Angus Harrow - Portfolio

angusharrow@gmail.com

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Education

Part II - The University of Edinburgh, Edinburgh College of Art (Sept 2024 - present)

Architecture MArch

Part I - University of Liverpool (2020-2023)

2:1 Architecture, K100, BA (Hons)
- Shortlisted for the 'Swedish Wood Student Architect Award' In recognition for dynamic timber shading fins in my final degree project.

Sir John Lawes School (2013-2020)

A Levels - A (Maths), A (Art), B (Biology)

GCSEs - Grades 8-6

Software Skills

- AutoCAD
- Sketchup
- Vray
- Adobe Creative Suite
- ArchiCAD
- Rhino
- Enscape
- Affinity Suite
- Leica LIDAR Scanners
- Bambu Studios (3D printing)

Experience

Mountford Pigott LLP, September 2023 - August 2024, London. As a Part I Architectural Assistant at a medium-sized firm, I contributed to various projects across RIBA stages, including residential, industrial, commercial, and asset management developments.
My role often involved preparing and modifying 3D models for the planning stage using SketchUp and Enscape. I also created feasibility studies and planning application drawings using 2D AutoCAD. Additionally, I assembled Design and Access Statements, produced visualisations, and prepared schedules.

Arup Associates, July 2019, London. Work experience - Learnt key architectural and engineering processes by working with different departments throughout the week.

Barr Gazetas, May 2019, London. Work experience - Shadowed meetings and visited off site projects, gave me an insight into how architectural practices work and function.

Extracurricular

The University of Edinburgh Triathlon Team

University of Liverpool Swim Team Captain, September 2022 - June 2023. As a member of the swim committee I have been required to develop my organisational and leadership skills.

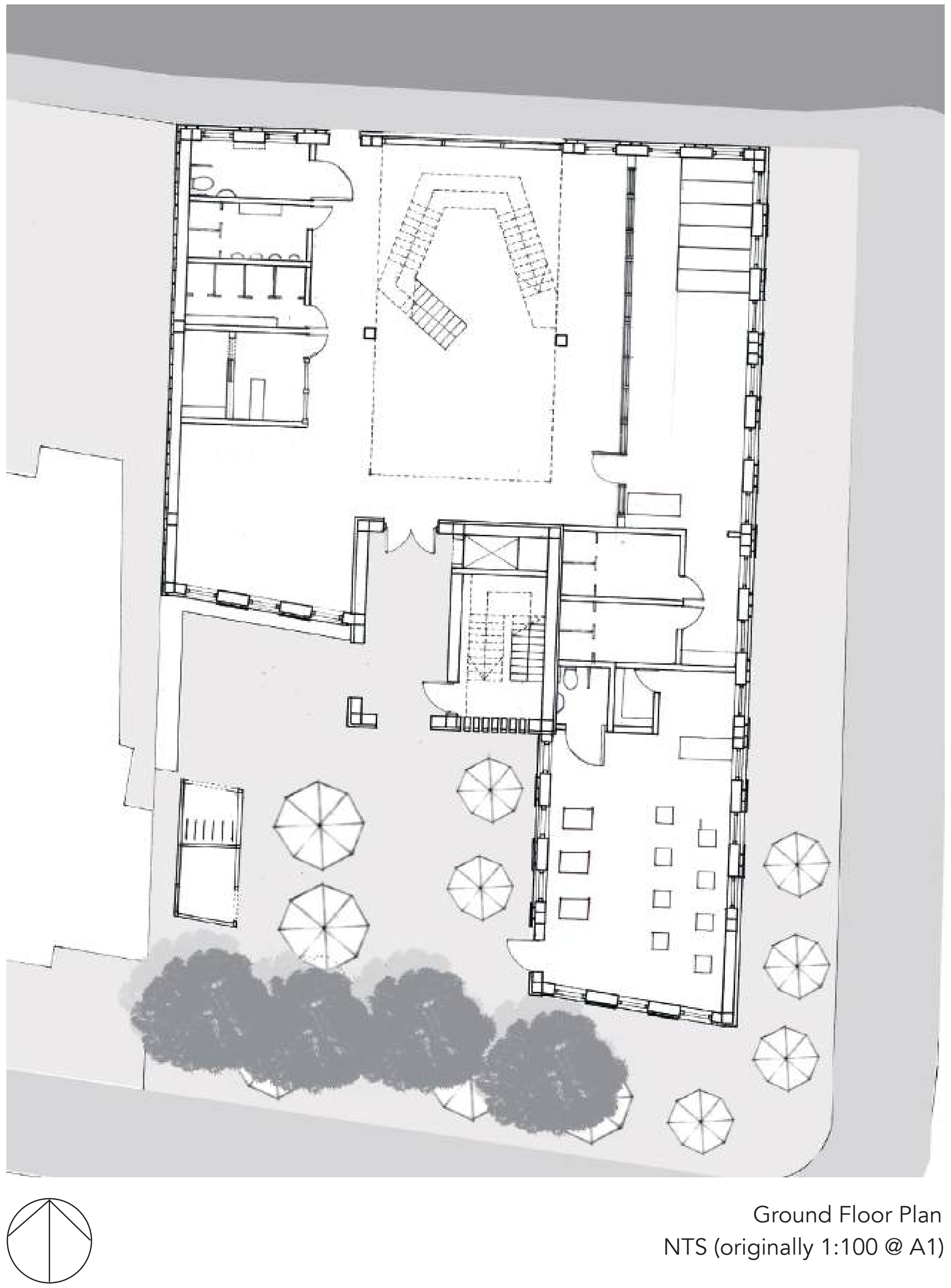
Grade 8 Clarinet, July 2019. Required a great deal of self discipline and practice.

British Biathlon Finalist, 2018.

Hand Drawings

Sketching is one of my strengths which has helped with graphic communication and the development of project ideas.

1:100 model



Ground Floor Plan
NTS (originally 1:100 @ A1)

