

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

If you have any questions email us at energyhouse2@salford.ac.uk or call 0161 295 0073

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



/ DESNZ DEMONSTRATION OF ENERGY EFFICIENCY POTENTIAL (DEEP) PROJECT

In June, Dave Farmer presented the findings from the University of Salford's contribution to the DESNZ DEEP project to an audience of over 150 politicians, policy makers, and retrofit industry representatives at an event in Leeds.

Dave led a 16-month test programme at Energy House 1 investigating solid wall fabric retrofit performance. The research involved a full fabric retrofit of the Energy House and quantification of its impact on fabric energy efficiency, surface condensation and mould growth risk, and heating system performance.

Dave told us that, "The research will enable policy makers, specifiers, and installers to more effectively deliver retrofits that reduce space heating energy bills, provide healthier internal environments, and optimise the efficiency of heating systems".

Dave would like to pay special thanks to Grant Henshaw, Henry Webster, and Benjamin Roberts for all their hard work over the last two years. The findings from the DEEP project are due to be released this summer.

/ VECTOR HOMES

It has been a busy few weeks in Chamber 2 of Energy House 2.0. Vector Homes are nearing completion of their unique modular home which is focused on sustainability, ease of construction and low energy use.

The design utilises a steel frame with lightweight highly insulating structural panels; all the individual components are lightweight obviating the need for any mechanical handling during construction. The panels have a high recycled polymer content and incorporate a graphene based fire retardant.

The home will also feature a number of smart control and sensor systems supplied by Tyrrell Building Technologies. Overall project management for the build has been undertaken by Red Ink Property Ltd and built by Regin Construction.

Following completion in July there will be a period of intensive testing under a wide variety of weather conditions to assess the performance of this unique design.

More information can be found at [Vector Homes](#) and [Tyrrell Building Technologies](#).



/ MAT ZERO

In the plot adjacent to the Vector build, the Energy House 2.0 team have been evaluating the performance of Mat Zero.

Mat Zero's goal is to provide low cost, net zero heating for refugees and disaster relief. Refugees are often housed in temporary accommodation, usually tents, which are very difficult to heat; electricity is expensive and is usually supplied from diesel generators. Alternatively, solid or liquid fuel heaters are both a potential fire hazard and cause poor air quality.

Mat Zero was developed by Sri Hollema when she was studying for her degree in Product Design and Technology at Loughborough University and is an electrically powered sitting mat that heats up to around 37°C, providing warmth for an entire family with a very low energy consumption. The electrical supply is from a solar powered battery unit.

Simon Hodder from Loughborough University has kindly loaned a thermal mannequin for the testing programme which will assess the performance and thermal comfort of the device, providing valuable input to optimising the design of Mat Zero.

More information can be found [here](#).



/ DYNASTEE 2023

In April, the University of Salford hosted the first DYNASTEE Summer School and Symposium since the end of the Covid-19 pandemic. The week-long event attracted 40 people from across Europe to discuss how we test the real-world performance of buildings.

The event provides an opportunity to learn about the latest technology and methods of measuring building performance, and for old friends to meet and new contacts to be made.

Topics covered in the 2023 Summer School and Symposium included the following:

- Updates on latest EU and UK legislation around Building Performance Evaluation (BPE)
- Update on the available guidance and standards around BPE
- Novel measurement of whole house heat loss
- Digital twinning using measured data
- Measurement of occupancy
- Update of work in the [Energy House 2.0](#) facility

We hope to build on this area in the coming years, to bring people together to build networks, and to discuss some genuinely novel methods that are cost effective and beneficial for clients/ stakeholders in the construction sector.

DYNASTEE will be holding a Summer School and Symposium next year, possibly somewhere more exotic than Salford, so keep an eye out for details on the DYNASTEE [website](#).

/ PhD Opportunity

What are you doing for the next three years? We have a great opportunity (for UK applicants) to do a fully funded PhD at University of Salford. You can develop your own research connecting energy poverty and net zero here at the School of Health and Society and Energy House Labs. The programme is funded in partnership with National Energy Action and Affordable Warmth Solutions, and you'll benefit from their networks, support and expertise.

For more information see our advert on [FindAPhD](#) and contact Graeme on g.sherriff@salford.ac.uk with any questions.

/ Emmaus Salford

Earlier this year the Energy House 2.0 team completed their evaluation of a refurbished site cabin for the homeless charity Emmaus Salford which will be used as temporary accommodation for rough sleepers.

