MANCHESTER SCHOOL OF ARCHITECTURE

CALLING OUT TO DESIGN A NEW RESCUE HUB

Agenda:
Join us in designing a new purpose-built facility for Bolton Mountain Rescue Team! This project will create concept designs for a modern base with improved storage, training spaces, and vehicle access. Your work will directly support the team's life-saving operations and enhance community outreach. Be part of a meaningful project that boosts emergency response capabilities and public education and make a real impact!

Skills:
Teamwork
Problem Solving
SWOT Analysis
Model Making
Digital Modelling
Computational Design

MANCHESTER 1824
The University of Manchester

Manchester Metropolitan University

BOLTON MOUNTAIN RESCUE TEAM

MSA LIVE 25

Team

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Partners

Our project's client is Bolton Mountain Rescue Team (BMRT) that is based at Ladybridge Hall.

Established in 1968, BMRT operates 24/7, 365 days a year, providing vital assistance in both urban and rural settings. Their operational area spans over 800 square kilometres, covering regions from Darwen in the north to beyond Manchester Airport in the south, and from Wigan in the west to the centre of Manchester in the east. The team comprises approximately 50 volunteers who respond to around 100 callouts annually.

BMRT's capabilities include technical rope rescue, water rescue, and advanced casualty care, ensuring they can handle a diverse range of emergencies. They collaborate closely with local emergency services, including the police and ambulance services, to assist in search operations and rescue missions.

Introduction

Possibilities : What Should a Rescue Hub Be?

As Bolton Mountain Rescue Team (BMRT) confronts growing pressures to modernise its facilities, an opportunity emerged to reconsider what a rescue hub could be, especially for a team operating in some of the UK's most challenging terrains. The current premises at Ladybridge Hall, a historic stone-built structure dating from the late 19th or early 20th century, have become increasingly inadequate, marked by limited space, inefficient circulation, insufficient training facilities, and challenging vehicle access. This urgent need shaped the context of our design challenge.

Over two intensive weeks, we undertook a dynamic and collaborative exploration to envision possibilities for BMRT's future rescue hub. Through energetic design charrettes, rapid brainstorming sessions, and iterative model-making, we developed three distinct proposals. Each reimagines how the facility could optimally support critical operations, enhancing flexibility, spatial efficiency, daylight integration, and community engagement.

The practical client requirements, including spatial demands, operational priorities, and budget constraints, guided further refinement. Each member revisited their concepts in a second charrette, adapting imaginative ideas to these real-world constraints. To anchor our explorations, preliminary floor plans (both one- and two-storey options) provided by a local engineering firm were utilised as flexible frameworks. These plans were analysed, dissected, and creatively reconfigured to explore optimal spatial adjacencies and configurations.

Ultimately, three distinct design approaches organically emerged.
The group divided into specialised teams, refining each concept into comprehensive proposals supported by detailed plans, sections, elevations, and visualisations. Each proposal uniquely addresses BMRT's operational needs while envisioning a rescue hub that is adaptable, sustainable, and intrinsically connected to the community it serves.

ACTIVITIES

AIMS

-Understanding the background

-Broaden the designers' thinking

STAGE 1

Site investigation



The on-site visit was determined after the first meeting (In MTC) with the stakeholders. We went to the BMRT's existing base and learned about the basic functions and design requirements.

STAGE 2

The first meeting with all the members of the design team and icebreaker games



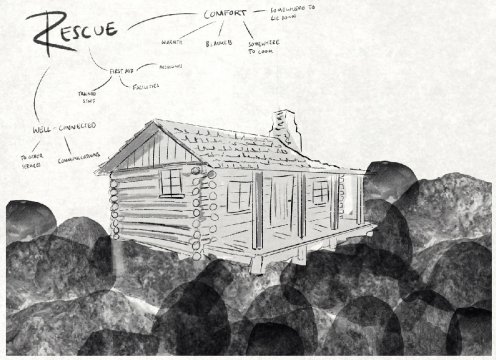
Using the icebreakers as a foundation to first familiarise the team members, will help improve the efficiency of work coordination in the later stage.

