

sample **PORTFOLIO**

Amy Aquilina

RIBA Part II Architectural Assistant

MSc Architectural Design for the Conservation of Built Heritage
(IHBC recognised course)

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part 1 year-out

This portfolio contains selected works and images from my time at University as well as in practice. Studying the MSc Architectural Design for the Conservation of Built Heritage course at the University of Strathclyde has been immensely rewarding. It has imparted upon me the necessary skills and knowledge required for understanding historic fabric, identifying mechanisms of decay, and making judgements on sensitive interventions which do not negatively impact a site's values or significance so it may be enjoyed and appreciated by future generations.

key interests:

Conservation of built heritage
Traditional construction
Natural materials
Sustainability

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references

Available upon request

Amy Aquilina

MSc, Dip Arch (ARB/RIBA Part 2), BSc (Hons)

education

MSc Architectural Design for the Conservation of Built-Heritage (IHBC recognised)

2020-2021 (Ongoing)

The University of Strathclyde

Diploma in Architecture, ARB/RIBA Part 2

2018-2020

The Glasgow School of Art, Mackintosh School of Architecture.

BSc Arch, ARB/RIBA Part I, Distinction

2016-2017

Robert Gordon Univerisy, Scott Sutherland School

Erasmus exchange

2013-2014

University of Rome Tor Vergata

BSc Hons Built Environment Studies, 2:1

2012-2015

University of Malta

Diploma in Design

2011-2012

University of Malta

installations / competitions / awards

Chambord Castle

(2019) International university student competition for future programs at the castle

The Big Crit

(2017) Selected to present re-use project at end of year event

Rob Hunter Prize

(2017) Award winner for re-use project

Innovation Hub Student Competition

(2017) Awarded 1st Prize

'Time, Space, Existence' Installation

(2016) Exhibition at the Venice Architecture Biennale with Ingarden & Ewy Architects

Warsaw Station Museum Competition

(2016) Museum complex competition with Ingarden & Ewy architects

relevant work experience

Apt London

2021

Part 2 Architectural Assistant, part-time

I was invited back to the practice to contribute on a part-time basis (job-share format) during my MSc studies. Due to the part-time nature of the work I was assisting with a different project each week, preparing drawings and documents for meetings with the planners. I managed well with remote and autonomous working, each week picking up where my other part-time colleague left off, as well as managing my time between University and practice.

Apt London (formerly Robin Partington & Partners)

2017-2018

Part 1 Architectural Assistant

I primarily assisted in delivering two projects which were undergoing construction in London; The King's Library: conversion of an Edwardian period school to residential units, and The Chelsea Design Centre: contemporary infill roofed avenue between two existing buildings. During my time in this studio I ran design team meetings on site, wrote meeting minutes, produced snagging reports, assisted with ongoing works on site, produced construction drawings and detail drawings, and was the primary contact in the studio for the day-to-day correspondence relating to the King's Library project. I was also actively involved in social aspects of the studio and along with two of my colleagues I organised the studio summer trip to Venice.

GIS Architecture Expo Conference, Krakow

2016

Assisted with two-day conference

Conducted interviews with the award-winning architects and designers that presented at the event.

Ingarden & Ewy Architects, Krakow

2015-2016

Architectural Assistant

I assisted with various projects and competitions including that for a transport museum complex in Warsaw. I was responsible for the concept development, 3D modeling and overseeing the manufacturing process, of a physical installation of a piece for an event at the 2016 Venice Architecture Biennale, made from traditional polish wickerwork. I traveled to Venice to install the piece and ensure it was ready for the opening night.

software & skills

Autocad

Revit

Rhinoceros 3D

ArchiCad

Sketchup

Adobe Suite

Microsoft Office

Model Making

Sketching

Historical investigations

Site analysis

Condition mapping

THE LION CHAMBERS

Conservation Design Project for an A-listed modern concrete building

Situation

The Lion Chambers is an innovative 1907 Hennebique Ferro-Concrete construction in the Buildings at Risk register for Scotland. As is typical for historic reinforced concrete buildings, the concrete cover over the reinforcement through the building is insufficient by today's standards. The reinforcement within the concrete is corroding in various areas throughout the site, particularly across the building envelope and in areas around the perimeter due to moisture ingress. Rainwater goods appear to be blocked and water is pooling on the flat roof sections. Three of the façades are in very poor condition with spalling cement render and concrete. Steel mesh was attached across these façades using steel strips and Hilti anchors to protect the public from falling material. The connection points for this mesh are allowing for further water ingress. The building has remained largely unoccupied since 1995 and the lack of heating, ventilation and general maintenance is exacerbating the decay.



Craigievar Castle, Scotland (via Pixelbay)



Lion Chambers, 1910 (RCAHMS)
The second fully reinforced concrete framed building in Glasgow.



Ingall's Building, the world's first steel reinforced concrete building built in 1903, Cincinnati, Ohio (via LOC)

Task

Develop a conservation strategy and a design for The Lion Chambers and its surroundings, including the required interventions and phasing, to ensure the transmission of the building, its values and significance into the future.

The building was inaccessible for the duration of this project due to the Covid-19 pandemic, however interior & exterior photographs, surveys and previous reports provided by the client (the Four Acres Charitable Trust) provided sufficient detailed information for the purposes of this project.

Action

Research into the building's architectural and construction history; Analysis of previous reports and surveys; Investigating concrete decay mechanisms; produced a full 3D model of the Lion Chambers and the neighbouring georgian building to gain a better understanding of the structure and areas of concern.

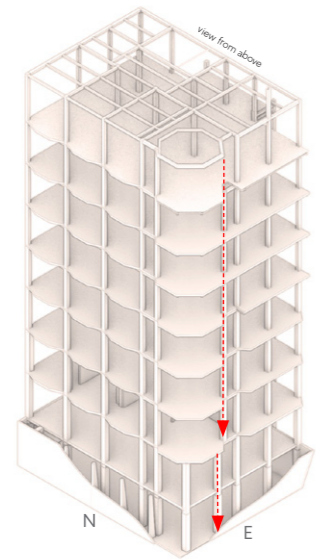
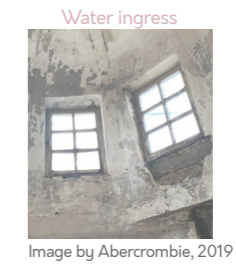
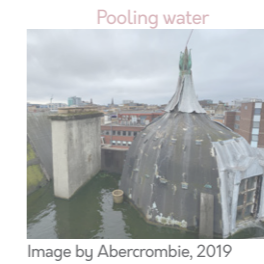
Result

Determined critical issues and appropriate interventions, identified areas for further investigations and repair method testing; Proposed new escape stair and adapted existing stair to meet building regulations; Devised architectural, structural and constructional strategies (including phasing and further investigations required) which do not compromise the building's values and which would allow the building to be used and transmitted into the future.



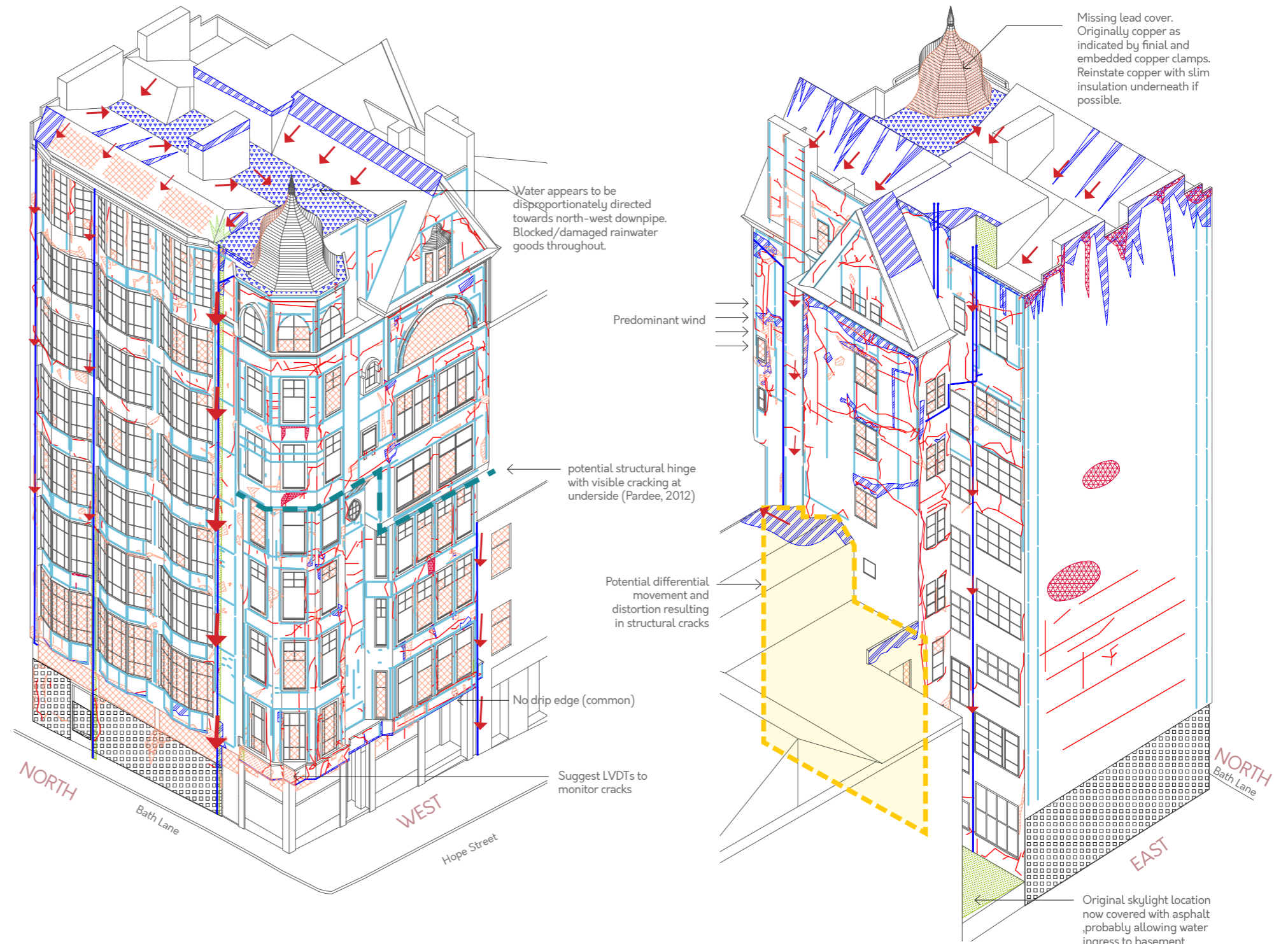
Condition & interventions

Critical interventions include addressing the global structural behaviour of the building and making the envelope watertight. A temporary structure will be required to dry out the building, however before this is installed a thermographic survey and full laser scan is required. Once the temporary structure is in place, further investigations relating to the condition of the building along with any tests and mock-ups may be carried out.