Part I (BA) - Liverpool Project For A Co-Living Development

Site Location: Liverpool, Merseyside, UK

Building Use: Residential

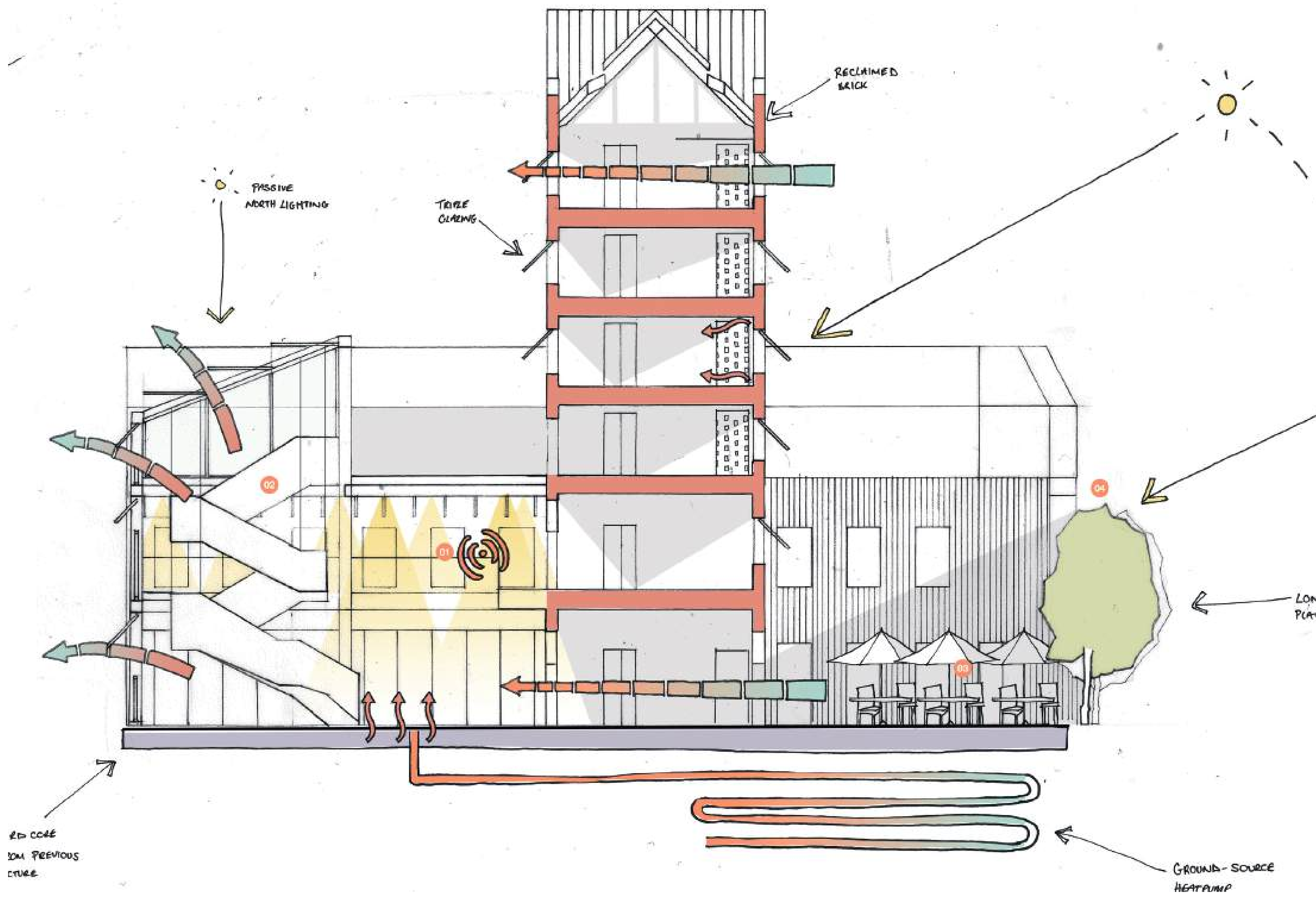
Size: 1800 msq

Design Approach and Brief

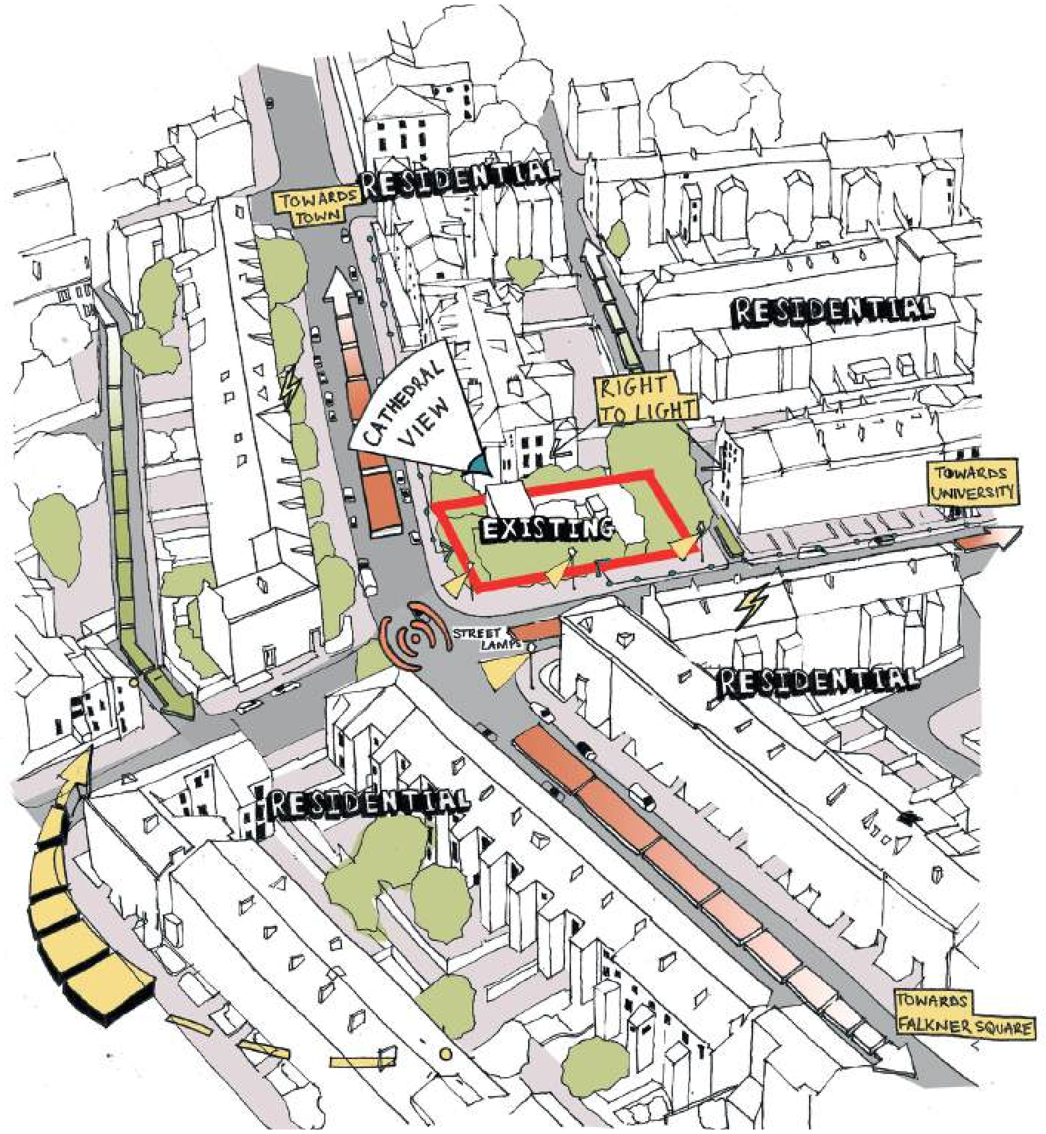
"Design a co-living development in Liverpool's Georgian Quarter. The building must house at least twenty residents and include two accessible rooms. Other requirements include co-working, social, and recreation spaces."

The residents I chose to cater for were young NHS workers stationed at the Royal and Women's Hospitals in Liverpool. The design strategy was to create a mixed-use building with clear boundaries between private spaces, communal spaces and a public cafe space for the local community. The atrium houses the communal spaces, which include a gym, kitchen, dining and social areas. The public area has a cafe on the site's south side. The tower is a threshold between the courtyard and the atrium, establishing the development's private zone. Co-working spaces are located in the brick tower with access to views of Liverpool's skyline. The atrium on the ground and first floor have private social and dining spaces. The main living accommodation is spread over the second floor in modular living pods for affordable living.

I chose to hand-draw all of my final drawings. This exercise encouraged me to think about every line on the page and gauge the most appropriate scale for each drawing. However, in retrospect, I could have produced more iterations through digital drawings, leading to a more developed design.



East Environmental Section
NTS (originally 1:100 @ A1)



Site analysis diagram showing the key issues and opportunities of the site

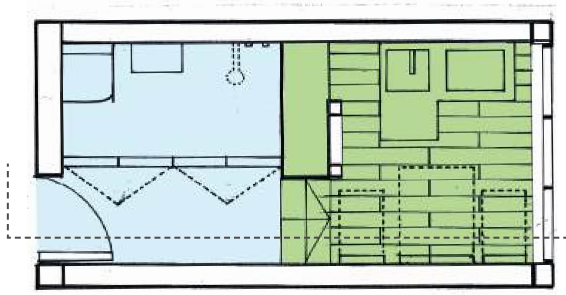
Part I (BA) - Liverpool Project For A Co-Living Development

Site Location:	Liverpool, Merseyside, UK
Building Use:	Residential
Size:	1800 msq

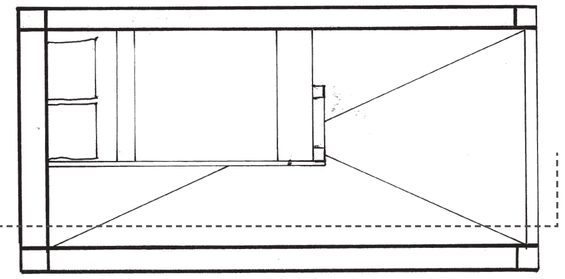
Site Response

The Georgian quarter is a protected area of Liverpool with a strong rhythm of Georgian terraced housing. Traditionally, these are formal and ordered at the front and more functional at the back. The quarter is punctuated at intervals by churches, monuments and squares. The most prominent examples are the Metropolitan and Anglican cathedrals. My response to this site was to add to the punctuation of the quarter and draw on the typologies of towers and churches in the area.

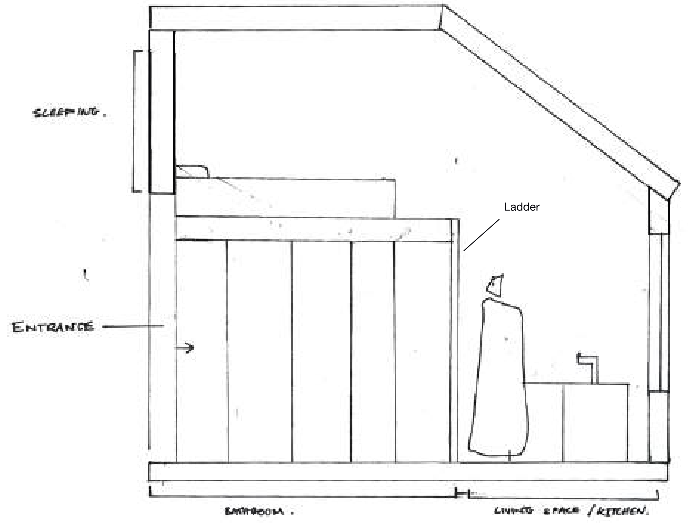
In response to the immediate context, the public cafe space and main entrance were positioned off the main road, on the south facade. The idea was to use the tower to draw people around the corner to Canning Street and activate the whole site frontage, not just its corner. The section shows the strategy for ventilation, lighting and heating. The drawing claims that *passive north lighting* from a saw tooth roof would light the communal atrium space. I now understand that there are better ways to design a saw tooth roof than this as it would need glazing on the vertical component facing the north, and a solid roof build up on the diagonal facing south. The Georgian quarter is a conservation area. In reality heritage consultants would play a significant role in establishing the design parameters. The site is also constrained and backs onto other properties meaning that DSL/ROL assessment would be necessary for the site.



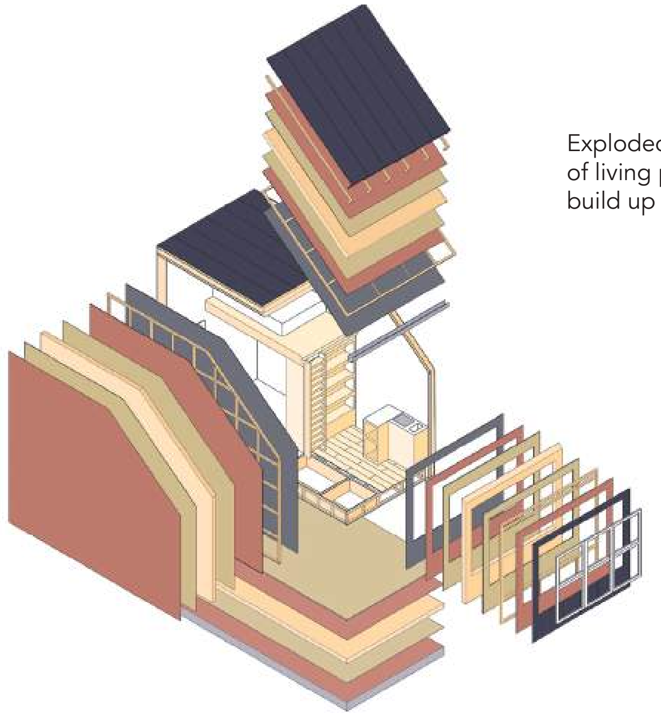
Original plan of bathroom and kitchenette space - NTS (originally drawn @ 1:100 on A3)



Original plan of upper bed space - NTS (originally drawn @ 1:100 on A3)



Original section - NTS (originally drawn @ 1:100 on A3)

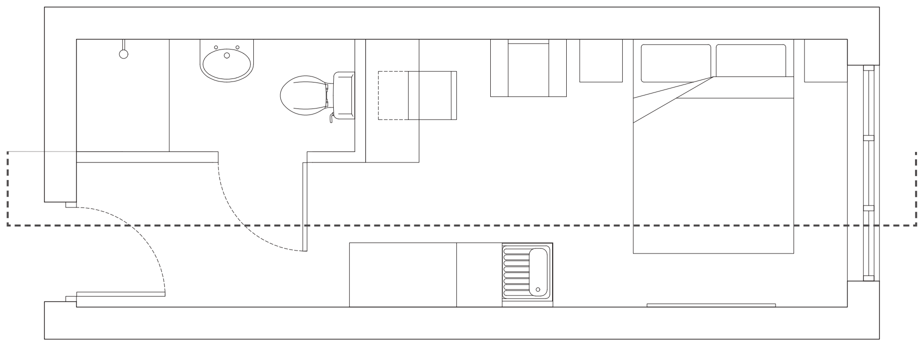


Exploded isometric of living pod showing build up of SIPs

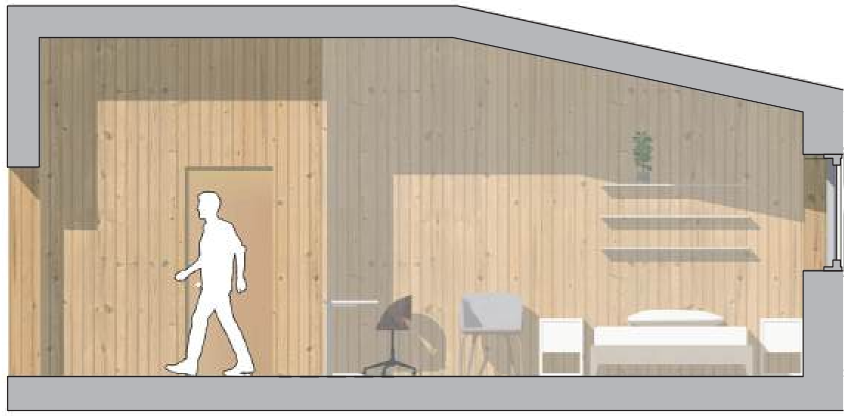
Updated work

Requirements for private co-living rooms from the London Plan 2021, section H16

- ✓ *Double bed*
- ✓ *Bedside cabinet (at least one)*
- ✓ *Wardrobe (at least 1m wide)*
- ✓ *Desk with worktop space*
- ✓ *Seating area*
- ✓ *Bathroom with shower*
- ✓ *Small kitchenette to allow preparation of convenience food*
- ✓ *Sink and draining tray space*
- ✓ *Mini fridge (under sink counter)*



