

ARCHITECTURAL DESIGN PORTFOLIO

Muhittin Can Binan

INTRODUCTION

This is a concise summary of my work that has been produced within the span of the last 4 years during my time at the AA School of Architecture (Intermediate and Diploma) and also the “year-out” for professional practice. The final part focuses on recent ETS (Environmental Technical Design) projects focusing on sustainable design and retrofit/re-use strategies, including details and 1:2 build-ups, both from the 5th Year Design Thesis and 4th Year TS submissions.

(This portfolio is edited to include further works that show RIBA stage 3-4-5 experience, which are at the last section "Professional Practice" part of the document)

CONTENTS

o4	o5	oS	o3	o2	oY
4th Year Design Studio	5th Year Design Studio	Sustainability & Technical Studies	3rd Year Design Studio	2nd Year Design Studio	Year out Professional Pr.



o4

Studio: Government & Park

4th year design studio project - Focusing on the existing ground plane and its qualities, aiming to preserve the ground level buildings

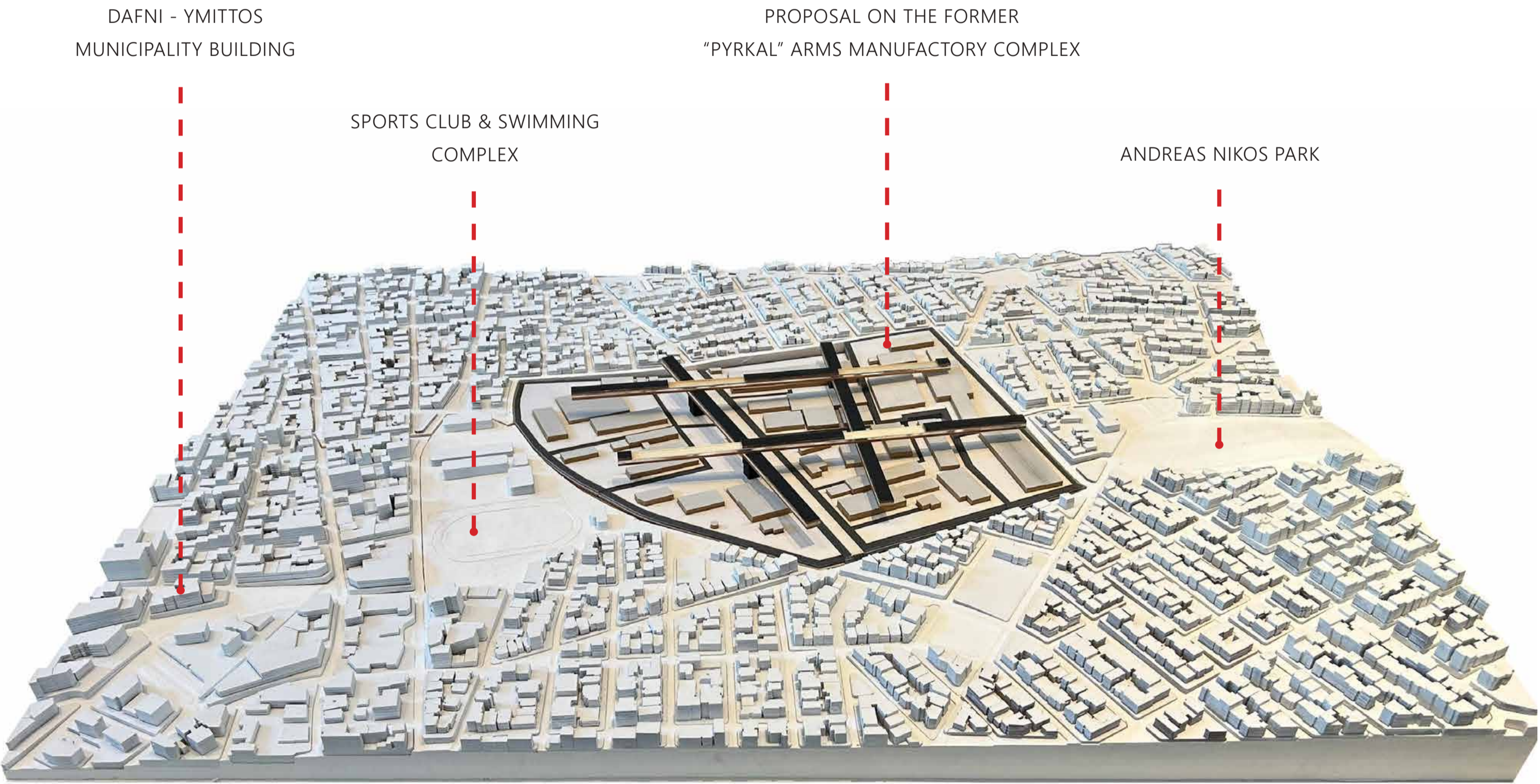


4th year design studio project- Focusing on the existing ground plane and its qualities, aiming to preserve the ground level buildings and gradually re-integrate them into the community, negotiating space inside the abandoned interiors and ground level of this manufactory complex, while proposing a superposed office structure/infrastructure lifted off the ground to respond to the brief that requires new governmental office programme.

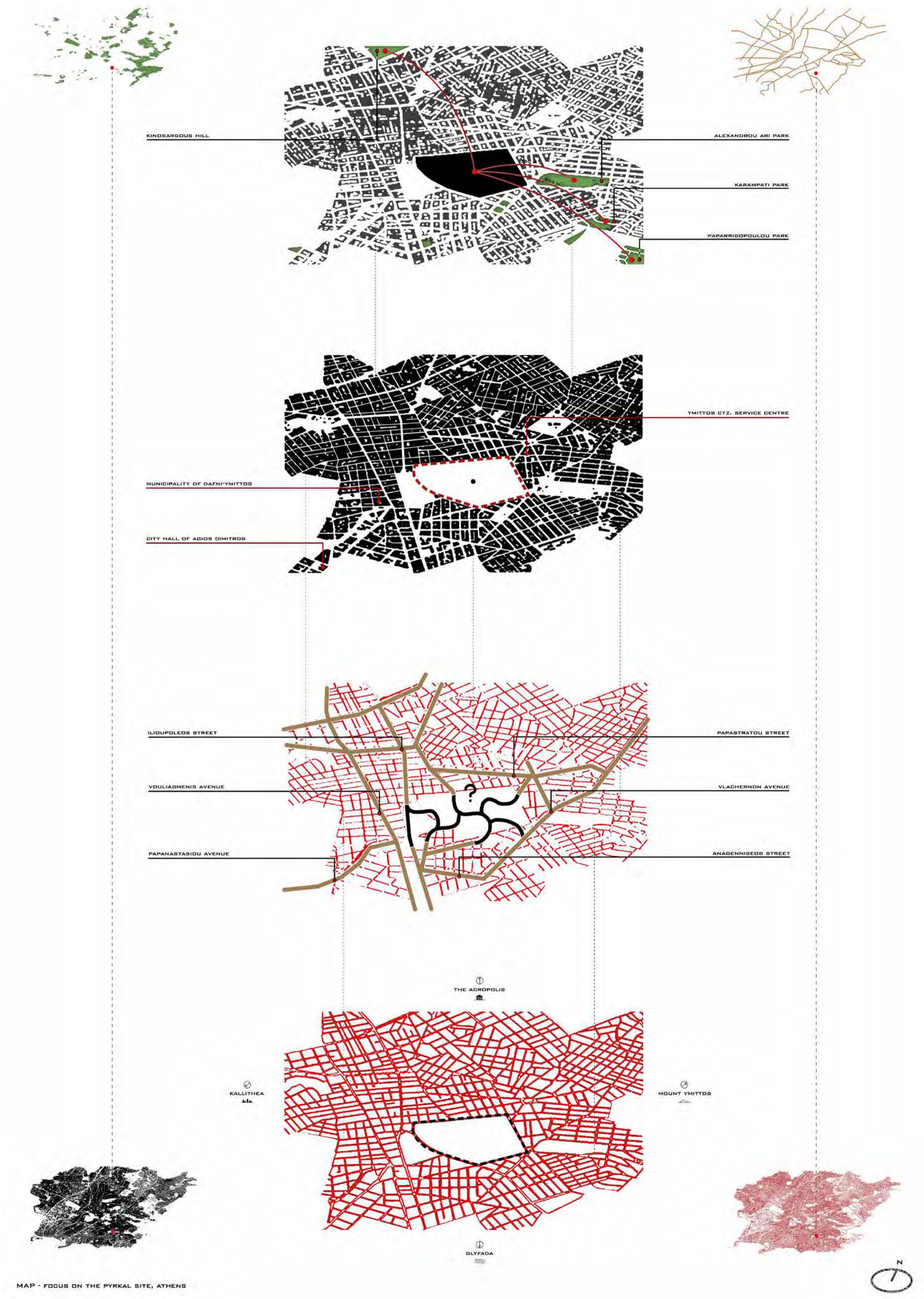
Taking on the seemingly questionable challenge of preserving a former arms & explosives manufactory complex, the project builds on the concept of experimental preservation, and using the act of “preserving” a mid 20th century complex to send a message. The idea of erasing and “redeveloping” former sites that embody the cruel and potentially evil nature of our pasts is purposefully rejected, and the former military complex shaded from public entry is incorporated back to the public realm to enable ruptured the urban tissue to heal, while also raising awareness towards the existence of entire industries targeted towards harming human life.

[Tutors: Ryan Neiheiser & Xristina Argyros]





SITE MODEL AND SURROUNDING URBAN CONTEXT
(CNC-MILLED LANDSCAPE POPULATED WITH LASER CUT BUILDING MODELS)
(1:1000)

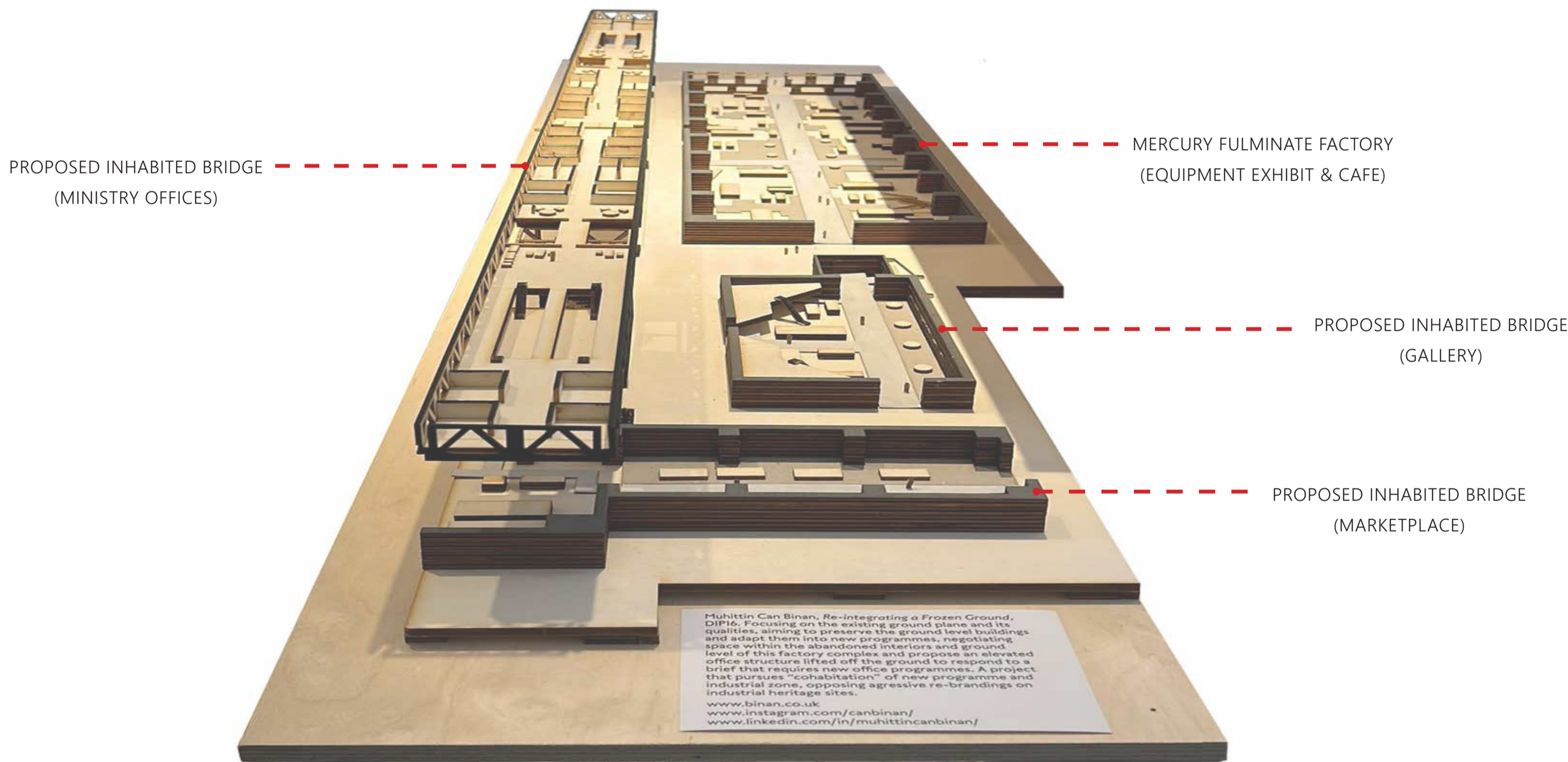


MAP - FOCUS ON THE PYRKAL SITE, ATHENS

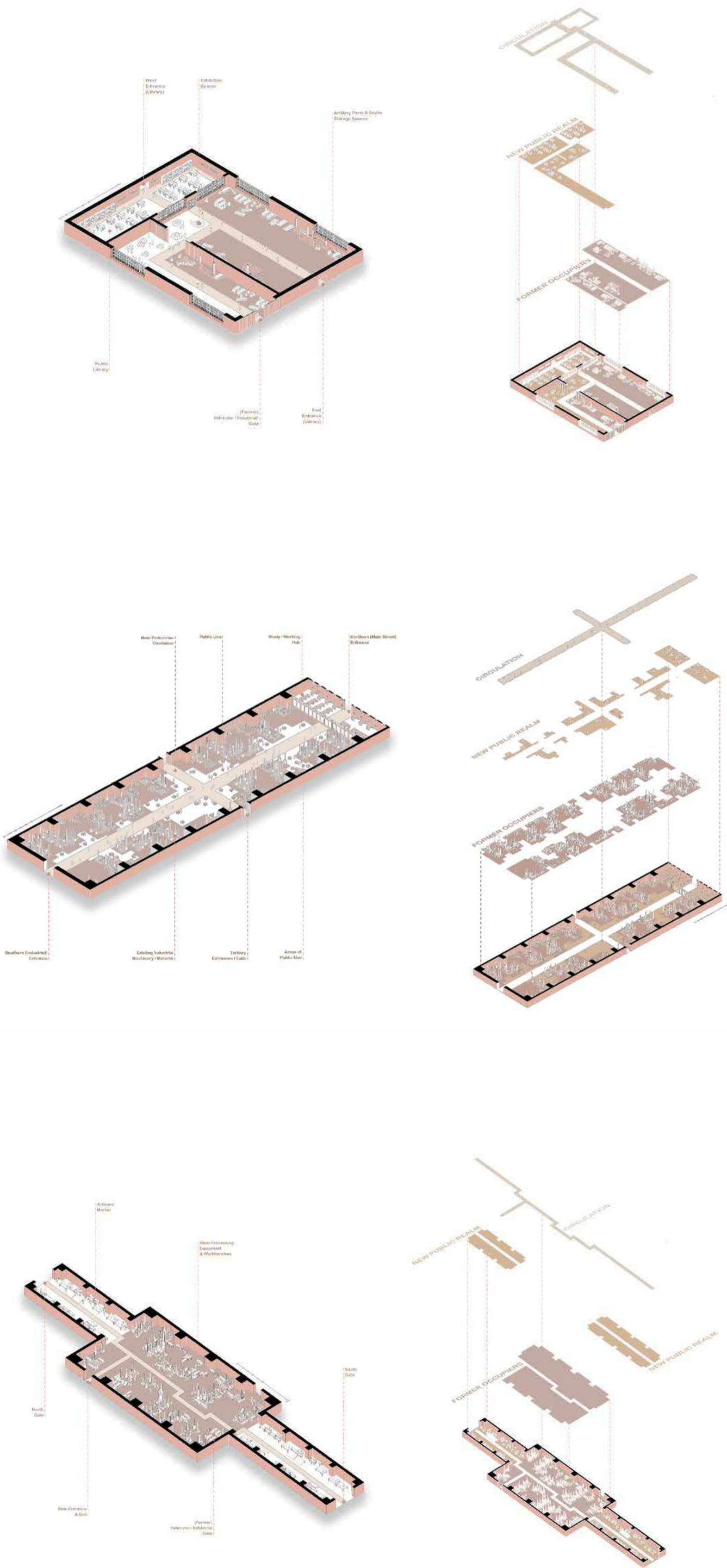


SECTION A-A'

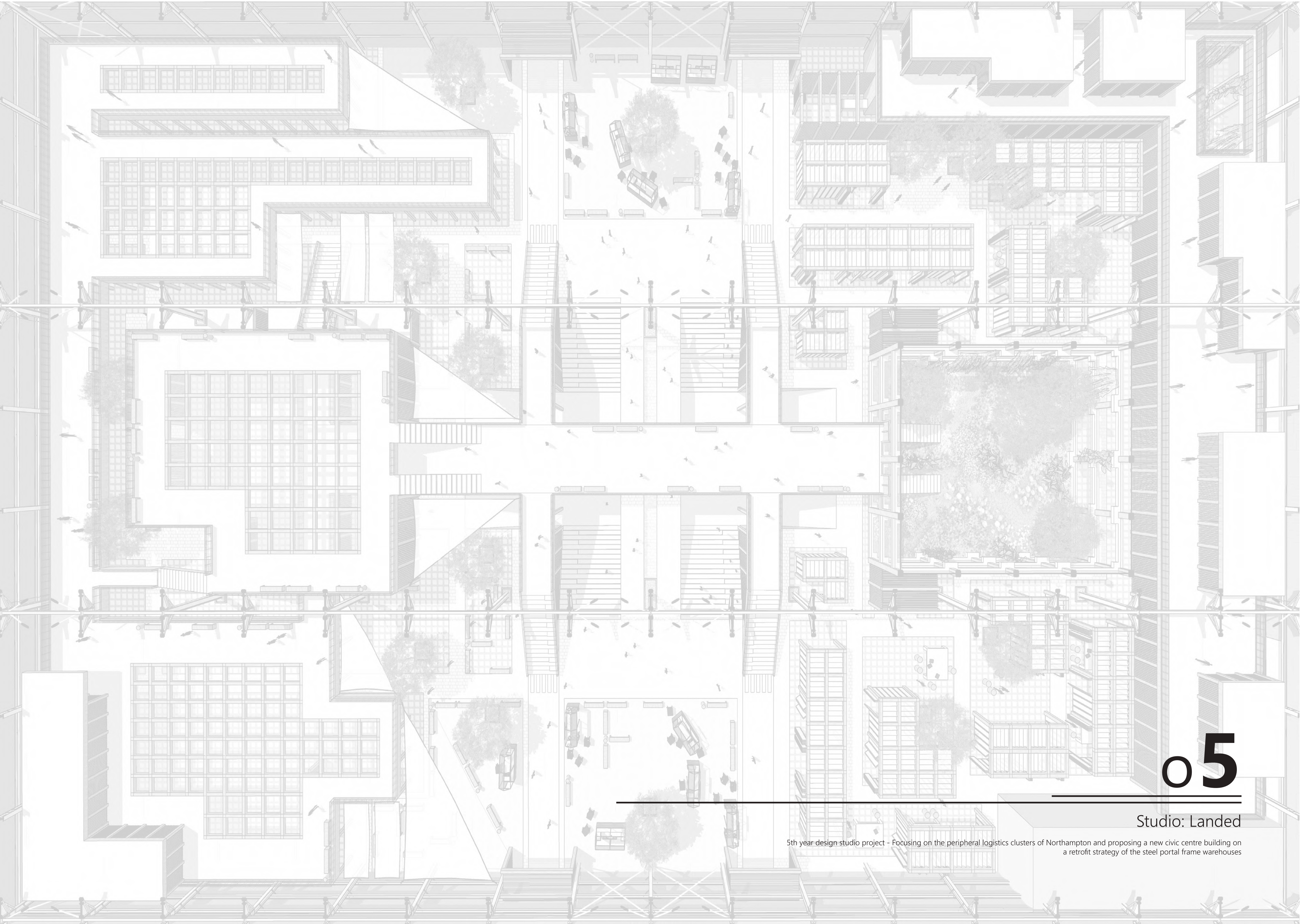
0 20M



MODEL ZOOMING INTO A STRIP OF THE INHABITED BRIDGE
AND GROUND BUILDINGS
(1:200)



Diagrammatic proposals on three different kinds of abandoned factory buildings on site and how the spaces could be arranged enabling different, effective ways of preserving their former atmospheres, to bring attention to more experimental and radical ways of preserving industrial heritage.



o5

Studio: Landed

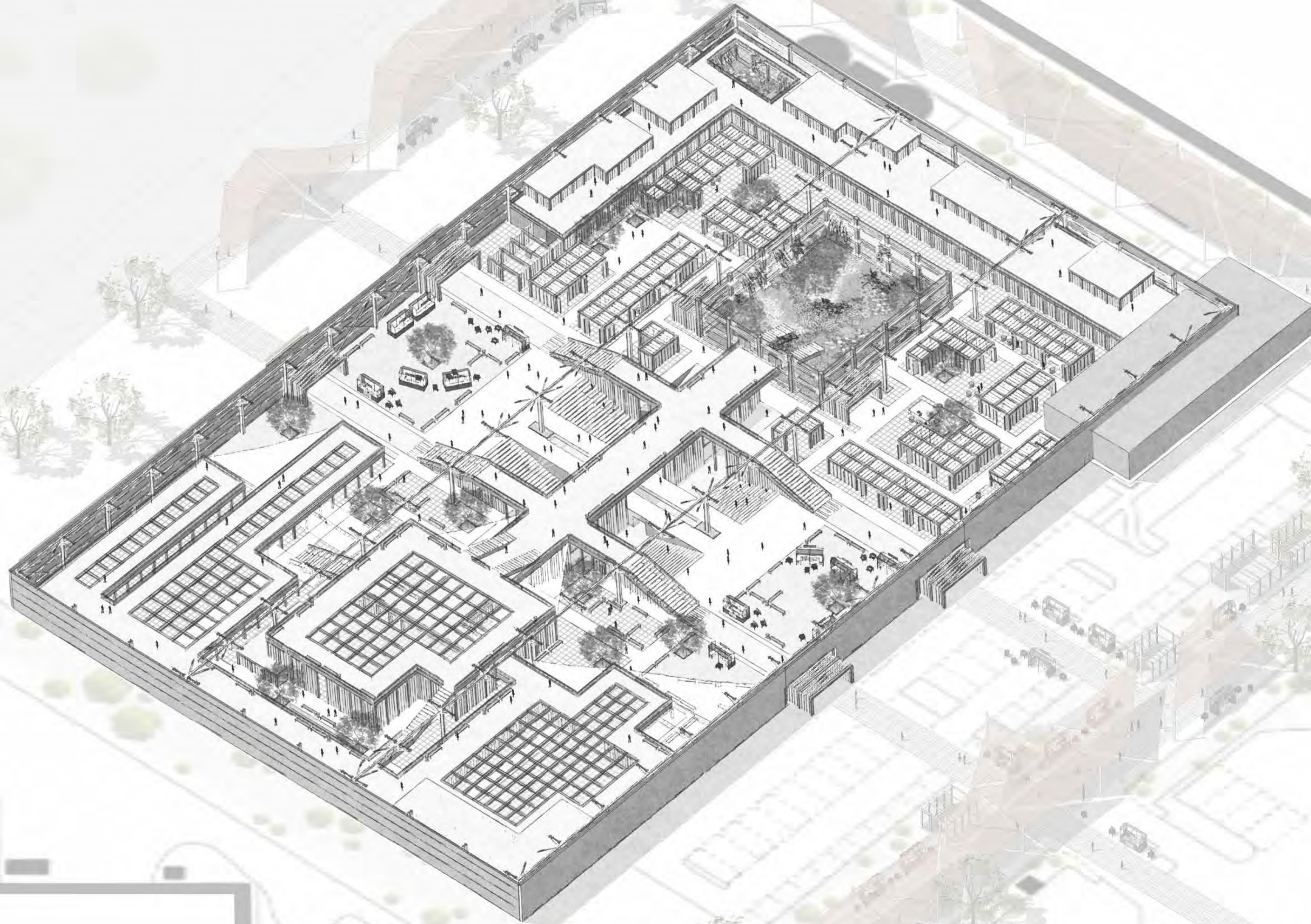
5th year design studio project - Focusing on the peripheral logistics clusters of Northampton and proposing a new civic centre building on a retrofit strategy of the steel portal frame warehouses

Studio: Landed

5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.

SAMPLE INTERIOR FOR WAREHOUSE D

ON CHEANEY DRIVE, GRANGE PARK CP
YUSEN LOGISTICS PLOT 8
CURRENTLY LEASED TO AMAZON

STUDIO BRIEF: **LANDED**

5th year design studio - project focusing on the logistics clusters that are sporadically appearing more and more along the M1 and the infrastructurally serviced parts of Northampton.