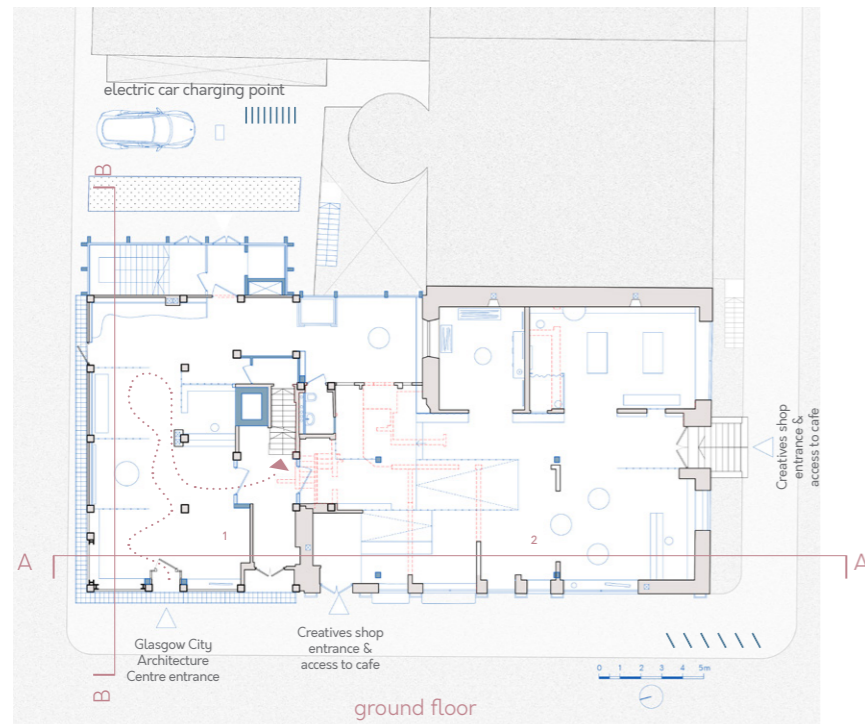
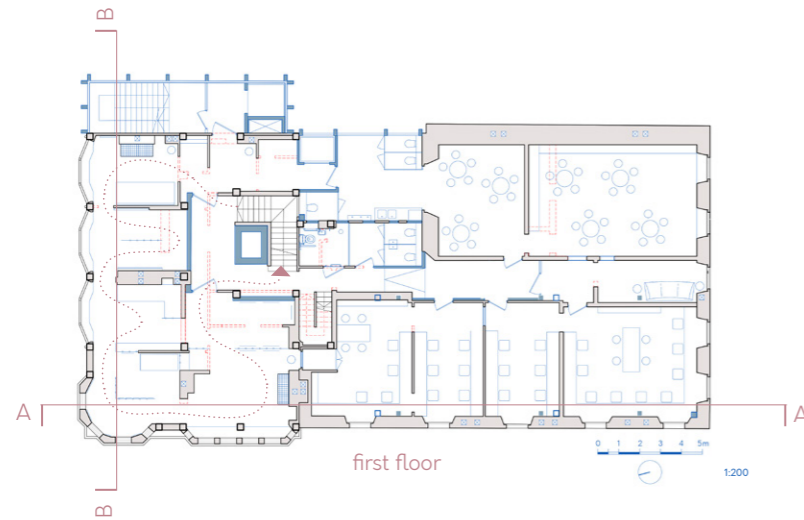
Hennebique Ferro-Concrete Frame

- cracks
- spalling
- Missing/broken windows
- Missing parts
- Pooling water
- Water stain
- Discolouration
- Graffiti
- Plants
- Biological Deterioration
- Steel Bars
- Rainwater downpipe/SVP
- Potential structural hinge



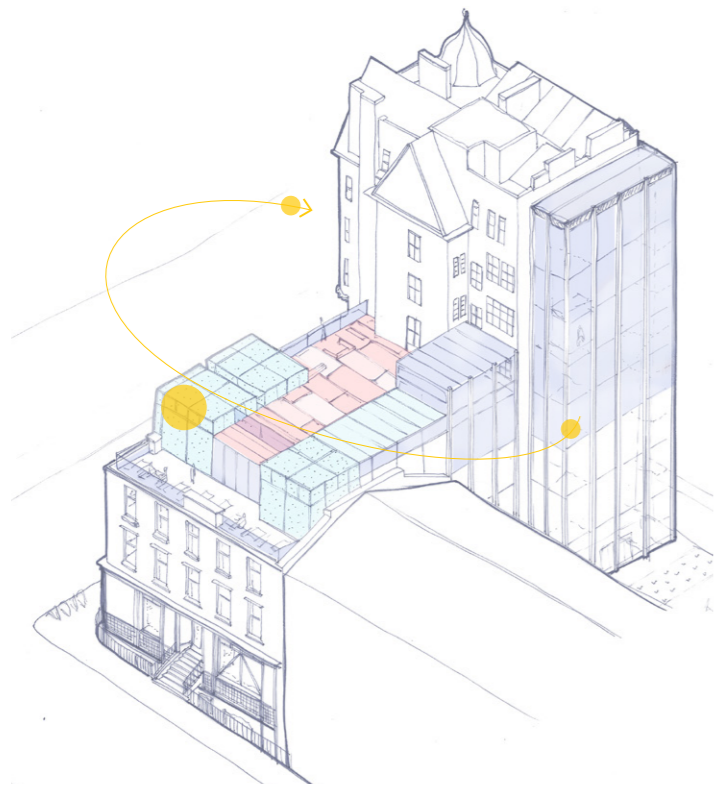
Conservation Approach

As a living building and not an artefact, some alterations to the existing fabric will be required to ensure the long term use of the building, however these alterations should not negatively impact the building's values - namely its light appearance and the spirit of innovation with which it was designed and built. This has a direct effect on the thickness of insulation that may be used, so that the slenderness of the walls may still be appreciated, accepting modern standards for U-values may not be achieved. Where the original fabric is irreparable or missing, replacements should be sympathetic to the original however the energy efficiency of the new elements should also factor in to the decision making, for example replacement windows should be double glazed. Any original design flaws which may have contributed to the building's decay should also be addressed. Windows which are beyond repair for their original function may still feature internally, intergrated with new furniture design for example.



Energy generation

It will be difficult if not impossible to achieve the required U-Values in the Lion Chambers tower without compromising its architectural values. Therefore, more energy will be required to heat the building. Both the proposed roof extension of the adjoining Georgian building and the new east escape stair may be built from Building Integrated Photovoltaics (BIPVs) to lower energy demand from the grid. The Hennebique system of construction was innovative at the time of the Lion Chambers' construction, as are BIPVs today.



Concept for the new solar roof cafe on the Georgian building, with improved cycling routes and electric car charging points in the surrounding area

MONTEITH MAUSOLEUM

Exercise in understanding the mechanisms of decay for a stone structure

Situation

The Monteith Mausoleum is an intricately carved sandstone building designed by architect David Cousin, constructed in around 1842. It is perched in a prominent position on the hill of the Glasgow Necropolis. It is at an advanced state of decay and The Friends of the Glasgow Necropolis, a charity organisation, have launched the Monteith Appeal in an effort to save the building.

Task

Carry out a condition survey and conduct research into the history of the site relevant to its condition. Determine the extrinsic and intrinsic causes of decay,

Action

Research into the mechanisms of stone decay, particularly that of the Giffnock Sandstone used for this construction to determine the intrinsic factors contributing to the decay. Analysis of the history of the area and site analysis to determine the extrinsic factors contributing to the decay. The ICOMOS-ISCS Glossary of Stone Deterioration Patterns (2008) was used to identify the different pathologies affecting the site. Comparison with previous reports were made to shed light on the rate of deterioration.

Result

The site is experiencing rapid erosion with visible deterioration from one year to the next. The decay is manifesting in different pathologies on the southern portion than in the northern portion of the facade. On the southern portion, which is exposed to the predominant wind and driving rain, the carvings have been eroded leaving smooth shapes and loss of detail. The North is more heavily affected by black crust due to its sheltered position. While the black crust has largely preserved the detail of the carvings it has different mechanical properties to that of the underlying stone causing it to break away in thick layers - exposing a very weak and crumbling stone with little cohesion. The advanced state of decay observed could be due to the incorrect bedding of the stone (it appears to be face bedded in many locations), exposure to the elements, its location in an area which has historically been industrial and so subject to acid rain, and finally the poor quality soft stone selected for the ease of carving into. Pooling water can be observed around the base of the structure where subsidence appears to be taking place. Chunks of stone are falling from the structure.



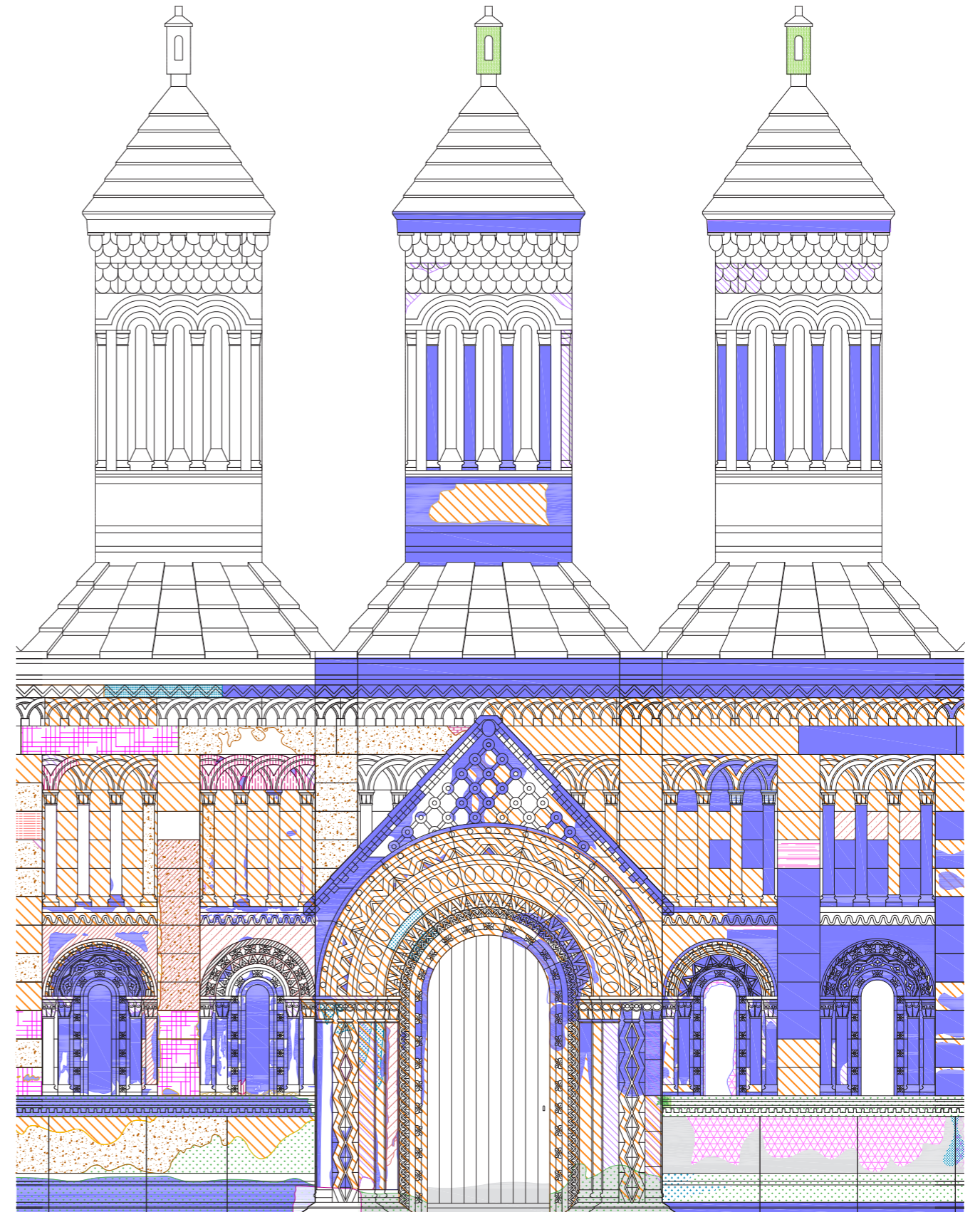
Monteith Mausoleum entrance, facing south-east (image by MacKenzie, 2020)



Visible migration of iron oxide and mineral cements to the outside face of the stone, leaving a powdery inner stone lacking cohesion.



Loss of detail in areas where the black crust has come away from the stone.



