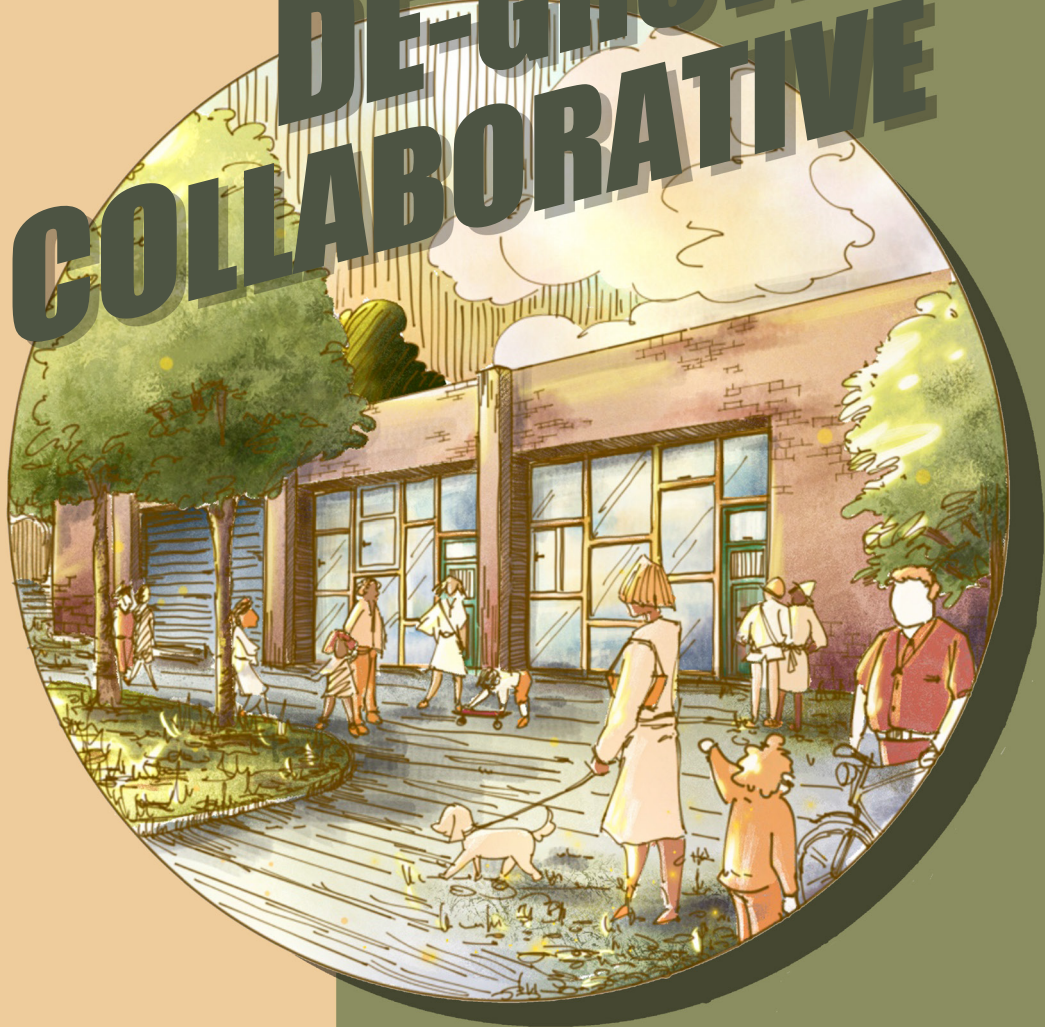


**MANCHESTER SCHOOL
OF ARCHITECTURE**

DE-GROWTH COLLABORATIVE



Visit msa.ac.uk for more information

MANCHESTER
1824
The University of Manchester



**Manchester
Metropolitan
University**

BOILER HOUSE

**MSA
LIVE 22**

Team

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Partners

Located in Moss Side, the Boiler House is about a mile from Manchester's city centre. The former district power station has recently been re-purposed as a community centre; a place for making and mending.