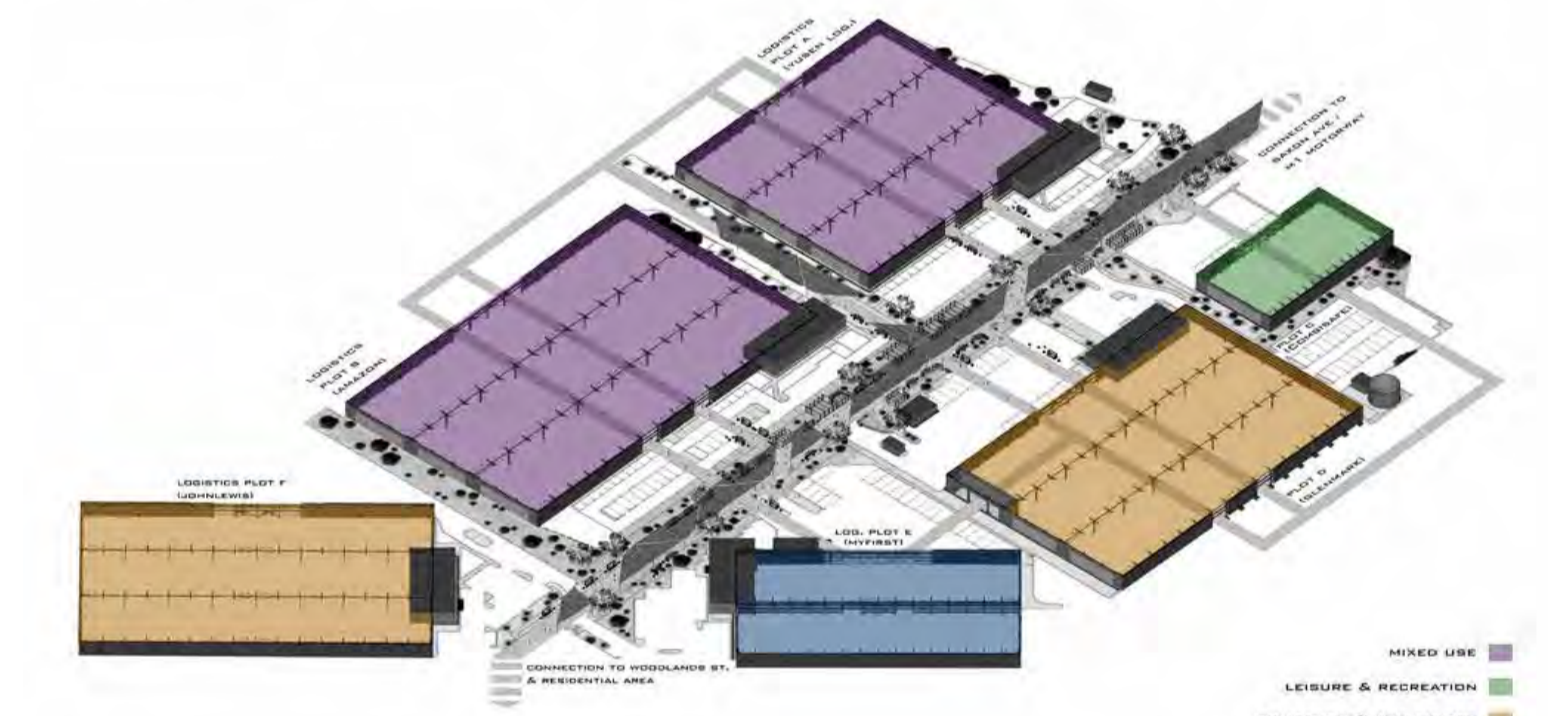
The projects builds an argument towards the future potential abandonment of the site and proposes a provocative and smart retrofit strategy which can work as a general example towards the redevelopment of such sites. The project works with the steel structure at hand and proposes ways to effectively bring “a piece of a city” into these warehouses, promoting a new kind of civic space.

The Technical Studies Design Report(also known as ETS Design Thesis); focuses on technical and quantifiable aspects related to the studio project. It proposes alternative natural fibre insulated CLT wall buildups on the interior, and incorporates a strategy which the massive warehouse interiors would be split into designated climatic zones with customised target temperatures, optimising energy usage and associated costs.

[Tutors: Pierre d’Avoine, Pereen d’Avoine]

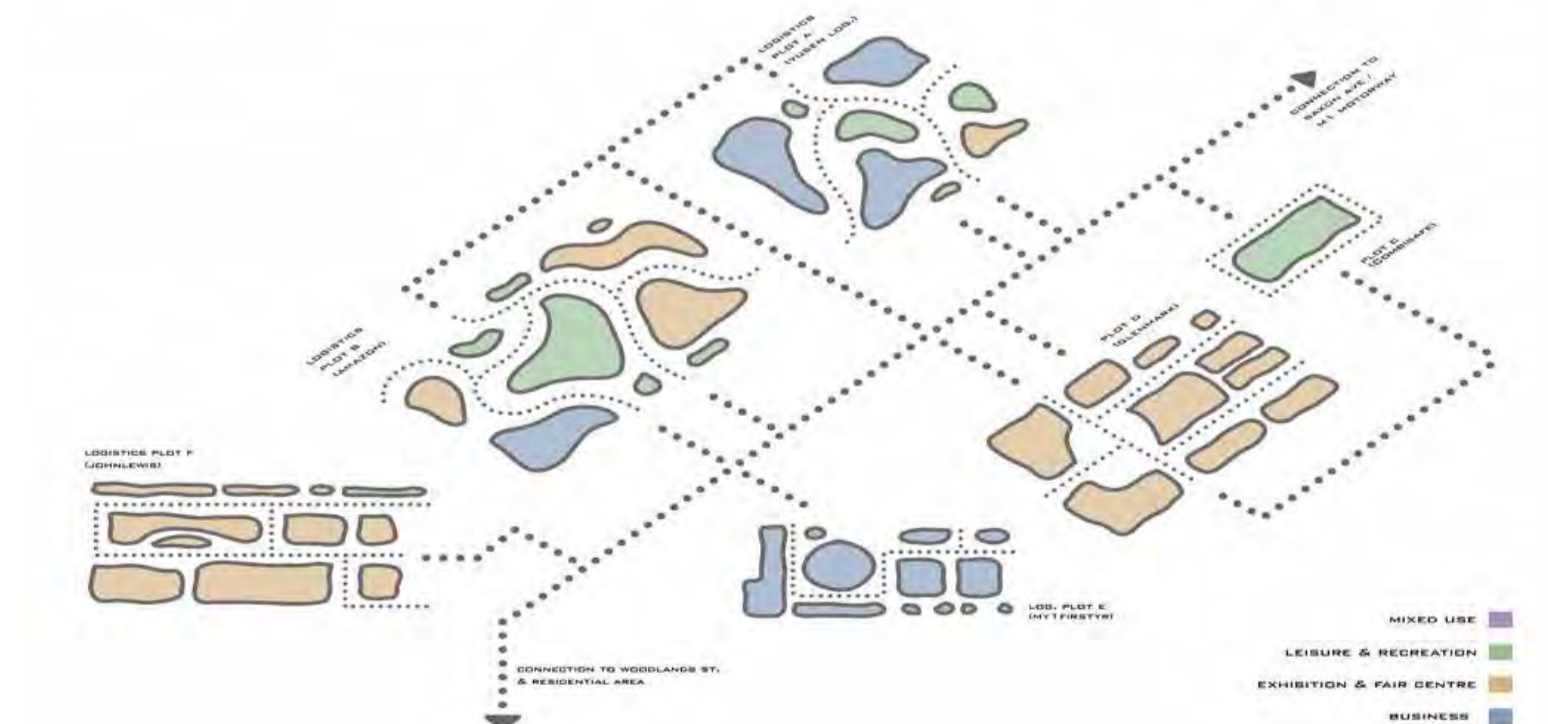
SITE PROGRAMMING & SPACE ALLOCATION

ON CHEANEY DRIVE, GRANGE PARK
YUSEN LOGISTICS CENTRE



SITE PROGRAMMING & SPACE ALLOCATION

ON CHEANEY DRIVE, GRANGE PARK
YUSEN LOGISTICS CENTRE



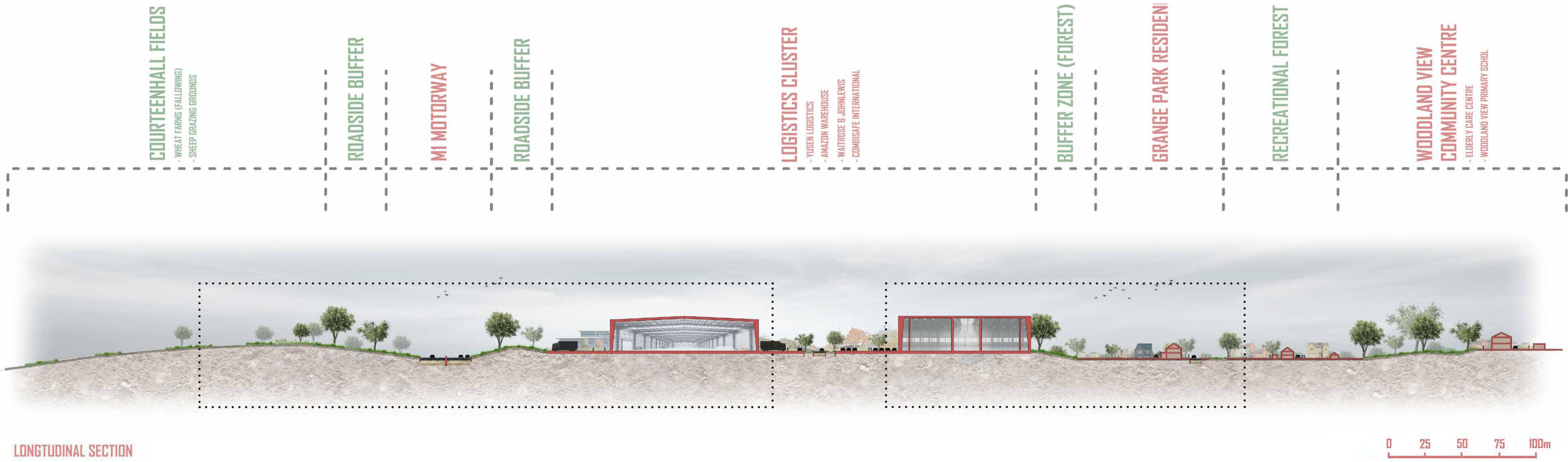
Studio: Landed

5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.

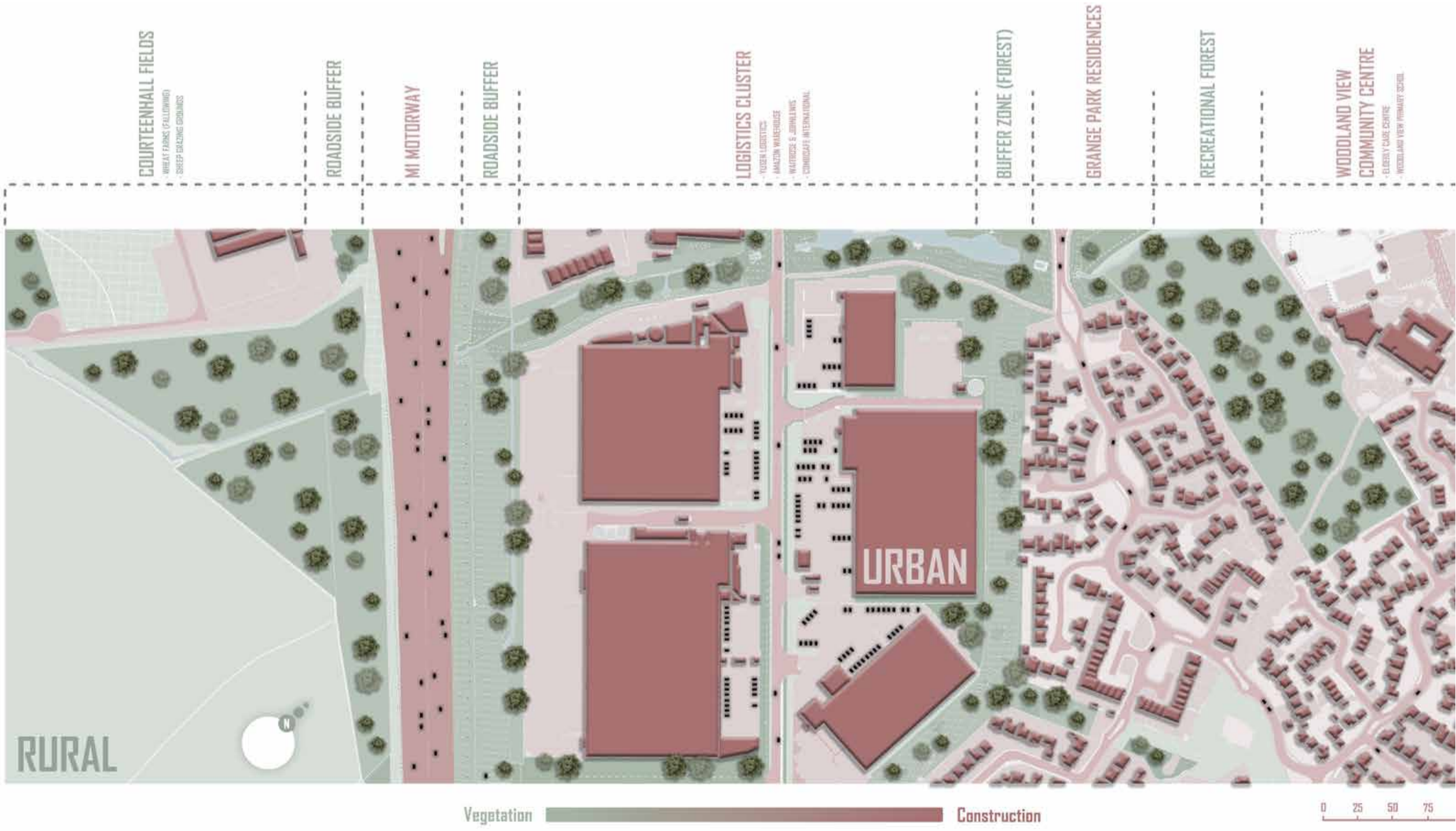


Studio: Landed

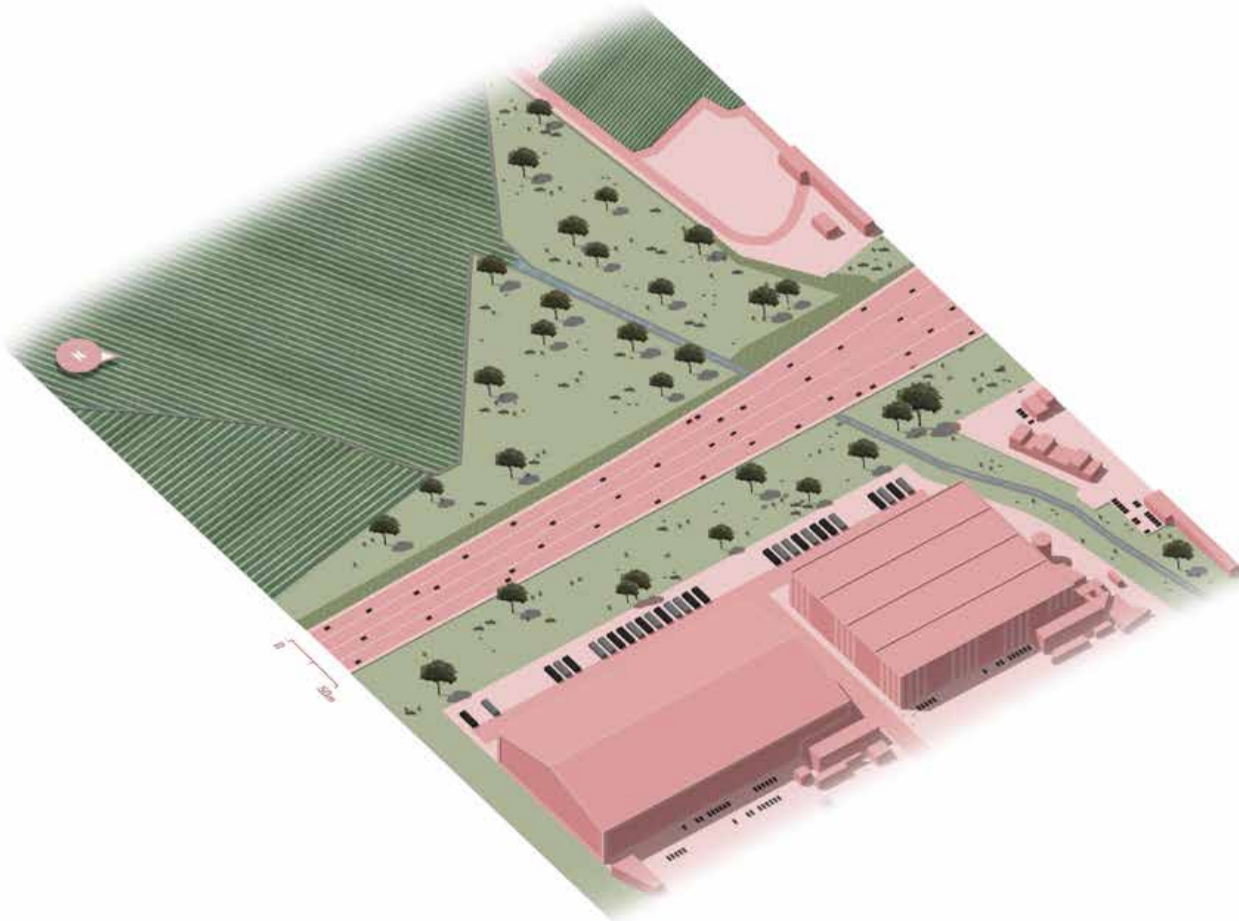
5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.



LONGITUDINAL SECTION



SITE PLAN : THE UNIQUE CONDITIONS OF THE PERIPHERAL BUILT ENVIRONMENT OF NORTHAMPTON AT THE EDGE OF GRANGE PARK; A COLLAGE OF URBAN & RURAL PATTERNS



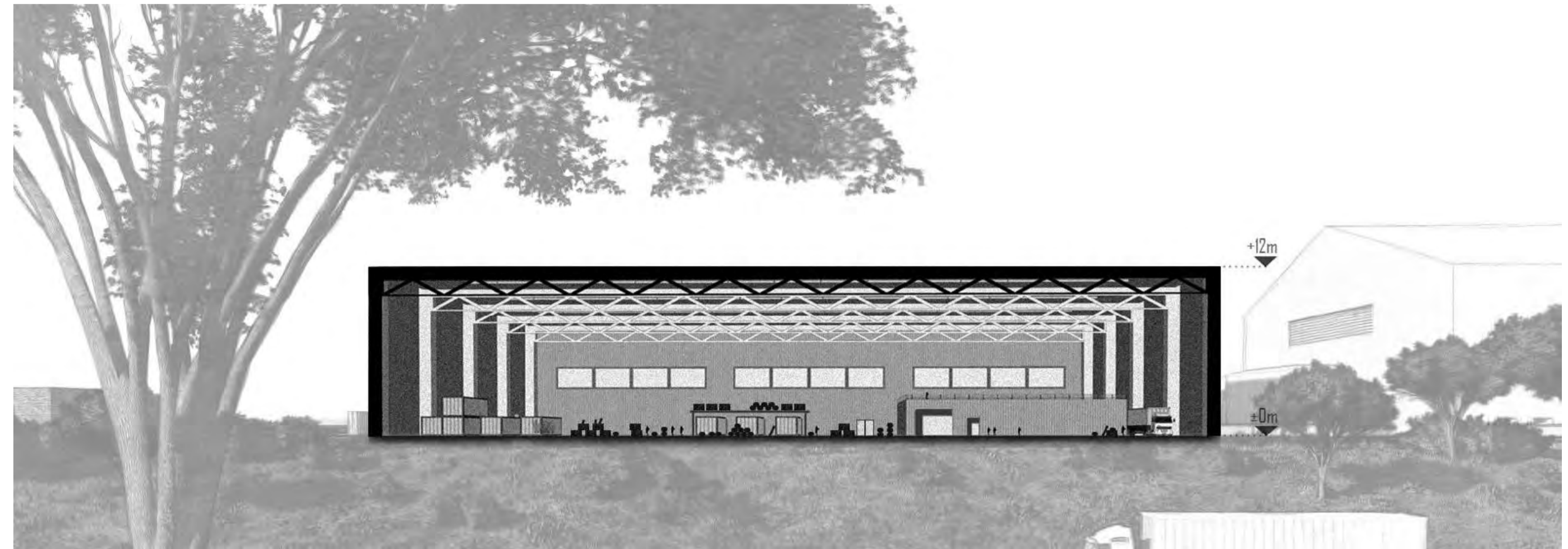
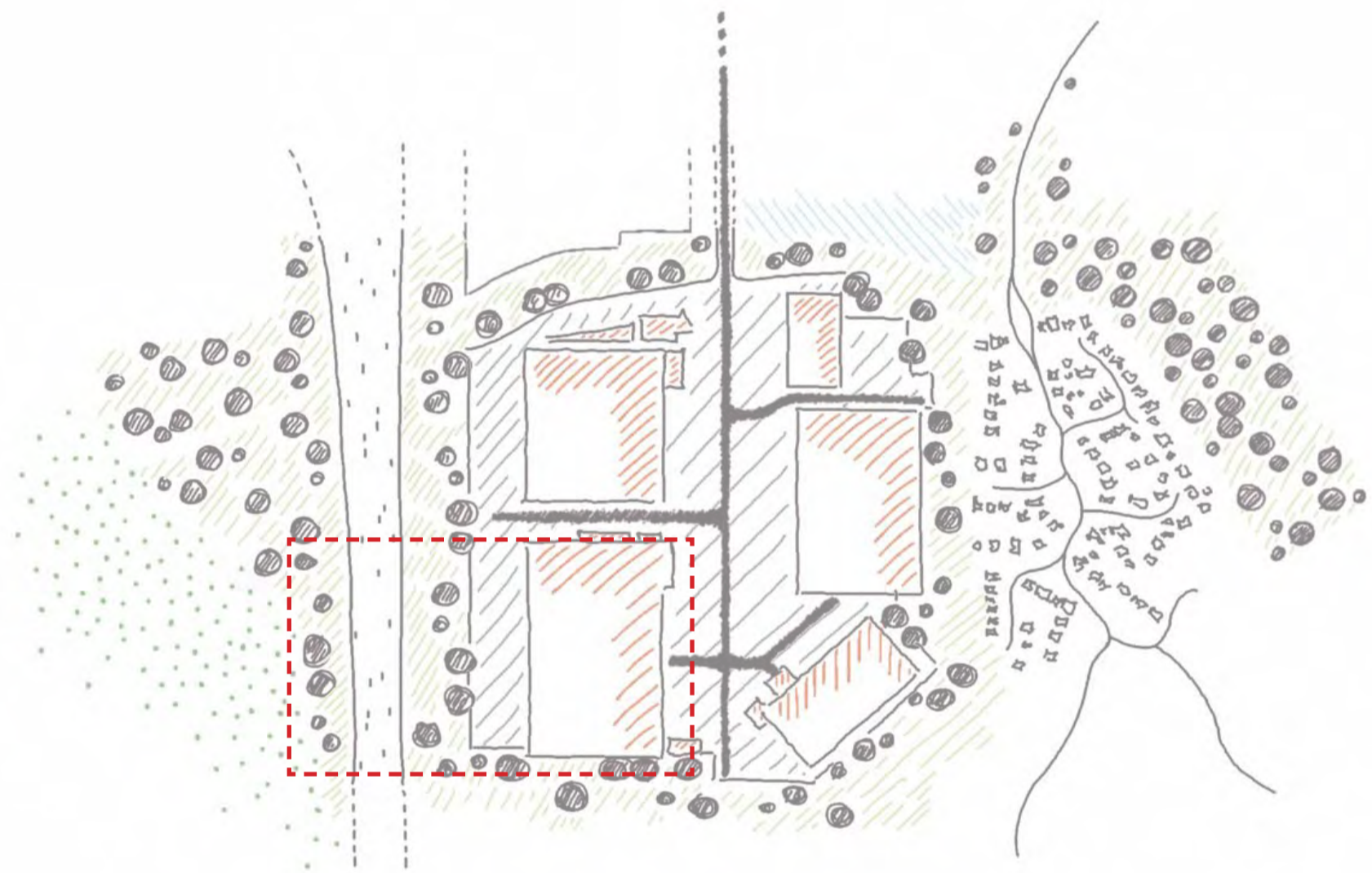
ISOMETRIC IMAGE: ZOOM-IN TO THE M1 MOTORWAY AND NEIGHBOURING LOGISTICS CLUSTER & AGRICULTURAL FIELDS



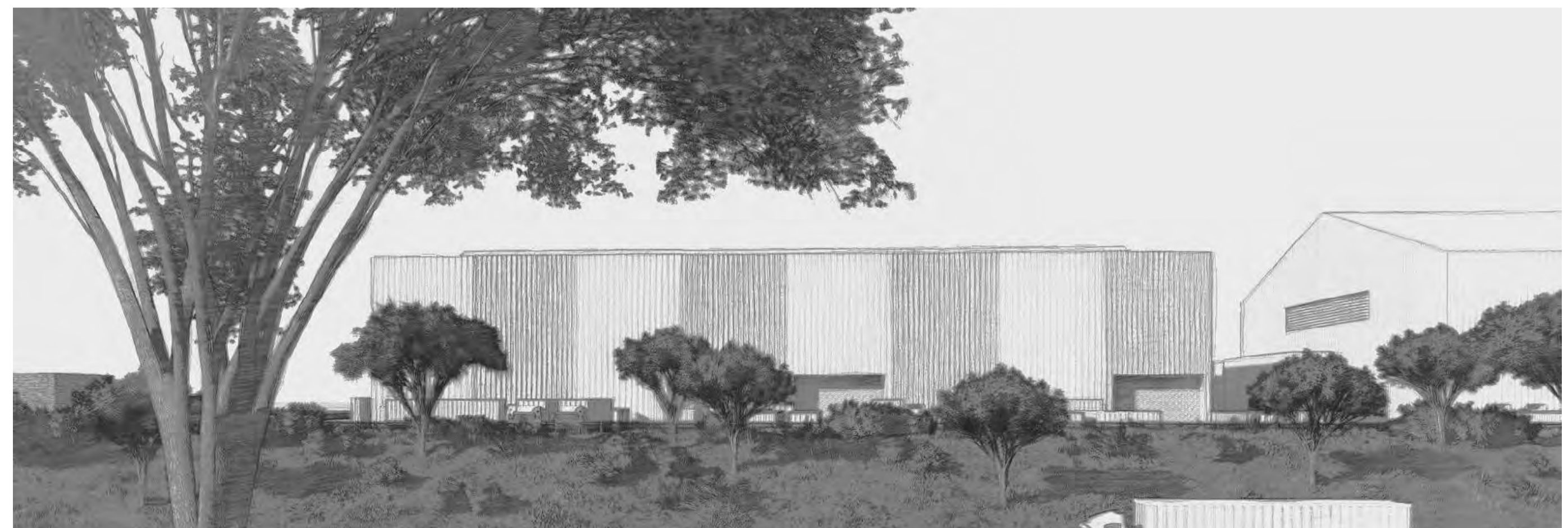
ISOMETRIC IMAGE: ZOOM-IN TO THE BUFFER ZONE THAT SEPERATES THE AMAZON WAREHOUSE AND ADJACENT LOW DENSITY RESIDENTIAL ZONE OF GRANGE PARK

Studio: Landed

5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.