The sleep pod is now on site at Emmaus in Salford and has recently been decorated with a mural by the street artist [Akse](#) which depicts Father Henri-Antoine Grouès, better known as Abbé Pierre, who founded the Emmaus movement in Paris in 1949. There are now some 400 Emmaus organisations across the world.

The refurbished pod has been made possible through the kind support of numerous companies from across Greater Manchester, with particular thanks to the Casey Group Ltd and AEW Architects & Designers Ltd.

More information can be found at [Emmaus Salford](#).





Xinyi visiting Chatsworth House

/ New Starters

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

Xinyi Zhang

Xinyi is a new PhD student at the Energy House 2.0. She is originally from China and has a background in architecture and sustainable architecture studies. Her research topic is on temporal factors of net zero homes, and she will conduct LCA research of building performance under the influence of dynamic elements over the entire lifespan, using two net-zero buildings in the Energy House 2.0 as research subjects.



James staying Yorkshire

James Robinson

James completed both his undergraduate and postgraduate degrees as part of the School of Science, Engineering and Environment, and has returned to complete a PhD in conjunction with the Energy House Labs. After a successful career in property and financial management, he went on to work in the sustainability and conservation sector, where he realised the similarities in issues facing the two sectors. This thought process led to his passion in providing sustainable and future proof homes for the UK and wider communities, and is undertaking an IPhD Retrofit of Heritage Buildings, funded by Seddon, with support by the National Trust. As a proud Yorkshire man, he hopes to graduate with his Yorkshire dialect in tact!



Bill & Grant happy to have finished the Manchester 10K

Bill George

After studying at the University of Salford for four years, Bill jumped at the chance to temporarily work in the Energy House Labs. Eight months later, Bill secured a permanent contract and is looking forward to continuing to grow and develop amongst a group of talented colleagues. In his spare time, Bill likes to watch/play football, visit historic landmarks, and eat dough balls from Pizza Express.

/ In Memoriam

We are deeply sorry to announce the passing away of our colleague, Joe Pemberton.

Joe joined us as part of an iCase PhD, working in collaboration with Farratt Isolevel and had recently progressed to working on a Knowledge Transfer Partnership with the team at Farrat. Joe was a great member of the team and was just at the start of a promising career. Joe has undertaken some unique work in both our Energy House 1 and Energy House 2.0 facilities. He was a great colleague and friend to all the team, someone who was always willing to get involved, and upheld the values of teamworking that we have.

A celebration of Joe's life was recently held on campus to let friends and family say goodbye. Both the Energy House Labs and Farratt Isolevel teams extend our sympathies and best wishes to Joe's family, Rob, Sarah, and Sam.

We are working to put things in place to ensure that Joe's memory carries forward, as he was a valued member of the team and the wider University community, and represented the best of what we do.

He will be deeply missed by all the team at Energy House Labs.

/ Thermal Measurement Laboratory

The Thermal Measurement Laboratory is a UKAS Accredited Laboratory (UKAS No. 1660, UK Approved Laboratory No. 1145) providing thermal measurements for the insulation and building industry for over 40 years. During this time, the Laboratory has gained a strong reputation to provide impartial, certified test data to the world's leading suppliers of insulation materials.

The Laboratory offers expertise in all aspects of thermal properties of building materials, energy conservation, insulation materials and methods to ISO 8301, ISO 8302, BS EN 12667, and BS EN 12664, and is committed to excellent professional practice to meet their client's requirements and adhere to strict UKAS procedures to ensure an impartial, high standard of service and confidence in the reported results.

To meet the growing demand, the Laboratory has recently expanded its capability to test insulation materials between the temperature range of -20°C up to 80°C, allowing test to be performed on products for building equipment and industrial installations, in addition to thermal insulation products for buildings. The standards for system 3 initial type testing as listed on the laboratories scope of accreditation now includes:

- BS EN 13162 – Mineral Wool
- BS EN 13163 – Expanded Polystyrene
- BS EN 13164 – Extruded Polystyrene
- BS EN 13165 – Rigid Polyurethane
- BS EN 13166 – Phenolic Foam
- BS EN 13167 – Cellular Glass
- BS EN 13168 – Wood Wool
- BS EN 13169 – Expanded Perlite
- BS EN 13170 – Expanded Cork
- BS EN 13171 – Wood Fibre
- BS EN 14303 – Mineral Wool
- BS EN 14308 – Polyurethane (PUR) & Polyisocyanurate (PIR)
- BS EN 14314 – Phenolic Foam
- EAD 040005-00-1201 – Vegetable or Animal Fibres

For a competitive quotation or further information, please email Ian Rattigan, i.g.rattigan@salford.ac.uk