In the 1980's the Boiler house operated as a power station for thousands of homes in the area. In May 2019, the social enterprise 'Sow the City' signed a 12-year lease on the building, making it the site for a new social community.

The Boiler House acts as a catalyst for people to reach their potential by facilitating skill development and community cohesion through practical courses, the provision of affordable tools and spaces that allow creativity to flourish. Pay-as-you-go workshop spaces, plastering and tiling courses and the repair café not only help provide skills for employment, but also improve mental health and wellbeing, promote environmental care, and instil a sense of value in the individual participants.

Agenda



DE-GROWTH COLLABORATIVE

The main task for this project was to develop a patchwork window proposal for the three openings of the building, currently secured with roller shutters. The Velodrome have offered two types of doors to the client which we will be using in the design for the doors and windows.

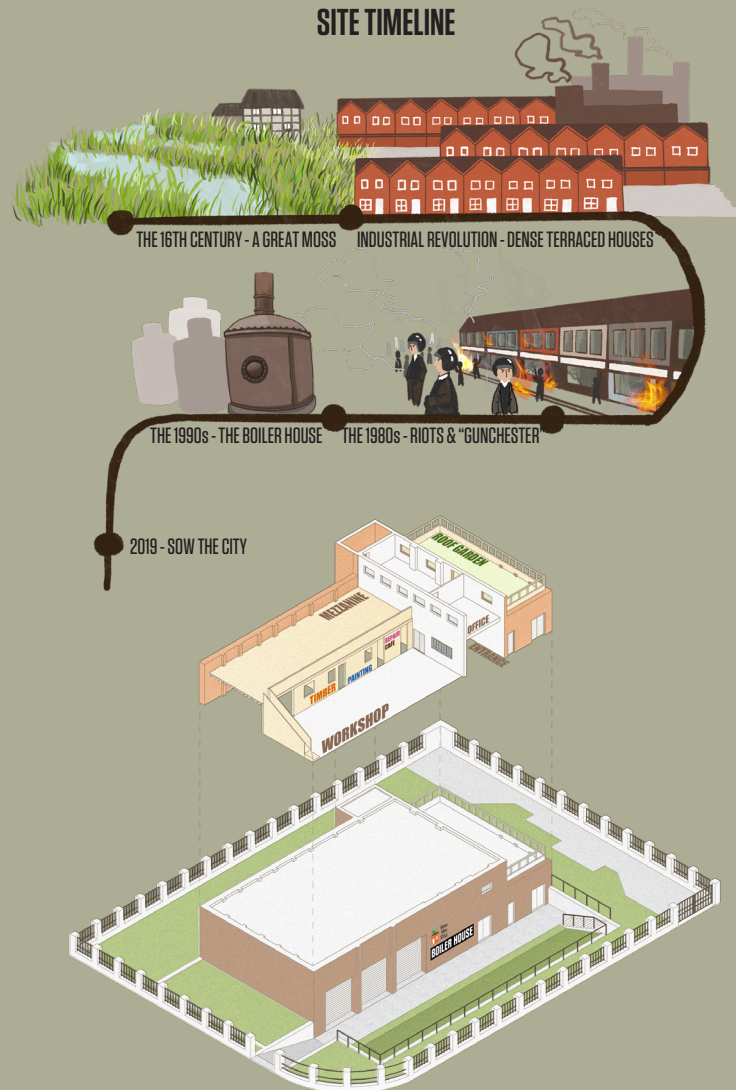
We have considered issues of heating during the winter months, benefiting from solar gain so that the unheated hangar space is comfortable at this time of year. For the summer, we have considered the current issues of overheating by exploiting passive techniques such as shading and ventilation strategies.

The south facing openings mean that natural light floods into the hangar space, creating a fantastic working environment. We aim to optimise this, whilst also making the building more approachable from the street, encouraging the public to engage with the activities taking place within the space. We want to activate the green spaces surrounding the building with some form of landscape design, as these spaces too can serve community activities in the future.