Section along the Amazon warehouse next to the M1 Motorway at Grange Park, Northampton.



View towards the Amazon warehouse next to the M1 Motorway at Grange Park, Northampton.

Studio: Landed

5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.

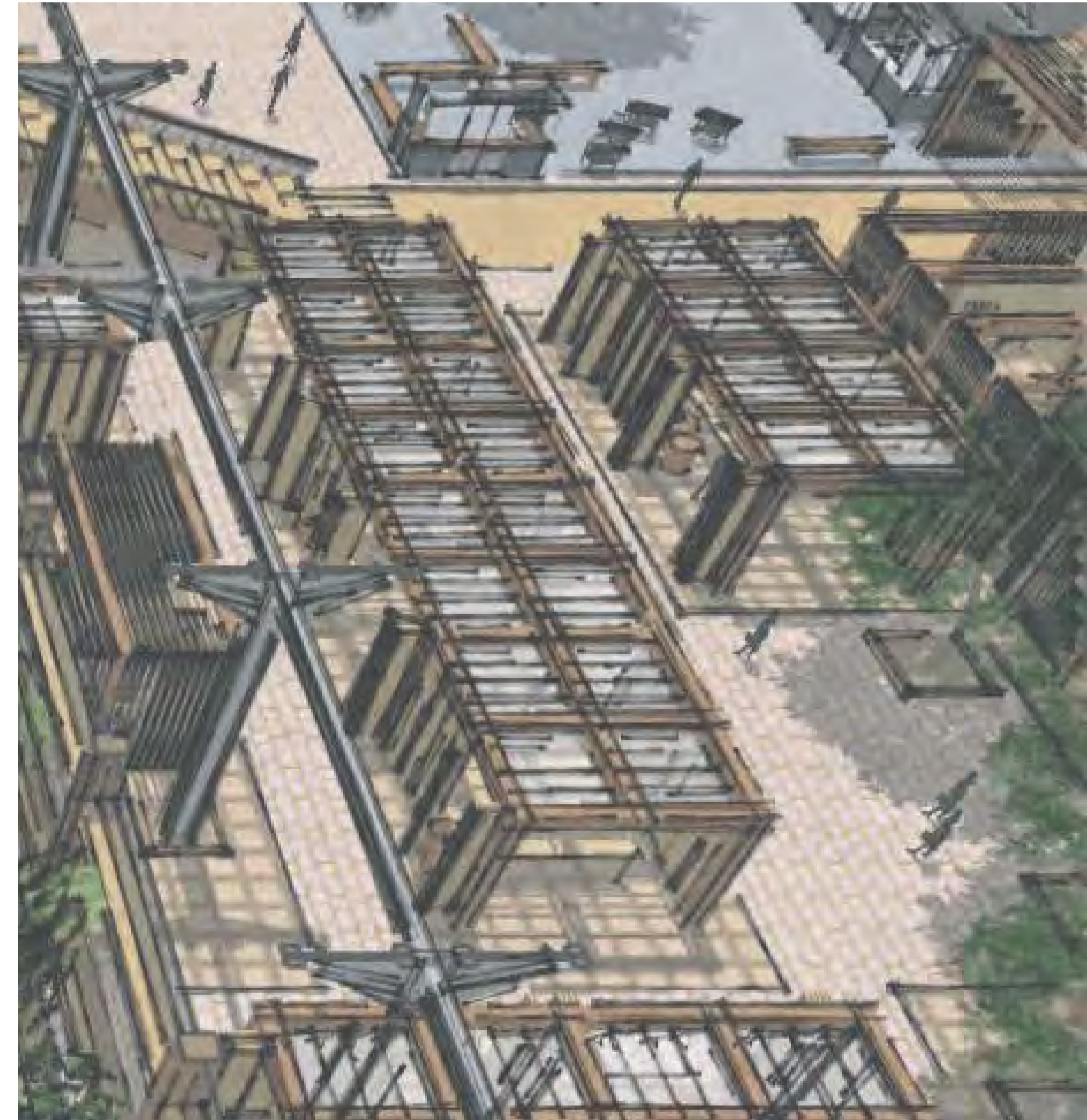
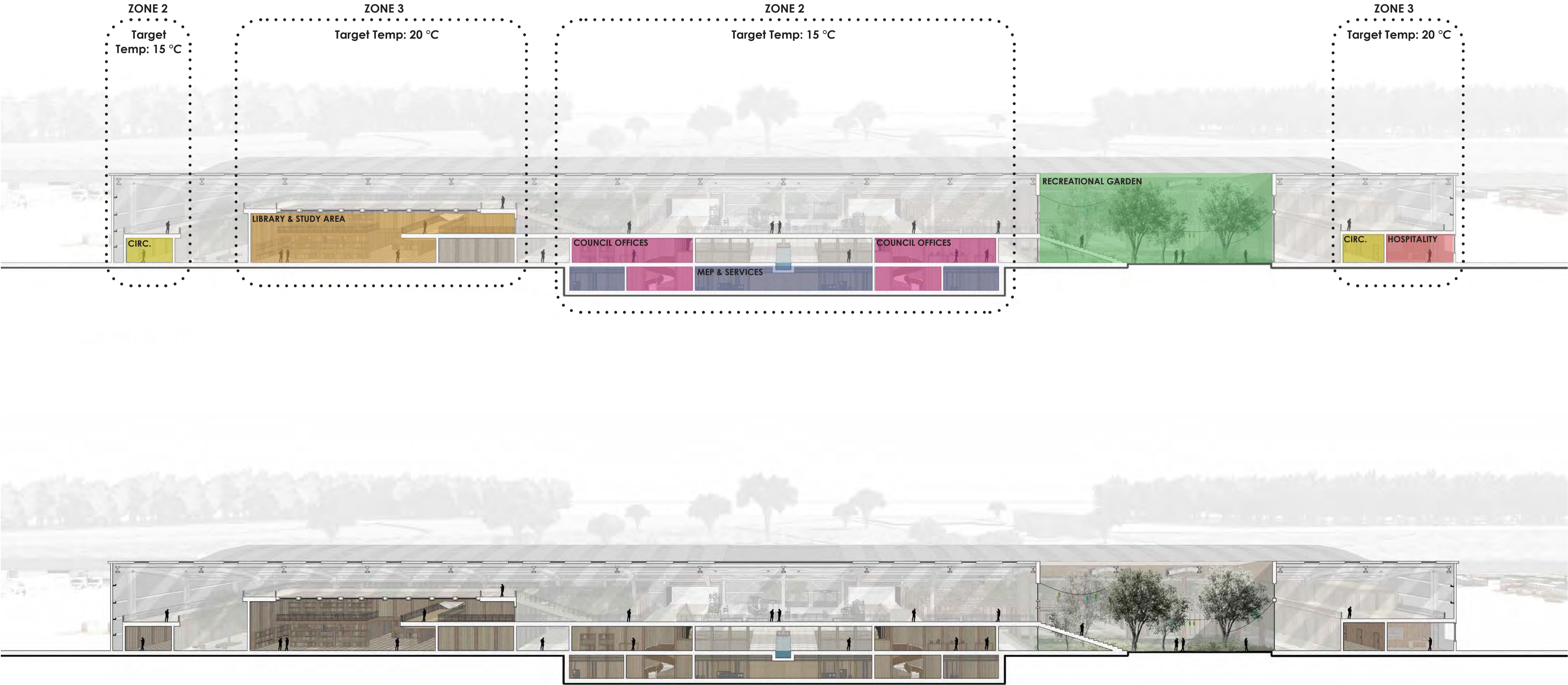


Image of the interiors of the warehouse (flexible programmed bookable work/meeting spaces) around the opened up courtyard for recreational use.

Studio: Landed

5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.



SECTION A-A'



Studio: Landed

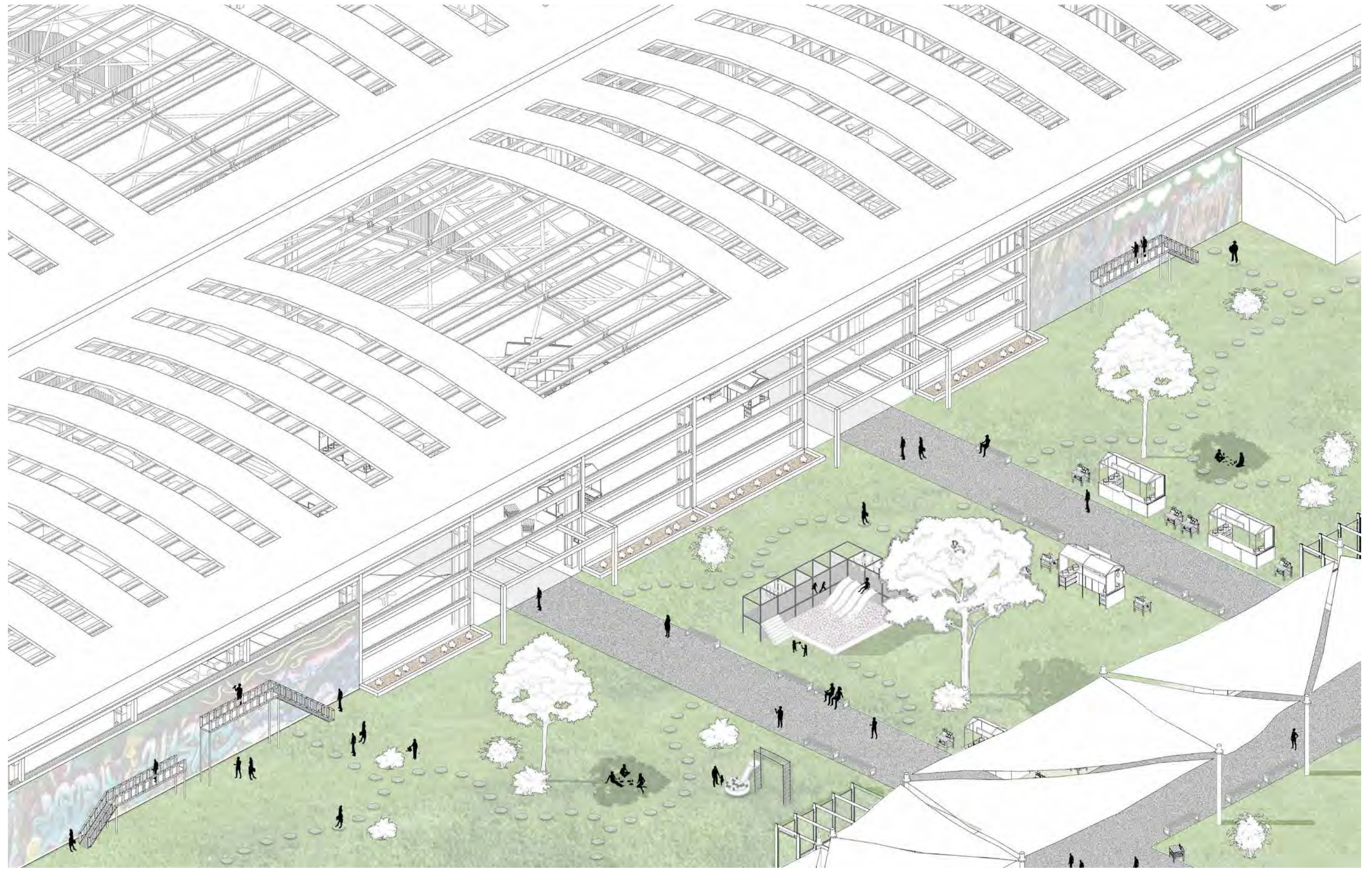
5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.



Proposal of the building and surrounding areas, as a better, re-activated area for civic use.



View into the "small village" inside the a formerly mundane amazon warehouse.



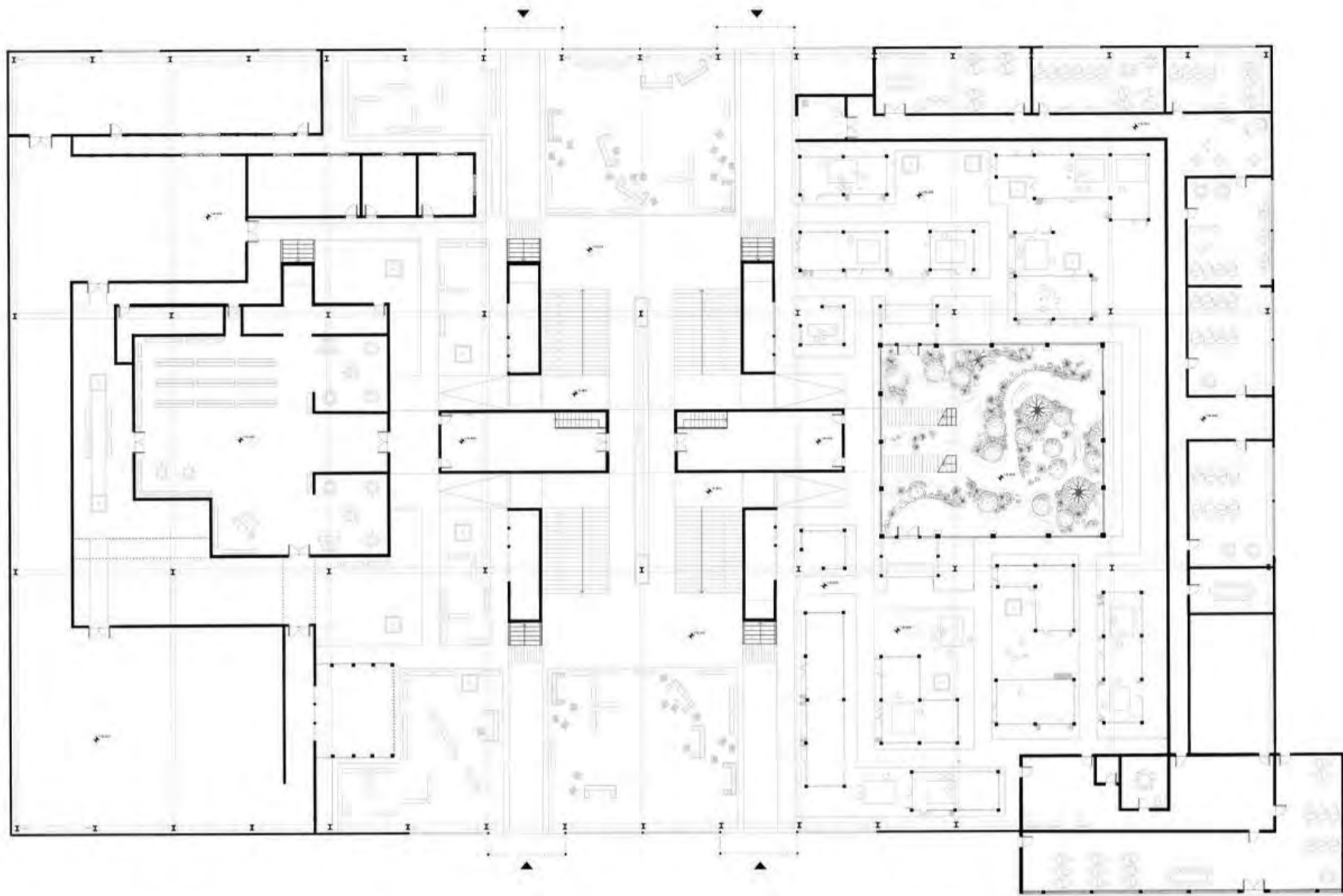
Zoom-in to the entrance and the intermediary area between the central promenade/marketplace and the warehouse in focus.

Studio: Landed

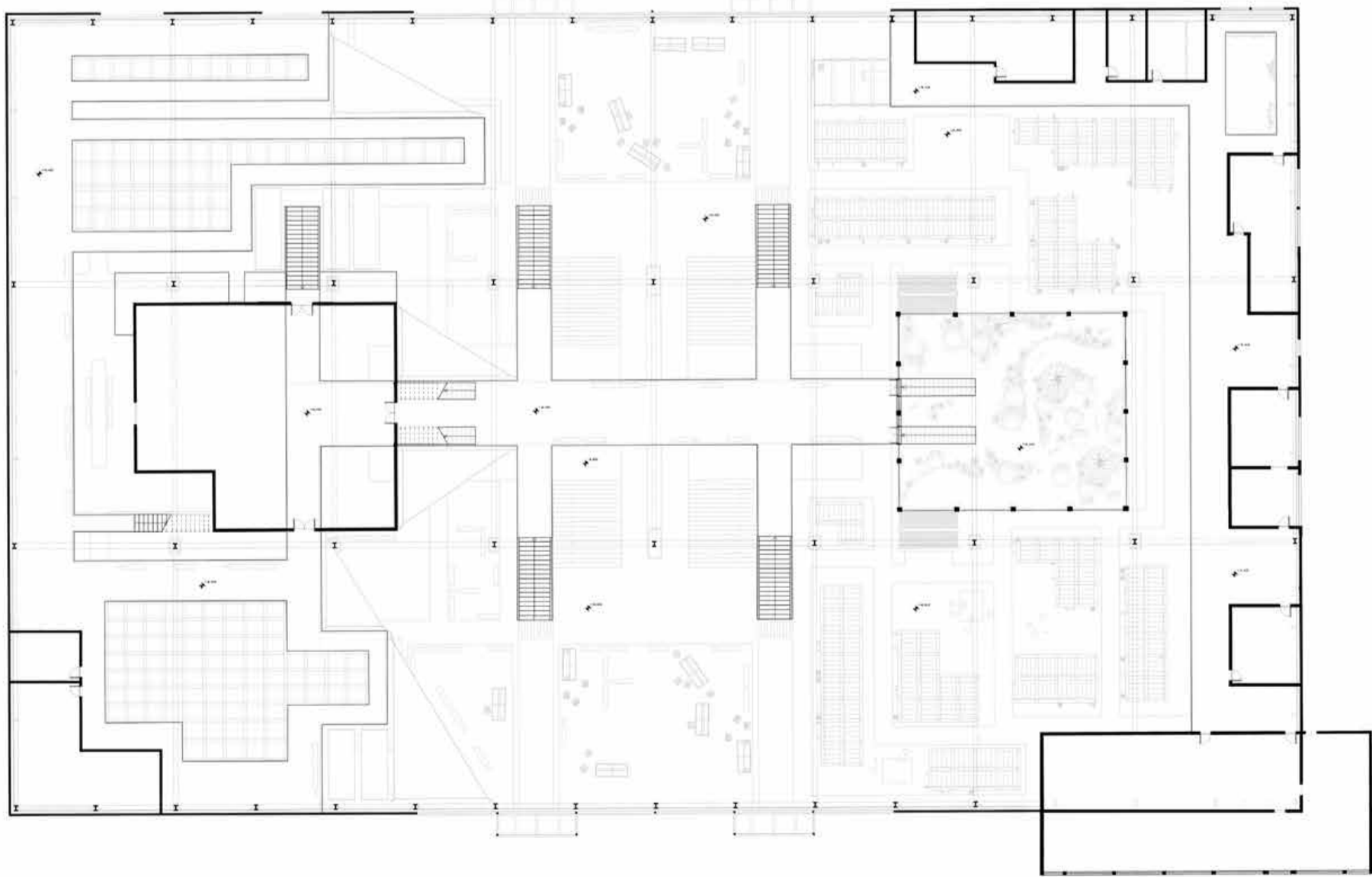
5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.