Revised plan measuring 2500 x 7200mm - NTS



Revised section - NTS

Part I (BA) - Liverpool Project For A Co-Living Development

Site Location: Liverpool, Merseyside, UK

Building Use: Residential

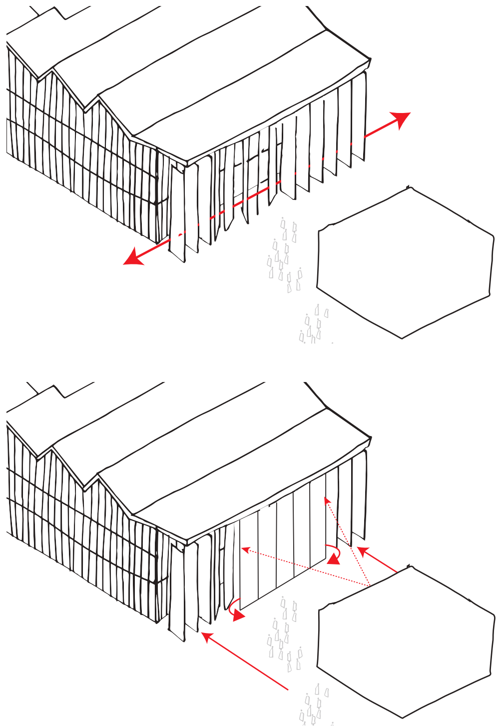
Size: 1800 msq

Project Development

I designed the private rooms for the co-living development as modular pods made of SIPs (Structurally Insulated Panels). The concept was to make the rooms utilitarian to reinforce the idea of 'affordable living '.

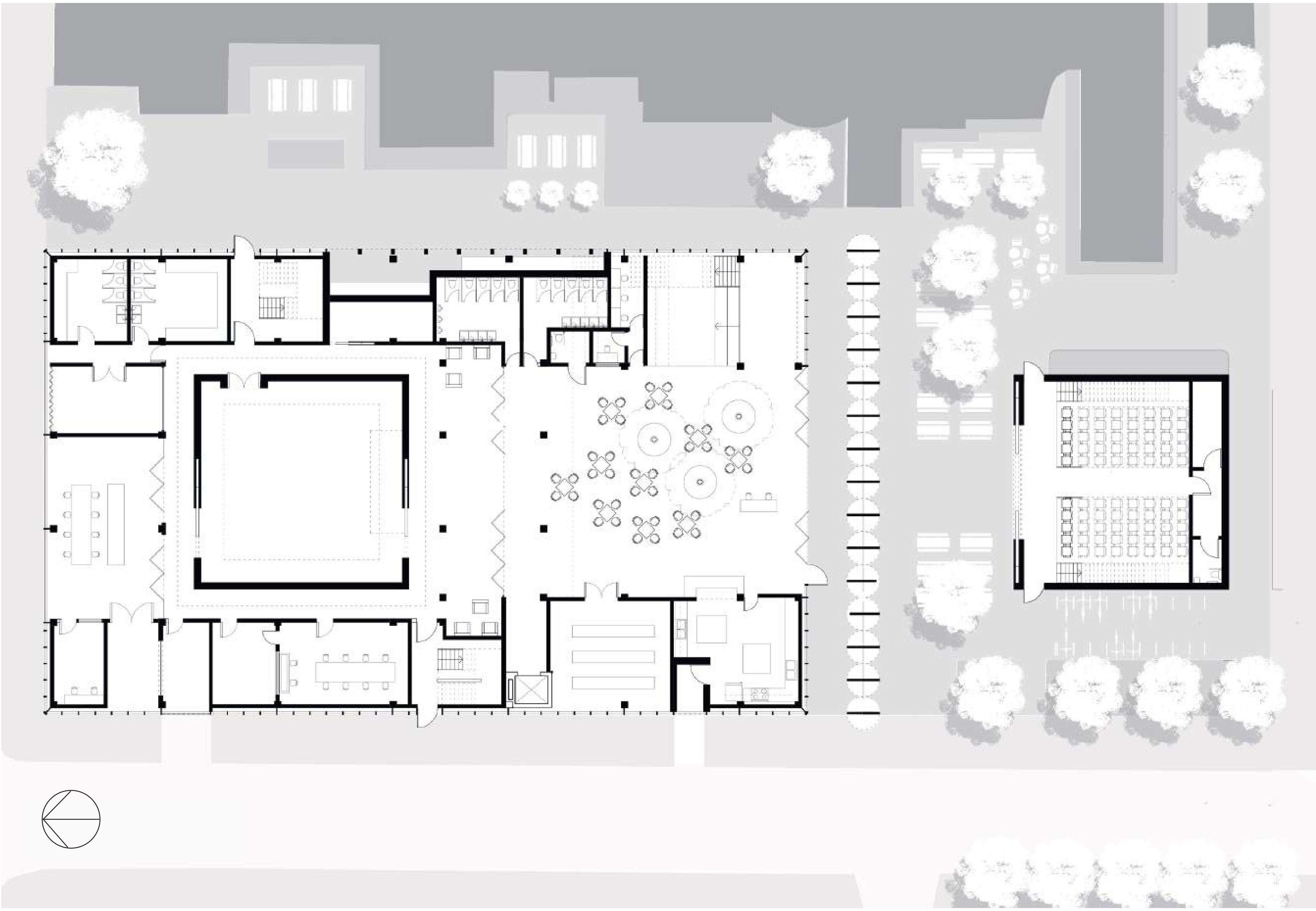
I submitted a 15msq living pod design with a raised bed accessed via a ladder, the pods were wrapped in zinc cladding. Having worked in practice, I am now more familiar with section H16 in the 2021 London Plan that underlines the requirements for 'Large-scale Purpose-built Shared Living'. In retrospect, the original design I submitted for this project was cramped, impractical and inappropriate to have multiple levels in a one-bed, one-person room. The minimum space for a single private co-living space is 18msq, which made my design non-compliant at 15msq. The rooms are also longer and narrower at 2500 x 7200mm for spatial efficiency. I also checked Part M of the Building Regulations to address standards for the bathroom.

The improvements I have made now cover all bases of the London Plan shown in the checklist above. The London Plan also stresses the importance of amenity space; I was initially keen to add balconies to the rooms. However, the courtyard garden on the second floor covers the required amenity space. I am especially pleased with the improved graphics and communication; the original drawings were misleading, particularly the section drawing with regard to line weights.



Development diagrams showing shading fins rotating for daylight sun orientation and night-time film projection

1:100 model showing *A Night At the Cinema*



Ground floor plan - NTS (originally 1:200 @ A3)

Part I (BA) - Liverpool University Campus Project for A New Film School

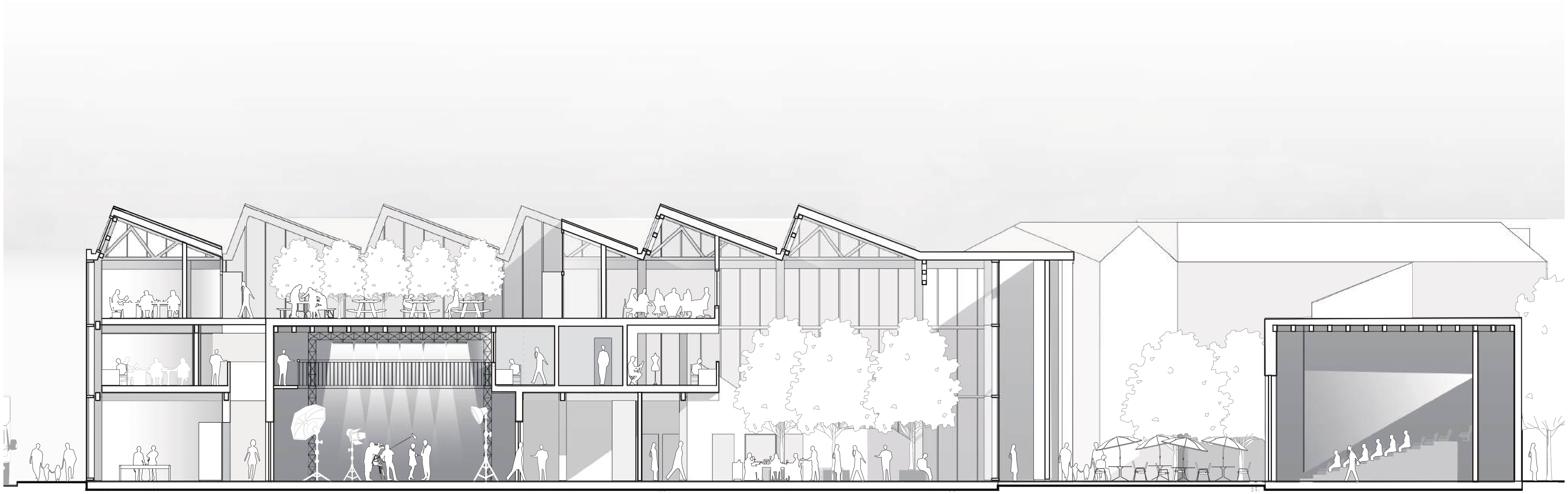
Site Location:	University of Liverpool Campus, Merseyside, UK
Building Use:	Educational
Size:	3752 msq

Design Brief and Approach

"Design a film school for the University of Liverpool. The university needs a mixed-use sustainable building that provide private and well thought spaces for film teaching and development, with facilities for hosting public meeting areas and events."

The idea was to reinforce a relationship between the production and viewing of film with the production studio and cinema. The two boxes reflect each other in dimensions and materials. The cinema's sliding doors open before and after the showing to reveal its studio counterpart embedded in the main glazed building.