Condition mapping for the Monteith Mausoleum, base drawing by Lynda Henderson, edited by university of Strathclyde students

Exfoliation		Sanding		Erosion		Deposit		Discolouration	
Delamination		Bursting		Missing Parts		Efflorescence		Moist Area	
Peeling		Alveolization		Crust					

HOLYROOD PALACE

Conservation of a grade A-listed palace in Edinburgh

Situation

Holyrood Palace is the Queen's official residence in Scotland. The history of the Palace begins with that of the adjoining Holyrood Abbey, which was founded in 1128 by King David I and today is a ruin. The Palace was altered by the various monarchs throughout its history. Today, the west façade is in poor condition showing various pathologies of stone decay. The condition of the entrance portal is of particular concern as it is architecturally and historically significant.

Task

Research into the history of the site using both written and visual media; Identify the values and significance of the Palace; Determine the ownership structure and identify the statutory designations; Focusing on the west façade: investigate decay pathologies taking place, determine potential causes of decay (including structural) and propose interventions, identifying which statutory requirements must be considered for any works.

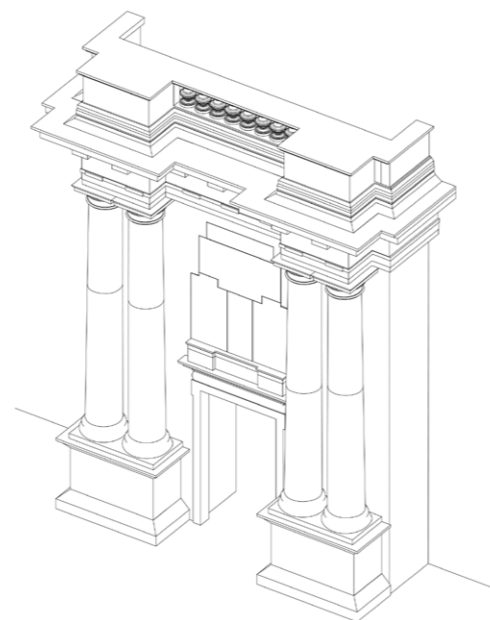
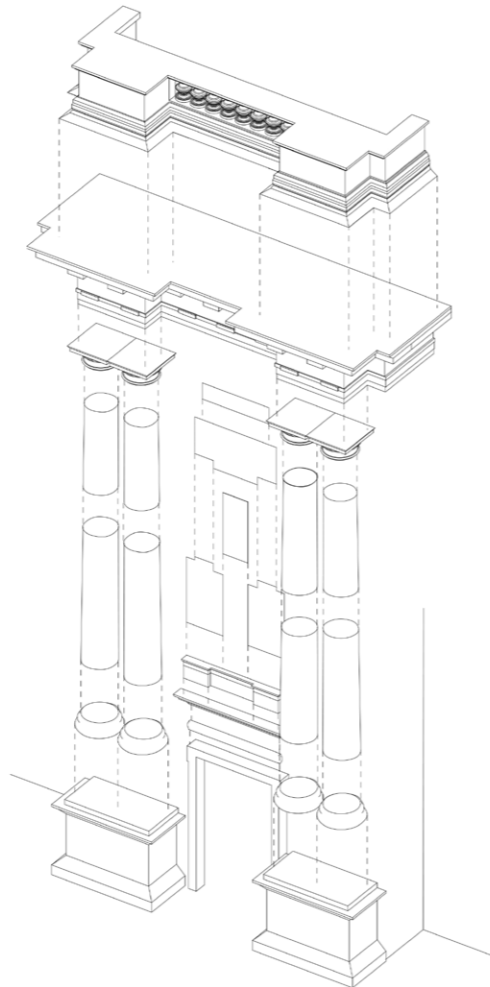
Action

Historical research including analysis of archive images; Planimetric analyses; Condition mapping; 3D modeling of the main entrance portal to gain a better understanding of the construction;

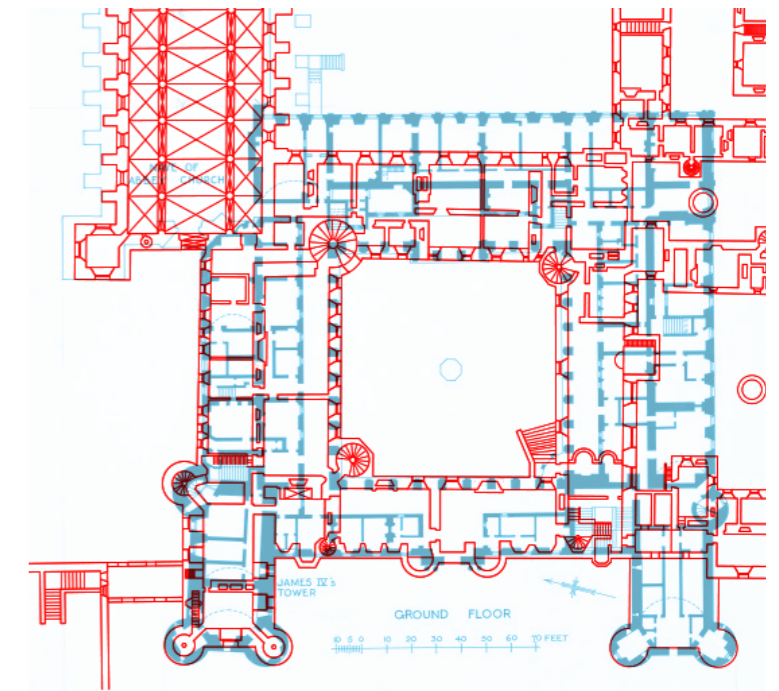
Result

The façade faces the predominant wind direction and so is subject to driving rain. Historically Edinburgh suffered with smog and so acid rain would have also contributed to the deterioration of the stone. Aggressive acid cleaning of the façades and the courtyard took place in the 1970's, further accelerating the decay.

There is some speculation that the preceding west façade can be found behind the one we see today which may be causing some moisture retention issues in various areas of the façade, particularly around historic turret locations. Photographs reveal slight differential movement, potentially due to archaeology beneath areas of the façade. Recommendations were made for areas requiring further investigation, including the suitable tests that may be employed, noting statutory approval is required for destructive tests. Finally interventions were proposed to improve the condition of the façade and to address areas of concern. A maintenance plan was also proposed for preventative conservation moving forward.



Planimetric analysis



1930's survey —■—
1663 Mylne survey —■—

Holyrood Palace base elevation supplied by HES, mapping by author

Water movement in the facade

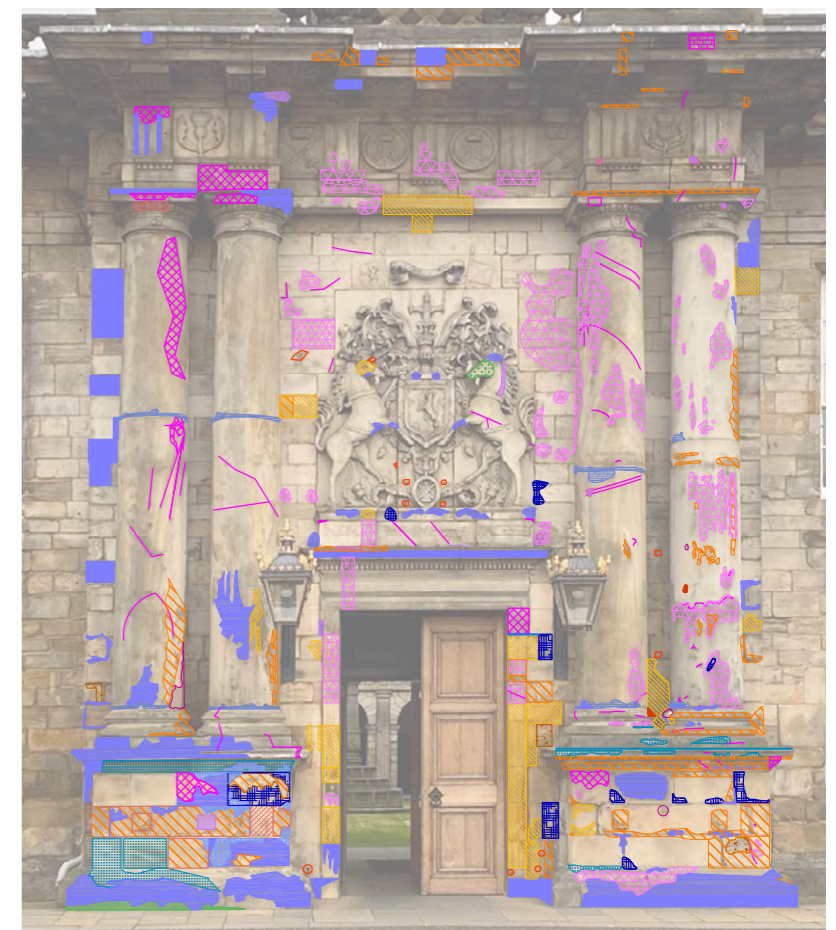


Black crust —■—
Staining from water —■—
16th century turret locations —■—

Holyrood Palace base elevation supplied by HES, mapping by author

Entrance portal condition mapping

Cracks & deformation		Detachment	
Crack	—■—	Detachment	—■—
		Blistering	—■—
		Exfoliation	—■—
		Sanding	—■—
		Chipping	—■—
Material loss		Discolouration & deposit	
Erosion	—■—	Crust	—■—
Missing parts	—■—	Efflorescence	—■—
		Discolouration	—■—
		Patina	—■—
		Iron rich patina	—■—
Biological colonisation		Other	
Biological	—■—	Metal inclusion	—■—
		Additional piece	—■—



Holyrood Palace Entrance Portal pathology mapping (by Strathclyde students, 2020)

RESILIENT ANTWERP

Food resilience for a sustainable city

Situation

Currently half the world's population lives in cities and consumes 75% of the World's food and energy resources. By 2050 it is estimated the population in cities will increase to 75% the global population, and with the increasing global population that means effectively double.

The production, processing and transportation of food is responsible for around a third of our greenhouse gas emissions, and then a third of all food goes to waste with less than 2% of valuable nutrients being looped by cities (eg: as compost or biofuel). This is all before we consider the effect it is having on our wildlife such as the current mass insect extinction which, if it continues at this rate, means the insects global agriculture relies on for pollination will be extinct.

Task

A City must be resilient in order to absorb, recover and prepare for future economic, environmental and other shocks. For a city to be resilient and sustainable, it must strive for self sufficiency in its food demands, feeding into the local and circular economy and placing food ownership in the hands of the consumers.

Action

This thesis seeks to address how food production can be integrated into a city's existing urban fabric, using Antwerp as an example.

Result

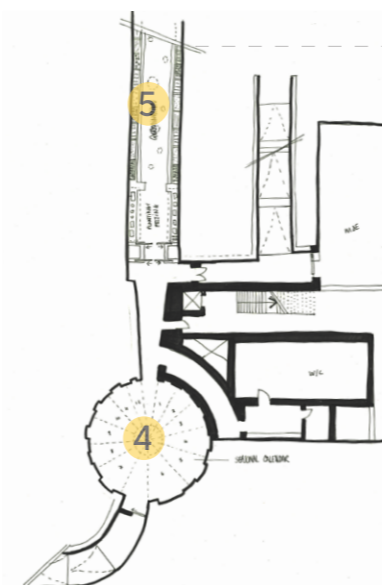
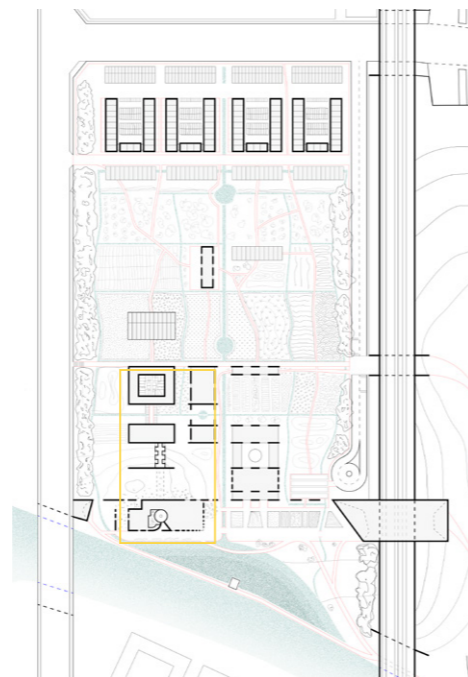
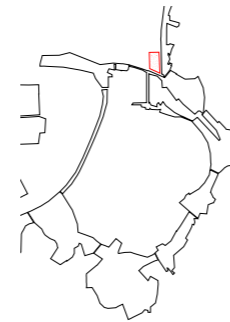
Macro to micro strategies which address how Antwerp may near self sufficiency in its food production. At macro level this thesis investigates the land required per capita to generate the calories required using sustainable food production methods, and devises food production strategies for the three main types of urban fabric (the city centre, the greenbelt and the suburbs). The thesis hones in on the design of an urban agriculture park with a visitor centre to encourage the public to engage with producing their own food within their domestic or community environments. Speculative 100% natural details are investigated for this agriculture centre with a rammed earth loadbearing structure.