SITE PLAN



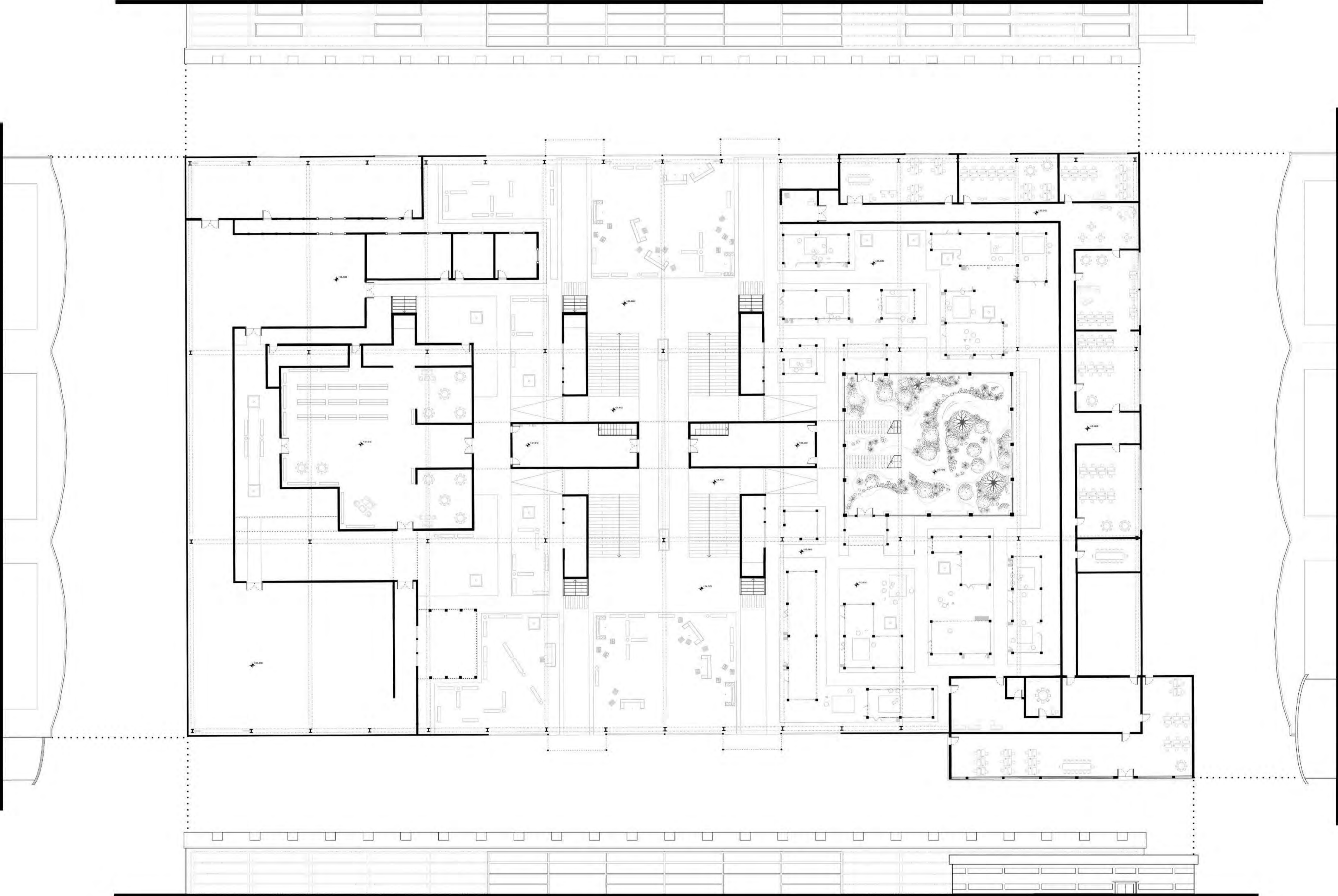
GROUND FLOOR PLAN & ELEVATIONS

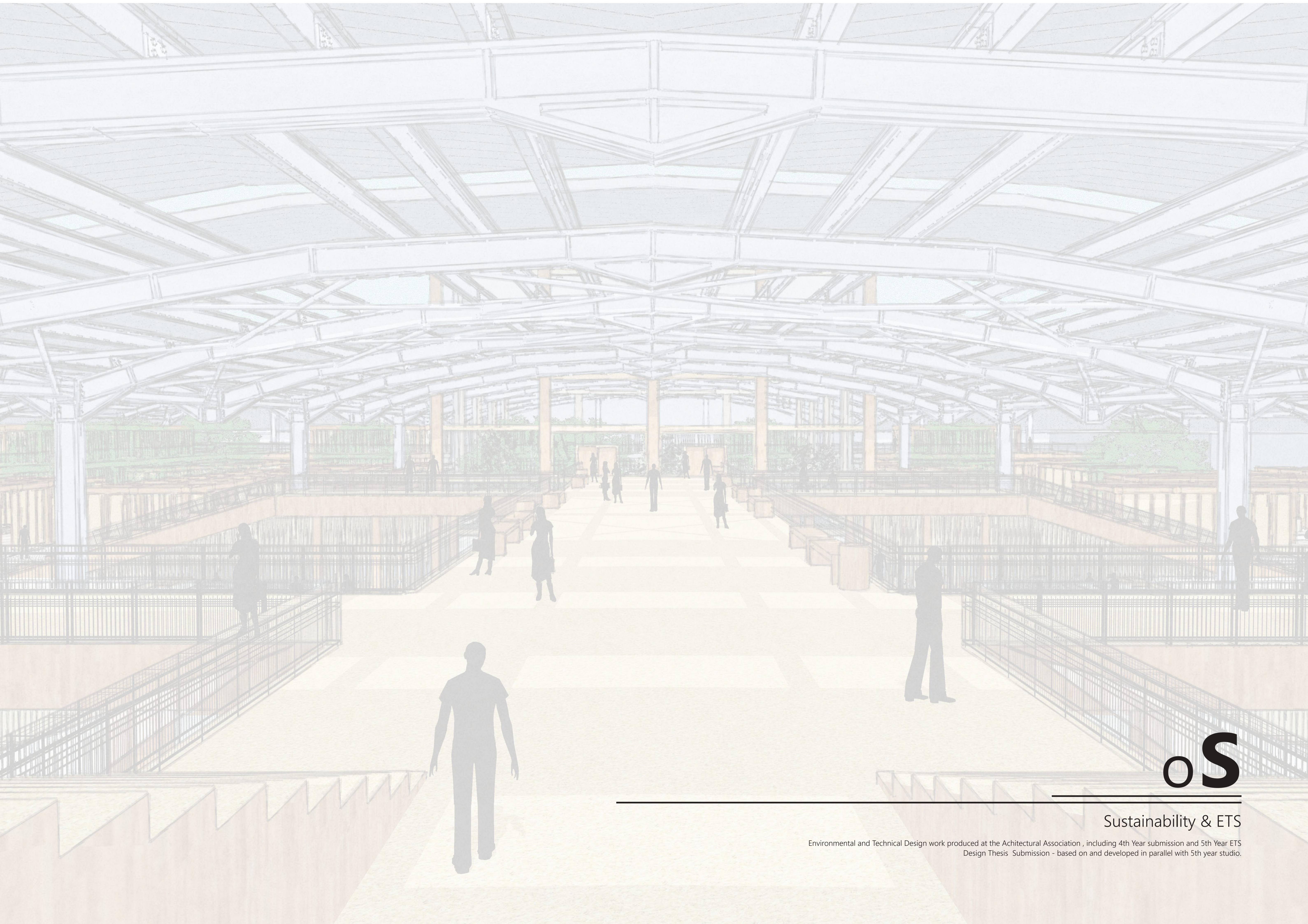


FIRST FLOOR PLAN

Studio: Landed

5th year design studio project - Looking at the peripheral conditions of a city in british midlands and exploring strategies of re-use and retrofit of the steel portal frame.





oS

Sustainability & ETS

Environmental and Technical Design work produced at the Achitectoral Association , including 4th Year submission and 5th Year ETS
Design Thesis Submission - based on and developed in parallel with 5th year studio.

Sustainability & ETS

5th year Environmental Technical Design Thesis Submission - Recommended for High Pass

Focuses on technical and quantifiable aspects related to the studio project. It proposes alternative natural fibre insulated CLT wall buildups on the interior, and incorporates a strategy which the massive warehouse interiors would be split into designated climatic zones with customised target temperatures, optimising energy usage and associated costs. Following digital submission the 110 page document was printed for the High Pass jury to be displayed in school - document exists both online (website) and in print.



ETS Statement

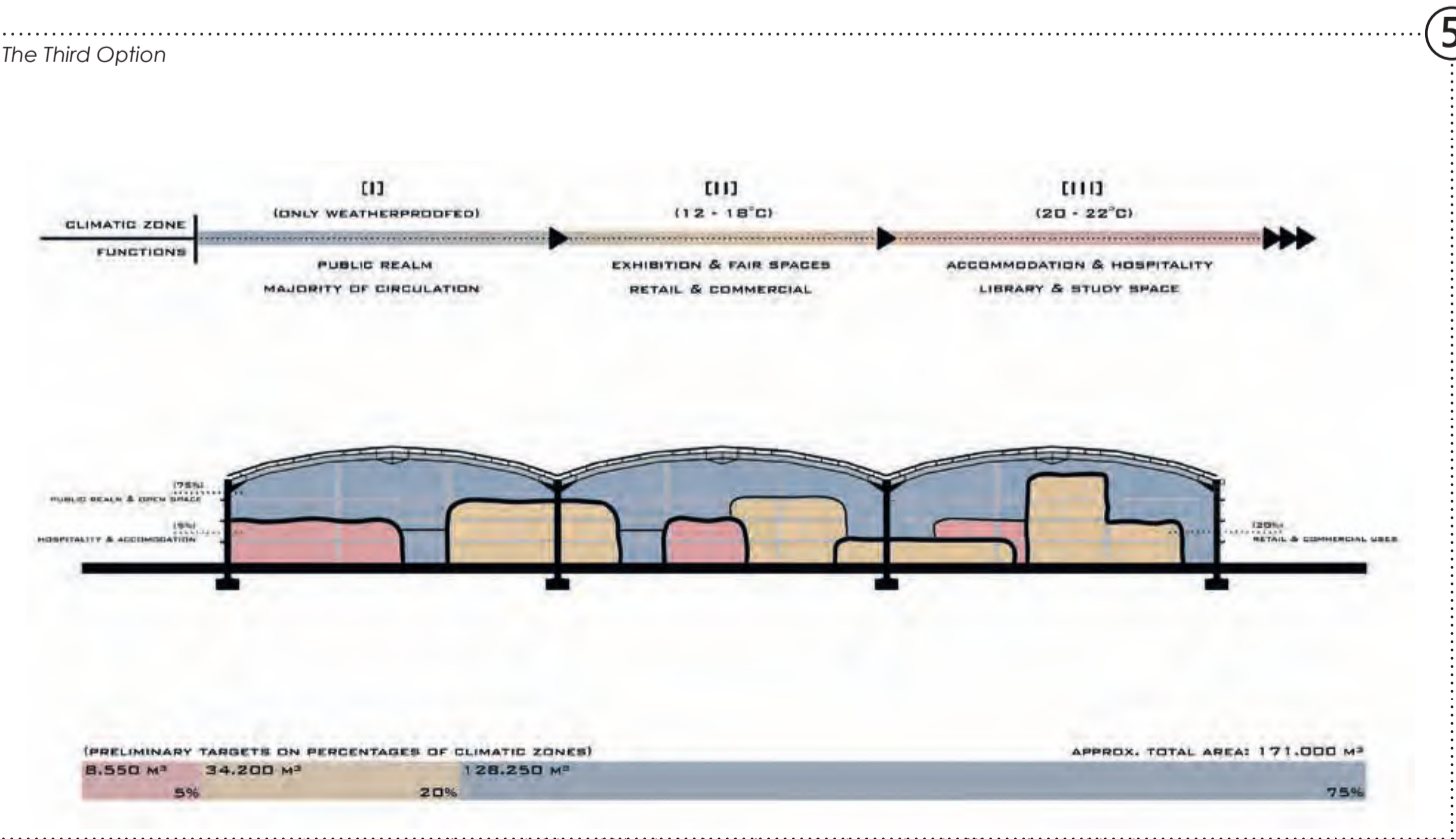
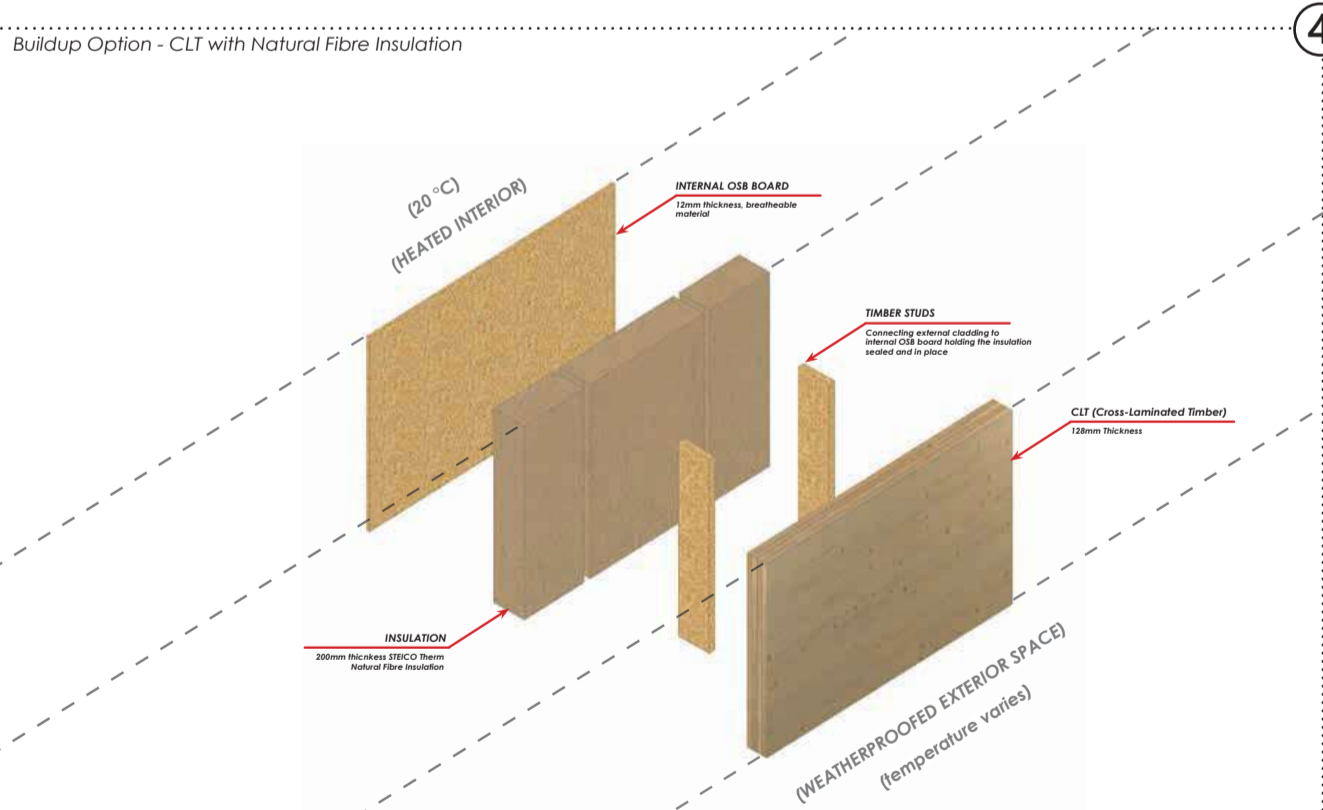
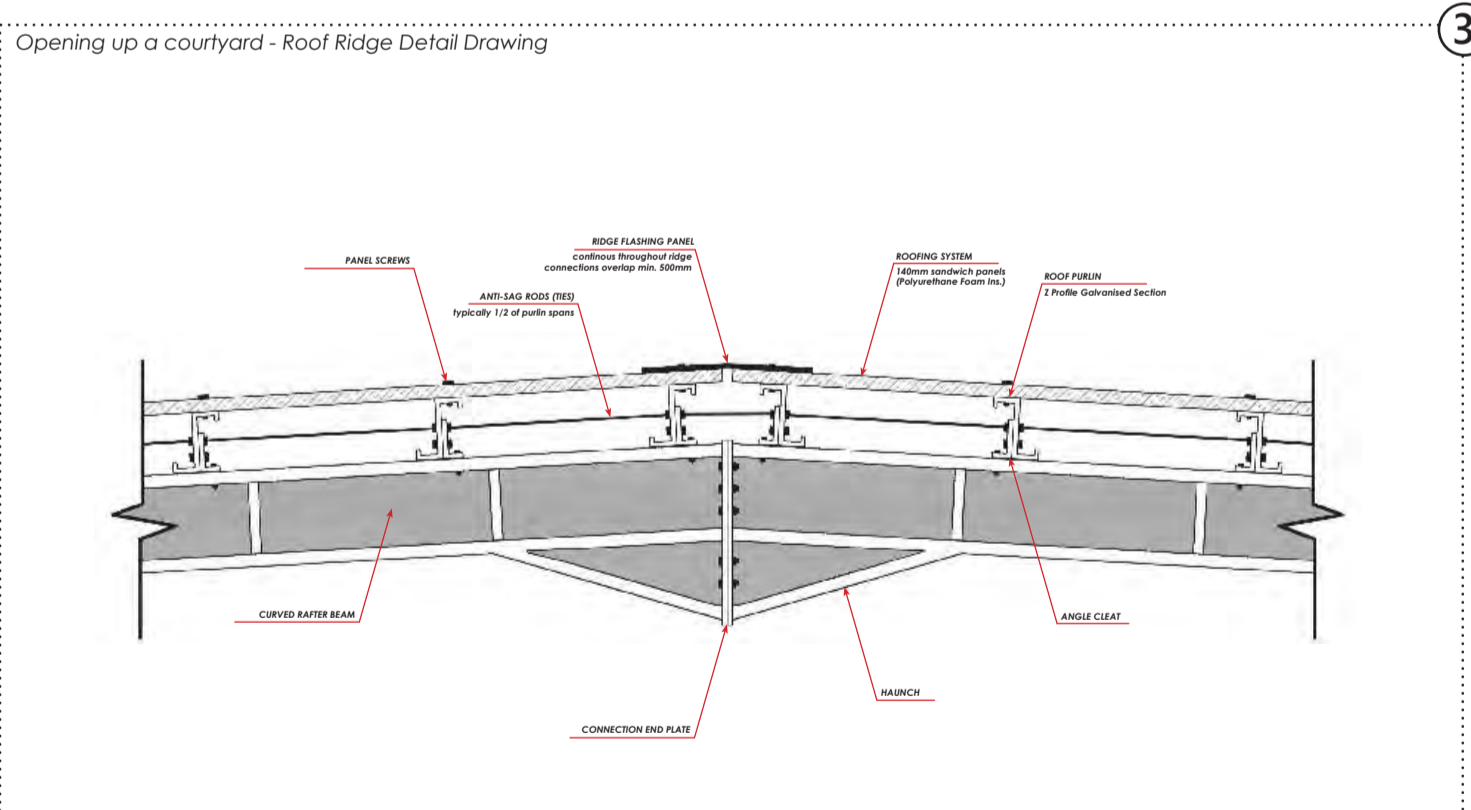
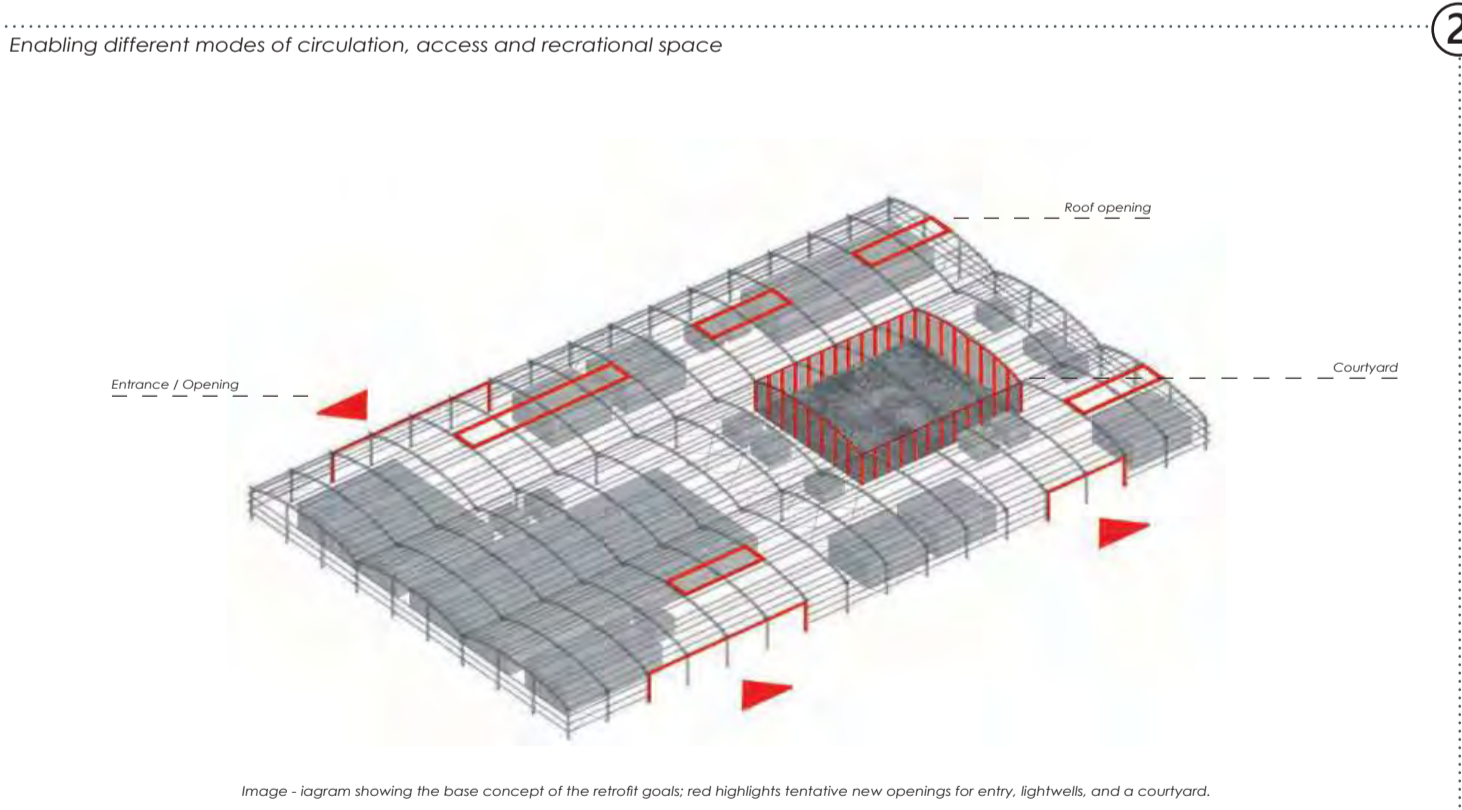
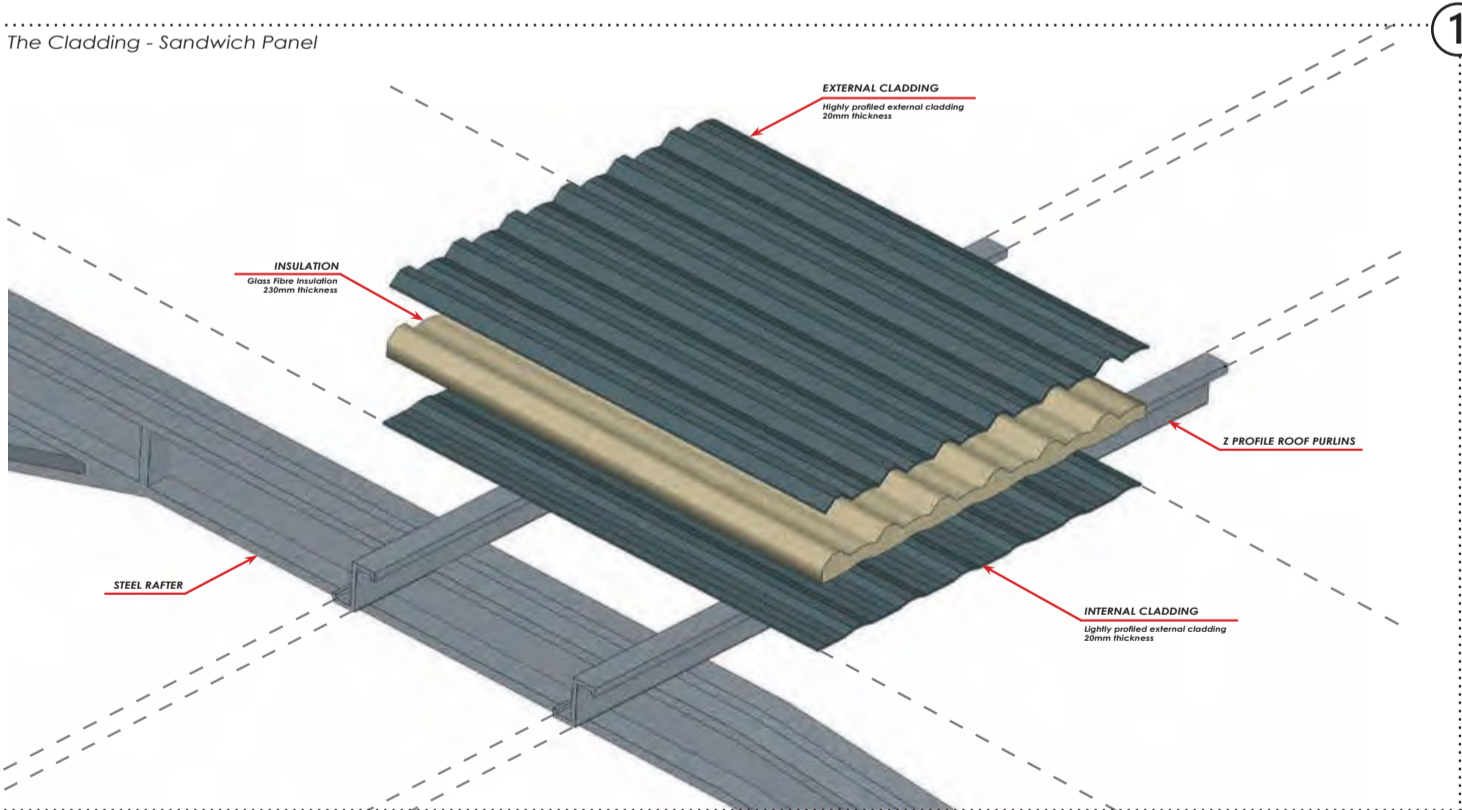
The ETS project will focus and deal with the practicalities and technical aspects of adapting part of an existing warehouse/logistics cluster into being used under a new residential and civic programme, and explore strategies of overcoming expected issues around insulation, heating and structural manipulations that aim to transform and reprogram the site. The project will do so while maintaining fragments -or large chunks- of its industrial character and set an example within the context and testing the feasibility and best ways of converting underused shed/warehouse structures into becoming a provocative new civic space.

RESULT & FEEDBACK

‘A solid and focused document, it breaks down the areas of study and development that a retrofit and re-use process should have, on the base of a steel frame building. It tackles every aspect in general and in particular, first by making reference to case studies to substantiate the positions taken, and later by applying it to the design. It includes quantifications and calculations, and a final stage of speculation of the building with the new program. Overall the balance between research, analysis and proposition is excellent and the panel agreed that this should be put forward to the High Pass Table.’

