

# MANCHESTER SCHOOL OF ARCHITECTURE

## AGENDA

Join us in creating a greener future! United Didsbury Methodist Church is on a mission to become a more eco-friendly space by 2030! We're working to improve community facilities, boost energy efficiency, and meet Passivhaus standards. Our focus includes exploring different ways of reducing energy use by optimising space, potentially installing solar panels, and upgrading windows for improved insulation.

## SKILLS

Creative Problem Solving  
Design  
Teamwork  
Communication  
Digital Modelling  
Visual Rendering  
Passivhaus

# ECO CHURCH

## TEAM

Phoenix Beardall-Tang  
Jingkun Cao  
Adam Savage  
Xintong Sun  
Yiping Xue  
Ruizi Zhang



Visit [msa.ac.uk](https://msa.ac.uk) for more information



**Manchester Methodists**  
Seeking, serving, sharing Christ

**MSA  
LIVE 25**



## Team

**Phoenix Beardall-Tang** (MArch1)

**Adam Savage** (MArch1)

**Jingkun Cao** (MArch1)

**Xintong Sun** (MArch1)

**Yiping Xue** (MArch1)

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**Haya Barakat** (BA1)

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**Ilhan Mohamad Bin Azlan** (BA2)

**Megan Padron** (BA2)

**Millie Turner** (BA2)

**Yifan Wang** (MLA1)

MArch1 / MA AR Students



BA1 / BA2



## Partners

United Didsbury Methodist Church (UDMC), in partnership with the Manchester Methodist Circuit, is undertaking a strategic transformation to become an Eco and Net Zero Church Community by 2030. Housed within a substantial 1950s structure comprising four principal spaces, the church currently supports a congregation of approximately 60, predominantly composed of retired individuals, while serving a wider network of over 14 external community groups. These include early years education, youth performing arts, adult theatre collectives, and local choirs, collectively engaging more than 400 users on a regular basis.

With operational carbon emissions from the building estimated at 13 tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) annually, and an additional 20+ tCO<sub>2</sub>e attributed to user-related activities,—the project seeks to establish a robust and holistic Net Zero Transition Plan. This plan will address key areas including fabric-first retrofit interventions, renewable energy integration, low-carbon systems, and behavioural change strategies. The objective is to significantly reduce environmental impact while enhancing spatial functionality and user experience.

The initiative also aims to reinforce UDMC's role as a welcoming, intergenerational hub by aligning its architectural and operational identity with principles of sustainability, accessibility, and community engagement. Active guidance and support from Dr Dave Armstrong, a key stakeholder, and Reverend Catherine Hughes, the church's minister, are instrumental in shaping the project's direction and ensuring alignment with the church's long-term vision and mission.



# Introduction

## Eco Church

United Didsbury Methodist Church aims to transform its existing premises into a more energy-efficient, accessible, and community-responsive building. This initiative reflects the church's strategic commitment to long-term sustainability, low-carbon design, and inclusive social impact.

The proposed improvements will focus on key architectural interventions to reduce operational energy demand and enhance the functionality of internal spaces. Priorities include the integration of renewable energy systems (e.g. solar panels), thermal envelope upgrades (including high-performance glazing and improved insulation), and reconfiguration of internal layouts to maximise spatial efficiency and flexibility of use.

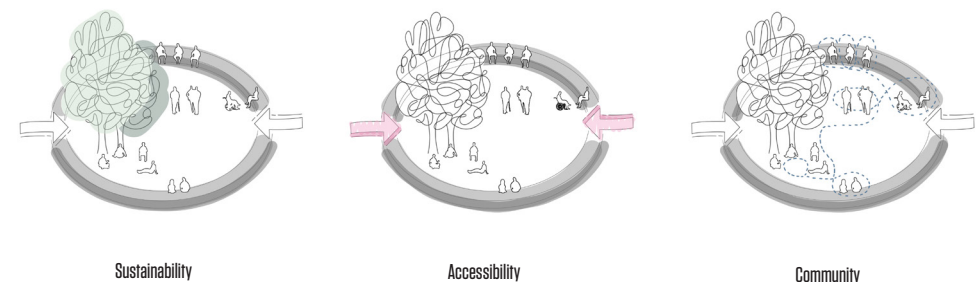
In addition, the scheme will address accessibility and inclusivity through improved circulation routes and the provision of universally designed

facilities. The goal is to support a broader and more diverse range of users positioning the church as a multi-functional community hub as well as a place of worship.

