

# ENERGY HOUSE LABS



University of  
**Salford**  
MANCHESTER

## ENERGY HOUSE LABS NEWSLETTER

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### / WHO WE ARE

The University of Salford's Energy House Laboratories helps businesses understand how effective their products and services are in lowering consumers' carbon footprint and reducing energy bills. Our research facilities include:

- Salford Energy House
- Energy House 2.0
- Smart Meters > Smart Homes Laboratory
- Thermal Measurement Laboratory

### / CONTACT US

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 [@ehl\\_salford](https://twitter.com/ehl_salford)

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The Energy House 2.0 project is part-funded by the European Regional Development Fund



### / Energy House 2.0 officially launches!

In January 2023, we officially opened Energy House 2.0 with two days of visits from industry, academia, national and regional policy makers with extensive media coverage.

Across the two days, alongside our principal collaboration partners, Barratt Developments, Bellway Homes, and Saint-Gobain and a number of the innovators we have supported over the past two years in the course thanks to the support of the European regional development fund. In total, we welcomed over 200 people through the doors over the two days.

The event kicked off with a visit from Greater Manchester Mayor, Andy Burnham, and generated a huge amount of media interest, the highlight of which was a live report for BBC Breakfast from Justin Rowlett, the BBC's climate correspondent. Media interest was focused not only the unique capabilities of Energy House 2.0 (especially the snow!) but also how we will support industry and policy makers in meeting the challenges of climate change and the cost-of-living crisis.

In addition to the broadcasts, we attracted interest from press outlets across the UK and overseas, including The Guardian, The Sunday Mirror, The Daily Mail, Al Jazeera, CBS, Agence France-Presse, and Reuters. All in, the media coverage of the launch of Energy House 2.0 has reached over one billion people, worldwide.

The following week, we opened to the public for tours, welcoming over 400 people across the five days. We are now closed to focus on research but plan to open up again briefly in the summer for more tours, so if you missed out on the tours in January keep your eyes peeled for announcements on our social media feeds.



Justin Rowlett, BBC's climate correspondent reporting live from Energy House 2.0 for BBC Breakfast. Credit: Charles Leek.



Sam Ward (Bellway) providing delegates with an overview of the house's capabilities. Credit: Charles Leek



Welcome and introduction for EH2.0 launch delegates. Credit: Charles Leek.



Oliver Novakovic (Barratt Developments); Professor Richard Fitton (EHL); Jamie Bursnell (Bellway); Tom Cox (Saint-Gobain); Professor Will Swan (EHL).



Victoria Grimes, ITV correspondent, and Professor Richard Fitton (EHL). Credit: Charles Leek.



Tour of eHome2 (Barratt Developments/Saint-Gobain) and the Future Home (Bellway). Credit: Charles Leek.



**Blinds make better winter energy savings**  
Research commissioned by the British Blind and Shutter Association (BBSA) and undertaken within Energy House Labs has demonstrated that blinds and shutters can reduce heat loss through windows by up to 33%. Full details can be found [here](#).

## / Energy Efficiency Taskforce

Professor Will Swan, Director of Energy House Labs, has been invited to join the new **Energy Efficiency Taskforce** established by the Department for Energy Security and Net Zero. The Taskforce is co-chaired by Minister Lord Callanan and Natwest CEO Alison Rose.

The membership of the group includes the Chair of the National Infrastructure Commission, Sir John Armitt, and David Thomas, CEO of Barratt Developments. Other organisations involved include National Energy Action, Energy UK, and the Green Finance Institute.

The taskforce, which met for the first time on 16 March 2023, is charged with developing an action plan that will support the reduction of energy use by 15% from 2021 levels by 2030. The group will explore issues such as new and existing housing, non-domestic buildings, and industrial processes.

Will Swan said, “I think this reflects the fantastic work we do at Energy House Labs. We have a clear mission to deliver energy efficiency and net zero homes. Work we have done on retrofit and initiatives like the boiler turn down campaign shows that the work we do can have an impact on people’s lives. I think this is something keenly understood by all the team.”

Responding to industry’s call for long-term funding certainty to help strengthen UK supply chains, £6 billion of government funding will be available from 2025 to support this objective, in addition to the £6.6 billion allocated this Parliament – taking the total to £12.6 billion this decade.

## / Focus on Acoustics

Salford has been a centre of excellence in acoustics for over 65 years and is one of the largest established groups of acousticians in the world.

The Acoustic Laboratories are home to a team of specialised engineers and technicians who have experience providing a wide range of UKAS accredited acoustic testing, calibration, and research. Serving a wide variety of sectors, much of the work involves providing UKAS accredited test services to the building and construction industry, ranging from standard tests of sound insulation and sound absorption through to large bespoke research projects.