KEY SNAPSHOTS FROM DOCUMENT:

Full Document (110 pages) available online (PDF viewer, no download needed) at: <https://www.binan.co.uk/concise-portfolio-pdf>



Calculating the energy and costs - Alternative Condition (Polyurethane Foam)

KEY VALUES	
Surface Area: 45,496 m ²	$\Delta T = 13^{\circ}C$ (let's assume the average outside temperature is 7°C)
Heat Loss Per Hour Formula: Heat Loss = U × Area × ΔT	U-Value for exterior cladding = 0.18 W/(m ² K)
Calculation: Heat Loss per Hour = 0.18 × 45,496 × 13 = 106,349.04 Watts	Surface Area = 2(lw+lh+wh) = 45,496 m ² (we are neglecting any windows for this demonstration, and assuming the building fully covered with panels)
Conversion to kWh: Heat Loss per Hour in kWh = $\frac{106,349.04}{1000} = 106.349 \text{ kWh}$	Heating Season Length: 180 days
Daily and Annual Energy Requirement: Daily Energy Requirement in kWh = 106.349 × 24 = 2,552.376 kWh	Heating system with an energy efficient rating (ErP) of A- (95%)
Annual Energy Requirement = $\frac{2,552.376 \times 180}{0.95} = 484,115.752 \text{ kWh}$	Cost per kWh = 26p for Large Businesses in the UK as of 2024
Annual Heating Cost: Annual Cost = 484,115.752 × 0.25 = £121,028.938	

Calculating the Volumes, Zones and their Energy consumption

(CLIMATIC ZONES 3)		
Library & Study Space	Council Offices & Rooms	Hospitality & Accommodation
Heat Loss Calculation: Heat Loss = U × A × ΔT = 0.17W/(m ² K) × 2921.9m ² × 13°C = 6457.399W = 3946.088W = 19226.713W	Heat Loss Calculation: Heat Loss = U × A × ΔT = 0.17W/(m ² K) × 1785.56m ² × 13°C = 3946.088W = 19226.713W	Heat Loss Calculation: Heat Loss = U × A × ΔT = 0.17W/(m ² K) × 8699.87m ² × 13°C = 19226.713W
Conversion to kWh: $\frac{6457.399}{1000} = 6.457 \text{ kWh}$	Conversion to kWh: $\frac{3946.088}{1000} = 3.946 \text{ kWh}$	Conversion to kWh: $\frac{19226.713}{1000} = 19.227 \text{ kWh}$
Daily Energy Requirement: 6.457 kWh/hour × 24 hours/day = 154.88 kWh/day	Daily Energy Requirement: 3.946 kWh/hour × 24 hours/day = 94.706 kWh/day	Daily Energy Requirement: 19.227 kWh/hour × 24 hours/day = 461.44 kWh/day
Annual Energy Requirement: $\frac{154.88 \text{ kWh/day} \times 180 \text{ days}}{0.95 \text{ efficiency}} = 29,564.17 \text{ kWh/year}$	Annual Energy Requirement: $\frac{94.706 \text{ kWh/day} \times 180 \text{ days}}{0.95 \text{ efficiency}} = 17,944.31 \text{ kWh/year}$	Annual Energy Requirement: $\frac{461.44 \text{ kWh/day} \times 180 \text{ days}}{0.95 \text{ efficiency}} = 87,431.95 \text{ kWh/year}$
Annual Heating Cost: Annual Heating Cost = 29,564.17 kWh × 0.25/kWh = £7,391.04	Annual Heating Cost: Annual Heating Cost = 17,944.31 kWh × 0.25/kWh = £4,486.08	Annual Heating Cost: Annual Heating Cost = 87,431.95 kWh × 0.25/kWh = £21,857.74

Calculating the Volumes, Zones and their Energy consumption

(CLIMATIC ZONES 2)	
Marketplace & Bookable Units	Gallery & Exhibition Spaces
Heat Loss Calculation: Heat Loss = U × A × ΔT = 0.17W/(m ² K) × 3398 m ² × 8°C = 4621.28W = 8793.03W	Heat Loss Calculation: Heat Loss = U × A × ΔT = 0.17W/(m ² K) × 6465.46 m ² × 8°C = 8793.03W
Conversion to kWh: $\frac{4621.28}{1000} = 4.621 \text{ kWh}$	Conversion to kWh: $\frac{8793.03}{1000} = 8.793 \text{ kWh}$
Daily Energy Requirement: 4.621 kWh/hour × 24 hours/day = 110.91 kWh/day	Daily Energy Requirement: 8.793 kWh/hour × 24 hours/day = 211.03 kWh/day
Annual Energy Requirement: $\frac{110.91 \text{ kWh/day} \times 180 \text{ days}}{0.95 \text{ efficiency}} = 21,014.60 \text{ kWh/year}$	Annual Energy Requirement: $\frac{211.03 \text{ kWh/day} \times 180 \text{ days}}{0.95 \text{ efficiency}} = 39,985.13 \text{ kWh/year}$
Annual Heating Cost: Annual Heating Cost = 21,014.60 kWh × 0.25/kWh = £5,253.67	Annual Heating Cost: Annual Heating Cost = 39,985.13 kWh × 0.25/kWh = £9,996.28

Sustainability & ETS

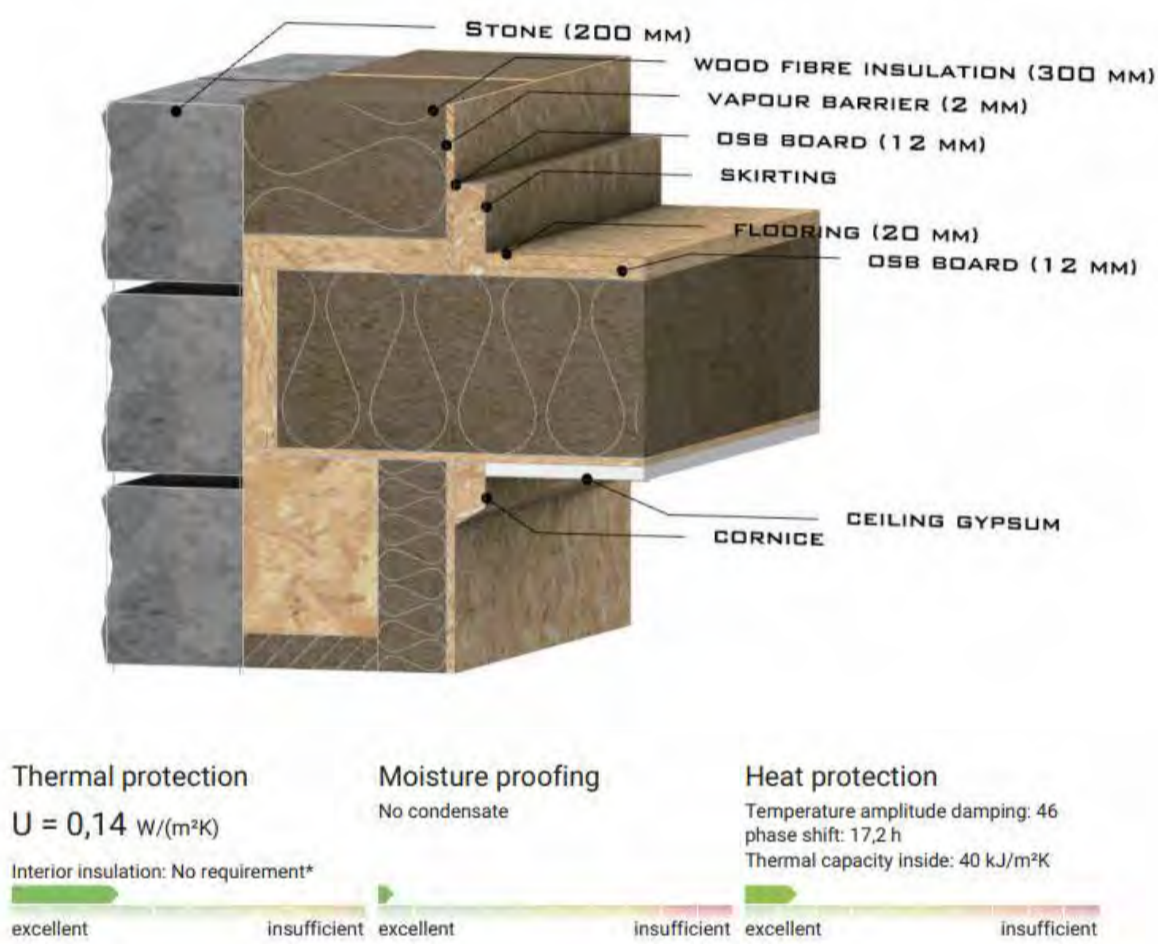
4th Year Environmental Technical Studies Group Submission - Proposal of a Stone & OSB wall buildup with analysis on associated values and emissions, later built as a 1:2 model shown in photos below.

These are from a environmental technical design project that based itself roughly on the guidance of [LETI one-pager design guide](#) on small scale housing.

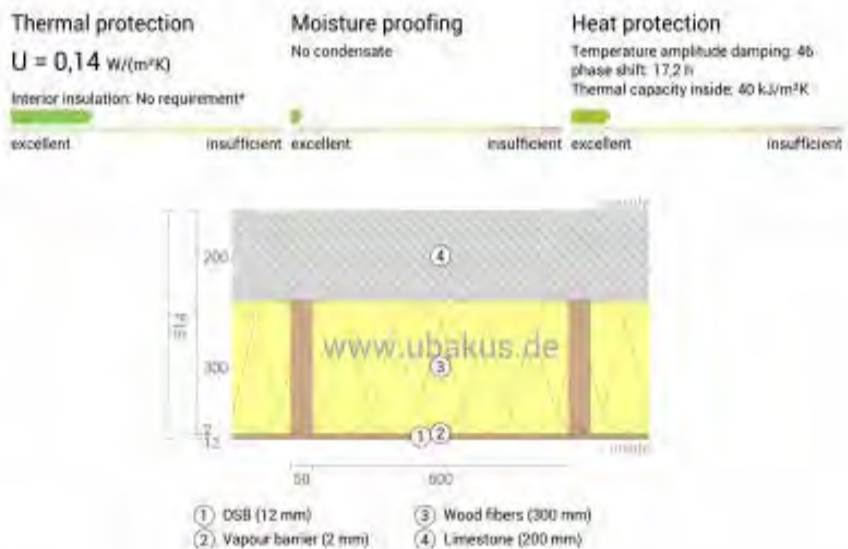
Using u-value and carbon footprint calculators, like [stage one embodied carbon calculator v6](#) from [M.E.S.H](#) energy and with the help of [uBakus u-value calculator](#) for insulation details, the project aimed to attain an lowest practical u-values possible with the materials assigned.

(In this case assigned materials were stone, wood, and fibre) - (Was exhibited in [TheEngineeringClub - Engineers Create](#) exhibition between 16-25 November 2023 at St Pancras Church and at the [AA Projects Review 2023](#))

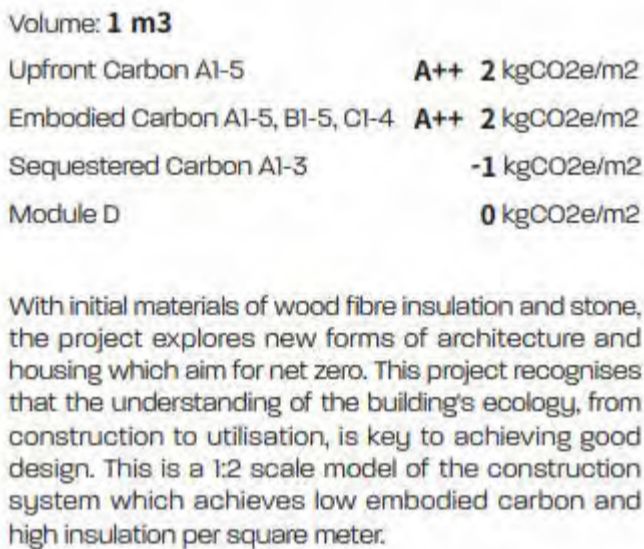
PROPOSAL NO.1



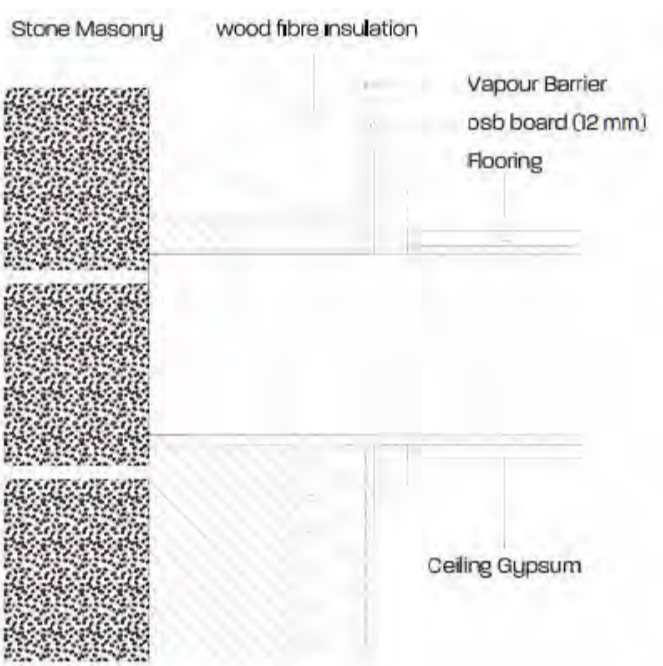
U-Value



Embodied Carbon



Section



1:2 SCALE MODELS OF THE ATTEMPTED "NET-ZERO"
NATURAL FIBRE (ABOVE) AND GLASS FIBRE (BELOW) INSULATED
STONE-OSB WALL BUILD-UP

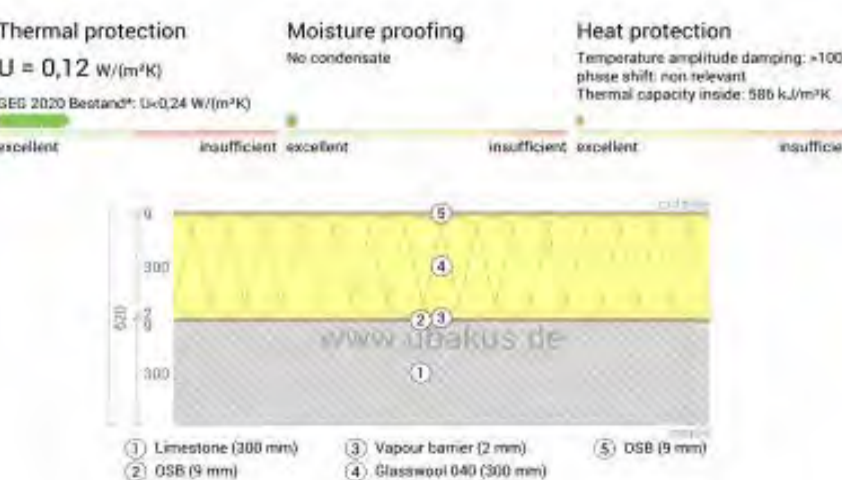
(STONE WERE NOT STUCK DOWN WITH MORTAR AND JOINED WITH THE INSULATION
LAYER, BUT RATHER STACKED ON SITE TO BE DISPLAYED, AS THEIR WEIGHT WAS
UNMANAGABLE IF JOINED PERMANENTLY)

*REAL LIMESTONE PIECES WERE SUPPLIED BY [THE STONEMASONRY COMPANY](#)
*NATURAL FIBRE INSULATIONS WERE FROM [STEICO UK](#)