ABOUT THE SITE /

Moss Side underwent urban sprawl that brought terraced houses following a population increase in the Industrial Revolution. Gun riots and gang violence was ubiquitous after WWII, giving Moss Side its reputation for a high crime rate. However, redevelopment since the 1990s introduced optimization programs such as the Boiler House, which was repurposed from a district power station to a community centre. Sow The City was established in 2019 aiming for social convergence and sustainable development.

SITE TIMELINE

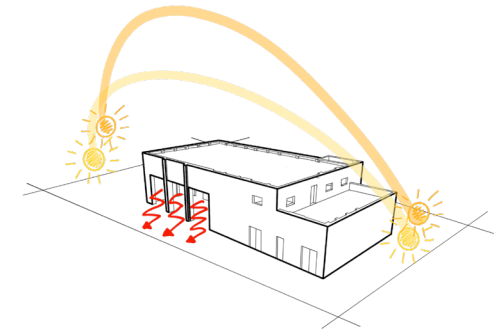


CLIENT BRIEF /

Following meetings with the client, the team developed a clear understanding of the project brief. The first week intailed a conceptual response to this brief in preparation for the presentation of initial ideas to the clients the following week.

Heating

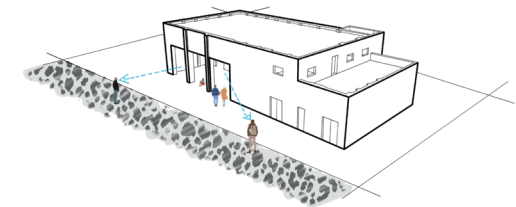
The staff who work in the Boiler house voiced thier complaints in regard to thermal comfort in the buildings current condition. Since the three openings facing south are currently only covered by permeable roller shutters.



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Accessibility

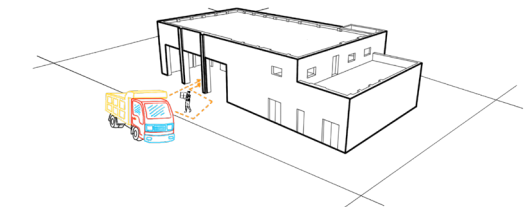
The client requires one reveal to remain fully openable so that large items can enter and exit conveniently. The other two reveals can be installed with glass doors/ windows for human to access.



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Safety

Another consideration is the privacy and security that the proposal should fulfil. The internal hanger space should not be visible from the street at night.



DE- GROWTH /

De-growth is a term which criticises economic growth. The concept of de-growth challenges the current rate of consumption and production. De-growth advocates a socially and ecologically sustainable way of living. This encapsulates of agenda in this adaptive re-use scheme.



The clients hoped to transform the negative perception of Moss Side through the Sow the City Project based in the Boiler House and to provide a community asset.

PROJECT MANIFESTO

Client's Needs

The client's main objective is to improve the thermal comfort of their main space all year round. Any proposal must shade from southern radiation in the summer yet maximise solar gain in the winter months, all within a tight budget of £10,000.



MOSS SIDE

From Users' Perspective

The community are the key stakeholders the Boiler House aims to benefit from. Our proposal must attract the community and improve their experience. We made it our mission to improve the street frontage and provide precedent for other adaptive reuse projects in the area.



Wider Impact

Our clients from Sow the City spoke to us about their intent to not only improving the quality of the building for the benefit of the users, but also have a wider impact on the neighbourhood. The clients hope to transform the public's negative attitude towards the moss side from a poorly secured area to a welcome vibrant community.



DESIGN PROSPOSALS /

Based on the client brief, we came up with three design proposals testing different ideas and considering the site, cost, and structural constraints. We've chosen the proposal which meets the criteria and welcomes the community into the building.

Option 1:

Existing shutters are moved forward and windows/ doors sit behind as client initially requested. The middle opening will be treated as the main entrance. Because of the extrusion of the roller box, the proposed frame is set back.



Option 2:

The three existing roller shutters will be kept and the proposed window frames will be installed on the outer reveal. Horizontal and vertical shading are proposed for south and west light. The shading can be made up of planting shelves, providing a more welcoming appearance.