My dynamic timber shading fins led to the Student Swedish Wood Award nomination. The diagrams show how they prevent solar glare and overheating on the south façade during the day. Whilst on a summer night the fins rotate and student films can be projected to extend the cinema into outdoor space. The fins are integrated into the primary glulam structure. On reflection I neglected the east and west façades and would add appropriate shading, to mitigate overheating, as the building is a fully glazed, curtain wall.



East section - NTS (originally 1:200 @ A3)

Part I (BA) - Liverpool University Campus Project for A New Film School

Site Location: University of Liverpool Campus, Merseyside, UK

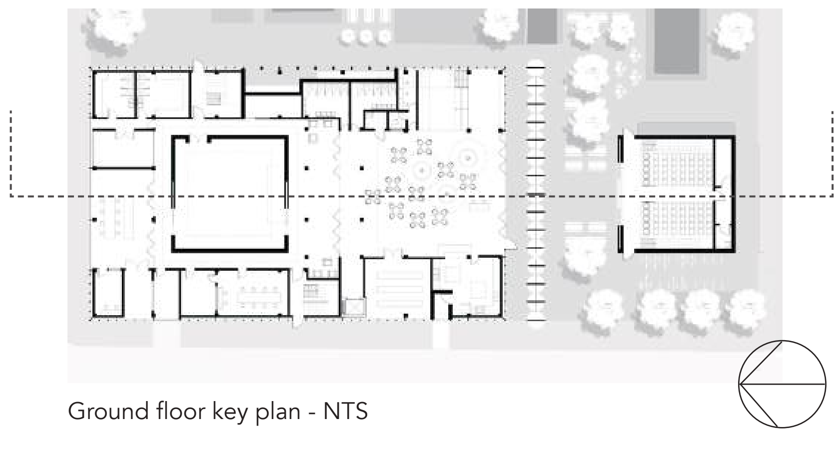
Building Use: Educational

Size: 3752 msq

Site Response

On a large scale, the film school responded to the site by linking a marginalised south west corner of the university with social hubs such as the student union and sport complex. The development achieved this by re-establishing pedestrian links.

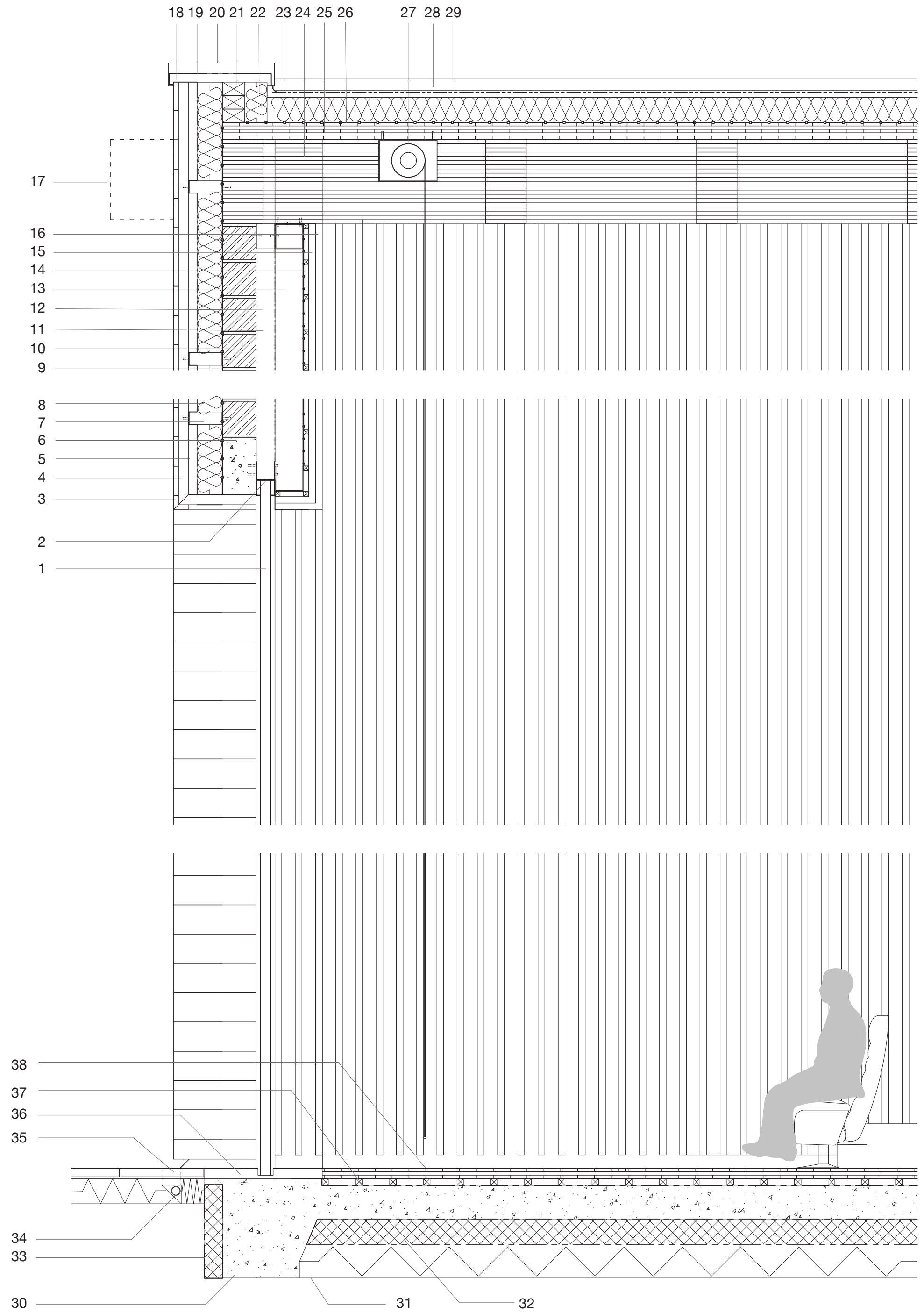
The film school sits on a linear site and a north-south axis. The saw-tooth roof lets in north light into studio rooms and takes advantage of solar gains on the south with photovoltaic panels. Solar gains are maximised in the glazed south-facing atrium for mechanical heat ventilation recovery. The building's orientation on the site is inward-facing, with its entrance on the south side. This is because of pedestrianisation on the southern side of the site and the heavy traffic on the north.



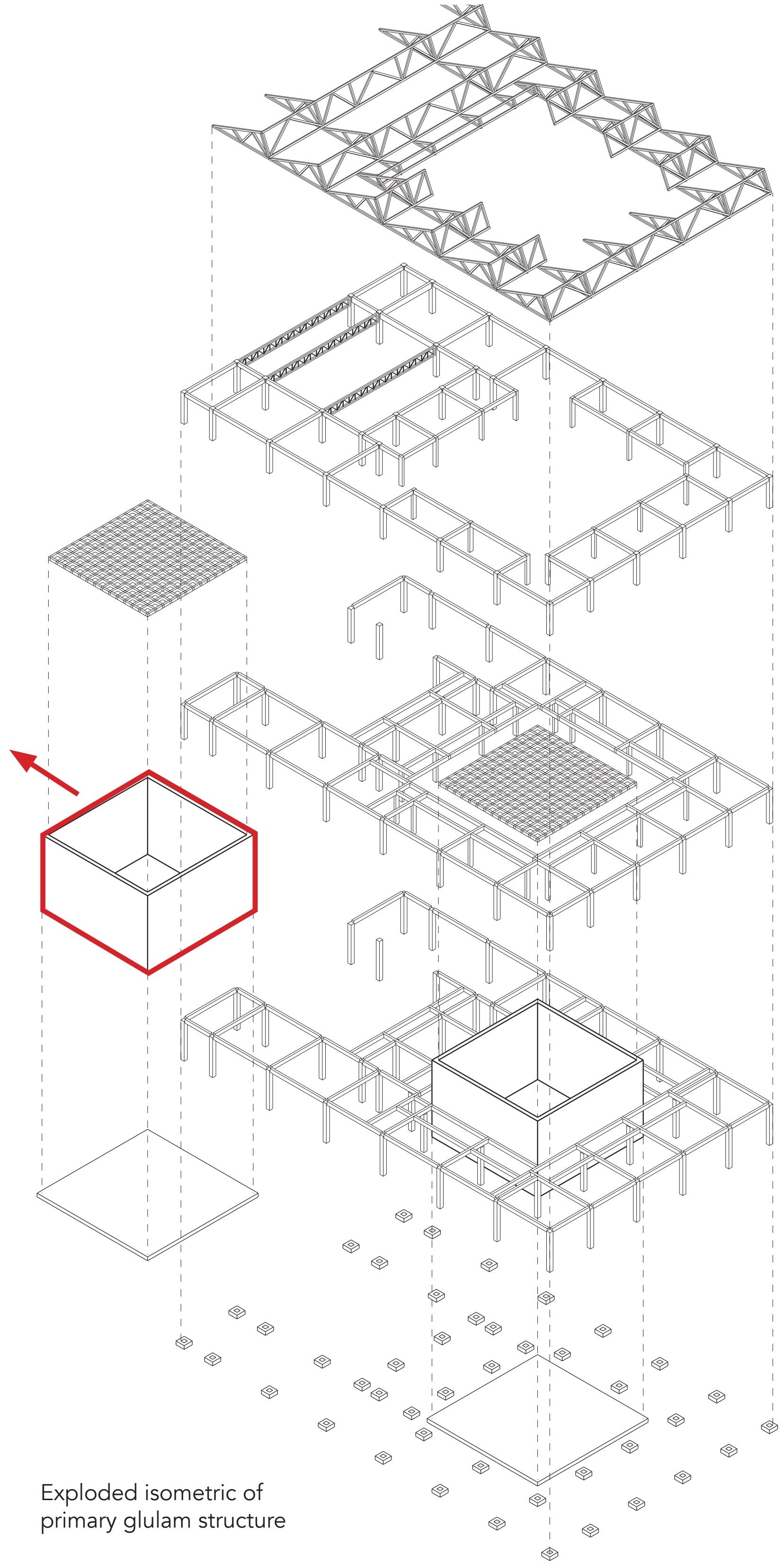
Ground floor key plan - NTS

Key

1.	Aluminium pocket sliding door	60mm
2.	Sliding door channel with clamps fixed to door and lintel	
3.	Limestone cladding	30mm
4.	Mineral concrete board	60mm
5.	Air cavity	30mm
6.	Concrete lintel support beam	200 x 340mm
7.	Steel angle profile fixing insulation to primary structure	200mm
8.	Rockwall insulation wrapped in DPM on external side	150mm
9.	Vapour control layer	
10.	Concrete blockwork	200 x 200mm
11.	Pocket door cavity	120mm
12.	Damp proof membrane	
13.	C stud steel partition	170mm
14.	Horizontal timber battens for services	40 x 40mm
15.	Acoustic roll insulation overlaid with fabric	40mm
16.	Timber acoustic dampers	40mm
17.	External clad projection box	
18.	Stone capped parapet	
19.	Damp proof membrane	
20.	Zinc clad	
21.	Timber blocks for parapet build up	
22.	Acoustic thermal insulation	150mm
23.	OSB board	100mm
24.	Glulam beam making up waffle truss	500 x 240mm
25.	CLT panel	100mm
26.	Vapour control layer	
27.	Rolled projector screen casing	
28.	Filtration layer	70mm
29.	Sedum roof	
30.	L-shaped concrete footing foundation	
31.	Hardcore	200mm
32.	Rigid insulation wrapped in DPM	150mm
33.	Rigid insulation wrapped in DPM	100mm
34.	Angled drainage pipe with shingle trough above	
35.	Stone paving	50mm
36.	Steel base with channel for pocket sliding door	
37.	Timber battens for services with a DPM layer	40 x 40mm
38.	CLT flooring	60mm