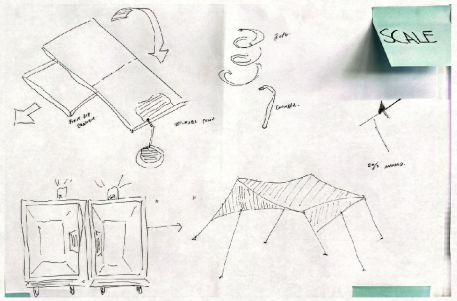
The aim of the icebreakers was to brainstorm before starting the design process, and the team members came up with various ideas.

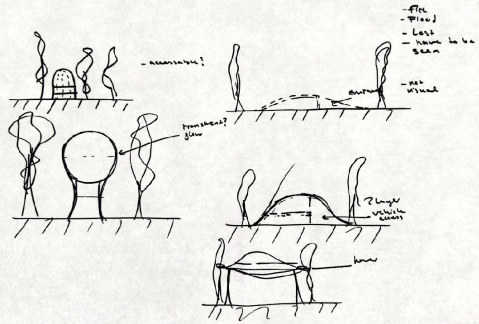
DEFINING 'RESCUE'

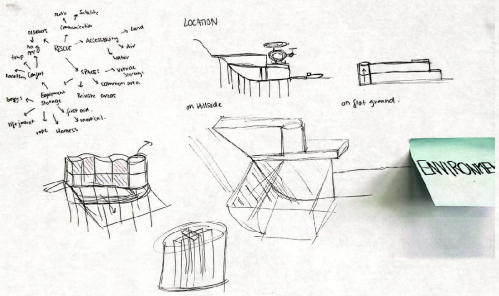
Brainstorming

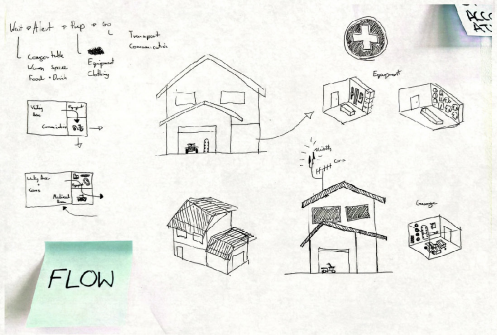
After the icebreakers, we conducted a brainstorming session on our initial thoughts on what a rescue hub should include. Each student expressed their understanding of rescue and presented it in the form of mind maps or graphic representations followed by a discussion on the topic.











KEY WORDS

The overview of brain strom

From the brain storm we got more key words. These key points will be brought into the design

RESCUE AROUND THE WORLD

What does a rescue team look like in your country?
Have you ever used a rescue service?