*Note that as a result of the Covid-19 pandemic and the closure of the University, this project was not seen through to completion

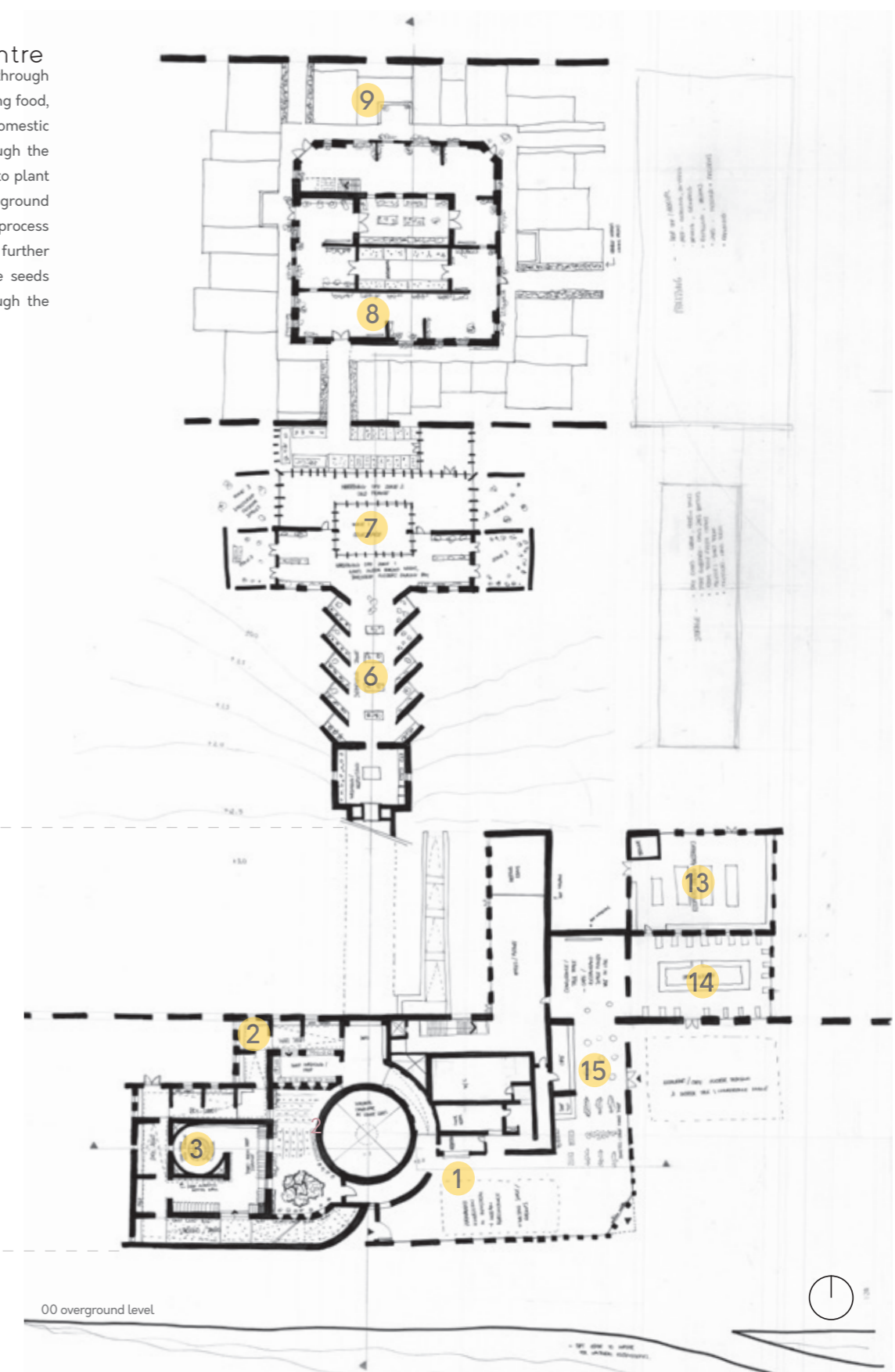
the resilient agriculture centre

The resilient agriculture centre walks visitors through the process of growing, harvesting and processing food, and how these processes may be applied to domestic and community environments. The route through the centre is guided by a set of principles relating to plant growth and the with reference to the external ground level, so as visitors are walked through the process of drying seeds for storage they are traveling further underground, and will emerge again once the seeds have germinated and their leaves break through the surface of the soil in the 'seedling' space.

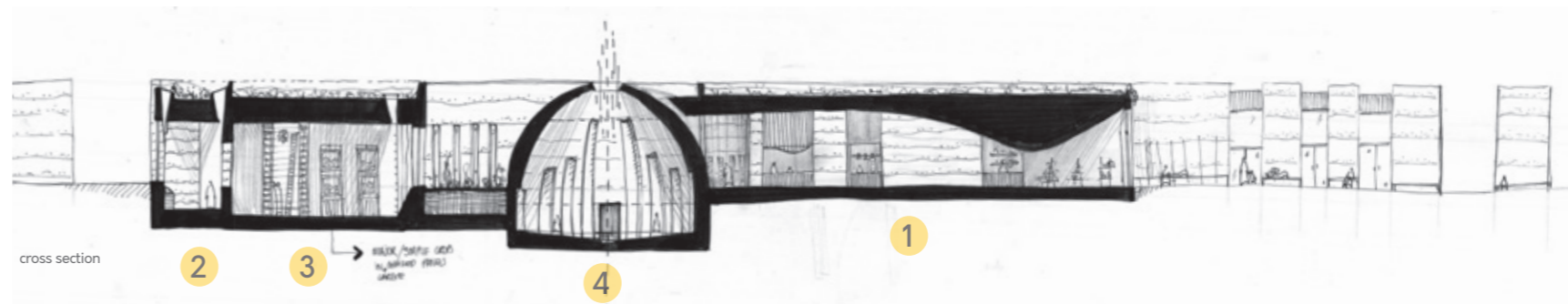
1. entrance & route start
2. seed drying
3. seed storage
4. seasonal calendar
5. germination
6. seedlings
7. hardening off
8. indoor growing
9. garden growing
10. processing harvest (outwith plan)
11. preserving (outwith plan)
12. storage (outwith plan)
13. community kitchen
14. community food hall
15. community cafe



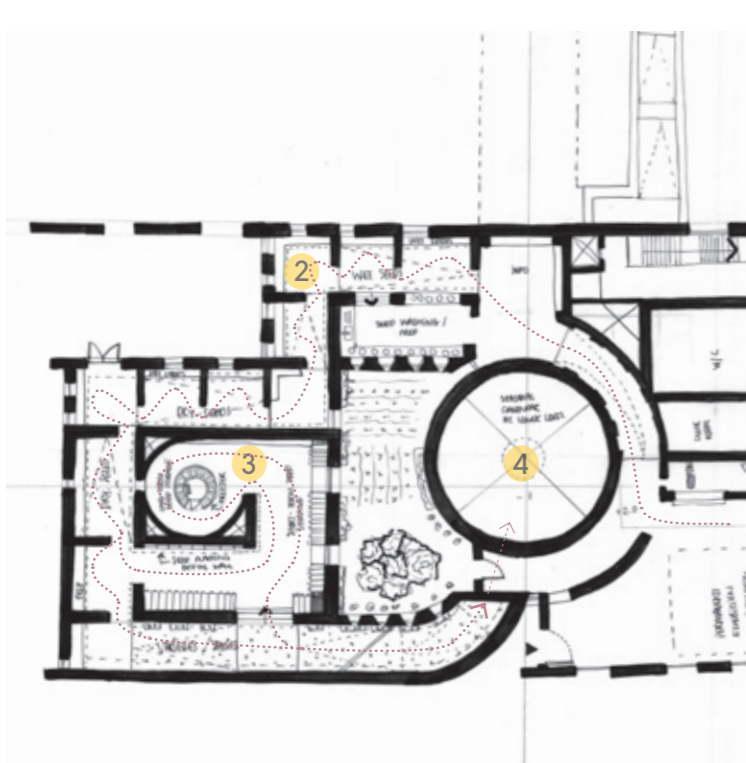
-01 underground level



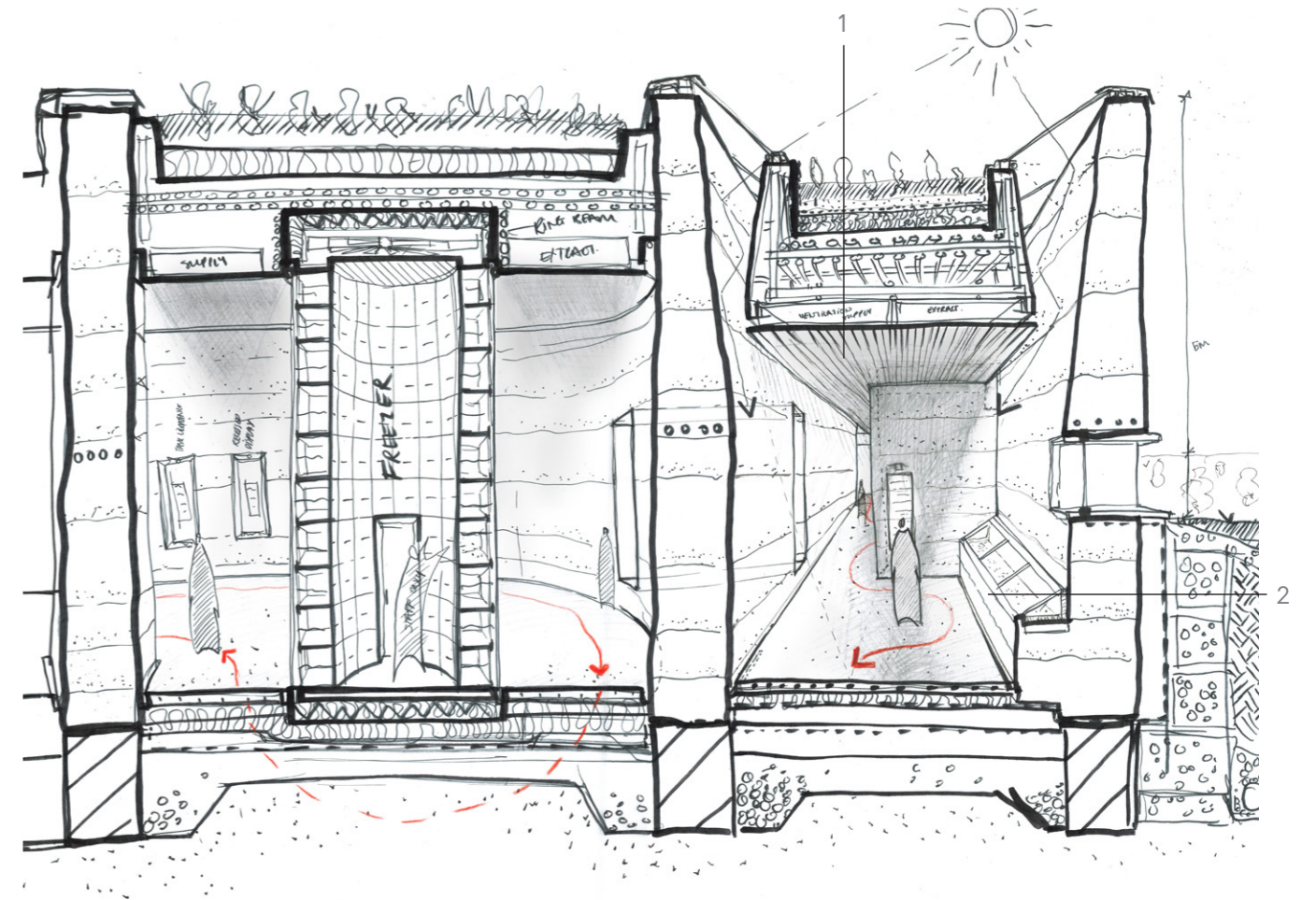
00 overground level



cross section



2 3
 Seed drying & storage
 Visitors walking through the seed drying space can learn about the process of collecting and saving their own seeds. Different seeds require different treatments depending on their origin (wet seeds need soaking first to remove any pulp). Lighting levels are low and the rooms dry to prevent the seeds from germinating.



