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LAYERING SKIN AS SPACE TO REWEAVE THE EXISTING
JOHANNESBURG GASWORKS INTO A FASHION DESIGN
SCHOOL AND TEXTILE RECYCLING HUB

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Layering skin as space to reweave the existing Johannesburg Gasworks into a fashion design school and textile recycling hub

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Master of Architecture Dissertation |

This document is submitted in partial fulfilment of the requirements for the Masters Degree in Architecture.

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Declaration of original authorship: The work contained in this dissertation has not been previously submitted to meet requirements for a qualification at this or any other institution of higher education. To the best of my knowledge, this dissertation contains no material previously published or written by another person except where due references were made.

Unless stated or referenced as otherwise, all sketches and collages in this dissertation were drawn/assembled by the author.

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A comparison between architecture, fashion and skin lead to the assemblage of different skins and how different perspectives of skin can be employed in an architectural response. The dissertation considers the possible consolidation between skin, fashion and architecture and its application to the Johannesburg Gas Works complex in Cottesloe. Fashion elicits emotive experiences that encompass the dresser and dweller to craft and embody identity and formulate expressions through the act of dressing.

The principal aim of the investigation is to explore how architecture and the application of skin as dwelling in the design of a Fashion design school and Textile recycling hub can elicit the different experiences of fashion in a space inspired by textiles.

Fashion is a valuable art form that can be utilised in various architectural explorations to encourage the investigation into the skin as an architectural form-giving tool. The Fashion Hub contrasts the Gasworks previous programme and form. The Fashion Hub creates the opportunity to engage with the surrounding context, communities and Johannesburg Fashion District.

The theoretical discourse investigates how fashion in architecture, skin as a metaphor for a house, the five skins of ecology, and rejuvenating architecture can be applied to the architectural design process to be integrated into a synthesis of architectural expressions. The design process uses fashion as a catalyst for developing an architectural form with the implementation of skin as space and skin as an expression of fashion in the design.

The engagement of skin with an investigation into skin translucency, shedding, expression, and skin as a metaphor to construct a narrative through fashion can be employed in architecture that is not confined to only fashion design.

The engagement of skin in the theoretical underpinning section showed that different skins could be developed within the Fashion design school and Textile recycling hub to encourage interaction between people and fashion through architecture.

INTRODUCTION

01



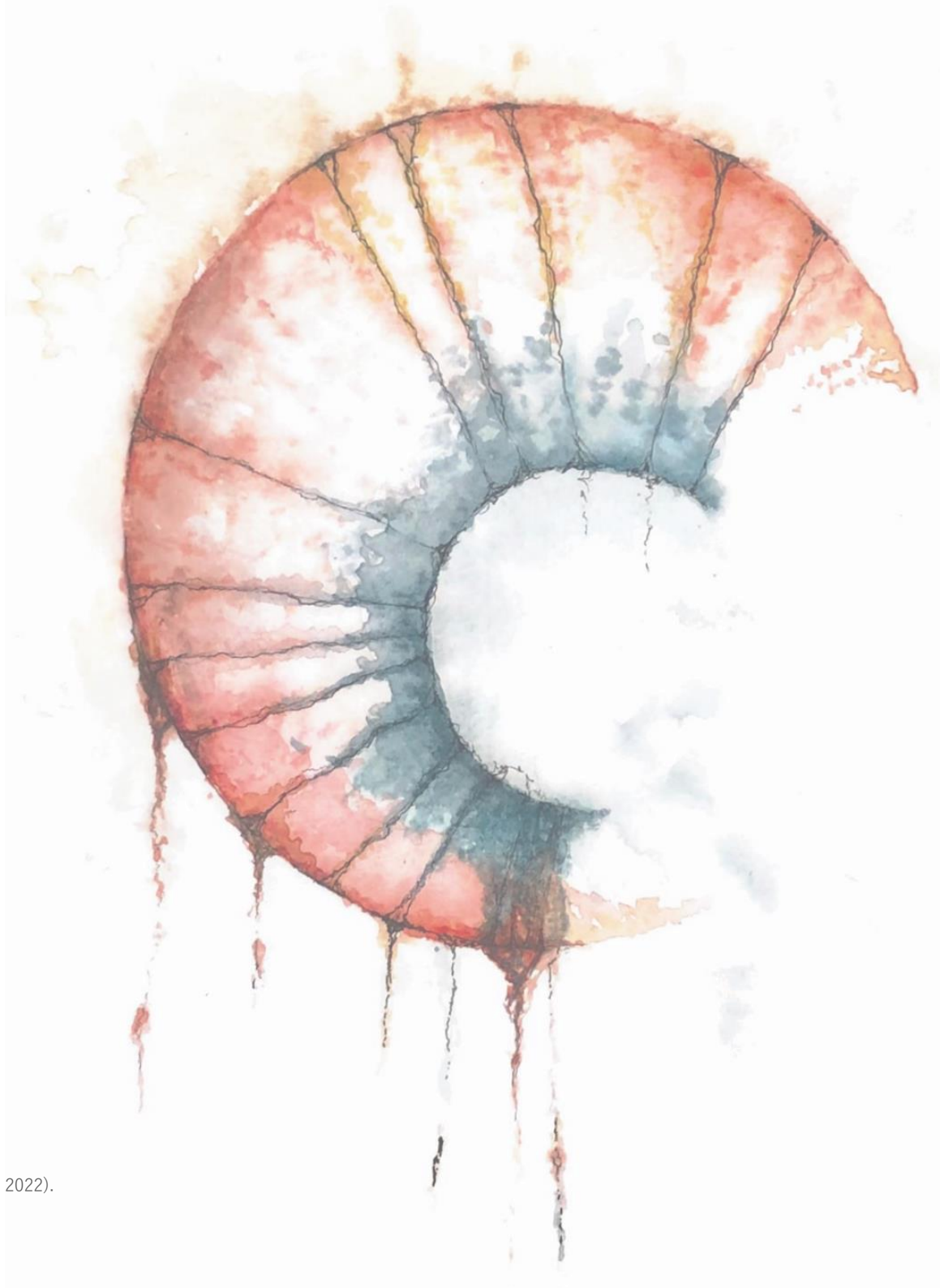
The investigation showed that fashion could define a space embedded in one's self-realisation; the wearer and designer influence the embodiment of form and expression by dressing the naked body. Skin and architecture interpret a space through arrangements and configurations. The skin has exhibited its expressive abilities in both art forms of fashion and architecture that inspired the study and intention to incorporate a Fashion design school and Textile recycling hub in the Johannesburg Gas Works complex. The project intends to respond to the existing historical site and the significance of fashion as an art form to rejuvenate and activate the existing.

The document is structured as follows:

The context analysis investigates the site and the contextual influences. The macro analysis examines the appropriateness and viability of a Fashion design school and Textile recycling hub in Johannesburg. The micro analysis examines the existing site and its direct surroundings. The meso analysis explores Cottesloe, the corridor and the different exchanges within the corridor.

The conceptual approach is the initial engagement with skin and fashion with spatial theory in the touchstone with skin as a dwelling for the body. Three concepts further explore fashion and skin within the project specific to the site. The first concept is fashion as a theatrical space that examines how fashion can be displayed throughout the site. The second concept is skin as a metaphor for a house investigating skin within the skin. The third concept is interweaving diverting routes that look at how the adaptive reuse of the buildings becomes woven with the new.

The architectural response of the project explores the different perspectives on skin that involve translucency, skin as a dwelling, expression, shedding and rejuvenation to draw on the properties and experiences within the realm of fashion. The structuring of architectural responses reflects on relevant precedent studies with different form givings and architectural aims.



1.1 THEORETICAL STANCE

The historically significant site is located on the periphery of Johannesburg's dense urban fabric but does not correspond to urban needs. The theoretical discourse and themes are consequently woven into the design process to produce a cohesive project that introduces new functions to the existing, as rejuvenation is crucial to both the site, recycling and adaptive reuse.

The different perceptions of Skin and its application will be discussed in the Theoretical Underpinning. Skin does not only relate to the body and clothing; skins can be connected to the architecture and how the new is connected to the existing.

Regenerative architecture goes hand in hand with the recycling and regeneration of textiles; it can be explored in the existing structure and the new additions.

The leading theme encompasses the experience of skin as a spatial enclosure and how buildings can be reweven to respond to the needs of the site, users, and programs that can weave together the existing buildings that are currently disjointed.

The study's contribution illustrates the application of skins in architectural design. The explorations of skin support the investigation and development of skin as a metaphor, skin as prosthesis, elasticity, the five skins of man and fashion in architecture. The skins contribute to the physical and emotional experiences of fashion within architecture. The project aims to contribute to the rejuvenation and inhabitation of the site to encourage the teaching and implementation of sustainable clothing production practices.

Sub-themes that will be explored in the proposal

How may the connections be formed between the existing buildings by weaving a thread between the existing structures and functions to allow the buildings not to be alienated in the context, and new stories can be woven into them?

How can skin be applied to the structure to relate to the program and process of recycling and reweaving textiles?

How may fashion design be explored on the site that allows for different expressions and characters to be expressed?





1.2 SITE AND LOCATION

Johannesburg Gas Works (JGW) is located in Cottesloe, the second site for the JGW, after the President Street Gas Works became too small. The JGW came into being after President Street Gas Works shut down and was run by the Johannesburg Department of Water and Gas (JDWG). The JDWG selected Cottesloe due to its concealment from residential view. As Johannesburg grew, the JGW became centralised to various activities and functions (Läuferts le Roux & Mavungandize, 2016: 19). The site is located near Wits University and the University of Johannesburg Bunting Road campus. The proximity between the site and Johannesburg's Fashion District adds to the commercial opportunities of a Textile Recycling Hub

1.3 BRIEF DEVELOPMENT

The proposal concerns the adaptive reuse of the historic Johannesburg Gas Works in Cottesloe, Gauteng. The aim is to revitalise and integrate the isolated site into the broader urban context. The proposal aims to examine the significance of the historical site and create a place that is inhabited and enlivened through sustainable production and teaching of textile recycling and fashion design. The Fashion Hub will incorporate a multitude of activities and functions that fit into the context of the cultural arc of Johannesburg to populate the site.

The proposal aims not only to create a place where sustainable clothing can be manufactured in the fast-paced fashion industry but to rejuvenate the existing site and create a space enlivened by fashion.



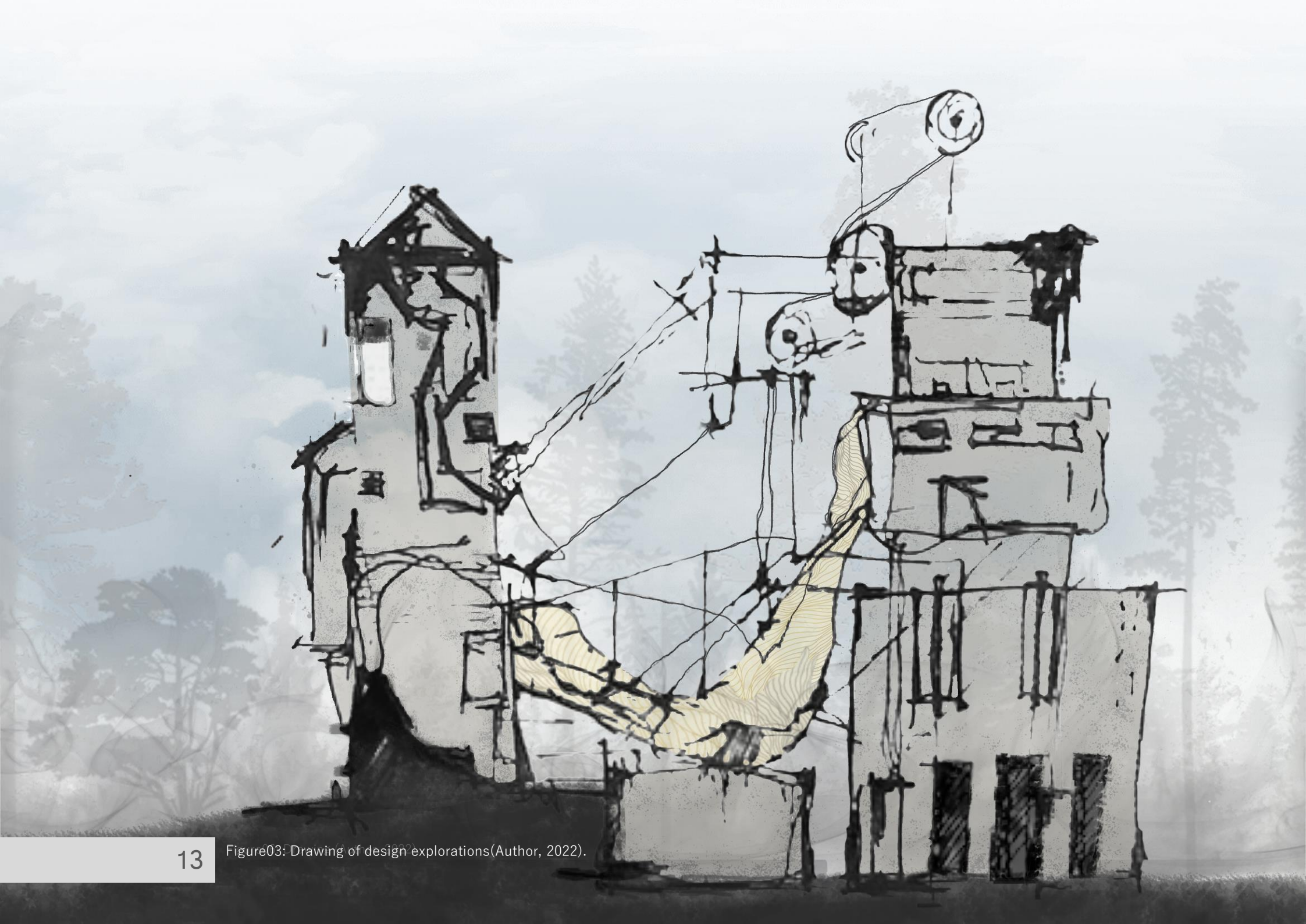
1.4 PROBLEM STATEMENT

The Johannesburg Gas Works is a prominent heritage site in Cottesloe, Johannesburg. Does a fashion design school and textile recycling hub have the capacity to rejuvenate with the expressions of fashion? Can a fashion design school and textile recycling mill contribute to the site's regeneration to draw the users to fashion and sustainable practices of clothing production, to reweave the existing that reinterprets and evokes an emotional and bodily experience of fashion and skin? In the current consumerist climate, fast fashion has dominated the market.

1.5 AIMS

The project aims to create an architectural response to the existing heritage buildings to draw attention to sustainable practices not only concerned with fashion but the reuse of existing buildings that are abandoned and falling to ruin.

The architectural approach aims to investigate how skin can skin mediate the user's engagement with both the new and existing. The dissertation proposes to apply different skins to the new and existing, and how a new function can be integrated into abandoned structures.



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Layering skin as space to reweave the existing Johannesburg Gas Works complex into a Fashion design school and Textile recycling hub.

Research Question: How can the uninhabited and unused Johannesburg Gas Works in Cottesloe be adaptively reused into a Textile recycling hub and Fashion design school that connects to the urban context by utilising skin to reinhabit and rejuvenate the existing fabric?

CONTEXT ANALYSIS

02

INTRODUCTION

The context analysis is divided into three segments. The first is a macro site analysis of Johannesburg's inner city.

The second is a micro site analysis that uses SWOT analysis to examine the site under a bigger lens. It investigates the locations' strengths, weaknesses, opportunities and threats in the proposed intervention.

The third segment studies the meso context, examining the immediate surroundings of the Johannesburg Gas Works.

The Burra Charter is referred to place care on the approach to the historical buildings.

SITE SELECTION

The selected site is the old Johannesburg's Gas Works (JGW) in Cottesloe. The abandoned JGW complex consists of several striking industrial, red-brick buildings. The buildings are relics of the past, and no development or renovation has taken place for decades. The abandoned buildings haunt the lively surrounding context that includes UJ, Wits, 44 Stanley mixed-use development, Atlas Film studios, and a large student housing component. The foremost reason for the site selection and type of project was the historical buildings being left behind, and the opportunity of creating new functions that inspire and draw users to the complex in order to reinhabit the existing. Rejuvenation of the site is necessary to prevent the site from falling to ruin. Construction work on the site was attempted but historical buildings were left to ruin due to industrial waste and asbestos contamination.

SITE PHOTOGRAPHS



The selection of the buildings used in the project is focused on the rejuvenation of the Retort House 1 and No.1 Carburetted-Water-Gas Plant as a model for the development of the rest of the complex.



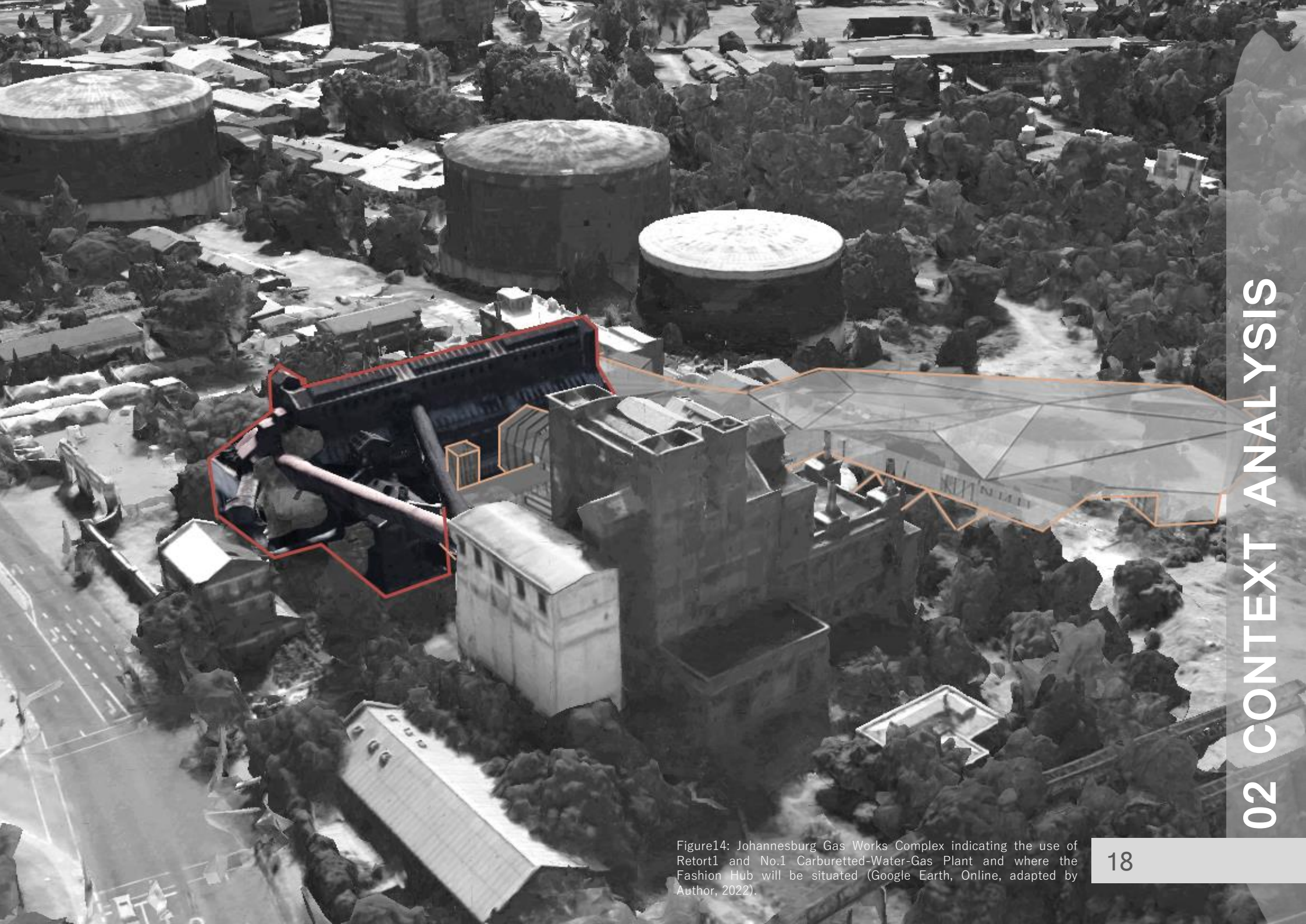


Figure14: Johannesburg Gas Works Complex indicating the use of Retort1 and No.1 Carburetted-Water-Gas Plant and where the Fashion Hub will be situated (Google Earth, Online, adapted by Author, 2022).

2.1 MACRO ANALYSIS

Other Creative Hubs

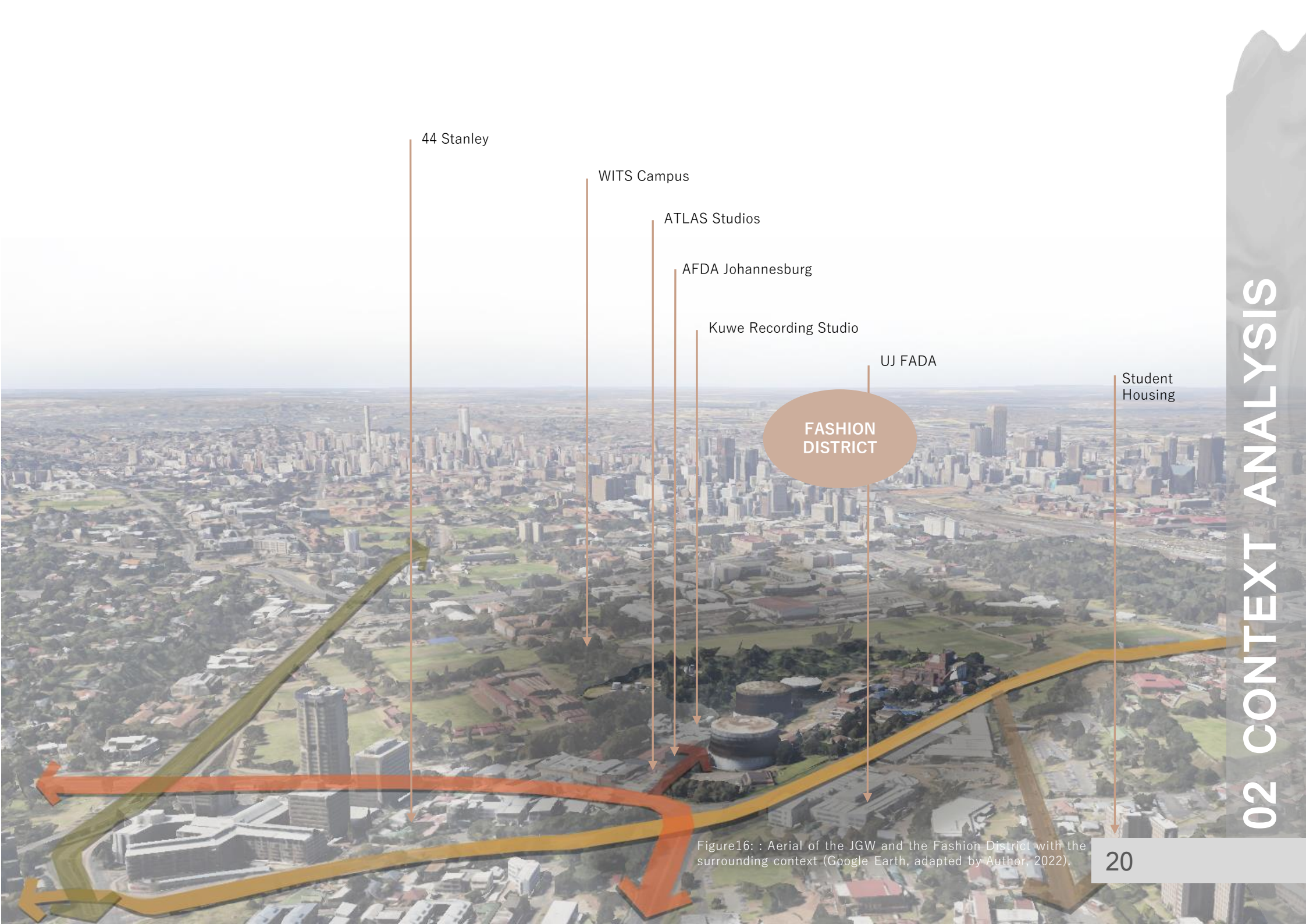
Johannesburg's Fashion District is an important creative hub and shopping location that stretches from Goud Street to Troye Street along President and Pritchard Street in the Johannesburg CBD. The District thrives thanks to the renovation and renewal of some of the existing buildings; over 300 micro businesses are located within the district that is connected to fashion. The District has a variety of styles from western to Pan-African styles by notable designers like Bongiwe Walaza and Clive Rundle. Iconic businesses are also found here such as the Johannesburg Sewing Centre has been part of the fashion district since the 1940s, where sewing equipment and machines are bought in bulk and sold to vendors and informal manufacturers (Kornelius, 2015: Online).

The Fashion District Institute houses 32 stores and a public outdoor fashion ramp. One notable tenant is the Fashion Shack, which sells locally made ornaments and clothing made from shweshwe fabric (Mason, 2012: Online).

Regenerative developments in the Fashion District focus on the District's connection with the surrounding urban context.

The proposed Fashion Hub is 4,3km from the heart of the Fashion District via Pritchard Street. The commercial link of the Fashion Hub can strengthen the economic growth of the local fashion industry to form part of the regenerative development. The Fashion Hub wants to improve the opportunity to engage with alternative sustainable solutions to the current fast fashion movement.





44 Stanley

WITS Campus

ATLAS Studios

AFDA Johannesburg

Kuwe Recording Studio

UJ FADA

FASHION DISTRICT

Student Housing

Figure16: : Aerial of the JGW and the Fashion District with the surrounding context (Google Earth, adapted by Author, 2022).

Johannesburg Gas Works is located in zone 1 of Gauteng’s Environmental Management Framework (GPEMF).

The Framework classifies Zone 1 as an Urban Development Zone. The GPEMF suggests that zone 1 requires urban development undertakings. The Framework encourages infill development, densification, and intensification of urban development as indicated in the Gauteng Spatial Development Framework (GSDF), in order to reduce the opportunity for urban sprawl to grow into rural areas. (South Africa. Gauteng Province Department of Agriculture, Land Reform and Rural Development, 2014: 2)

The GPEMF identifies different land uses that are compatible with the zone 1. Land uses highlighted as possible development that support the Fashion Hub selection include:

- Cultural and historical conservation of sites, features, and precincts
- Urban open space
- Educational institutions
- Retail
- Light industry/ service industry

According to the GPEMF, guidelines for businesses and retail include:

- New developments on site should consider existing indigenous trees and be designed around them.
- Roof gardens and green roofs should be highlighted as it increases outdoor recreation and open space, and it influences the urban heat experienced. (South Africa. Gauteng Province Department of Agriculture, Land Reform and Rural Development, 2014: 5)

Spatial Framework

INTEGRATED TRANSPORT NETWORK

- Railway Stations
- Gautrain Stations (Current Network)
- BRT Nodes
- TOD Precincts
- Gautrain Line (Current Network) copy
- Gautrain Line (Potential Future Link) copy
- Railway Lines
- BRT Backbone

ECONOMIC BACKBONE

- Principal Metropolitan Sub-centre
- Inner City (Metropolitan Core)
- Urban Nodal Areas
- Industrial Nodes
- Mining Belt (Mixed use Area)

PUBLIC TRANSPORT BACKBONE

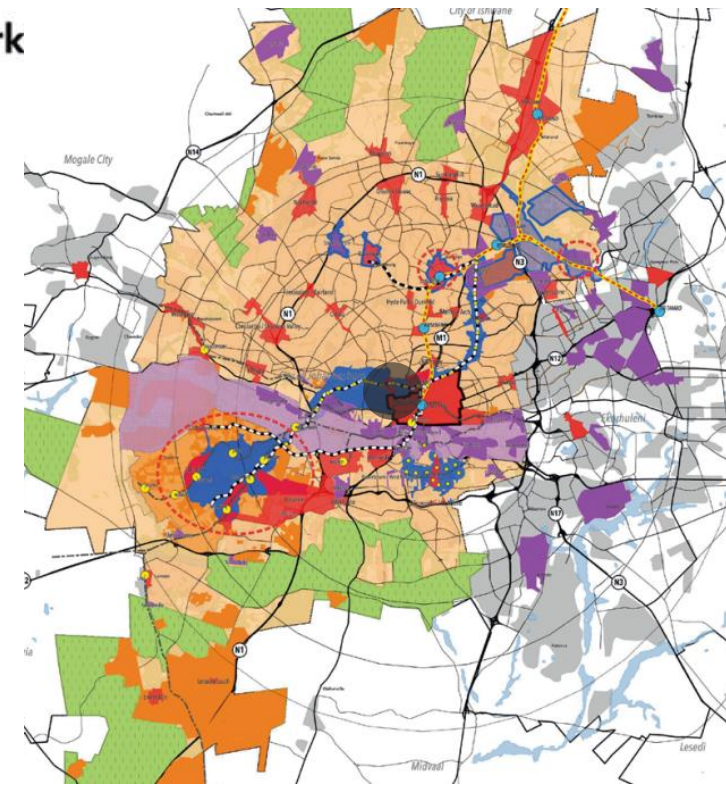
- Empire Perth / Louis Botha CoF
- Turfontein CoF
- Soweto CoF
- Randburg - OR Tambo Corridor Elements

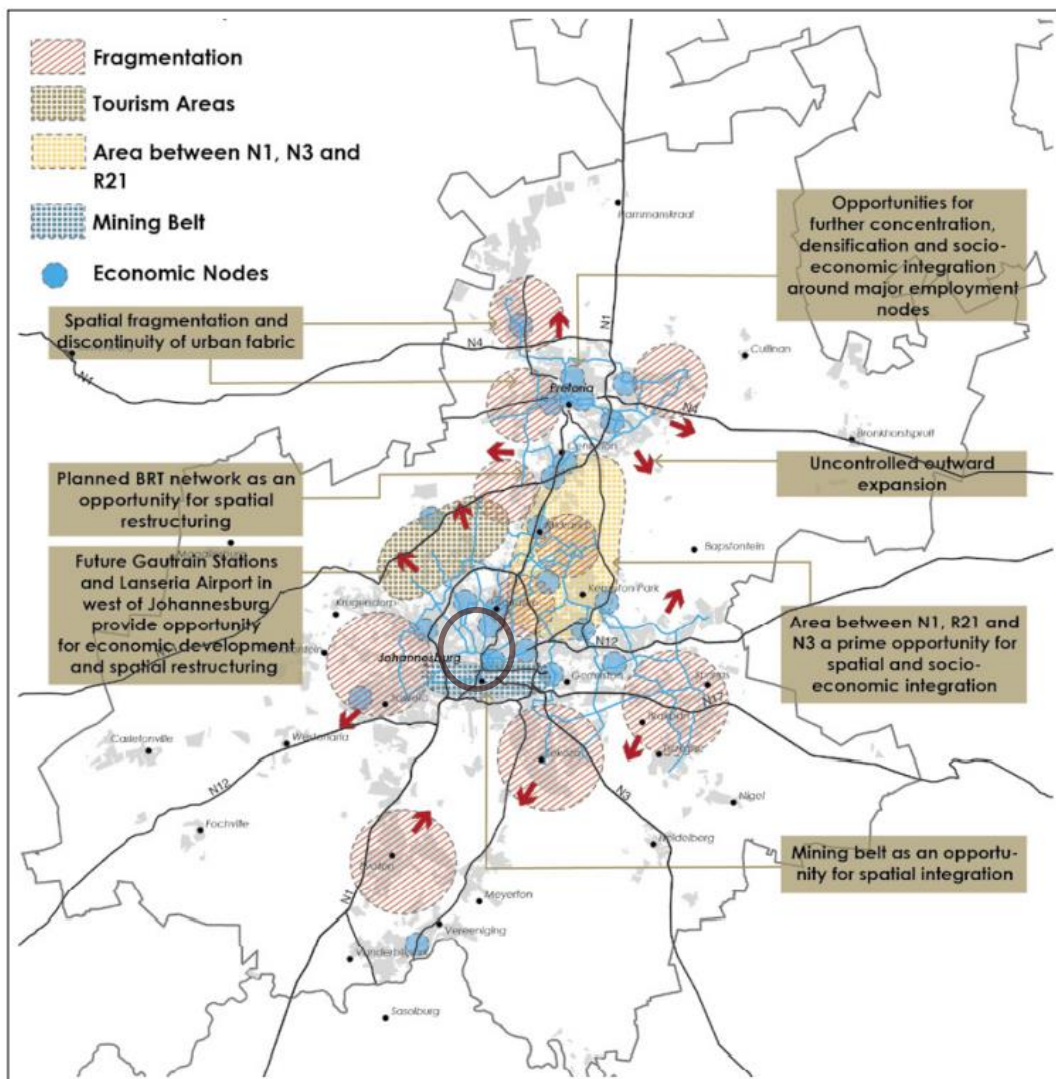
CONSOLIDATION ZONE

- Consolidation Zone
- Soweto
- Deprivation Areas

NATURAL STRUCTURE

- Wetlands and Waterbodies
- C-Plan Area Coverage
- Area beyond UDB
- Gauteng Built-up Areas
- COJ Boundary





The GPEMF guidelines for Urban Open Space, suggests that new urban open spaces should provide to the following:

Ecosystem services that include:

- Climatic control
- Noise control
- Avoid habitat disintegration
- Provision of habitat for indigenous plants and animals

Social activities

- Recreational space
- Enable social communication
- Permitting access to nature
- Provide space or allow for community gardens
- Decrease social inequality
- Encouraging access to public space
- Promote well-being

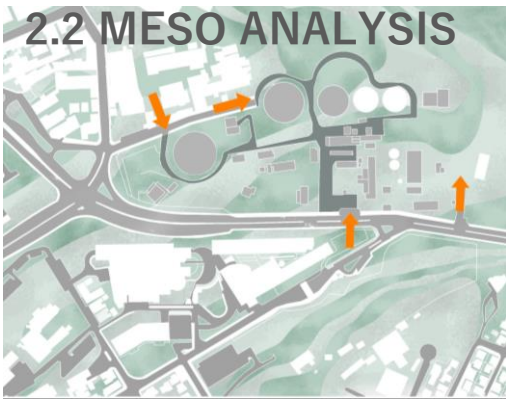
Symbolic and Structural Functions

- Allow and offer identity, value and meaning
- Create a sense of Place
- Cultivating the discernability of the urban landscape
- Connecting the areas to the urban fabric

(South Africa. Gauteng Province Department of Agriculture, Land Reform and Rural Development, 2014: 8)

Figure18: Spatial Patterns and Growth (South Africa. Gauteng Province Department of Agriculture, Land Reform and Rural Development, 2018: 108).

2.2 MESO ANALYSIS



ACCESSIBILITY



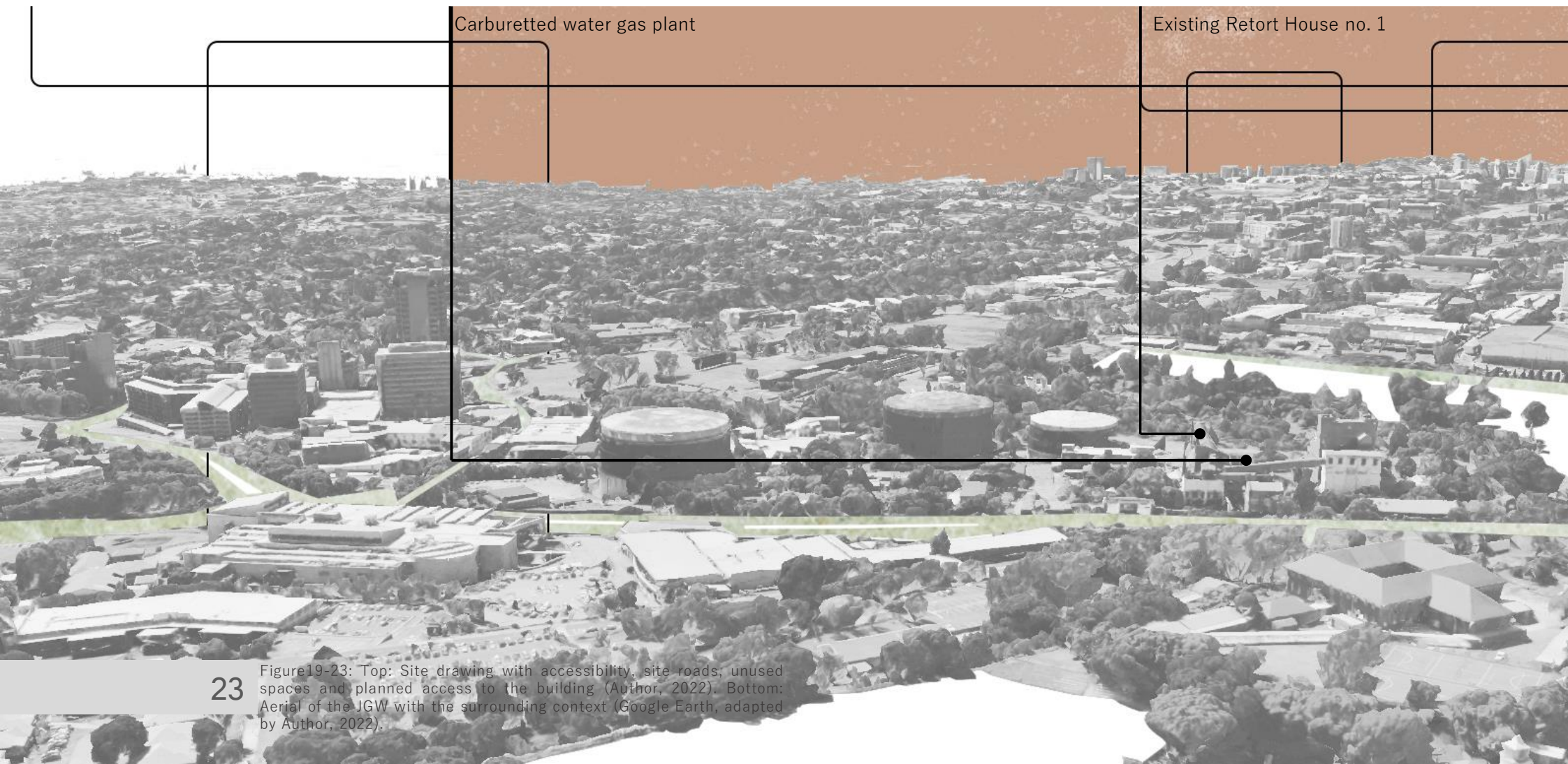
SITE ROADS



UNUSED SPACES



PLANNED ACCESS TO BUILDING



2.2 MESO ANALYSIS

The meso analysis investigates the surrounding context adjacent to the site and identifies the needs and possibilities of the site.

A multitude of different activities and buildings surround Cottesloe. Wits University, the University of Johannesburg, and smaller learning institutions and businesses are found around the site. The surrounding streets and blocks vary in size, and different functions are integrated.

The urban response is essential in this project as the project can become a model for the development of the rest of the site. The density increases with the site's inhabitation to accommodate the users' needs. The site's location on the periphery of Johannesburg's inner-city and privatisation created vast open spaces that can be developed to increase the densification within the area.

Johannesburg's inner city is densely set out with minimal space for movement. The pedestrians are frequently overlooked; however, the surrounding educational institutions allow pedestrians to move more efficiently, which may be lost as development continues throughout Johannesburg. Density in the Corridor increases, moving away from the periphery of Johannesburg towards the centre of Johannesburg's CBD.



Figure24: Site Drawing (Author, 2022).

Johannesburg Gas Works was constructed, and operations began in 1928.

Phase 2 was implemented in 1935 because of economic recovery and development in the Witwatersrand.

Phase 3 was implemented in 1936 to compensate when the demand in production tripled. During this phase the 2nd retort house was built during WW2, the 4th circular gas holder (largest) was built in 1946 and the Gasification Building was built in the 1950s.

1892

The first Gas Works were located in President Street in Newton and were completed in 1892, it closed in 1928 after it could not meet the production demands and the works relocated to Cottesloe.

1928

1928 there were 18 vertical retorts, further additions were discontinued due to economic instability in 1929.