FUNCTION

BUILDING FLOW

DOUBLE FUNCTION

ENVIROMENT

SCHEDULE OF ACCOMMODATION

ADJACENCY

SCALE

FLEXIBLE

VEHICLE ARANGEMENT

MOOD FEEL

ACCESS

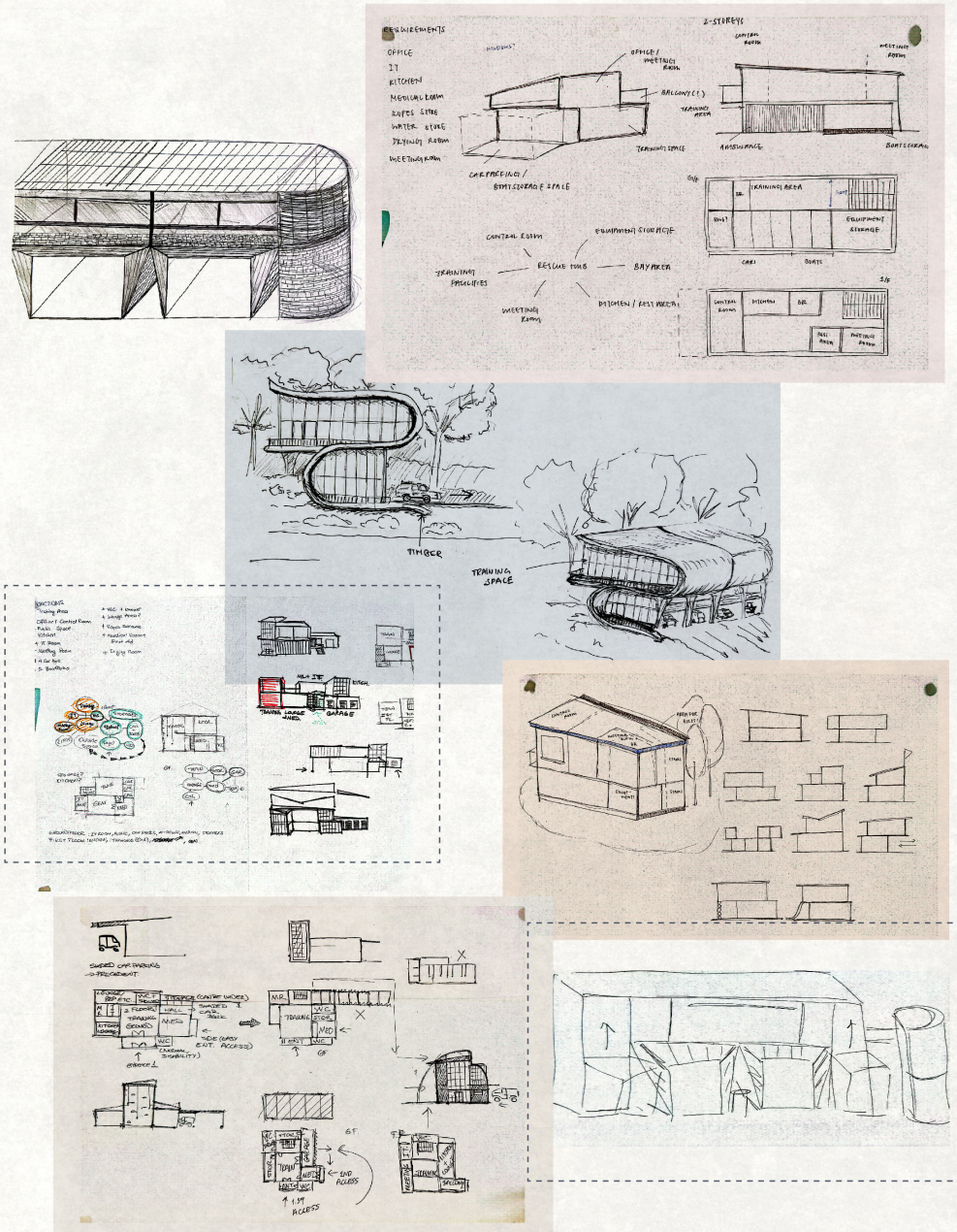
FLOW

MODULAR

HEIGHTS(DOUBLE HEIGHT, STORAGE)