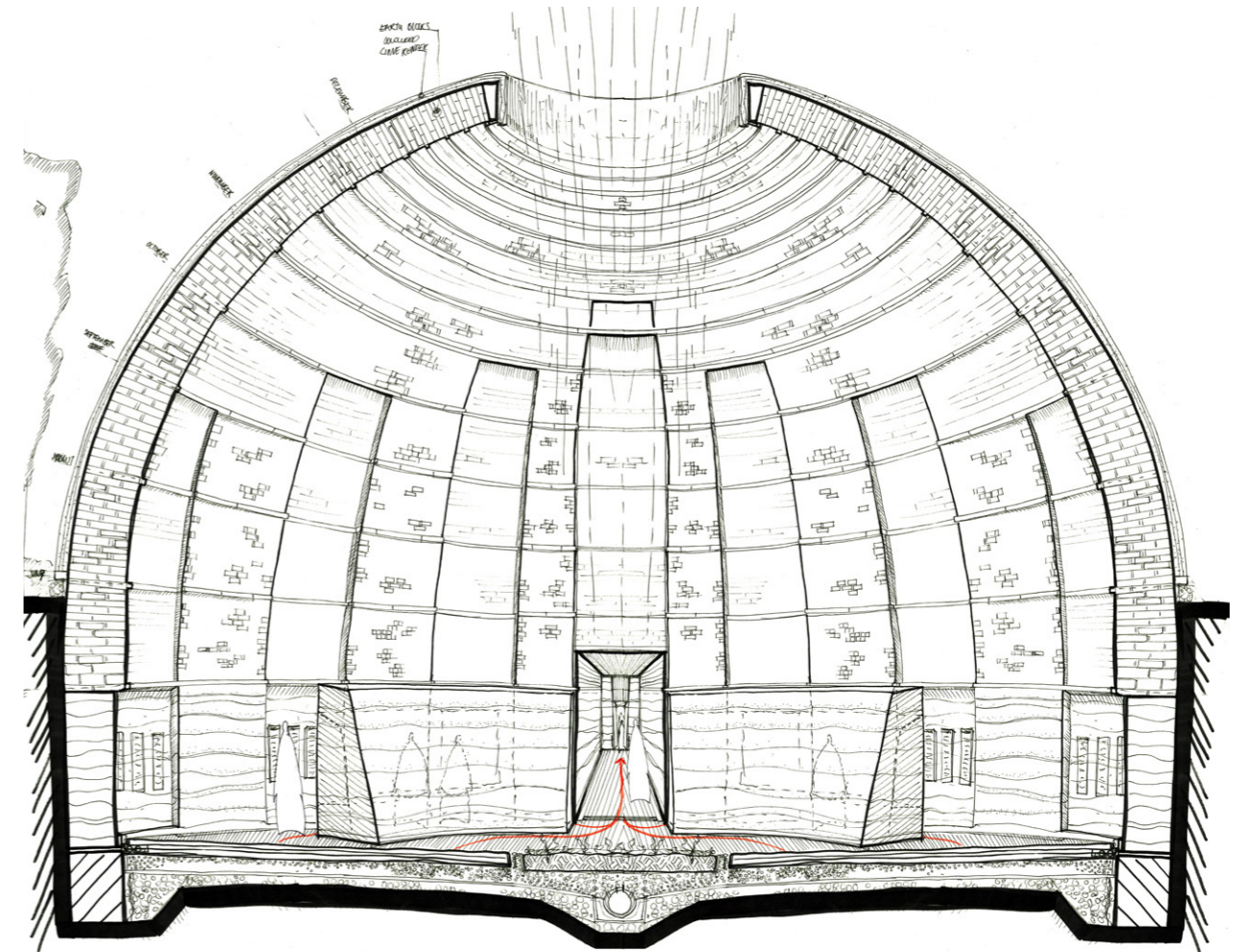
natural construction materials

The construction will be almost entirely made from natural materials and entirely concrete free. Reasons for this are twofold; firstly, emissions from the construction industry are comparable to that of industrial agriculture and secondly, the spaces should re-connect users with nature.

Speculative Build-up

- 1 - 250mm growing medium
 - gravel/expanded clay drainage layer
 - root barrier
 - OSB board with bitumen
 - reed insulation
 - triple layer bamboo (sloped into drawing)
 - Airhandling units suspended from bamboo
 - bamboo ceiling
- 2 - earth
 - stone filled steel gabions
 - bitumen
 - metal sheeting tied back to earth wall
 - 150mm ventilated air cavity
 - 400mm rammed earth

4
 Seasonal calendar
 Oculus, open to the elements. 12 recesses mark the of the year. Sunlight from the oculus reaching the walls at different heights sets the datum level for the heights of the recesses. The widths of the recesses are dictated by the length of day. Each recess contains information on what can be grown and harvested each month of the year, a seasonal calendar.



THEATRE OF MYTHOLOGY

Design of a cultural venue in the heart of Glasgow

Situation

The advent of television and the internet brought with it the demise of the telling of myths and fables. This is both a cultural loss as well as a social one. Perhaps the most famous theatre for the spoken word, the Globe theatre in London, historically brought together people of all classes under one roof to watch a play, and like a campfire story the contents of that play would be spoken about and shared, propagated outside the walls of the theatre.

Task

Nowadays with the monetisation of the theatre, attending a performance is seen as an occasion not afforded or available to all. The project aim is to design a new and inclusive cultural venue in Glasgow which caters to storytelling and the propagation of myths and legends.

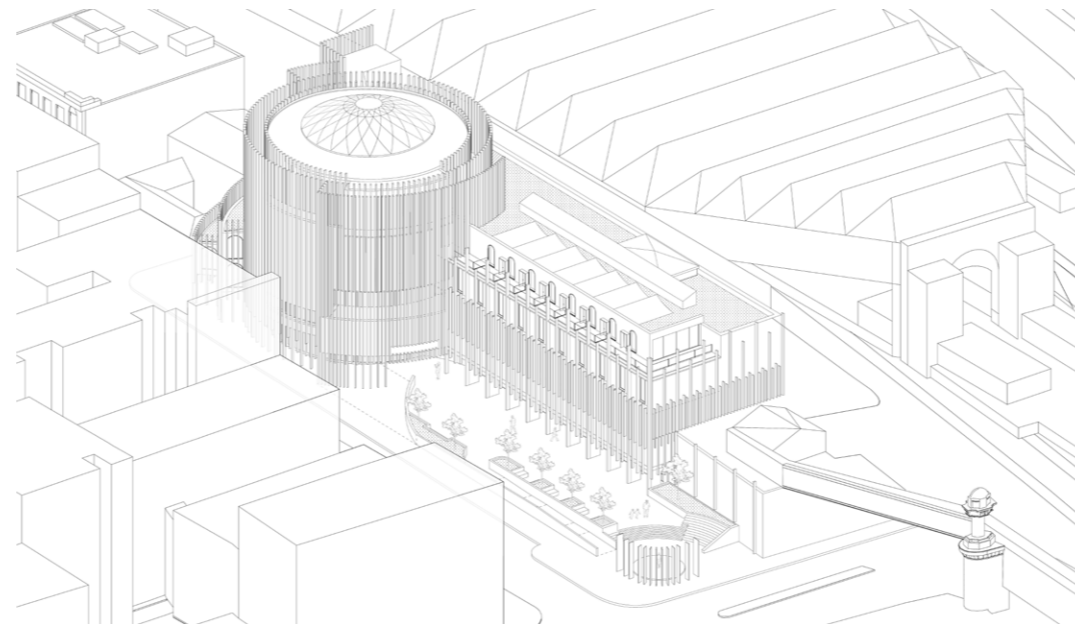
Action

Site analysis to inform the design; Research into the various theatre arrangements and requirements; Research into CLT and glulam construction methods;

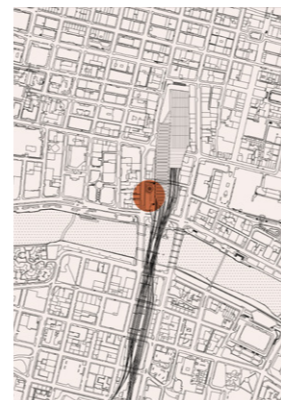
Result

An informal platform for the spoken word which allows visitors to dip in and out of performances as they take place. The void has openings at all levels to allow the trailing voices of those speaking to reach visitors in different parts of the building. The project also includes a storytelling library and accommodation for visiting writers.

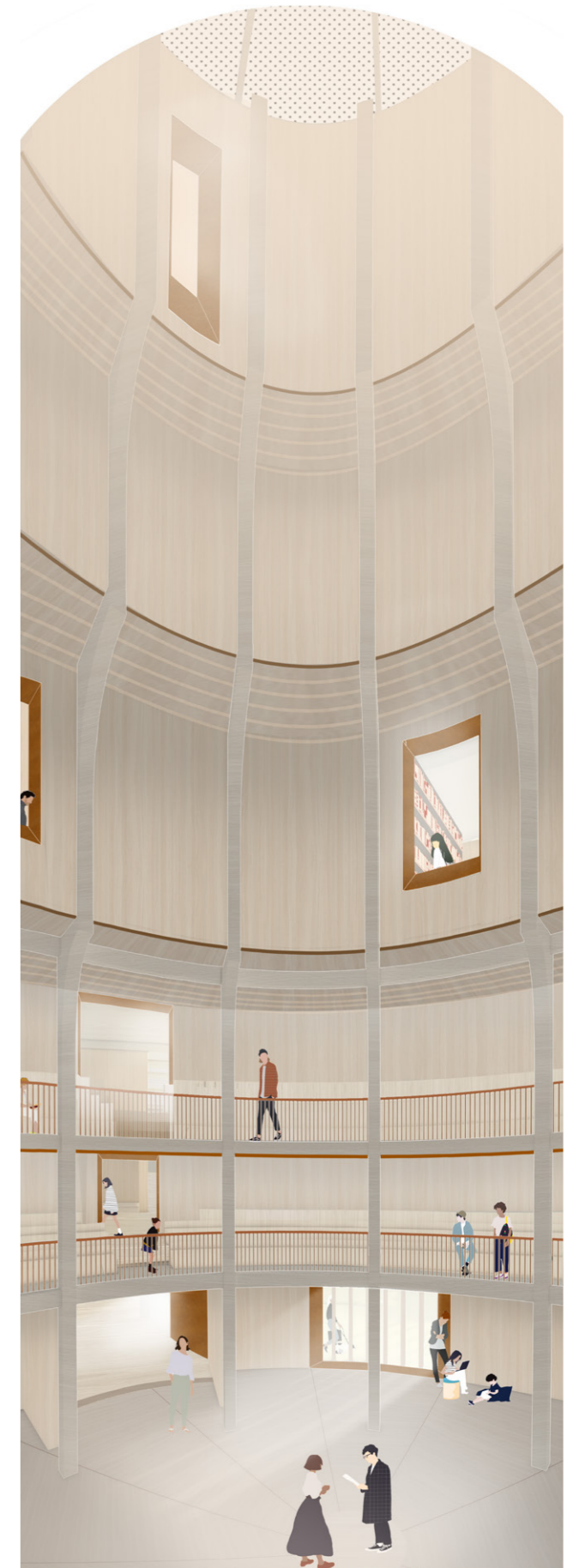
The building is recessed to give back some land to the public realm and introduce a 'speaker's corner'. A place open to the public to propagate their own stories or debates. The materials selected for this project relate to the softness of the spoken word and the ageing of stories over time. The structure is formed primarily of Glulam framing and CLT walls and floors, and the finishes are of bronze and timber.



