve.com/software/trial. ■



New climate datasets for Luxembourg and Belgium available from Climate.OneBuilding.Org

Climate.OneBuilding is pleased to announce the release of a new dataset for Luxembourg for 29 weather stations. This dataset uses data from Administration des services techniques de l'agriculture (ASTA) for the 2015-2024 period. The new data files were evaluated against the ERA5 and ERA5-Land reanalysis datasets (www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5). The ERA5 data, courtesy of Oikolab (oikolab.com), provides a comprehensive, worldwide, gridded solar radiation dataset based on satellite reanalysis. The new data (and all other weather files on the site) include the latest ASHRAE 2025 design conditions.

The second dataset used ERA5 data to create TMY data for the 11 provincial capitals in Belgium for the 1991-2020 period. For the historical period, the representative months were selected, whenever possible, to maximize consistency between the EPW files and the official 1991–2020 climate normals published by the Belgian national meteorological institute (IRM/KMI). The dataset also provides future climate files for three periods: 2021-2050, 2051-2080, and 2081-2100.

The Climate.OneBuilding TMYx data set now includes more than 17,300 locations in more than 250 countries. Climate.OneBuilding now hosts more than 100,000 weather files from various sources, including future projections for multiple countries. All data have been extensively quality-checked to identify and correct errors and out-of-range values where appropriate.

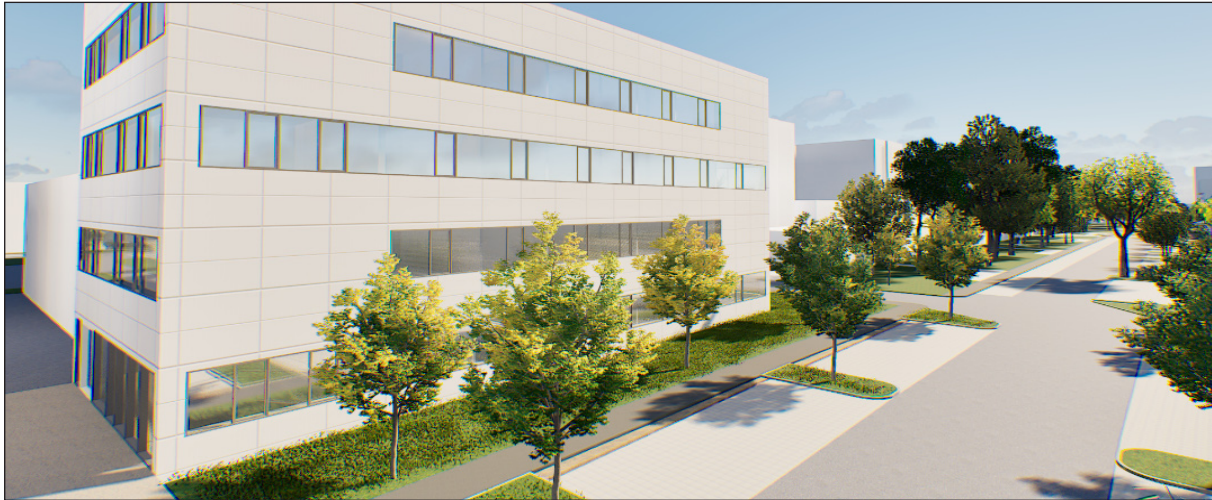
To make it easier to find and download individual files, KML maps and XLSX spreadsheets are available with links to all datasets on Climate.OneBuilding.

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 (significantly extended EnergyPlus weather statistics).

Climate.OneBuilding thanks the building simulation community for their support – during this year, more than 1 million weather files were downloaded each month, with more than 30,000 weather files downloaded daily. For more information or to download any of the weather data (no cost), go to Climate.OneBuilding.org. ■

Student Modelling Competition – BS2027

Fault Detection and Diagnosis of a Mixed-use University Building



The BS2027 student modelling competition challenges participants to detect and diagnose operational faults in a mixed-use university building located in Graz, Austria. Entrants receive detailed building information, weather data, and two time-series datasets: one representing normal operation of the building for calibrating their simulation models, and another containing intentionally introduced faults. Using a validated building simulation tool, participants are expected to develop a simulation model of the building and use this model to identify fault occurrences temporally and spatially, diagnose their probable causes, and reconstruct a corrected “healthy” dataset describing normal building operation.