A comprehensive site survey and condition assessment will be carried out to inform design proposals and prioritisation of work. Guidance and insights from key stakeholders, including the Minister and project lead Dave, will shape a responsive and contextually sensitive approach to design.

The project places emphasis on environmental performance and social value, seeking to balance heritage sensitivity with future resilience. Through targeted upgrades and design-led interventions, the church aims to achieve measurable improvements in building performance, community engagement, and long-term operational sustainability.

## Project Aims and Objectives



# Site Location

## Local Amenities

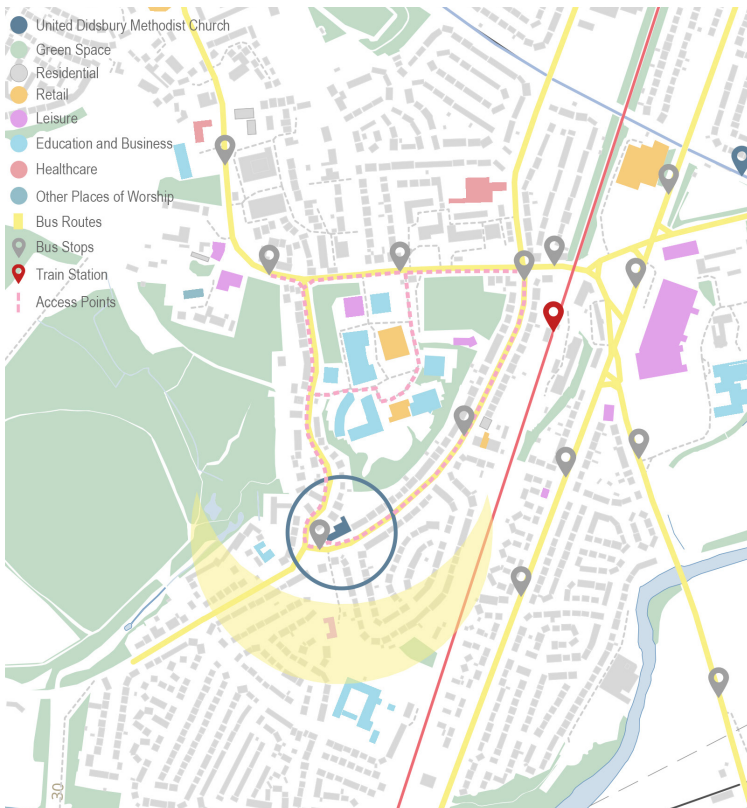
The United Didsbury Methodist Church sits at the centre of Southern Didsbury, just due North of the River Mersey; immediately around the church lies residential zoning, just to the church's North sits various businesses, offices, schools, and retail buildings and, due West, lies Millgate fields which includes: gardens, open green spaces, and community activities.

Regarding transport links, the church's easy accessibility is provided by a relatively close tram stop in the North-East and a myriad of bus stops all around Didsbury, with one being immediately outside the church's entrance. These transport links provide many options through various bus lines.

With the sun arcing about the South, the church's broadest side becomes the most lit by the sun throughout the course of the day, with the occasional tree to help break direct sunlight.

## The Church

The church itself sits on Parrs Wood Road, a mostly residentially zoned road that helps connect the church to the Kingsway dual carriage way. The church is in Southern Didsbury which is just South of Manchester City Centre.