STORAGE

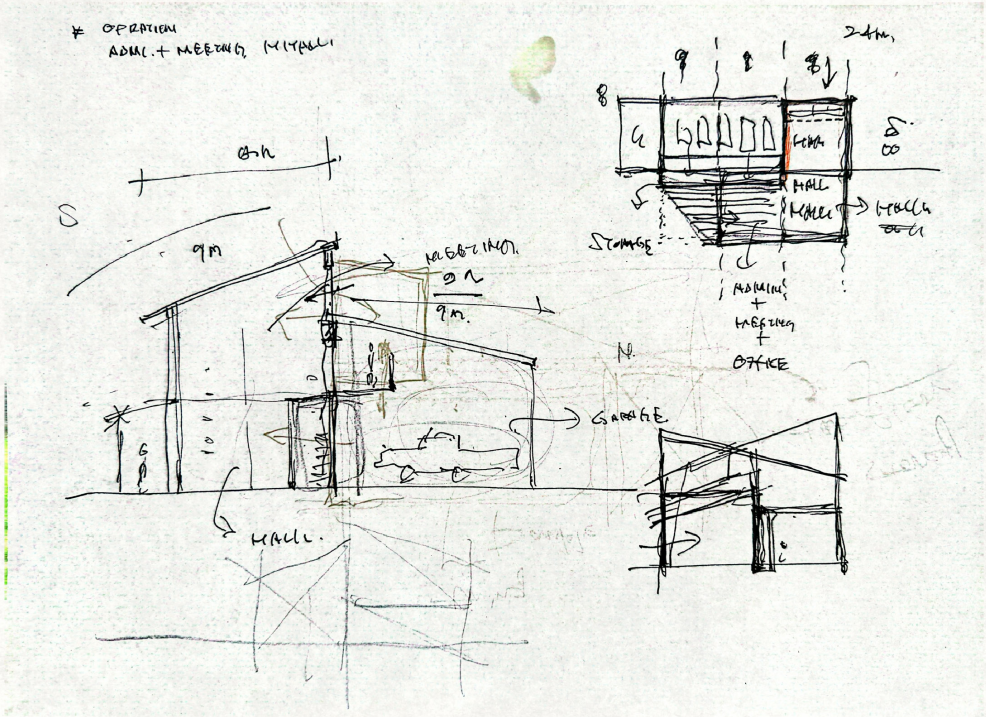
CONCEPT SKETCHING

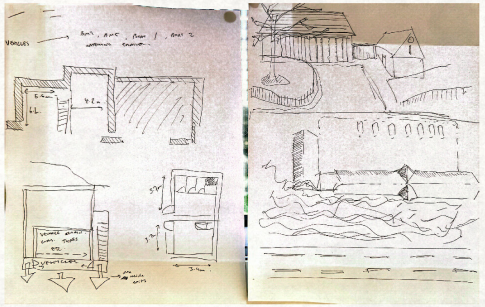


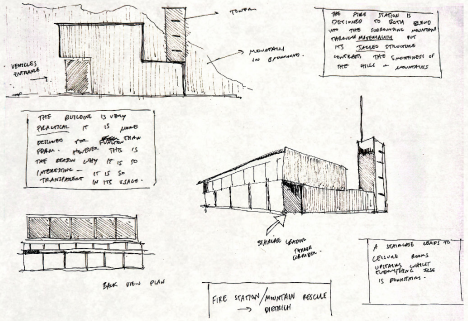
CONCEPT DEVELOPMENT

Key design elements

Spatial arrangement
Height differences
Semi-open spaces
Natural ventilation



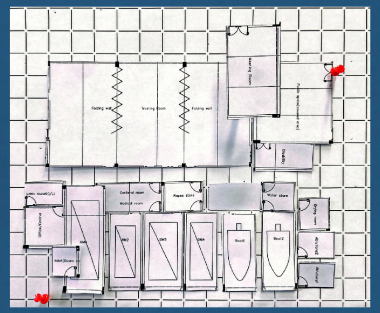




DESIGN DEVELOPMENT

Three groups and three ideas

GROUP 1

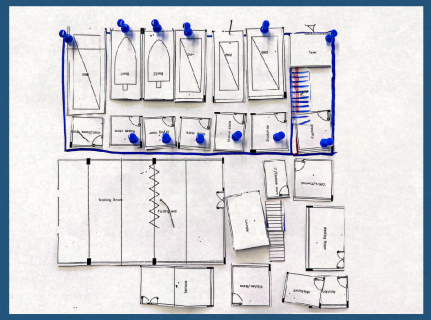


BMRT Hub
This proposal explores the BMRT Hub around a central, multi-use training and operations hall. This flexible space supports daily training, briefings, and emergency coordination. It has the capacity to expand into the adjacent corridor during periods of high activity.

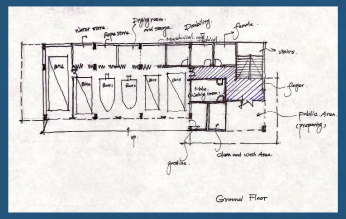
Based on a layout provided by a local engineering firm which outlined the required rooms in a traditional, enclosed format, we retained the functional zoning but reconfigured the flow for greater efficiency, flexibility, and spatial quality.

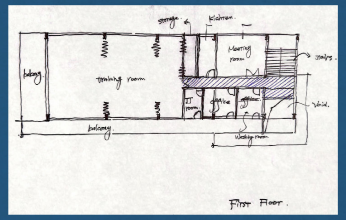
GROUP 2

The design concept is guided by user flow and functional adjacency, allowing for clear circulation and flexible rental opportunities. Using a cut-out floorplan we were able to rapidly generate iterations.

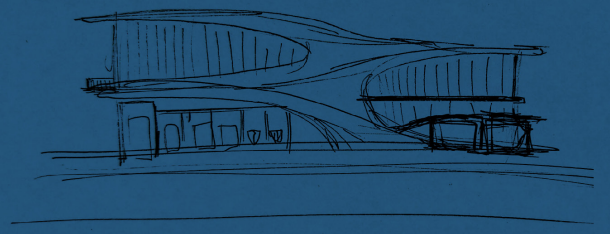


GROUP 3





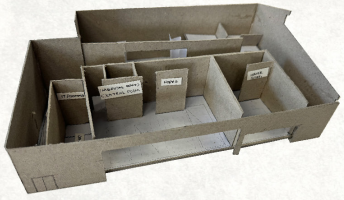
This concept follows the two-storey idea and retains main spaces, such as the training room and garage; however, some functions need to be adjusted. Therefore, certain fixed walls in the garage are converted into removable walls, and additional facilities are introduced.