Option 3:

Exploing a more pronounced entrance, Bay entrance breaks the flat nature of the existing facade and a collapsible lattice steel gate will be installed in front of it. The left reveal becomes a window therefore no need for shutter.



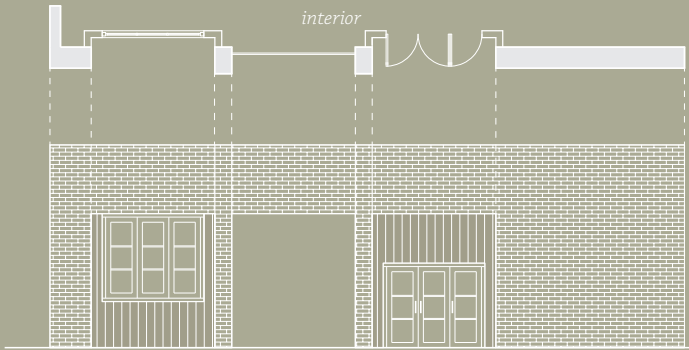
Valuating the options against clints' requirements

	Thermal efficiency	Solar Gain	Shading	Cost	Structure	Planning	TOTAL
Option 1	3	2	2	2	1	3	13
Option 2	3	3	3	3	3	2	17
Option 3	3	2	2	2	2	2	13

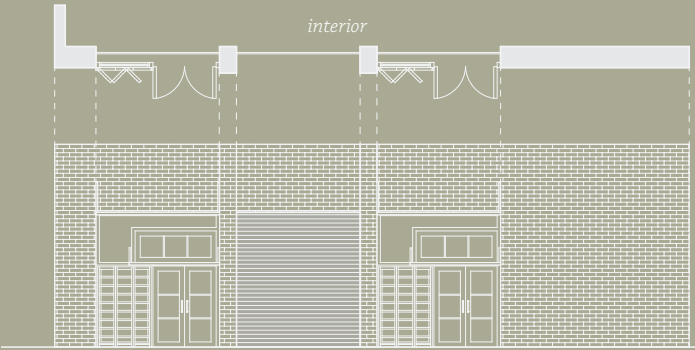


PLANS & ELEVATIONS /

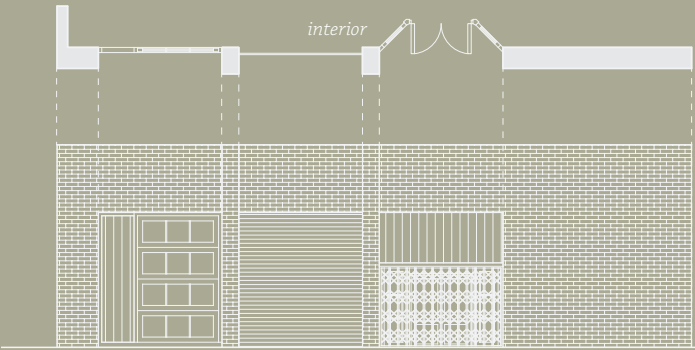
Three schemes were made into models and drawings to materialize conceptual ideas, which helps to analyze their pros and cons intuitional.