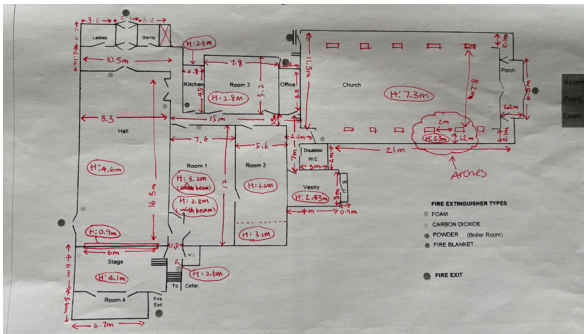


# Site Visit

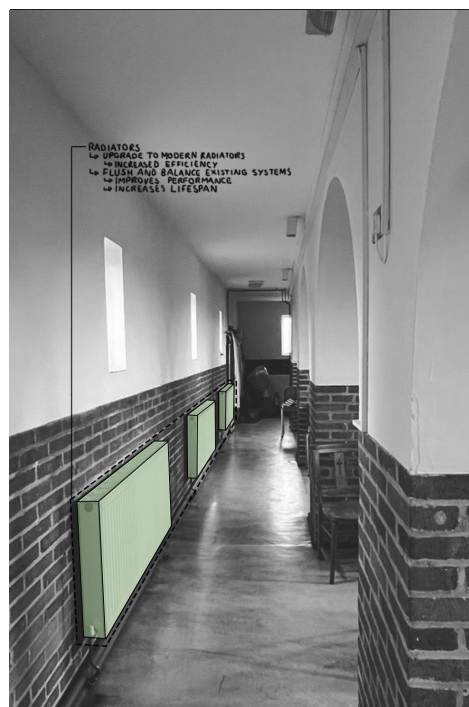
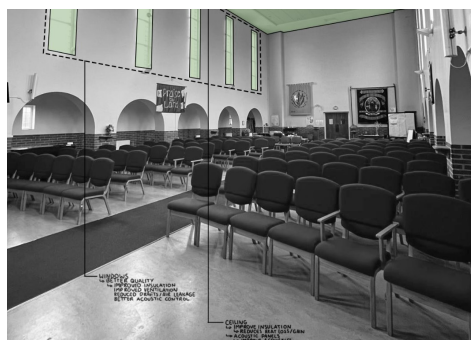
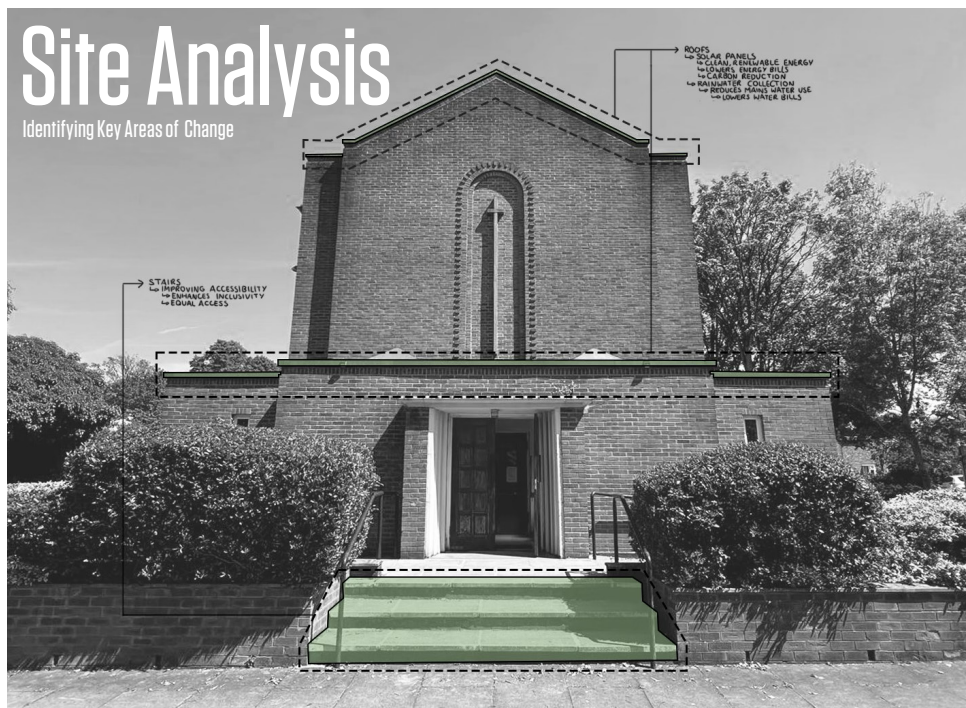
On Wednesday (week 1), we conducted our on-site survey of the church in Didsbury to gather spatial data and identify vulnerable areas of the church. During the visit, we recorded key measurements, documenting the heights, lengths, and widths of the various internal spaces. This foundational survey enabled us to identify strategies for improving the church's environmental efficiency.