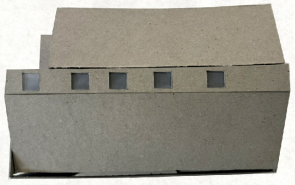


PROPOSAL DEVELOPMENT

GROUP1

This design transforms a conventional layout into a dynamic, efficient, and community-oriented rescue hub.





PLAN 1

PLAN 2

Key Features:

Multi-Use Training Hall

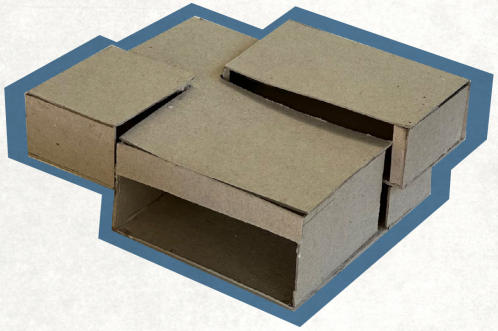
Service Core and Upper Level

Central Corridor with Glazed Roof

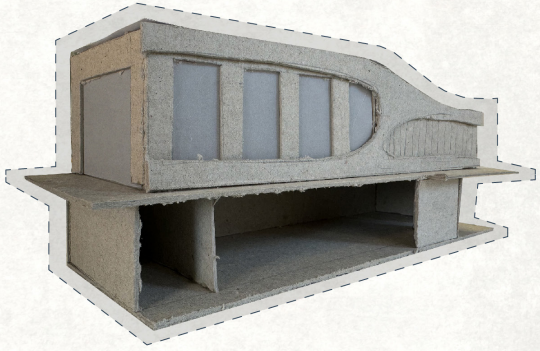
Improved Visibility and Circulation

GROUP2

Visual connections across levels and zones enhance spatial awareness and support interaction throughout the rescue hub.



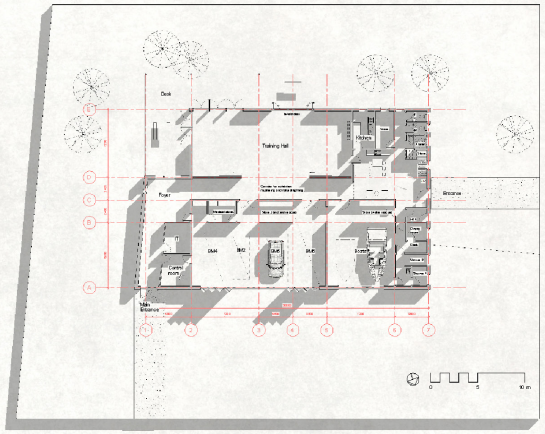
GROUP3

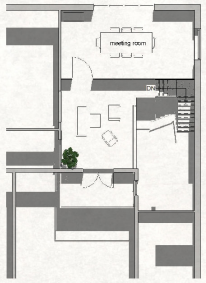


The streamlined design and curved elements are integrated into this concept, while spaces of varying heights and open balconies create exciting and unique experiences.

FINAL OPTION 1

Plan Drawing





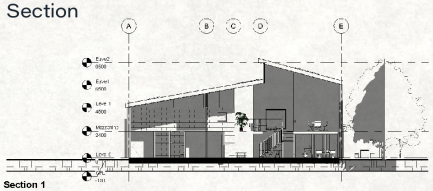
The building sits on an imaginative site that is slightly off-axis to the north, allowing for even sunlight distribution.