OPTION 1



OPTION 2



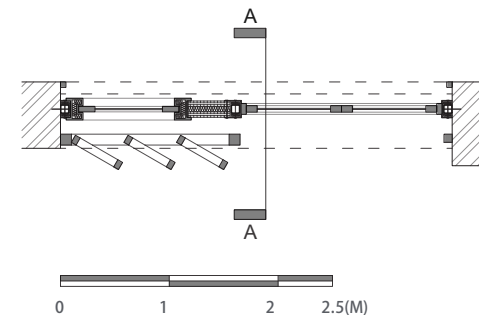
OPTION 3



FINAL SCHEME /



DETAIL DRAWINGS /



1:100 ELEVATION WITH SHADING

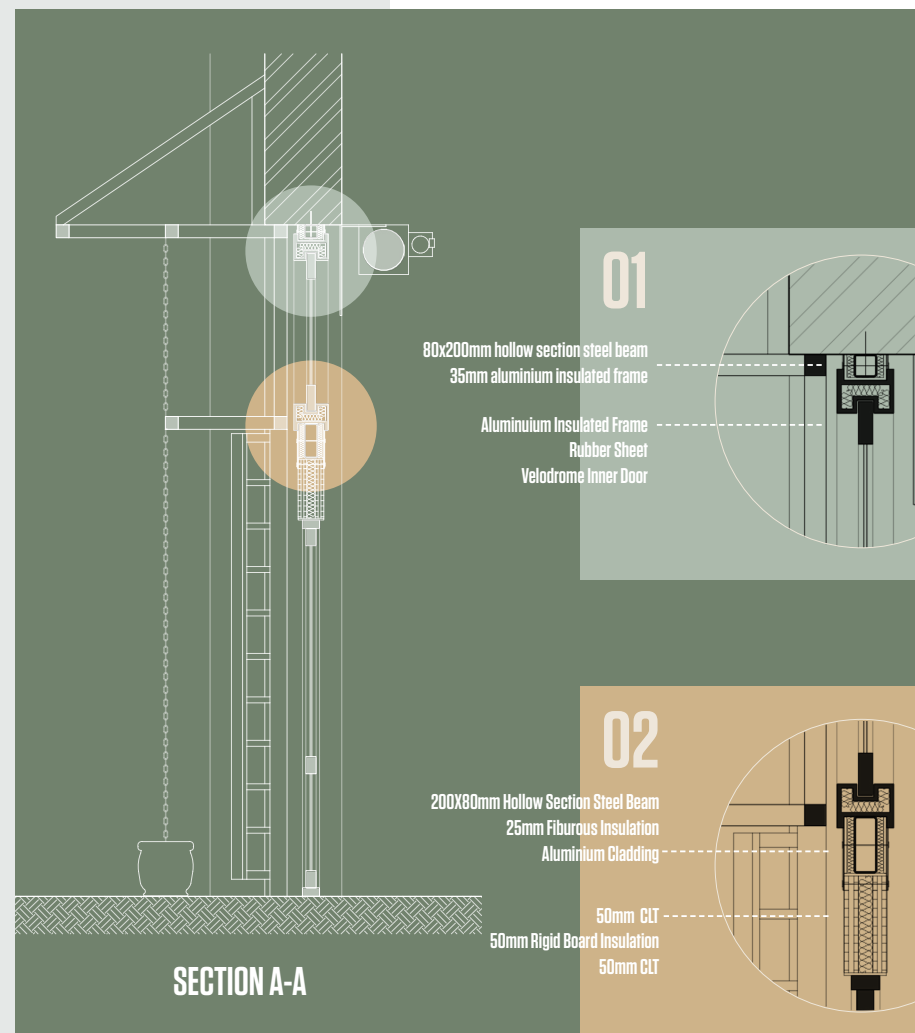


1:100 PLAN WITHOUT SHADING



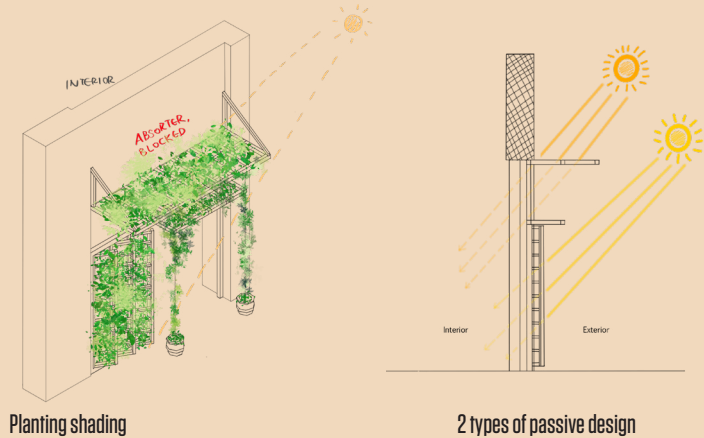
0 1 2 2.5(m)

1:100 PLAN



SHADING STRATEGY /

Our shading strategies take into consideration the sun path – with both vertical and horizontal shading protecting the windows during the summer and winter months. Our shading devices act as trellises and the plants make the entrance more inviting and add to the effectiveness of the shading.