A key concern raised by Dave was thermal inefficiency, particularly in relation to the church. Due to its substantial volume, he highlighted that this space requires nearly double the energy expenditure compared to other building areas. Despite being used significantly less frequently than the ancillary spaces, the main hall contributes disproportionately to the church's overall energy consumption. This insight has prompted early considerations of targeted interventions to reduce heat loss and improve the thermal performance of underutilised yet energy-intensive areas.

Dave's observations during our meeting and site visit have been instrumental in informing potential design strategies to minimise heat loss and enhance the building's overall environmental performance. His input supported our preliminary thinking around developing a more energy-efficient and ecologically responsible space.







# Demographics

Posters that encourage Church Users to be think more sustainably



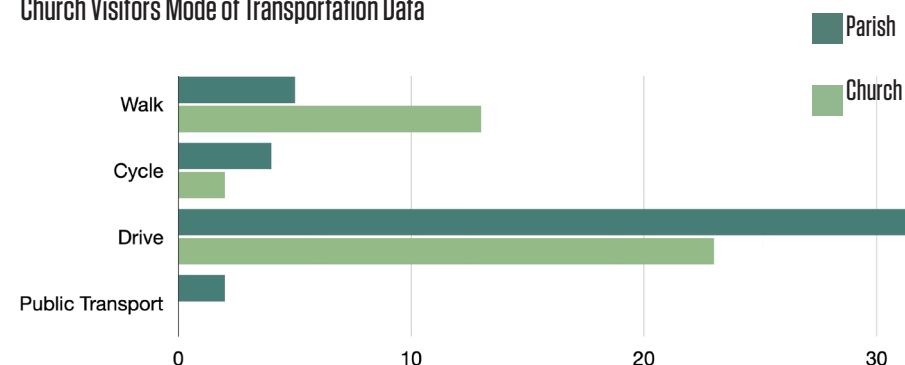
## Results

The group designed a series of posters to display throughout the church and parish, aimed at collecting primary data from church users and engaging the wider community. One of the posters focused on understanding how people travel to the church. Since becoming an eco-church involves promoting sustainable behaviours beyond the building itself, this data was crucial. Results indicated that the majority of users travel by car. In response, a follow-up poster was created to highlight local amenities and attractions within walking distance, encouraging visitors to explore the area on foot and make the most of their visit

while reducing their carbon footprint.

Additional posters were developed to inform the community about the proposed changes to the church, emphasising sustainability, accessibility, and community inclusion. According to the TCC (Transforming Church Communities) report, the predominant age group of church users falls between 70 and 79 years old. This insight suggests the need for targeted strategies to attract a broader demographic, particularly younger age groups, to ensure the long-term vitality and inclusivity of the church community.

## Church Visitors Mode of Transportation Data





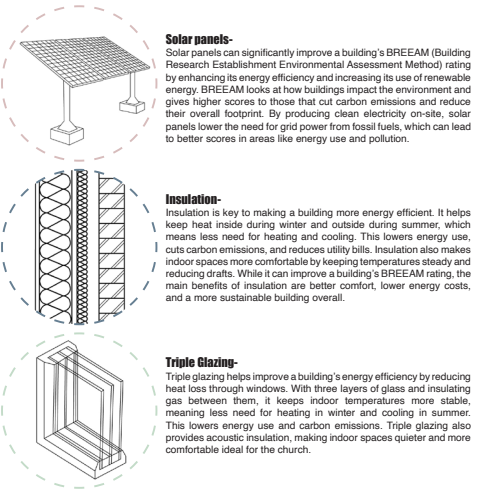
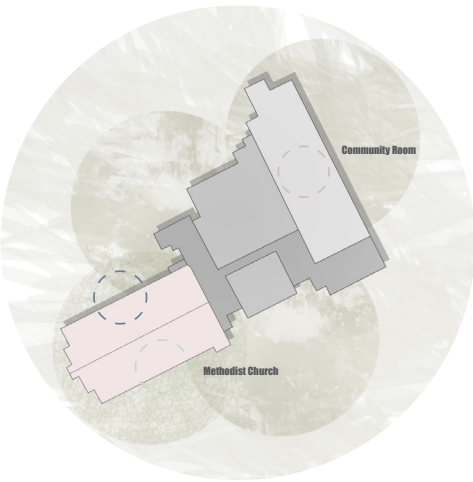
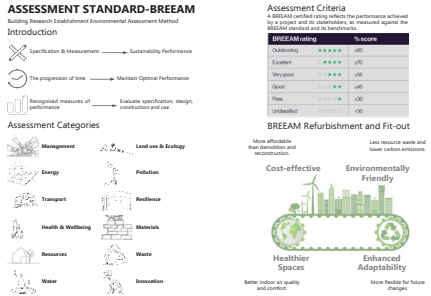
# Sustainability Research