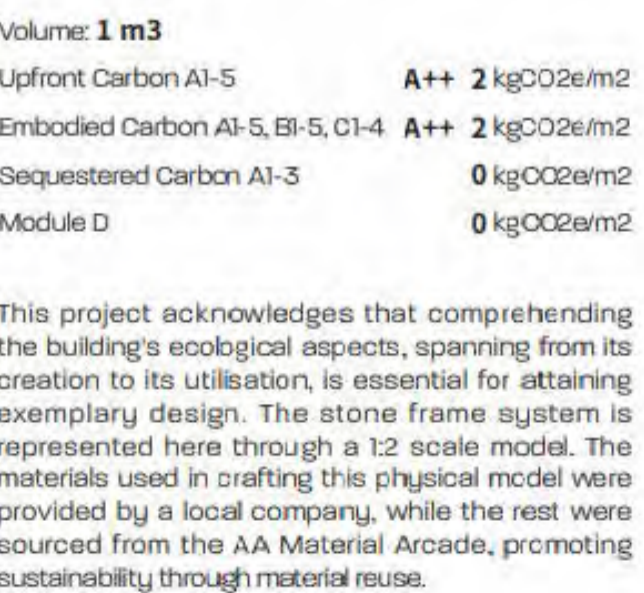
PROPOSAL NO.2



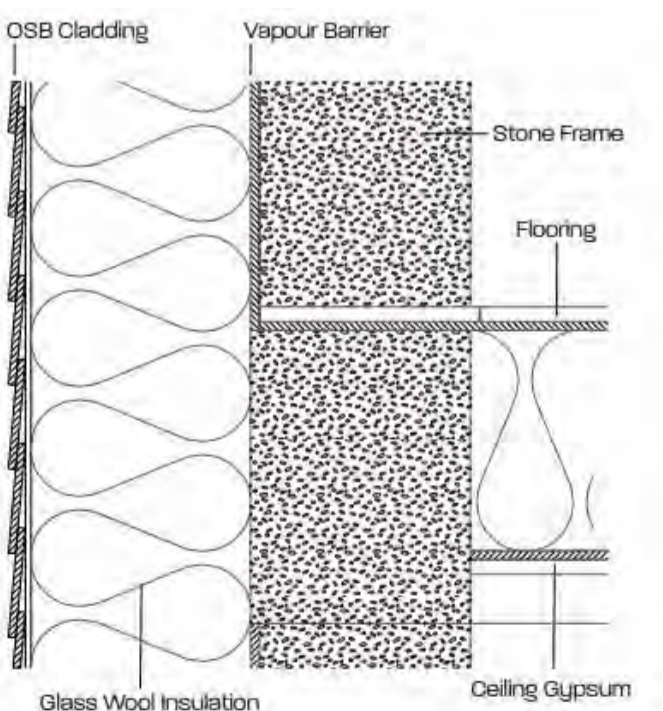
U-Value



Embodied Carbon



Section





o2

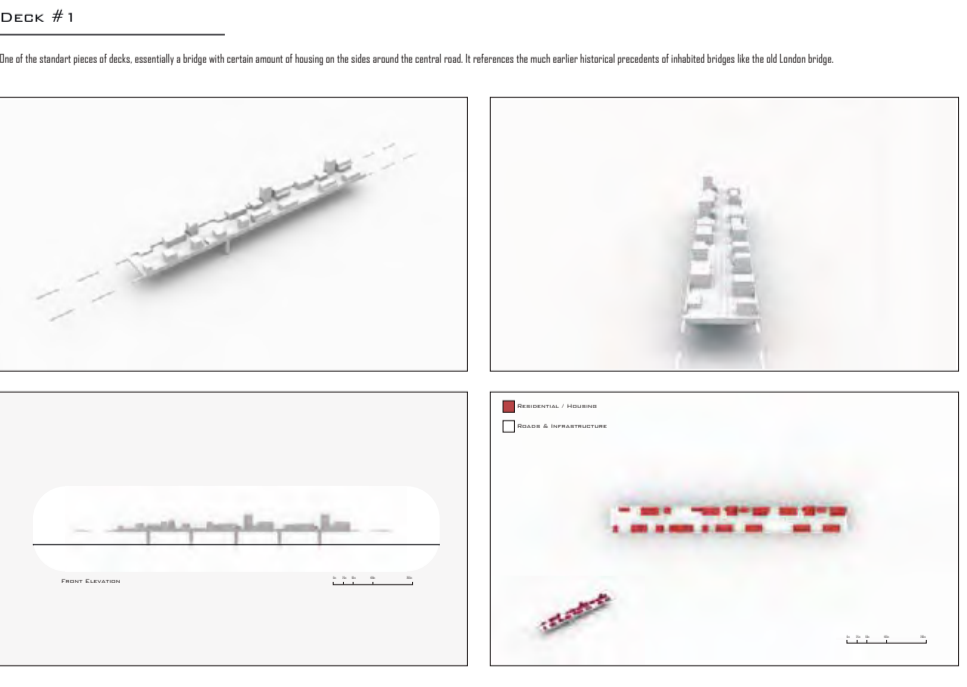
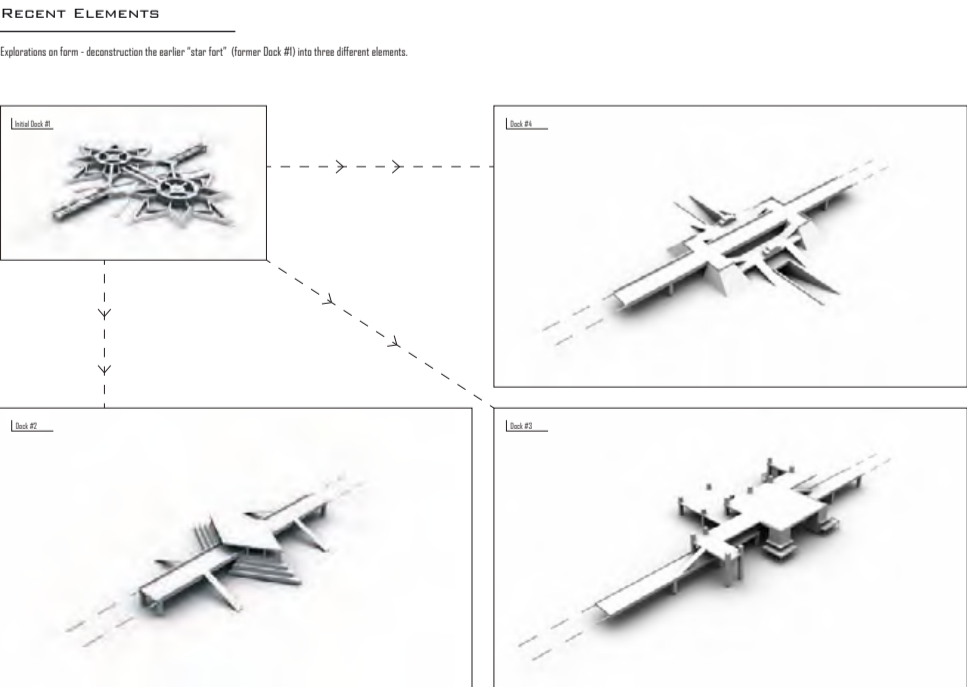
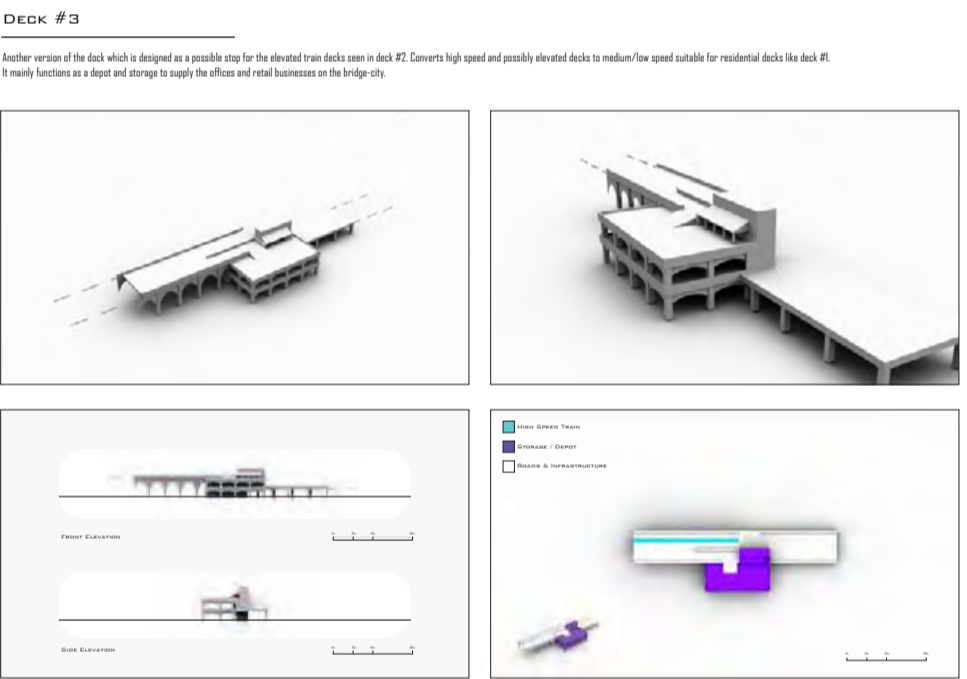
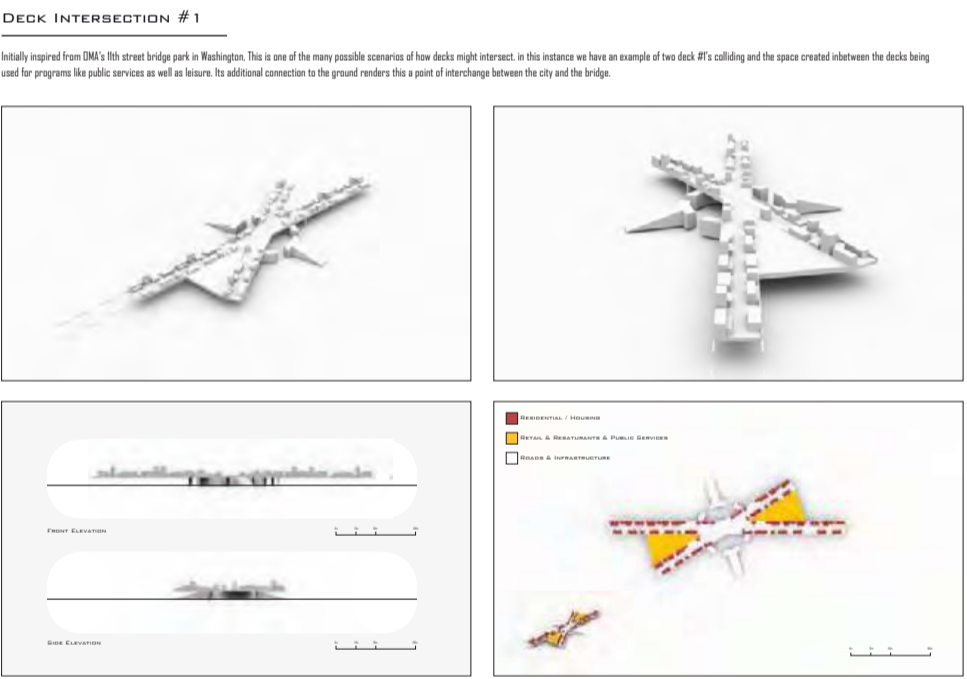
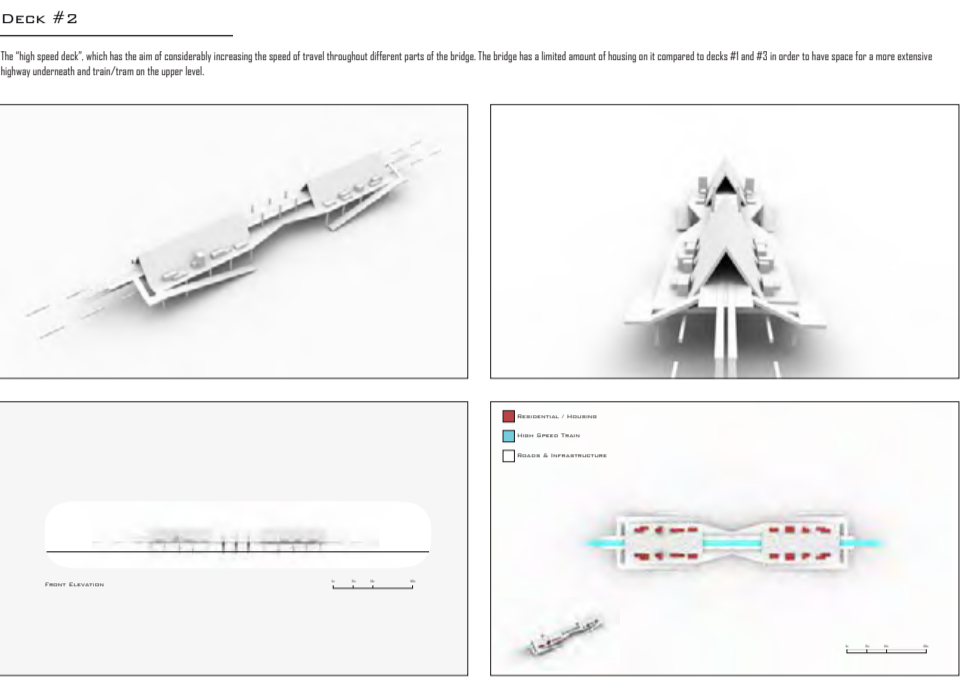
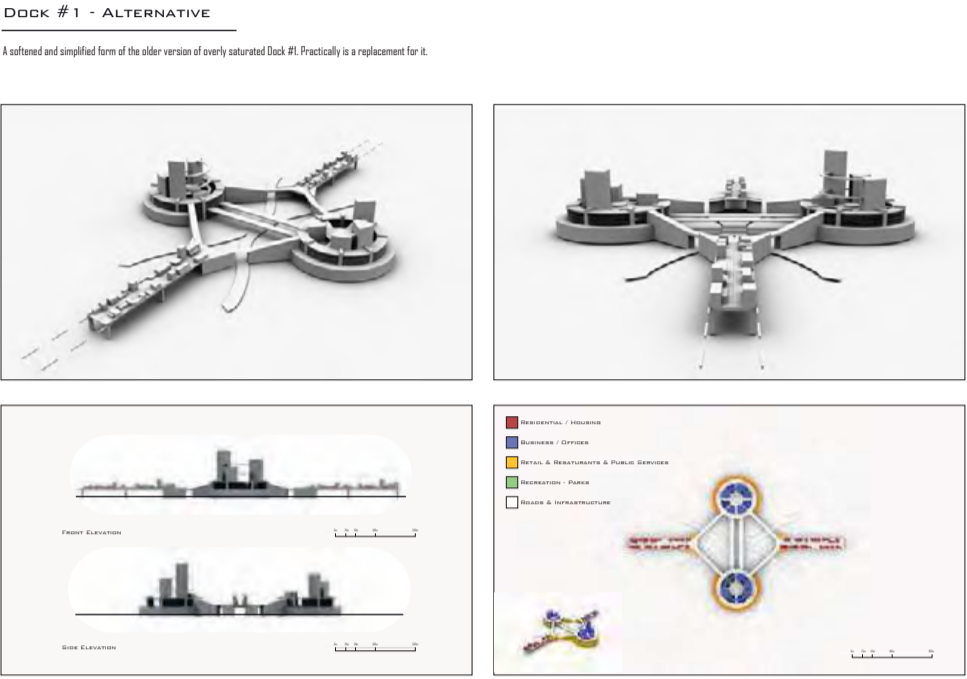
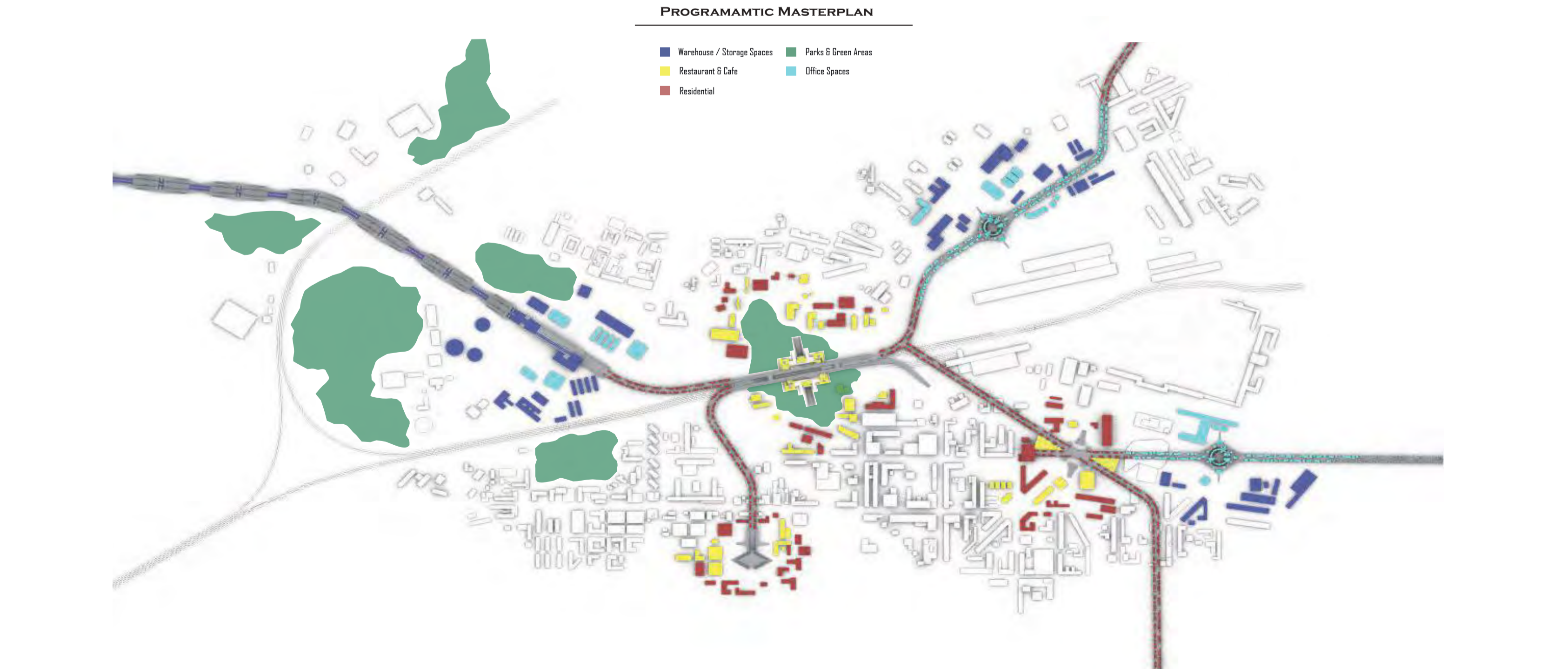
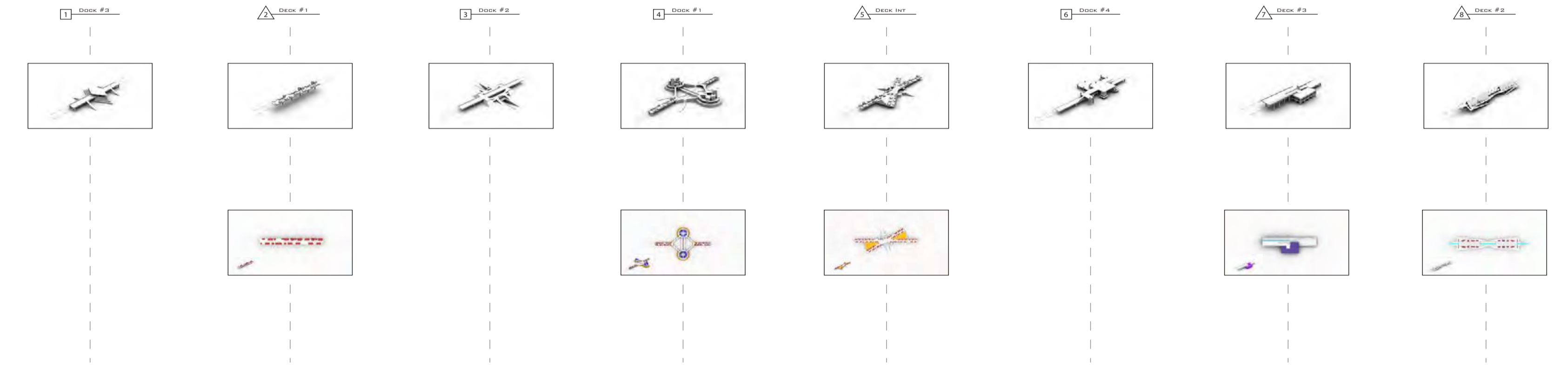
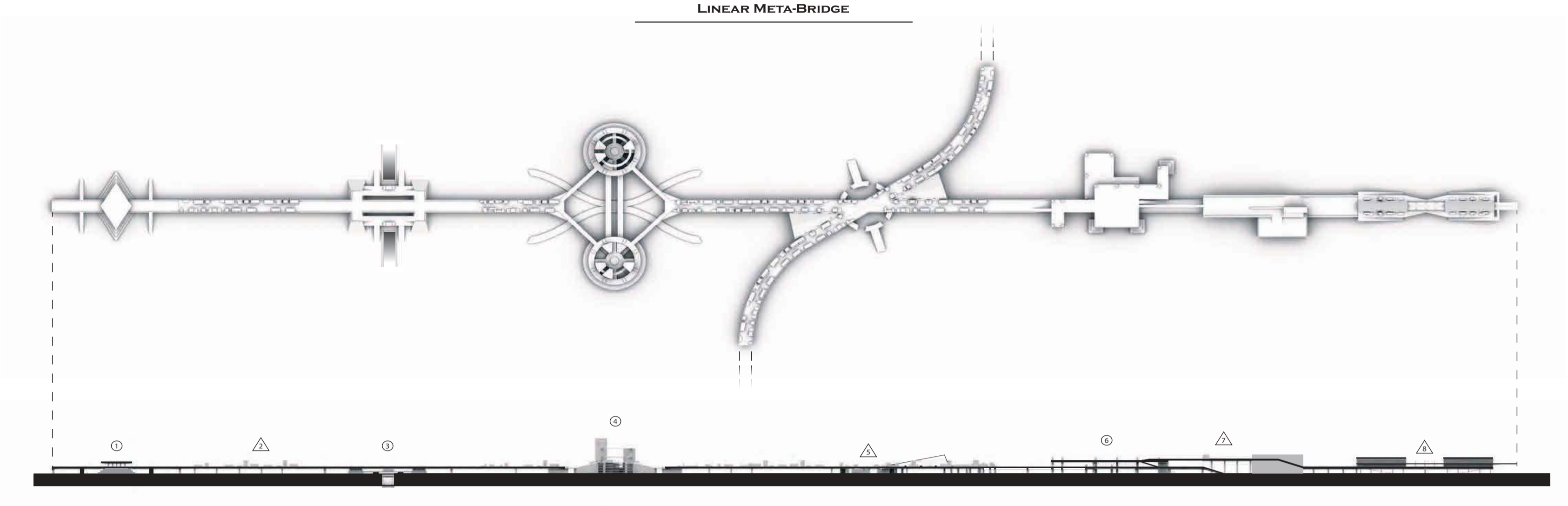
Studio: City in Transition - Old and New

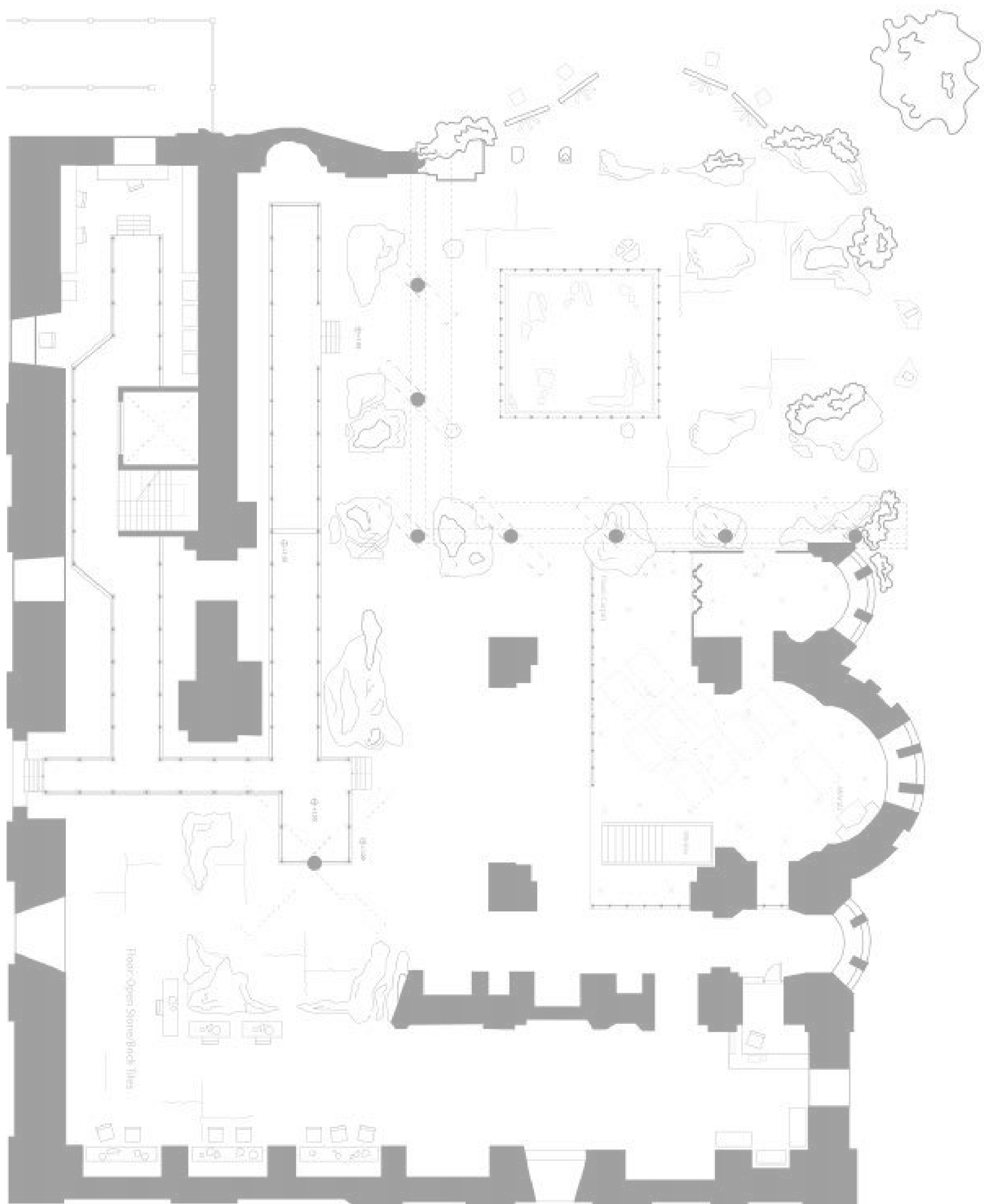
Summative images from 2nd year at the AA

Studio: City in Transition - Old and New

Few summative images and final plates from studio project focused on the city of Milan and its underused peripheral railway infrastructure, which creates potentially unsustainable and problematic ruptures within the urban fabric. The provocation revolved around the idea of a inhabited, programmed viaduct network that forms bridges between urban edges of derelict & underused industrial and infrastructural sites.

[Tutor: Maria Fedorchenko]





o3

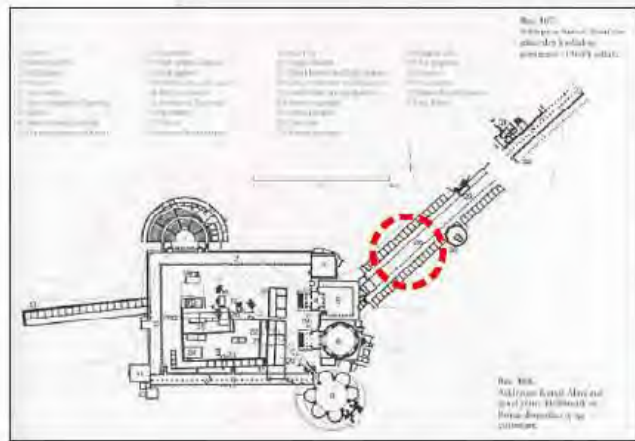
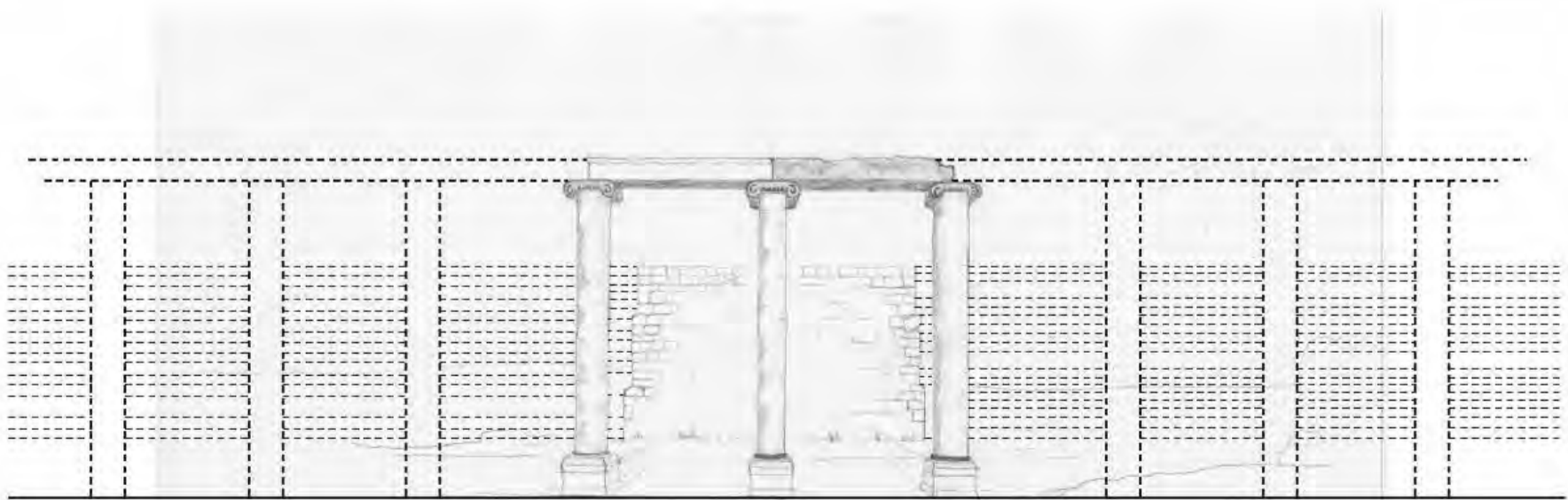
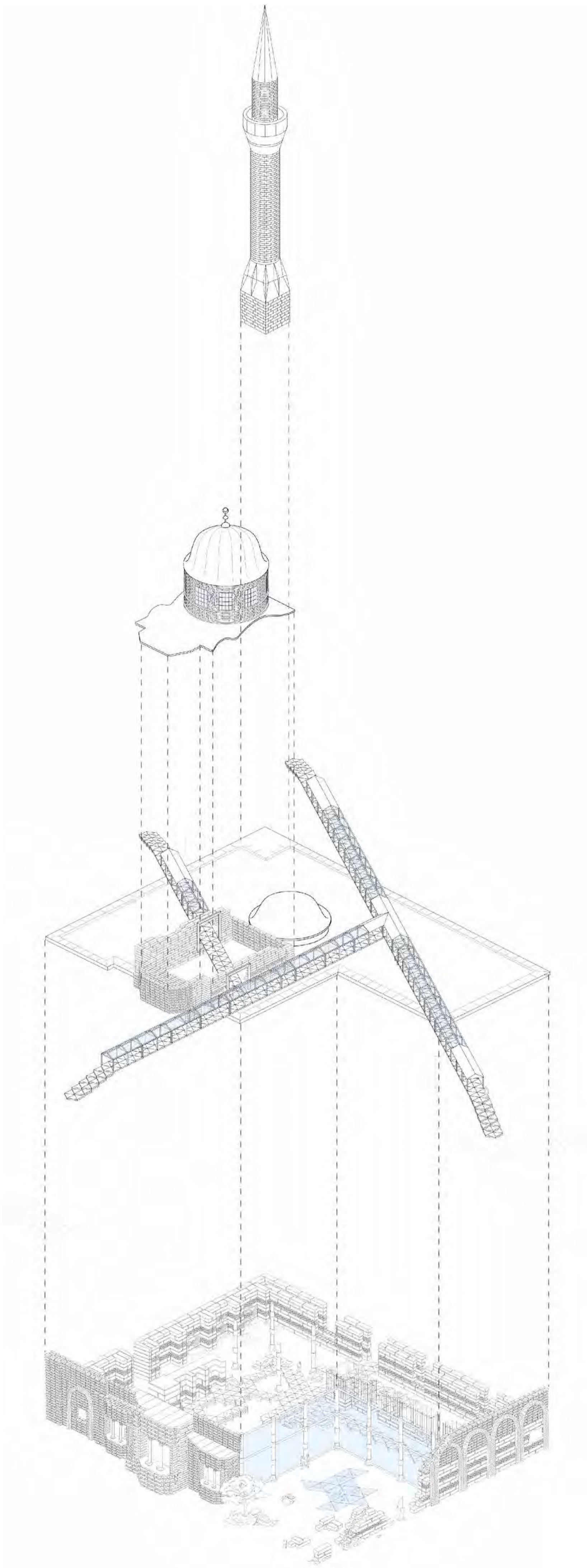
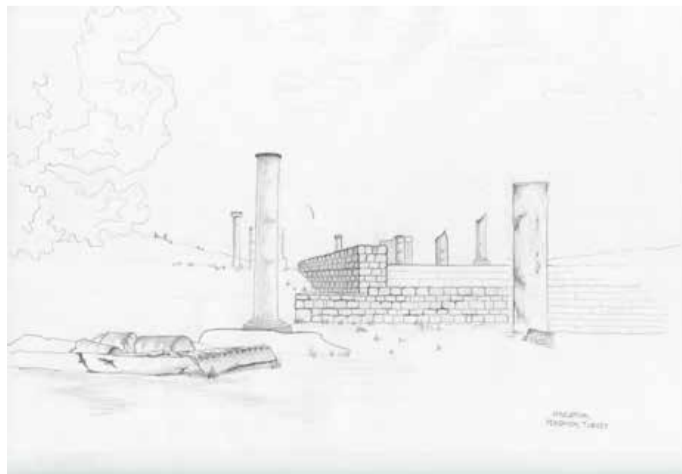
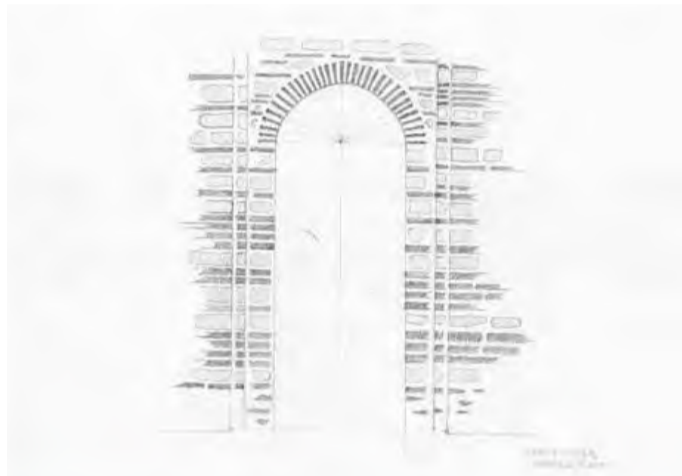
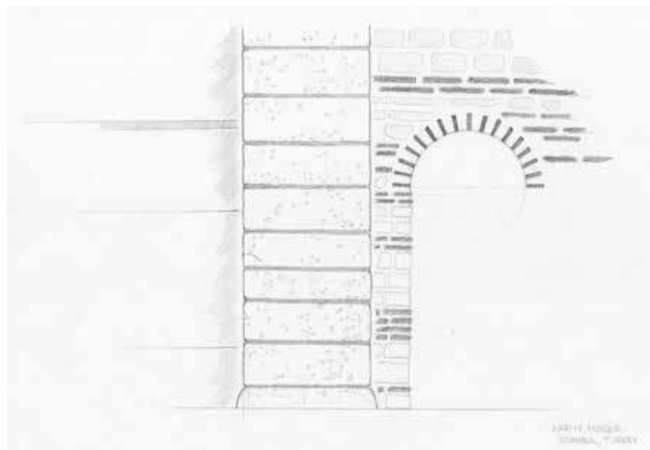
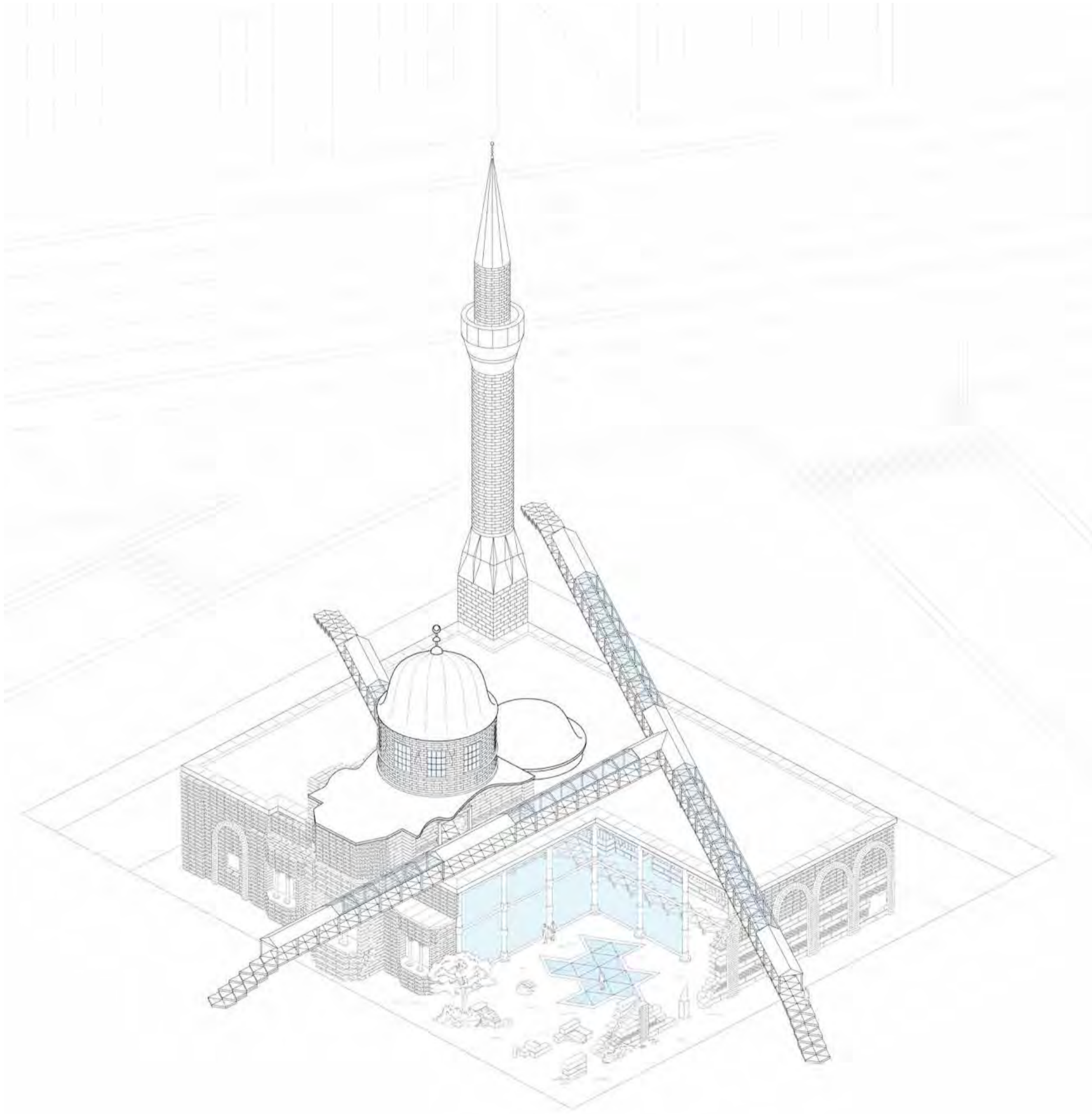
Studio: Dodici Personaggi In Cerca D'autore