1935

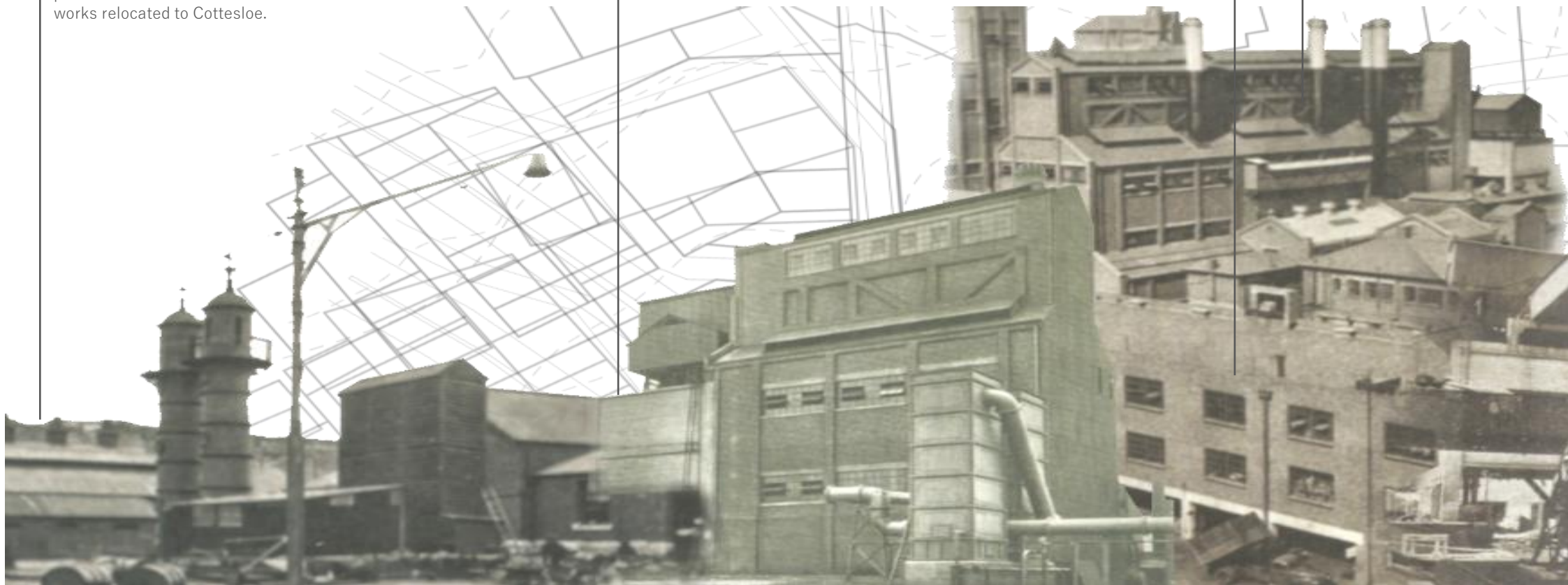
Additional buildings were constructed in 1943 to accommodate the demand for gas.

1943

1946

A second carburetted water gas plant was constructed in 1952

1952



1960

1970

1988

1992

1993

2003

2022

In the 1960's the decline in production of gas at the Gas Works occurred after Sasol had to increase gas supply to Johannesburg due to high demand, the Gas Works could not manage.

In 1988 the Johannesburg Council's Department of water and gas decided to close the Gas Works and lease it to an independent company. In 1992 the closure of the Gas Works occurred.

Since 1992 the buildings have been inactive and unused. The offices however are still occupied by Egoli gas, Gas Holder tanks were used to store gas.

The City Council were in contact with the NMC to clear up the site and demolish buildings to reuse the site. Permits were required to demolish buildings. Sheds were demolished without permittance. The NMC determined the 22000 sm² was not developed efficiently. Nothing came of the further planning for the site.

In 2003 management began the relaying of previous pipe layouts in Johannesburg to be compatible with the natural gas pumped from Sasol in Secunda Mozambique. The change made the company more profitable.

Part of the site is used for parking for Egoli gas and Atlas Studios visitors parking at the lower end of the site along with the buildings being used as storage. The buildings used in the manufacturing is still unused after two decades due to safety issues including asbestos contamination in the buildings.

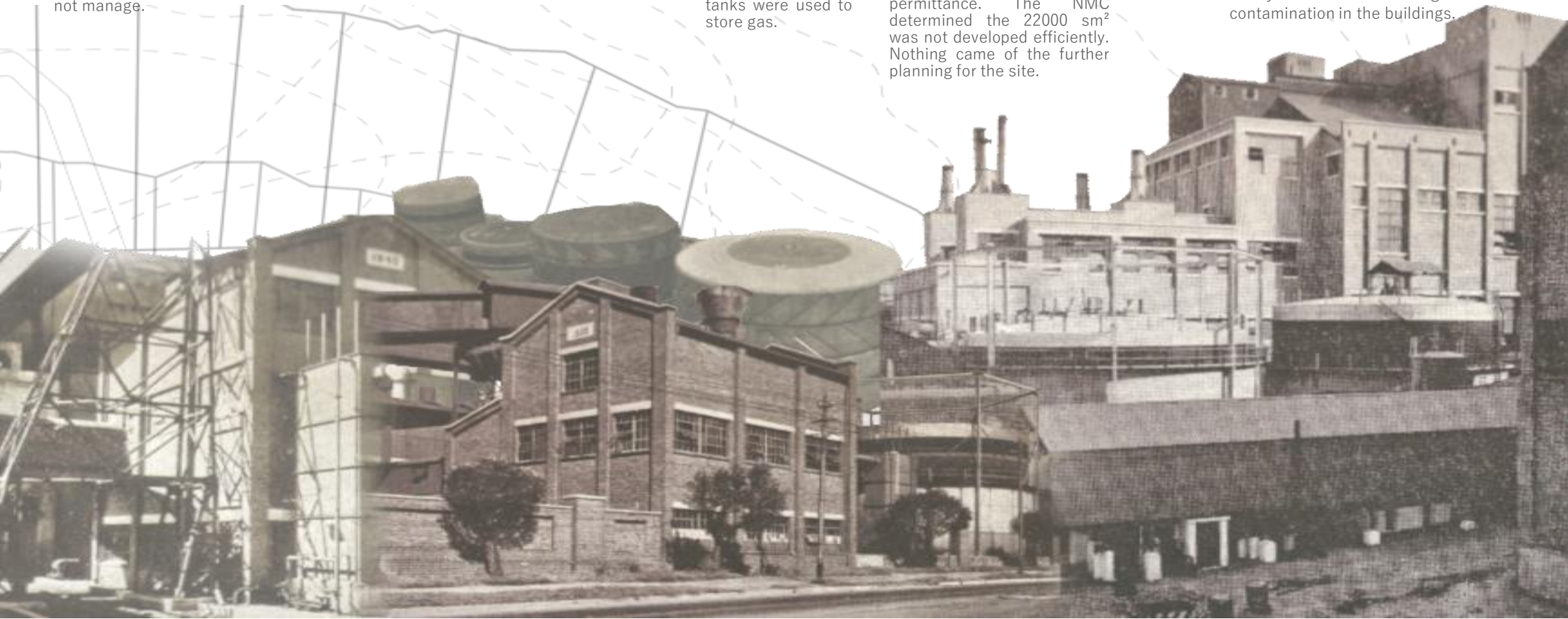


Figure 28: South perspective of the main building, Carburetted-Water-Gas Plant, Coke and Gas Reprint, 1953 ((Läuferts le Roux & Mavungandize, 2016: 34). Figure 29: North West perspective of the No.2 CWG plant and relief holder, Coke and Gas reprint 1954 (Läuferts le Roux & Mavungandize, 2016: 38). Figure 30: The four Gas Holders, Coke and Gas Reprint, 1954 (Läuferts le Roux & Mavungandize, 2016: 40). Figure 31: North perspective of Tully Gasification Plant, an addition to Retort House no.2 with gas holder in the forefront, Coke and Gas reprint, 1954 (Läuferts le Roux & Mavungandize, 2016: 42).

2.3 MICRO ANALYSIS



2.3 SWOT ANALYSIS

The SWOT analysis identifies the strengths and opportunities of the site, the selected project and the surrounding context in conjunction with one another. The threats and weaknesses also need to be considered to inform design responses appropriately.

Strengths

- Project can help to serve the community (Fordsburg)
- The site is located near the Johannesburg Fashion District
- Good vehicle and pedestrian accessibility
- Adjacent to UJ and WITS
- Ample parking

Weaknesses

- The large site with vast open spaces does not fit the surrounding context's density, alienating the site to the urban environment.
- The site is closed off to Anette street.

Opportunities

- Opportunity to engage with the surrounding Universities
- To create a strategy with one building that can guide the development of the rest of the complex
- Opportunities for the buildings to become more functional and operable

Threats

- The historical significance can only be recovered if the design responds to the existing.
- The asbestos and industrial waste threaten the viability and possibility of using the site.

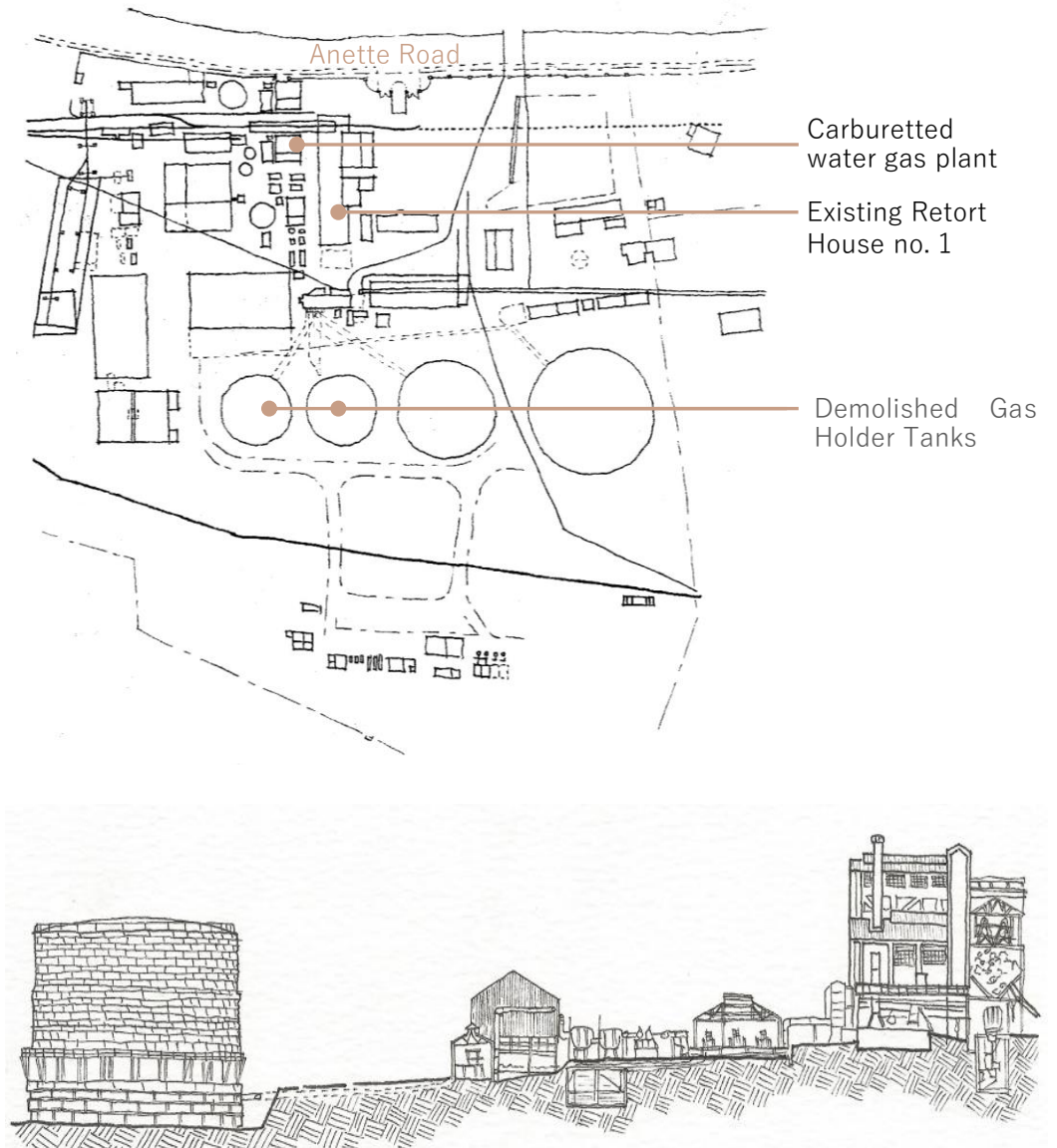
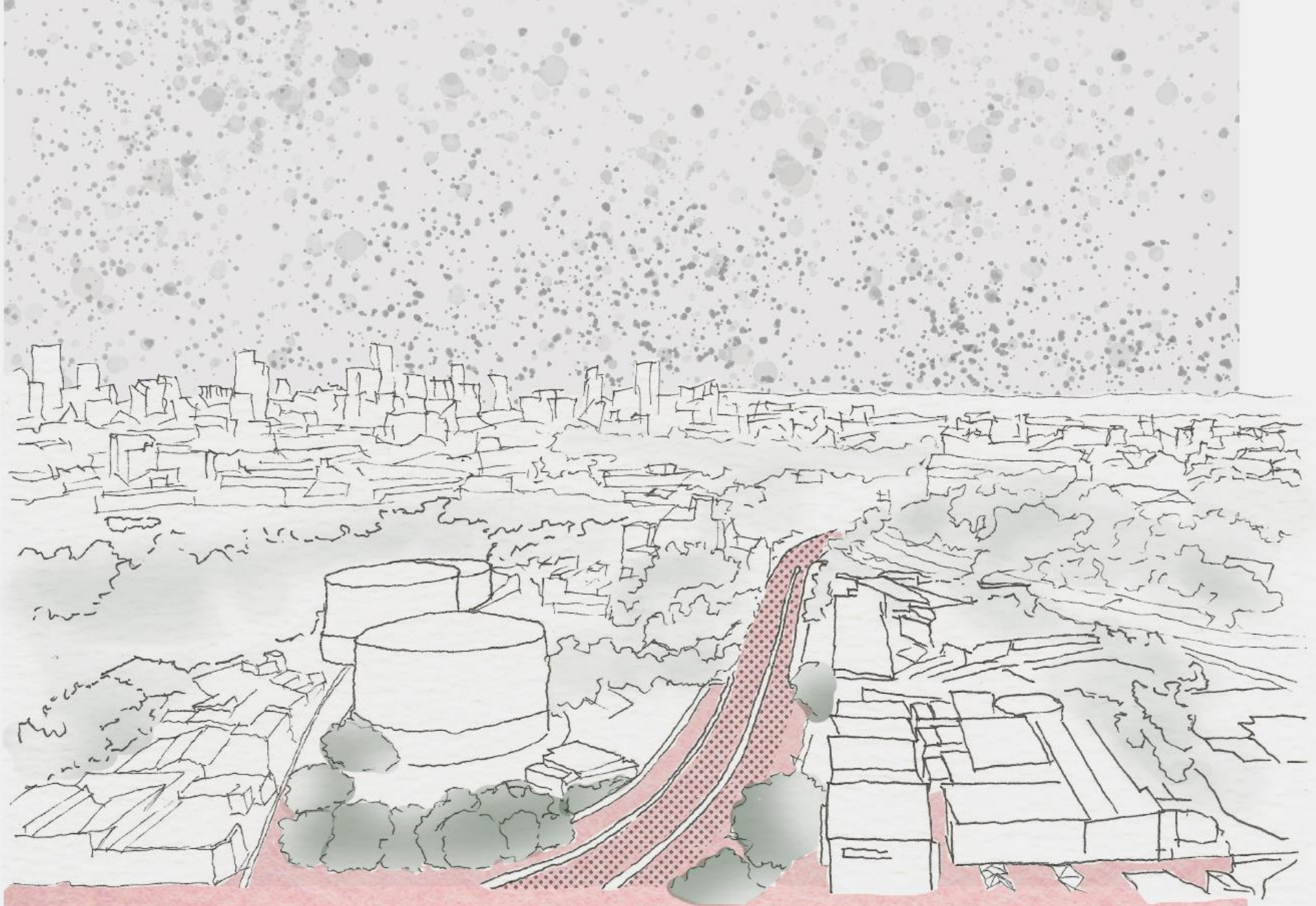
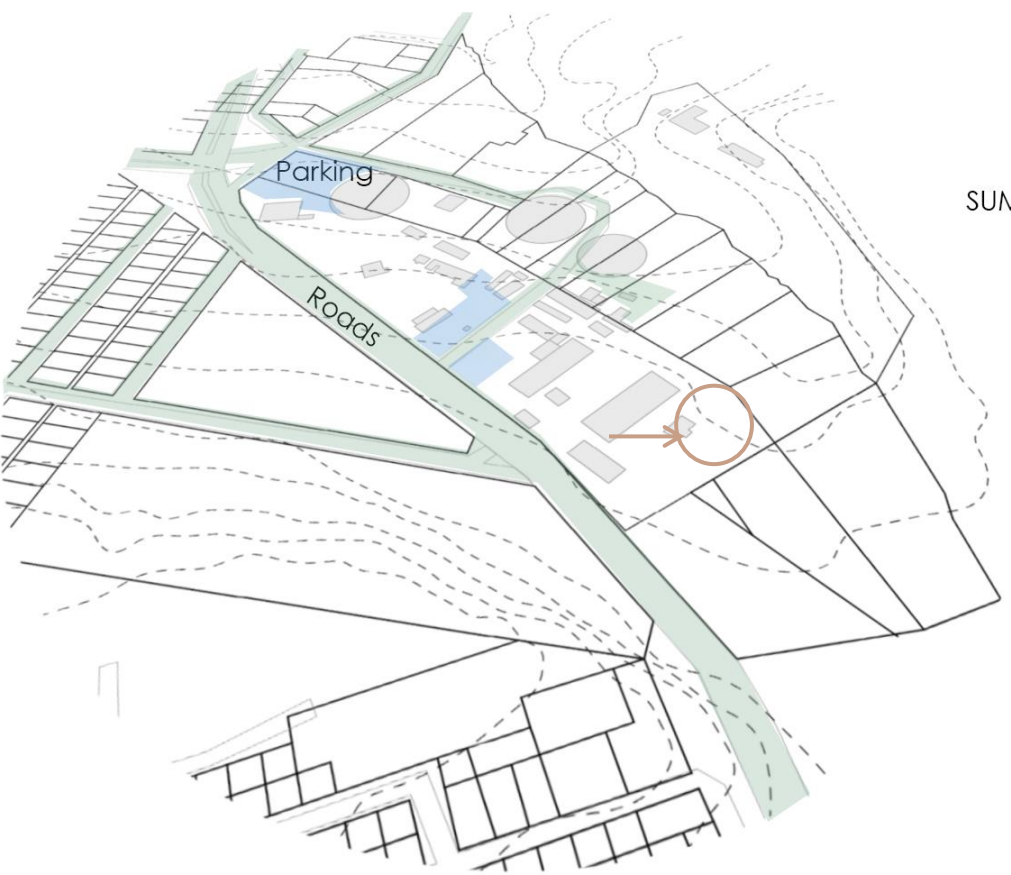
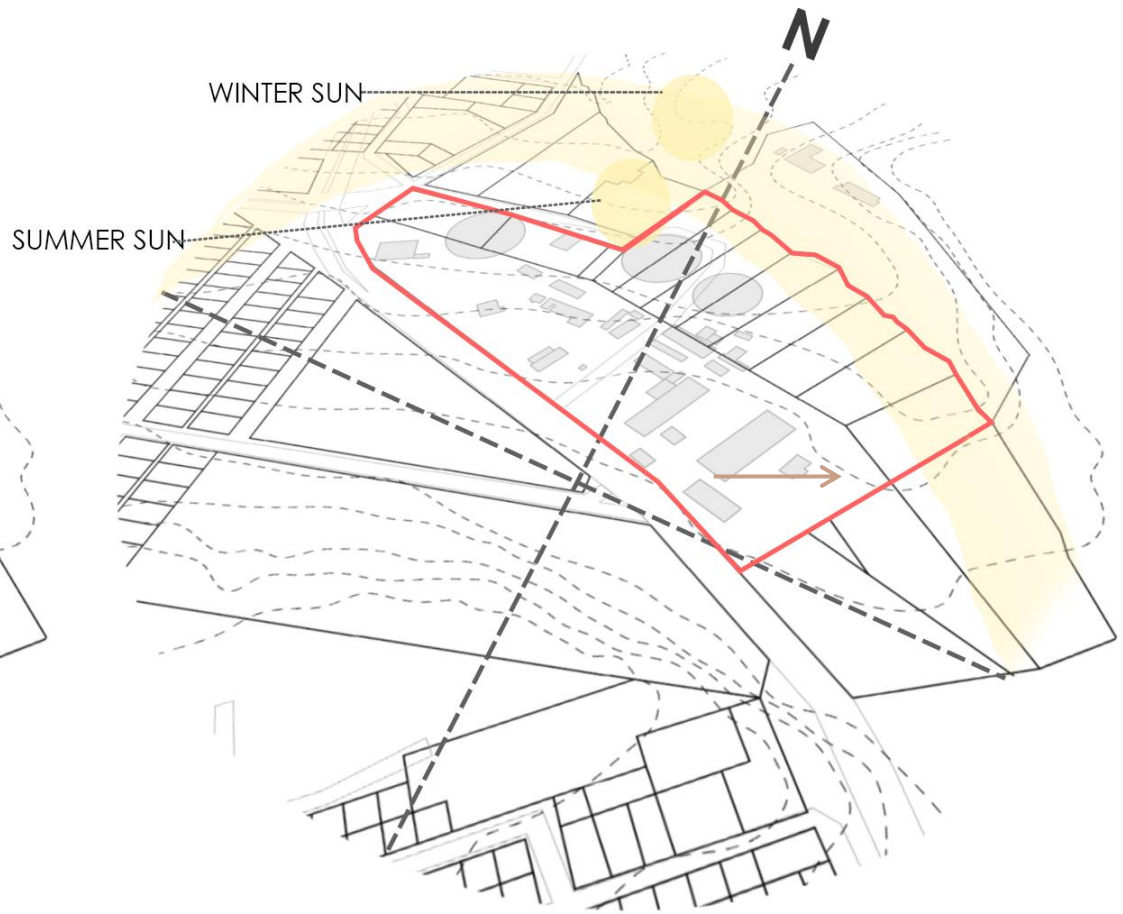


Figure 33-34: Top: Site Drawing, Bottom: Section through the site (Author, 2022).



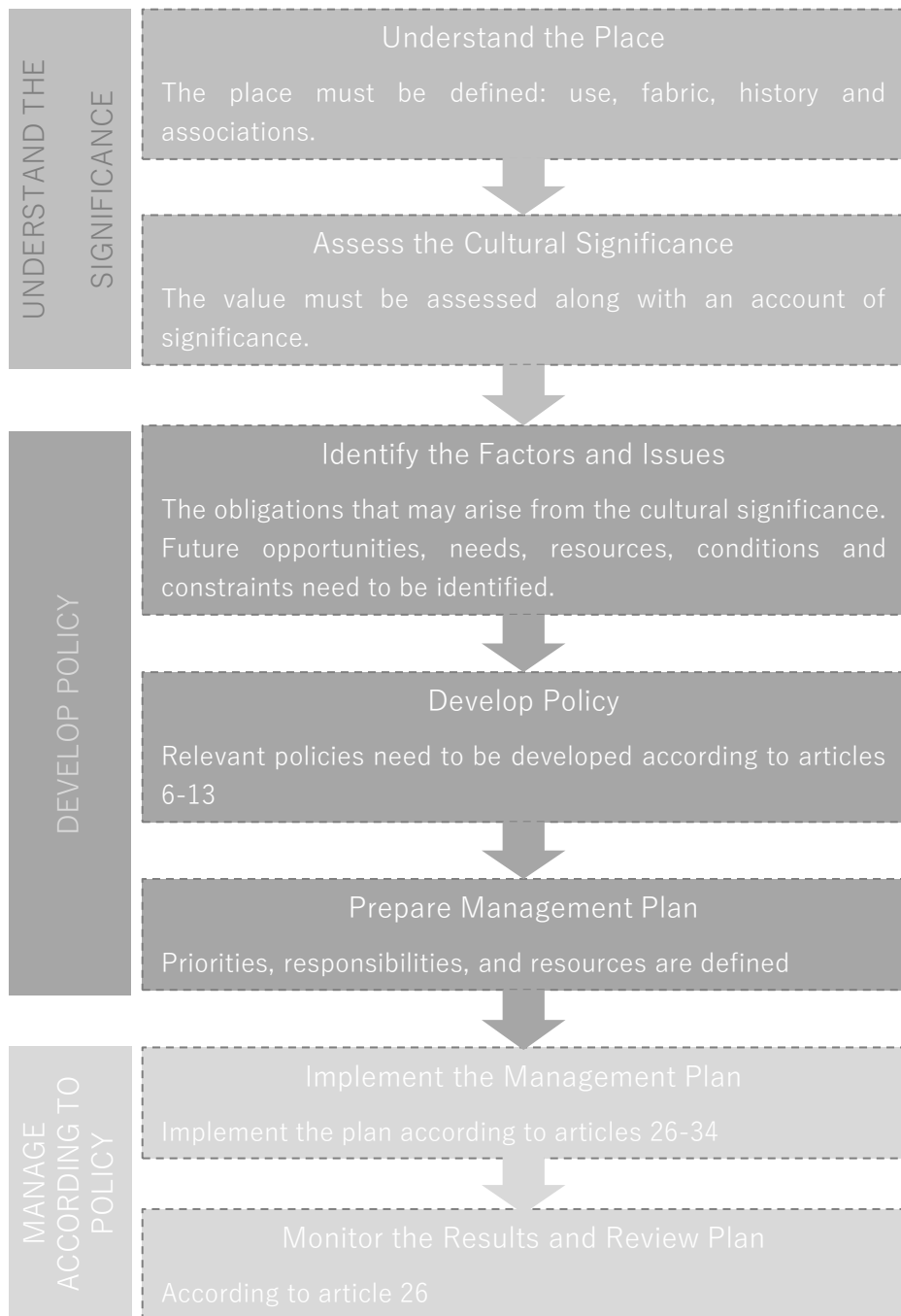


Access to the site allows for connecting the JGW complex to the surrounding context. The demolished structures allow space for parking near the new functions of the Fashion Hub



Development to the Northeast side of the site. The vast open spaces of the site can be densified with the functions of the Fashion Hub.

Figure 36-37: Circulation and Parking. Sun pattern over the site (Author, 2022).



The Burra Charter

The Burra Charter, The Australia ICOMOS Charter for Places of Cultural Significance, offers guidance for managing and conserving cultural heritage places established by the ICOMOS members. Conservation is essential to places of cultural significance, and the charter has established practices that guide decision-making and commencement of work in culturally significant places (Burra Charter, 2013:1).

The significance of historical buildings is investigated through different approaches to determine the appropriate response to the existing place. In this adaptive reuse project, the Burra Charter was referred to as a careful approach to adaptive reuse; the articles of the Charter are highlighted as a route of conservation and adaptation. The Charter identifies the care required to change the function and useability of the historical place. Cultural places enhance the lives of the people inhabiting the place, it embraces meaningful connections to the surrounding context and community as lived-experiences are linked to the past. Different narratives in culturally significant places are deepened and safeguarded in these places (Burra Charter, 2013:1).

Article 1 sets out the purpose and definitions of the charter.

1.2 The Burra Charter describes cultural significance as the historical, social, aesthetic, or spiritual value for future, present or past inhabitants. It is embodied in place, the fabric, use, meaning, and setting; the place can have a variety of significances or meanings for different persons or groups (Burra Charter, 2013:2). The JGW is an unused site that can be adapted for future and present needs, related to the contextual surroundings and needs of the community.

1.4 Conservation is a process of safeguarding a place concerning the preservation of cultural significance (Burra Charter, 2013:2). The existing fabric needs to be evaluated as the existing is uninhabited; preservation of cultural significance is necessary.

1.9 Describes adaptation as a method of altering a place to benefit the existing use or planned one (Burra Charter, 2013:2). The conservation strategy involves adaptive reuse as an approach to reinhabit the site, to allow the site to not fall into ruin

Article 2: Conservation and management

2.4 Culturally significant places must be protected from being jeopardised or abandoned in vulnerable conditions (Burra Charter, 2013:3). The historical fabric of the JGW Complex is currently abandoned and is susceptible to ruin. Measures have to be taken to prevent the loss of cultural significance.

Article 3. Cautious approach

3.1 The existing fabric, meaning, and associations should be respected. Cautions should be taken to approach the necessary changes that need to be taken (Burra Charter, 2013:3). Necessary changes to approach the existing is to introduce new functions to reinhabit the site and respond to the needs of the surrounding context.

Article 4: Knowledge, skills, and techniques

4.2 The preferred method for conservation is using traditional materials and techniques. Still, it may be suitable if significant conservation advantages are offered for modern techniques and materials (Burra Charter, 2013:4). The adaptation method contrasts the existing fabric to distinguish between new and old. The existing can never fully return to its original state; to aim in pursuing to return to the existing can be perceived as being dishonest to the integrity of the existing.

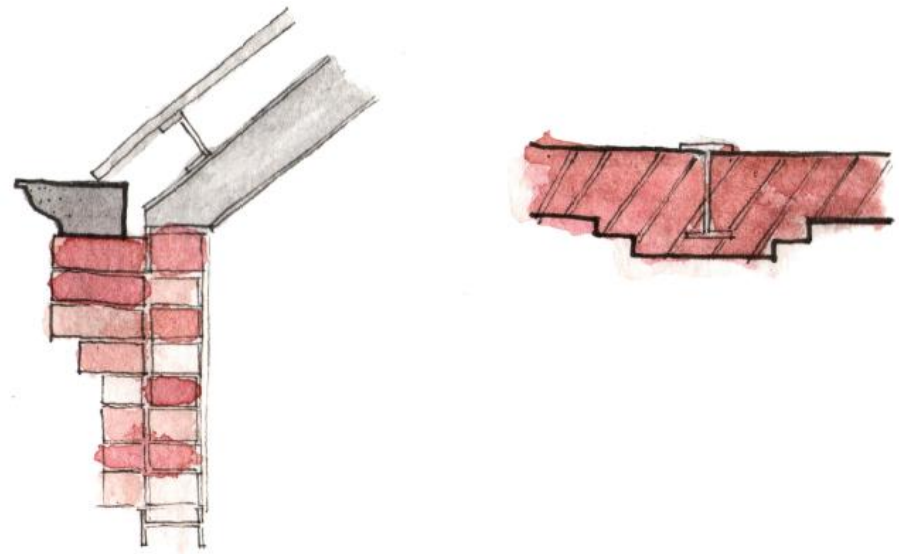
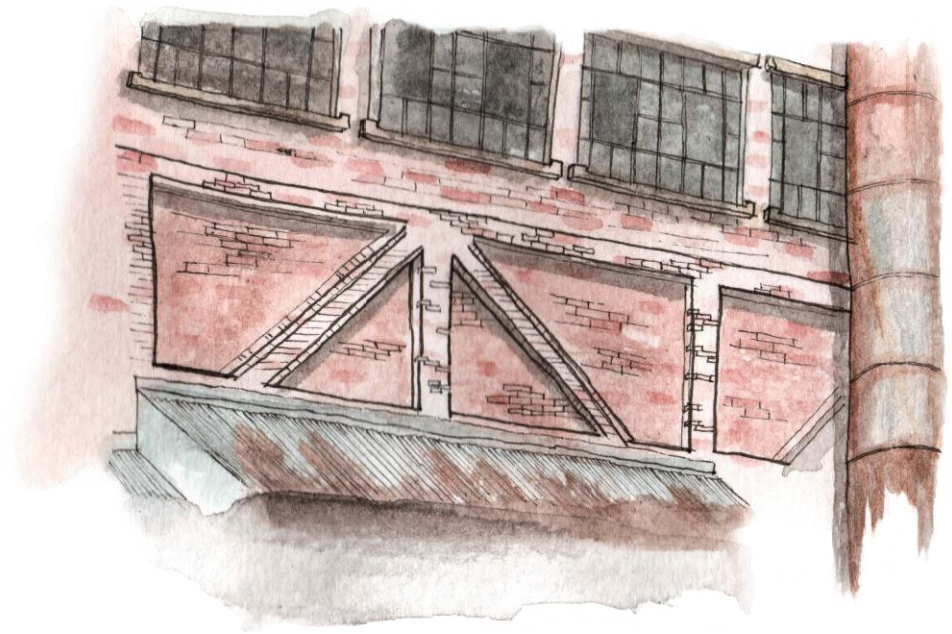


Figure 39-41: Watercolours of the Triangular brick projections on the North Elevation of Retort House 1 (Author, 2022).

Article 5: Values

5.1 The cultural and natural significance need to be contemplated for conservation without unjustified value placed over another (Burra Charter, 2013:4). The existing fabric has a strong presence on the site, the new contrasting the old with horizontality rather than verticality in an aim to not place more value on one rather than the other.

Article 6. Burra Charter Process

6.3 The development of policy considers other factors that affect the future that can, including the owner, physical conditions, and external constraints (Burra Charter, 2013:4). The physical conditions are crucial to the development of the site as the asbestos, and industrial waste contamination has an influence on the design approach.

Article 7: Use

7.1 The use of the place should be retained if it has cultural significance (Burra Charter, 2013:4). The JGW's previous use has become redundant, and thus the operations have stopped. The introduction of new uses is necessary.

7.2 The place should have a suitable use (Burra Charter, 2013:4). A Fashion design school and Textile recycling centre could benefit the surrounding context.

Article 15: Change

15.1 Change within a place can be required to preserve cultural significance; suitable interpretation is made through the guidance of the cultural significance of the place (Burra Charter, 2013: 6). Minimal change is done to the existing buildings to keep the integrity of the buildings. Still, new structures are used to fill in and densify the fabric.

15.3 The Burra Charter suggests that the demolition of culturally significant fabric is broadly not accepted, only if it is a suitable response for conservation (Burra Charter, 2013:6). Demolition was kept to a minimum only where required to create openings within the existing to make the buildings functional for the new uses and needs.

Article 21: Adaptation

21.1 Adaptation is justifiable if it has minimal influence on cultural significance (Burra Charter, 2013: 7). Retort 1 is essential as it is one of the first buildings to be constructed with various details. The exterior is minimally adapted, and the interior is kept intact with simplistic additions that can be altered.

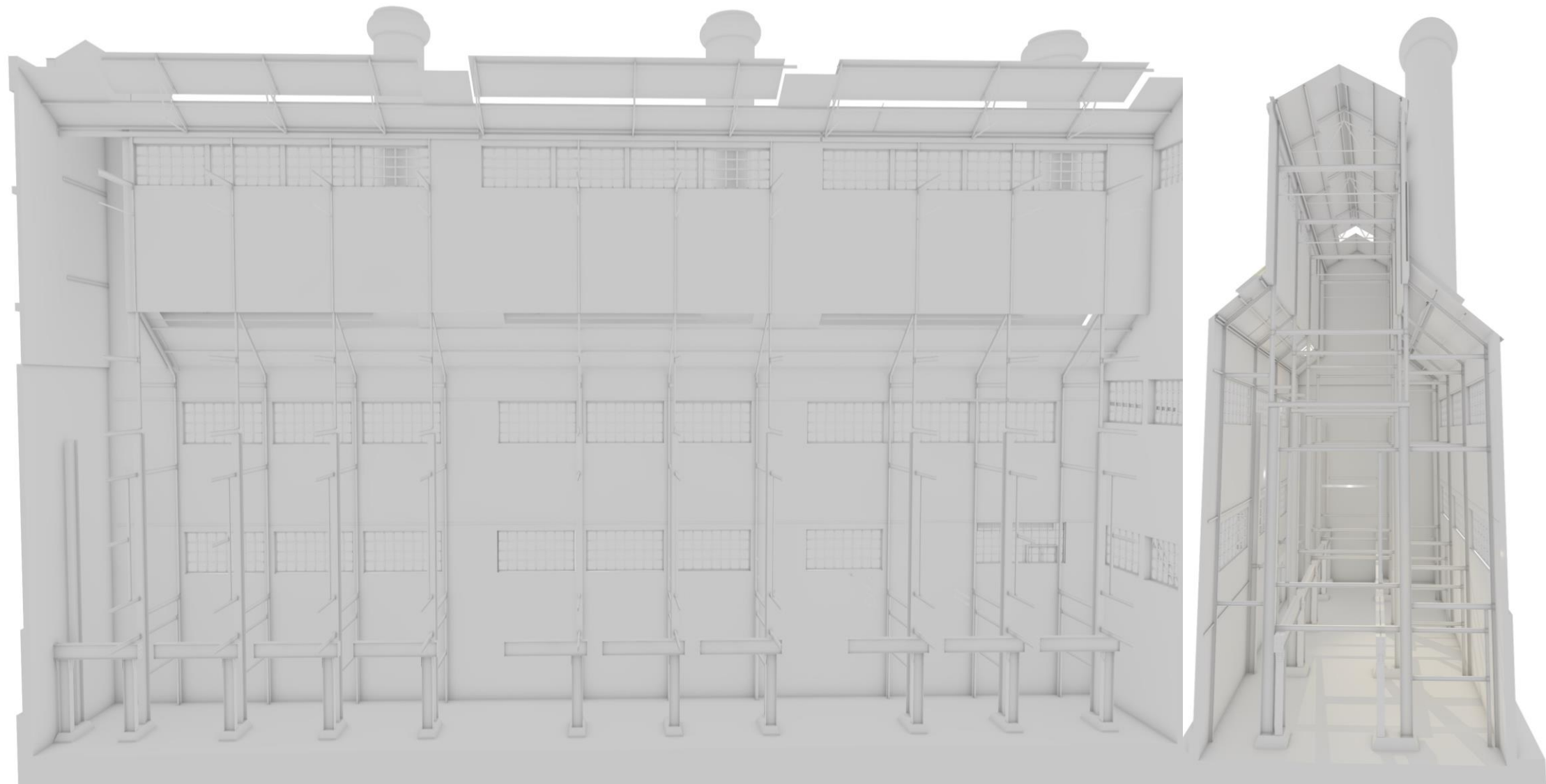
Article 22: New Work

22.1 Additions or changes to the place can be suitable if it does not disform or create ambiguity of the places cultural significance; it must also not weaken its understanding (Burra Charter, 2013:7). The distinction between new and existing is important in culturally significant places. The new work aims not to distract or distort the existing but rather create an appreciation for the existing.

22.2 The new work should be easily discernible. Still, it must appreciate and have minimal influence on the cultural significance (Burra Charter, 2013: 7). The new can be readily discernible by contrasting the existing elements. The existing Retort is a vast vertical industrial red-brick building, whereas the new contrast with a horizontal structure complimented with contemporary techniques and materials.



Figure 42: Drawing (Author, 2022).



CONCLUSION & APPLICATION TO THE PROJECT

The Retort House has a neo-gothic architectural expression, making the buildings seem outlandish. The typology of the assemblage of the factory expansions emits the character of an industrial cathedral (Läuferts le Roux & Mavungandize, 2016: 79). The approach is to amalgamate the historical buildings sympathetically and thoughtfully into the neighbouring areas.

