MANCHESTER SCHOOL OF ARCHITECTURE

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Ecohub House

EcoHub at Palatine Library will be redesigned into an interactive space showcasing low carbon technologies like solar PV, heat pumps, and insulation. Visitors will engage with hands-on displays and accessible information, inspiring them to adopt energy-efficient retrofits. This project fosters sustainability awareness and community-driven carbon reduction.

Visit msa.ac.uk for more information

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BlackpoolCouncil Blackpool Eco Homes

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Team

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Partners

EcoHub House is proposed in collaboration with Groundwork and Blackpool Council, two key partners dedicated to promoting sustainable living, reducing fuel poverty, and empowering communities through energy education.

Groundwork is an environmental charity delivering tailored 1:1 energy efficiency advice to households both at the EcoHub—a retrofit demonstration centre based in Palatine Library and directly within the community. Their Energy Efficiency Advisors offer face-to-face guidance on topics such as energy bills, tariff switching, smart meters, energy debt, and health-related issues like damp, mould, and condensation. They also provide practical in-home installations, including draught-proofing, radiator reflector panels and LED lighting..

Blackpool Council, in partnership with the North West Net Zero Hub and the Department for Energy Security & Net Zero, has played a crucial role in establishing and supporting the EcoHub. The Council continues to drive initiatives that align with Blackpool's climate action goals and support its most vulnerable residents in adapting to the energy transition.

Other partners including Cosy Homes in Lancashire (CHiL) to offer comprehensive retrofit assessments, grant support, and post-installation guidance.

This collaboration offers MSA students a uniqueopportunity to actively participate

Introduction

Ecohub House

This project based at the EcoHub within Palatine Library, aiming to transform an existing staffed retrofit demonstration centre into a passive, self-guided educational space. This initiative supports Groundwork and Blackpool Council's shared ambition to tackle fuel poverty, promote energy efficiency, and empower local residents to make informed decisions about their homes.

The EcoHub currently offers face-to-face advice through Groundwork's Green Doctor team, focusing on households that are fuel poor, elderly, or otherwise vulnerable. As current funding is due to end in March 2025, the space requires a new internal design that allows continued access to retrofit knowledge without the need for staff on-site. The project aims to redesign the EcoHub layout and interpretation system to support unassisted learning through interactive materials, digital QR-linked content, and clear displays.

Blackpool faces multiple urban and social challenges including poor-quality housing, low healthy life expectancy, and limited access to retrofit knowledge and funding. This MSA Live collaboration responds to these issues by creating a welcoming, accessible, and informative environment, allowing residents to learn about sustainable home technologies such as air source heat pumps, solar PV panels, insulation systems, and draught-proofing.

Theproposal will provide a lasting self-service exhibition space for future visitors, while a layout will trial interactive installations and display prototypes. This phased approach allows for community feedback and long-term adaptability. EcoHub House will also support the launch of community workshops, expanding outreach into schools, community centres, and other public venues.

This booklet documents the design process from initial research through final proposal, highlighting how architecture can support climate action, public health, and social inclusion—all starting at the heart of a local library.





About the Site

Palatine Library is located in the heart of a residential area in Blackpool, Lancashire, UK. The library is surrounded by residential neighborhoods, schools, and other public services. It has good connectivity to the rest of the city, with flat terrain and a regular-shaped site that offers potential for renovation or expansion. In terms of transportation, there are bus stops within a 2-3 minute walk, with well-maintained pedestrian pathways, making the site accessible for both walking and cycling-ideal for families and community engagement. The library also includes a small parking area and has access to nearby street parking, contributing to its overall accessibility.

Visiting the Site

The EcoHub House is located on the ground floor of the Palatine Library and occupies a room approximately 7.8 meters in length, 3 meters in width, and 2.2 meters in height. During our site visit to the EcoHub, we found that the space presents low-carbon and renewable energy technologies within an engaging, simulated domestic environment. The interior is organized by function, showcasing a variety of energy-efficient devices alongside posters, informational videos, and other educational materials.We also encountered two elderly visitors who had come to explore the space. Through interviews, we learned that they were particularly interested in seeing clearer, more direct representations of how much energy could be saved before and after implementing such technologies. They also expressed a desire for supporting materials that would aid memory and comprehension, such as simple quides or visual summaries.











Ecohub Interior Redesign



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Designing Process

We began the redesign by rethinking circulation, replacing the original ring-shaped flow with a clearer layout featuring two new visual focal points to guide visitors. Exhibition zones were reorganized by function, with interactive screens added to boost engagement and information delivery. Timber finishes and soft furnishings were introduced to create a warmer, more inviting atmosphere while reflecting sustainable design. Natural textures and a softer color palette enhanced comfort and aligned the space with eco-conscious aesthetics.









Ventilation This process can be enhanced using cross-ventilation, trickle vents and door undercuts.