For more information, click [here](#) or contact Gary Bateman, Business Development Manager, on 07854327890 or at [g.bateman@salford.ac.uk](mailto:g.bateman@salford.ac.uk).



Gary Bateman in the Reverberation chamber; used for measuring absorption of architectural and construction materials

## / Futurebuild 2023

Professor Richard Fitton was invited to present on three sessions at Futurebuild 2023.

Firstly, 'Retrofit - Are we fit for purpose?'. This was a session with the accreditation scheme providers and companies representing Retrofit Assessors to see if the quality is growing in that sector.

Secondly, a session where he presented the draft version of BS40104, which is the upcoming standard on the Assessment of buildings prior to retrofit.

The third session was looking at low-cost energy savings measures, where work around the Nesta data on boiler temperature turn down was presented.

Finally, the day was closed off with Richard presenting the award for Retrofit Assessor of the year which was presented to Jack Hannon from As Built Testing; well done Jack!





## **/ KTP: Farrat, Joe Pemberton**

For the past four years I have been lucky enough to work with the Salford Energy House where I completed my PhD, sponsored by Farrat, exploring thermal-bridging in buildings – specifically, solid-state thermal break application in structural point connections.

The Salford Energy House is a Victorian end-terrace built inside a climate-controlled chamber capable of holding temperatures to  $\pm 1^\circ\text{C}$  over a range between  $-12^\circ\text{C}$  and  $+30^\circ\text{C}$ , while its vast sensor network measures the variables affecting the built environment: humidity, temperature, and heat flux.

Here I gained experience in real world physical testing using instruments such as and thermocouples, IR cameras, and heat flux plates, whilst gathering great appreciation of other building physics methodologies in measurement and thermal modelling.

Now, I am excited to have another opportunity working with the EHL teams to drive a Knowledge Transfer Partnership (KTP) – a project aiming to commercialise the PhD work, eventually establishing a new consultancy service for the thermal breaks department at Farrat.

I am looking forward to the programme which has a strict six-part workplan to follow, one of which requires using the newly built Energy House 2.0 (a world leading test facility) to develop a measurement/modelling methodology suitable for in-situ quantification of the point-transmittance through structural thermal-bridge connections.

The KTP provides a valuable link between the academic knowledge base and industry partner. It is an honour and a privilege to expand my knowledge and understanding of building physics measurement to support my experience in commercial thermal modelling.

## **/ New PhD positions within Energy House Labs**

Energy House Labs are pleased to announce three new PhDs will be starting with the team shortly.

The first PhD is funded through the Friends of Energy House Labs outreach fund.

We also have two further fully funded PhDs through the University of Salford iPhD programme which supports PhDs with industry; both PhDs are focused on retrofit of residential homes:

- Seddon Construction and the National Trust have come together to fund a PhD exploring how to address the hard-to-treat residential heritage properties. The project will be supervised by Professor Richard Fitton.
- B4Box are exploring the barriers to delivering retrofit at scale, including issues such as supply chains, skills, and process. B4Box are an award-winning construction skills provider and are looking to understand what the future of scaled-up retrofit might be. The PhD is supervised by Professor Will Swan.

The projects will be starting later in the year. Professor Richard Fitton said, “The PhD cohort for Energy House Labs is starting to build on the back of a successful launch of Energy House 2.0. I think industry are really starting to see the value in our approach to solving research problems in the built environment.”

## / Energy House artwork tours to Bury Art Museum

A series of artworks inspired by the original Energy House facility will be on display at Bury Art Museum from 4 March 2023, as part of new climate change themed display *For Man is Coming Here*.



McCoy Wynne, *Are You Living Comfortably?* 2021. Image Courtesy of the Artist.

Photography duo, McCoy Wynne, were appointed in 2021 for a pilot residency programme at Energy House, commissioned by the University of Salford Art Collection in partnership with Open Eye Gallery, Liverpool. During the year, the artists used digital and thermal photography to capture both the house and the research taking place, 'using the imagination of art to interpret the discovery of science'.