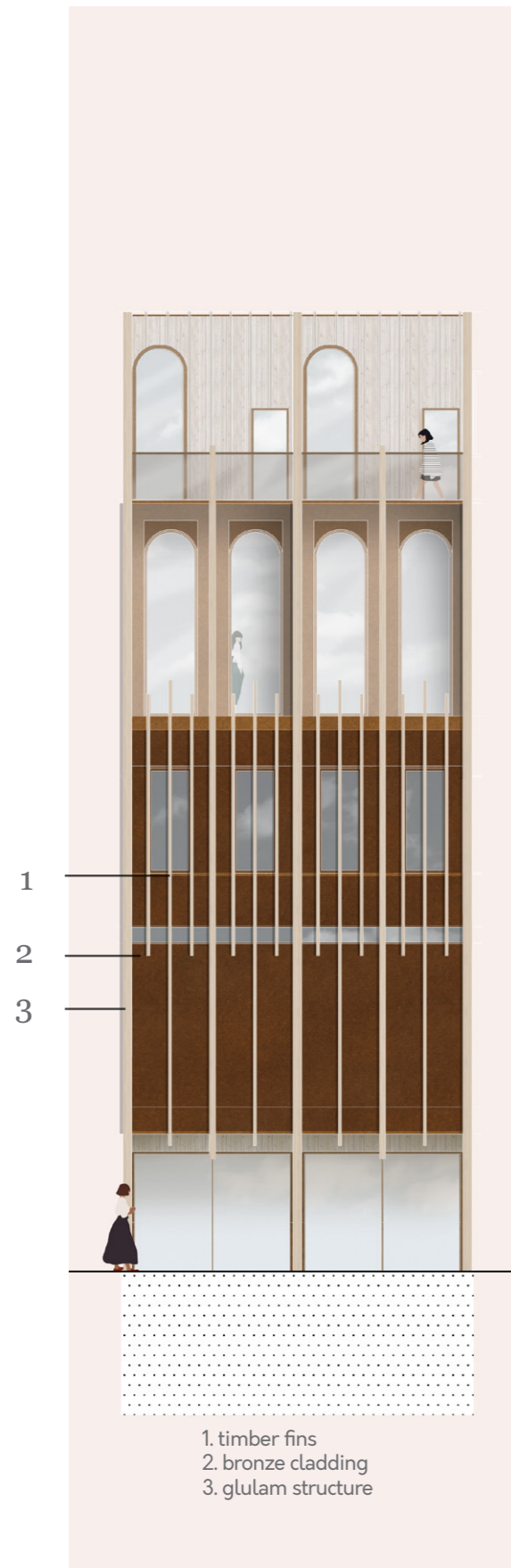
axonometric view



location plan



theatre for the spoken word



an ageing facade



approach



writer's retreat

The writer's retreat consists of accommodation spaces with shared facilities, communal and private writing spaces. Writers and performers in residence contribute to the seasonal programs at the theatre of mythology.



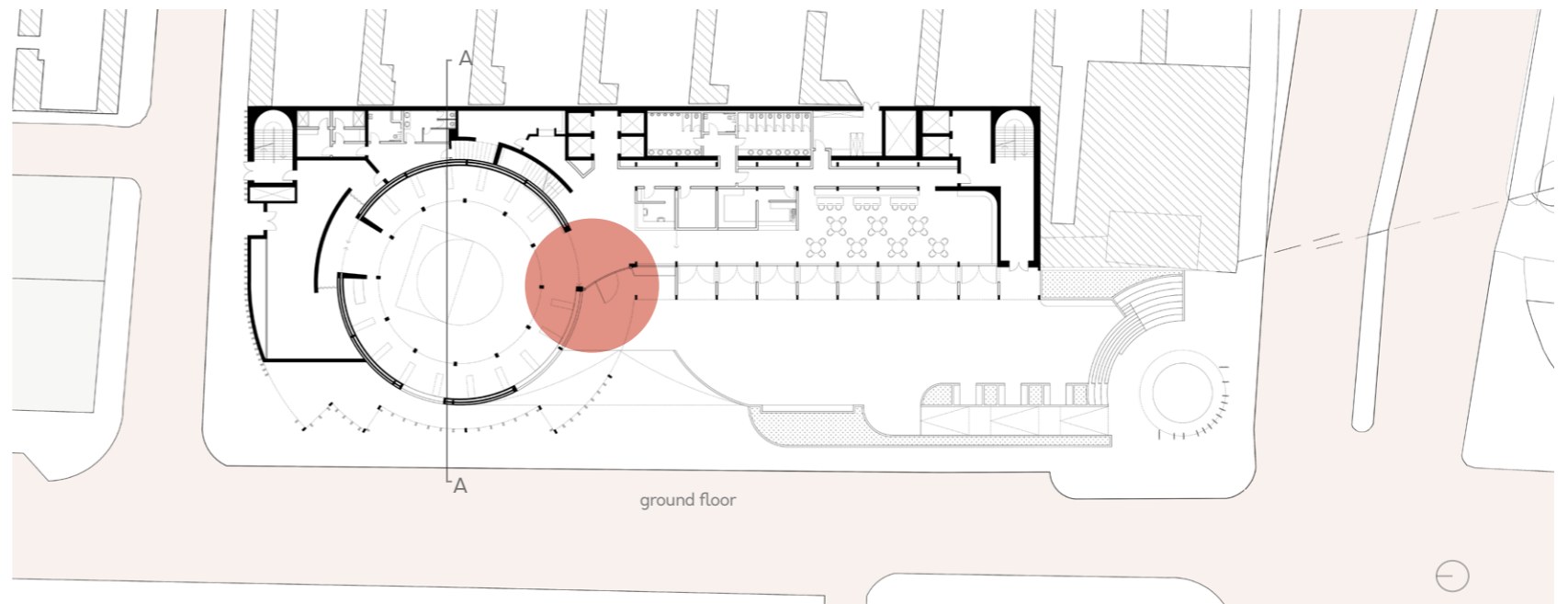
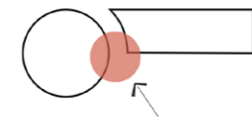
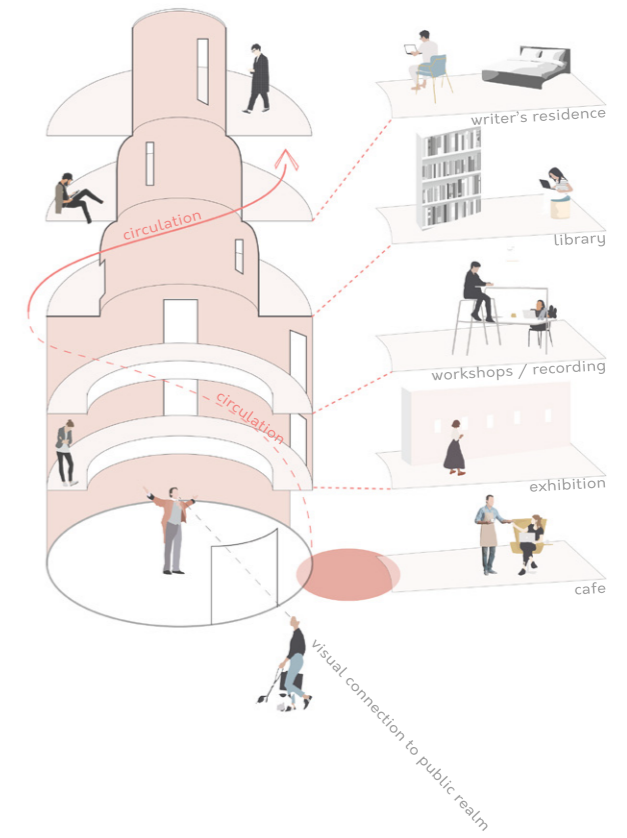
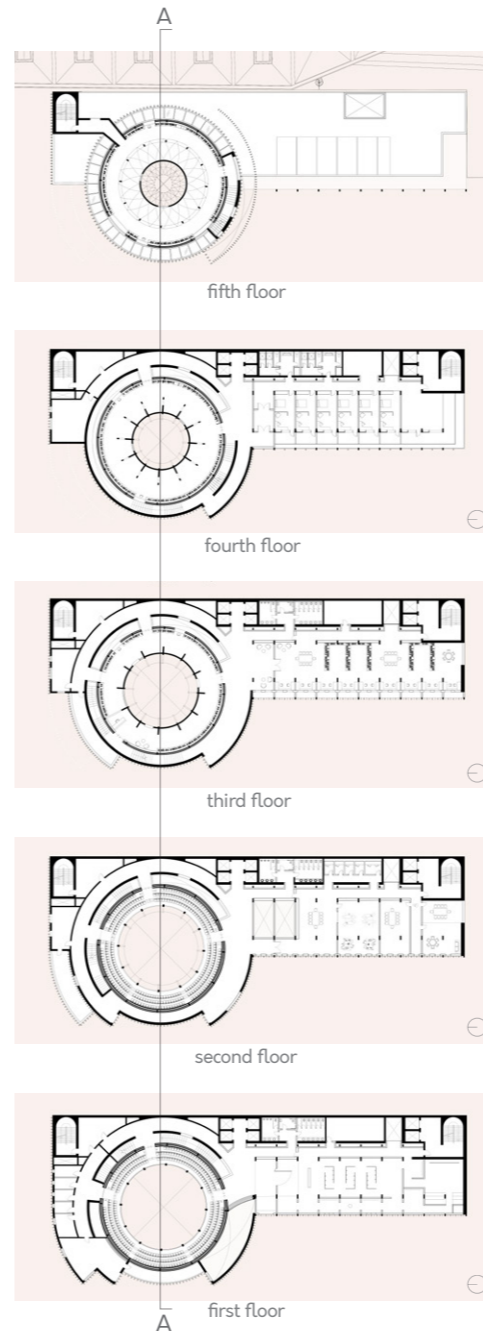
Library dedicated to the collection of books relating to Scottish and global mythology.