Elevation Drawing

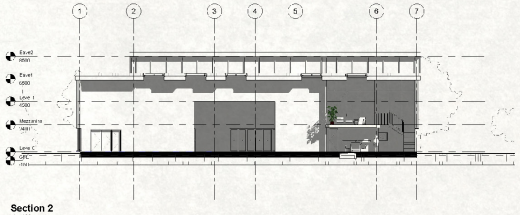
South
1 : 100

North

Section

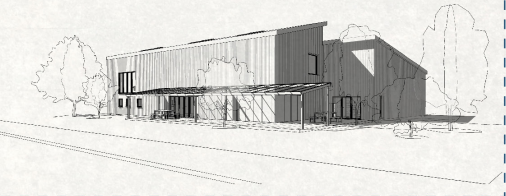


Section 1
1 : 100



Section 2
1 : 100

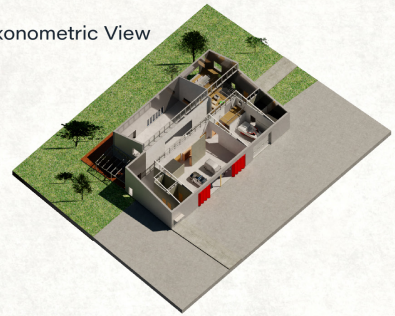
Perspectives



FINAL OPTION 1

Training Hall

Axonometric View



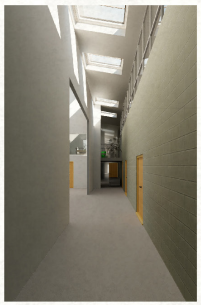
Perspective 1 (South-West)

Perspective 2 (South-East)