## BREEAM & PassivHaus Principles

As part of our research, we explored key Passivhaus principles relevant to the church's retrofit, including airtightness, high-performance insulation, triple-glazed windows, and mechanical ventilation with heat recovery. These strategies are essential for reducing energy demand by minimising heat loss, enhancing thermal performance, and maintaining healthy indoor air quality.

For the church hall in particular, improving airtightness and upgrading the existing glazing would address major areas of heat loss, especially through the roof and window assemblies. The integration of a mechanical ventilation system with heat recovery would further support energy efficiency while ensuring consistent and clean ventilation throughout the space.

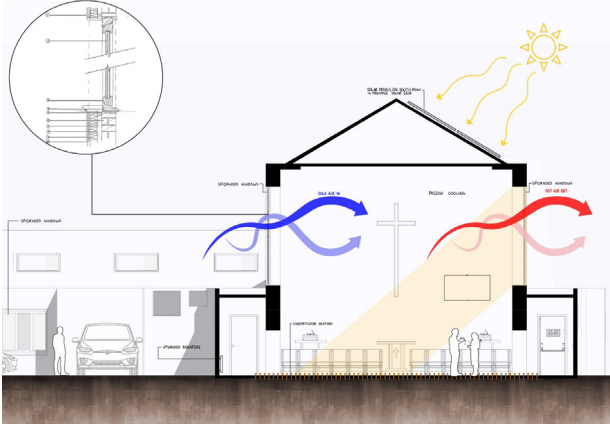
This research not only shaped our design recommendations for the church but also provided valuable insight into sustainable architectural strategies that the undergraduate team can apply in future academic and professional projects.



# Sustainability Strategies

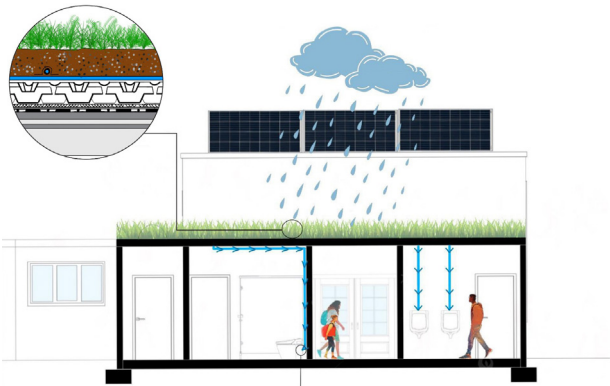
## Improving Ventilation & Solar Gain

Upgrading the existing old Church windows to high-performance, airtight units would significantly reduce thermal losses and improve the building envelope's overall efficiency. The installation of photovoltaic panels on the south-facing roof slope would introduce a renewable energy source, helping to offset electricity consumption and minimise energy waste throughout the building - a key area that the Church stakeholders asked the group to address.



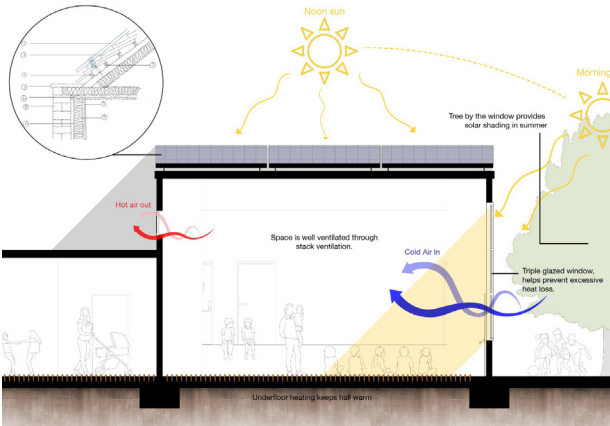
## Improving Rainwater Collection

Installing a green roof over the preschool area would enhance air quality by filtering pollutants and support thermal comfort through improved insulation, reducing energy demands year-round. Additionally, the system could collect rainwater for reuse in flushing toilets and handwashing, promoting water conservation. This sustainable feature would create a healthier environment for children while reinforcing eco-conscious values within the space.