Section of the cinema box - NTS (originally 1:20 @ A3)



Exploded isometric of
primary glulam structure

Part I (BA) - Liverpool University Campus Project for A New Film School

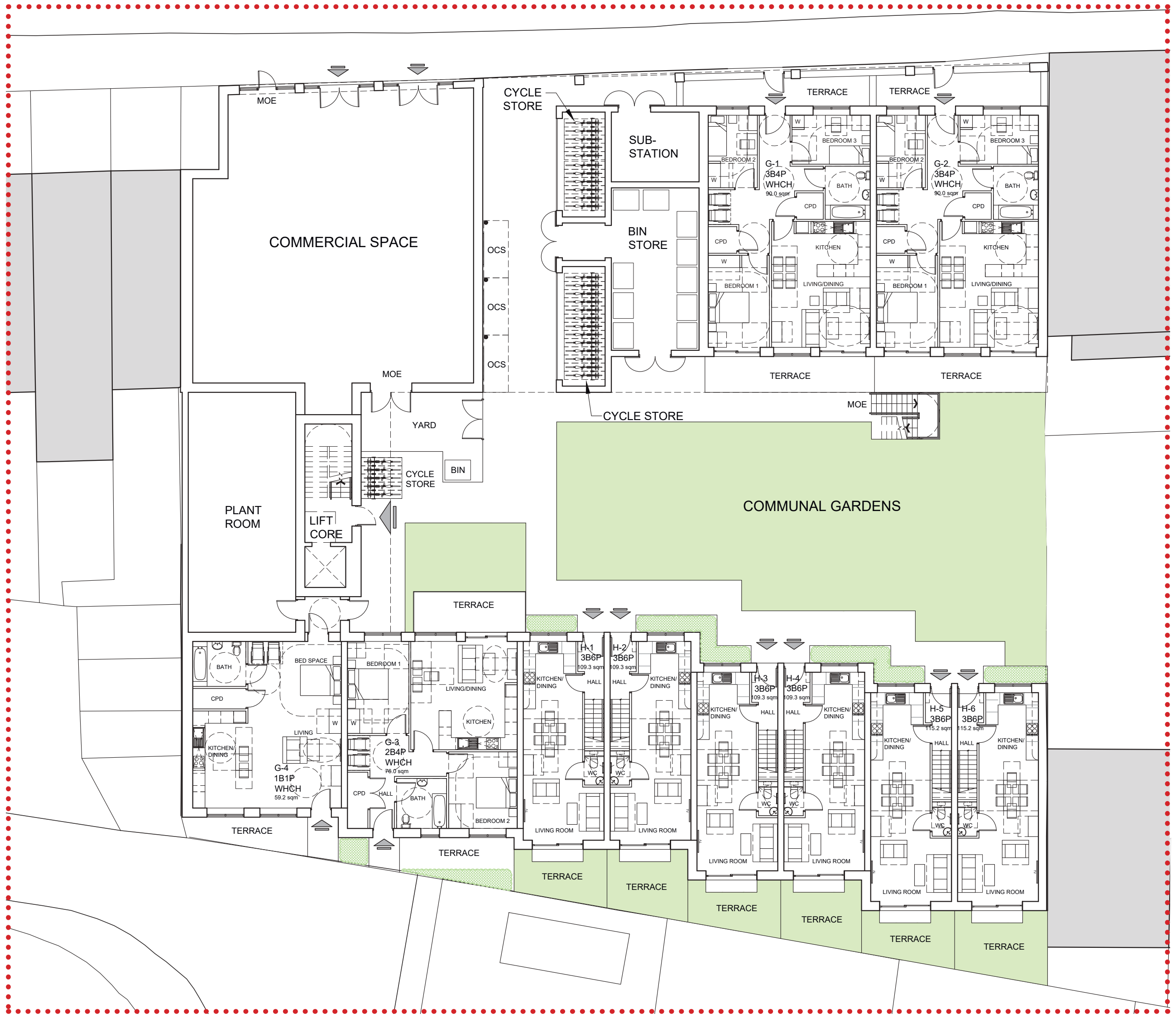
Site Location:	University of Liverpool Campus, Merseyside, UK
Building Use:	Educational
Size:	3752 msq

Structure and Construction

Concrete pad foundations with CLT floor panels and finishes support a glulam primary structure. A 150mm timber truss system supports the broken sawtooth roof. The raft foundations support the limestone clad, concrete block studio cinema space. A glulam waffle truss system supports the services and roof that allows for heavy loads on the roof.

One of the reasons that the structure was glulam was to reduce the building's embodied carbon. The film school's total embodied carbon amounted to 255tCO^2e (tonnes of carbon dioxide equivalent). On reflection the material would need experienced specialist engineering and would introduce logistical issues with transportation and costs. I now understand that the structure and scheme would most likely be simplified to overcome these issues.

The 1:20 section shows the acoustically insulated, limestone cinema box.
My practice has, in the past, worked on cinemas. I now know that the distance and height of the front row of seats from the cinema screen does not meet cinema audience standards. I would also include ventilation systems in the section.



Ground floor before plan pre planning opp - *credit Mountford Pigott LLP* - NTS (originally 1:100 @ A3)

Ground floor plan submitted for planning which I updated - NTS (originally 1:100 @ A3)

Part I (Practice Work) - Surbiton Project for A New Residential Development

Site Location: Surbiton, Kingston upon Thames, London, UK

Building Use: Residential

Size: 3124 msq

Project Outline and My Role

This project is for new residential development in Surbiton, south-west London which was submitted for planning in December 2023. The building has 35 apartments, six houses and a communal garden space.

I joined the project in September 2023 after a planning pre-app consultation was not supportive of the proposal. The consulatation raised concerns over the building's height and ground-floor commercial space. The partner-in-charge instructed me to remove the second storey and commercial space, with the intended outcome being a complete planning application by December. I initially amended the Sketchup model, which we use for all elevations and visuals.

I was instructed to update the ground floor layout by adding three extra flats and re-adjusting the cycle and bin stores. While these changes were being made, I was responsible for updating the accommodation schedule. By the time planning came around in December 2023, I had amended ten drawings, including site plans, elevations, sections and plans, alongside an updated design access statement with visuals.

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Visuals showing the interaction of the development on the street (included in the Design Access Statement)

Visuals showing landscaping in the courtyard (included in the Design Access Statement)

NTS (originally 1:100 @ A3) North facing elevation before plan pre planning opp - *credit Mountford Pigott LLP*

NTS (originally 1:100 @ A3) North facing elevation submitted for planning which I updated

NTS (originally 1:100 @ A3) Courtyard elevation submitted for planning which I updated

Part I (Practice Work) - Surbiton Project for A New Residential Development

Site Location: Surbiton, Kingston upon Thames, London, UK

Building Use: Residential

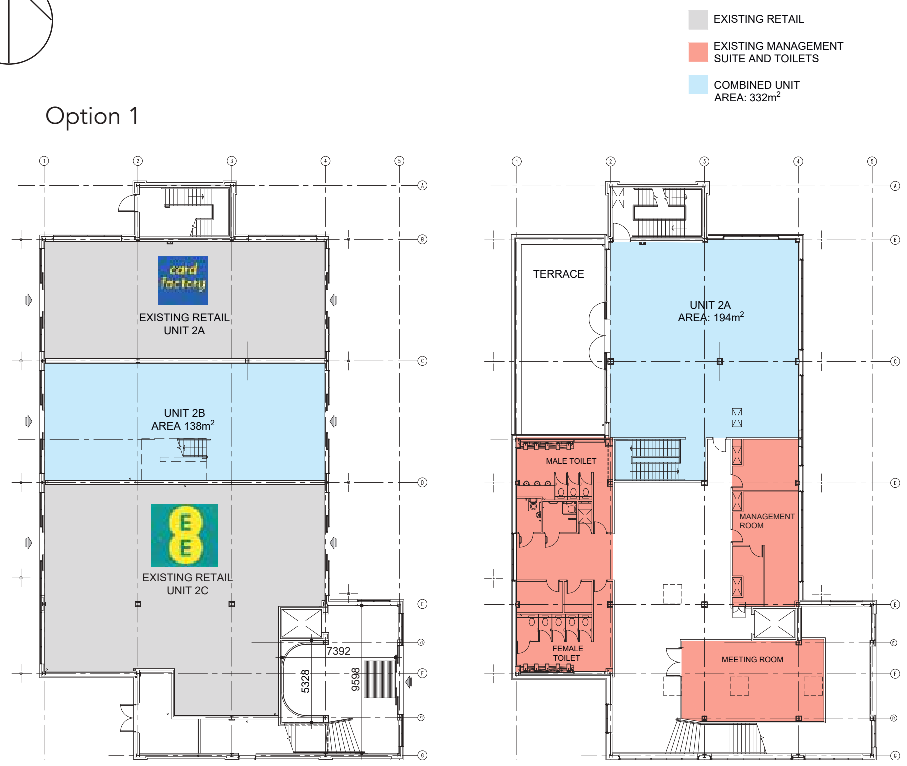
Size: 3124 msq

Project Outline and My Role Continued

While working on the project, I attended meetings with consultants, engineers, planning officers, and developers, which showed me the importance of cooperation between all consultants and stakeholders and how it informs design. For example, there was a push for the environment and well-being. As a result, we worked closely alongside landscape architects for the courtyard garden. We consulted daylight specialists to calculate internal lux levels for the flats on the ground floor of the courtyard. My role was to update these drawings and visuals and prepare a digital model for the DSL/ROL surveyors. The site is sensitive, so verified views were prepared by specialist visualisation consultants to support a TVHIA. My job was to prepare and send out the Sketchup model to these consultants.

A big change in the design was informed by fire specialists who told us that the open courtyard staircase was unnecessary as a means of escape. The change came in early December and improved the garden space and daylight quality for the ground floor flats. Working on this residential scheme has taught me about space standards and the importance of habitable spaces in a dwelling.
I have also regularly consulted parts B, K and M of the Building Regulations, particularly useful for reorientating the ground and second floors. I am now more aware of standards for accessible rooms and, from a practical sense, the importance of following brick dimensions for window and door placement.