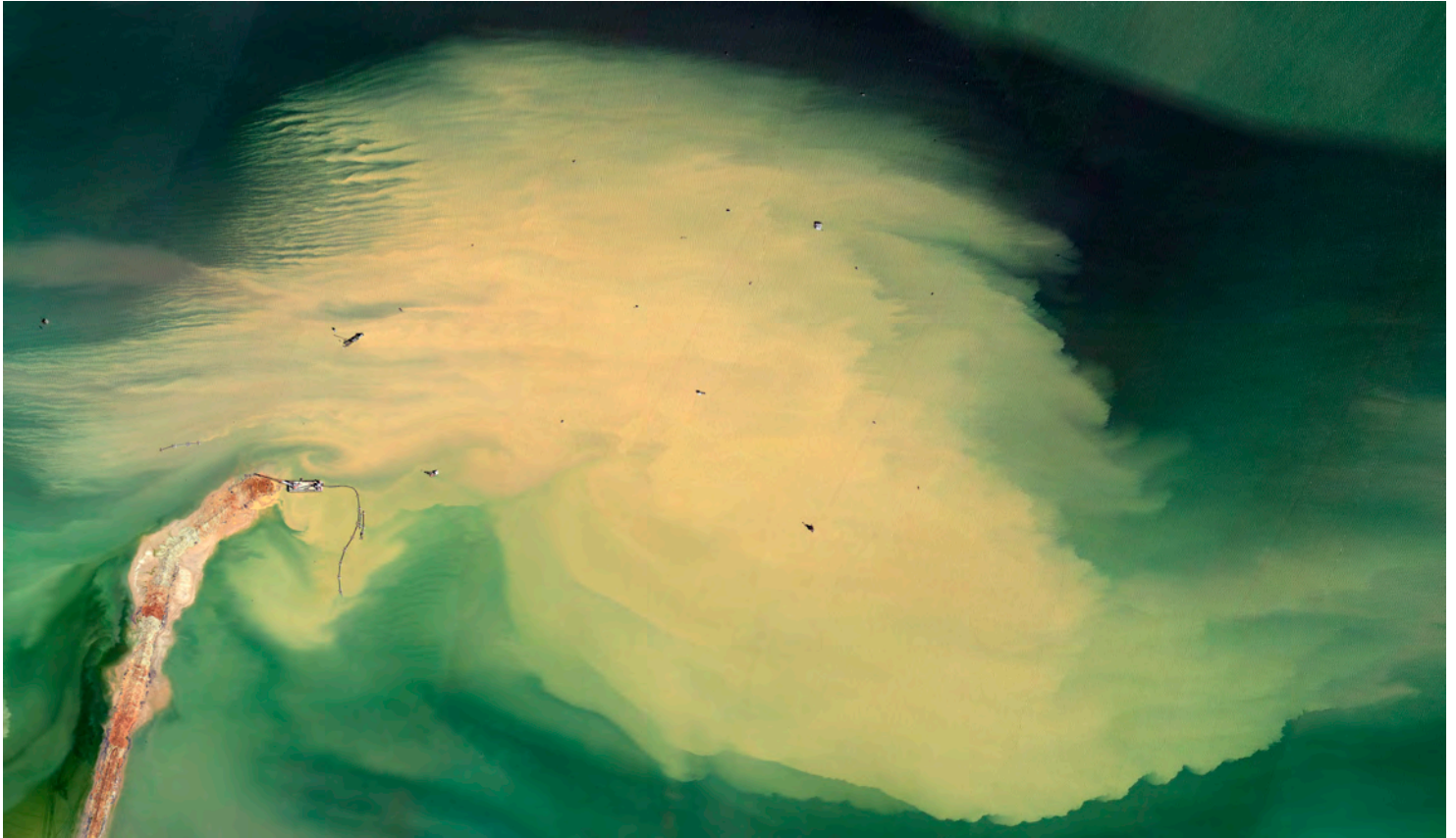
The resulting photo series, *Are You Living Comfortably?*, aims to generate cross-discipline conversation about energy use, scientific research, and climate action. The series has previously been exhibited at Open Eye Gallery, Liverpool, and New Adelphi Exhibition Gallery, Salford.

## Energy House 2.0 wins Greater Manchester Chamber of Commerce Building of the Year

The team at Energy House Labs are delighted to have been awarded the Greater Manchester Chamber of Commerce award for Building of the Year 2022. The event was hosted at The Point at Old Trafford Cricket Ground and showcased some of the best buildings delivered in Greater Manchester in 2022. The judging panel commented on the uniqueness of Energy House 2.0 and recognised it as a global asset for the city-region. The team were hosted by David Maiden from AECOM who acted as project manager for the University. They were joined by representatives from Bowmer and Kirkland, the University of Salford Estates Team and NG Baily, who delivered the mechanical and electrical design.

Professor Will Swan said, "We are really happy to receive this award. We have received a significant amount of international attention around the launch of Energy House 2.0. I think the judges were impressed with the building, but also the story behind it, and the potential to deliver outcomes in the future."

The team would also like to congratulate the National Trust for their Castlefield Viaduct Project, which received a highly commended award. We would like to say a big thanks to them for hosting the Energy House Labs away day this month.