Placemaking of the site into an amalgamation of social interactions that confronts sustainable environmental concerns. The integration of the gas works into the 'cultural arc' (strengthening the cultural trajectory between the Johannesburg Art Gallery and Wits campus and the Museum Africa) is important to reflect public and cultural needs. (Läuferts le Roux & Mavungandize, 2016: 79)

The Gas Works could be utilised to create a sustainable response to the current unsustainable practices in the fashion industry. *'The Johannesburg Gas Works'* indicates that functions surrounding education, culture and recreation can create the opportunity of engagement with a multitude of activities that responds to the character of the context. (Läuferts le Roux & Mavungandize, 2016: 79)

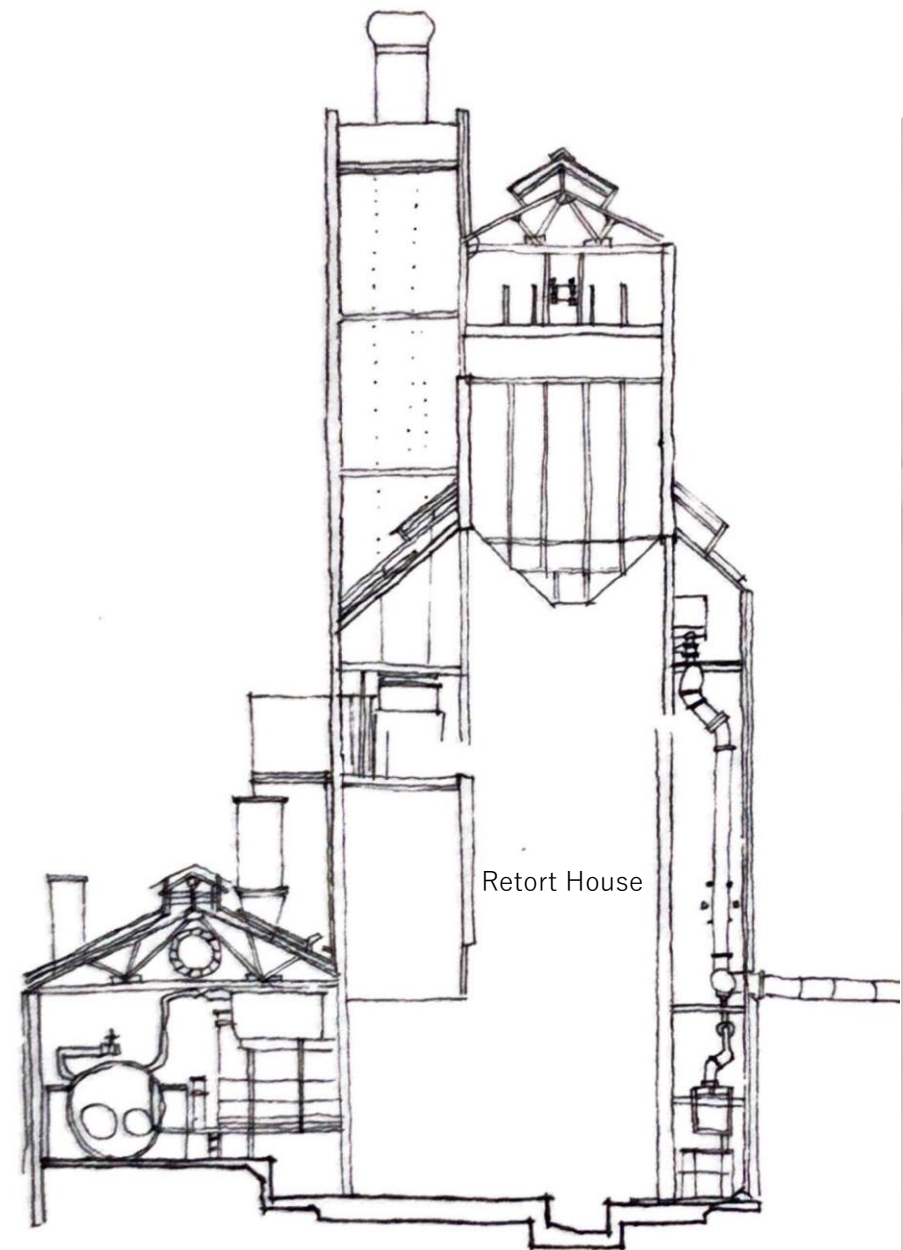


Figure 45: Section through Retort House, the chosen building (Author, 2022).

CONCEPTUAL APPROACH

03



03 CONCEPTUAL APPROACH

INTRODUCTION

Prof Raman established and implemented the practice of the 'touchstone' that has become a basis in the University of the Free State's design process. Students create touchstones specific to the project that embodies the themes or theoretical explorations, which is an abstraction of what the project intends to be. The touchstone is a compelling, evocative interpretation of the objectives of the project. The touchstone allows for the communication of ideas in a physical form, that is specific to the project. It is essentially a design metaphor that Prof Raman states aids in asking questions including: "what is its nature? What is it like?" (Raman, 2009: 106). The touchstone is a gauge for the designer that can be revisited throughout the design process. It allows the designer to experiment with ideas specific to the design in order to formulate a thought process that communicates the themes through the design.

Architectural concepts encourage design development and architectural responses to capture the essence of what the building aims to achieve. Concepts are responses to the users, the type of building and the context. The re-interpretations of conceptual images allow new meanings to be revealed.

The touchstone and three concepts explore skins and fashion and the architectural qualities they possess. The concepts investigate the possibility to create architectural depth with the bodily and emotive experiences of fashion. The concepts guide the architectural responses and the interactions with the new functions through architecture

3.1 TOUCHSTONE: Stitching the Fabric

The famous phrase, “A house is a machine for living in”, became known through Swiss-French architect Charles-Édouard Jeanneret (Le Corbusier) (1887-1965) in the 1927 *Vers Une Architecture* (Towards an Architecture) manifesto. Le Corbusier states that a house is a tool that humans live in; a house is an effective tool that delivers essentials to life; adornment and decoration are therefore not required. An efficient house-machine, according to Le Corbusier, is more comfortable and practical (Morse, 2015: Online). Le Corbusier ‘Machines for living in’ was questioned by Frederick Kiesler who argued the ‘metaphor of the skin as a house’. “The house is neither a machine nor a work of art. The house is a living organism . . . the skin of the human body.” (Ekici, 2016: 281). Kiesler stated that the house is comparable to the skin to the body, he applied an organicist view that underlines the environmental functioning within architecture (Ekici, 2016: 281).

Gottfried Semper’s aim was to reveal the fundamental urges inherent in creating architectural forms, Semper noticed these forms in handcrafts and drew significance on discovering the foundations of material culture. Semper drew connections between dwelling, clothing, and skin as the humanistic need of dressing and beautifying (*bekleidung*). Semper evolved the concept of *bekleidung*, from the four elements of the hearth, embankment, enclosure, and roof from primitive architecture. Semper’s enclosure element is derived from textile crafts. Primeval dwellings were constructed with intertwined mat walls. The weavings of enclosures projected the “art of dressing the naked body”. He implied that primeval architecture was the initial arrangement of clothing (Ekici, 2016: 29).





The touchstone looks at how textile recycling and fashion design can reinhabit the site. The recycling of textiles and architecture runs concurrently with one another in the project. Threads of the new can be woven between the existing to allow it not to be withdrawn from the context, and where new stories can be woven into the existing.

The openings indicate the intention of allowing the engagement of the users with the site through the Fashion Hub. The form of the touchstone is connected to the rejuvenation or rebirth of the site. Where the existing is meant to be illuminated through new expressions of the site.

3-294).

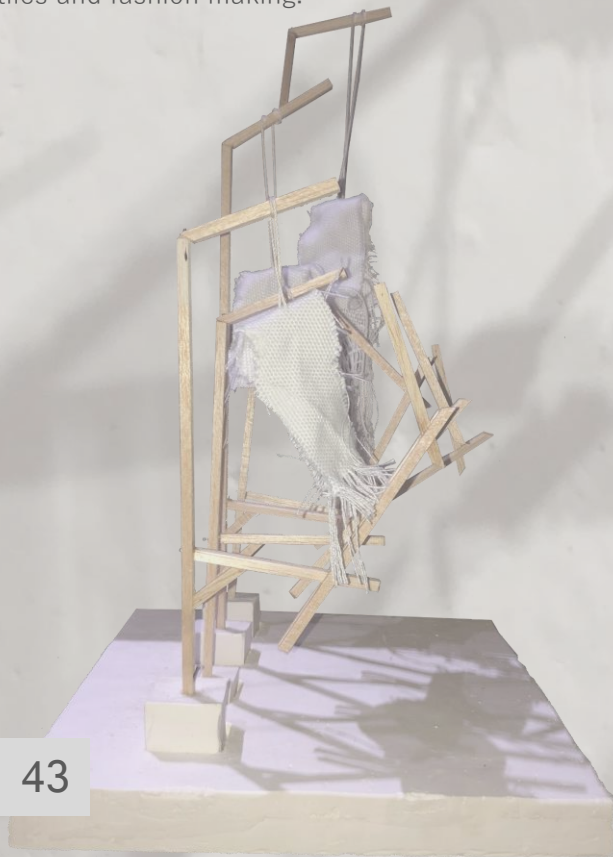
Figure51: Photograph of touchstone (Author, 2022).

3.2 THREE CONCEPTS

3.2.1 Fashion as a Theatrical Space

The first concept is Fashion as a Theatrical Space. It explores how the imagery of fashion can spill out onto the site and the exterior rather than being confined to the interior. The Fashion Hub challenge consumerist societies and creates a dialogue for responsible production coupled with responsible teaching, consumption, and exploring what textile waste can become.

Fashion impressions can spill out into public spaces and enchant the pedestrians moving through the site between the buildings by creating a corridor within site. The processes allow pedestrians to engage with recycling textiles and fashion making.



43



Figure52-53: Image of concept model (Author, 2022). Right: Drawing of concept model (Author, 2022)

3.2.2 Metaphor of Skin as a House

The second concept is 'Metaphor of skin as a house', it investigates skin within a skin, weaving together the historic existing structures with the new functions. The double skin can be approached in the interior of the existing, with a new skin that is woven into the bones of the existing building.

The second skin becomes a form of dressing or adorning, that links to Semper's expressions of *bekleidung*, The rejuvenation of the site gives new meaning to the buildings, rather than being situated in the abandoned past. The weaving of a new skin allows the interweaving of new spatial enclosures.

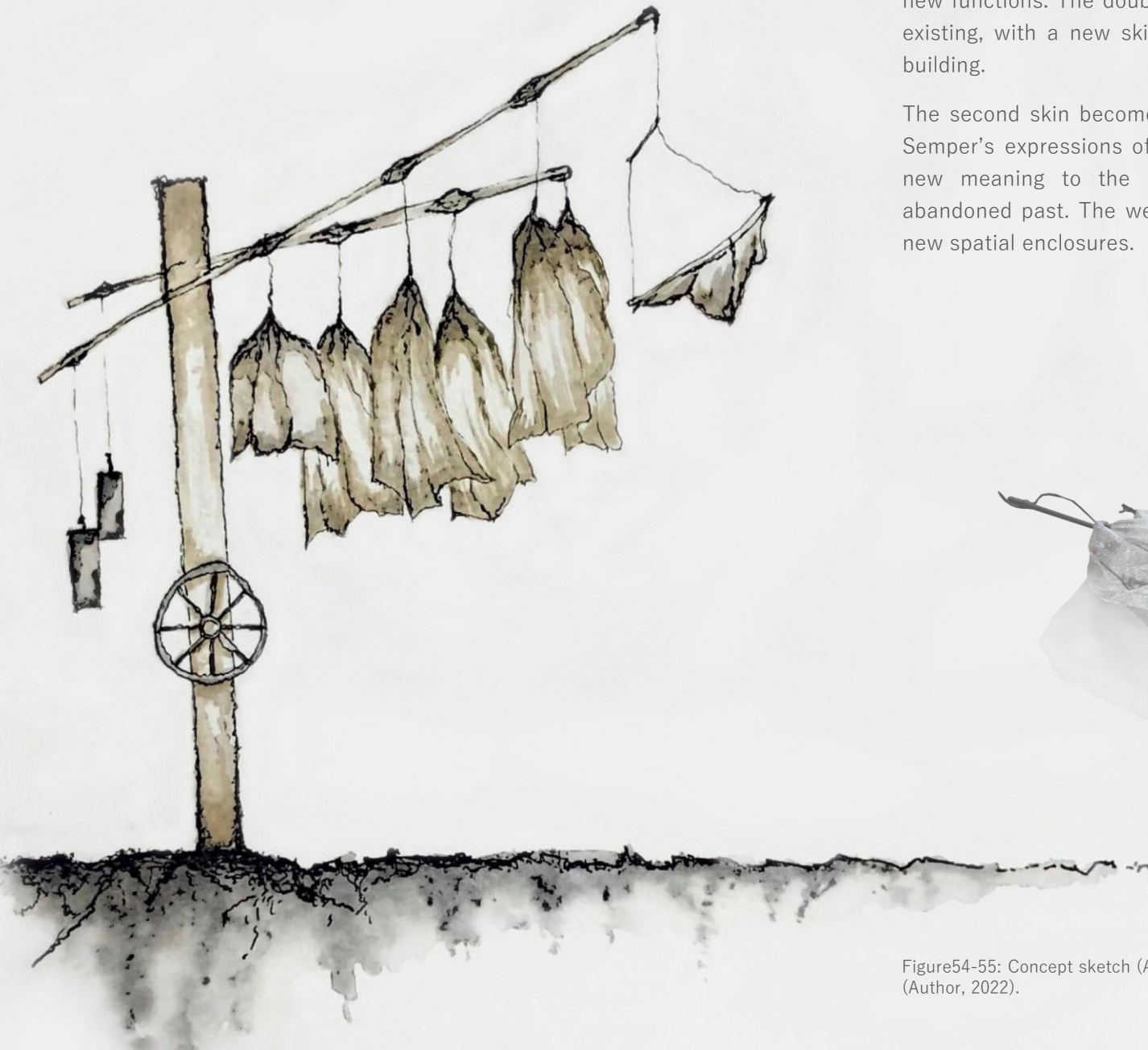
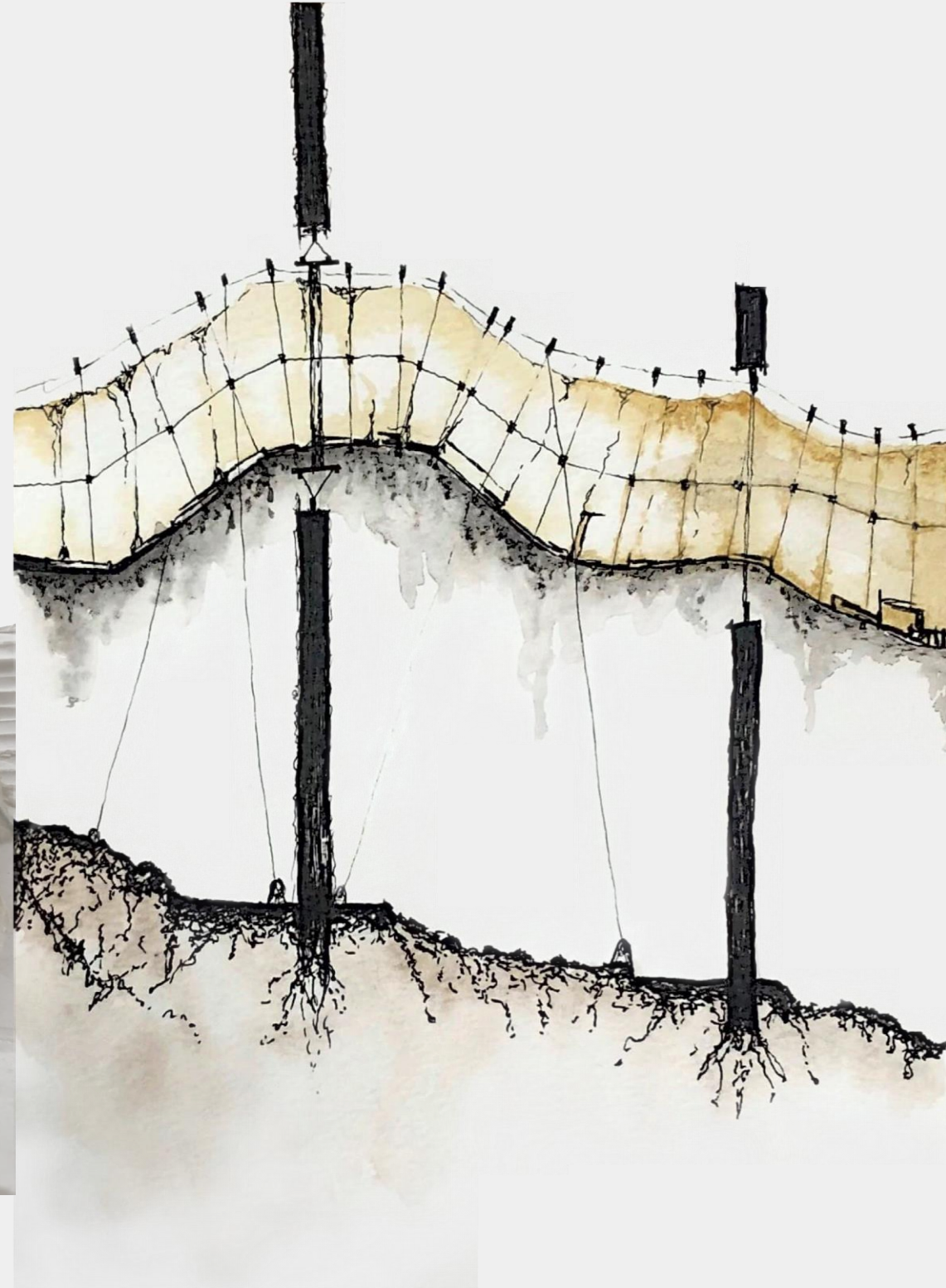


Figure54-55: Concept sketch (Author, 2022). Image of concept model (Author, 2022).

3.2.3 Interweaving Diverting Routes

The third concept of Interweaving Diverting Routes relates to the weaving together of different buildings. The Interweaving of diverting routes describes how textile and design can be integrated into the site to reveal what is already existent. The diverting routes can be explored on the site where the soil is contaminated with asbestos. The interwoven detour forms part of an experience of the site and architecture that flows over the structures. Where textile becomes skin that is a habitable structure and safeguards the dweller's journey through the site, it influences the perpetual, mental and physical space.

Kiesler argued for elasticity, where architecture becomes flexible and adaptable to the human body. It safeguards the comfort and fluidity of human movement.



Conclusion

The touchstone and concepts form an integral part of the design response. It allowed for themes to be investigated in the early stages of the project, the ideas were revisited throughout the design development to act as an anchor for what the project aims to be.

The touchstone is the first exploration into the themes of the project that has been considered throughout the design development.

The concepts engage with different thought processes as it forms part of the first design development that questions what the building aim to achieve. The concepts are abstracted forms of expression that engage with different themes and ideas that the project investigates.

The investigation within the touchstone and concepts led to a further enquiry of skins that has the ability to be examined in the different theoretical discourses that has diverse presentations of skins. The concepts and touchstone guide the design development and act as an anchor to which the design is influenced.



Figure58: Drawing (Author, 2022).

THEORETICAL UNDERPINNING

04

INTRODUCTION

The theoretical underpinning will consult the different perspectives on skin that include the *Five Skins of Man* by Austrian artist, architect, and philosopher Friedrich Hundertwasser (1928-2000) (Jakobsen & Storsletten, 2018: 39), which engages the artistic immersion into the skins as humans are porous to them and not detached from them. The ecological self and ecological fashion engage with the ethical understanding that occurs in consumers through the exchanges between the self and the environment that involve the five skins and caring for the unused.

The mutuality between fashion and architecture will be examined through the investigation of how both art forms lend themselves to the other, the overlapping boundaries can be used to create fashion spaces that involve human interaction with architecture and fashion.

Heterotopia in architecture disturbs conditions to enable the dweller to critically notice and engage with the place. Heterotopic Fashion opposes the normalities of consumerist nature, questions the standards and formulates new perspectives on sustainability and consumption.

The perspective on the skin by Austrian-American architect and theorist Frederick John Kiesler (1890-1965) (Phillips, 2008: i) engaged with skin as a metaphor for a house. The physiology of skin and dwelling, skin as a prosthesis, and dressing and adorning of the body and architecture will be investigated through the work of German architect Gottfried Semper (1808-1879) (Phillips, 2008: 167), to argue that the inner body is extended to the outer layer and this extension is an inherent reaction to humans to beautify the skin.

Elasticity in architecture will be engaged through Kiesler's work, which involves flexible structures rather than static forms. His concept is to form a unified organisation of separated fragments into a single elastic space that reconciles the division between dream and actuality.

The different perceptions of skin allow for an understanding of how the body responds to different environments and how architecture itself becomes.

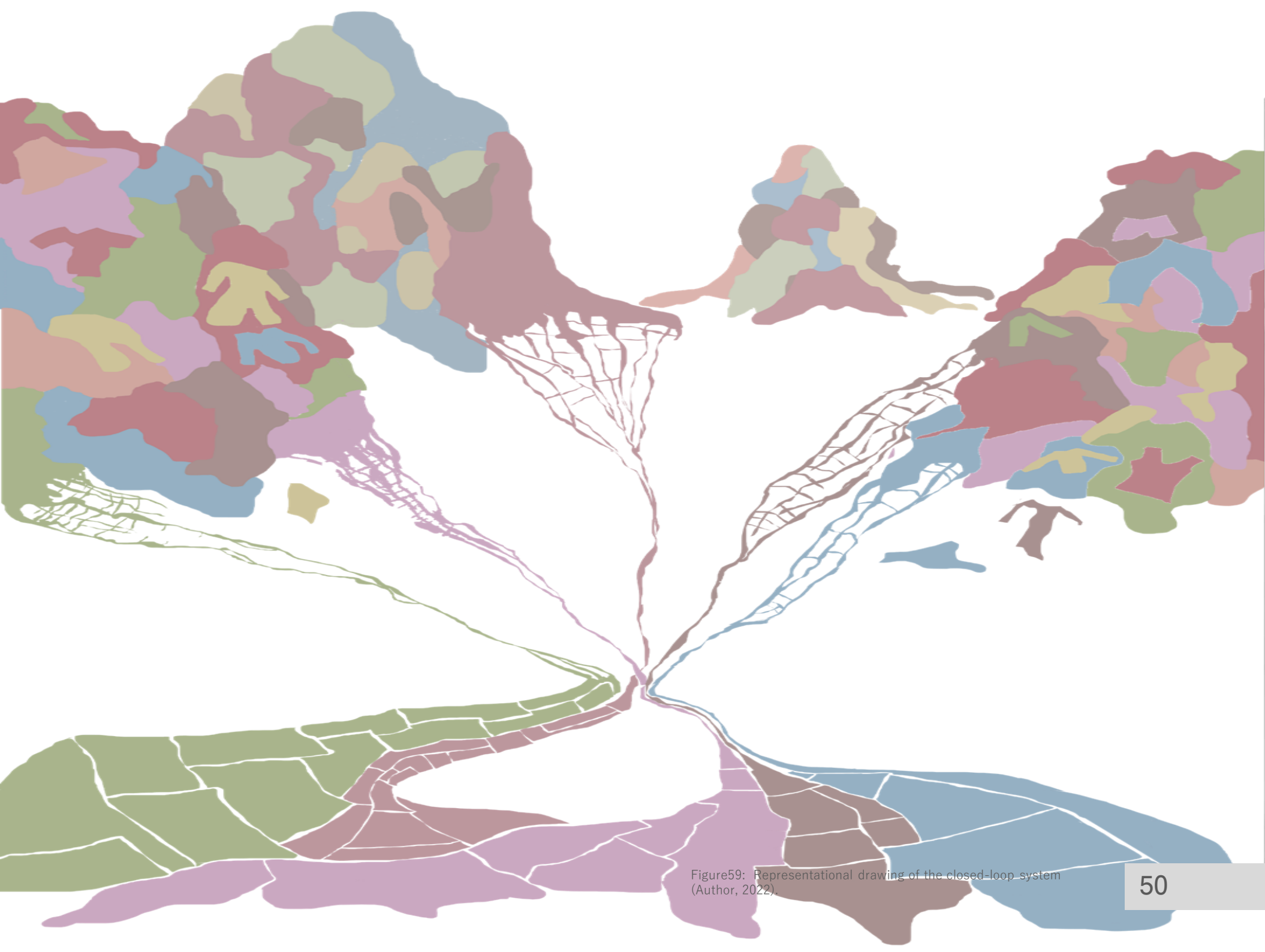


Figure59: Representational drawing of the closed-loop system (Author, 2022).

4.1 The five Skins of the Ecological-Self

The Five Skins of the Ecological Man by Hundertwasser describes humans as being rooted in the self with five skins. The concept involves the artistic involvement and interchange between the social and natural world, and the self. Hundertwasser presents the self as skin that expands beyond the first skin, the epidermis. He observed clothing to be the second skin, architecture or dwelling as the third skin, the social world that involves the community, cities, and heritage forms the fourth skin, and the fifth skin is the planetary skin that involves the environment (Jakobsen & Storsletten, 2018: 41). Barak relates the Self-realisation notion of Naess with Hundertwasser's Five skins which engages the broadening of the self that creates an all-encompassing type involving the five-skinned socio-environmental self (Barak, 2017: 323). Barak furthers his investigation into the different skins and the extent of the framework to analyse the Ecological self and its capabilities.

Hundertwasser's writings and his body of work propose reconfiguring the conventional thought of the ecological self. The notion is that humans are entrenched in the natural environment, and they are permeable instead of being separated from it. The concept investigates how layers can be observed linking natural environments and humans. These layers can be seen in architecture, textiles, clothing, the body, and the urban environment (Barak, 2017: 317).

Hundertwasser's involvement in different environmental campaigns can be explored through his view as an artistic environmental philosopher. He aimed to encourage the understanding of ecology, representing his idea of change in the urban environment (Barak, 2017: 318-319).

Dr Nir Barak studied how Hundertwasser's notions could be integrated into contemporary environmental ethics. Hundertwasser's concerns with deep ecology can be understood in his writings and art. He describes the fundamental nature of human connection and mutualism with nature, humans being entrenched in nature and holistic theory. (Barak, 2017: 320)

Hundertwasser as an artist, interpreted reality as devoted to creative endeavours, which inherently communicates his thoughts. The ecological self is a notion of ethics within the built environment that expresses the understanding of the self. The ecological self anatomises individualist views to suggest a different understanding that views humans as being entrenched in nature. Arne Naess reasoned that the recognition of one's ecological self could be attained in the development of Self-realisation. The thought was further investigated that there cannot be a separation between nature and humans (Barak, 2017: 320-321).

The Deep Ecologist views the self as being immersed in the natural world whilst involving the community; the self is engaged in the social world. Barak argues that understanding and explicating Hundertwasser's work could present a different perspective that involves and furthers these views (Barak, 2017: 321-322).



Figure60: Interpretation of the Five Skins of man (Author, 2022).

The First Skin

Hundertwasser's "first skin" is the epidermis that shapes the external layer of skin, a renewable, resilient, waterproof barrier against the environment. It embodies the direct relationship between the ecosystem and the person (Jakobsen & Storsletten, 2018: 41). Humans are creative, distinctive, and open, and they recognise their innovative and creative capabilities. The capabilities of humans are formed through the interactions established with the world. Obstructing creative abilities causes an unawareness conveyed as social uniformity, but the realisation of the first skin, the self, is reached through creativity. The first skin is connected to the individualist self; the skin is independent and significantly creative, but also the bounded self that is separate from the social and natural world (Barak, 2017: 323-324). The involvement of purpose in the world relates to humanity's self-understanding as identified by individual intent. Deep Ecology and communitarian challenge the atomistic barrier by presenting that other factors or elements are necessary augmentations of the self whilst preserving the dedication to individual autonomy (Barak, 2017: 323-324).

The Second Skin

Clothing as the second skin forms an extension of the body, where the person is on one side and the interpretation the person wants to present on the other. The second skin as clothing is not merely to conceal, but fashion becomes a form that reveals the individuality and character of the self to the outer world. The lived experience of the world is mediated through the artificial skin formed through fashion which humans are at the mercy of. Dressing the body is connected to the comfort of changing the skin (Koppe, Schulte, Rech and Silveira, 2020:269).

Hundertwasser expresses the second skin as clothing that should become art; clothing should not be purely functional. Instead, he argued that clothing should become symbolic, deepening and expanding the first skin. The second skin communicates the expressions and fundamental parts of the self. Fashion needs to be reverted to artistic expression that relates to the first skin's creativity and unconstrained being (Barak, 2017: 324). Hundertwasser criticised consumerist society and appealed for its dissolution and to move away from the fashion orders that amalgamate anonymity and standardisation. He furthers that people abandon their individuality by clothing the body with mass-produced uniform clothing (Jakobsen & Storsletten, 2018: 43-44). Fashion influences the current trends that are noted in the clothing industry and all consumer products; it encourages mass consumption that leads to mental and emotional discomfort. The ever-changing fashion industry can be criticised and challenged concerning consumerism and the social structuring of needs; it is related to the political beliefs of the radical environment (Barak, 2017: 325).

Hundertwasser's body of work reveal that the consumerist society does not impart escape. Consumerist society demands for senseless mass production that is consumed unwisely and wasted thoughtlessly. Hundertwasser suggests that happiness is not governed by materialistic wealth, but rather happiness grows from wealth of the soul, through creative strength from within then happiness can be reached (Jakobsen & Storsletten, 2018: 44). Dr Barak used Dobson's contention for the crucial consideration of existent beliefs and drastic shifts in political and social worlds centred on current consumption and manufacturing models. Hundertwasser's relation of the authenticity of the second skin can be assessed through the impermanence of fashion reveals the same beginning as the socio-political assessment of the environment (Barak, 2017: 325).



Figure61: Drawing of the first and second skin, the need for individualist expressions (Author, 2022).

The third Skin

Architecture as the third skin is where the dweller's character continuously influences the dwelling. The dwelling becomes an extension of the body, adorning the third skin (Koppe et al., 2020:279).

The third skin relates to the built environment, interrelationship, mutuality, and holistic theory. Hundertwasser argued that architecture must understand nature; his view of human architecture disregards rationality in architecture that requires straight lines and sterility (Jakobsen & Storsletten, 2018: 45). The urban environment requires ethical, environmental approaches. There is an inclination to concentrate on typical environmental concerns, including nature and wilderness conservation, that safeguards philosophical and phenomenological opinions concerning the importance of nature and the fundamental connection between nature and humans. It is essential to understand the 'artificial' or built world with the required ethical, political and theoretical basis that reveals the relations and interactions with the built environment (Barak, 2017: 326). If the urban environment is not understood for the interactions with the self, not only will the created world be neglected, but the inhabitants as well. Barak aimed to implement the expressions and ethical thoughts of Deep Ecology within the built environment by stating that we should ask; how the built environment can facilitate the development and extension of the Ecological Self. (Barak, 2017: 326). Barak stated that academist Kate Booth noted in 'Deep Ecology, Hybrid Geographies, and Environmental Management's Relational Premise' that there is a necessity to fill the urban opening with Deep Ecological, holistic methodologies and control the discomfort in urban dwellers. She furthers this argument by indicating that the built environment supports the development and activities of self-realisation (Barak, 2017: 326).

Callicott discussed in 'La Nature est morte, vive la nature!' that the urban environment is nonetheless a circumstance of nature than other natural environments. He also stated that cities increase their significance with how the urban environment amalgamates into nature. It is essential to note the fundamental value and ethics of the Ecological self in cities and the urban environment. Barak noted that Warwick Fox's proposal for ethical concerns for the built environment and responsive principles are fundamental for different ethical considerations. Fox's recognition of the crucial experiential differences between urban settings and the wilderness is realistic. Still, there is no explanation regarding how the urban experience and understanding facilitate the extension of the Ecological Self. Barak, therefore, argues that Hundertwasser's architectural concepts can be interpreted to reveal the relationship between self-realisation and the built environment or architecture as part of the third skin (Barak, 2017: 327). Hundertwasser stated that for architecture to become architecture where people can dwell, the architect, the maker and the dweller need to be united (Jakobsen & Storsletten, 2018: 45). Otherwise, there will be no relationship between the dweller and the built environment. It is essential to consider the given built environment and the users' needs to create architecture that speaks to the self.

Hundertwasser presented his beliefs and philosophies of self-realisation in his architectural endeavours in the urban environment that create a relationship between the dweller, the building, and the surrounding urban context. Hundertwasser expressed that the dweller's house ought to be a distinctive creation; the third skin should be functional to the needs of the users but meaningful to the self that involves the internal that concerns the inhabitants and the external, that is concerned with the urban environment (Barak, 2017: 328).





Figure62: Drawing of the disregard of rationality in architecture (Author, 2022).

Hundertwasser believed windows to become a building rather than walls. Walls become a separation element, whereas windows disrupt these separations. However, Hundertwasser warns against 'window dictatorship' that describes the uniformity and symmetry in the standard window assembly. He furthers this term by contrasting it with 'window rights' that allow for the self to have the capacity to operate the windows to disrupt differences between the internal and the external realities, which creates visual multiplicity by opposing sameness (Barak, 2017: 329).

The application of 'window rights' is a symbolic undertaking of participation that symbolises the dweller's situatedness in nature and society. There is an act of engagement between the urban context and the dwellers that occurs through a window. A mutual and meaningful interaction occurs between the self and the external, as part of the self is left in the external and part of the external is left with the internal. This understanding leads to the idea that the third skin does not exist in seclusion but interacts with the world. The skin becomes a form of communication itself. Another important consideration is that the self's claim to the third architectural skin and its modifications can also be related to regeneration; it must not pose a negative effect on the inhabitants of the surrounding context (Barak, 2017: 330).

Barak investigated the interrelation and mutuality of the third skin and what it means to redefine the relationship between nature and the urban environment. An essential foundation for urban-nature understandings is Hundertwasser's statement that the vertical belongs to people and the horizon to nature, all that falls under the horizontal sky belongs to nature. The vertical is what people can take for themselves (Barak, 2017: 330-331).

The value of urban-nature endeavours stretches beyond the functional values as they can be validated as standardised distribution sources and notions of sharing urban land. It is expressed as a mutualist relationship of interdependence between the non-human and human world rather than ownership belonging to one of them. Mutualism is observed through understanding the urban view that reidentifies the idea of urban space. Structuring the horizontal and vertical view creates a basis that encourages interconnection between nature and the urban setting. The expressions of how dwellers are entrenched in nature can be applied symbolically in urban settings. The implementation of nature into the urban environment is commonly seen in recreational amenities and open spaces (Barak, 2017: 331-332).

The porousness of the third skin embodies continuity in interactions. The self can expropriate their third skin and interchange beyond it and externalise to the fourth skin, which is the political and social skin (Barak, 2017: 330).

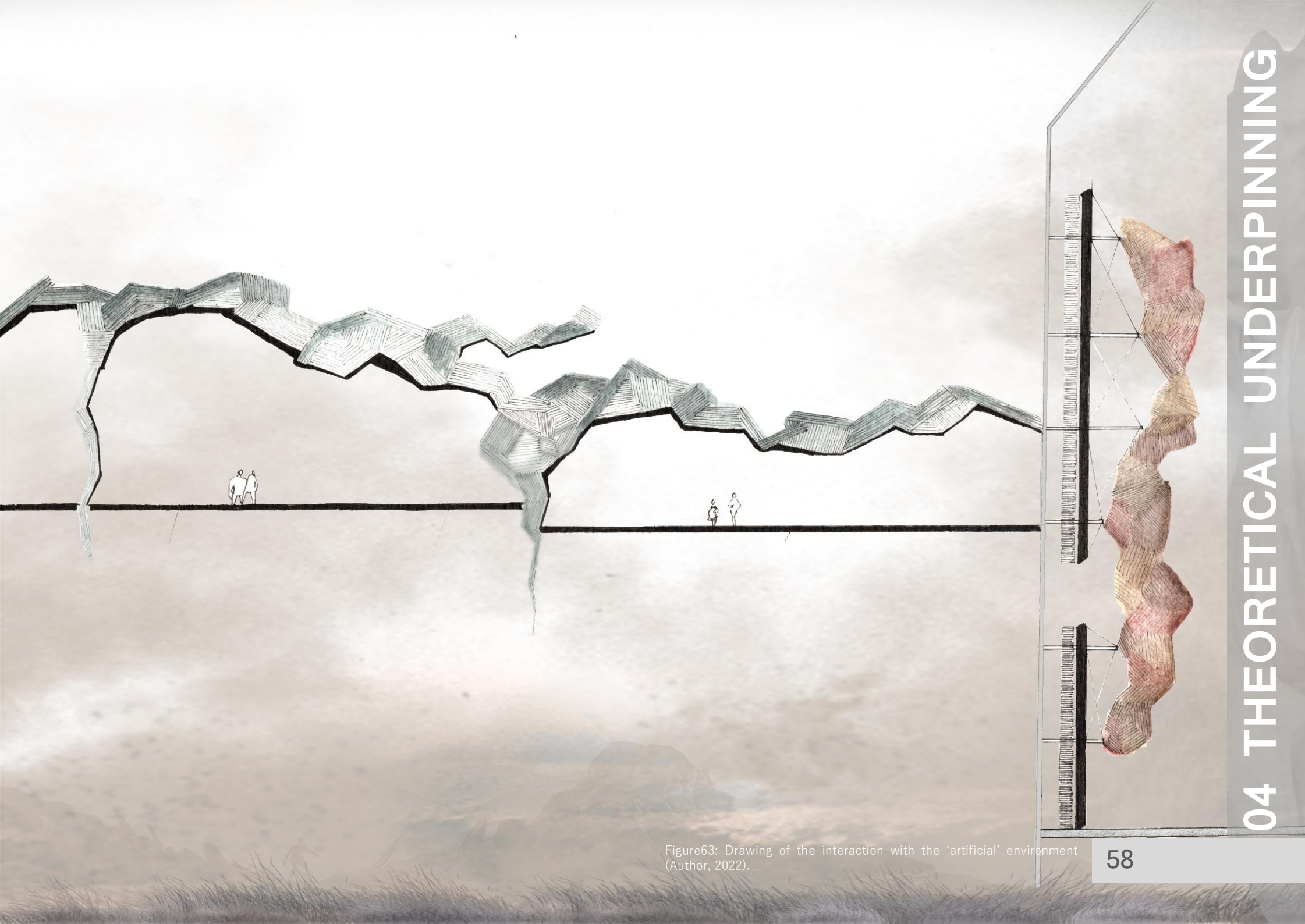


Figure63: Drawing of the interaction with the 'artificial' environment (Author, 2022).

The Fourth Skin: Political and Social Self

The fourth skin as a social character is connected to the emotional concerns that influence the nature of humans (Koppe et al., 2020:279).

The fourth skin as political and social identity includes communities, culture, heritage, and the city. The fourth skin is an essential element of the self that relates to the communitarian self. The identity and individuality of people are grounded on creating distinctions from one another, and it is associated with the social situation. Hundertwasser encourages the development of distinctive traces of identity to counteract the threat of conformity (Jakobsen & Storsletten, 2018: 46). The parallels and contrasts of communitarians assess the individualistic understanding of the self that interprets the Ecological self. Communitarians reason that humans are encapsulated mediators entrenched in the community. The fourth skin expresses the significant parts of political and social life connected to the urban environment and the community that influences the cultural identity and values of the self (Barak, 2017: 333). The concept of 'civicism' encapsulates the awareness of urban spirit and ethos established in cities.

The theoretical scheme of 'the intrinsic logic of cities' by Martina Low creates a structure that suggests that cities act differently due to their concealed structures that Low terms 'intrinsic logic'. (Barak, 2017: 336). The argument further states that different cities have similar challenges, but how the challenges are interpreted and the processes of addressing the challenges differ according to the city's intrinsic logic. Low further states the importance of experiential aspects of giving or constructing shared meaning that mutually shape the urbanite's fourth skin. Hundertwasser articulated civicism through various components of the spirit of a place. Hundertwasser's architectural endeavours comment on this endeavour of the spirit of place in Hundertwasserhaus.

He expressed the spirit of Vienna using salvaged recycled bricks from ruined structures in Vienna. The stones he applied to the windows as decorative elements safeguard the cultural heritage of Vienna. He reconstructed parts of the existing façade to allow the spirit of the old building to survive and live in the new (Barak, 2017: 334-335). Symbolic meaning can therefore be expressed through architectural detailing. The reconstruction of the old with the new allows the spirit to be captured along with its intrinsic logic. There is a symbolic interaction between the third skin and the fourth skin. Architectural expressions of civicism and the spirit of the urban environment involving the fourth skin hold the city's cultural symbolism and the opportunity to encourage an understanding of community values (Barak, 2017: 336).



Figure64: Drawing of the Social and Political Self (Author, 2022).