Option 1

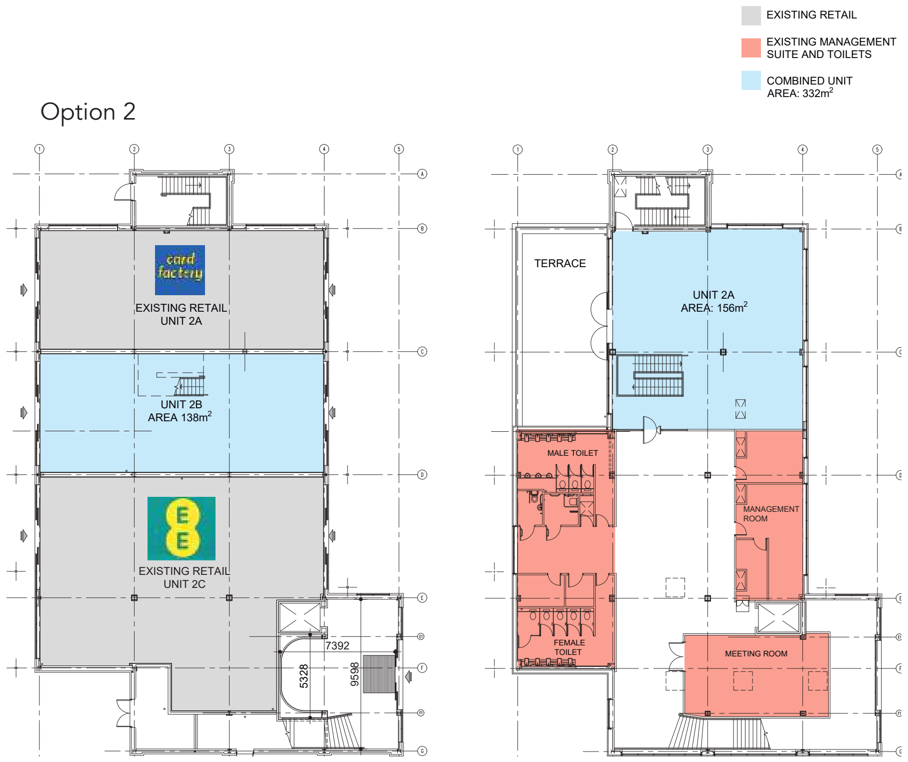


Ground Floor
NTS (originally 1:200 @ A3)

First Floor

Visual accompanying plans (ground floor area marked in blue)

Option 2

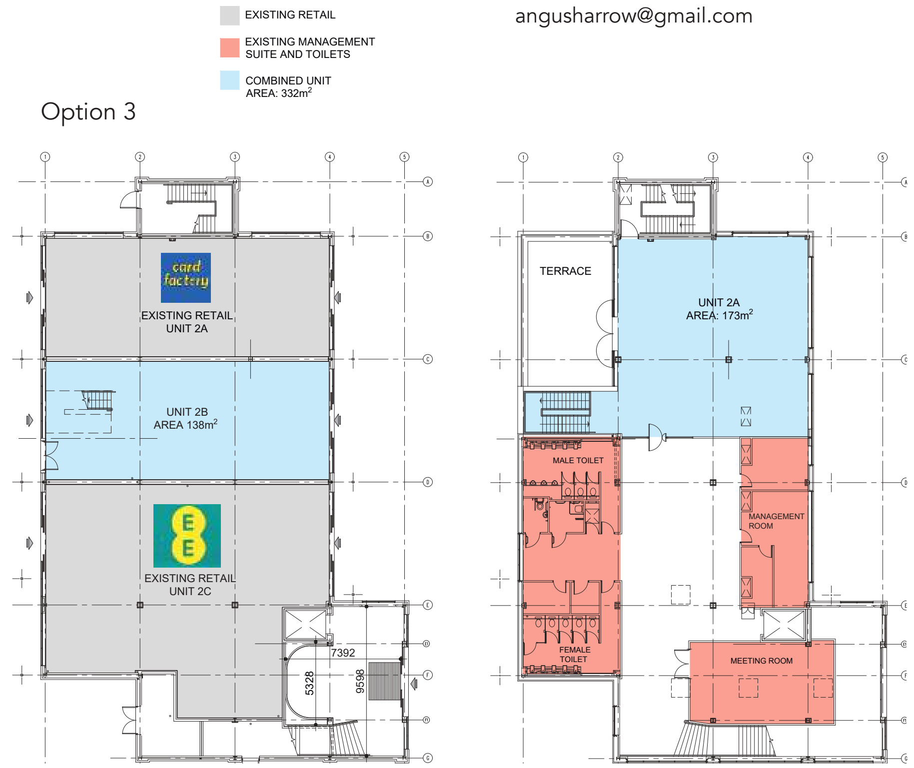


Ground Floor
NTS (originally 1:200 @ A3)

First Floor

Visual accompanying plans (ground floor area marked in blue)

Option 3



Ground Floor
NTS (originally 1:200 @ A3)

First Floor

Visual accompanying plans (ground floor area marked in blue)

Part I (Practice Work) - Swansea Project for A Retail Park

Site Location: Morfa, Swansea, Wales

Building Use: Retail Park

Size: 1380 msq

Project Outline and My Role

This project is a retail park development in Morfa, Swansea, in the early stages of feasibility. Currently we are working to refurbish a retail unit of 1380 msq. The client was interested in joining two units across the ground and first floors via a staircase.

The partner-in-charge instructed me to create four staircase arrangements in plan with accompanying visuals. I used existing drawings for the plans and designed a suitable dog-leg staircase in Autocad. For the visuals I modelled the staircase in Sketchup using part K of the Building Regulations for reference. Changing the internal layout meant that the signage outside the building also needed updating. We proposed more extensive signage options and the removal of a canopy on the front of the building.

Visual of building with updated signage

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North elevation with signage proposal

West elevation with signage proposal

South elevation with signage proposal

Visual showing signage on the north facade

Visual showing signage on the east facade

Visual showing signage approaching north facade

Part I (Practice Work) - Wapping Project for A New Storage Development

Site Location:	Wapping, Tower Hamlets, London, UK
Building Use:	Storage
Size:	11,405 msq

Project Outline and My Role

This project is a mixed -use, commerical storage and residential project in Wapping, East London. Planning approval was granted in September 2023 and we are currently assembling a signage proposal. Mountford Pigott designed the storage building with reference to the 19th century warehouses which reflect the site's docklands vernacular.

The client maintains the importance of visible, bold signage across all of its developments and on all elevations. We suggested to the client that they use traditional warehouse signage and provided them examples from the area. I was instructed to design several signage options across three elevations. To do this I used Sketchup and produced elevations and renders for their corresponding design.