Mishka Henner, Cedar Point Oil Field, Harris County, Texas, 2013-14. © Mishka Henner. Image courtesy of Carroll / Fletcher.

## **/ Mishka Henner appointed as first artist-in residence at Energy House 2.0**

The University of Salford Art Collection is delighted to announce Mishka Henner as the first artist-in-residence with Energy House 2.0, in partnership with Open Eye Gallery and Castlefield Gallery.

Mishka Henner, born in Brussels in 1976, lives in Manchester and has exhibited worldwide. He produces books, films, photographic and sculptural works inspired by 'digital terrains, geo-politics, and cultural and industrial infrastructures'. From January 2023, Henner will spend 18 months at the new facility, developing new work on themes of the climate crisis, net zero research, and the future of housing – working alongside leading scientists, specialists, researchers, and industry partners.

Mishka was selected from an open call in winter 2022, following a successful pilot residency scheme at the original Energy House in 2021. His work will be showcased at LOOK Photo Biennial in Liverpool in 2024, Castlefield Gallery in 2025, and on campus at a future date.

A second residency opportunity is now open for applications by 9am on 24th April – open to artists working in any media except photography. Visit the Art Collection [website](#) for full details.

Both residencies have been made possible through funding from the [Friends of Energy House 2.0 Community](#).

Follow the Art Collection team for more information and updates:

[artcollection.salford.ac.uk](http://artcollection.salford.ac.uk)

[mishkahenner.com](http://mishkahenner.com)



## Smart Meters>Smart Homes Lab update

The Smart Meters>Smart Homes (SMSh) Lab contributed to feasibility studies on energy flexibility/Demand Side Response (DSR) for two programmes led by Hildebrand Technology Ltd and funded by BEIS, now Department for Energy Security Net Zero:

1. The **Smart Meter Energy Data Repository (SEDR)** project studied the feasibility of developing a smart energy data repository. The proposal was to support researchers from industry and academia and commercial organisations to assist them on conducting research for energy flexibility applications and services. The study proposed to add features and capabilities to an existing energy repository which has been developed and run successfully by Hildebrand Technology for several years (currently holds over 72 billion energy readings). The enhanced smart energy data repository would open new opportunities aligned to the use cases developed with the SMSh Lab; a wide range of stakeholders with a strong interest in energy flexibility provided their requirements including DNOs, Energy Suppliers, smart energy SMEs, HEIs. The SEDR study was led by Hildebrand Technology partnered with the University of Salford, Bird & Bird (law company with expertise in data privacy), and Frontier Economics, who developed a Cost Benefit Analysis.
2. The **Smart Meter System based Internet of Things applications (SMIOT)** project focuses on the utilisation of the Smart DCC platform for accessing sensing data as well as its core smart meter data functionality. The sensing data would be captured through a DCC connected device and could include internal (home) temperature or other relevant sensors. By incorporating energy and non-energy (sensing) accessing capabilities to the Smart DCC, new opportunities on energy flexibility could be created. As for SEDR, a wide range of stakeholders participated in the definition of a range of use cases. In the study, two solutions are proposed for extending the use of the Smart DCC for accessing sensing data.

If successful, the projects will continue to a prototype and trial phase starting in April 2023.



## / New Starters

We are delighted to welcome the following people to the Energy House Labs team:

### **Nigel Blandford**

After spending seven months bikepacking around Canada, the US, and Mexico, we are delighted to have Nigel back in the fold, albeit temporarily, whilst he helps set up the houses in Energy House 2.0 for testing.

### **Thibaut De Lorenzo**

Thibaut De Lorenzo, is a final year postgraduate student from Reunion Island in the Indian Ocean. He is studying building in energy and has joined us for six months as part of his final internship before heading home to finish his studies

### **Heidi Diaz Fernandez**

Heidi hails from Mexico and has a PhD in Engineering Sciences, which was undertaken in collaboration with the solar platform of Almeria (Spain) about building's energy characterization. She will be helping collect and analyse data from the houses in Energy House 2.0, to assess the performance of the fabric of the houses and their systems.

### **Toby Le Hunte**

Toby Le Hunte is a third year Mechanical Engineering student at the University of Salford, completing his final year project at the Energy House 2.0, which involves investigating the U-values of the facilities walls using a few different methods. Toby's joined us on a part-time basis to assist with setting up tests and calibrating sensors within the research houses, and if he ever finds himself with any spare time, he's busy watching films and Formula One.



Thibaut, at home in Reunion



Toby



Heidi at Teotihuacan, Mexico



Nigel at Elbow Pass, Alberta, Canada