Machine-learning or AI-based approaches may be used as complementary methods to support the simulation-based analysis. Submissions will be evaluated based on the assumptions and methods used to develop the building simulation model, the precision of fault detection (temporal accuracy, spatial precision, and credibility of the source diagnosis), the quality of the reconstructed dataset, and the overall report. The use of machine-learning methods alongside physics-based models is highly encouraged and will be viewed positively in the evaluation process. Submissions can be individual or team-based, and all entrants must be enrolled as students (master or PhD) at the time of submission. Finalists will be invited to present their work at the Building Simulation 2027 conference in Vienna, including a poster and a short presentation.

Preliminary timeline

- Publication of the modelling competition brief: 30.04.2026
- Intention to submit: 30.12.2026
- Final submission deadline: 30.03.2027
- Announcement of winners: 01.06.2027

Contact: Dr Arash Erfanibeyzaee, Arash.erfanibeyzaee@tugraz.at ■



Call for Nominations for IBPSA Awards and Fellows

The Board of Directors of IBPSA is seeking nominations for Awards and Fellows to be presented at Building Simulation 2027, in Vienna, Austria (29 August - 01 September). IBPSA has four awards in addition to the Fellows program to recognize outstanding contributions in the building performance simulation field. These are provided on a biennial basis at each Building Simulation Conference, provided there is a qualified candidate. The awards are:

1. IBPSA Distinguished Achievement Award

This award, formerly named the IBPSA Award for Distinguished Service to Building Simulation, recognizes an individual who has a distinguished record of contributions to the field of building performance simulation, over a long period.

2. IBPSA Outstanding Young Contributor Award

This award recognizes an individual at the beginning of their career who has demonstrated potential for significant contributions to the field of building performance simulation.

3. IBPSA Innovative Application Award

This award recognizes an individual, group or firm who has made a significant contribution to the effective application and/or advancement of building performance simulation in practice. The award may be given for a unique or noteworthy use of simulation in practice; development of simulation software or supporting software that has had a significant impact on industry practice; or other contribution that has advanced building performance simulation in practice.

4. Godfried Augenbroe Award

This award, in honour of the late Prof. Godfried Augenbroe, recognizes a recent outstanding PhD thesis on the topic of building performance simulation. Eligible candidates will have been awarded their PhD in the two years since the last biennial IBPSA World Simulation Conference.

Fellows of IBPSA

The grade of IBPSA Fellow is awarded to individuals who have attained distinction in the field of building performance simulation (BPS), or in closely related disciplines. Distinction may be demonstrated through excellence in teaching, research, simulation tool development, original scholarly or technical contributions, or the application of building performance simulation to projects of significant scope and impact. Nominees must have been active in the field for at least 15 years. Time spent in thesis-based graduate studies (e.g., master's or doctoral programs) may be included in this period, provided the work was substantially focused on building performance simulation.

Nominations

Nominations for awards and Fellows must be submitted by 28 February 2027. Nominations for awards and Fellows, except the Godfried Augenbroe Award, must be made by an independent third party (i.e., at a different organization from the nominee). Detailed instructions for submitting nominations, and a list of recent past recipients of these awards is available on the IBPSA website: <https://ibpsa.org/awards>.

Questions on process and eligibility of Fellow nominations may be directed to Chairs of the IBPSA Awards and Fellows Committee, Liam O'Brien (liam.obrien@carleton.ca) and Jeannie (Ji-Hyun) Kim (jihyun.kim@anl.gov).

Student Travel Awards

Supporting students to attend BS2027

In order to assist as many students as possible to participate in Building Simulation 2027, IBPSA will grant up to ten travel awards valued at up to US\$1,000 each to students presenting peer-reviewed papers. The selection committee bases its decisions upon the following selection criteria:

- need for financial assistance, evidenced in a letter of recommendation from the student's supervisor/ advisor of studies (must be on university letterhead);
- overall quality of the peer-reviewed paper;
- relevance of contribution to the field of and/or furthering the effective application of building simulation.

To be eligible, the student must be:

- enrolled in a graduate program related to building simulation at the time of the conference; and
- their thesis project must be directly related to building simulation.

Student Travel Award applications

The deadline for applications two weeks after the BS2027 first paper submission deadline. Details on applications will be published on the IBPSA website in due time: <https://ibpsa.org/awards/student-travel-awards>. ■

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>.

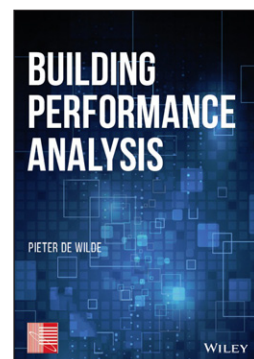
As public review drafts for these standards become available, we will send out email messages to the IBPSA community and post on our LinkedIn group page. ■

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.