Summative images from 3rd year at the AA

Studio: Dodici Personaggi In Cerca D'Autore

Studio focusing on nationalist connotations of UNESCO's heritage classifications and builds on a criticism of the way architectural identities were projected upon subjective, biased and often misled understandings of ownership in today's world driven by nation states.

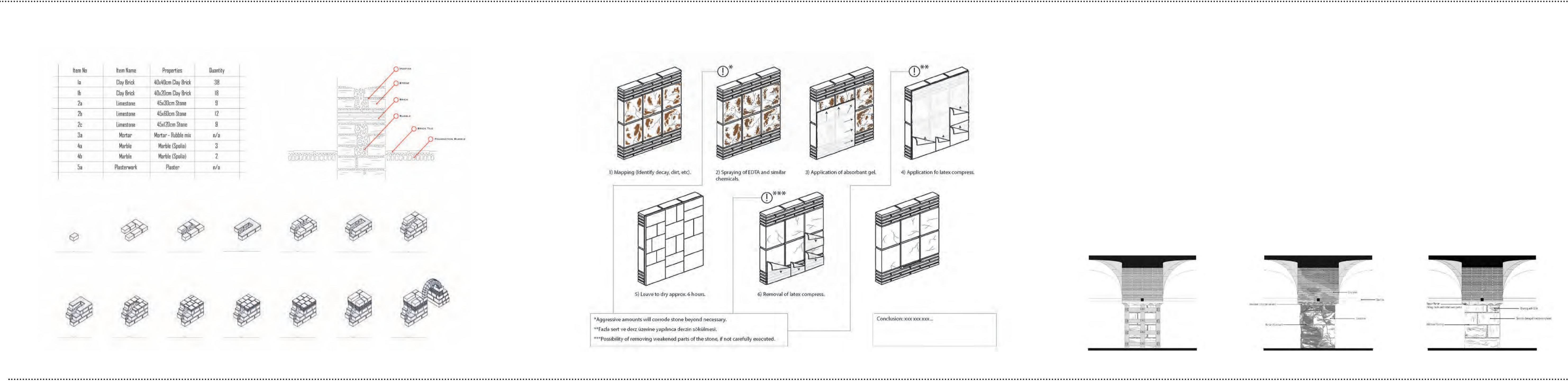
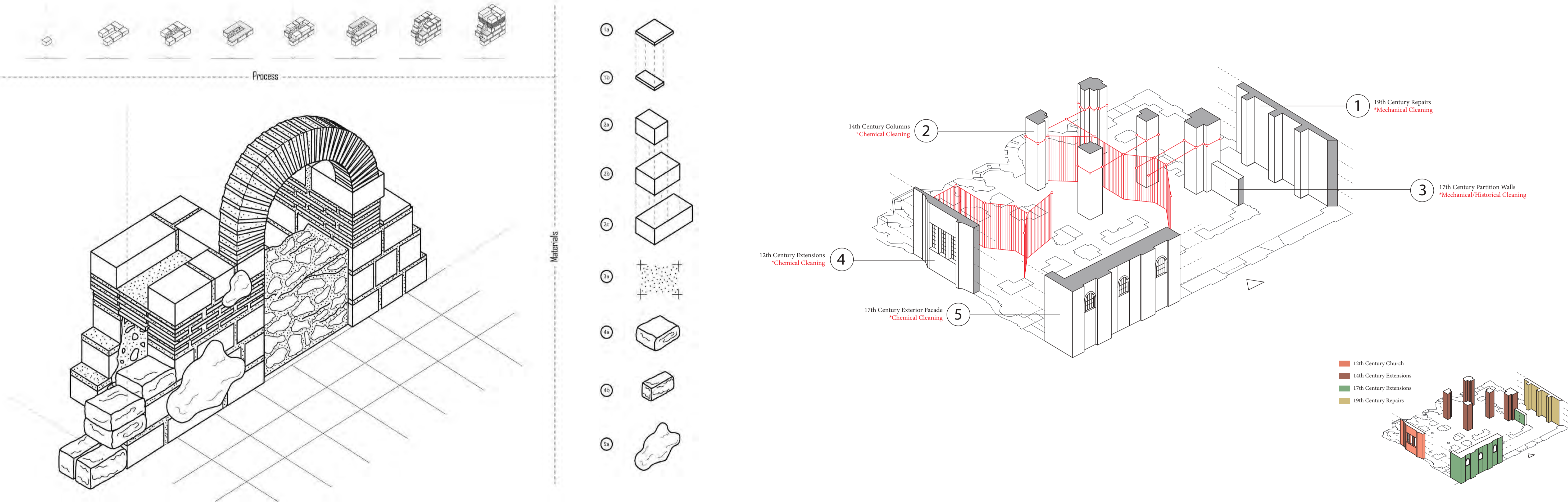
[Tutors: Christopher Pierce, Amandine Kastler, Aram Mooradian]



Studio: Dodici Personaggi In Cerca D'Autore

Studio focusing on nationalist connotations of UNESCO's heritage classifications and builds on a criticism of the way architectural identities were projected upon subjective, biased and often misled understandings of ownership in today's world driven by nation states.

[Tutors: Christopher Pierce, Amandine Kastler, Aram Mooradian]



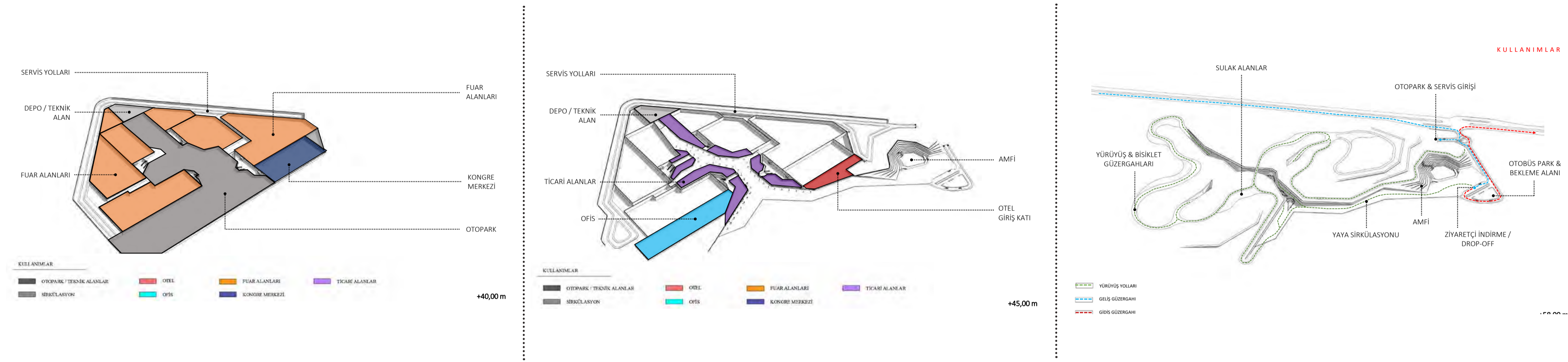
oY

Year-out / Professional Practice

Collection of a few undertakings during the year-out inbetween 3rd and 4th years in AA

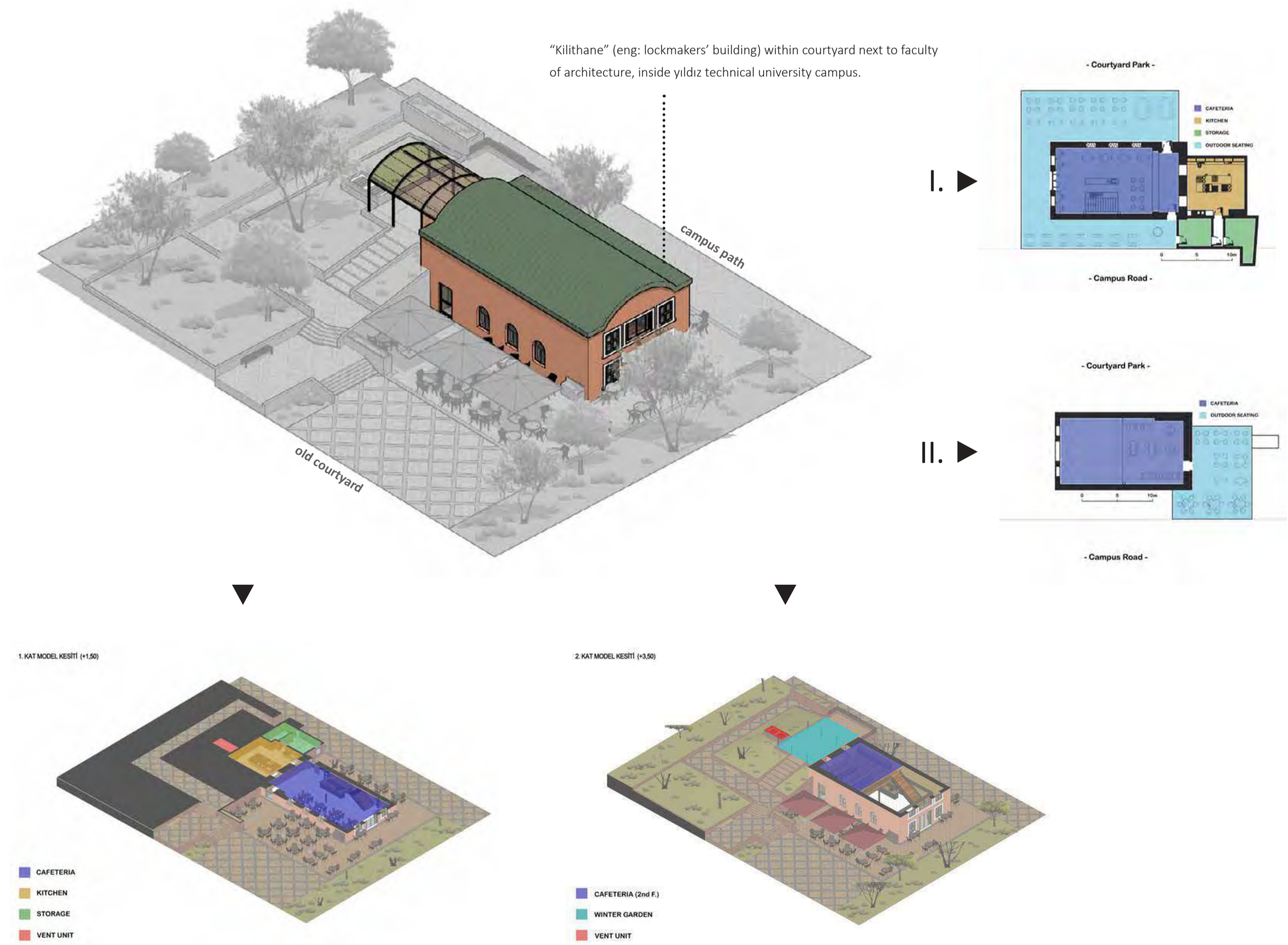
Year-out / Professional Practice

- Few images from a feasibility study presented to a municipality in Turkey on a potential exhibition centre, during year-out professional practice experience. (apart from all other work during year-out experience based within larger teams, this pre-concept project was developed by me under supervision and directions of principal architect)



Pre-concept renders from inside the "split"

- Upon request of a small-scale developer client, on a listed (the original built structure could not be altered, including for additional windows and openings) abandoned existing structure and courtyard space in Yıldız Technical University (Istanbul, Turkey) campus; surveys and consequent 3d modeling work were conducted and proposals for the buildings' interior and exterior re-use were developed in accordance with client's request of its re-purposing into a cafeteria to serve the adjacent faculty of architecture.



- Interior proposal



- Interior proposal



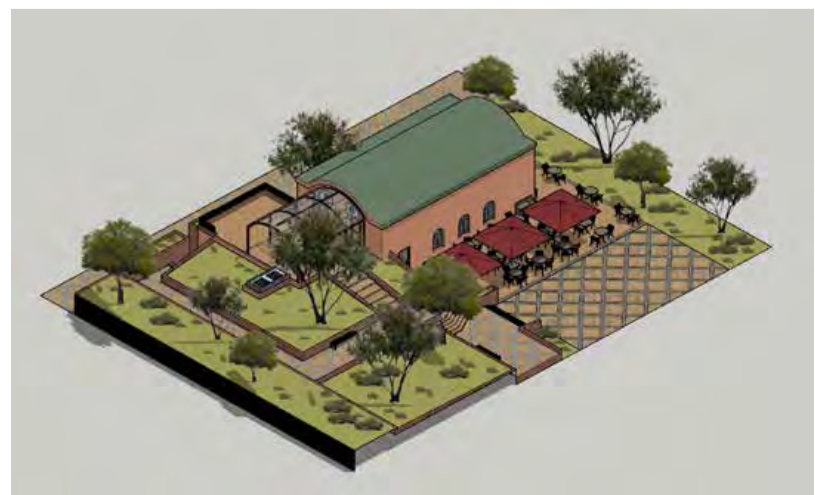
- approach & outdoor seating



- approach (courtyard) & outdoor seating



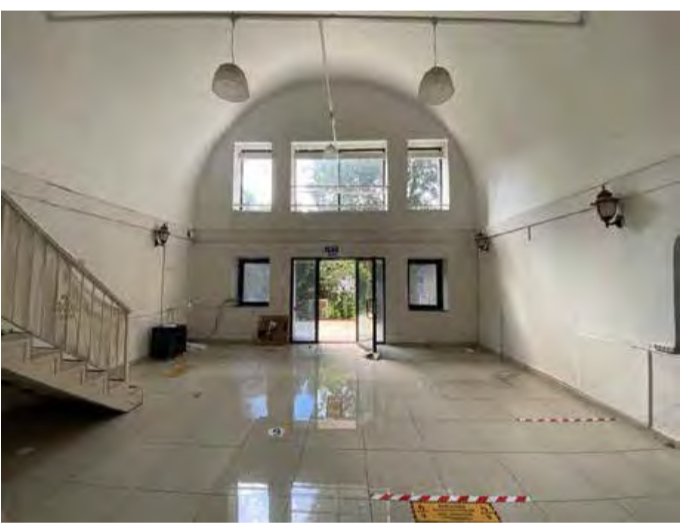
- general layout (north)



- general layout (south)



- previous state of interior



- previous state of interior



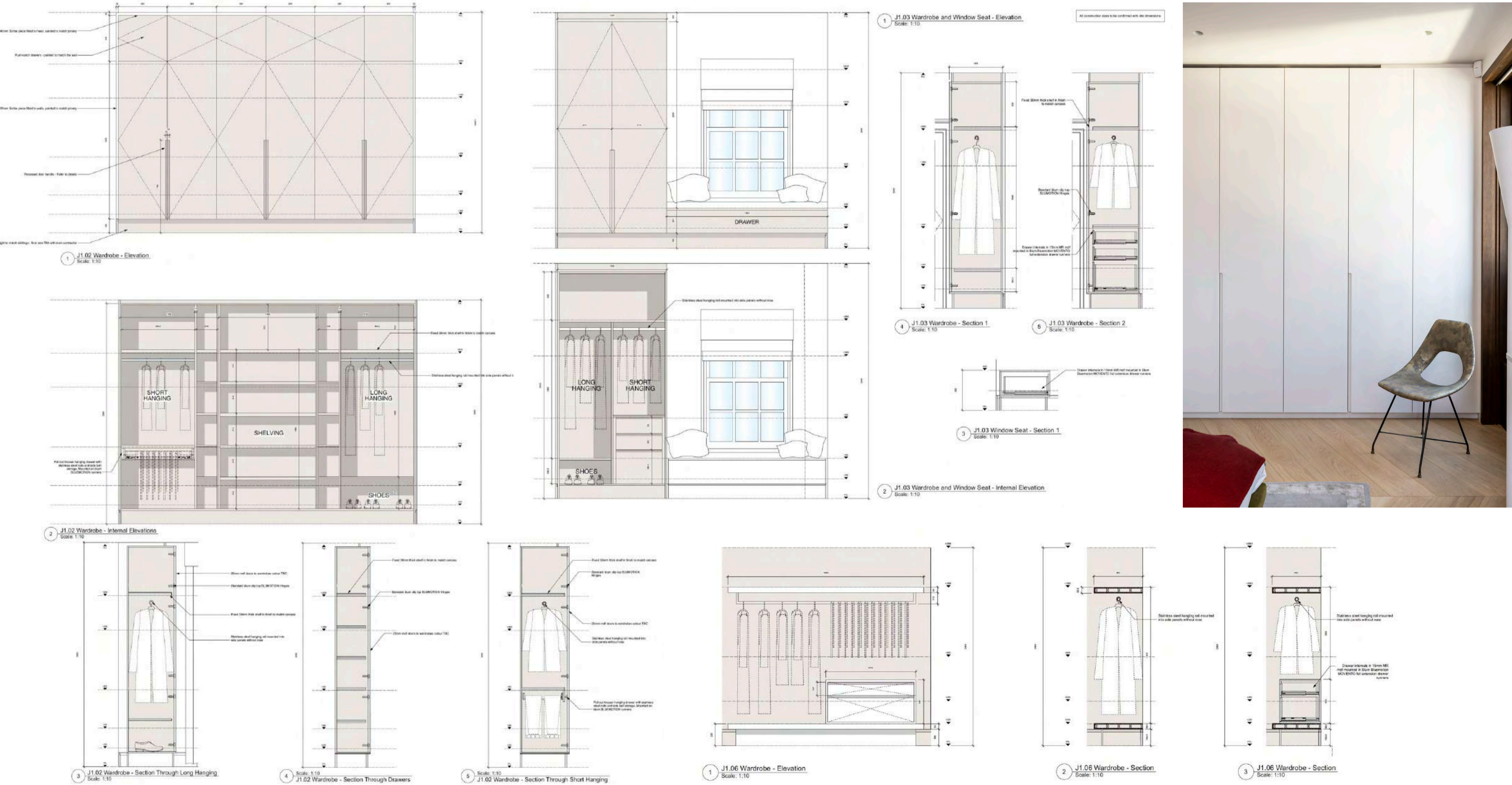
- Current state of building interior in use as intended, exterior areas still ongoing construction works.



Professional Practice - Most recent UK based work

- As a large part of my work experience post Part 2 has been RIBA stage 3 and onwards, below is a selection of drawings and details I have drafted for a small residential re-use project in a conservation area in south London. Please reach out for further details regarding my work experience, because apart from the demonstrable drafting and drawing experience,, **my key responsibilities included putting together tender packages, issuing CDMs, demolition plans, coordinating information between various (lighting, sanitaryware, appliances, ironmongery, finishes) schedules and making sure construction on site proceeds in accordance with design while responding (or bringing to the attention of lead architect where applicable) proactively to RFIs and issuing additional instructions where needed.**

Joinery Packages - I have extensive experience working at small scale on detailed joinery packages for bespoke residential and mixed-use projects. This has included designing and coordinating wardrobes, window seats, and bespoke kitchens, as well as the refurbishment and enhancement of existing heritage joinery. My work often involves balancing functional requirements with high-quality craftsmanship, ensuring that every element—from material selection to fixing details—aligns with the overall design intent and integrates seamlessly within the architectural context.



Traditional + Contemporary Technical Knowledge - I have experience in the precise detailing and drafting of Victorian house interiors, with a strong understanding of traditional profiles and decorations such as architraves, skirtings, and panel mouldings on joinery, doors and windows, and how best to integrate or juxtapose them with contemporary interventions and forms while maintaining character.