PLANTING /



Phytological typology



Climbing Hydrangea



Wisteria



Nelly Moser Clematis



Parthenocissus Henryana



Dryopteris



Tillandsia Usneoides

Planting heights

Form/Average Size



Vines
Low maintenance plants which naturally grow on walls. They rapidly spread and can grow in indirect sunlight. Rapidly spreading and shading species include: Climbing Hydrangea, Wisteria, Nelly Moser Clematis, Parthenocissus Henryana.



Ferns
Easily grown on walls and can cover up large areas to provide shading. Naturally grow downwards favouring vertical planting. E.g. Dryopteris



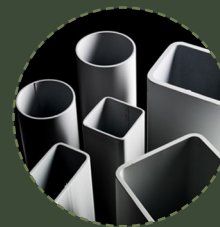
Air Plants
High Aesthetic value. Shallow roots which require little space. Photosynthesise at night so solar exposure for plant is not an issue. E.g. Tillandsia Usneoides

Species Information

COST /

With a budget of £10,000, we have carefully chosen materials and components that reduce our overall cost as much as possible. Reusing doors from a velodrome and where possible, using CLT and low cost steel hollow beams have kept our costs as low as possible.

MATERIAL	PRODUCT	LENGTH/PIECES REQUIRED PER OPENNING	PRICE	QUANTITY NEEDED (2 OPENNINGS)	DELIVERY FEES	TOTAL PRICE (inc VAT)
hollow steel 100x200	200x100x10mm	3600	£650/6m	2	£30	£2497.68
hollow steel 80x80	80x80x3mm	13953	£150.28/6m	5		
fibre insulation	1200x2400x40mm	1.5	£34.14/2.88m ²	3	£50	£141.94
external wall insulation board	1200x600x50mm(pack of 10)	5 pieces	£134.63/10 sheets	1	£54	£188.63
CLT		4.5m ²	£40/m ²	9m ²	-	£360
timber 100x100	100x100mm H/W timber par	8510mm	£207.78/3.66m	5	-	£1038.92
timber 75x75	75x75mm timber	33235mm	£11.16/3.6m	19	-	£212.04
timber 75x50	2400x75x50mm timber	28830mm	£4.99/2.4m	25	-	£123.75



hollow steel



fibre insulation



clt board



timber

COMMUNITY BENEFITS /



Community life



Greenery



Spatial interaction

The Boiler House provides free and low-cost equipment for people to learn employment skills such as gardening and woodwork. In line with Sow The City's beliefs, The Boiler House functions as a catalyst for people to reach their full potential. With the goal of sustainable development, The Boiler House provides a quality space that is attractive and productive socially, economically, and environmentally.

Due to a high crime rate, Moss Side has the reputation of being a rough and unfriendly community. Therefore, maximizing social cohesion and security is of utmost importance. Equal opportunities are given to all for learning and self-improvement, serving as a hub for social interaction and synergy between different demographics. Through open workshops, the community is given the chance to grow and evolve together, sharing collective memories and creating a sense of belonging.

With the Boiler House's new developments, the positive image of Moss Side can be optimised. The newly renovated entrance and expanded greenery not only bring better air quality and bio-diversity to the area, but also generates a centroid for spatial and social interaction. People can freely enjoy the space without safety and monetary concerns, promoting integration and cohesion between people of all ages and backgrounds.

VISUALIZATIONS /



VIEW FROM WILCOCK ST.



VIEW FROM INSIDE

ABOUT

Each year the MSA Live (formerly Events) programme unites M Arch. year 01 with B Arch. year 01 and 02 and M Land. Arch 01 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 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 join 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 600 students from 4 cohorts in MSA will work on 35 projects with partners.

QUESTIONS

For questions about MSA Live 22 contact MSA Live Lead: Becky Sobell: b.sobell@mmu.ac.uk

BLOG

live.msa.ac.uk/2022

SOCIAL

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