The Fifth Skin: Non-human and the natural world

Hundertwasser described the fifth skin as the earth, where humans are the guests. In this skin, humanity is observed within the world; the self is engrossed and involved as a member or component of the world's cycle. The mutuality between humans and sustaining life orders creates a connection of unity. The fifth skin is the concluding stage of self-realisation (Barak, 2017: 336-337).

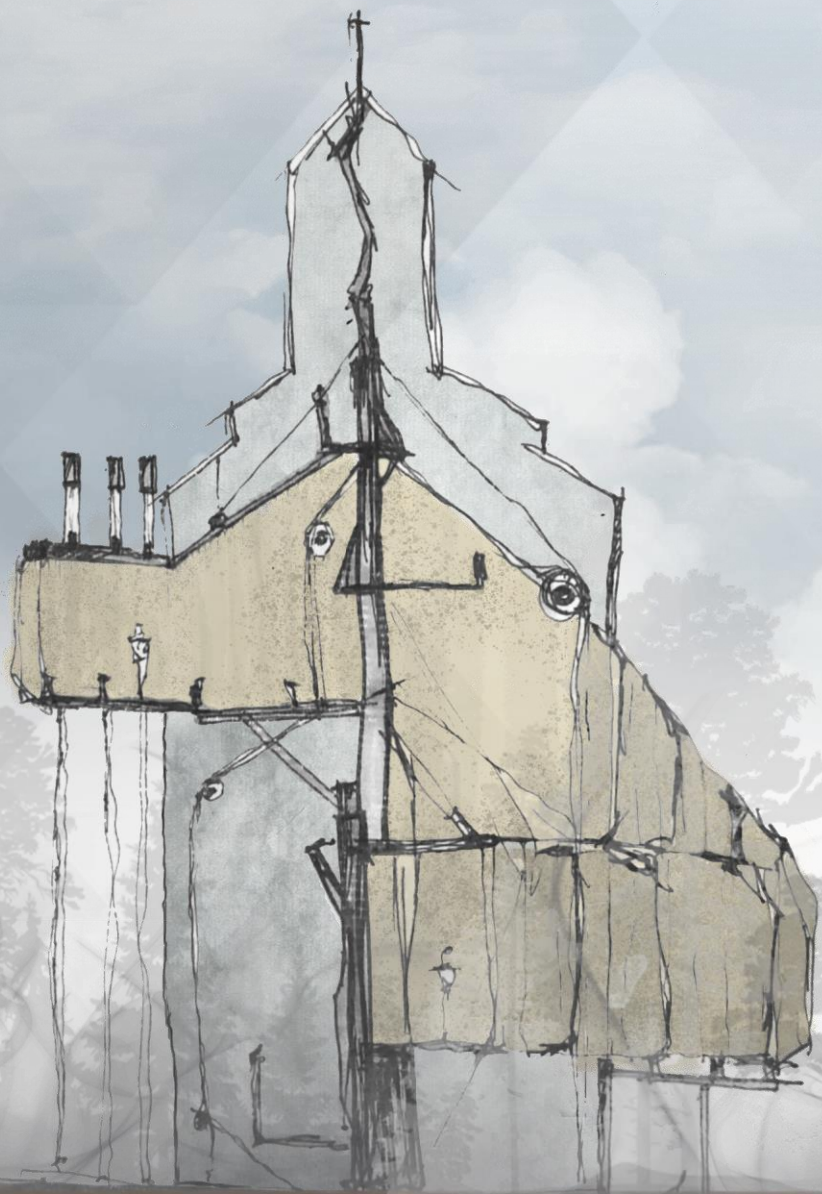
Sustainable fashion can be related to the different skins; the fifth skin is connected to respect given to the environment and harmony. The other skins can be summarised in the fifth skin, which recognises that the behaviour of humans is influenced by everyday life (Koppe et al., 2020:279).

Hundertwasser argued that human impact had been forced on nature and opposed nature's exploitation, contamination and ruin. The fifth skin is Hundertwasser's argument on resolving the conflict between humans and nature (Jakobsen & Storsletten, 2018: 49).

Conclusion

The five skins of the ecological self are a theory surrounding the different skins that extend to a totality. The first is the individual that has creative capacity. The second involves the needs and desires of the self, which presents a foundation for the socio-political assessment of manufacturing, consumption, and routine. The third skin concerns dwelling in the world; the first and second skin is an integration that augments spatial elements. In the third skin, the spatial symbolism is investigated through the expressions of mutuality, holism, and interrelation in the urban environment. The three previous skins are extended to the fourth, which encloses the social and political expressions of the self. The fourth skin encompasses the community, identity and sharing. The fifth skin is nature which connects with the political and social elements of the previous skins. In the fifth skin, the urban environment is a fundamental component of self-realisation.

Figure65: Drawing of the initial approach to harmony between the building and the surrounding environment (Author, 2022).



4.2 Ecological self and Ecological Fashion

The ecological man is a being that undergoes direct and cognisant interactions between themselves and the environment. Within the first skin, the ecological man is willing to gain an understanding of nature and does not aim to dictate it (Jakobsen & Storsletten, 2018: 49). Significant potentialities in urban architecture and the political and social environment are essential elements of the self that mediates the expansion. It is important to consider all five skins as humans are immersed in the world and understand the world through these skins this understanding leads to self-realisation. The extension of the self and the different skins is mediated through the city; the city becomes a fundamental locale of self-realisation. The expansion of the self is facilitated through creative engagement and relationships with and in the world. Urban environments are recognised as civic and intellectual spaces that continuously echo human ethics and principles as a fundamental function of the development of self-realisation that supports the urban environment as an important position of social action (Barak, 2017: 338).

Everyday exchanges with nature are continuously facilitated through architecture and social and urban realities. The continuous interaction with nature occurs through the mediation of the other skins (Barak, 2017: 340).

Fashion is a contemporary phenomenon in the social and cultural world that assembles, impacts, and inspires people. It is related to one's identity and expressions of the world; fashion is a guiding structure for different concepts, movements and thoughts (Koppe et al., 2020:261).

The evolution and understanding of the world that is mediated through the different skins allow consumers to become conscious of ethical concerns. If companies do not meet these concerns, they may become expendable. The concept of sustainability within the fashion industry can be connected to Hundertwasser's five skins and the sustainable fashion movement through social and behavioural viewpoints. The fashion industry has various positive elements that produce work and creates a basis for character expression. The leading negative effect of the fashion industry is the waste it produces. Ecological Fashion promotes sustainable practices of designers and understanding of how fashion influences individual approaches and identity through fashion (Koppe, et al., 2020:262-263).

Fashion influences and is influenced by the five skins related to place, culture, and social environment. The different skins are used as a communication tool with the world. Contemporary fashion industries are beginning to strive for an alternative to the fashion industry's current practices that encourage cultural, social, and ecological multiplicity (Koppe, et al., 2020:278).

Sustainable fashion can be related to Hundertwasser's five skins, as the five skins allow for self-realisation within humans. Consumer awareness in the social climate strives for development in the fashion industry (Koppe, et al., 2020:280).

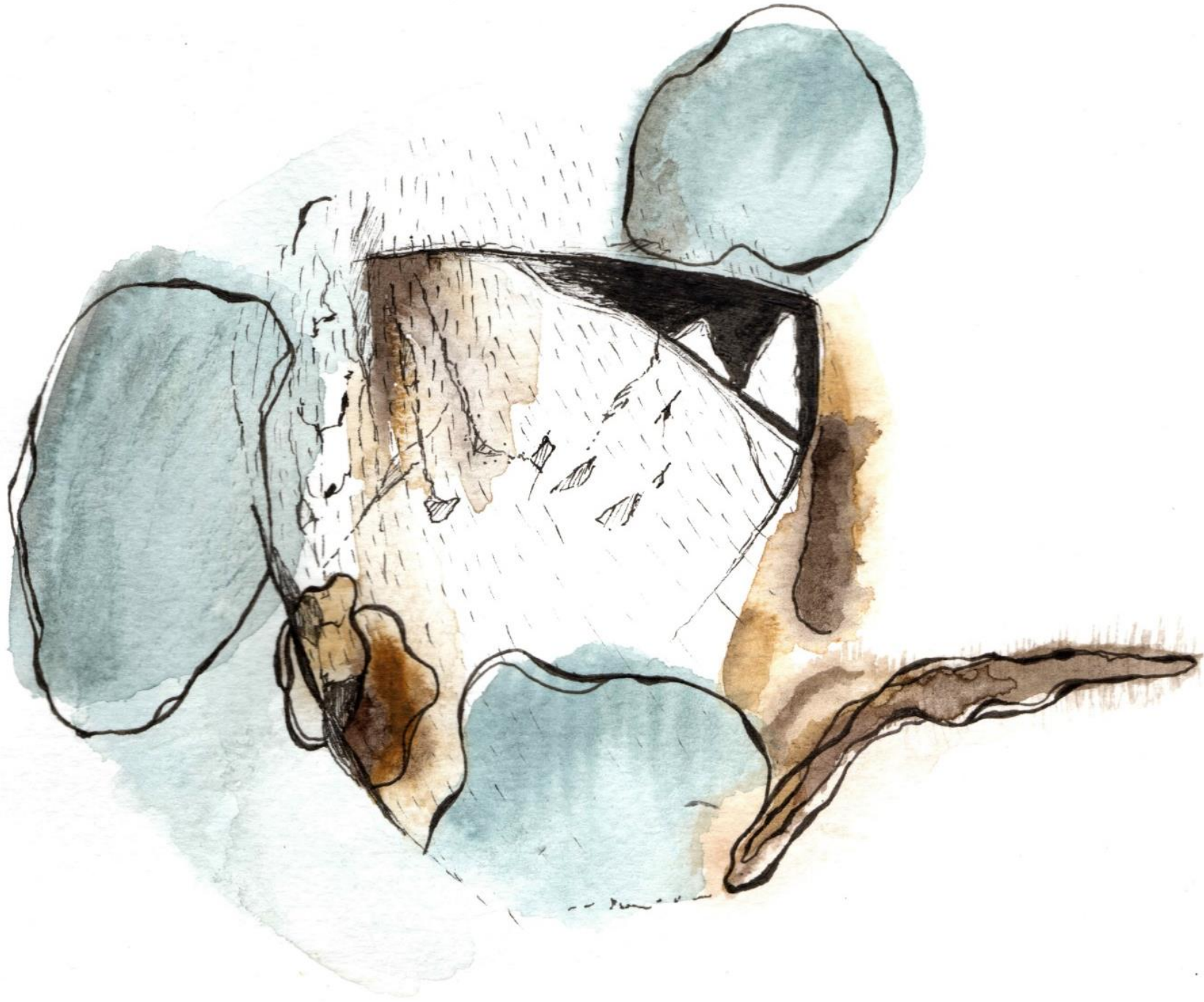


Figure66: Drawing of the influences skin on the self (Author, 2022).

4.3 Caring for the unused

Before the fast-fashion movement (1990's), textiles were valued goods that were not easily discarded. The fast fashion movement has unsustainable effects due to the cutting of environmental corners to mass-produce clothing at reduced time and cost (Momiya, 2022: Online).

The following strategies address how caring for the unused, can become valued.

Regenerative or rejuvenating design is essential to create more sustainable procedures. In architecture, the conversation regarding redundant and unused existing buildings, more notably heritage buildings, is becoming more common as many architects approach such buildings with adaptive reuse. As with clothing, existing buildings can be approached through different methods.

The need to mend clothing that later developed into art is observed in rural Japan. *'Boro'* can be described as textiles of unused scraps and clothing mended and patched together by applying *'sashiko'* stitching methods that translate into usable distinctive pieces of textile art (Li, 2020: 20)

The closed loop system or circular economy of valuing the unused or wasted (Ahmad, Mulyadi, Ibrahim, and Othman, 2016: 527). The closed loop system has a mutuality with *'Boro'* as care is placed on what would usually be discarded. Still, the closed-loop system emphasises regenerative and restorative design strategies (Momiya, 2022: Online). Takao Momiya (1951-) is a budo instructor and artist born in Tochingo, Japan, teaching and crafting in Sweden since 1979. Momiya encourages the slow process of sashiko practice. The shape is not predetermined, but he states that the meaning lies in the contemplation and understanding of the effect of what transpires between the textiles and the composition of the dense stitching during the process.

Momiya describes the sashiko practice as an artistic expression that creates a functional, beautifying manifestation layered on the worn fabric to preserve it with the dense stitch surface. The worn fabric displays the remnants of lived-experiences and time; the fabric depicts stories without words. He does not view the sashiko as only functional or art. He chooses the colour and type of thread to strengthen the fabric and adds different patterns to create dense and thin stitches to form an artistic statement. (Momiya, 2022: Online)

Discarded post-consumer textiles can be used as raw materials for new fabrics that prevent textile waste from being thrown away. The Cradle to Cradle philosophy involves the reforming and redesigning of conventional product strategy and production methods to a closed-loop system whereby materials move in a sequence of use and reuse (Gwilt & Rissanen, 2012: 86-87)

The dissertation aims to recognise the gap in the fashion industry and the surrounding context of Cottesloe through explorations of sustainable post-consumer textile waste methods that can be applied to urge the fashion industry to use sustainable practices of fashion making. Strategies can be implemented in South African fashion ventures to decrease post-consumer textile waste. The dissertation aims to investigate the perspective of fashion design businesses and institutions to support the function of post-consumer waste methods in the fashion industry.

Introducing a Fashion design school alongside the Textile mill allows for integrating sustainable practices into education. The amalgamation of the two functions allows the users to engage with textile waste distribution systems in communities.

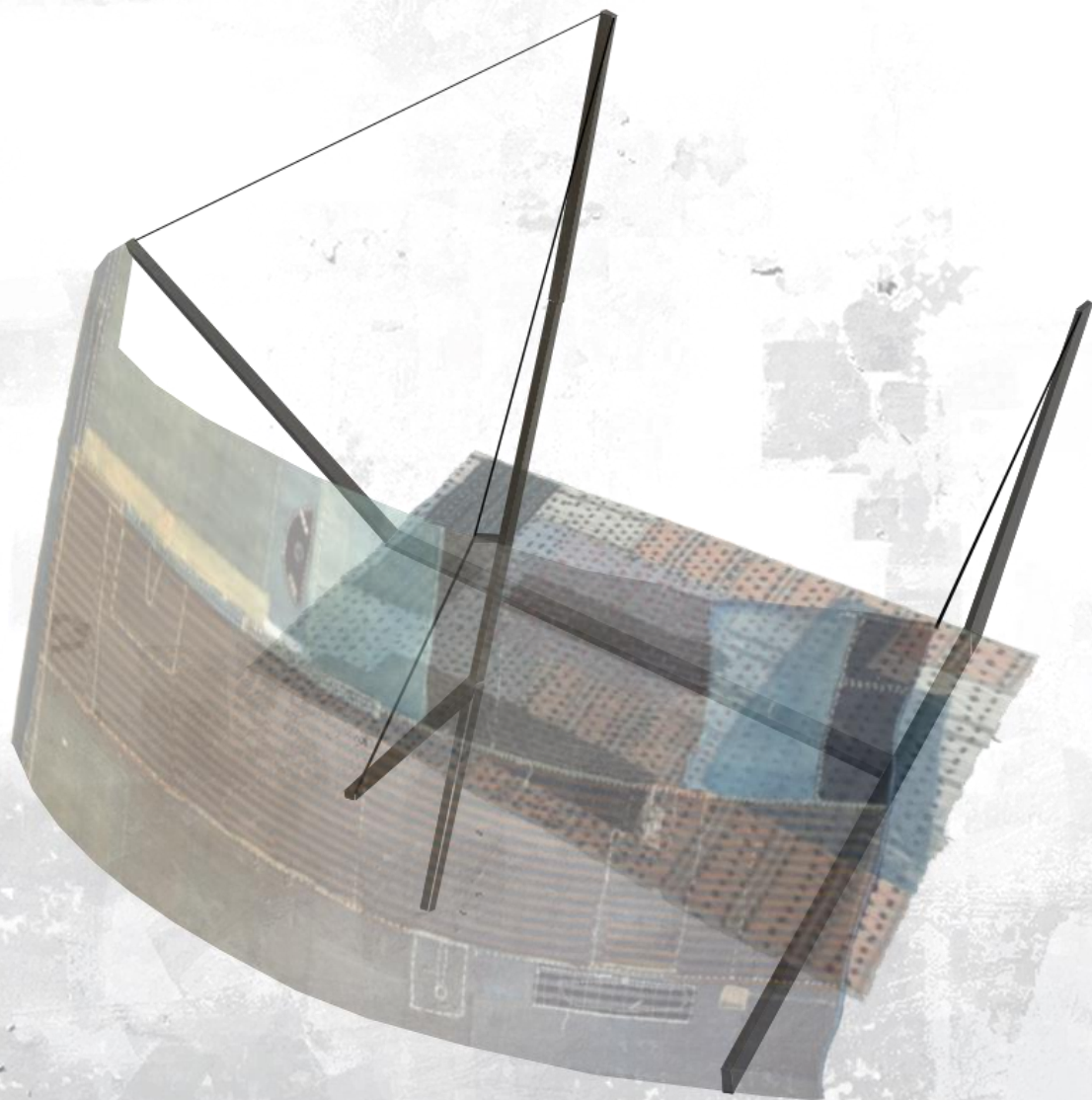


Figure67: Collage of Momiyaama's first *sashiko* work shown in Treelborg's museum in 2008, and *Sashiko* quilt in Passepartout 2017 (Momiyaama, 2022: Online, adapted by Author).

4.4 Fashion and Architecture

Performances, spaces, temporalities, and patterns of architecture and fashion can appear glaringly different; architecture is perceived to be solid, rigid, and in pursuit of permanence. In contrast, fashion is seen as flexible, gentle, and fast-paced. Both architecture and fashion are concerned with appearance, translucency, cutting, colour, and bodily experiences (Crewe, 2010: 2093).

New fashion spaces can transmute opportunities to allow people to understand and occupy the built form.

The overlapping boundary between the two fields allows the alteration of how people envision communication, dwelling, space, and the urban environment. The built environment can mediate a more interactive and sustainable environment in the fashion industry (Crewe, 2010: 2093).

Crewe argues that breaking down the boundaries between the two disciplines can reveal new structures and meaningful interconnections. Parallels can be drawn between the contrasting elements of architecture and fashion; Crewe mentions that buildings in cities are seen as bodies in clothing (Crewe, 2010: 2093).

The different conceptual processes observe mutuality between the two disciplines. Fashion, contrasted against architecture, is criticised as a brief and shallow practice. Crewe argues that fashion and architecture require a significant understanding of how people inhabit and understand the built environment and form. The most exciting elaborations frequently appear when the boundaries between architecture and fashion are blurred. Various assemblages are centred on the construction and theoretical discourses of deconstruction in architecture and fashion (Crewe, 2010: 2094).

The most prominent connection is the emphasis on the body and the envelope that surrounds it, exposes it, and shelters it. The building and clothing surrounding the body are seen as a layer mediating the body between the surrounding environment and other beings. Fashion and architecture are involved in the making and interpreting of the urban environment that questions ideas of space, interactions, temporality, form, and movement. The overlapping investigation into architecture and fashion inquires into the impermanence, sheltering, exposure, erasure and concealment as significant facets of city-dwelling (Crewe, 2010: 2094).

Contemporary fashion and architecture enable resistance or the proposal of alternatives to the prevailing consumer culture. The relationship between architecture and fashion presents potentialities to alter the awareness of the body and building. The potentialities allow for different expressions between fashion, experience, and reactions by reformulating the relationship between space and the body. The architecture surrounding fashion will enable it to adopt the dramatic, emotive, articulation, and sensorial features typically connected to dress (Crewe, 2010: 2094).

The connections between architecture and fashion will be discussed in *The mutuality of fashion and architecture* and the opportunities these connections can pose in both fields. The influence of fashion or textiles in architecture can be observed in *[fabric]ating architecture for dress*, the inverse will also be investigated in *Clothing as sculpting form: Architecture in Fashion*, where fashion is influenced by architecture.



Figure68. Drawing of the boundaries that can be crossed between architecture and fashion (Author, 2022).

The mutuality of fashion and architecture

The two disciplines are frequently characterised as occupying mutual intellectual fields, as if they are drifting on the borders of a shared existence, growing mutually through everyday attentiveness in design, form, colour, materiality, experience and space (Crewe, 2010: 2097). Fashion and architecture involve an understanding of space and the focal part the body has in space. The body and the environment communicate through movement, space, mass, and void. The need to safeguard the body is observed in architecture as the 'third skin', where the visual assembly of buildings continually change as the body moves through space and clothing is the 'second skin'; the visible change on the second skin depends on the bodily movements (Devetak, 2016: 1).

The two disciplines can communicate the envisaged space as continuity and bodily. It is essential in both fields to join the body to the assembled form in an encompassing and meaningful way. Materials are manipulated and moulded to produce effective forms (Crewe, 2010: 2097). Architecture is an envelope for the body; clothing continuously alters according to the body's movements. Both are receptive to the social environment as humans form it (Devetak, 2016: 2). Architecture and fashion have expressive and practical qualities that safeguard and shelter the user whilst revealing identity, ingenuity and taste (Clarke, 2017:64). The connections between fashion, architecture and textile are uncovered in various characteristics that reveal the social environment, cultures and time, through choice it embodies identity and communicates taste (Clarke, 2017: 65). The mutuality blurs the boundaries between fashion and architecture to reveal different opportunities for responsive views of consumerist consumption and other methods of discerning and perceiving space (Crewe, 2010: 2097). The synthesis between architecture and fashion generates metaphorical and material characteristics. Merleau-Ponty describes the colour of fabrics, clothing and architecture to create emotive experiences and reactions (Crewe, 2010: 2098).

[fabric]ating architecture for dress

Retail architecture reclassifies urban spaces as the urban fabric becomes more embellished with fashion images, and symbolisms, the metaphysical character of fashion can be expressed through the exterior envelope and interior retail space. Fashion and architecture have converged into retail architecture to create attractive urban spaces with alluring displays, exhibitions, and performances that create an interchange and reciprocity between the two. The interaction between fashion and architecture can produce a theatrical exhibition in the urban fabric. The exchange has a more thoughtful influence on the urban environment beyond theatre and displays. The disciplines are not only measured on a surface level but rather that there is mutual recognition of the significance of materiality, the body, movement, space, form, and experience. Built structures and clothing envelop the skin and interact with the senses, which mediate the world with the body through its layers (Crewe, 2010: 2097).

A precedent study identified as 'architecture for dress' is the Louis Vuitton Ginza Namiki by AS Co. and Peter Marino Architect. The building responds to the urban fabric through the mutualist interaction of fashion and architecture, it can be recognised in the envelope of the building and the interior that draws on the expressive nature of both disciplines.

"Textiles" continuously advance, 'hard and static' materials such as metal, plastic, resin and timber have evolved to have the capability to morph from inflexible to flexible forms. A building's skin and facades can become new garments or clothing to buildings for new impressions to form (Clarke, 2017:65). The materials can be layered over a form as an upper skin, and translucencies in the material can also be integrated to create different interfaces and interpretations. As people clad themselves, buildings can also be clad, and the cladding can be altered to fit the needs and functions (Clarke, 2017:66).



The morphological interactions with tectonic approaches of transmutation by extracting and inserting forms. Textiles are malleable structures that are skins braced with structural frames, that can be applied on the exterior, interior or roofing. The structural framework acts as a skeleton that creates contours for the skin, it can be related to the tailoring of clothing, where the fabric is moulded to the body (Clarke, 2017:66).

Figure69: Collage of the Louis Vuitton Ginza Namiki by AS Co. and Peter Marino Architect (Ano, 2021: Online, adapted by Author).

Clothing as sculpting form: Architecture in Fashion

Two public events emphasised the contemporary relationship between architecture and fashion. The MIT Visual Arts Centre hosted an exhibition in 1982 named “Intimate Architecture: Contemporary Clothing Design”. The exhibition can be observed from an architectural view where the work of different fashion designers highlighted the mutuality between the two disciplines; the connections can predominantly be identified as the creation and search for innovation. The other was at the Museum of Modern Art, called the “Deconstructionist Architecture Exhibition”, exhibited in 1988; the exhibition indicated that deconstructivism could reach beyond architecture to other fields, including fashion, art, and graphic design. The exhibitions had a considerable effect on the course of the relationship between the disciplines and the shift of the impact of the disciplines on one another (Crewe, 2010: 2098-2099).

Helmut Lang is an Australian artist and fashion designer (1956-) with notable spatial connections and explorations in his designs. The spatial inquiries through different scales centred on the porosity of the edges of the body, the inside and outside, and the expressive and bodily reaches that clothing and skin have. He expresses that internal needs are presented on the surface, appearing to be dressed on the body. Lang furthers the idea that suppressed previously concealed thoughts, and emotions are entrenched in the indecipherable envelope of clothing. Lang collaborated with Jenny Holzer at 2007’s Venice Biennale; they studied the rhythms of communication that resonated with Lung’s outlines of channels on textiles that seemingly sketched the city’s existing plan on the body (Crewe, 2010: 2100-2102).

Hussein Chalayan is a Cypriot fashion designer (1970-) observed to penetrate the edges between buildings and bodies. Chalayan’s work is influenced by the effects of persecution, seclusion or isolation and religion. Space is fundamental to his designs, clothing draws near to the body in an innermost harmonious space that envelops the body, and architecture is observed to share the principles with clothing. Chalayan developed his ideas to alter the function and form of clothing to focus on the way the body interacts and responds to the built environment. He proposes that everything is connected to the environment or the body; in his designs, he draws the urban fabric through clothes and generates garments interpreted as architectural intent. Chalayan considers integrated structures and clothing as comparable parts to interiors, and the interiors are components of the architecture, and architecture is a component of the urban environment. According to Chalayan, the different components form part of a modular structure in various scales that can be observed as fluid space. The spatial visualisations demonstrate the compelling similarities between space, body, and dress. The investigation into the mutuality between interior, exterior, body, space, and dress can generate new physical and environmental structures and forms (Crewe, 2010: 2102).



Figure70: Collage of Hussein Chalayan's clothing showing the influence of architecture in fashion (Chalayan, 2015: Online), (Guillot, 2009: Online)-adapted by Author.

4.5 Heterotopic Fashion

Michel Foucault was a French philosopher (1926-1984) who argued that Heterotopias allow people to move out of themselves; it is where the erosion of time and history occurs in order to examine and critically observe customs. Suppose the normalcies can be engaged with and noticed. In that case, it alters the anticipations of how we interact with these normalcies (Foucault & Miskowiec, 1986: 23). Heterotopias contrast different real places to join fragments of time in one space (Foucault & Miskowiec, 1986: 25). Heterotopias interrupt situations, they are challenging to recognise, and they aim to make people question the normalcy that is usually accepted. (Vidler, 2021: Online)

There can exist different realities in one place; there are different authenticities of how inhabitants engage or inhabit these autonomous realities in one place.

The amalgamation of architecture and fashion reveals different opportunities involving urban space development that uncurls and proposes different approaches to spontaneity, inclusivity, and accessibility of an assemblage of spaces. Permeability in fashion spaces transcends conventional thoughts surrounding public space as a physical and open space. Fashion spaces offer a place for marvel, discovery, and questioning. Fashion spaces can be used to question the practices of consumption and consumerism. The Fashion spaces can be explored and used to make broader arguments about reuse, rejuvenation, and temporality. The argument's inquiry into space and time to develop more open-minded options for contemporary consumption (Crewe, 2010: 2102-2103).

Rei Kawakubo's fashion designs fit the model of how architecture and fashion can be synthesised to examine present urbanism conceptually. Kawakubo's garment-making involves knitting past images and motifs or overturning old clothes to reuse them. The way the garments are made increases the questions about how significance and worth are decided in fashion, highlighting reclamation opportunities for the previously used and the replacements. Kawakubo designed knitwear functioning as sculpture pieces detailed with holes that resemble the brand's application of architectural rejuvenation in previously degenerated urban space. Kawakubo's store "Comme des Garçons Guerilla" is an evident illustration of the development of parafunctional space that allows innovative or spontaneous activities or functions to engulf the planned or formal uses.

Christia Weinecke, the German architect who designed the Berlin store adjoined by squatter grounds in a disused bookshop. Weinecke encapsulated the local ethos through industrial cables, plant railings and old pipes to which underground media of jarring, coarse black and white posters are hung. The stores are selected according to a set of rules and only last for a year. The clothing exhibited appear and disappears as swiftly as the rough, deconstructed store. Guerilla stores search for fractures in corporate culture; the store replaces stock every few weeks, discounts perceptions of spectacle or display, and sells garments without a price tag (Crewe, 2010: 2102-2103).

Belgian fashion designer Maison Martin Margiela aims to interrupt the customs surrounding fashion space and proposes different opportunities centred around reuse, repossession and recycling. He suggests that existing garments and spaces can be adaptively reused as they outlast the previous purpose. He offers similarities between discarded clothing and neglected or abandoned urban areas. Margiela introduces heterotopic spaces through his fashion shows that he presents at the core of ruins, interspatial, or liminal space.

GUE STO

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TO PRODUCE WORKS IN ORDER TO
THE ORIGINAL BUTCHER'S SHOP L
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4.7 The metaphor of skin as a house

The metaphorical concept of skin allows it to move past just being a representation of the enclosure of a building; it can embrace an understanding of arrangements as an extension of human situations into architectural ideas. The metaphor of 'building as a body' has architectural terminology that involves the ribs as an articulation for structure and bowels for the interior of the building. These spines refer to linear circulation that joins the spaces and skin, expressing the surface of the building (Phillips, 2017,1). Mapping between the building envelope and skin is a resemblance that expresses skin as an external layer that performs as a vessel or threshold between the external environment and internal densities (Phillips, 2017,3-4). Kiesler argued for the metaphor of skin as a house and stated that architecture and dwellings are living organisms parallel to a body's skin. This argument is different from Hundertwasser's view of architecture which views the third skin as an extension of the body. In contrast, Kiesler argued that architecture is an envelope like a body's skin (Ekici, 2016:281).

4.8 Physiology, skin and dwelling

Dwelling as skin also brought on other voices, most notably German physician Max von Pettenkofer (1818-1901), who investigated hygiene and approached skin as a dwelling that encloses the dweller. Pettenkofer's theory of dwelling as skin is classified under organicism, based on similarities between skin, clothing and dwelling noted in linguistics, cultural history, and ethnography discourses. German Architect Gottfried Semper (1803-1879) interpreted Pettenkofer's concept of dwelling as a skin into an architectural theory (Ekici, 2016:281).

Pettenkofer dedicated himself to the developing discipline of public health and hygiene. When Pettenkofer researched hygiene specifically centred on the public, the 19th-century health movement emerged. The growing middle-class activists increased awareness of public health concerns. This awareness involved all facets of urban design. During this time, the skin was regarded as the most important organ for wellbeing. The growing awareness of skin supported a change in how the body is perceived. The bodily structure formed the 19th-century concept of skin as a boundary or edge. The purpose of skin was understood to involve a form of protection, perspiration, respiration, and heat control (Ekici, 2016:281-282).

Connections can be drawn between dwelling and clothing in the field of hygiene. Pettenkofer viewed clothing as only functional, disregarded the idea of ornamentation, and stated that it should be applied to architecture. His view on clothing and architecture was purely functional, but rather that functional aspects of clothing and dwelling would acquire a new form-giving. Clothing and dwelling, according to Pettenkofer, should form a protective layer for the skin that enables the replacement of contaminated gases for fresh air. He connected clothing to walls and skin as a permeable structure; he acknowledged the importance of permeable materials and structures to allow the skin to respire. He compared clothing and dwelling to alternative skins that serve as an envelope that partly assumes the role of the body surface. He described the exchange between the inside and outside as essential and promoted its permeability (Ekici, 2016:283-284).



Figure72: Skin as a house part of the design development drawings (Author, 2022).

4.9 Clothing and dwelling as Prosthetics

Ekici stated that there is an argument for dwelling and clothing as a prosthetic devices. He referred to cultural historian and writer Wilhelm Wackernagel stated that clothing becomes a house of the body that draws nearer to the body, as dressing for the soul. The borders between clothing, the body and the dwelling are obscured at an instinctive level, and that dwelling and dressing are experienced as a prosthetic. The boundary of the body is the skin, and the skin is comprised of fibres and knots that envelop the inner body; this envelope is extended through clothing that is woven together over the skin. Clothing is experienced as a second skin (Ekici, 2016:292).

Semper's view of the skin and the desire to adorn and dress

Gottfried Semper pursued to reveal the fundamental urges inherent in creating architectural forms. Semper noticed these forms in handicrafts and focussed on the significance of discovering the foundations of material culture. Semper drew connections between dwelling, clothing, and skin as the humanistic need for dressing and beautifying (*bekleidung*). He evolved the concept of *bekleidung* and explained the four elements of the hearth, embankment, enclosure, and roof from arisen primitive architecture. Semper derived the enclosure from textile crafts. Intertwined mat walls constructed enclosures in primitive dwellings. The weavings of enclosures projected the "art of dressing the naked body". He implied that primitive architecture was the initial arrangement of clothing (Ekici, 2016: 293-294).

The weaving of spatial enclosures can be connected to Semper's statement about the art of dressing the naked body. Adornment and ornamenting of the existing can be explored with different contemporary techniques to fit into the existing context.

4.10 Elasticity

Kiesler engaged with the notion of elastic spatial structures. Elasticity in his concepts functioned as an essential metaphor for Kiesler that projected his work beyond rigid, static forms to more flexible and adaptable structures. The elasticity in his projects intended for more socially and economically conscience architecture, allowing the human body to move through the built environment easily. Kiesler aimed for the elasticity in architecture to respond to the human body and the natural environment with similar flexibility of organic form giving. Similar to the five skins of Hundertwasser, Kiesler argued for architecture to become more responsive to the natural environment. (Phillips, 2008: 187). Comparably, he also argued that the built environment should allow humans to distinguish themselves from others (Phillips, 2017: 166)

Kiesler rationalised the implementation of continuous tension shell forms that resisted the perception of disjointed activity. He guided the users to engage in inherent flexibility with his architecture's visual and tangible experience. He implemented elastic structures to weave different characteristics together, which blurred separation and differences. The notion of elasticity is to create spaces that allow the body to move instinctively and easily with the surrounding situation (Phillips, 2008: 4-5)

Elasticity in this project is essential to consider; due to the static nature of the existing buildings, the buildings were organised for efficient production procedures, but the rejuvenation of the site called for an approach centred on the human body and its interactions with the built environment. Kiesler's argument for elastic architecture allows for the development of flexible structures that will enable the users to function within a structure that fits their needs and bodily actions (Phillips, 2008:243-244).



Figure73: Elasticity and prosthesis formed through skin, part of the design development (Author, 2022).

CONCLUSION

Hundertwasser's Five skins of the Ecological Self explore the different types of skins that extend beyond the self to a whole. These skins allowed for the examination of how beings engage with the built environment and clothing. This notion is fundamental in the adaptive reuse of the old Gas Works into a fashion design school with a textile recycling mill, as the mediation between the inhabitant and the building is significant, but also the mediation between the new and the existing historical structure.

The Ecological self is a vital aspect in consideration of how to communicate ethical arguments for responsive architectural and urban approaches. The skins mediate the engagement between humans and the environment as a loci for self-realisation.

Kiesler engaged with the idea of skin as a metaphor for a house, where architecture becomes skin. In this proposal, I argue that permeable structures act like skin, allowing the new skin to envelop the building with a continuous shell that opposes disjointedness in the form.

Elasticity considers embodiment and how the body moves in space and experiences space. Kiesler argued that architecture should become elastic to allow the body to move autonomously through a building; the different skins can therefore be related to elasticity as an extension of the body to safeguard the users' experiences.

The new functions require a different skin from the existing ones. The existing needs to shed the old skin to allow the new skin to emerge. Translucent skins and Kiesler's view of elasticity can be applied to enable the new and the old to interact with one another.

The exploration of skin is further explored within the notion of rejuvenating architecture in the design development section. Rejuvenating architecture explores how the historical Johannesburg Gas Works Complex can be adaptively reused into a fashion design school and textile recycling hub. The pedagogy of a fashion design school will be investigated in the design development, Hundertwasser's view of restructuring or unlearning in order to for the self to formulate an understanding of the world and support self-realisation of the creative self.

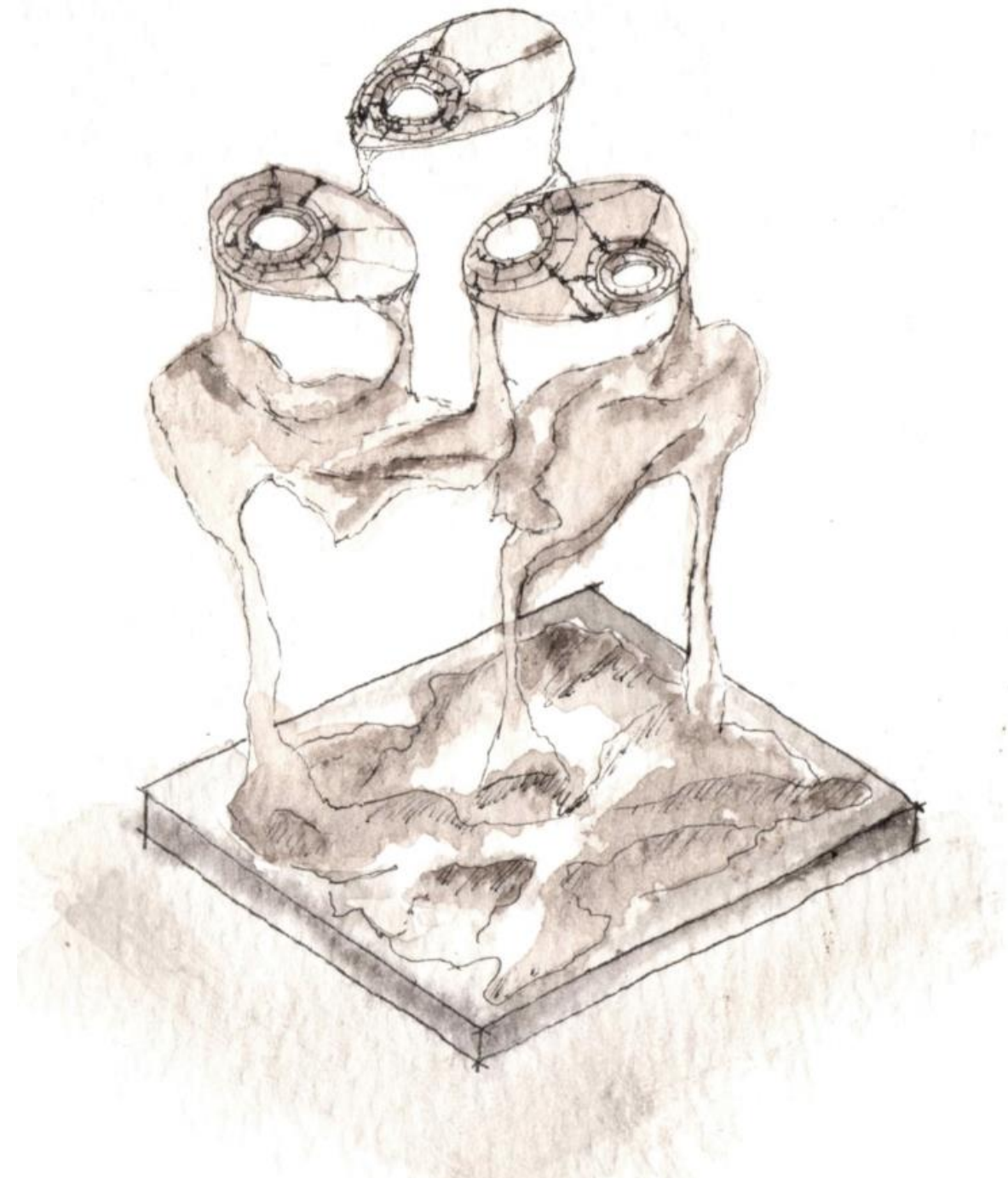


Figure74: Conceptual engagement with textile recycling and fashion (Author, 2022)

DESIGN DEVELOPMENT

05

5.1 PRECEDENT STUDY

Project: FRAC Dunkerque
Architects: Lacaton & Vassal
Location: Dunkirk, France
Year Completed: 2013

Lacaton and Vassal's FRAC Dunkerque noted the change in industrial space's repurposing structuring and production. Industrial buildings are adjusted to fit the current needs. Industrial buildings that are mostly repurposed are buildings with open floor plans, high ceilings and larger openings. Industrial buildings have become buildings that hold opportunities through adaptive reuse; the precedent study of the FRAC Dunkerque in France and the Turbine Hall in Johannesburg indicate the success achieved with unused industrial buildings. Different creative fields have approached industrial buildings, including the arts and architecture (Allen, 2019: Online).