## Improving Air Quality & Thermal Comfort

Improved air quality and thermal comfort can be achieved through passive ventilation techniques. By incorporating principles of stack ventilation, cooler air can be drawn in at lower levels while warmer air is expelled at high level openings, promoting effective natural airflow throughout the church.





# Eco-Cafe

## Benefits

the introduction of a café offers a welcoming space that connects people and communities. Located beside the main church building, the café will act as a social anchor, which encourages greater footfall throughout the week by attracting regular users and passers-by. It offers an approachable entry point for those who may not typically engage with traditional church activities. This helps renew the church's relationship with the wider community. The café also generates a sustainable source of income, supporting the upkeep of the building and funding community-led projects and events

## Activity Examples

Activities can be held in the café to increase footfall throughout the week. They can bring people together across various ages and backgrounds. Varied programmes allow the café to remain busy, inclusive and active.

### Community Gardening



### Film Nights



### Game Nights



### Arts & Crafts



## Eco Design Integrations

### Rainwater Collection Systems



### Green Roofs



### Renewable Materials



### Photovoltaic Panel Systems



## Partnerships

Charities focused on combating food waste can play a key role in supporting the Eco Café's mission. By partnering with local surplus food redistribution initiatives, the café can access fresh ingredients that would otherwise go to waste, reducing environmental impact.



## Design Choices

### Activity Corner



An activity corner provides a dedicated space for events and group activities without disrupting the everyday café experience. It helps create a separation between casual customers and those participating in workshops, games, or community gatherings, allowing both to coexist comfortably within the same space.

### Outside Seating



Outdoor seating increases the café's capacity and creates a more open, inviting atmosphere that encourages people to engage with the space. It provides a relaxed setting for social interaction, especially during warmer months. Outdoor seating allows for a stronger connection to nature and enhances the overall well-being of users.

### Cafe Hatch



A café hatch is a simple and effective way to make the café more accessible and social. It creates a casual and quick interaction between the café and outdoors, encouraging spontaneous connections and inviting passers-by to engage without having to step inside.

# Landscape Design

## Site Plan - Landscaping Strategy



## Planting Palette



Betula pendula  
(Silver birch)

Spring	Summer	Autumn	Winter
✓	✓	✓	✓



Philadelphus coronarius  
(Common mock orange)

Spring	Summer	Autumn	Winter
✓	✓	✓	✓



Crataegus monogyna  
(Common hawthorn)

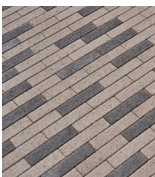
Spring	Summer	Autumn	Winter
✓	✓	✓	✓



Ilex aquifolium  
(Common holly)

Spring	Summer	Autumn	Winter
✓	✓	✓	✓

## Material Palette



Hydropave Arthro Permeable Block Paving

Versatile permeable paving solution made from 100% renewable energy.



Hydropave 240 Permeable Block Paving

The product is manufactured using a high percentage of recycled materials, giving it a low carbon footprint.



Grass Paving System

The system functions as a SuDS permeable pavement, controlling surface water at source by directing it to the sub-layers.



# Proposed Mezzanine Floor

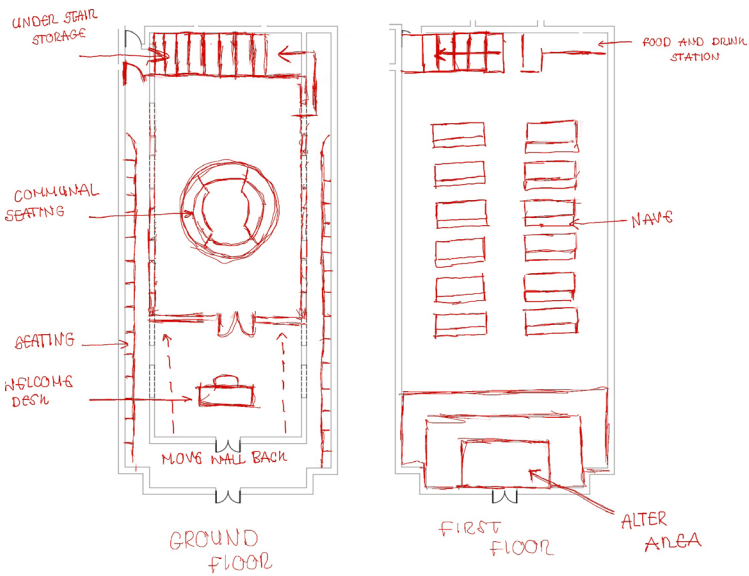
## Proposed Mezzanine Concept Research Collage