	The high temperature fluid then travels into yo heating system, which heat your home.
Outdoor unit	

Air Source Heat Pump The Air Source Heat Pumpwill take in heat from the airusing its refrigerent.



The Ground Source Heat Pump wil Itake in heat energy from the series of pipes laid underground using itsrefrigerent.



Eco-House Model Making





Designing Process

We created a sectional model of the house to demonstrate the integration of sustainable technologies such as a green roof, rainwater harvesting, ground source heat pump, and plateboard insulation. Starting with a digital model in Rhino, we refined the design through several iterations before moving to physical fabrication at the B.15 Modelmaking Workshop. Materials like acrylic sheets, grey foam blocks, corrugated cardboard, and timber boards were used to represent different components, helping distinguish structural elements from environmental technologies and enhancing the model's clarity and educational value.



The Ecohub smart energy-saving home combines advanced technology with eco-friendly design to create a comfortable and efficient living space. With smart water and heating management, renewable energy, energy-saving appliances, and interactive screens, it helps everyone–especially the elderly–easily save energy and cut electricity bills. The double-layer walls and natural materials keep the indoor temperature stable and eco-friendly, making green living simple and comfortable.



This view shows the showroom entrance with warm wood tones. Visitors can interact with smart energy-saving tech in a well-organized, eco-friendly space.



From the other end, energy-efficient lighting highlights the modern design. Display tables and storage showcase various energy-saving home solutions.

Physical model display





Green Roof



Energy-saving Living Area



Ground Source Heat Pump

The utilization of solar energy

Two ways of solar home utilization:



Figure 1: Solar hot water, which uses vacuum tube collectors or flat plate collectors to generate hot water that is supplied to the home through the system piping.



Figure 2: Solar electricity, using the photovoltaic effect to generate electricity. The photovoltaic effect produces direct current (DC) electricity, which is then converted to alternating current (AC) electricity for the use of electrical equipment in the home.





Client Presentation

On May 15, 2025, we had our first meeting with the EcoHub team to present our initial design progress. We discussed plans to redesign the interior layout by adding interactive screens, modifying the ceiling and main entrance, and dividing the space into five functional zones. We also proposed building a more intuitive and interactive physical model. The EcoHub team responded positively, especially appreciating the interactive screen concept, and encouraged us to continue refining the design in this direction

Final Presentation

On May 23rd, we presented our final design to the client, including the interior concept, renderings, and physical model. The client spoke highly of both the design and the model. They praised the interior concept for its clarity, user-centered layout, and sustainable vision. The "EcoHouse" model was especially well-received, with the client calling it a vivid and well-crafted representation of the design. They appreciated how it effectively conveyed the project's atmosphere and ecological values, and expressed interest in exploring its real-world application.

Summary and Reflection

This project offered a valuable opportunity to explore the integration of sustainable design principles with user-centered spatial planning. From initial concept development to the production of detailed renderings and a physical model, the process challenged us to think critically about how design can foster ecological awareness and enhance everyday living.





The positive feedback from the client particularly their recognition of both the interior design and the EcoHouse model affirmed the strength of our approach.



Looking forward, this project has strengthened our ability to communicate complex design ideas clearly and effectively, both visually and spatially. It also highlighted the importance of material expression and atmosphere in sustainable design. The experience deepened our understanding of how architectural storytelling can inspire real-world action, and it will inform our future practice with greater sensitivity to environmental and human needs.

ABOUT

Each year the MSA LIVE programme unites Masters Architecture year 1 and Masters of Architecture & Adaptive Resuse students with those in BA year 1 and year 2 and Masters Landscape Architecture 1 in mixed-year teams to undertake live projects with external partners to create social impact.

LIVE PROJECTS

All MSA LIVE projects are live. A live project is where an educational organisation and an external partner develop a brief, timescale, and outcome for their mutual benefit.

SOCIAL IMPACT

All MSA LIVE projects are for community benefit or have social impact. Social impact is the effect an organization's actions have on the well-being of a community. Our agendas are set by our external collaborators.

EXTERNAL PARTNERS

MSA LIVE projects work with many organisations: charities, community groups, social enterprises, community interest companies, researchers, practitioners and educators.

STUDENT-LED

Our MSA masters students take the lead in the project conception, brief development, delivery and co-ordination of a small project. Other cohorts joined for an eventful 2 weeks of activities at the end of the academic year.

KNOWLEDGE TRANSFER

Working in teams within and across year groups and courses; MSA students participate in peer to peer learning. In addition, collaborators, participants and students engage in the transfer of tangible and intellectual property, expertise, learning and skills.

LARGE SCALE

This year approximately 650 students from 5 cohorts in MSA have worked on 40 projects with partners.

QUESTIONS

For questions about MSA LIVE please contact the MSA LIVE team: msalive@mmu.ac.uk

BLOG

live.msa.ac.uk/2025

SOCIAL

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WEBSITE

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