It can be argued that the endeavour to reuse industrial buildings in creative fields adaptively is financially viable; the structuring, adaptability, and scale of industrial buildings provide a canvas for multiplicities of opportunities and purposes. Dunkirk is a small city that borders the Belgian border and the coastline in northern France. Lacaton and Vassal wanted the project to recognise and commemorate the history of the site and the art industry because FRAC Dunkerque has independent regional art centres in France (Allen, 2019: Online).

The city of Dunkirk resonates with the typical deteriorated state of industrial territories after World War Two. Dunkirk was able to keep the city afloat through manufacturing during the war. After the war, parts of the urban fabric were left unneeded and abandoned. With the migration of a large part of the population to more permanent prospects, the industrial regions collapsed into abandonment and poor conditions. The shipbuilding structures were dismantled and deserted. One of these deserted structures was the now-named FRAC's Halle 2, a large-scale industrial building with large openings, dubbed by the locals as a cathedral because of the spiritual sense the building emanates. (Allen, 2019: Online).



Lacaton and Vassal suggested that the existing hall be renovated, and another structure be designed next to the existing one. The existing 'cathedral' was practically left untouched, and the proposal was made to use the space for public and exhibition use. "[The space] was so strong from an architectural point of view, and aesthetically so overwhelmingly beautiful, that we didn't want to fill it," (Allen, 2019: Online) explained the architects for their proposal. The new building houses the rest of the functions, the cost was able to be kept to a minimum with the preservation of the existing and the use of prefabricated materials (Allen, 2019: Online).

The form-giving echo's the existing structure with scale and form but the structure and materiality of the bioclimatic envelope create a soft and feminine character. The structures are joined together as if one cannot exist without the other. "The public footbridge (previously planned along the facade) which crosses the building becomes a covered street entering the hall and the internal facade of the FRAC," the architects explained. The design was meant to create a remembrance, with the form-giving relating to the existing, but the material difference allows for the play on light and shadow, the mass, and the void. During the night the differentiation is evident when light can filter through the translucent properties of the ETFE sheeting.

The architects wanted the architecture to immerse the visitors in art and to allow the visitors to recognise the previous use of the building, whilst engaging with the future of the building through adaptive reuse and preservation (Allen, 2019: Online).

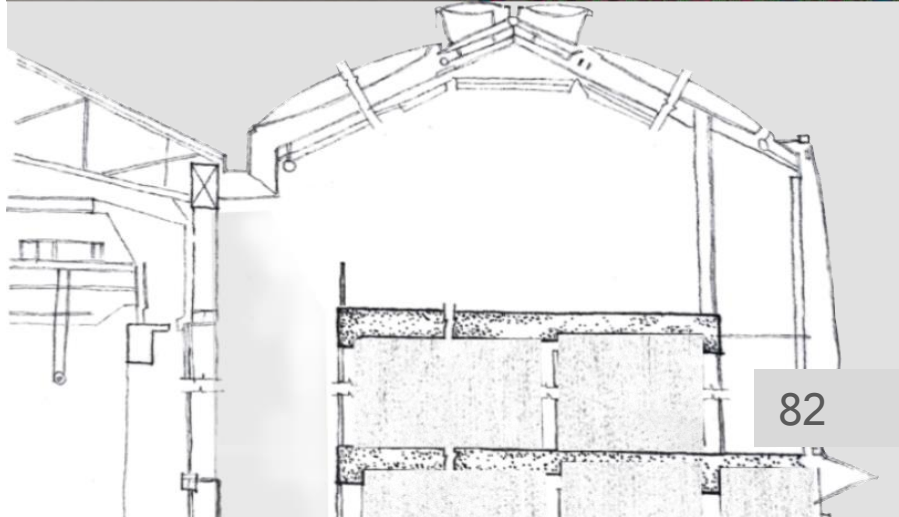
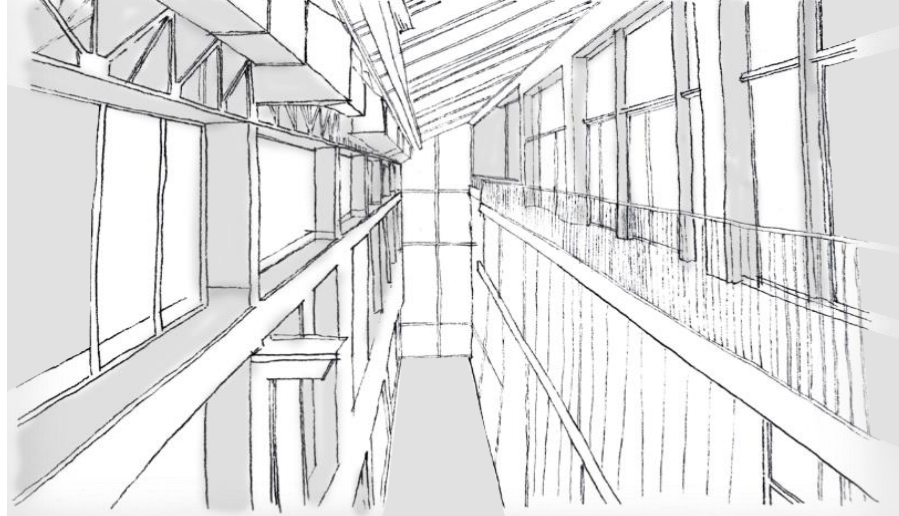


Figure76-78 : Top: Interior drawing (Author, 2022). Middle: Photograph of FRAC Dunkerque interior (Ruault, 2014: Online). Bottom: Section drawing (Author, 2022).

Project: Watershed
Architects: Wolff Architects
Location: Cape Town, South Africa
Year Completed: 2014



Wolff architects organised a pedestrian urban corridor through the existing shed that attaches prominent spots. The corridor through the shed has public space, creating opportunities for small businesses to be engaged (Anonymous, 2014: Online).

The large traffic flow in the street allows the shed's location to become a suitable commercial space. The watershed aims to provide a base where people can diversify and densify within the city. Wolff architects established different functions to promote these aims, including rentable office space, green spaces, vending spaces for small businesses, and an exhibition venue. The other functions allow activities to occur along the corridor where they are organised along it. A floor is suspended above the street to enable interactions on different levels and a series of open floorplan mezzanine levels (Anonymous, 2014: Online). The architects designed the corridor, to enable the tenants to alter and change their stalls, and the urban element of the corridor not to be dependent on fragile architecture.

There is a mutuality between the developing businesses and small businesses, both are visible to one another and their activities. By allowing the different businesses to be open to each other, they are able to gain an understanding of each other. The different levels allow for social interactions between the inhabitants. At the centre of the business is a café that turns into a social hub, where thoughts can be shared and engaged with new people in the Watershed.

Wolff architects adaptively reused an existing industrial shed, previously housing an electrical repair workshop, in Victoria and Alfred Waterfront onto the mixed-use building that houses office space, retail, and exhibition space. The existing (gantry rails and lattice columns) gantry structure allowed additional steel floors to be suspended above the corridor, instead of supporting the floor from the ground. Large public spaces were able to form throughout the building with the implementation of large-scale A-braces that support the lateral loads to the gantry rail (Anonymous, 2014: Online).

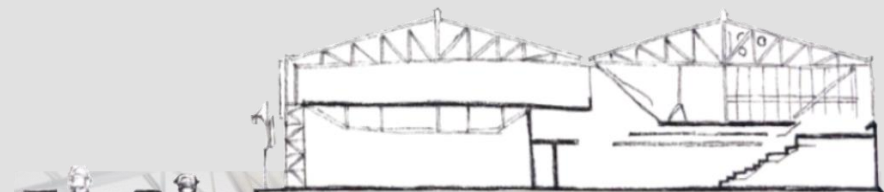


Figure 80-82: Top: Interior drawing (Author, 2022). Middle: Section (Author, 2022). Bottom: Photograph of the interior (Wolff Architects, 2014: Online).

5.2 Design Considerations

Rejuvenation

Restoration of the industrial buildings on site would not be relevant to the community's inhabitants; the buildings are vacant, unused, and unappreciated. Creatively rejuvenating the site through adaptive reuse allows the site to be situated in the context and allows the inhabitants to give new meanings to the site rather than being rooted in the past. Professor Santos stated that the rejuvenation of a building has to react to the character as observed. Lukas Feireiss describes: "Given the fact that in most parts of the world our built environment is still largely determined by already existing buildings and constructions rather than new developments, one of the greatest tasks faced by today's architects is the creative handling and inspiring transformation of such architectural remains." (Smith, 2018: 7).

Adaptive reuse of old buildings is not only to turn the buildings into functional components of the city but to rejuvenate the site with meaning. Rejuvenation is an interaction between the past, present and future. The development considers the use, the engagement of the site, how people live and their stories (Smith, 2018: 8).

The textile recycling processes need to be referred to for spatial design strategies; design strategies can be applied to the spatial qualities through textile recycling activities (Ahmad, Mulyadi, Ibrahim, and Othman, 2016: 525).

Integrating exhibition spaces produces visual opportunities to engage in stimulating fashion and textile recycling innovations. The participation between consumers, the community, the clothing industry, and educational institutions allows the various participants to engage with sustainable solutions, and the sourcing of textile waste can collaborate among the partakers. Pre-consumer or industrial textile waste (by-products) can be sourced from manufacturing companies (clean waste). Post-consumer textiles can be sourced from consumers and communities collected from discarded (dirty waste) household fabrics (Ahmad, Mulyadi, Ibrahim and Othman, 2016: 526).

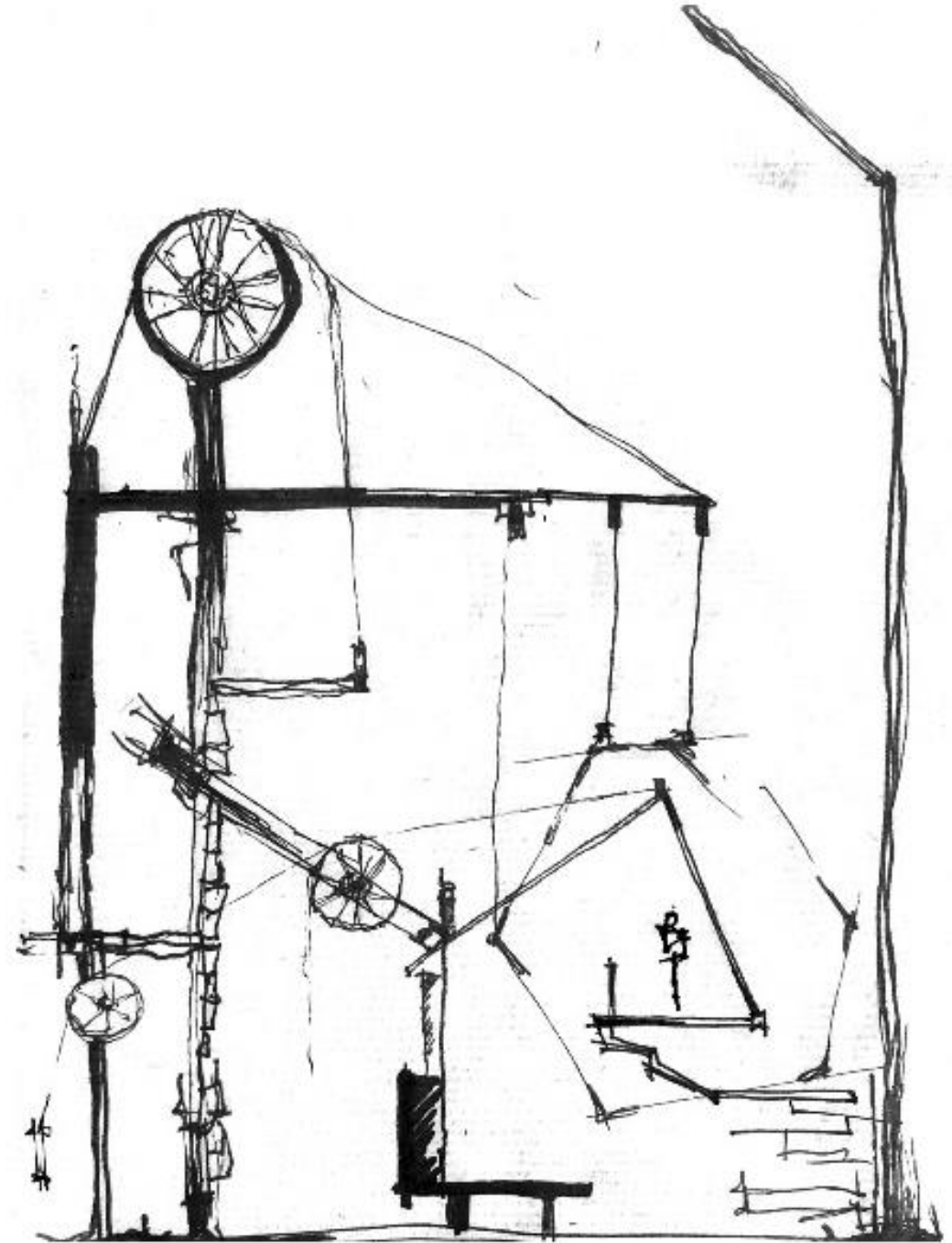


Figure83: drawing (Author, 2022).

Pedagogy of a fashion design school

Hyman Bass describes Pedagogy as a language that can liberate or confine ideas and encourage or suppress critical thinking. The Oxford Dictionary defines pedagogy as the “study of teaching methods”. The methodology of pedagogy supports a collaborative environment in educational spaces and interactions between learners and instructors (Jindal, 2022: Online).

The model for pedagogy transforms students into professionals and enables them to become problem solvers. In various industries, sustainability is essential to instil in educational institutions. Pedagogy allows students to observe and imagine. The awareness is enhanced by revealing and exposing the students to the different components of the field that would enable students to socialise and learn (Jindal, 2022: Online).

Recycled Textiles and Spatial Design Strategies

Internships are another essential part to consider in the learning environment. The students develop an understanding of the field and allow the students to utilise their theoretical and practical experience. The internships allow students to develop additional skills and experiences, including client consultations and care, design implementation and process, and collaboration (Jindal, 2022: Online).

Hundertwasser’s pedagogy is considered to create a creative and innovative space, that offers an appropriate foundation to understand and value quality, art, and innovation. In his pedagogy, the learners have to relearn how to take action in an ecologically conscientious way (Jakobsen & Storsletten, 2018: 41).

The project proposes the integration of a fashion design school into the textile recycling hub. The integration allows for cross-collaboration between the two main programmes. The students are exposed to the textile recycling process, and the focus of the fashion design school is to teach sustainable clothing production methods.

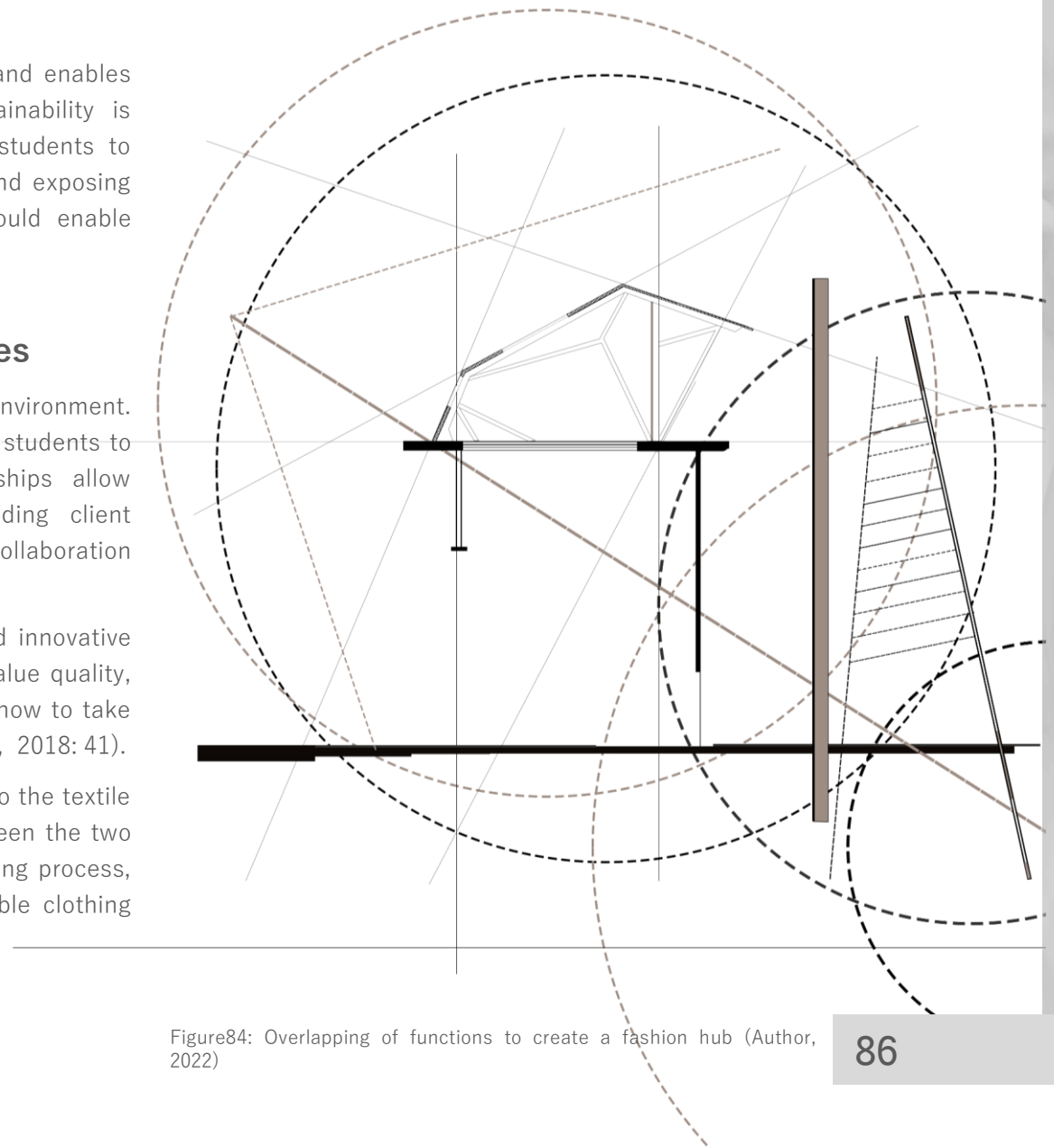
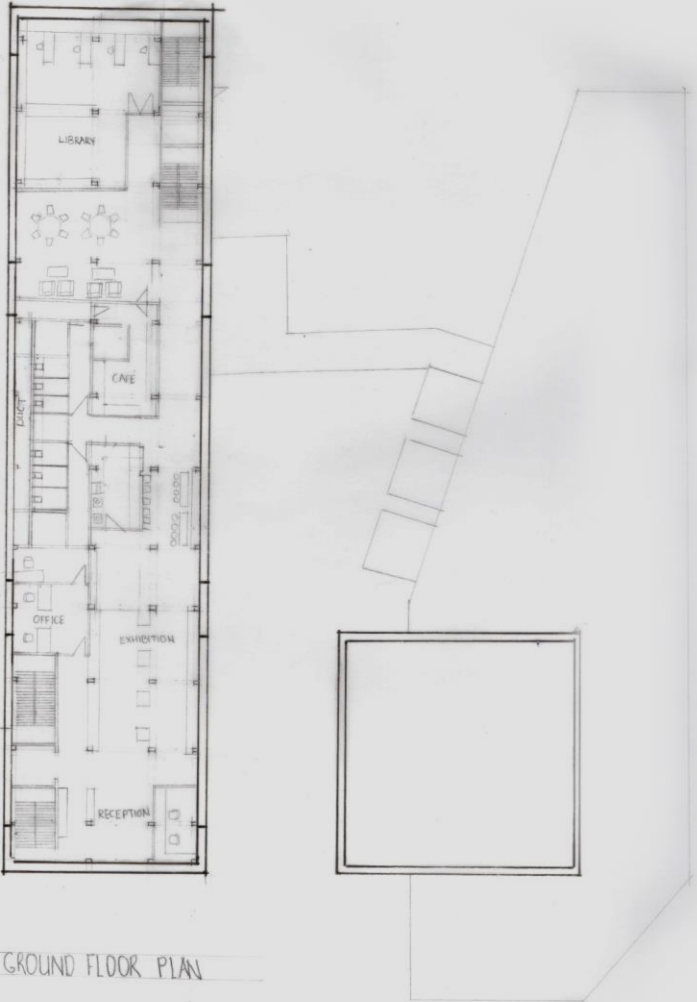
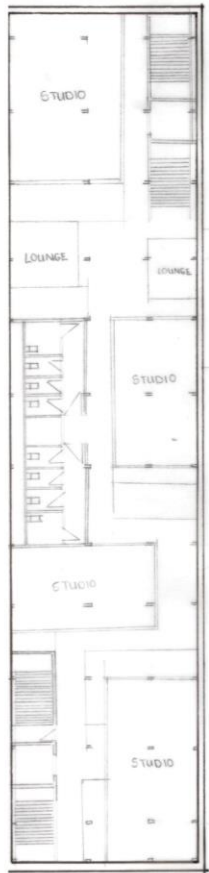


Figure84: Overlapping of functions to create a fashion hub (Author, 2022)

5.3 DESIGN PROGRESS WORK

Design Internal Crit





SECOND FLOOR PLAN

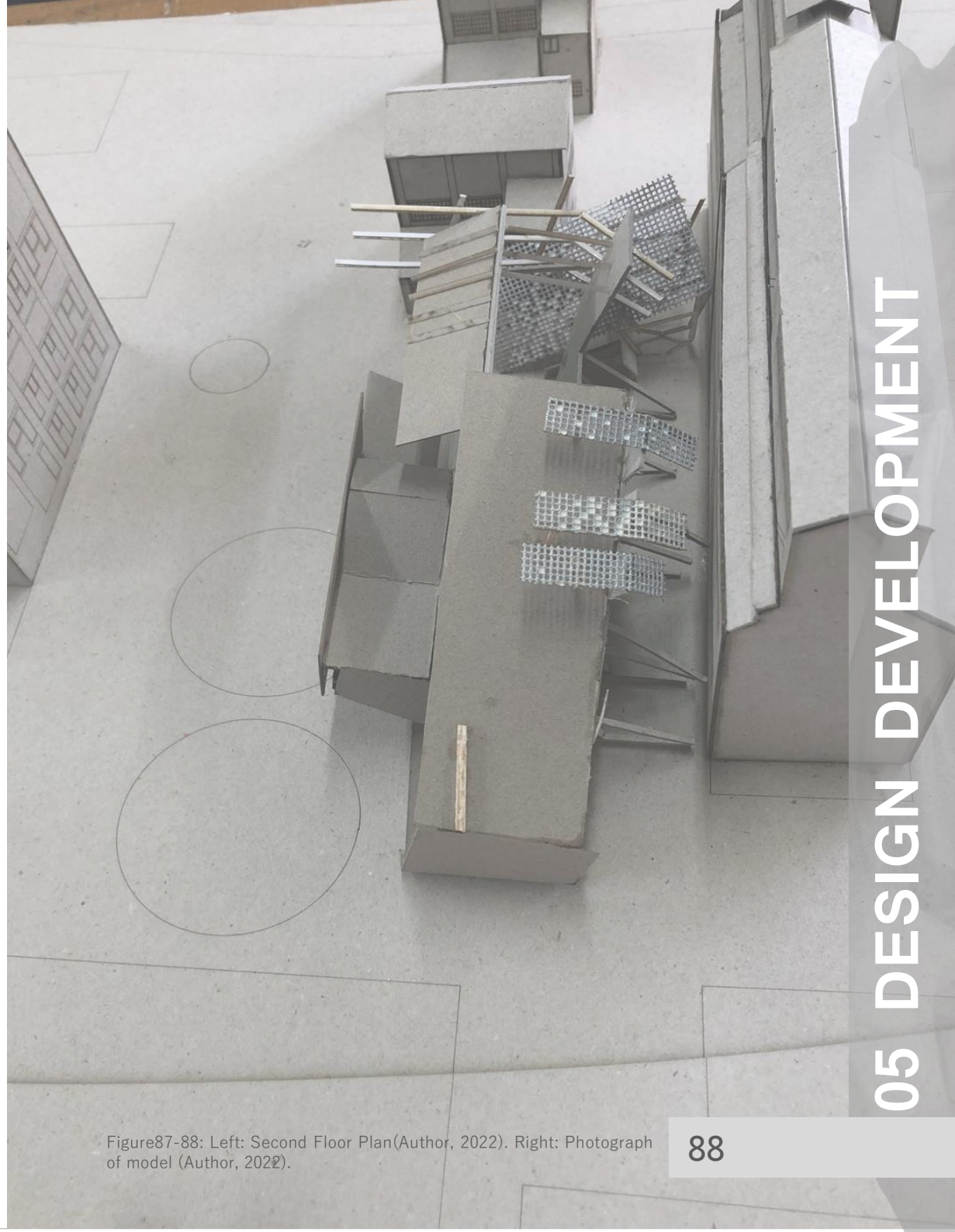
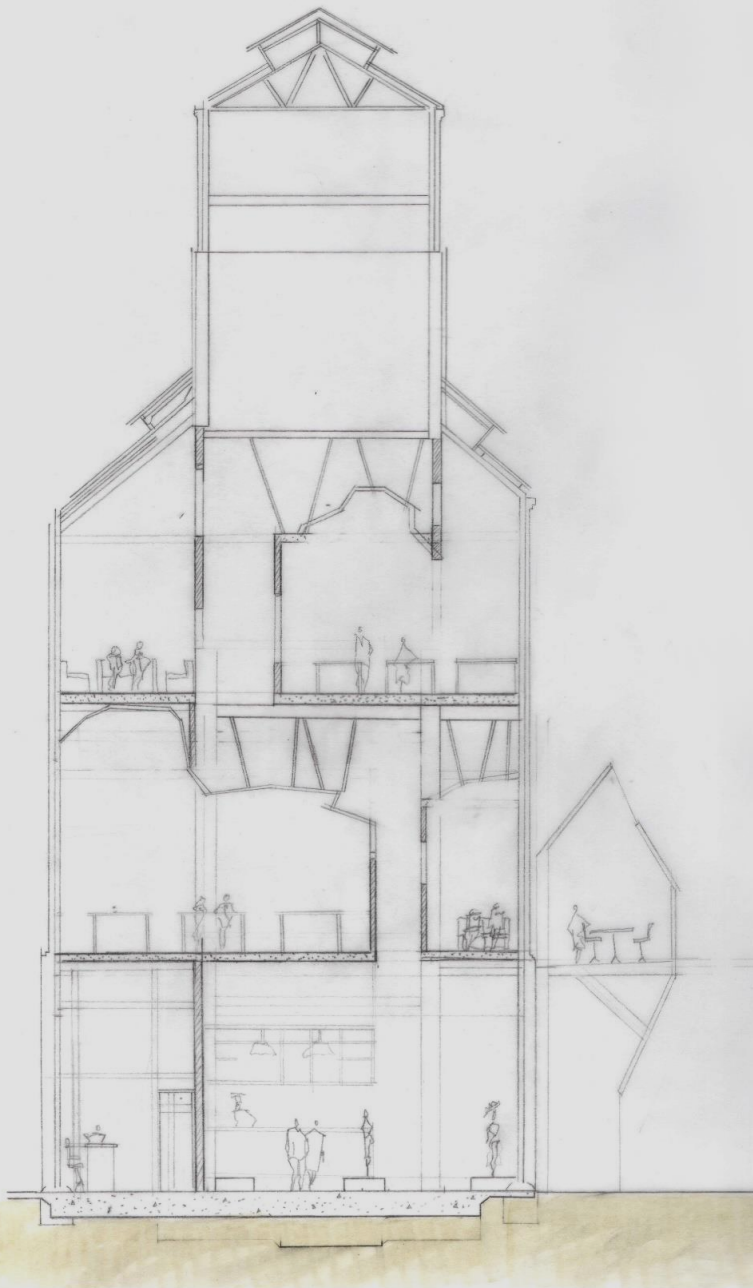


Figure87-88: Left: Second Floor Plan(Author, 2022). Right: Photograph of model (Author, 2022).



The initial design incorporated the fashion design school into the existing building, but ultimately the building's interior structure could not accommodate the new functions.

This initial response was more invasive to the historical building, and the function of the existing was therefore reconsidered.

The model explored the application of skin and its mouldable structure on the façade of the new building.

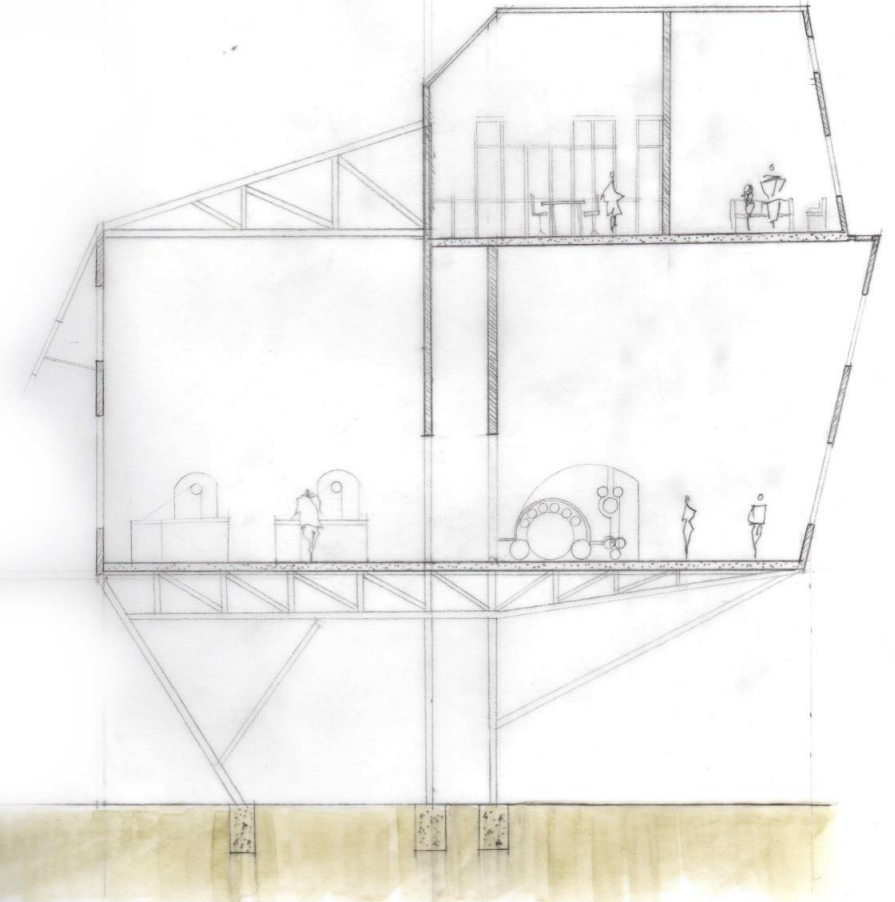
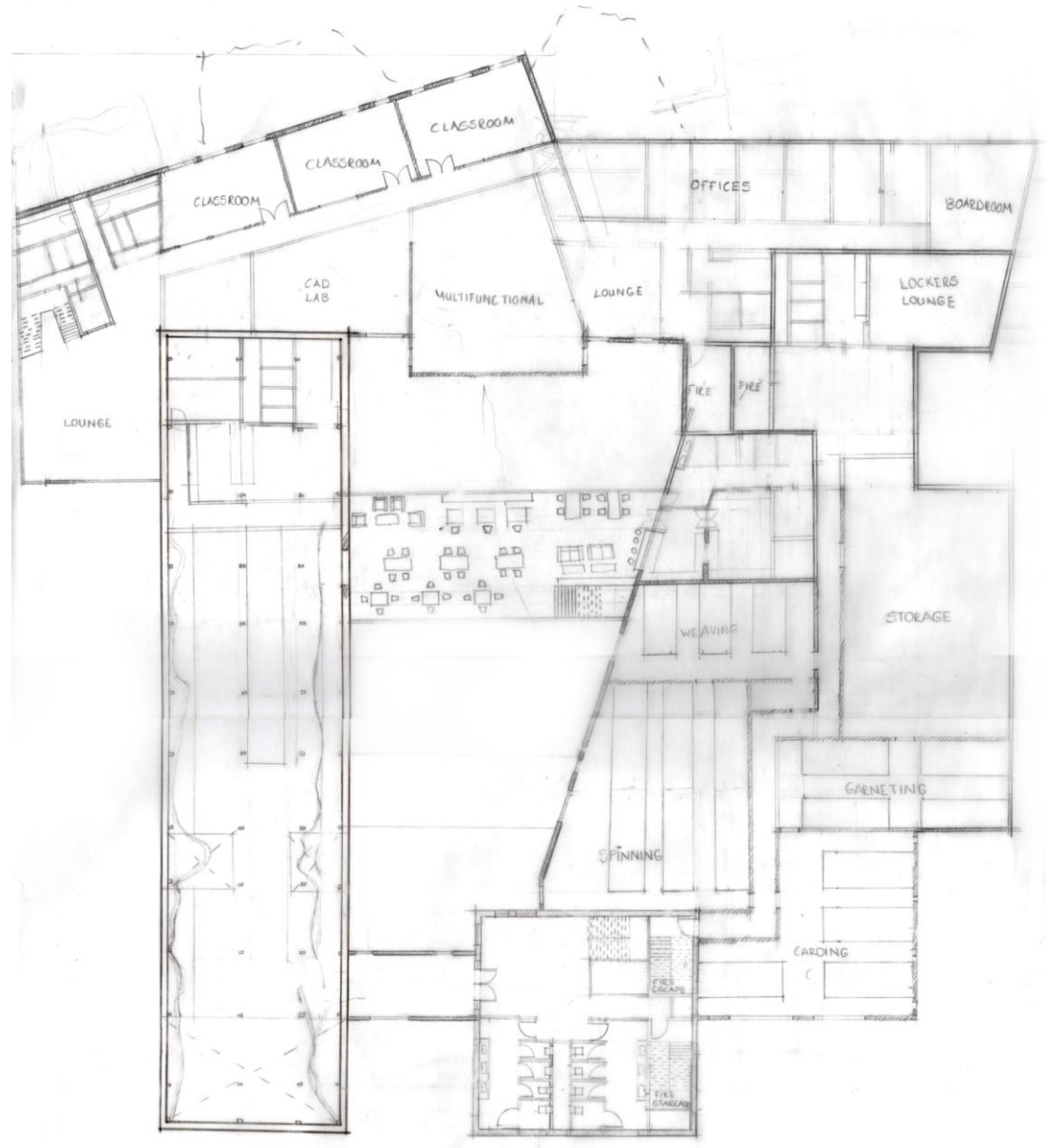
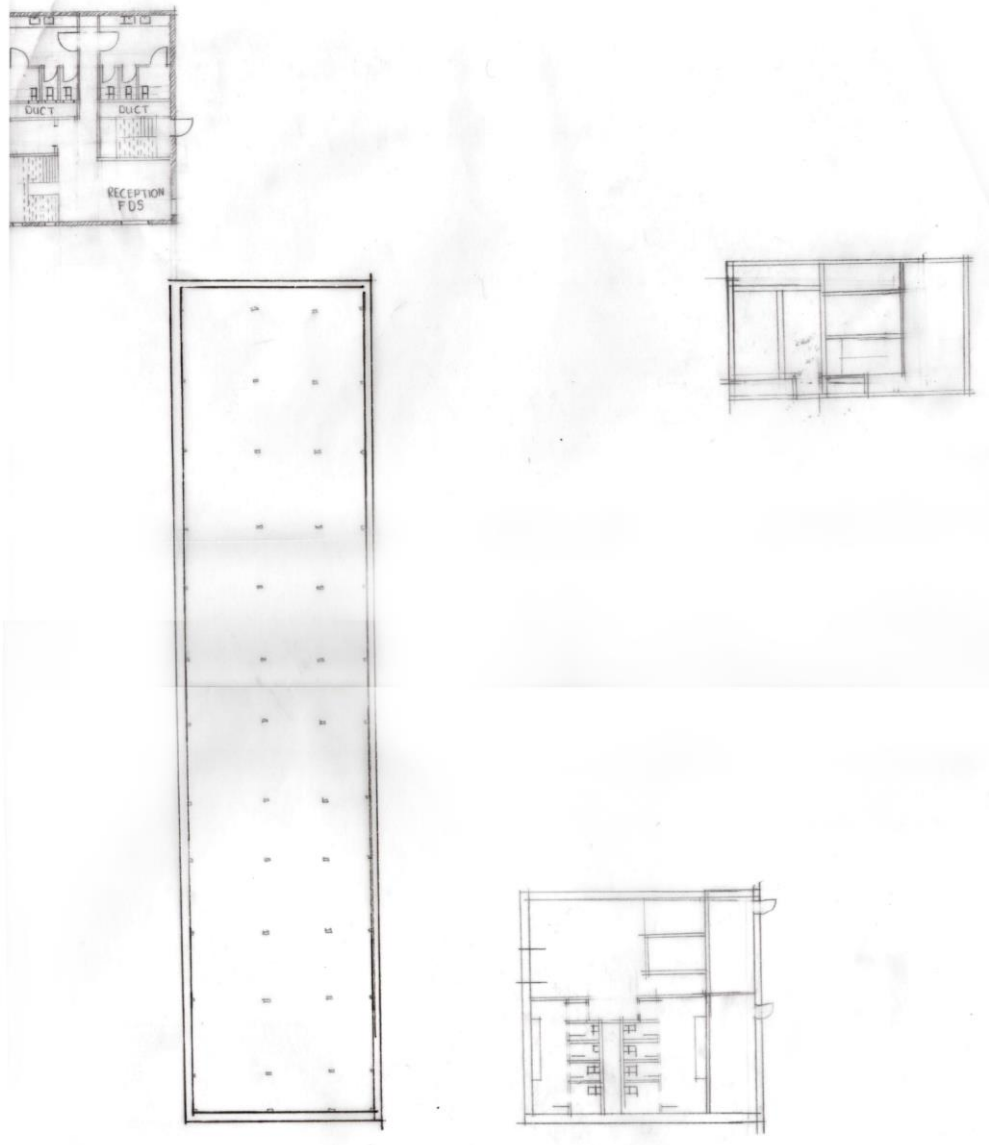
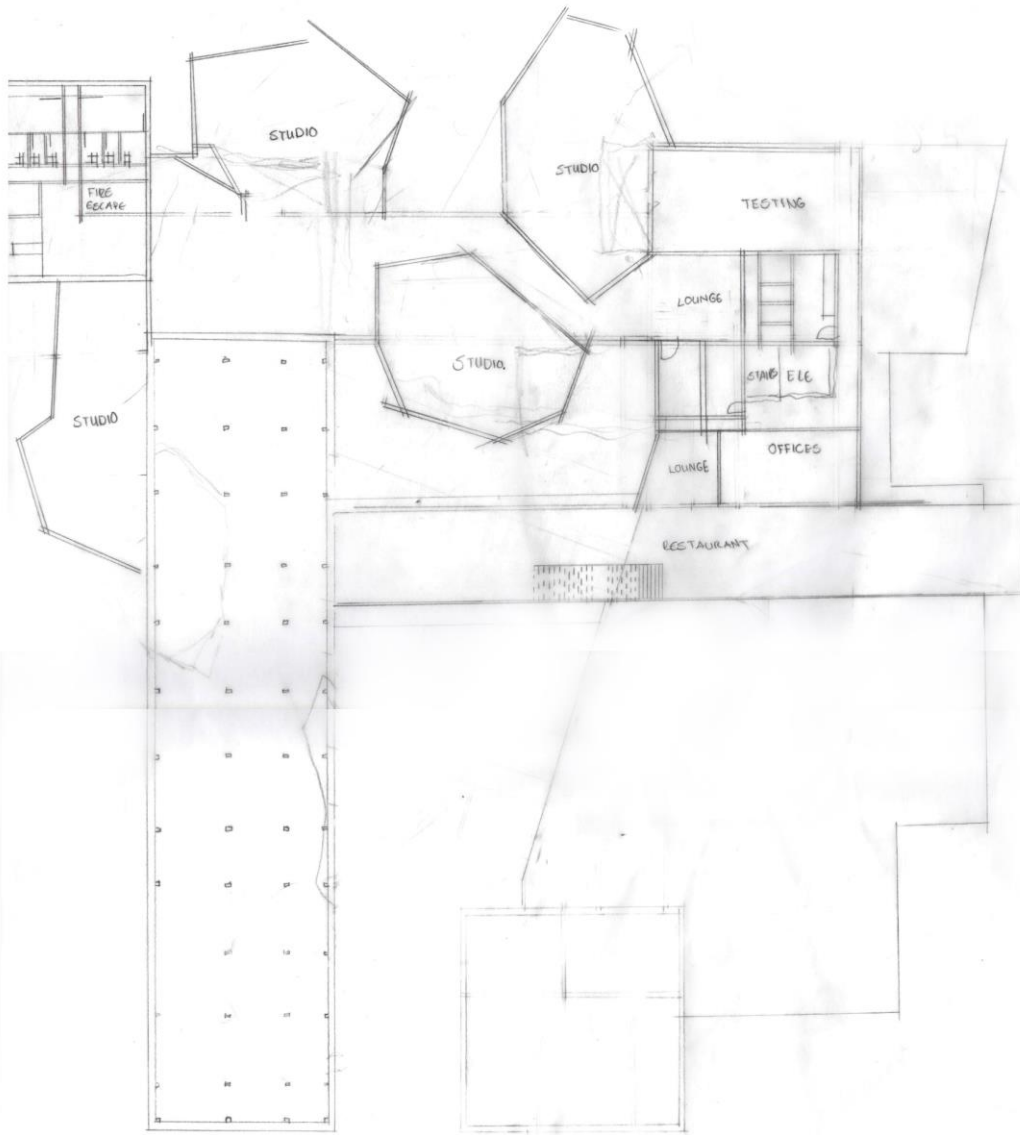




Figure90-92: Photographs of model(Author, 2022)

Design External Crit





The function of the existing was later developed into an exhibition and catwalk, The fashion design school formed an extension of the new building. The studios morph out of the exterior of the building, to mimic the interior of the existing building.