Garage and Storage View

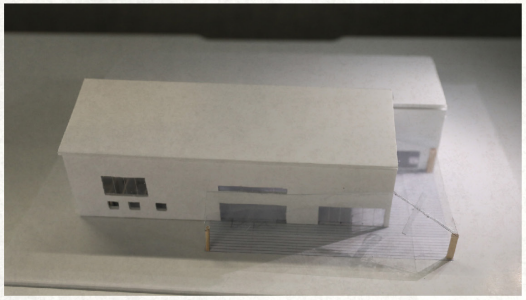
Front View

Central Corridor



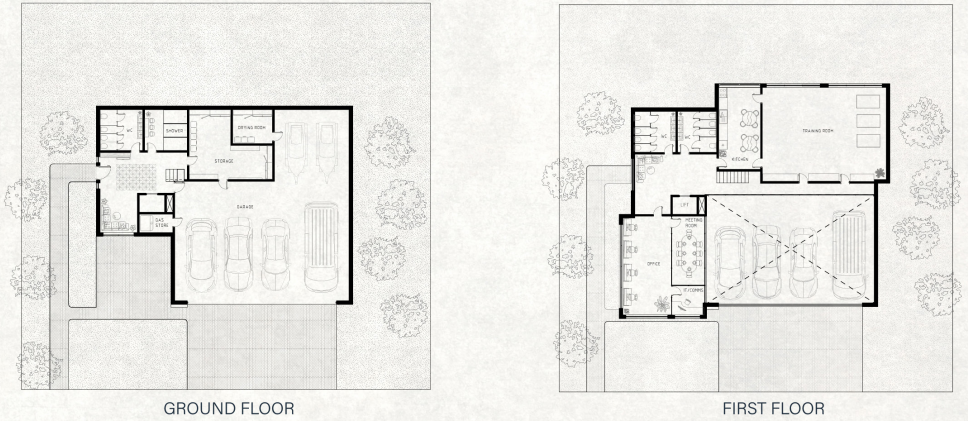
Mezzanine View

Physical model

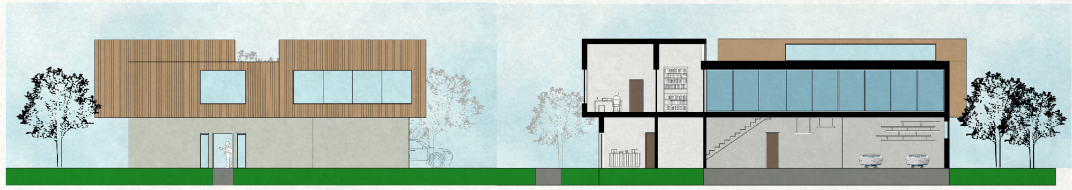


FINAL OPTION 2

Plan Drawing

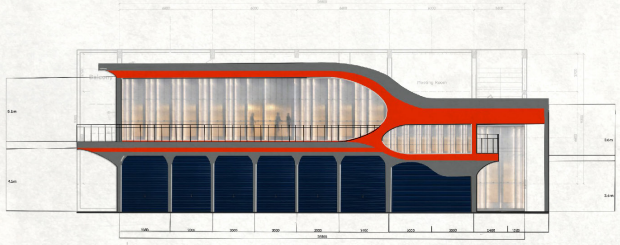


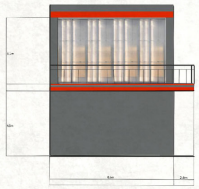
Elevation Drawing



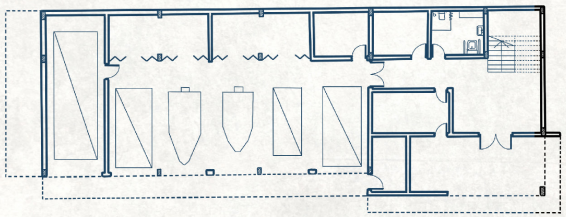
FINAL OPTION 3

Elevation Drawing

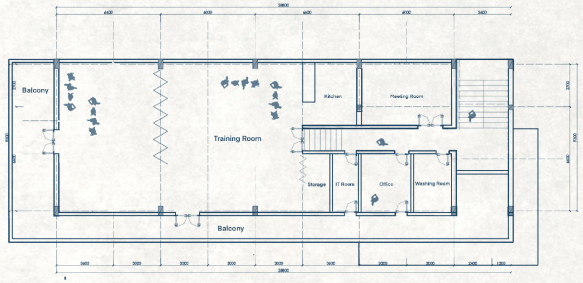




Plan Drawing

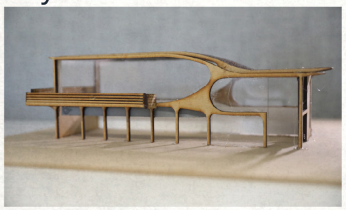


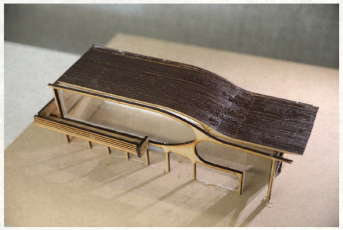
GROUND FLOOR PLAN

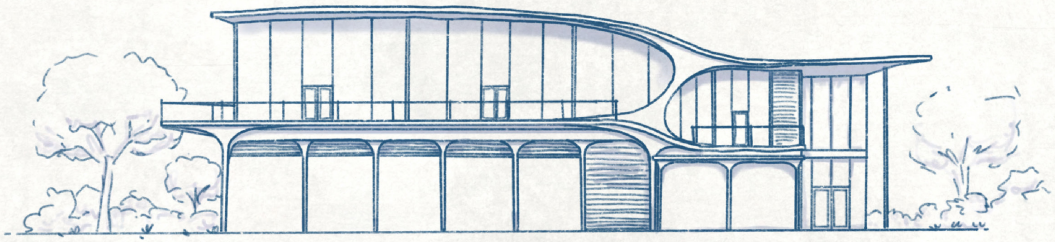


First FLOOR PLAN
SCALE 1:100M

Physical model







CONCLUSION

This project has shown us new ways to approach a conventional design task, evolving the project into a creative and multifaceted strategy into how architecture can proactively reshape the infrastructure required behind rescue systems. Over two intense weeks, our team, comprising undergraduate and MLA students, engaged in a deeply collaborative process marked by shared leadership, mutual learning, and collective ambition.

The three resulting proposals respond not only to BMRT's immediate operational deficiencies but also critically reimagine the rescue hub as both a civic landmark and an environmentally responsive facility. Each scheme integrates principles of adaptability, spatial logic, and ecological sensitivity, rooted in a detailed understanding of environmental constraints and the lived realities of rescue operations. The design journey highlighted the essential tension between creativity and technical precision, affirming that meaningful architecture emerges from the interplay of visionary ideas and real-world constraints.

Equally, this project highlighted the importance of teamwork. Rapid prototyping, iterative critique, and open visual communication became core drivers of progress, demonstrating that architecture is as much a social act as a spatial one. The collective dedication of the group, reflected in long hours, continuous refinement, and a shared sense of purpose, was vital to the project's depth and cohesion.

Ultimately, the work we produced not only informs a potential future for the rescue center but also contributes to a broader discourse on socially engaged design.

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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