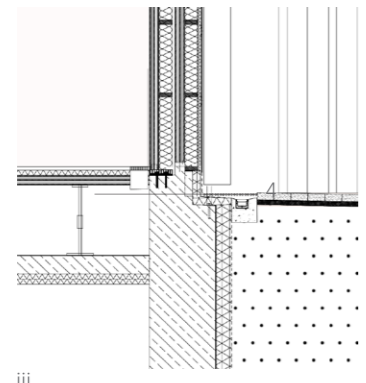
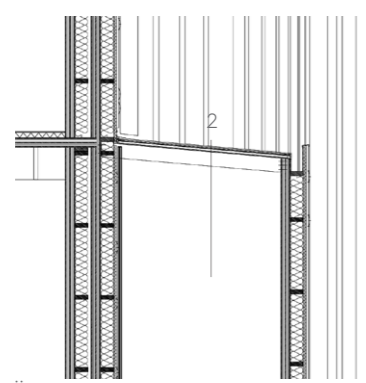
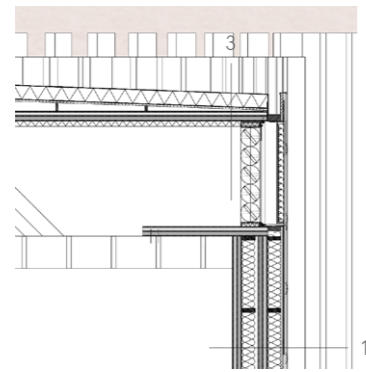
library



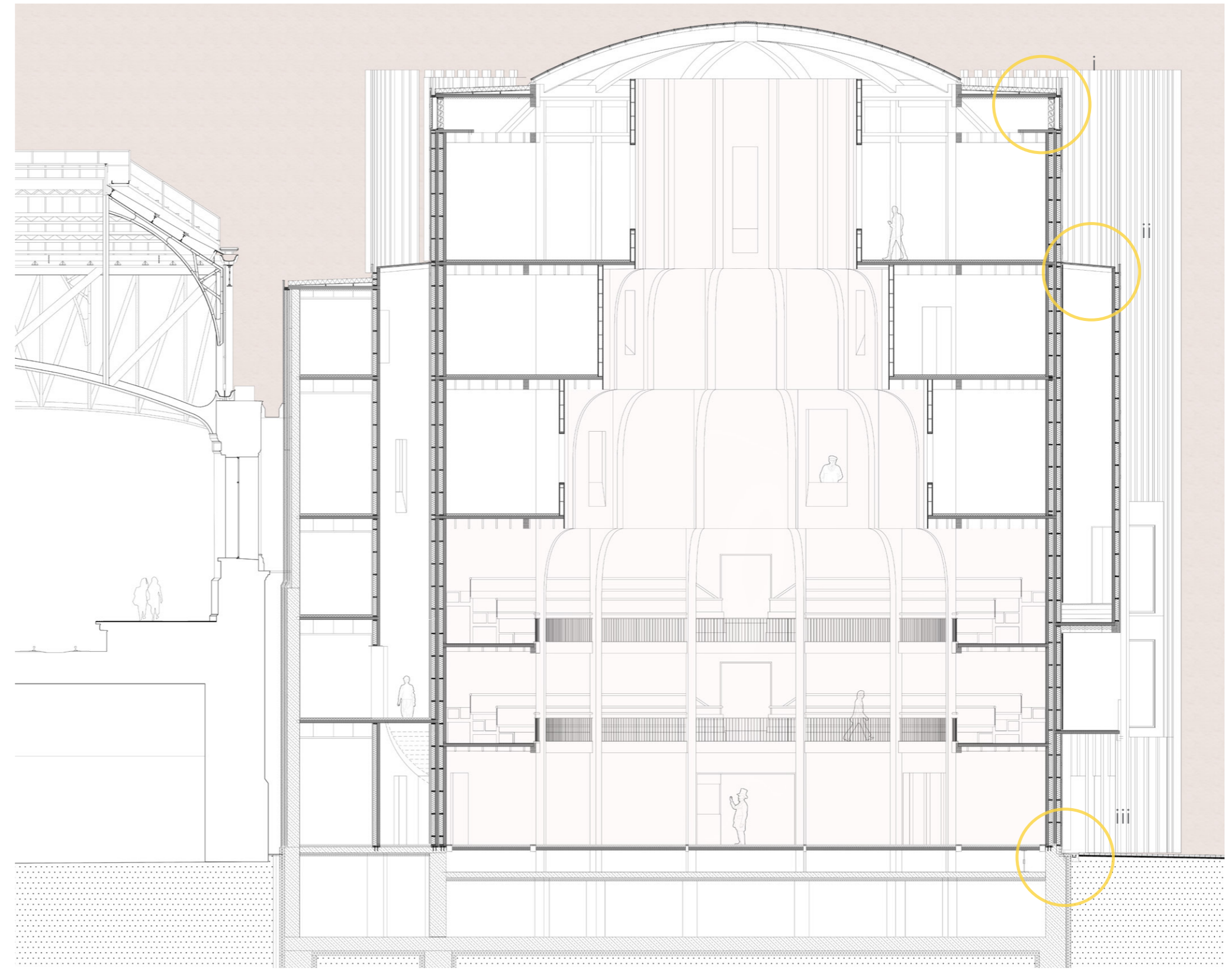
theatre

main staircase





- 1. - 200x46mm vertical wooden fins
 - 15mm horizontal cladding rails, galvanised
 - EPDM sealing layer
 - 34mm waterproofed battens
 - 2 layers of 15mm sarking
 - 147x46mm timber studs with rockwool insulation between
 - 109mm 5-layer CLT
 - 147x46mm timber studs with rockwool insulation between
 - 109mm 5-layer CLT
 - 300x600/800 Glulam Column (background)
- 2. - laminated safety glass skylight
 - 160mm glulam beam between CLT walls
- 3. - waterproofing PVC
 - 150 mm insulation
 - vapour barrier
 - 19 mm OSB sloped to falls
 - 109 mm 5-layer cross laminated timber
 - 65mm rigid insulation
- 4. - 50mm steel tube supporting fins
 - rigid insulation
 - vapour control layer
 - concrete upstand



section A-A

THE KING'S LIBRARY

Retrofit of Grade II listed Edwardian school into apartments

Studio: APT London (formerly Robin Partington & Partners)

Project phase 2 construction, stage 5 fit-out

Project description

The King's Library is a Grade 2 listed Edwardian School in Kensington converted into eighteen luxury apartments. The conversion introduced a new basement housing additional apartments, plant and gym space.

Role

I was part of a two person team working on this project for the majority of my Part I year out. After a few months on the project, I was trusted with running the weekly Design Team Meetings on site representing Apt Architects. As a part 1 architectural assistant at the time this experience was enriching and memorable.

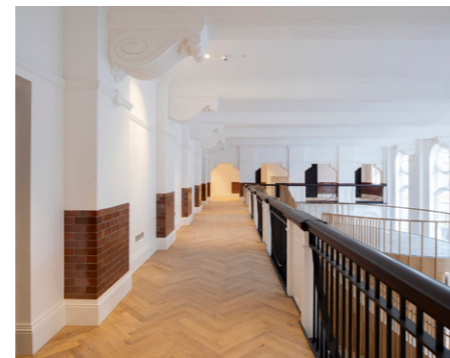
My other contributions to this project included the design and detailing of the basement gym, light well and plant room; production of construction drawings; mark-ups of contractor design portions; design intent drawings; consulting with material suppliers; assisting and coordinating with relevant parties to facilitate works on site; weekly snagging visits and related reports; and participating in progress meetings.



Axonometric section showing the double height gym above the main entrance at the front of the building with the private garden and terraces to the rear.



Rear elevation of the King's Library



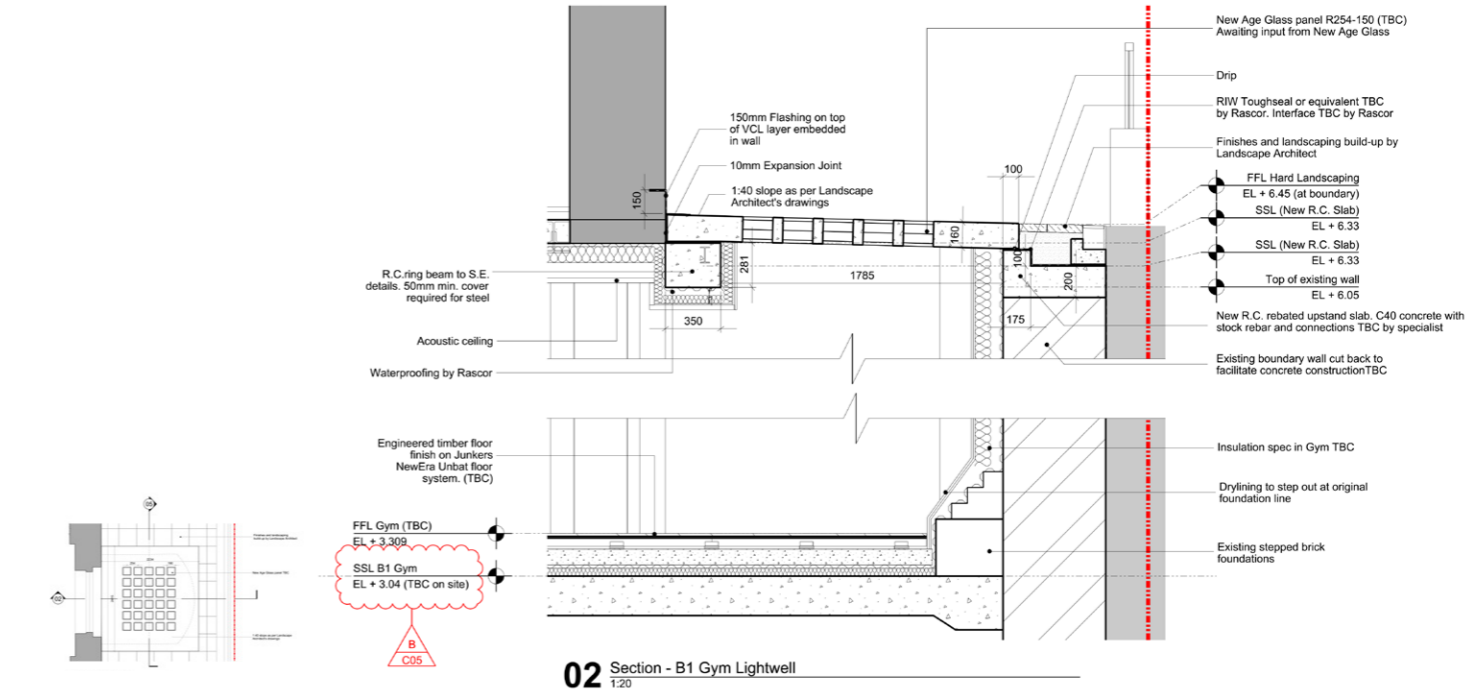
Herringbone flooring, original handrails and restored corbels in the school gym.