Figure95-96: Left: Second Floor Plan. Right: Photograph of the model (Author, 2022)



Figure97: Exterior perspective (Author, 2022).



GROUND FLOOR PLAN
SCALE 1:200

Figure98: Ground Floor Plan (Author, 2022).



Figure 99: First Floor Plan (Author, 2022).

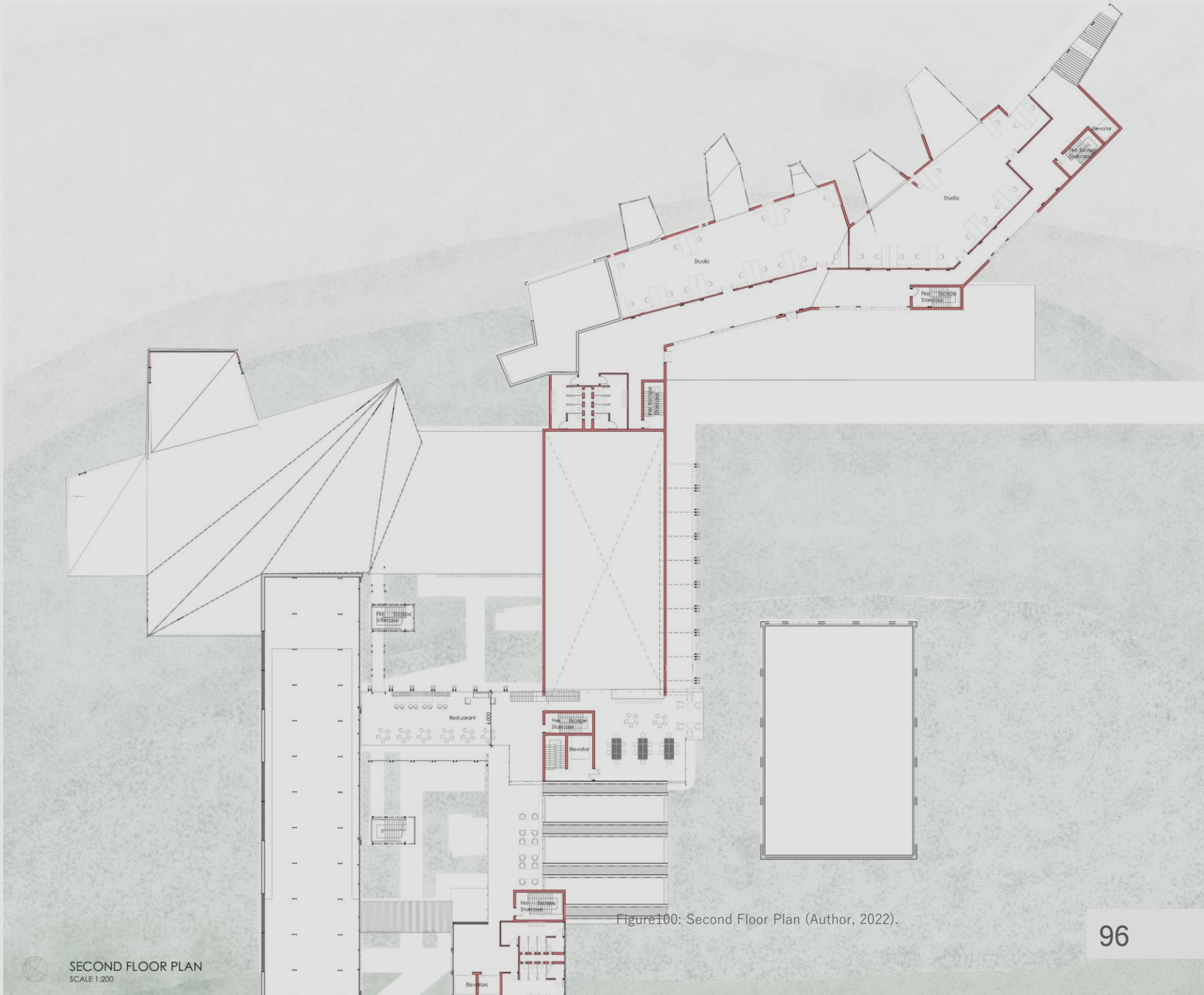


Figure100: Second Floor Plan (Author, 2022).



The size of the previous design could not fit all the functions comfortably without inserting additional storeys above, the building stretches out toward the open site. The choice was made not to insert storeys above as the height would contend with the existing, rather the new contrasts the old by stretching horizontally than vertically.

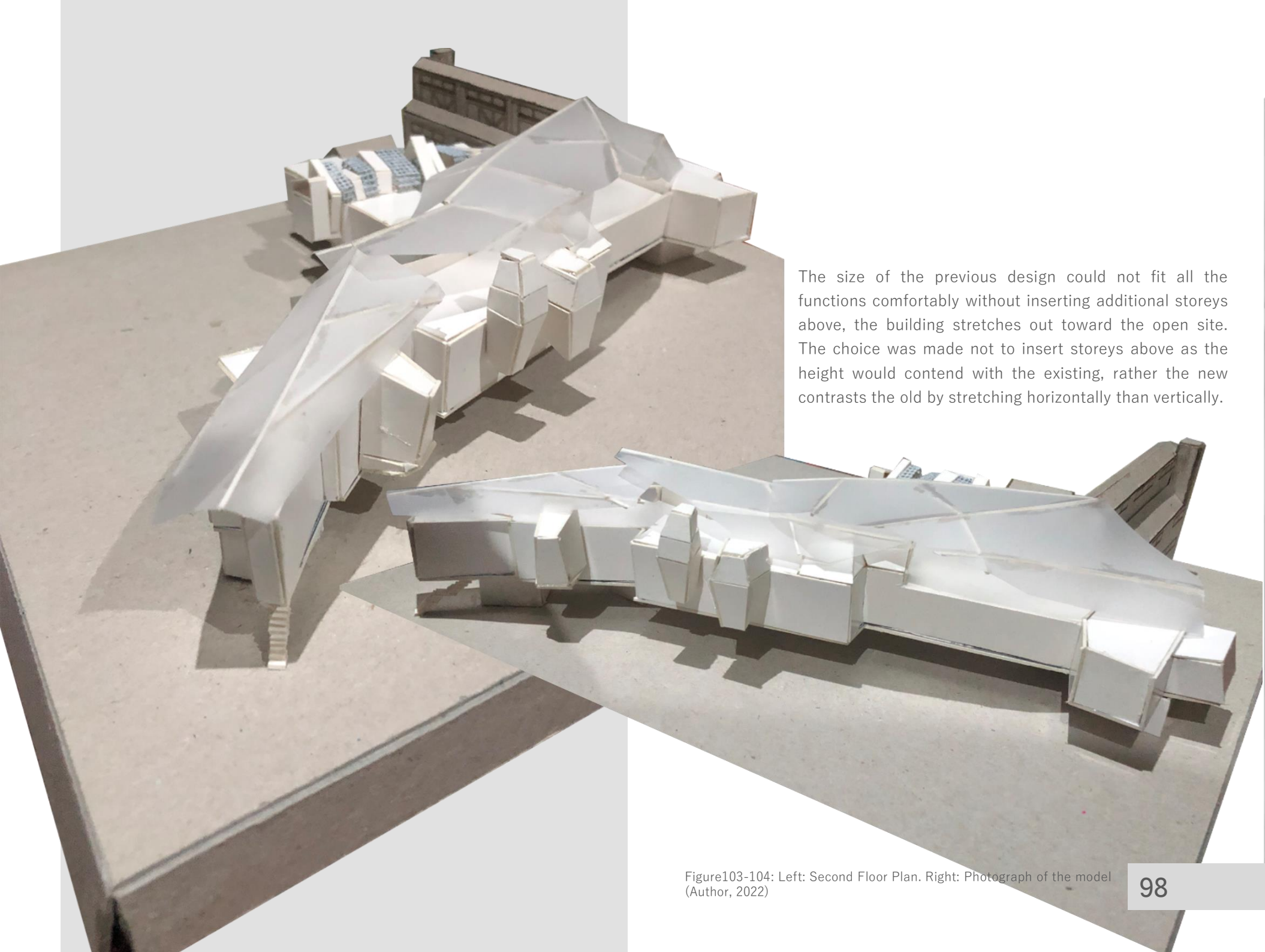


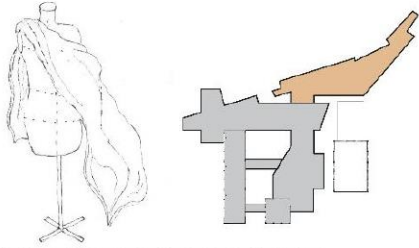
Figure103-104: Left: Second Floor Plan. Right: Photograph of the model (Author, 2022)

5.3 PROGRAMME



PROGRAMME

Fashion Design School

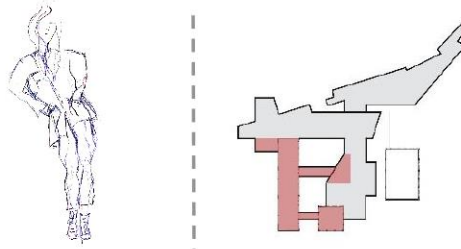


Students Lecturers & Personnel

Accommodation

Reception	40m ²
Café	120m ²
Student Exhibition	70m ²
Library	130m ²
Cad Lab	70m ²
Classrooms	90m ²
Lecture Hall	90m ²
Studios	400m ²
Student Ablution	50m ²
Faculty Lounge	20m ²
Boardroom	16m ²
Faculty Ablution	20m ²
Faculty Kitchenette	20m ²
Faculty & Administrative Offices	45m ²

Exhibition & Catwalk

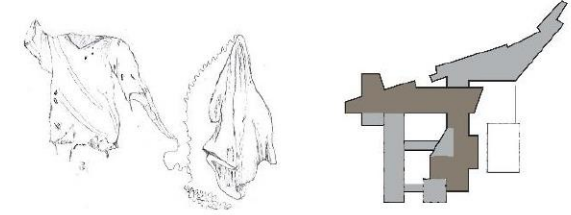


Spectators Personnel Event Personnel

Accommodation

Reception & Lobby	40m ²
Lounge	70m ²
Exhibition	374m ²
Catwalk	242m ²
Back of Stage	200m ²
Control Room	16m ²
Ablution	108m ²
Restaurant	400m ²
Back of Kitchen	16m ²
Kitchen	25m ²
Bar	16m ²
Cold Storage	12m ²
Dry Storage	16m ²
Refuge	20m ²
Lockers	25m ²
Ablution	20m ²

Textile Recycling Mill



Personnel Spectators

Accommodation

Reception	20m ²
Receiving & Deliveries	20m ²
Storage	100m ²
Inspection & Sorting	50m ²
Washing & Drying	30m ²
Garneting (Shredding)	40m ²
Carding	70m ²
Spinning	100m ²
Weaving	40m ²
Dyeing	20m ²
Quality Control	20m ²
Packaging	20m ²
Storage	100m ²
Lockers	45m ²
Offices	35m ²
Lounge	25m ²
Ablution	30m ²

Figure106: Diagram of the Programme (Author, 2022).

Accommodation for the Textile Recycling Mill

Accommodation	General Description
Receiving and Deliveries	The delivery area will receive the intake of textiles to be sorted, and other materials needed for the recycling process. The delivery area functions as product distribution for recycled textiles and fabrics produced.
Storage	Storage houses the materials and products needed for the recycling process and the textiles before they are sorted and inspected.
Inspection/ Sorting	Sorting and inspecting of textile waste are mainly done by humans as automatic sorting equipment is not developed yet. The purpose of the textiles is divided into wearable (type, design, condition & quality) and unwearable items (fibre, type, or colour). Sorting by colour allows the elimination of redyeing.
Packaging and labelling	After textiles have been sorted, they have to be packaged and labelled according to their value and quality.
Washing	The textiles that will be recycled and the clothing that will be sold will be washed before handling.
Drying	Drying the textiles is important after washing them. It can damage an entire load of textiles if it is still wet or unclean as it could lead to mold.
Garneting (shredding)	During the shredding process, fabrics and clothing are shredded into smaller pieces by running the fabrics through fastened cutting blades. The machine requires skilled operators, as the different types and clothing shapes, there is no set pattern to cut the fabrics and it is important to operate the machine to maximise the amount of fibers recovered, and to lessen the amount of waste produced.
Carding	The fabric pieces are unravelled and aligned during the carding process. The process involves the separation of fibers, by utilising a sequence of dividing and redividing actions that produce different fibers to remain parallel to each fiber that as well as removing the majority of the residual impurities. Recycled fibers are blended with virgin fibers to increase the quality and strength of the fabric, the recycled fibers are shorter and have less strength combining them with virgin fibers that have longer strands makes the fabric stronger
Spinning (yarn)	The process of spinning is to draw out fibers from a mass that twists the fibers together to produce continuous threads or yarn.
Weaving (yarn to fabric)	The weaving process involves two sets of thread or yarn that are interwoven at right angles to produce fabric
Quality Control	Quality control has guidelines that ensure that the fabrics produced meets the standards to guarantee that the fabrics can meet the need of the clients.
Packaging	Packaging machines are easy textile automation that folds and stacks. The fabrics are wrapped and compressed before being boxed.
Lockers	Locker space allows for the potential for a collaborative workspace. The locker and lounge area should be placed close to the entry point for staff. The locker area meets the needs of the workers to provide storage and security that enhances the flexible multifunctional workspace.
Lounge	Lounge areas allow for employees to work more efficiently and have a more positive work experience.
Ablution	Ablution is separated into admin and the floor and manufacturing ablution, to maximise the efficiency of the employees. Ablution for the manufacturing employees is located close to the production floor and admin ablution is closer to administrative offices.

Accommodation for the Fashion Design School

Accommodation	General Description
Lobby/ Reception	The reception will attend to the visitors regarding information questions, and directions. The lobby receives visitors, students and employees.
Exhibition/ Catwalk	The exhibition space has an important role in the fashion design school. Exhibition space has to be intertwined with the teaching of the fashion design school and shapes part of a reflective critical development. It creates an opportunity to engage with other students and lecturers. By creating a public form of exhibition, the creative endeavours could be spread across a wider audience.
Ablution	Ablution is divided into ablution for the public, students and lecturers.
Library	The library presents resources and nurtures thinking development, creativity, and imagination and generates a more productive learning process.
Studios	Studio space learning is amalgamated with effective learning pedagogy. It increases the positive influences of pedagogy on studying. Students can collaborate and learn in the shared environment of studios.
CAD Labs	CAD Labs allows the students to engage with different sources and with programs that aid in the fashion design process.
Classrooms	Classrooms allow for interactions between students and lecturers, with participation between students.
Lecture Hall	The lecture hall functions as a multifunctional space where seminars, virtual exhibitions and large lectures can take place.
Faculty Lounge	The faculty lounge is used by the faculty and administrative members of the fashion design school.
Faculty Offices and Administrative offices	Faculty offices and administrative offices are required for the fashion design school employees



5.5 DESIGN DEVELOPMENT



Figure107: Perspective (Author, 2022).



FASHION DESIGN SCHOOL
STUDENT AND STAFF ENTRANCE

Fashion Design School
Lobby

EXISTING ROAD

Storage

SERVICE ACCESS ROUTE

SERVICE ENTRANCE
TEXTILE RECYCLING MILL

Textile
Recycling
Deliveries
Catwalk Service
Entrance

3

- KEY**
- 1- Staircase
 - 2- Elevator
 - 3- Fire Escape
 - Staircase
 - 4- Storage
 - 5- Male Ablution
 - 6- Female Ablution
 - 7- Staff Kitchenette
 - 8- Staff Ablution

RESTAURANT SERVICE ENTRANCE

Restaurant
Deliveries

Exhibition

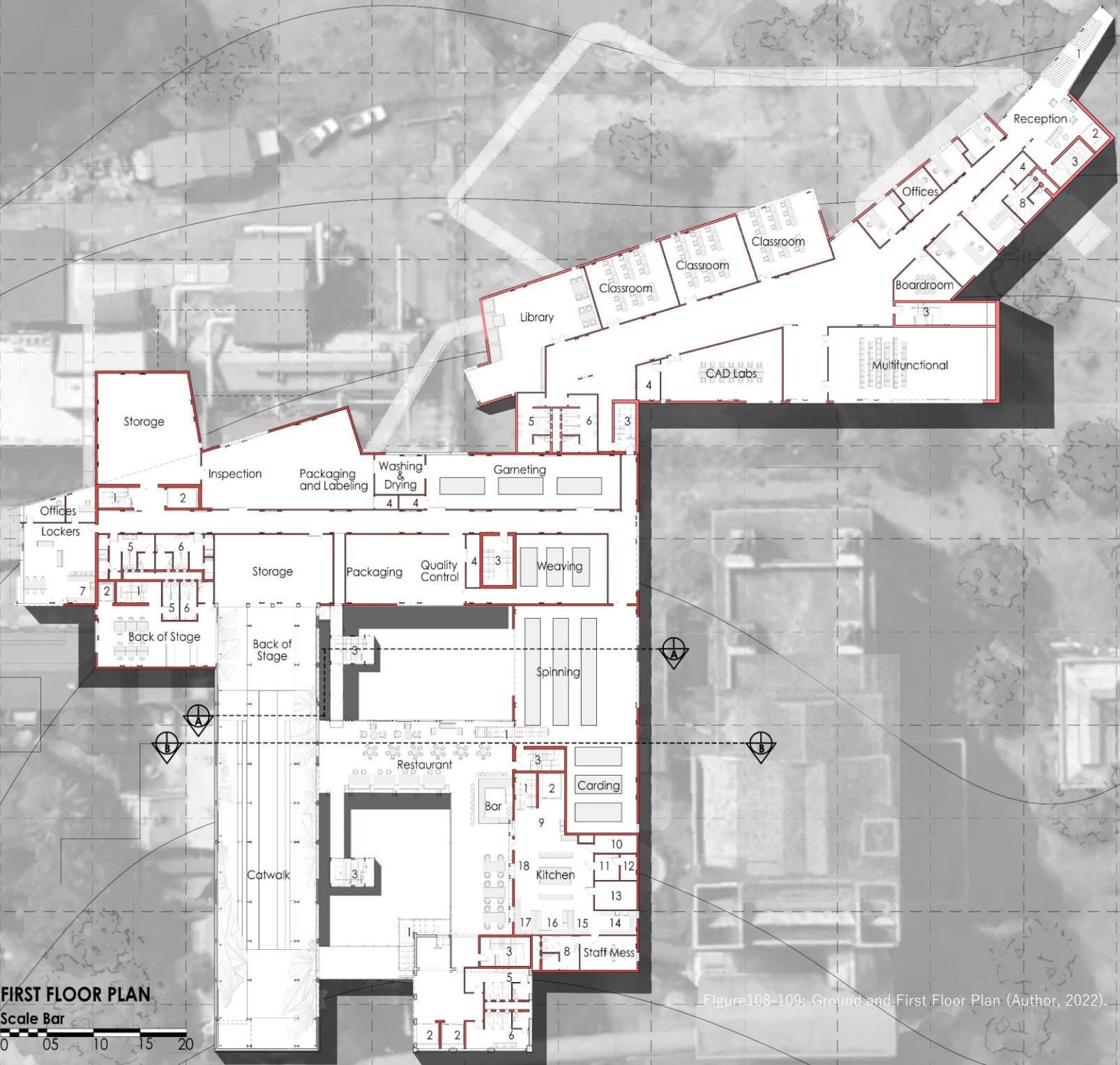
Public
Reception

PUBLIC ENTRANCE

GROUND FLOOR PLAN

Scale Bar

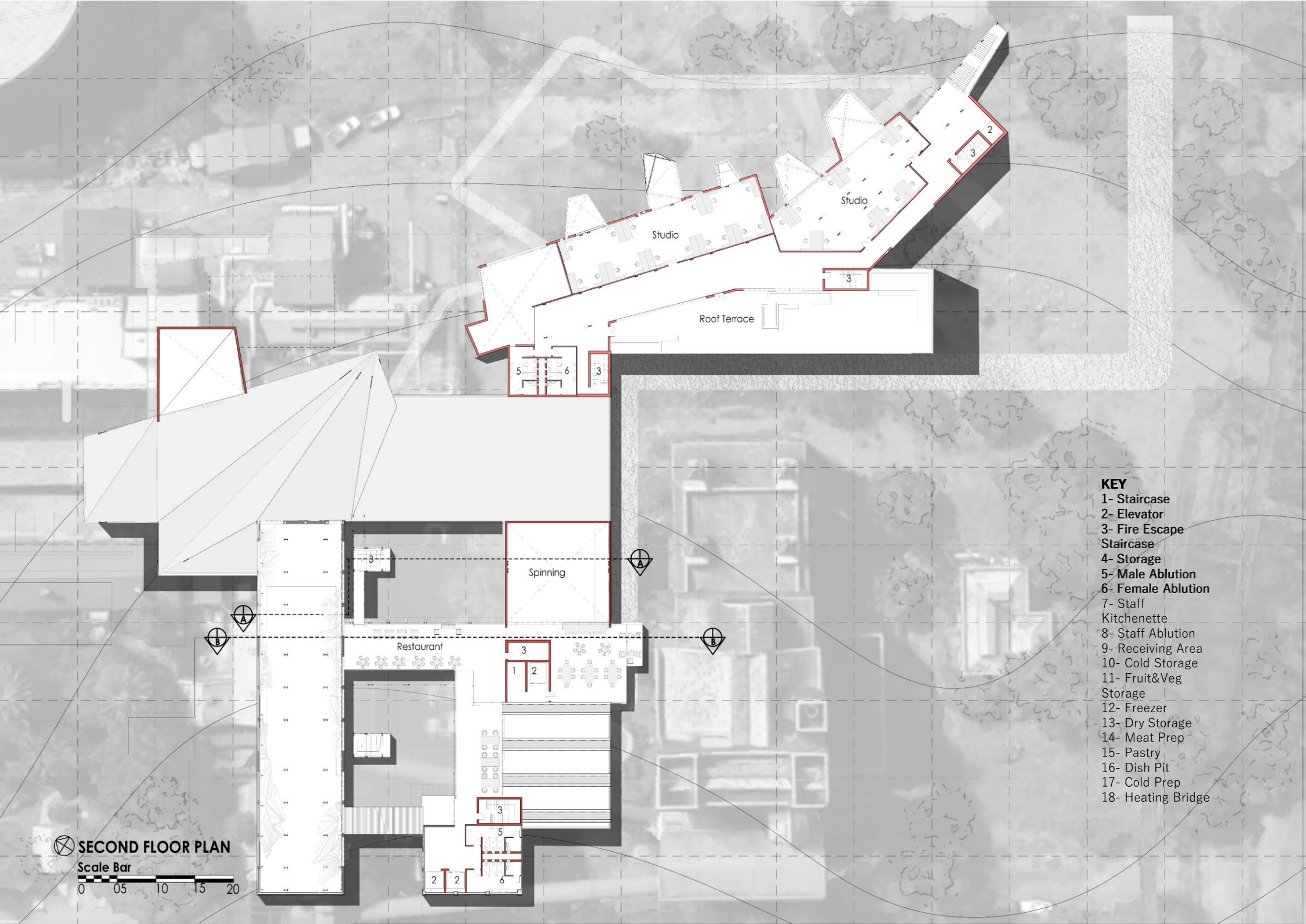




- KEY**
- 1- Staircase
 - 2- Elevator
 - 3- Fire Escape Staircase
 - 4- Storage
 - 5- Male Ablution
 - 6- Female Ablution
 - 7- Staff Kitchenette
 - 8- Staff Ablution
 - 9- Receiving Area
 - 10- Cold Storage
 - 11- Fruit&Veg Storage
 - 12- Freezer
 - 13- Dry Storage
 - 14- Meat Prep
 - 15- Pastry
 - 16- Dish Pit
 - 17- Cold Prep
 - 18- Heating Bridge

FIRST FLOOR PLAN
 Scale Bar
 0 05 10 15 20

Figure108-109: Ground and First Floor Plan (Author, 2022).



Studio

Studio

Roof Terrace

Spinning

Restaurant

KEY

- 1- Staircase
- 2- Elevator
- 3- Fire Escape Staircase
- 4- Storage
- 5- Male Ablution
- 6- Female Ablution
- 7- Staff Kitchenette
- 8- Staff Ablution
- 9- Receiving Area
- 10- Cold Storage
- 11- Fruit&Veg Storage
- 12- Freezer
- 13- Dry Storage
- 14- Meat Prep
- 15- Pastry
- 16- Dish Pit
- 17- Cold Prep
- 18- Heating Bridge

SECOND FLOOR PLAN

Scale Bar

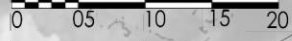




Figure 110-111: Second Floor Plan and Site Plan (Author, 2022).



Scale Bar

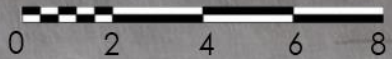


Figure 112: Sectional Perspective (Author, 2022)



Figure 113: Section A-A (Author, 2022)

SECTION A-A
Scale Bar
0 02 04 06 08

20





The design development guided the response in the form-giving of the new to contrast it rather than imitating it. The new and old's strong presence and language were designed to respond to the urban context. The design of the outlandish building had to respond to the complex site, which has densities and openness.

Figure 114: Section B-B
(Author, 2022)



NORTH ELEVATION

Scale Bar





The design development guided the response in the form-giving of the new to contrast it rather than imitating it. The new and old's strong presence and language were designed to respond to the urban context. The design of the outlandish building had to respond to the complex site, which has densities and openness.

Figure 115: North Elevation
(Author, 2022)





Figure 117: Perspective of the building (Author, 2022)





Figure 119: Interior of the restaurant on the first floor (Author, 2022)



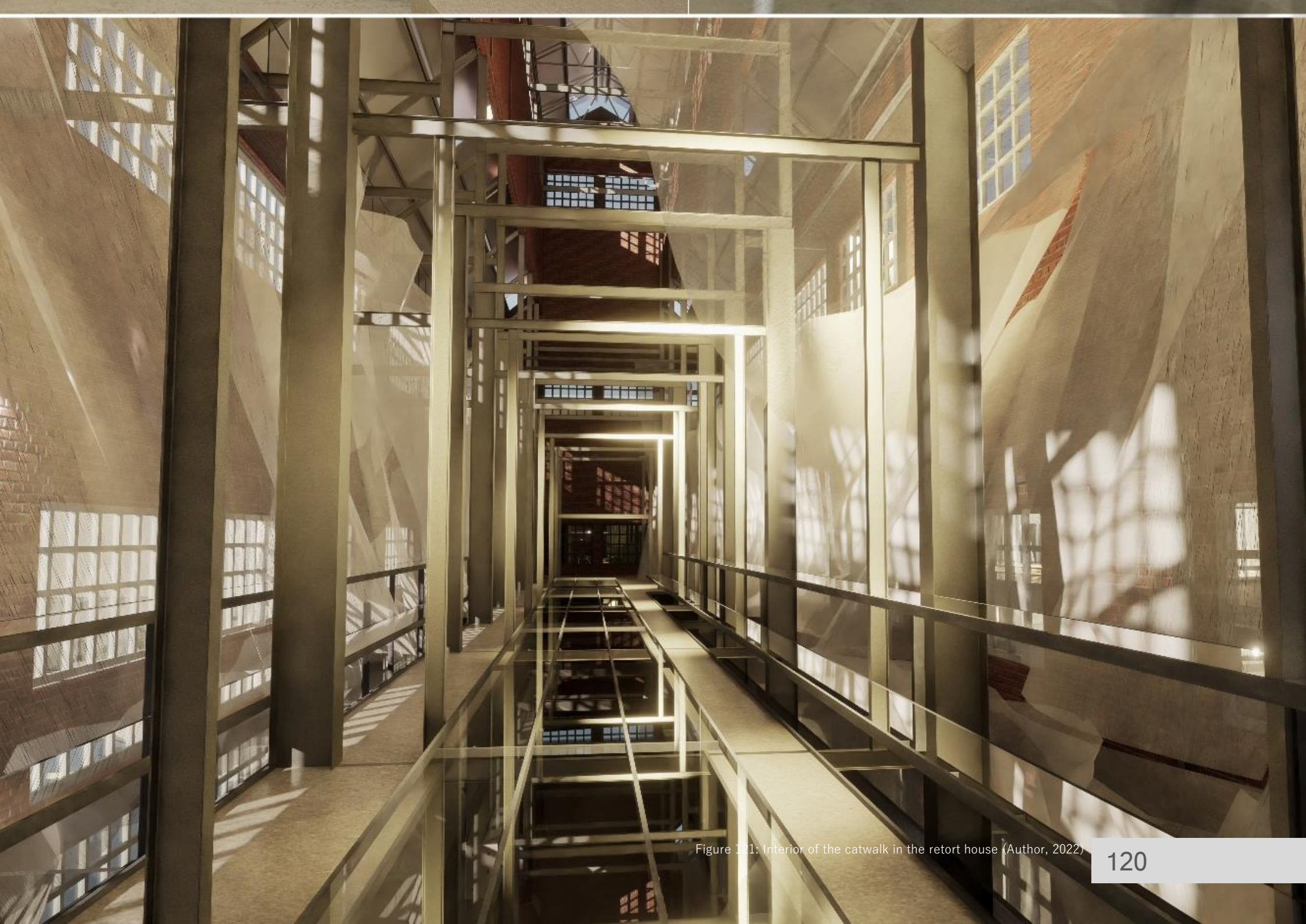


Figure 121: Interior of the catwalk in the retort house (Author, 2022)





Figure 123: Interior perspective of fashion design school library (Author, 2022)





Figure 125: Perspective of showcases of the studios (Author, 2022)

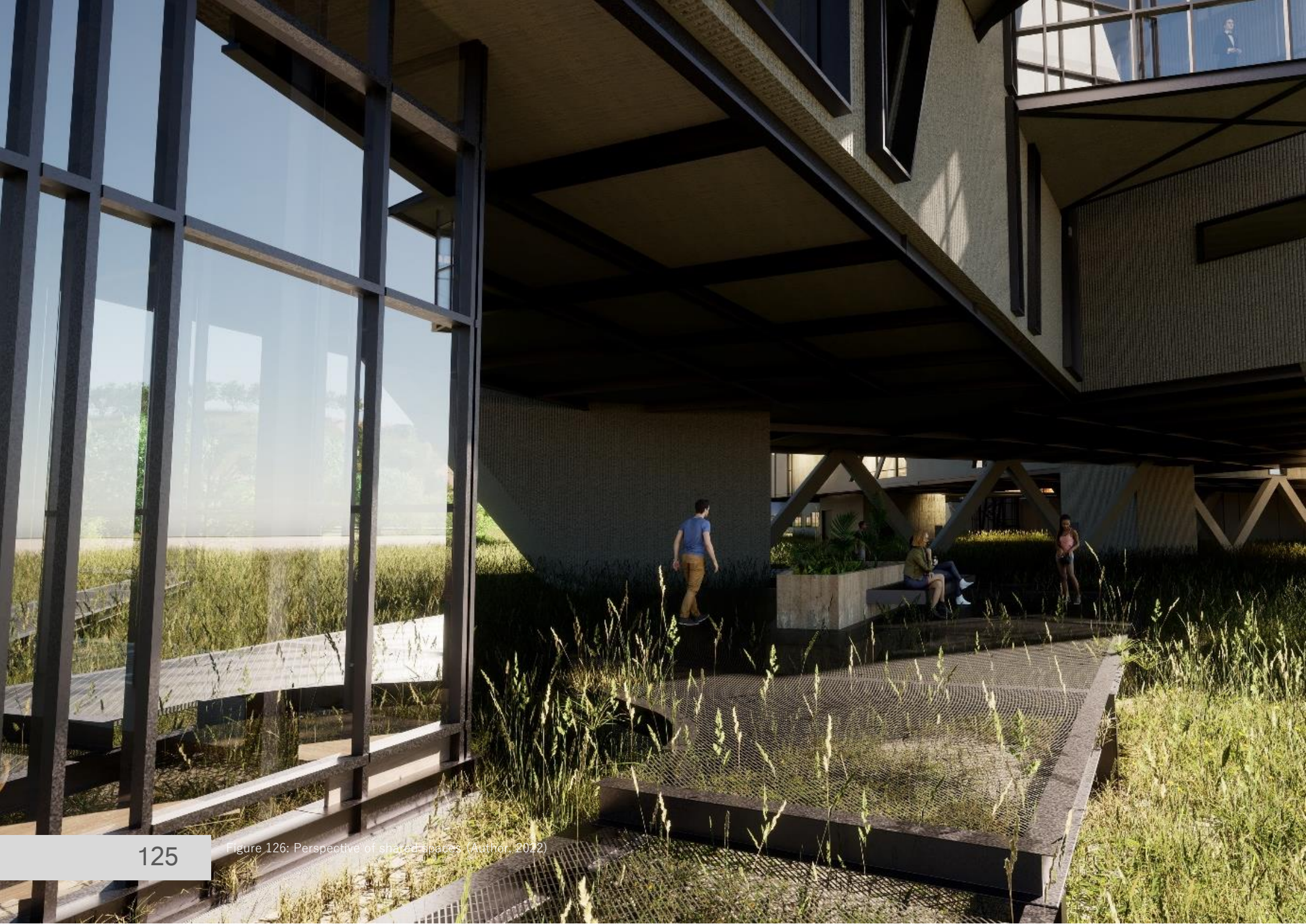




Figure 127: Perspective of landscaping with seating in the demolished tank space (Author, 2022)







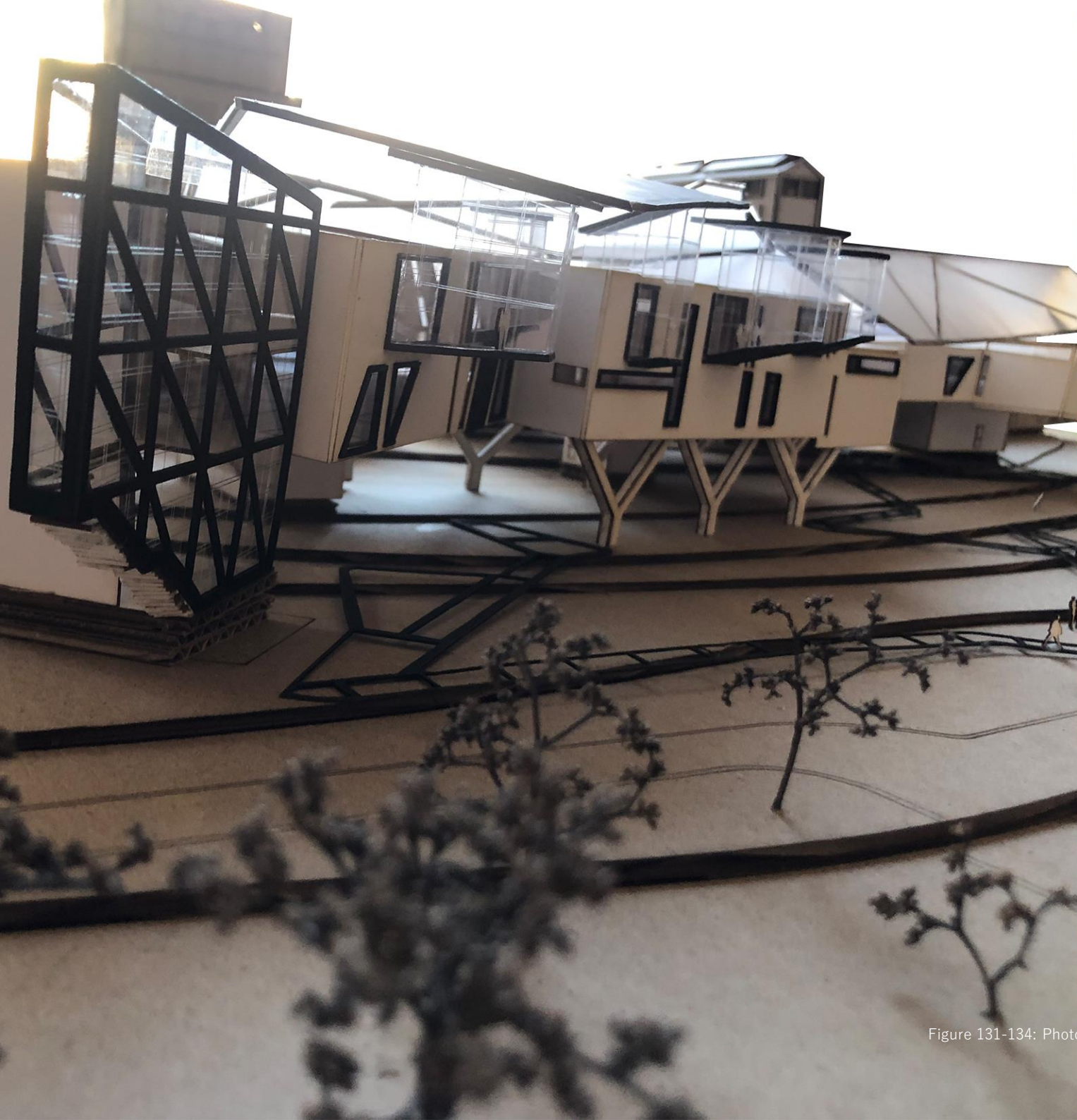
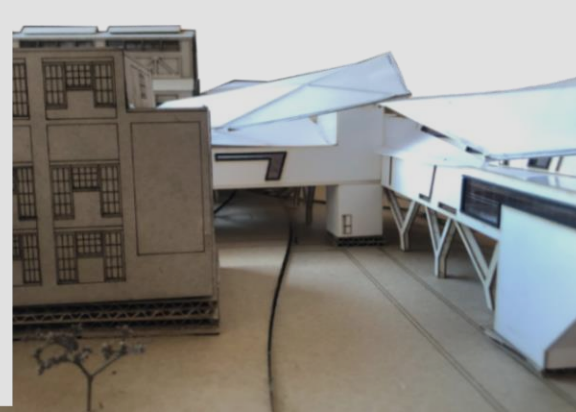
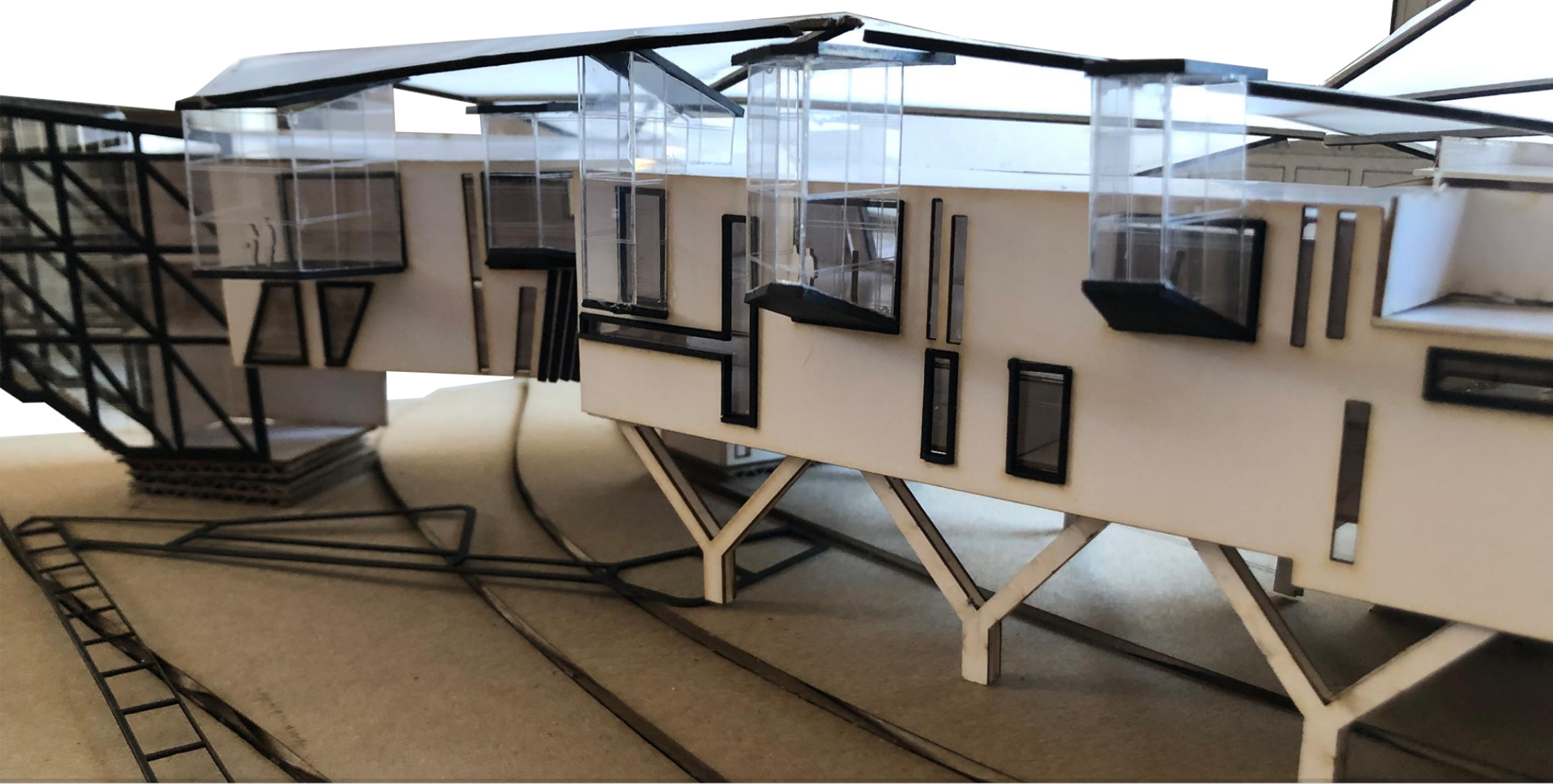