Signage precedent shown to the client - *credit Mountford Pigott LLP*

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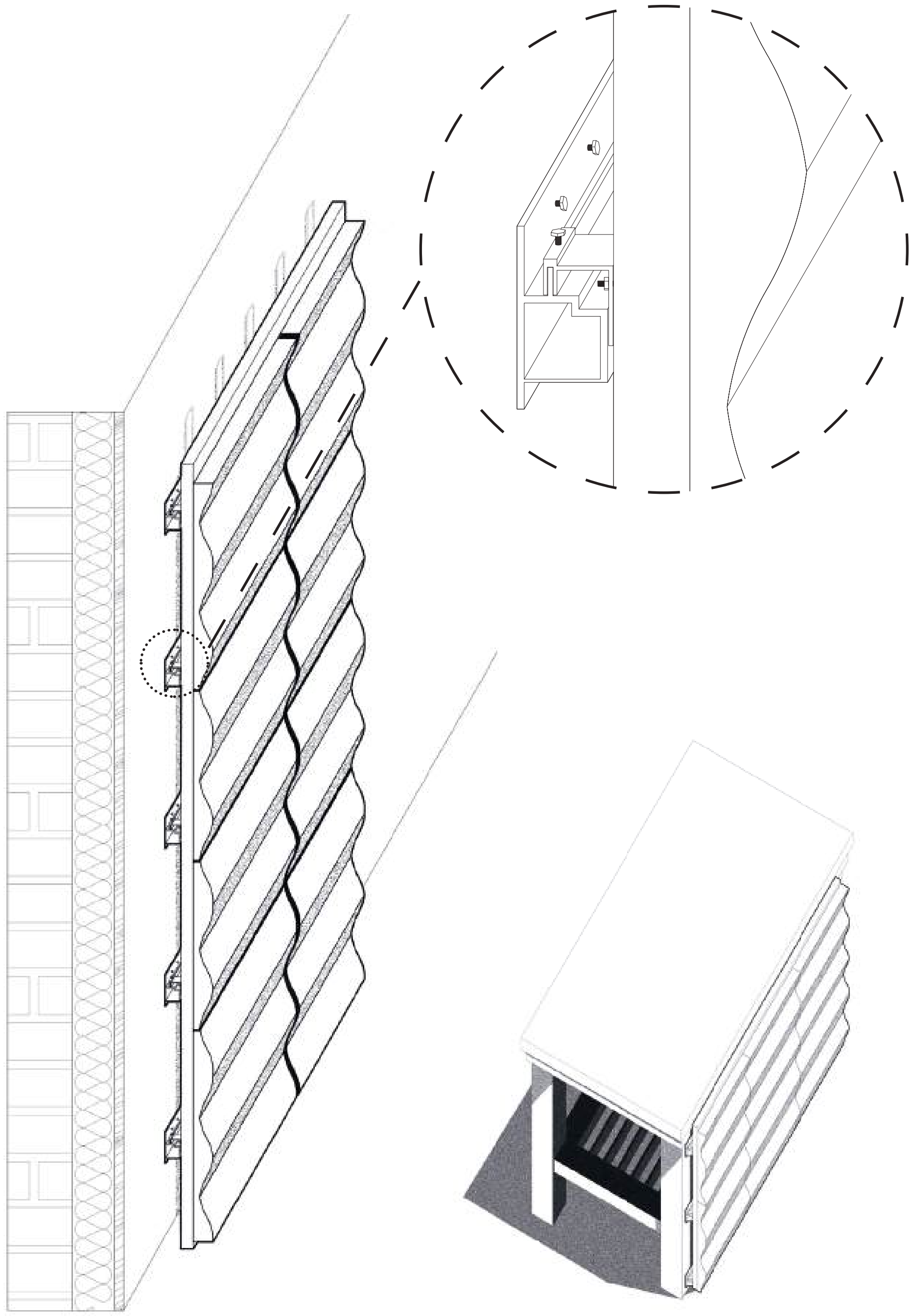
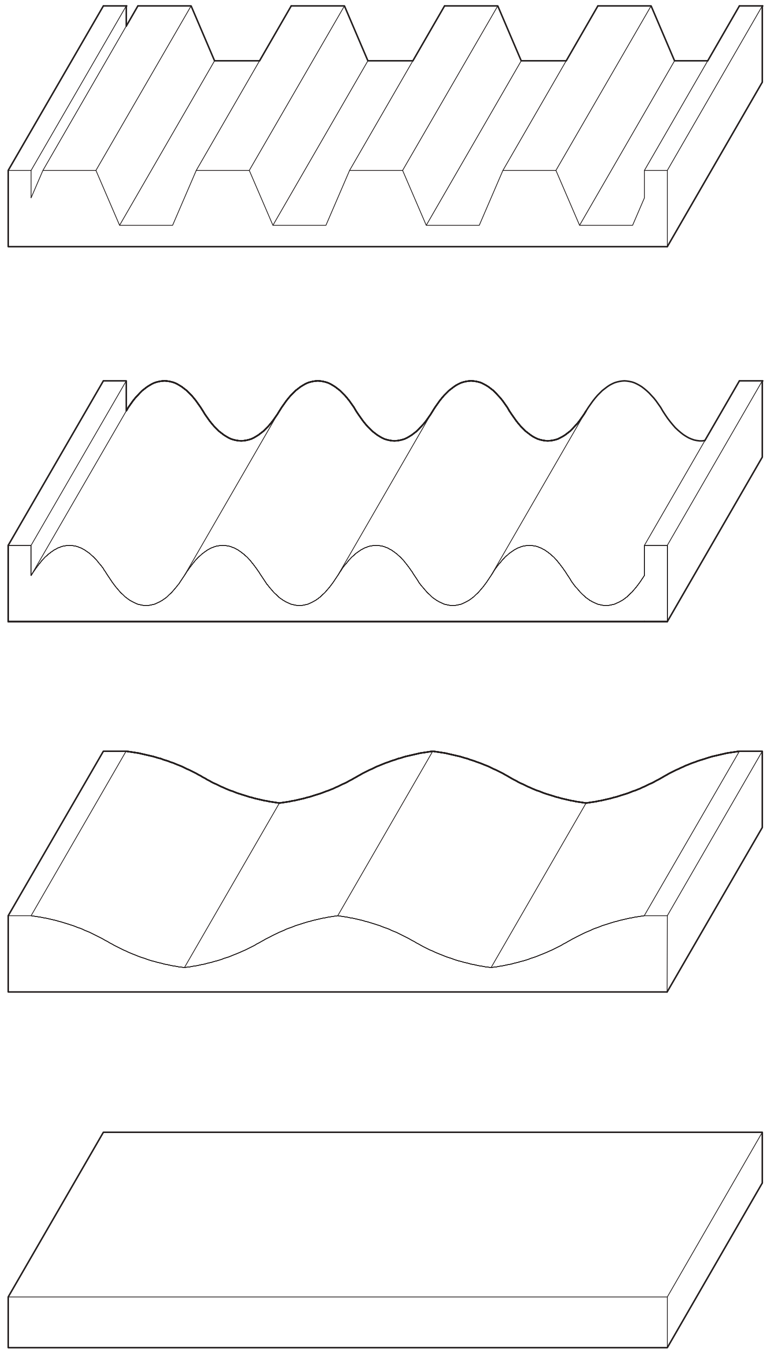
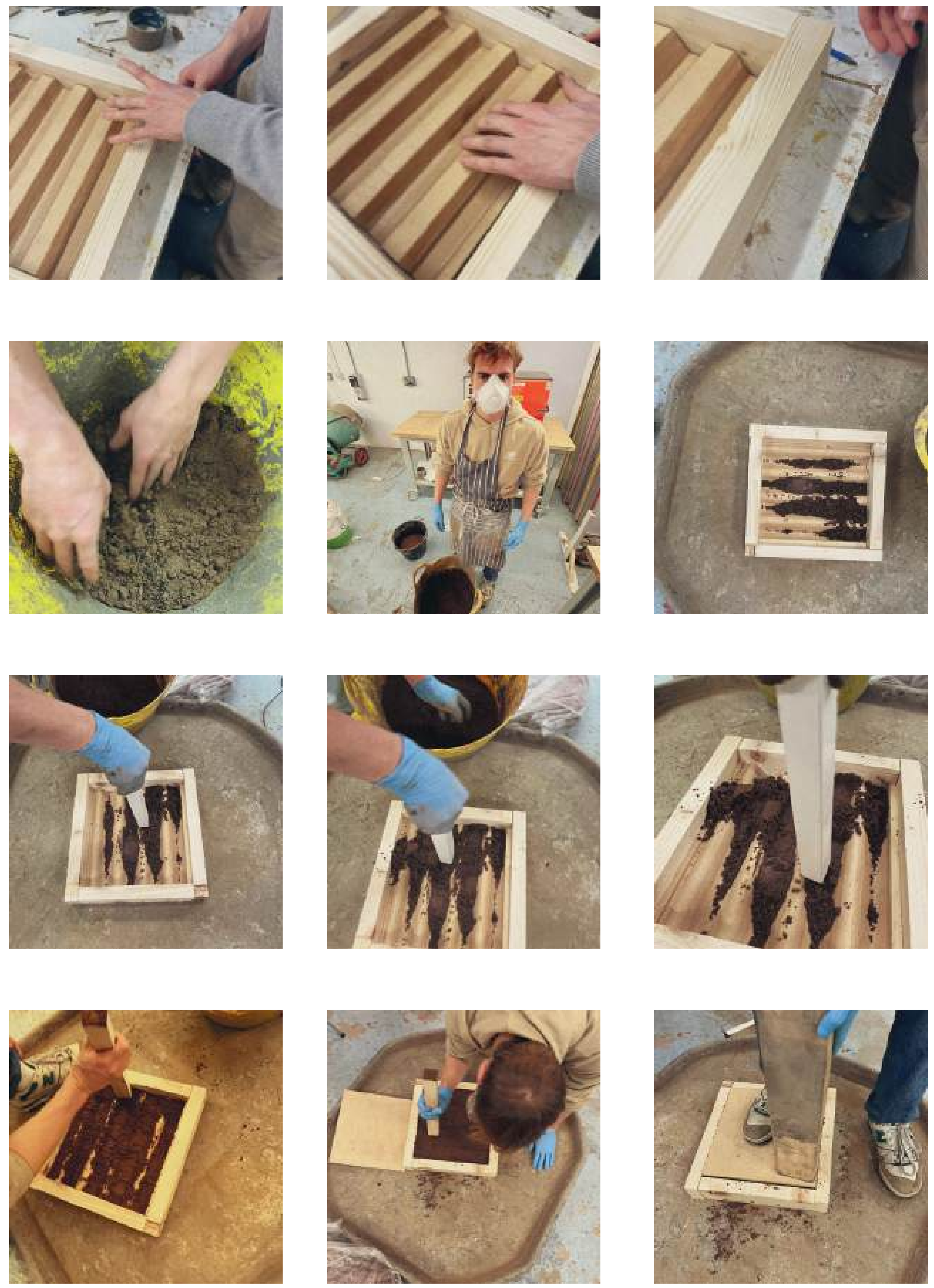


Section showing proposed rammed earth panels fixed to walls and kitchen units



Proposed shapes for rammed earth panels



Process of mixing rammed earth mixture and compressing it into the CNC milled formwork

Part II (MArch) - Architectural Technology

'How Does Surface Area Affect Rammed Earth's Thermal Capacity in Cold Climates?'

A New Concept

For our architectural technology module, I explored the use of rammed earth panels as internal thermal mass in retrofits. I proposed manufacturing these panels with custom formwork and attaching them to walls and structures like kitchen islands. To assess their thermal capacity, I tested how the panels' surface area-to-volume ratio influenced heat exchange.

This project required extensive research on sustainable rammed earth production, including the use of lime as a binder instead of cement. I also investigated CNC-milled MDF for the formwork and experimented with various panel shapes to optimise heat exchange.