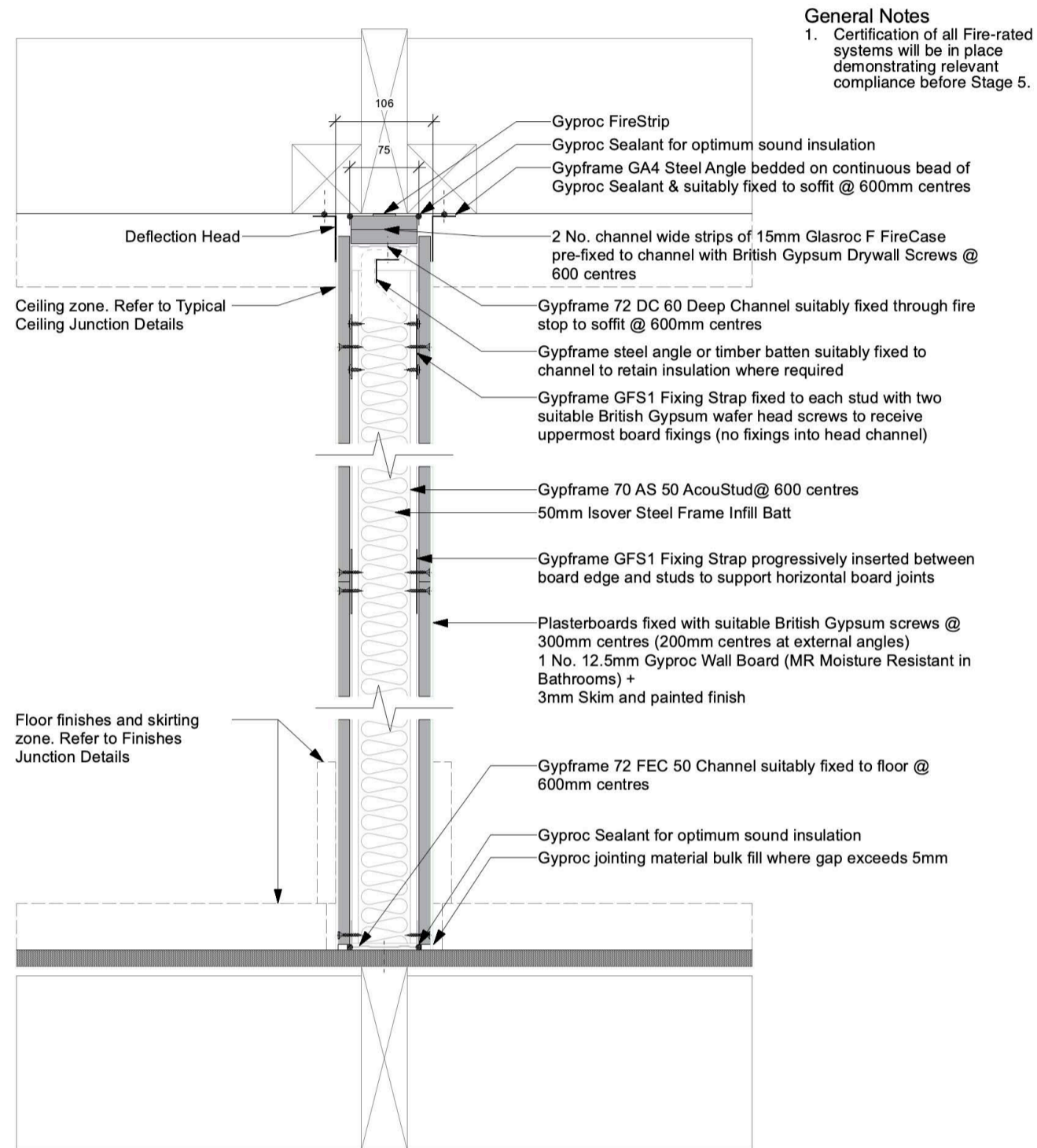


Visualisation Workflows - I frequently produce quick visualisations to help confirm client preferences and the overall look and feel of spaces before finalising critical material decisions. This approach allows for clear communication between client, architect, and joiner, ensuring that finishes, proportions, and detailing are agreed upon early and accurately coordinated in the final construction and joinery packages.

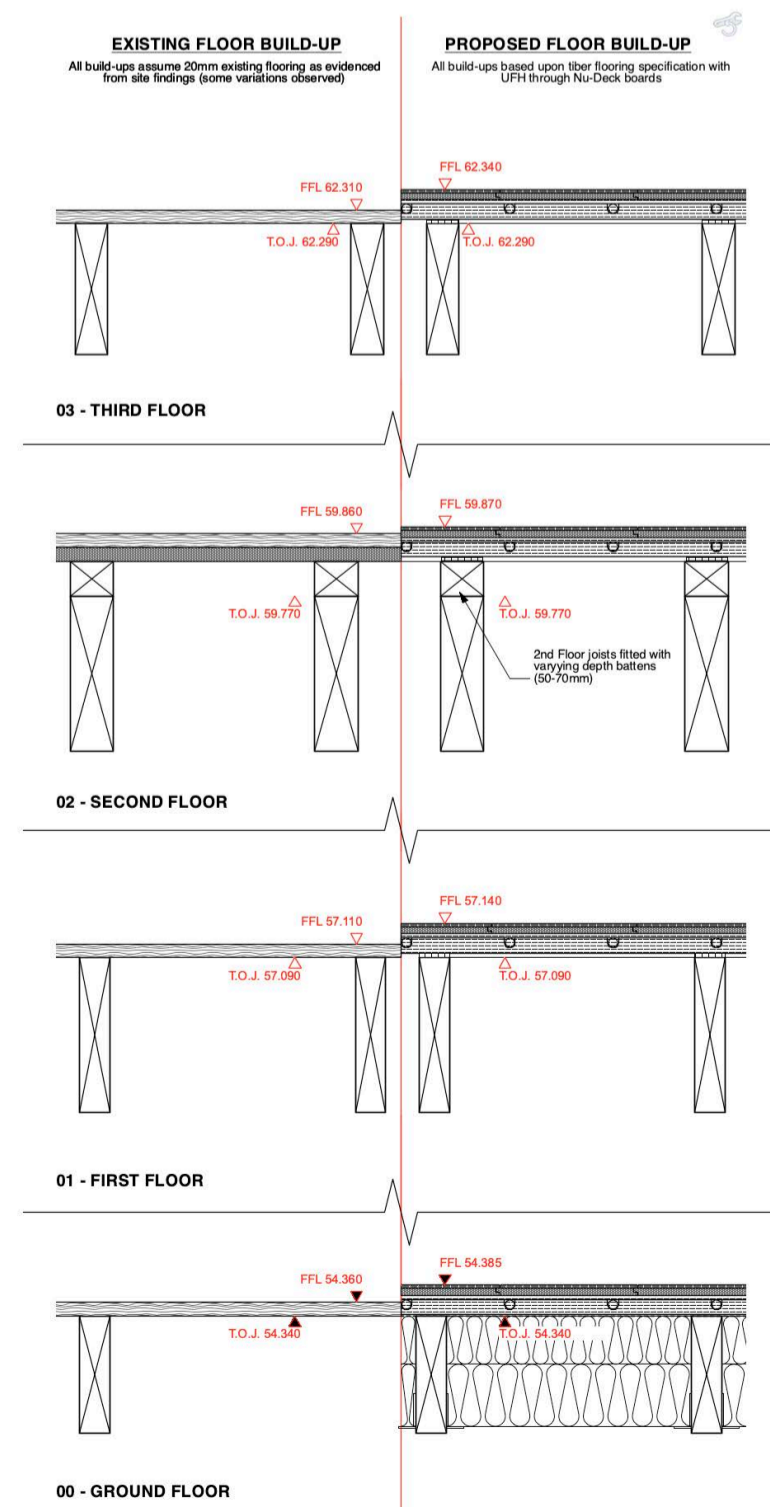
Professional Practice - *Most recent UK based work*

- As a large part of my work experience post Part 2 has been RIBA stage 3 and onwards, below is a selection of drawings and details I have drafted for a small residential re-use project in a conservation area in south London. Please reach out for further details regarding my work experience, because apart from the demonstrable drafting and drawing experience,, **my key responsibilities included putting together tender packages, issuing CDMs, demolition plans, coordinating information between various (lighting, sanitaryware, appliances, ironmongery, finishes) schedules and making sure construction on site proceeds in accordance with design while responding (or bringing to the attention of lead architect where applicable) proactively to RFIs and issuing additional instructions where needed.**

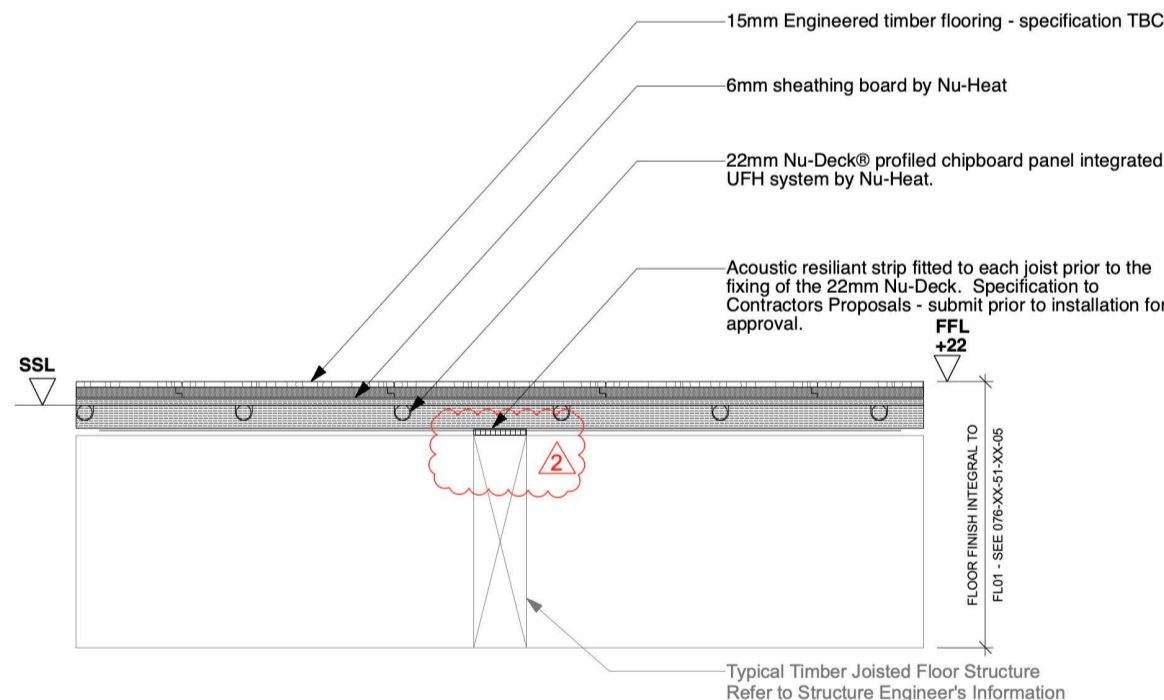
RIBA Stages 4-5 Experience - *Throughout my current UK-based placement and earlier international roles, I have taken on significant responsibilities in the later stages of project delivery—developing technical packages, responding to RFIs, preparing construction details, and coordinating directly with contractors and suppliers on site.*



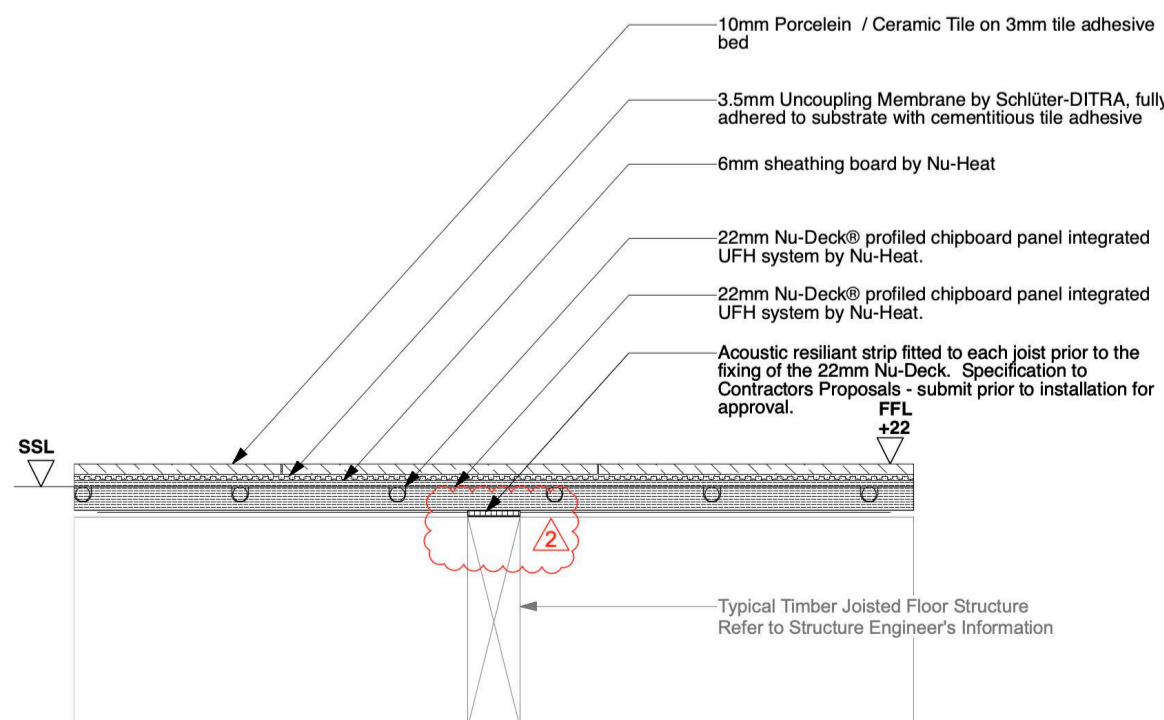
1 WT01 - Typical Partition FR30
Scale: 1:5



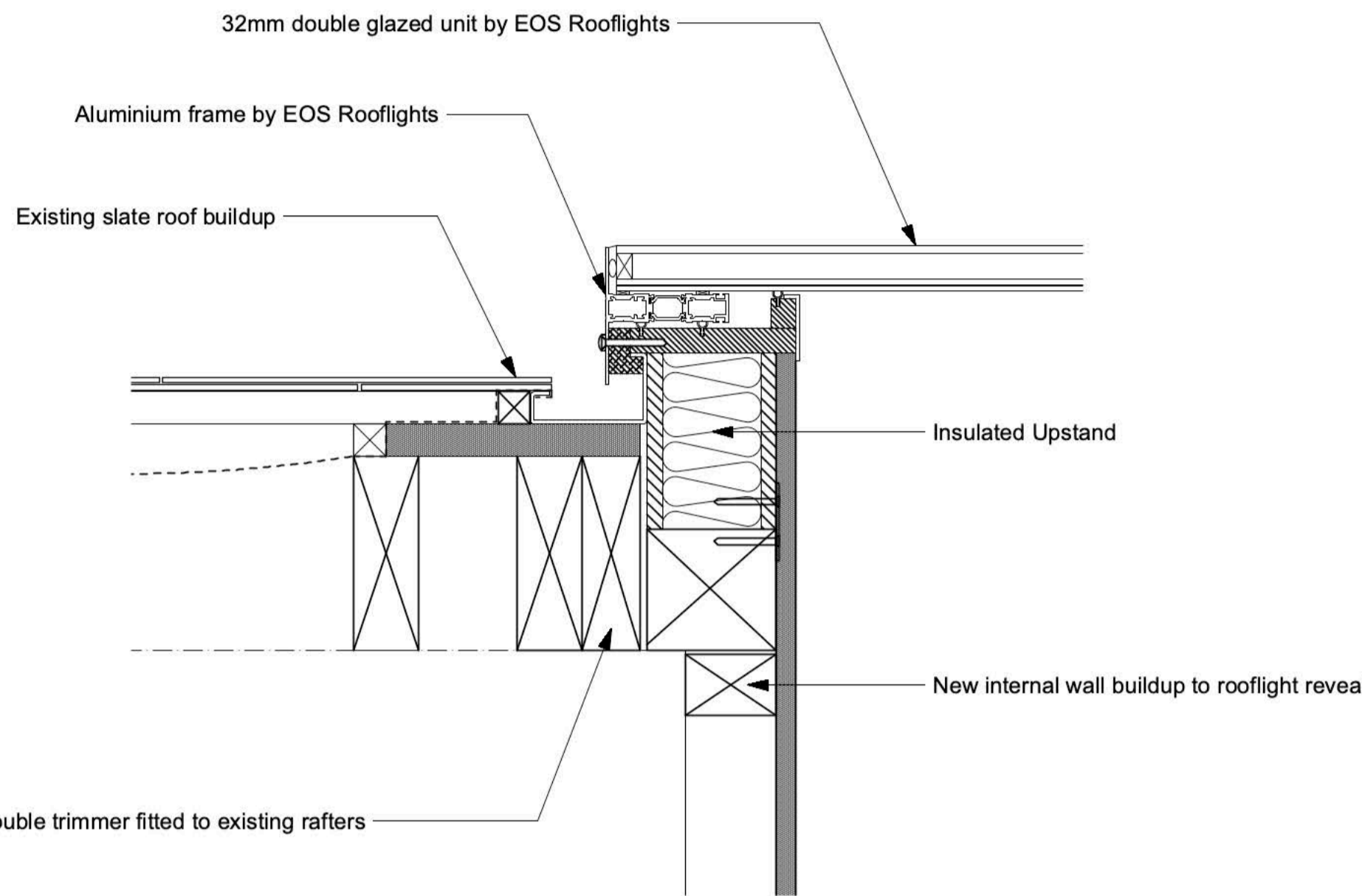
00 Floor Level Build-up on Existing Structure
Scale: 1:5



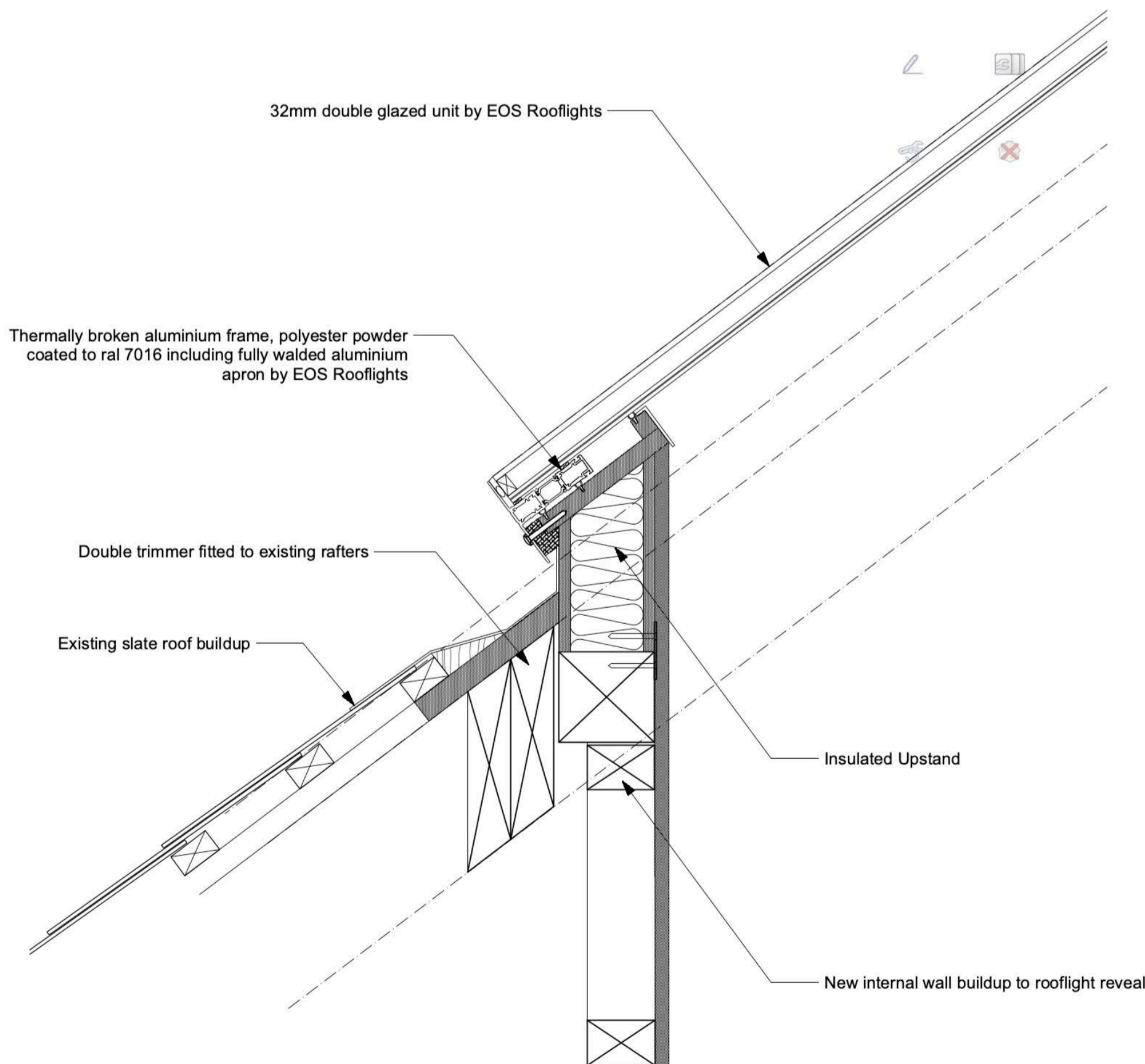
1 FF01 - 60deg. Chevron Oak Parquet Floor
Scale: 1:5



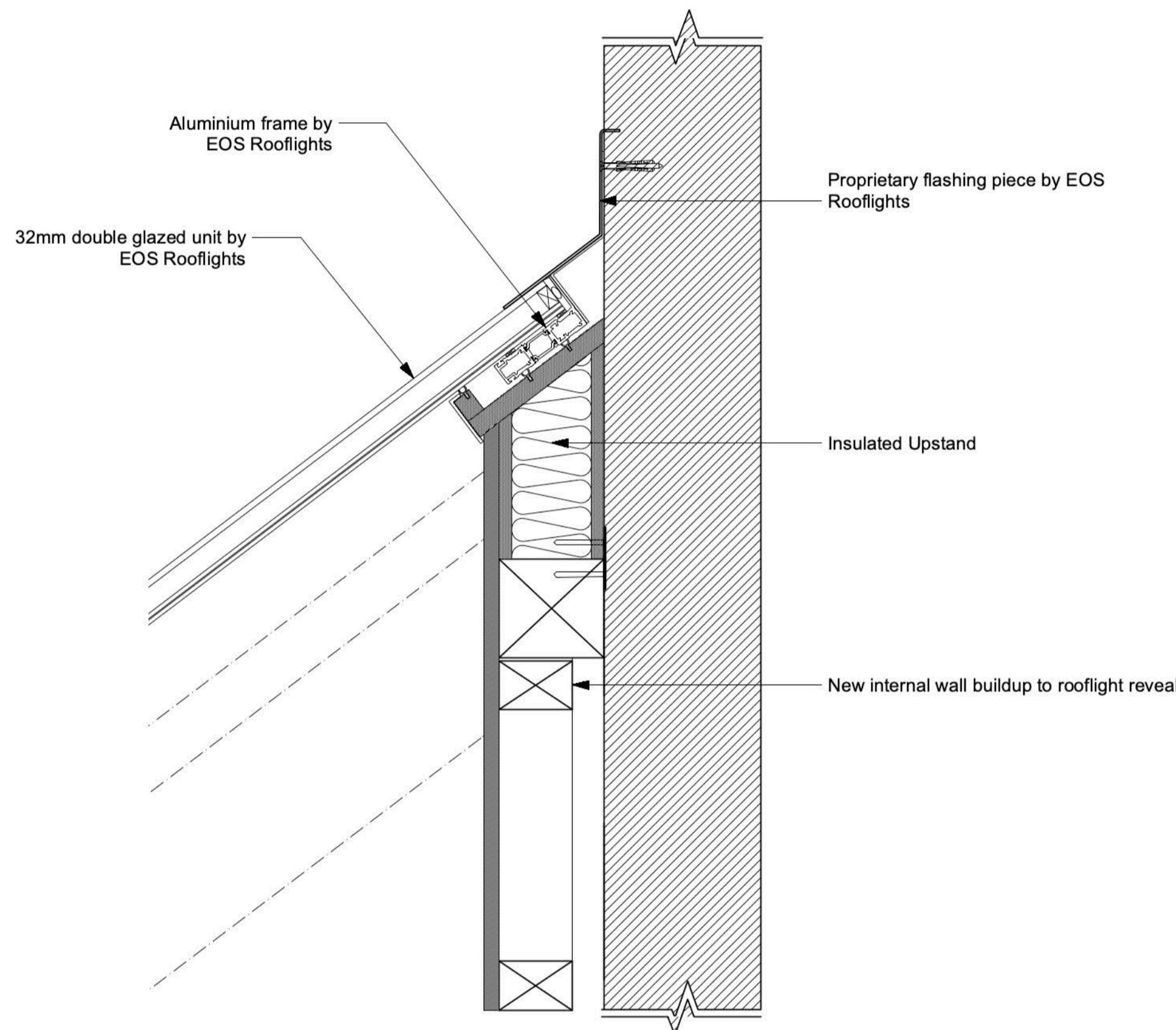
4 FF04 - Tiled Floor
Scale: 1:5



3 Rooflight - Cross section
Scale: 1:5



1 Rooflight - Base Detail
Scale: 1:5



2 Rooflight - Head Abutment Detail
Scale: 1:5

Schedule Preparation & Coordination - *I am very familiar with preparing detailed equipment, appliance, sanitaryware, and lighting schedules, ensuring they align with confirmations from the lead architect and incorporate client feedback. These schedules are carefully coordinated to support both design intent and practical delivery, and I would be happy to present and go over examples of this work in an interview setting, as they are structured worksheets rather than drawings.*

Communication with Suppliers / Manufacturers - *I am well accustomed to corresponding directly with suppliers, obtaining technical details, and assisting in the adjustment and integration of manufacturer information into live project conditions. This often involves careful coordination to reconcile contemporary elements with traditional construction buildups—for example, working through rooflight installations where modern detailing must be sensitively adapted to heritage fabric and on-site realities.*

On Site / Construction Stages - *My experience includes hands-on involvement in contract administration tasks such as reviewing shop drawings, issuing architect's instructions, managing specification queries, and ensuring build quality aligns with design intent. This real-time, site-focused engagement has been critical in developing my problem-solving abilities and has equipped me to balance design precision with on-the-ground delivery.*