Figure 131-134: Photographs of model (Author, 2022)



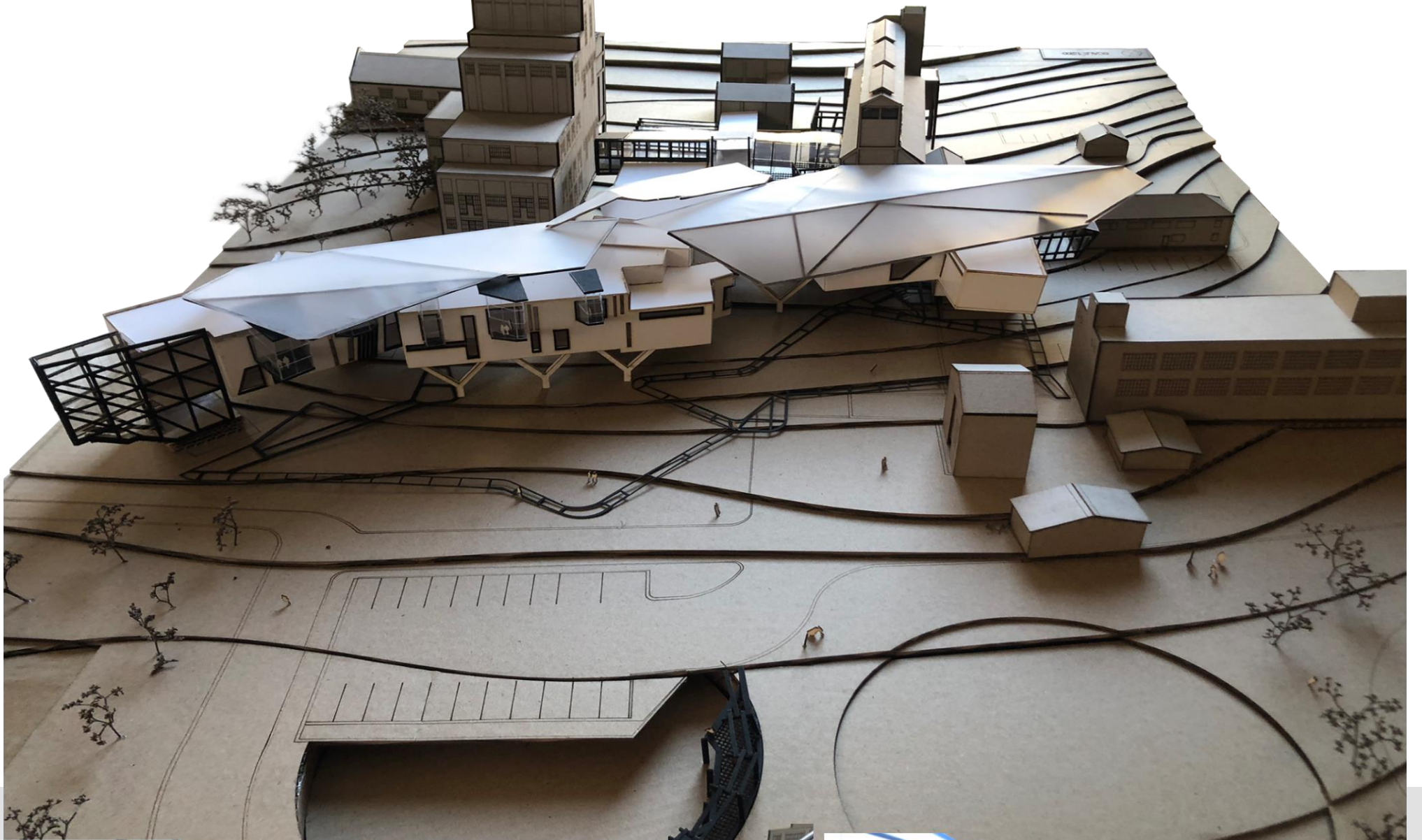


Figure 140-144: Photographs of model (Author, 2022)

TECHNICAL DEVELOPMENT

06

6.1 PRECEDENT STUDY

Project: (Palais de justice) Bordeaux Law Courts
Architects: Richard, Strik, Harbour & Partners
Location: Bordeaux, France
Year Completed: 1998

Roger Strik Harbour and partners designed the Bordeaux law Courts in the Historical city in 1992. Architects wanted to create openness and transparency that established an optimistic view of the French judicial system. The complex project called for the thorough separation of judicial and public circulation. (RSHP, 2022: Online)

The essential component of the building was to ensure transparency for easy orientation, making the judicial building more approachable. It was important for the project to respond to the existing environment with significant historical value. The building is situated against Cours d'Albert street, which is one of the busiest streets in the city; the rest of the site is surrounded by medieval walls that open towards public space to frame views towards Bordeaux centre and cathedral (RSHP, 2022: Online)

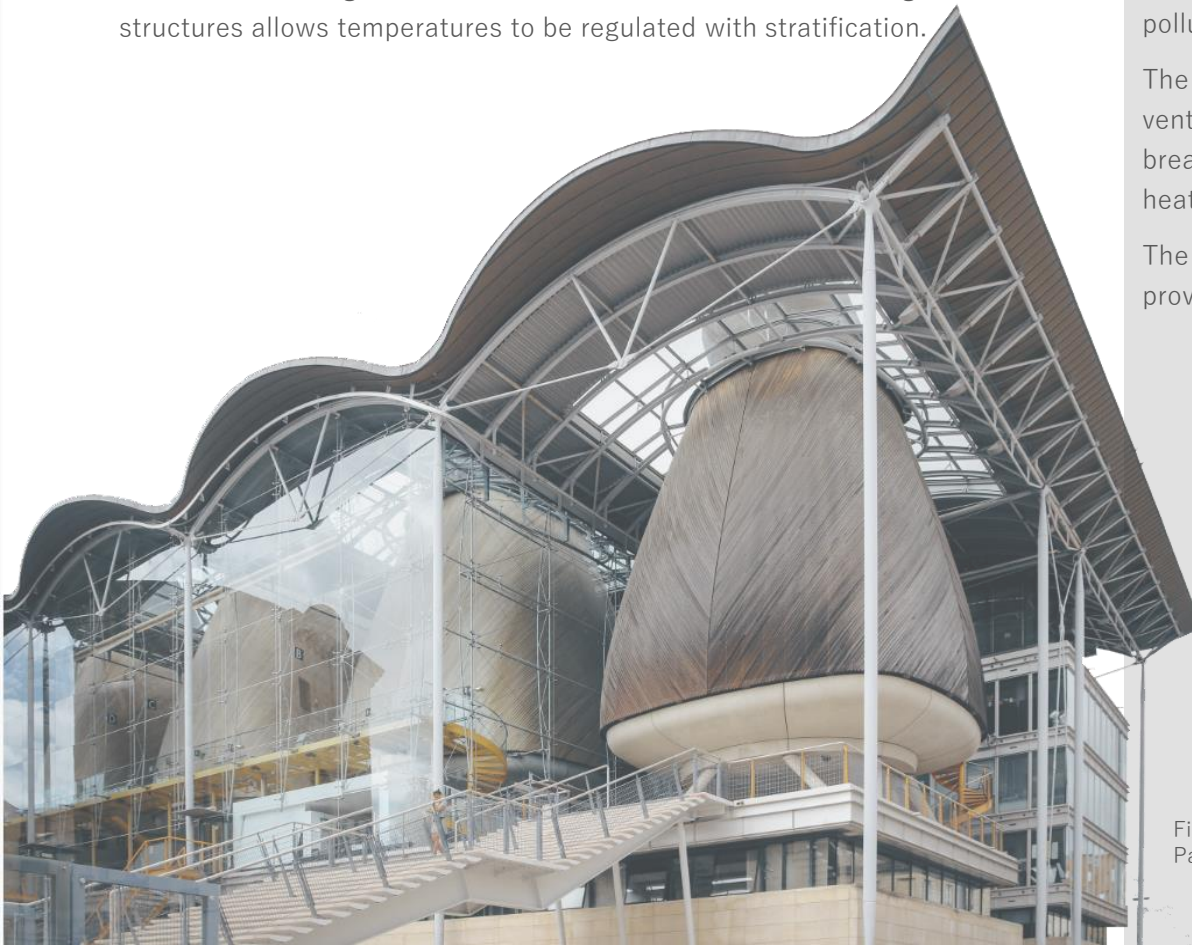


Structure & Sustainability

Passive design strategies

Passive design strategies were implemented into the design, to limit the use of standard air-conditioning, which will in turn reduce the running costs and create comfortable spaces. The atrium in the building performs as a barrier to polluted air and noise from the urban environment. The air is cleaned and humidified through the artificial waterfall that filters the air in the building.

The passive energy systems are used in the pods that are shaded by the extensive roof and manually controlled brise-soleil windows that are placed along the western façade to decrease solar gain. The cone-like structures allow light to filter into the courtrooms, and the height of the structures allows temperatures to be regulated with stratification.



The pool performs as a heat-sink and the air extracted from the offices moves through a heat-interchange. The hollow rib concrete slabs allow the air from the atrium to pass through to the offices, which offers heating or cooling. The ventilation of the courts is achieved through the stack effect, where fresh air enters through mechanical processes and the warm air rises through to the roof that is supported by the cone form giving. (RSHP, 2022: Online)

The building is orientated to allow for the highest amount of natural light to filter into the building, whilst protecting the exposed glazed areas from the summer sun. The office wing, situated next to the street screens off pollution and noise.

The chambers are enclosed with a glazed envelope, that is fitted with ventilation and sun screening devices within the roof to act as a breathing vessel. The concrete offices and podium add to the passive heat control approach. (RSHP, 2022: Online)

The facades are fitted with manually functioning aluminium louvres, that provide shade and reduce the extent of solar gain to the offices.

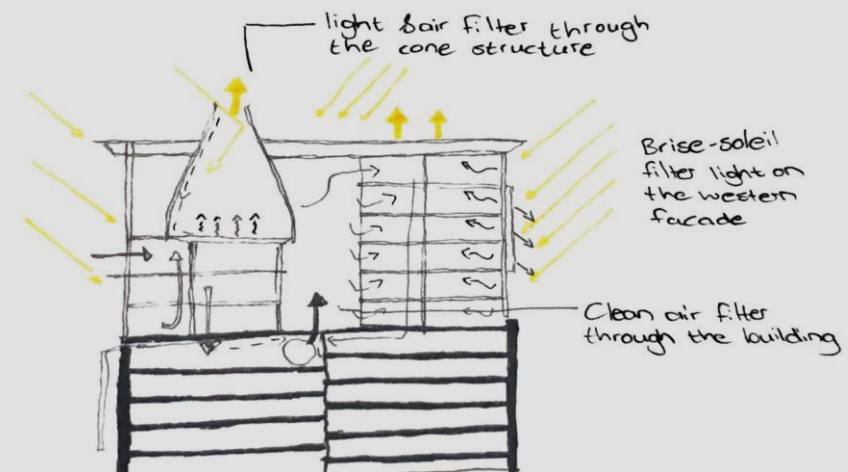


Figure 146-147: Exterior perspective: (Tsagkaropoulos, 2019: Online Passive design strategy (Author, 2022)

Materiality

Form and function

There are seven courtroom pods cladded in cedar, that are elevated on politis above the limestone plinth, contained in a glass curtain wall underneath a rippling roof (RSHP, 2022: Online).

The use of irregular form-giving, and natural materials allow the building to respond to the existing urban environment that incorporates a section of Bordeaux's medieval wall. The internal curved panels on the laminated beam structure are constructed with maple veneering. The exterior is contrasted with western red cedar strips, that were fixed and constructed by artisan carpenters (RSHP, 2022: Online).

The administrative functions are enclosed in a five-storey rectilinear building alongside the street. The roof hovers over the building and generates a clear vessel of parts and volume in which public areas are arranged.

The architectural components are enclosed in a steel frame structure with a 76m long glazed wall, that reveals the view of the courtyards. The building is covered with a copper-cladding undulating roof, that shapes a terrace over the staircase situated between the administrative wing and exterior courtyard.

The exterior light-weight steel framed roof is contrasted by the interior courts, which are naturally lit from above. The courts are narrow in section but are rounded in plan view, the shape of the courtrooms resonates with the medieval towers next to the building. The courts are supported by the politis that are located behind the virtually invisible glass curtain wall; the conical profile pierces the roof to allow for natural air to filter through. (RSHP, 2022: Online)

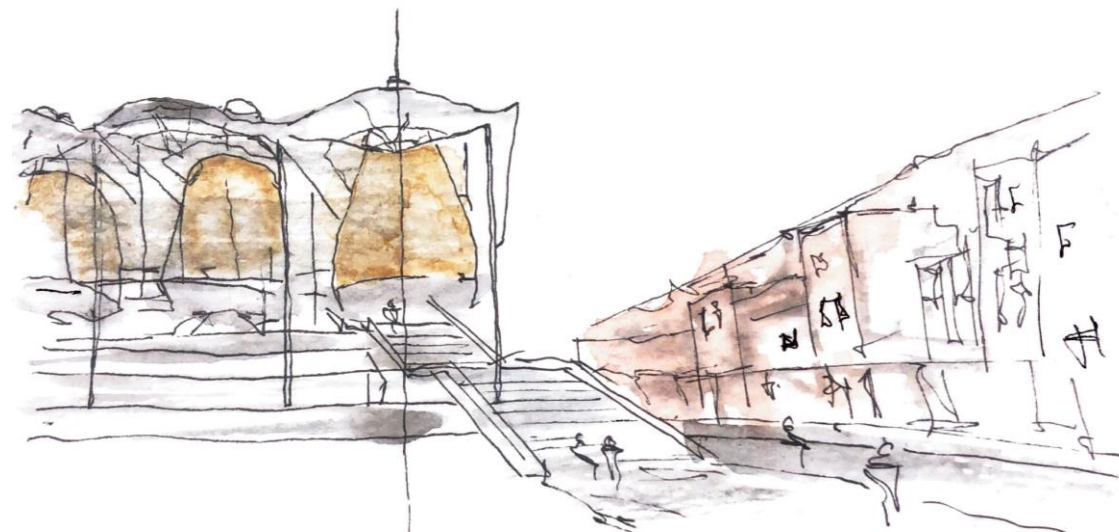
Structure

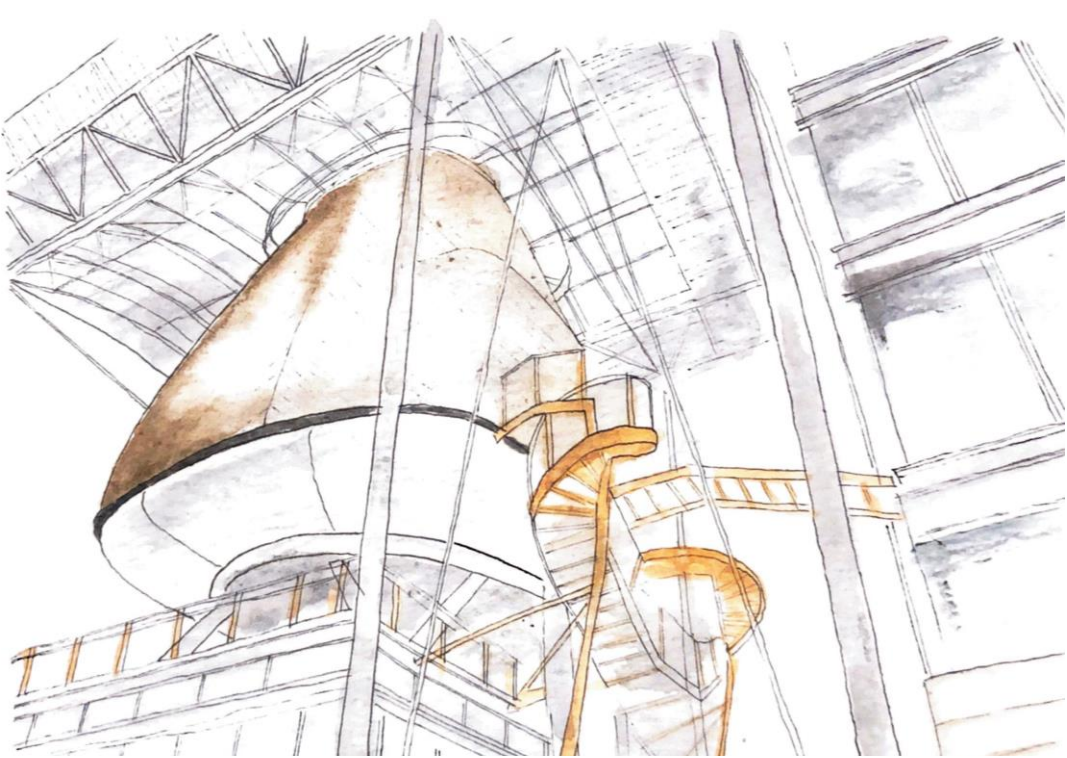
Circulation and User Requirements

An essential aspect of the project involves the construction of public space and the amalgamation of the building with the existing urban environment. Public access to the building is through a flight of stairs to the side of the building, which leads to the 'Salle des Pas Perdus', located in the centre building, where the clients, the public, and lawyers gather. (RSHP, 2022: Online)

Bridges span across the atrium between administrative offices for circulation space. The simplicity and clarity of the plan guarantee that numerous routes through the atrium can be provided for public and magistrate use. The enclosed volume conveys the different circulation routes. The central space in the court where clients, lawyers and officials meet (Salle des Pas Perdus) is connected to the existing building; the discernability of the vertical circulation is essential to the arrangement of the building and a direct representation of the judicial process.

The circulation area for judges is separated and secured from the public through bridges that span across the void, and the public's entrance is an elevated walkway adjacent to the courtyard. Public space is arranged around the courtroom vessel structures, situated on a plinth of 2 levels of office spaces. (RSHP, 2022: Online)





Conclusion

The Bordeaux Law Courts can be investigated for the separation of circulation between public and private is an essential element to consider when designing mixed-use buildings like a fashion design school and textile recycling hub. A separating feature needs to be implemented to create boundaries between the public and the production line, although it is essential to note that the building has transparent components that allow the user to engage with the functions of the interior.

The curtain wall can be considered skin, and the cone-like court is skin within a skin. The project aims to consult form-giving that contrasts the exterior skin. The building is situated on a historically significant site, which was important to consider when designing the building. The Johannesburg Gas Works is a prominent site in Johannesburg; the project needs to respond to the existing that can transpire with the use of translucent skins.

The elasticity within the design can be explored with the different circulation routes and forms of the structures. The structuring of the building allows the users to be guided through the building with ease.

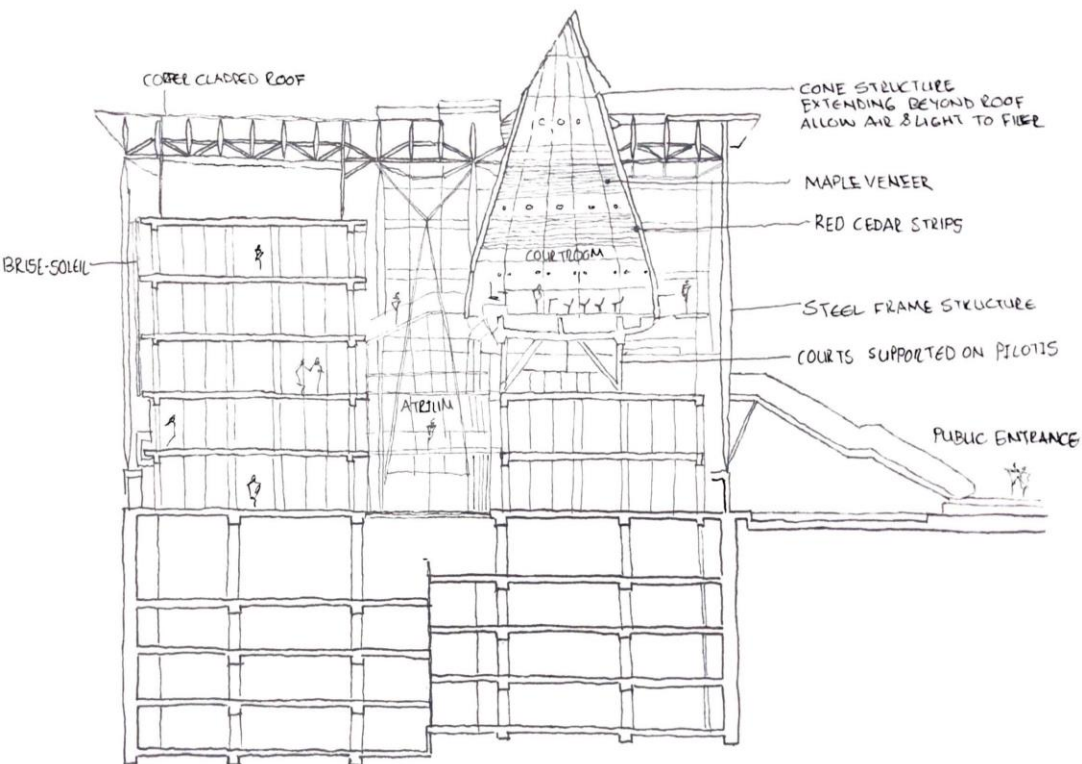


Figure 149-151: Exterior drawing and section (Author, 2022). Interior circulation (Tsagkaropoulos, 2019: Online).

Project: The Vanke Center/ Horizontal Skyscraper
Architects: Steven Holl Architects
Location: Shenzhen, China
Year Completed: 1998



6. CONSTRUCTION AND DETAILING

The Vanke Center building appears to float over the landscape garden below as it is supported on eight legs.

The horizontal skyscraper uses the idea of a floating floor level, the building stretches over the landscape horizontally but the vertical is situated lower to the ground as there were height restrictions that the building had to comply with (Yu, 2013:124).

Construction components

- Steel beams are used on the first floor to resist cracking
- Reinforced concrete beams on the floor above creates a more suitable selection to organise structural warps.
- Pre-stressed cables decrease the bending moment at the foot of the columns.
- 2 structural expansion joints (100mm) are positioned between the tube and wall to allow for lateral movement.

Main Structure

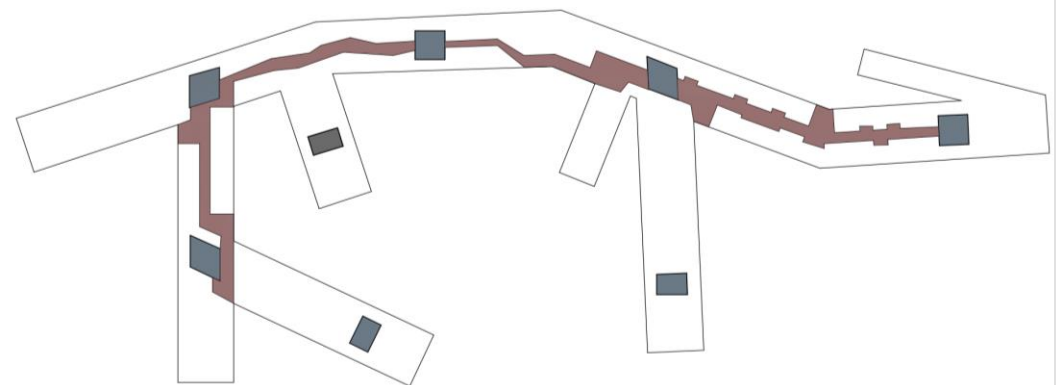
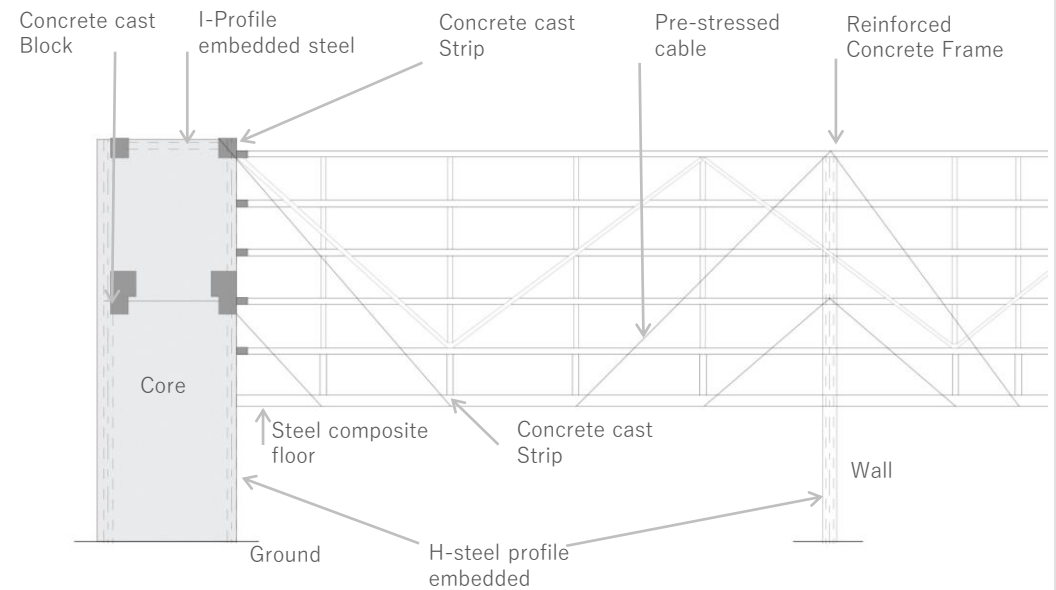
The concrete frame and cable-stay bridge construction used in the 8 cores are spread out under the building to increase the area available on the ground floor.

The building is suspended on the cores that are spaced out as far as 50m.

Casted steel joints are incorporated into the long-span steel trusses. The joints are welded with structural steel on the inside and secured with a top joint in the wall. The joint at the bottom is secured with welded two-storey steel beams.

Raft foundations were used to resist uplift forces and transmit the bearing pressure of the building load over a large footprint to the soil.

Lateral loads are resisted on the outside with primary truss-beam and truss-brace systems. Horizontal diagonal beams on the first and roof storeys contribute to horizontal stability (Yu, 2013:124).



- Continuous circulation space connecting various functions
- Eight Cores

Figure153-154: Section, indicating the structural components, Diagram of the floor plan indicating the cores and main circulation space (Author, 2022).

6.2 TOUCHSTONE



The construction touchstone was developed to explore the themes of skin and fashion with a structural foundation. The touchstone is a physical model that was generated to express theoretical ideas or themes through construction. It aims to encapsulate what the building aims to achieve, and traces of the model can be found in the building. The touchstone was consulted throughout the design development in conjunction with the theoretical explorations to create a design that synthesises the three models.

The construction touchstone engages and reinterprets the essence of the design concepts and touchstone to create a physical model that can be explored structurally.

Skin is applied to the new building to create a protective layer for the users against the harsh conditions of the site. The contamination of asbestos and industrial waste created opportunities and threats to the site that can be explored structurally. The skin allows the users to engage with the surrounding context as the skin creates a porous barrier to the external environment.

The model indicated the possible application of framed structures clad with porous skin. The model indicates that the frame is secured to the building and the materiality of the model point towards perforated metal sheeting fixed to steel frames.



Figure156: Construction Touchstone (Author, 2022)

6.3 CONSTRUCTION PROCESS WORK

Engineer Crit

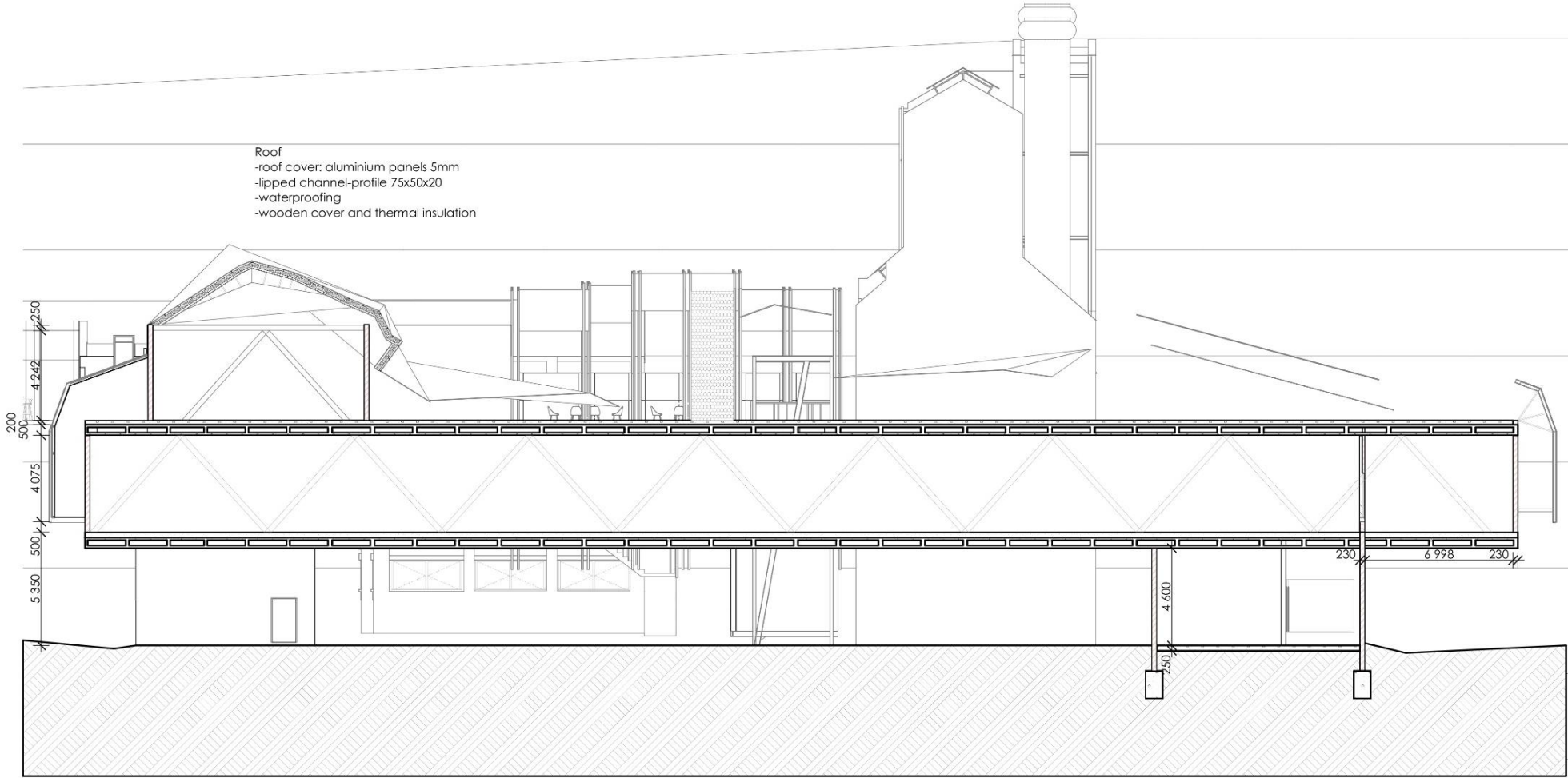


Figure157: Section development for Engineer crit (Author, 2022).