The introduction of a mezzanine level within the church hall responds directly to the stakeholders' on-site request for more efficient use of internal volume and aligns with the church's broader sustainability objectives. Currently, the hall has a capacity of approximately 150, yet weekly attendance averages around 30, resulting in significant underutilisation of space and inefficient energy use, particularly during colder months. Incorporating a mezzanine would create a more appropriately scaled, enclosed area that can be conditioned independently, thereby reducing the energy required to heat the entire volume. Conceptual sketches developed by the undergraduate team demonstrate that the integration of a mezzanine is not only spatially feasible but also a viable future intervention. This proposal offers both functional flexibility and a meaningful step toward improving thermal efficiency and long-term sustainability within the church.



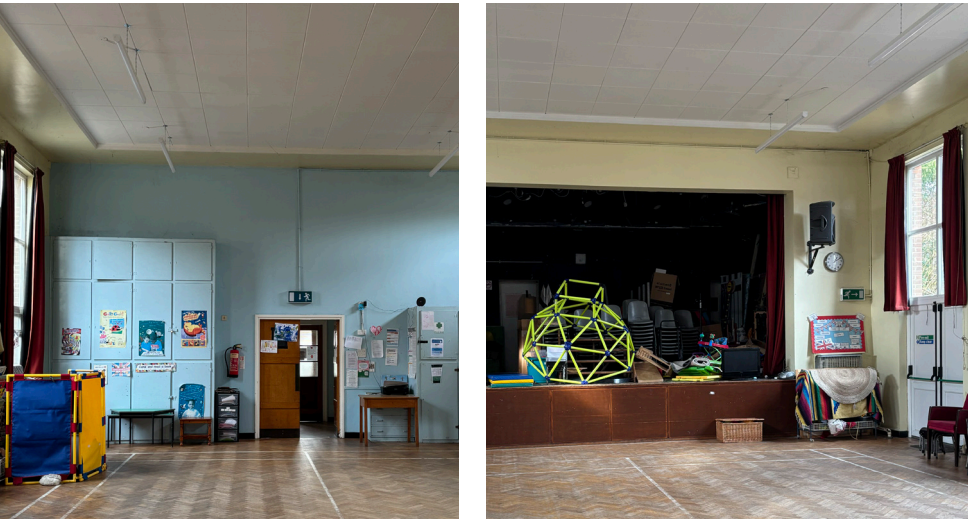
## Proposed Mezzanine Concept Plan Sketches

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# Proposed Sustainable Storage

## Existing Storage Options



## Making Sustainable Storage

In response to stakeholder feedback highlighting the lack of adequate storage within the preschool area and the need to revitalise the hall, the use of recycled timber pallets is proposed as a sustainable and adaptable design solution. Their structural strength makes them ideal for creating durable, multi-functional storage units, while their reuse supports environmentally conscious construction. Thoughtfully integrated, these elements can also function as bespoke furniture pieces, contributing to a cohesive and engaging interior design. Beyond practicality, recycled pallets offer creative potential, allowing for the development of visually compelling installations that enhance the spatial character of the preschool. The accompanying collage amalgamates the range of ideas expressed by church stakeholders and presents a series of conceptual options for reconfiguring the space and improving storage. This visual proposal aims to balance functional enhancement with sustainable, community-driven design.