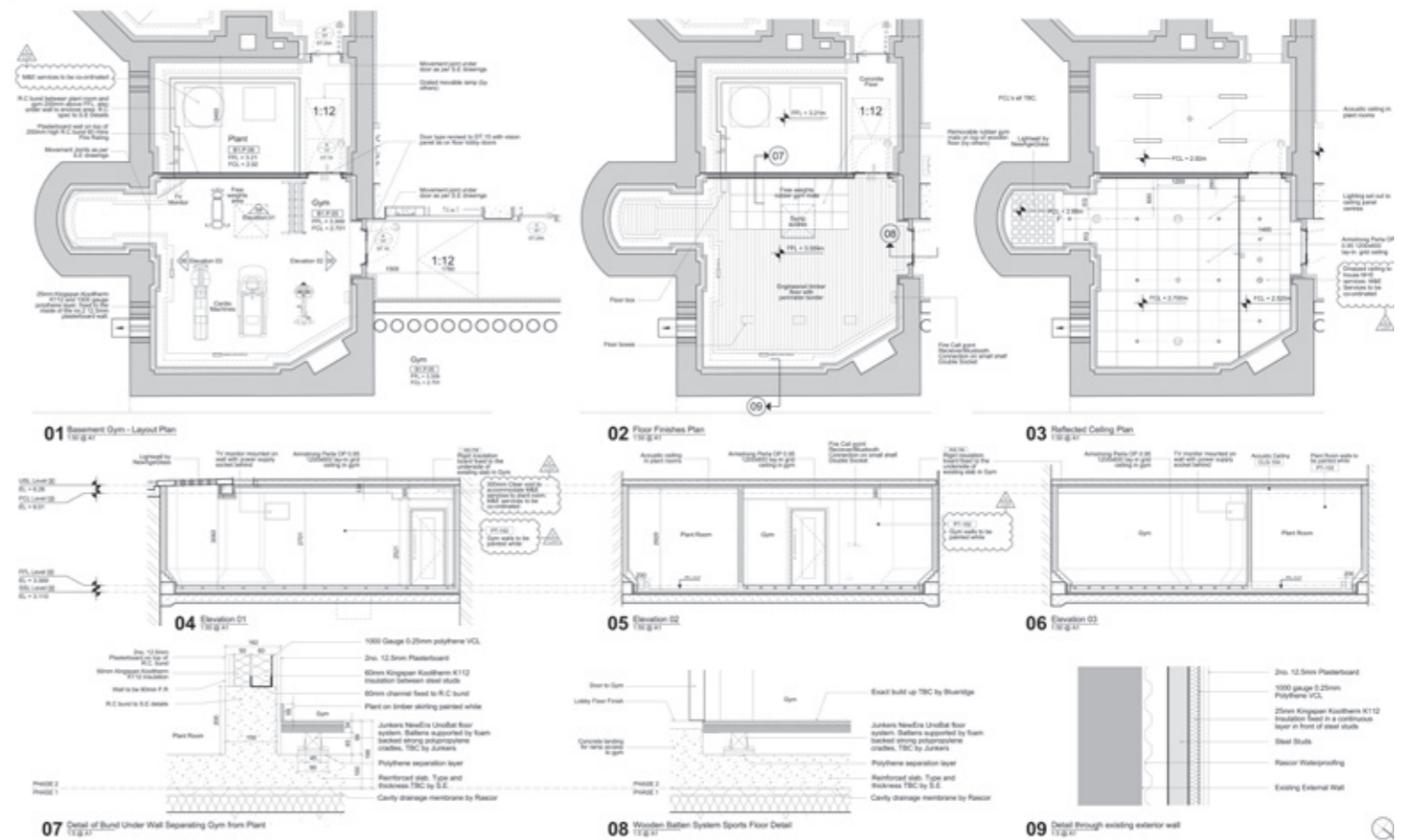
New main entrance



The King's Library, Front



Lightwell details (my contribution)



Various drawings issued for construction for basement gym, lightwell and plant room package (my contribution)

CHELSEA HARBOUR DESIGN CENTRE

Studio: APT London (formerly Robin Partington & Partners)

Project phase 2: Construction

Project description

The Design Centre houses retail units leased to high end suppliers associated with the interior design trade. The project involves the refurbishment of the existing Design Centre and its extension through the addition of 'The Avenue': A central triple height walkway bridging the space between the Design Centre and Design Centre East.

Role

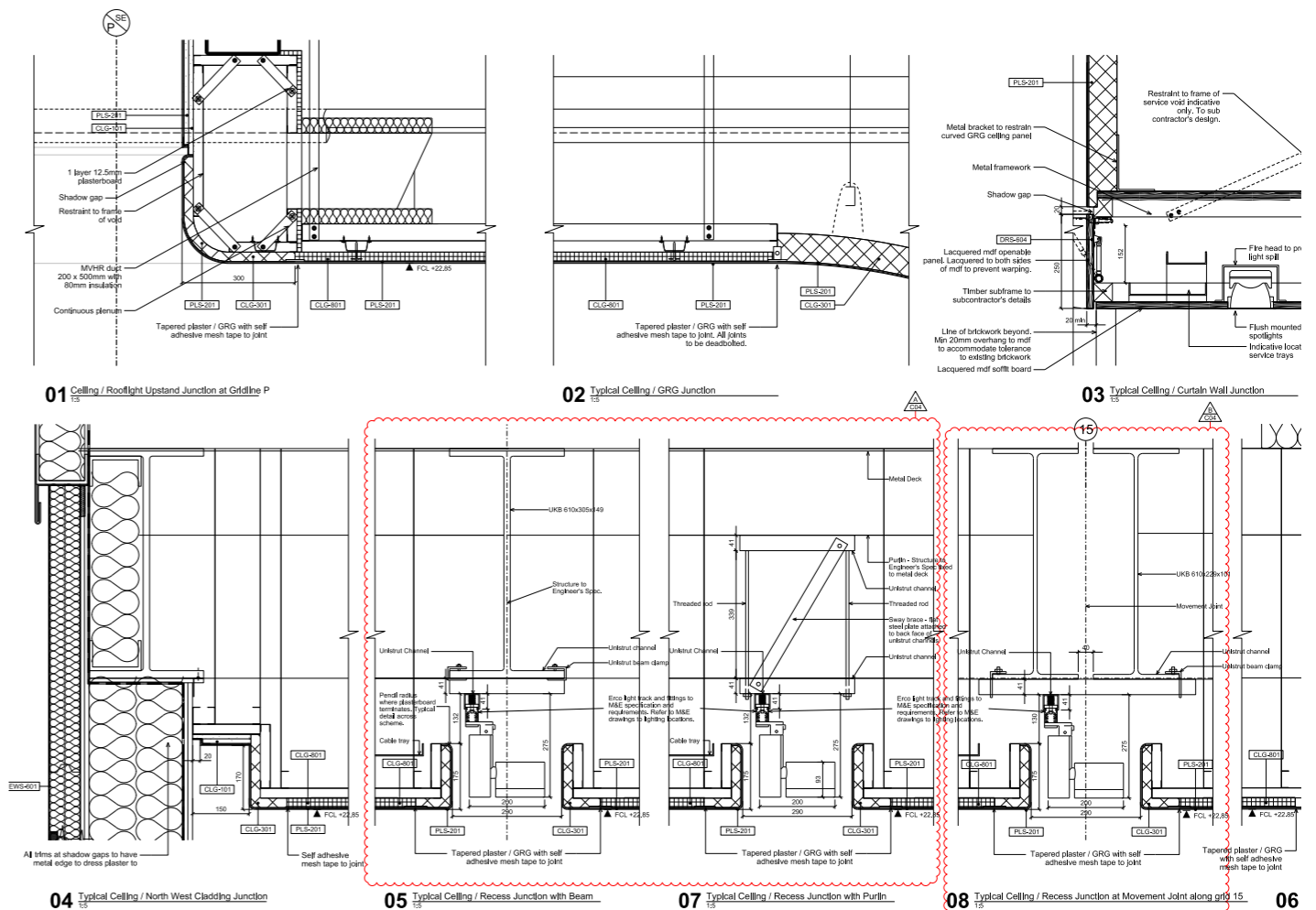
My contributions to this project focused on the detailing and preparation of tender drawings for the entrance canopy which involved coordination with the structural engineer; attendance and contribution to weekly design team meetings; site visits; material selection; and detailing for concealed lighting rigs within the ceiling build up.



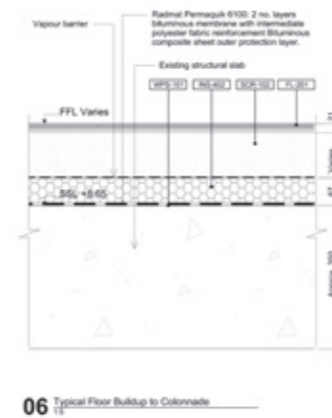
New internal avenue



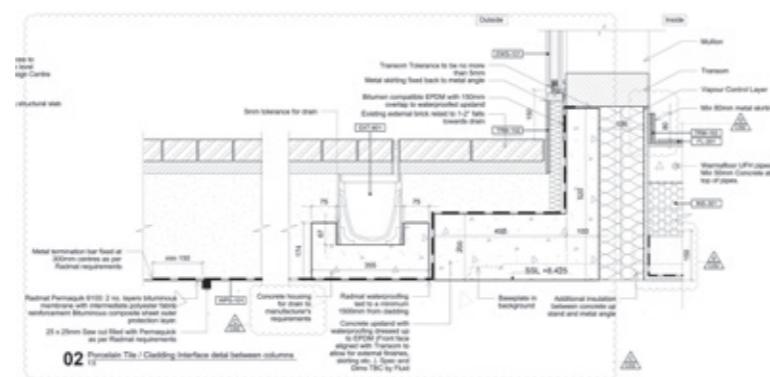
Contemporary insertion between two existing buildings



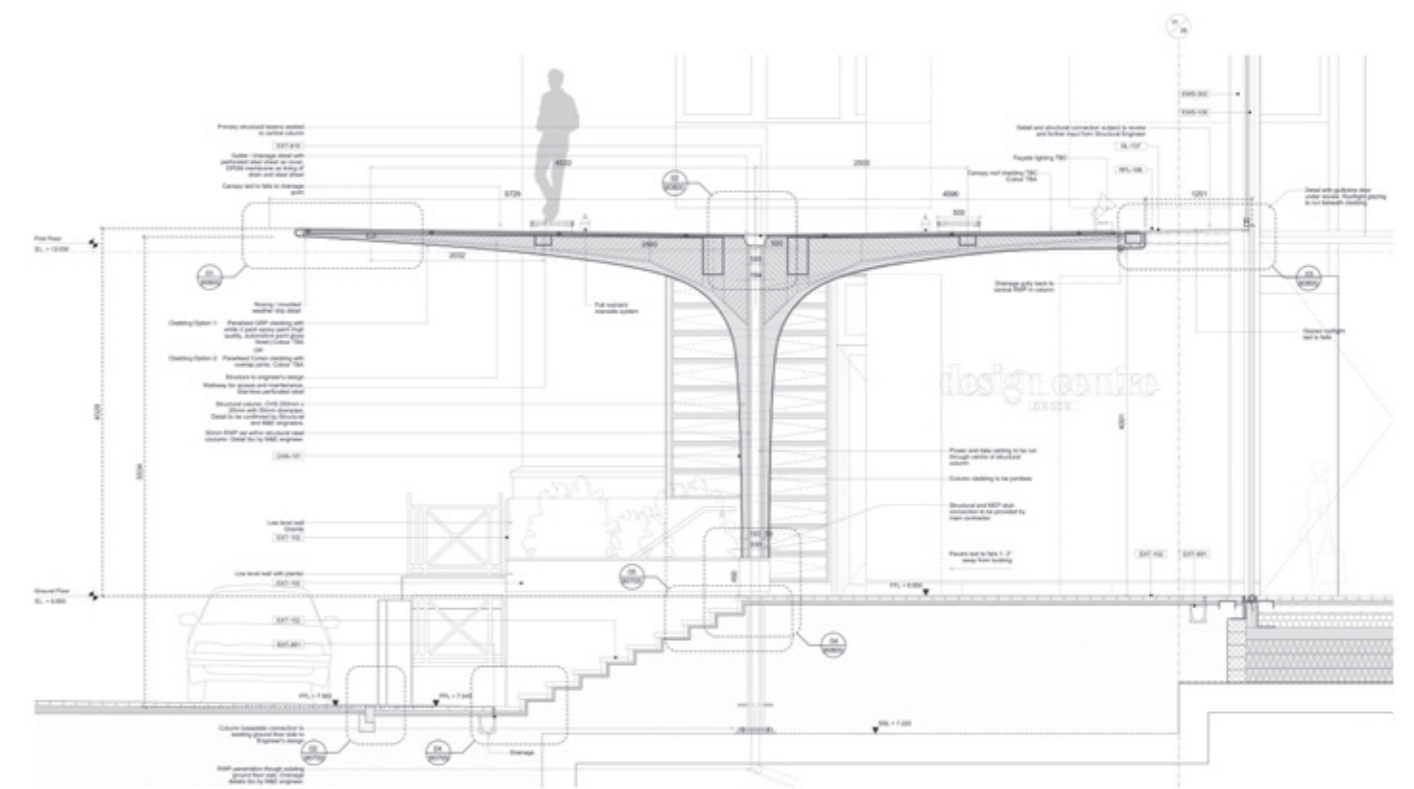
Selection of construction drawings for the concealed lighting rigs within the ceiling build-up (my contribution)



06 Typical Floor Buildup to Colonnade



Selection of details for floor finishes and junctions



Canopy section drawing issued as part of tender package

thank you