Dried results of the rammed earth panels made at 1:1

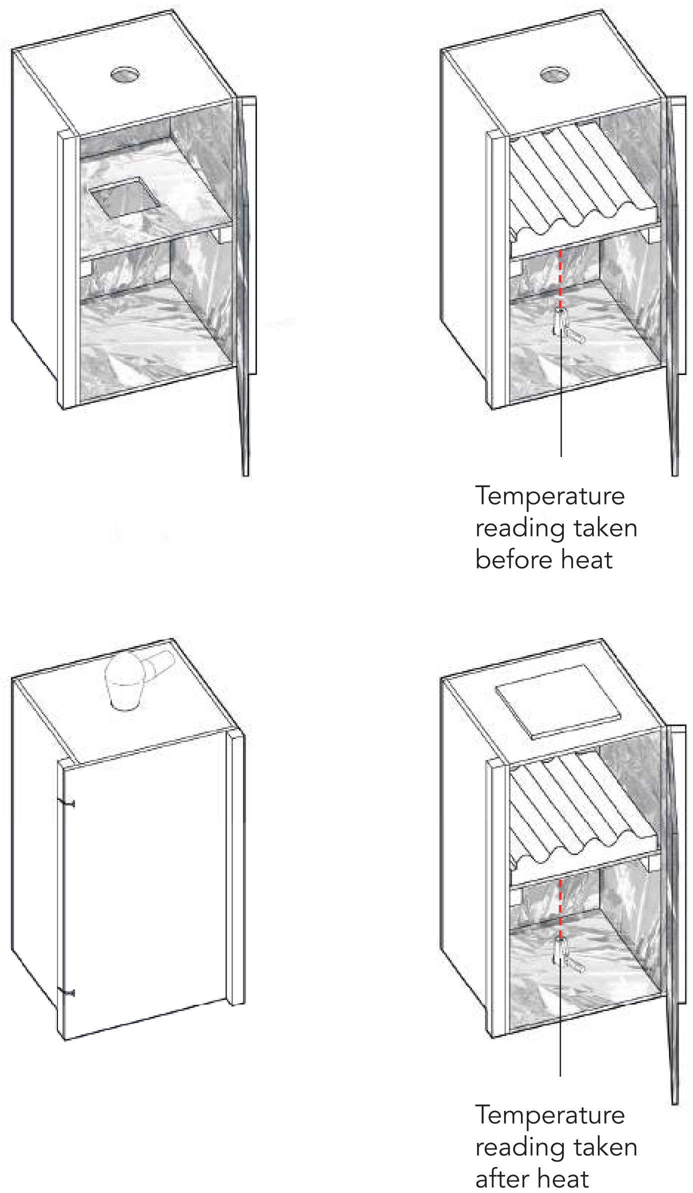
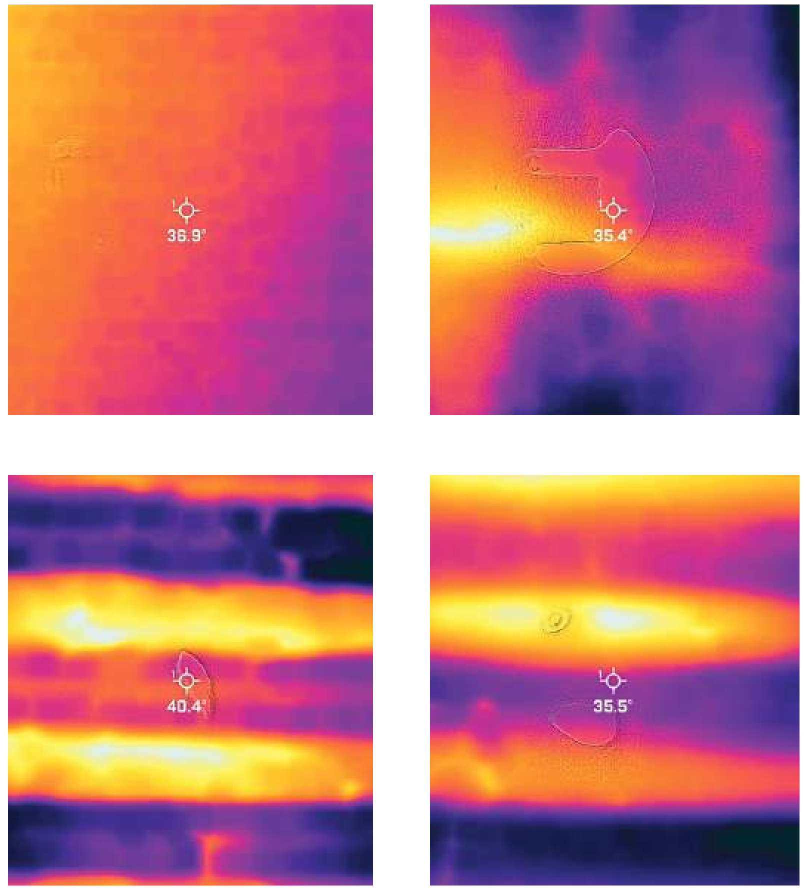
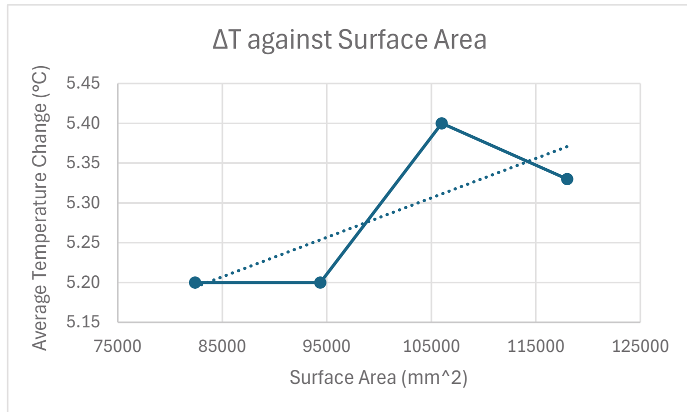


Diagram showing the methodology



Block	Surface Area (mm^2)	Average Temperature (°C)
1	82400	5.20
2	94400	5.20
3	106000	5.40
4	118000	5.33



Part II (MArch) - Architectural Technology

'How Does Surface Area Affect Rammed Earth's Thermal Capacity in Cold Climates?'

Testing

To test the panels' rate of heat exchange, I built a box with two chambers. The upper chamber held the panel. Before sealing the box, I used a temperature heat gun to record the panel's surface temperature. I then directed a hair dryer through a hole at the top of the chamber to add heat. After heating the panel for a set period, I allowed the experiment to sit and used a thermal imaging camera to capture the heat flow across its textured surface. To measure the rammed earth's internal temperature and assess its heat transfer rate, I inserted the heat gun into the second chamber beneath the panel.

During manufacturing, some panel designs performed better than others. The experiment confirmed that increasing the panel's surface area-to-volume ratio improved its rate of heat transfer. The project concluded that these panels could be suitable for bespoke projects where heat transfer requirements vary depending on the design.

Section and plan of Footdee, Aberdeen created using LIDAR scanners NTS
(originally at 1:200 on A0)

Part II (MArch) - Architecture As Support Structure

Imagining A Post-Petroleum World

Studio Approach

My studio module explores architecture's role as a support structure, focusing on how it can address environmental, political, and social crises. Based in Aberdeen, the studio investigates sites affected by extractive industries, particularly petroleum and oil, to identify ways architecture can support alternative futures.

We examine petrocultures — societies shaped by oil-driven consumerism and individualism — and challenge this dependency by imagining and designing post-petroleum futures.

My project focuses on Footdee, a small 19th-century fishing village in Aberdeen that has gradually been encroached upon by the oil industry. This semester, I am exploring how these two contrasting worlds might be connected.

To better understand my site, I used a LiDAR scanner to capture Footdee. The resulting point cloud reveals a striking contrast between the granite village and the imposing industrial landscape that surrounds it.

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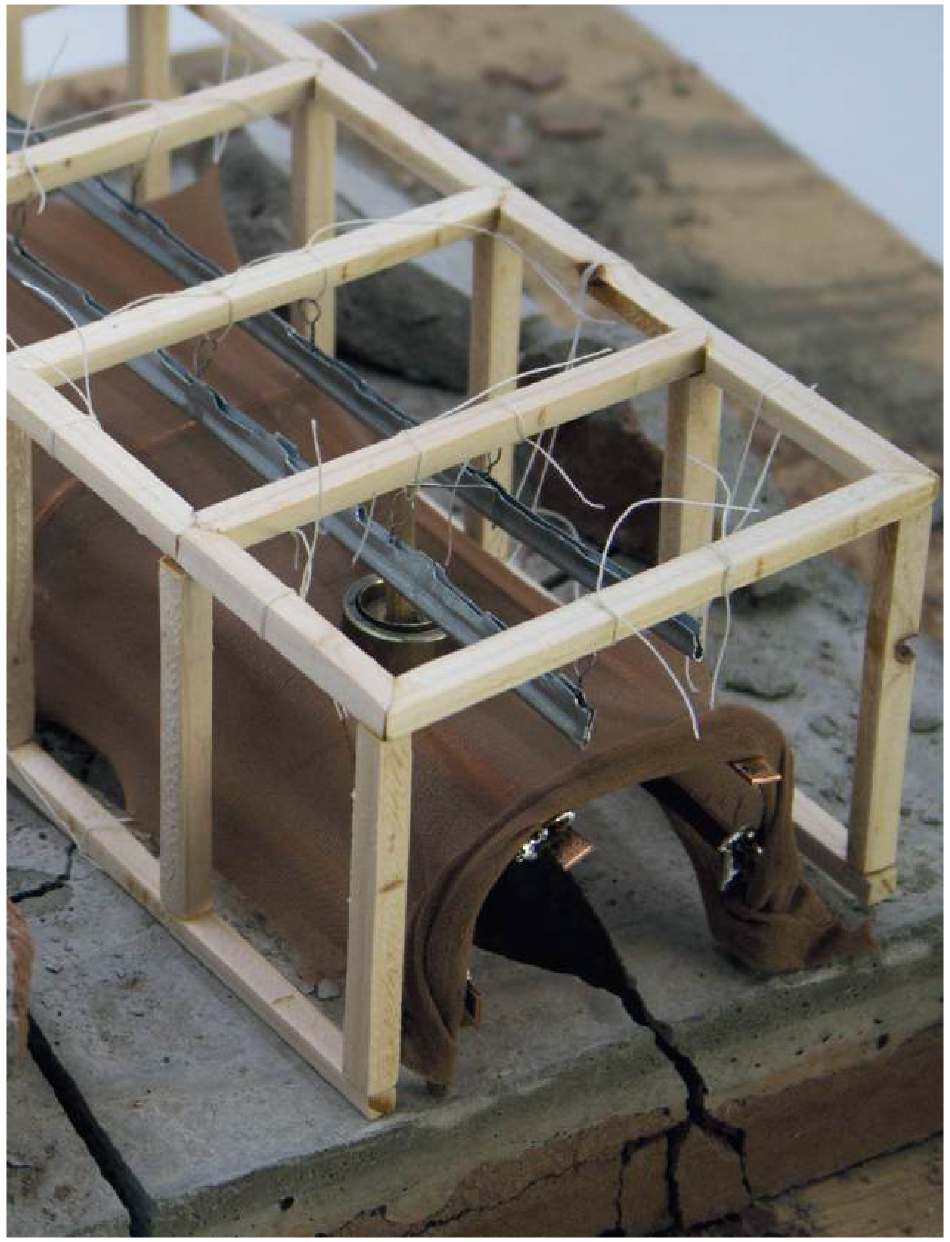

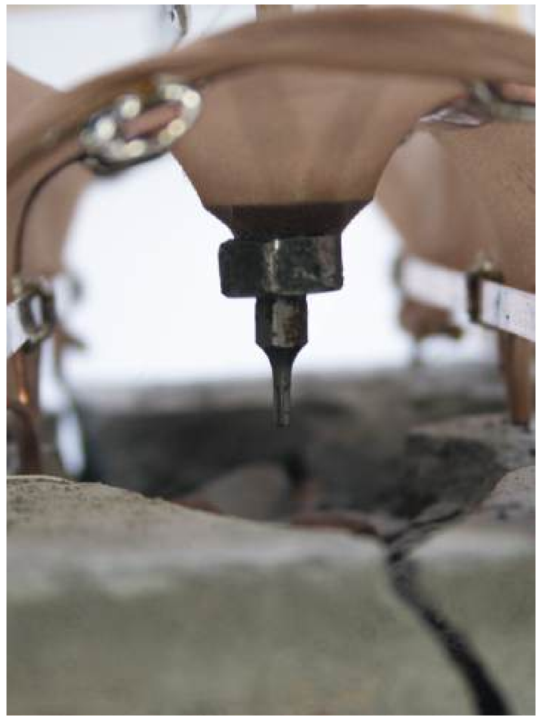

1:50 model of a portable drill that dismantles the petroleum tainted ground on the industrial sites in Footdee, Aberdeen

Part II (MArch) - Architecture As Support Structure

Imagining A Post-Petroleum World

Breaking Ground

My project envisions transforming petroleum-contaminated land — including concrete and tarmac — by breaking it apart to restore the soil and introduce a sustainable farming system through bioremediation. The structure I propose actively dismantles industrial areas, gradually making way for sustainable development.

As part of my Semester 1 submission, I built a 1:50 model to demonstrate how a jackhammer drill is suspended within a fabric polytunnel to reduce dust and noise during excavation. This design draws significant inspiration from the Chernobyl Sarcophagus project, which uses a moving structure to safely repair a toxic and hazardous site.