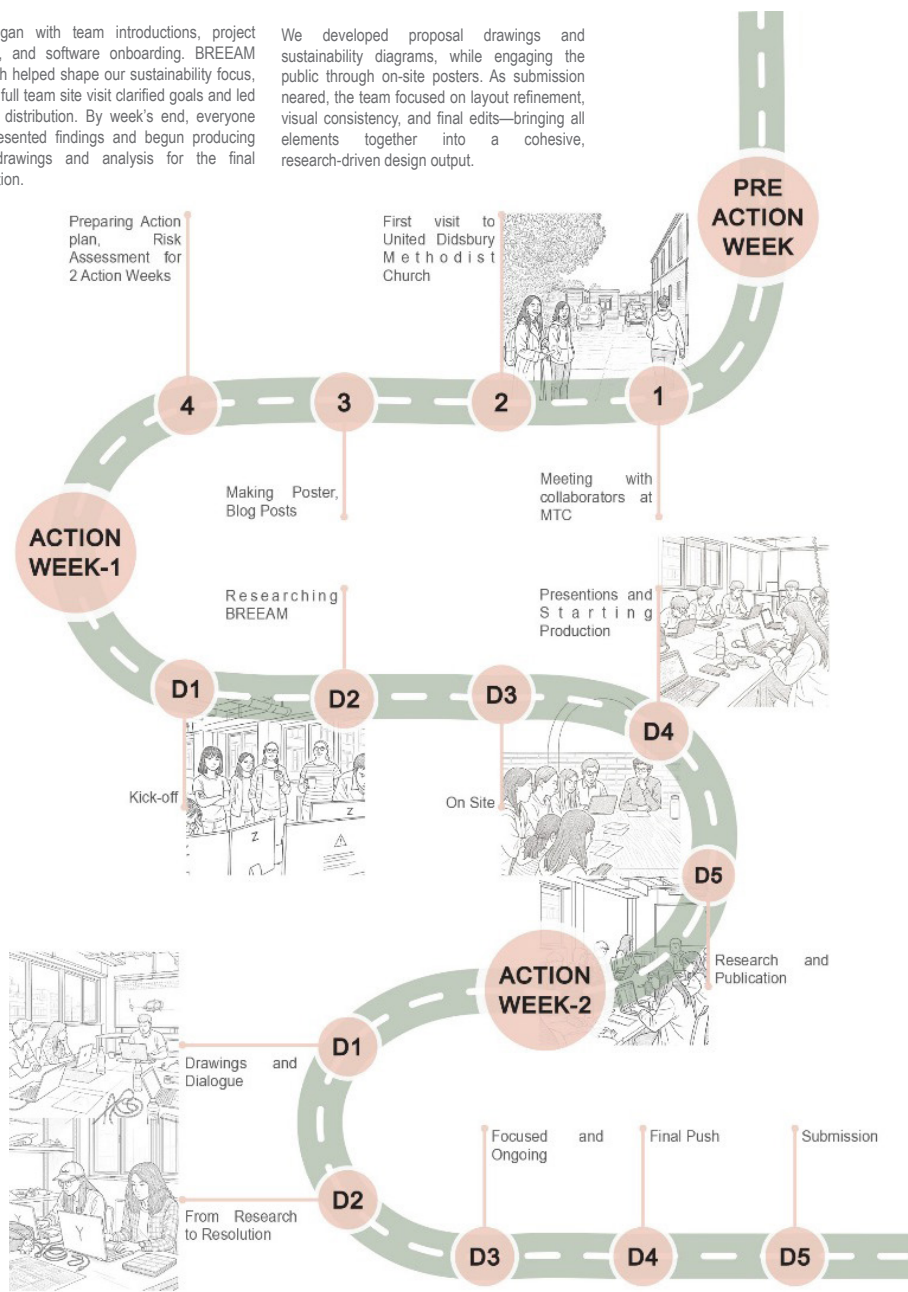
# Timeline

## WEEK ONE

We began with team introductions, project briefing, and software onboarding. BREEAM research helped shape our sustainability focus, while a full team site visit clarified goals and led to task distribution. By week's end, everyone had presented findings and begun producing early drawings and analysis for the final publication.

## WEEK TWO

We developed proposal drawings and sustainability diagrams, while engaging the public through on-site posters. As submission neared, the team focused on layout refinement, visual consistency, and final edits—bringing all elements together into a cohesive, research-driven design output.



# Design Proposal



Floor Plan

Axonometric



Site Elevation A-A

Site Elevation C-C



Site Elevation B-B

Site Elevation D-D



Church Hall Section



Proposed Cafe Entrance Visualisation



## 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](mailto:msalive@mmu.ac.uk)**

## BLOG

**[live.msa.ac.uk/2025](http://live.msa.ac.uk/2025)**

## SOCIAL

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