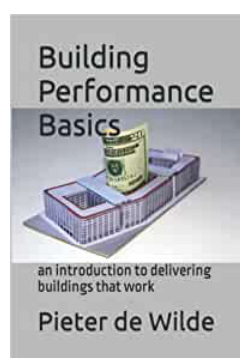
Offering a comprehensive and systematic overview of the concept of building performance analysis, *Building Performance Analysis* brings together many existing notions and ideas in one title. A substantial book, it has 11 chapters, 600 pages, and cites over 1600 references. Part I deals with the foundations 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**

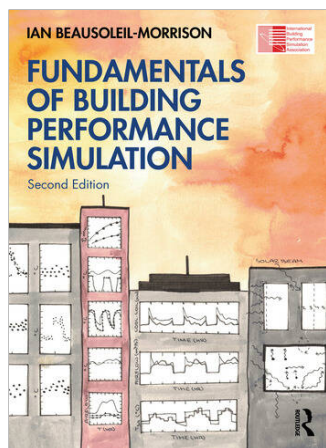
The second edition incorporates many of the ideas and helpful suggestions provided by colleagues throughout the world following publication of the first edition in 2020.

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

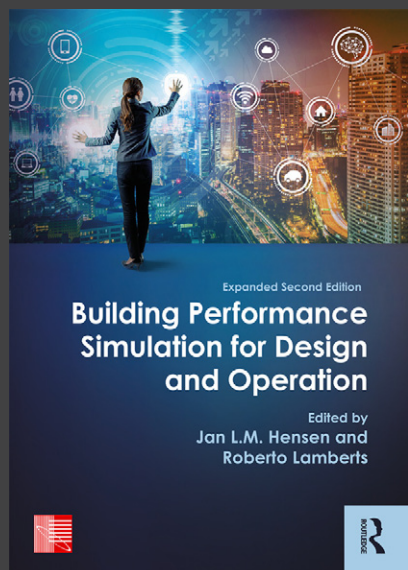


Table of Contents

1. Introduction to building performance simulation, Jan Hensen and Roberto Lamberts
2. The role of simulation in performance based building, Godfried Augenbroe
3. Weather data for building performance simulation, Charles Barnaby and Drury Crawley
4. People in building performance simulation, Ardeshir Mahdavi and Farhang Tahmasebi
5. Thermal load and energy performance prediction, Jeffrey Spitler
6. Ventilation performance prediction, Jelena Srebric
7. Indoor thermal quality performance prediction, Christoph van Treeck and Daniel Wölki
8. Computational modeling in architectural acoustics, Ardeshir Mahdavi
9. Daylight performance predictions, Christoph Reinhart
10. Moisture modeling and durability assessment of building envelopes: recent advances, Aytaç Kubilay, Xiaohai Zhou, Dominique Derome and Jan Carmeliet
11. HVAC systems performance prediction,
12. Micro-cogeneration system performance prediction, Ian Beausoleil-Morrison
13. Building simulation for practical operational optimization, David Claridge and Mitchell Paulus
14. Modelling and simulation in building automation systems, Gregor Henze
15. Integrated resource flow modelling of the urban built environment, Darren Robinson
16. Building simulation for policy support, Drury Crawley
17. A view on future building system modelling and simulation, Michael Wetter
18. BIM and BPS: A case study of integration cost metrics and design options, Timothy Hemsath, Matthew Goldsberry and Joel Yow
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The old BLDG-SIM mailing list, which hosted announcements about both IBPSA corporate activity (such as election processes and *ibpsaNEWS* releases) and technical discussion about building performance, has been closed and replaced by the new BLDGSIM discourse forum at <https://bldgsim.onebuilding.org>. BLDGSIM is also a portal to weather data and other software support resources, and the new home for several other former lists related to building energy simulation. It includes archives of posts to BLDG-SIM (and the other lists). Created to serve users of building energy simulation programs worldwide, BLDGSIM is intended to foster the development of a community of both experienced and inexperienced users, and to be the go-to place to share questions, insights and general discussion about these programs.

For further information about the BLDGSIM discourse forum please visit <https://onebuilding.org>. If you have any questions about the forum, please contact its owner Jason Glazer at jglazer@gard.com or +1 847 698 5686. This forum is made possible courtesy of GARD Analytics, Inc., Ridge Park, IL, USA. ■

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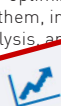
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- Theoretical aspects related to modelling and simulating conventional and innovative energy conversion, storage, distribution, and control systems.
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