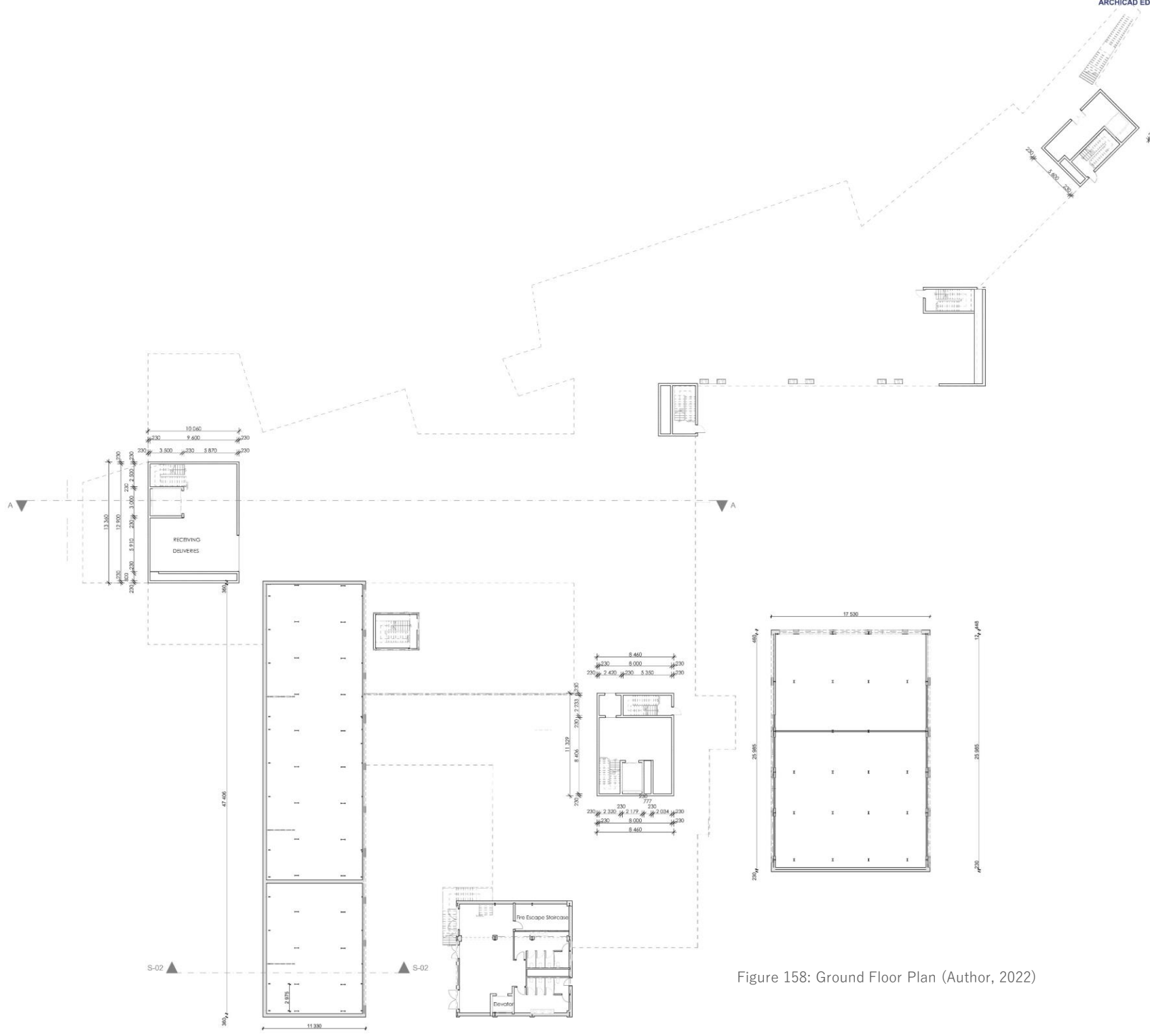


Figure 158: Ground Floor Plan (Author, 2022)

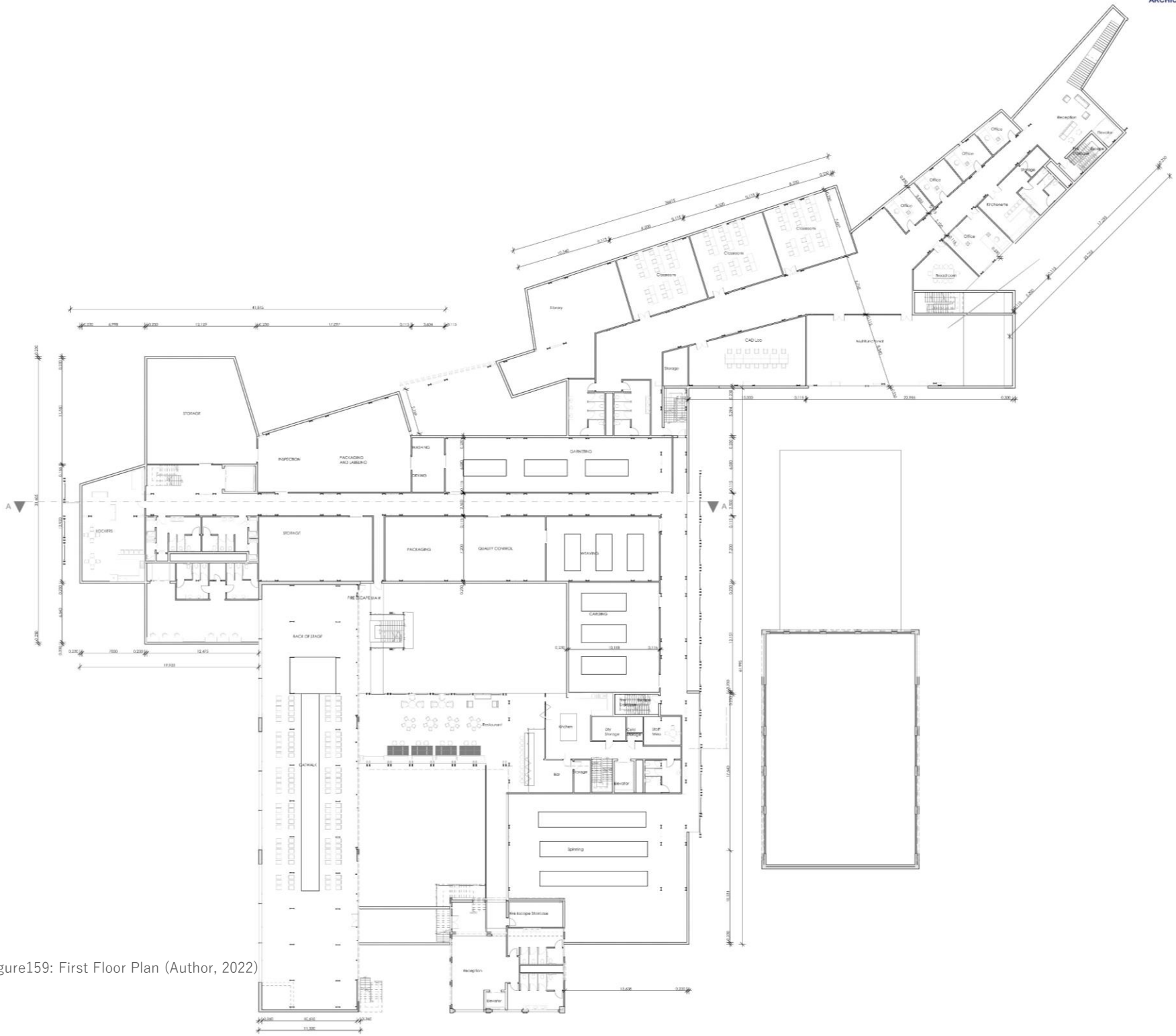


Figure159: First Floor Plan (Author, 2022)

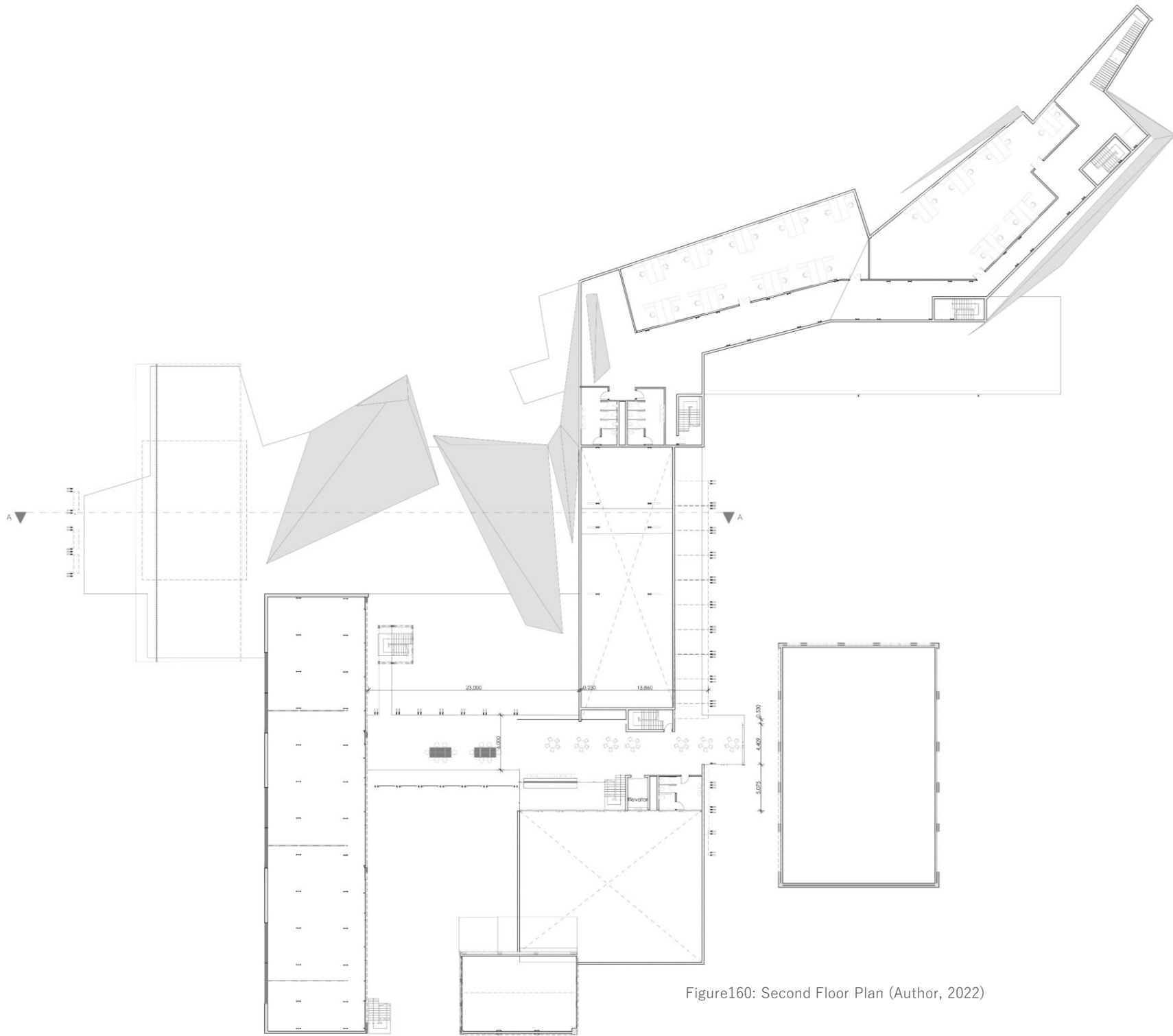
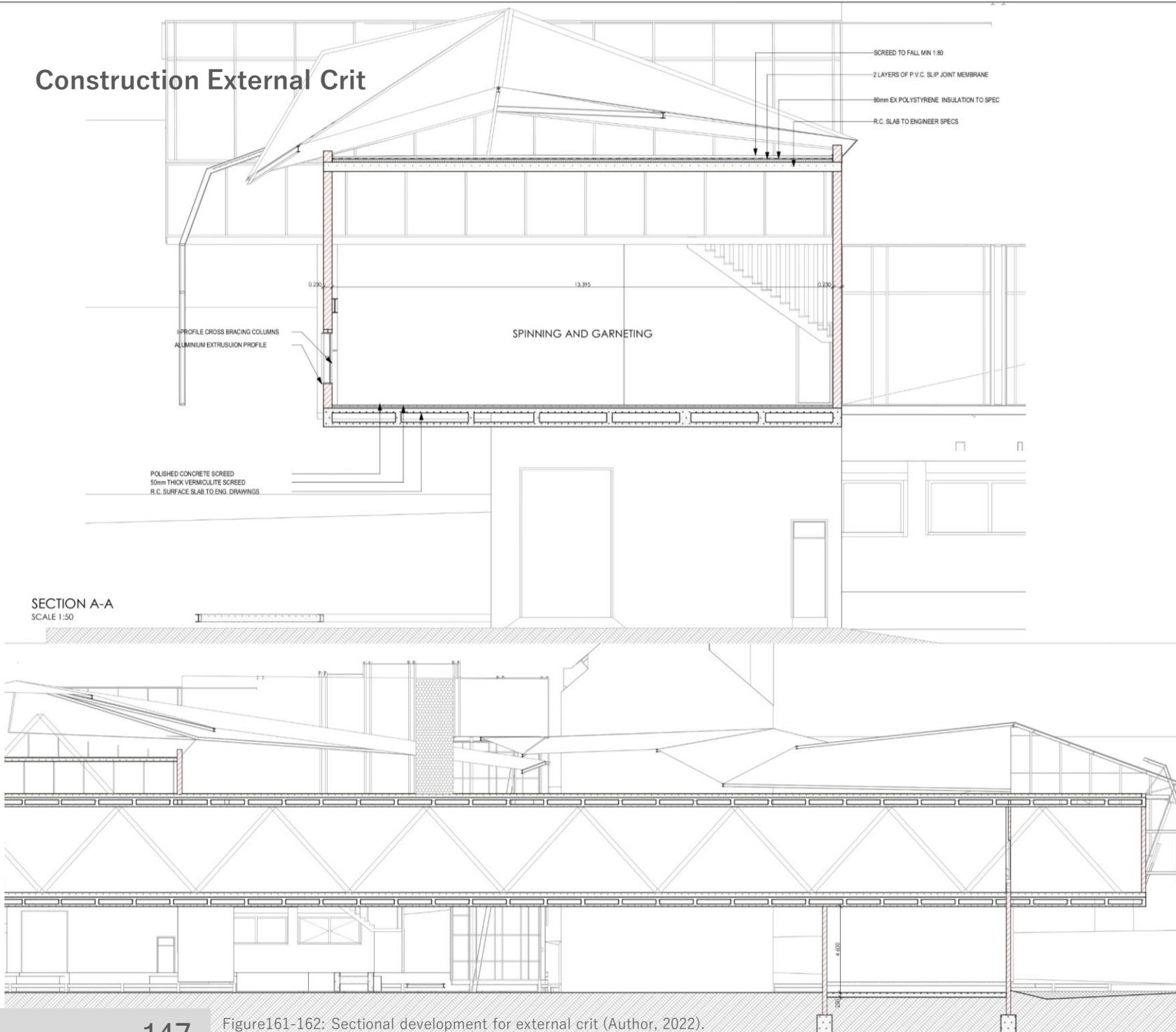


Figure160: Second Floor Plan (Author, 2022)

Construction External Crit



NOTES ARCHICAD EDUCATION VERSION TO

- NOTE: SETTING OUT OF ALL PERIMETER BOUNDARY WALLS TO BE ACCORDING TO LAND SURVEYORS PLANS AND AS APPROVED BY THE CLIENT
- CONSTRUCTION**
- C1. REINFORCED CONCRETE STRUCTURAL STEELWORK INCLUDING CONNECTIONS OF ALL BEAMS AND COLUMNS TO BE ACCORDING WITH THE STRUCTURAL ENGS DESIGN AND SPECS
 - C2. ALL MECHANICAL VENTILATION TO BE ACCORDING TO ENGS DETAILS AND SPECS
 - C3. TO ALL WALLS AT FLOOR LEVELS UNDER WINDOW CELLS AGAINST RETAINING WALLS CHANGES IN FLOOR LEVELS. BELOW CONCRETE SURFACE BEFORE AT JUNCTIONS OF FLOOR LEVELS.
 - C4. ALL CHANGES TO BE IN ACCORDANCE WITH SANS 5000 PART 1 AND SANS 10400 PART 1 AND SANS 10400 PART 2 TO BE IN ACCORDANCE WITH THE STRUCTURAL ENGS DESIGN AND SPECS
 - C5. WINDPROOFING OF ALL ROOFS TO BE ACCORDING TO ENGS DESIGN AND SPECS
 - C6. WATERPROOFING OF ALL ROOFS TO BE ACCORDING TO ENGS DESIGN AND SPECS
 - C7. FITTED ROOFING WITH STEEL OR TILED COVERING TO BE WATERPROOFED AGAINST RAINFALL WITH 2mm GCS FLASHING AND COVER FLASHING AND ALL JOINTS BE SEALED ACCORDING TO MANUFACTURERS SPECS
- SEWER AND WASTE WATER**
- W1. ALL PLUMBING WORK TO BE CARRIED OUT BY LICENSED PLUMBERS AND ENGINEERS TO COMPLY WITH SANS 10400 PART 1
 - W2. ALL CHANGES TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH
 - W3. ALL HOT AND COLD WATER RETICULATION, BULL HEADS AND STORE WATER TANKS TO BE ACCORDING TO ENGS DESIGN AND SPECS
 - W4. VENT PIPES TO EXTEND 3m ABOVE ANY WINDOW OR DOOR OPENING IN THE BUILDING OR OTHER BUILDING ADJACENT TO THE BUILDING
 - W5. TO ALL BENDS AND JUNCTIONS OF SOIL AND WASTE PIPES
 - W6. TO BE TO THE FRONT OF DRAINS AND AT A MAX 200m INTERVALS ALONG RUNS OF DRAINS
 - W7. REEVAL TRAPS TO ALL WASTE FITTINGS
 - W8. TO COVERED AT GROUND LEVEL FITTED 80 AND 100mm DIA
 - W9. TO BE ACCORDING TO ENGS DESIGN AND SPECS
 - W10. MIN FALL OF 1:100 LONG DRAINS TO BE 140, WITH A MIN COVER OF 300mm
 - W11. ALL DRAINS TO BE COVERED WITH BRICK GRATES
 - W12. SOIL DRAINS UNDER DRAINAGE SLABS TO BE FITTED IN PVC CHAMBER FILLED WITH CRUSHED STONE AND PVC COVER WITH 100mm DIA
 - W13. ALL BRANCH DRAINS EXCEEDING 8m IN LENGTH TO BE IDENTIFIED
 - W14. UPVC SEWER PIPES TO SANS 701 CLASS M STANDARDS AND Laid IN ACCORDANCE WITH THE MANUFACTURERS DETAILS AND SPECS
 - W15. HOT AND COLD WATER PIPES FOR INTERNAL RETICULATION TO BE CLASS 1 COPPER LIBRAL AND REGULATE TO ENGS DESIGN
- FIRE PROTECTION**
- F1. ALL WORK TO COMPLY WITH SANS 5405 1980, OCCUPANCY CLASSIFICATION
 - F2. INSTALLATION OF FIRE EQUIPMENT TO BE ACCORDING TO SANS 5405 FOR EXTINGUISHERS, SANS 5405 FOR FIRE HOSE REELS AND SANS 108 PART 1 FOR HYDRANTS
 - F3. STRUCTURAL ELEMENTS AND COMPONENTS TO COMPLY WITH REQUIREMENTS AS SPECIFIED IN THE NATIONAL FIRE REPORT AND SANS 10400-1:1 AND TO HAVE FIRE STABILITY OF MIN. 60 MINUTES
 - F4. PORTABLE FIRE EXTINGUISHERS TO BE HUNG ON PURPOSE MADE BOARDS AND USED IN SECURE POSITIONS AS INDICATED ON THE PLAN AT A HEIGHT NOT EXCEEDING 1.8m
 - F5. FIRE HYDRANTS TO INCLUDE 70mm DIA LAR WITH DOUBLE HEADED BOOSTER CONNECTION PRESSURE GAUGE AND VENTURE VALVE TO ENGS SPECS
 - F6. SMOKE CONTROL AND DETECTION TO BE ACCORDING TO ENGS DESIGN AND SPECS AND NATIONAL FIRE REPORT
 - F7. EMERGENCY LIGHTING TO BE INSTALLED ACCORDING TO ENGS DESIGN AND SPECS
 - F8. EMERGENCY SAFETY SIGNS TO BE INSTALLED ACCORDING TO ENGS DESIGN AND SPECS
 - F9. FIRE EXITS TO BE FITTED WITH EMERGENCY EXIT LOCKETS
 - F10. ALL CLASSES OF FIRE EXITS TO COMPLY WITH SANS CODE 108 AND TO BE FITTED WITH APPROVED SELF CLOSING OR AUTOMATIC CLOSING DEVICES
- MOVEMENT JOINT**
- M1. ALL MOVEMENT JOINTS ACCORDING TO ENGS DESIGN AND SPECS
 - M2. STRUCTURAL FLOOR OR WALL FINISH TO BE TAKEN OVER EXPANSION JOINTS
- TIMBER**
- T1. TIMBER WALL PLATES TO BE TANKALIZED
 - T2. STRUCTURAL TIMBER TO BE ACCORDING TO SANS 1255 AND HANDED WITH STEELS GRADE LAMINATED TIMBER TO COMPLY WITH SANS 1480
 - T3. THE CONTRACTOR TO PROTECT ALL TIMBER MATERIALS AGAINST WEATHER
 - T4. TRUSS HOLD-DOWN CONNECTIONS, HANGERS AND CLEATS TO BE IN ACCORDANCE WITH ENGS DESIGN AND SPECS
 - T5. THE CONTRACTOR TO CHECK CORRECT FIXING OF ALL SPECIFIED BRACING
 - T6. ALL TRUSSES AND TIMBER LOAD BEARING STRUCTURES TO BE IN ACCORDANCE TO ENGS DESIGN AND SPECS INCLUDING TRUSS HOLD-DOWN CONNECTIONS, HANGERS AND CLEATS

DRAWING TITLE:

DRAWING NAME	SCALE
A101: GROUND FLOOR PLAN	1:200
A102: FIRST FLOOR PLAN	1:200
A103: SECOND FLOOR PLAN	1:200
A 201: SECTION A-A	1:50
A202: SECTION B-B	1:50
A301: ELEVATIONS	1:200
A701: ROOF PLAN	1:100
A702: SITE PLAN	1:500

PROJECT TITLE:

PROPOSED NEW TEXTILE RECYCLING MILL AND FASHION DESIGN SCHOOL IN COTTESLOE 1952 ANNET ROAD, COTTESLOE, JOHANNESBURG, 2092

CLIENT: REWOVEN

REWOVEN
REIMAGINING TEXTILE WASTE

CONS 7908	DRAWING NUMBER:
PROJECT:	A201
DOCUMENTATION	A202
DISSERTATION	
DRAWN BY:	DATE:
SARIESKE COETZER	13 SEPTEMBER 2022
2016027902	

Figure161-162: Sectional development for external crit (Author, 2022).

6.4 CONSTRUCTION AND DETAILING

Materiality

Ethylene Tetra Fluoro Ethylene (ETFE)

ETFE was initially developed for aeronautic use as insulation material. The high light transmission, strength and structural characteristics of ETFE were recognised by the architecture industry and have developed the material as an advancement of polythene sheeting. ETFE is a thin member that can be applied architecturally with different approaches; one is a cable system that supports a single membrane, and another is a cushion of multiple layers that are supported by the main building frame. The cushion has insulation properties due to the continuous pressure that inflates the cushions (Richardson, 2022: Online).

Insulation

Single membranes offer slightly more than a barrier to the external environment, but multilayer cushions have a beneficial amount of insulation. The addition of ETFE foil layers to cushions produces added pockets of air, that increase the U value (Richardson, 2022: Online).

Light transmission

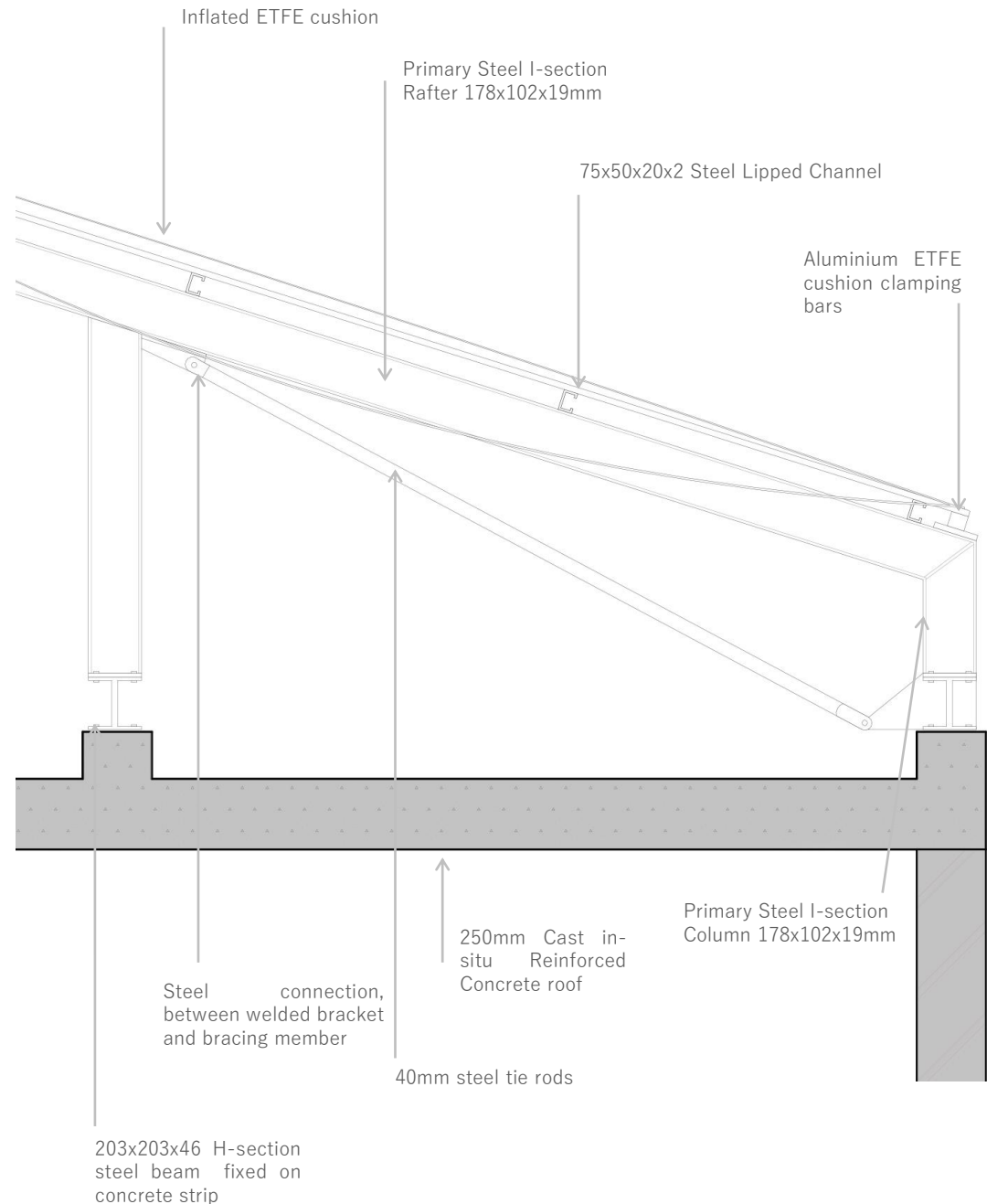
ETFE membranes are inherently translucent, and single layers of medium weight have a light transmission between 90-95% that can lessen once when several layers are inserted. Ultraviolet light transmission is especially good for plant life. The membrane can be used as a passive design strategy due to its quality to absorb infrared light that is transmitted (Richardson, 2022: Online).

Drainage

The curvatures of ETFE structures guarantee that water will drain towards the edge of the roof, where it accumulates and drains away to the primary gutter system (Richardson, 2022: Online).

Fire Performance

ETFE foils have a low flammability rate and are regarded as self-extinguishing. If a fire should occur the foil will not turn into a molten liquid or produce fumes, it will become pliable, weaken and shrink away (Richardson, 2022: Online).



Materiality

Maintenance

ETFE membrane is a non-fragile roof assembly. The foil has outstanding tear resistance, limited notch weakness and stress crack strength. The choice of ETFE membranes instead of conventional fabric structures the reduction of dirt retained on the surface due to its smooth surface and only needs to be cleaned every 2-3 years. ETFE Cushion air handling units are recommended to be serviced twice a year (Richardson, 2022: Online).

Sizing

ETFE foil cushions can be customised to any size or shape, but commonly the cushions can span up towards 3.5m in one direction and as long as needed in the other, however, triangular cushions can span farther. Thicker ETFE foils and exterior and interior cable restraints can be implemented for larger cushions (Richardson, 2022: Online).

Life Expectancy

The life expectancy of ETFE foil is exceptional as it is unaltered by UV light, weathering and pollution. Due to the ETFE being a relatively new structure it has no construction older than 30 years, but research has shown it to have no indication of loss of strength, discolouration, or brittleness, and the life expectancy is projected to be more than 50 years (Richardson, 2022: Online).

Ventilation

Automated opening vents can be combined into the cushion structure or louvres can be fixed to the vertical edge of the roof. Activated panels can be activated and operated when heat intensifies. The panels can additionally be used in the fire strategy to ventilate smoke (Richardson, 2022: Online).

Solar Heat Gain

ETFE has a passive heating effect that is suitable in winter but unsuitable in summer as overheating can occur within the space. The treatment of the membrane can decrease or regulate glare. The manipulation of light can reduce solar heat gain, using matt diffused, fritted, tinted or white ETFE (Richardson, 2022: Online).

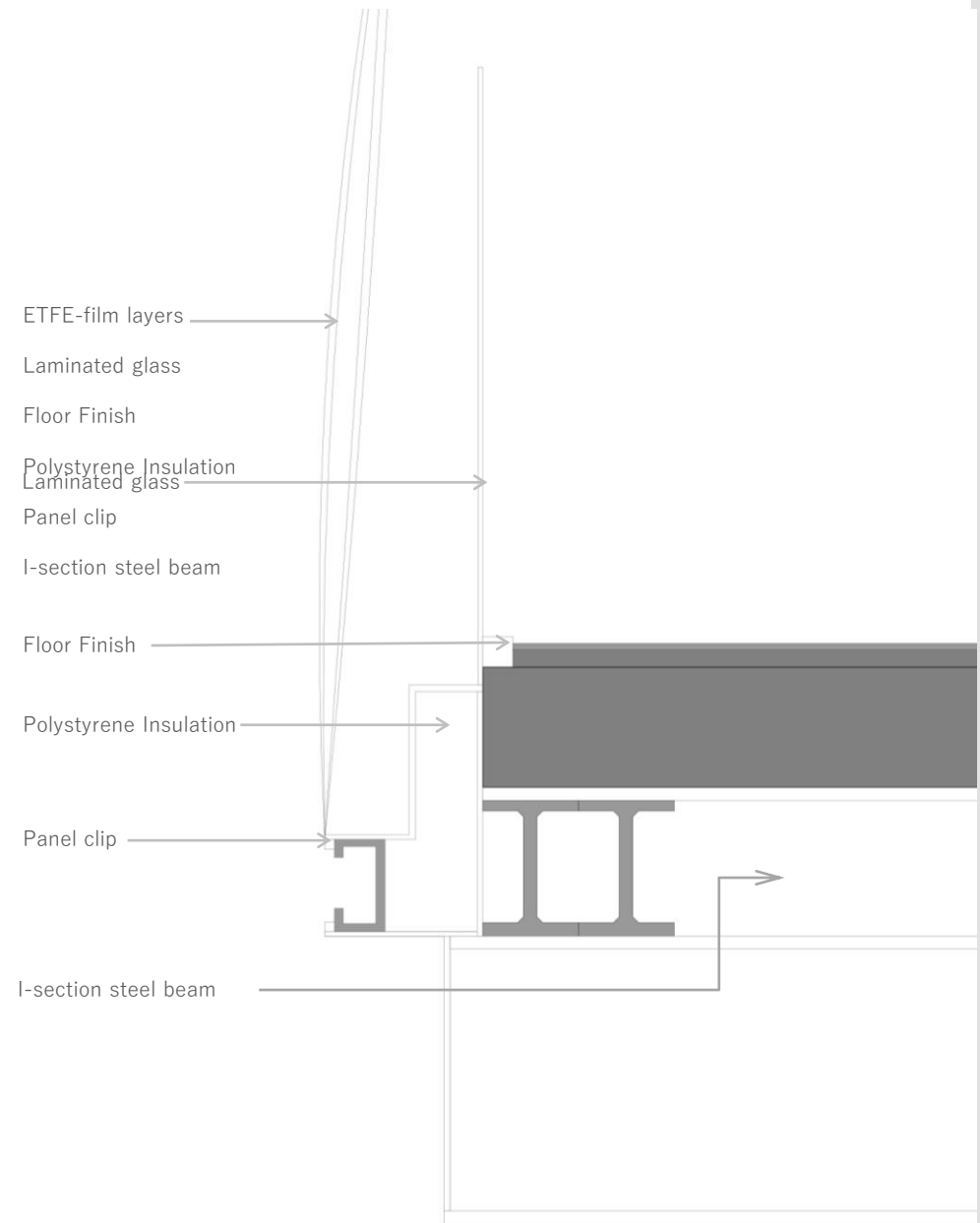


Figure170: Structural Morphology, sectional development of ETFE cushion connection to the wall (Author, 2022).

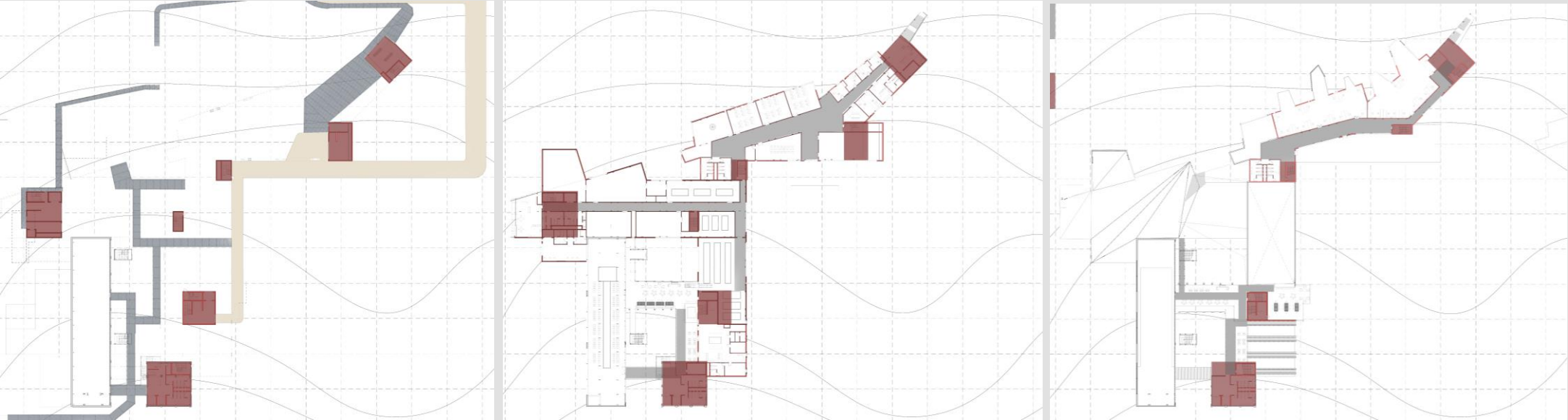
6.5 SPATIAL DEVELOPMENT

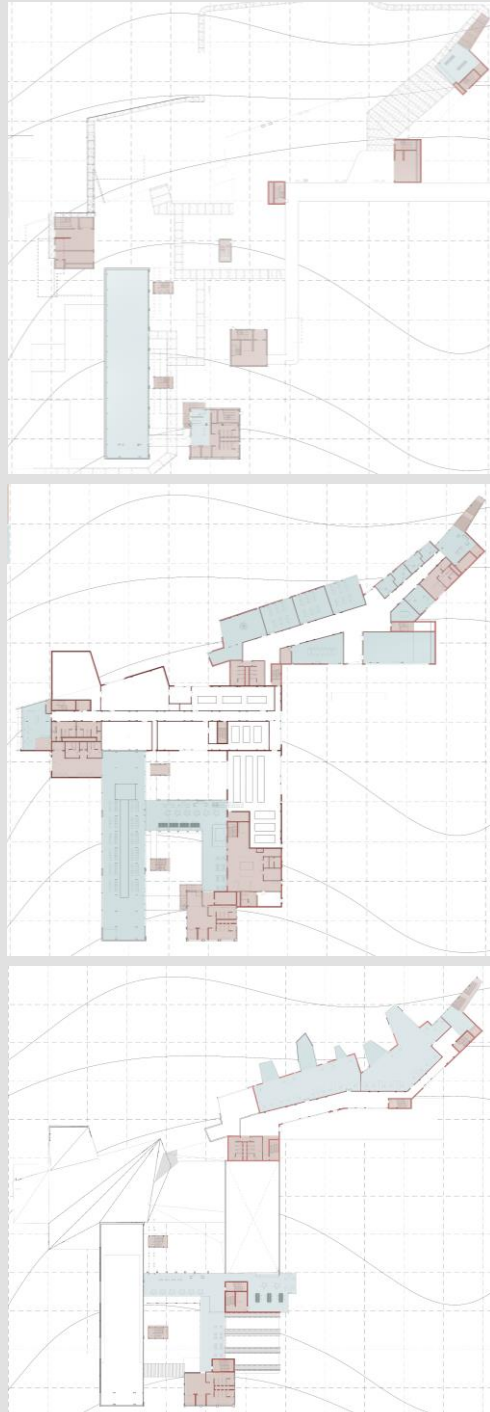
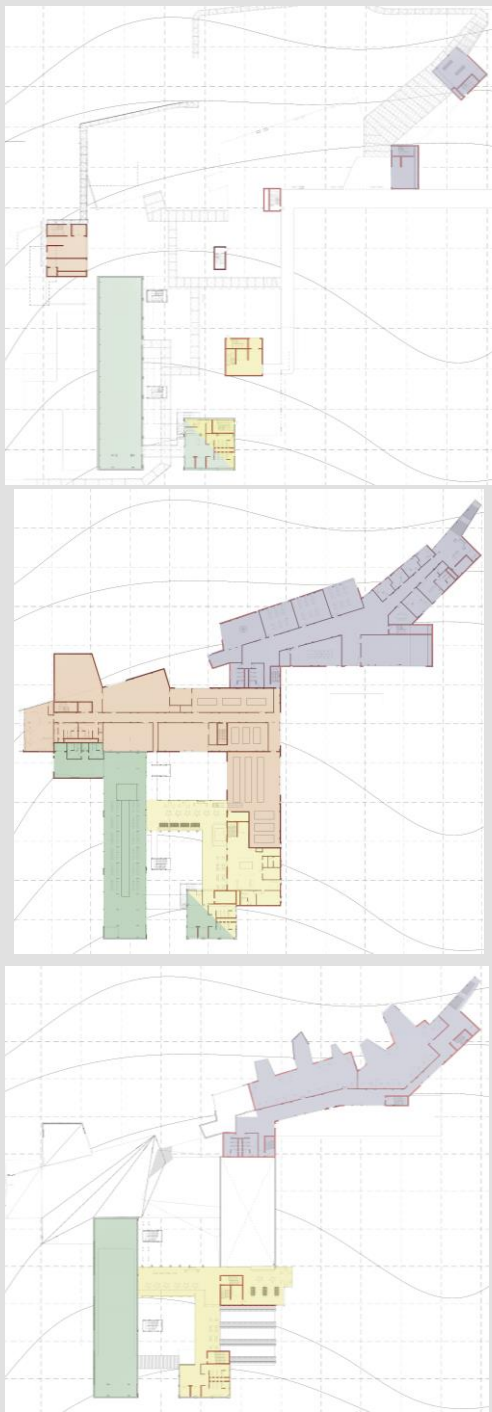


Structural Cores that carry the load



Continuous circulation space connecting various functions

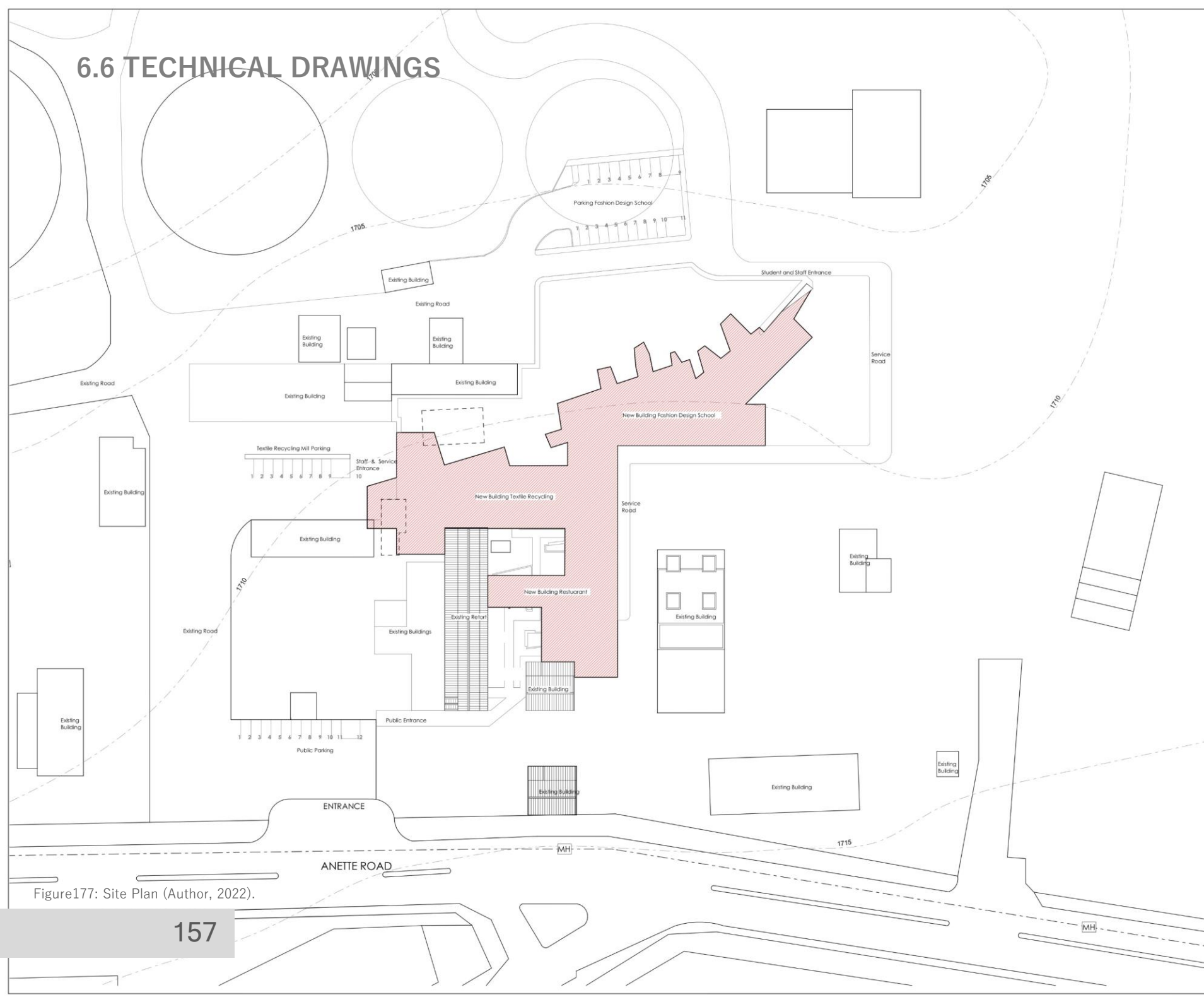




- Restaurant
- Textile Recycling Mill
- Catwalk/ Exhibition
- Fashion Design School
- Services
- Served Spaces
- Fire Escape Staircases

Figure174-176: Left: Core functions, Middle: Serving and served spaces, Right: Fire Escape Staircases (Author, 2022).

6.6 TECHNICAL DRAWINGS



- NOTES**
- NOTE: SETTING OUT OF ALL PERIMETER BOUNDARY WALLS TO BE ACCORDING TO LAND SURVEYORS PLANS AND AS APPROVED BY THE CLIENT
- CONSTRUCTION**
- C1: REINFORCED CONCRETE STRUCTURAL STEELWORK INCLUDING
 - C2: REINFORCED CONCRETE AND MANUFACTURED STRUCTURES, LOAD BEARING MASONRY WALLS AND TIMBER STRUCTURES ALL TO BE IN ACCORDANCE WITH THE STRUCTURAL ENGINEERING DETAILS AND SPECIFICATIONS
 - C3: SPEC TO ALL WALLS AT FLOOR LEVEL UNDER WINDOW COLLS AGAINST RETAINING WALLS AT CHANGES IN FLOOR LEVELS, BELOW CONCRETE SURFACE BESS AND AT JUNCTIONS OF P.C. CONCRETE
 - C4: ALL JOINTS TO BE IN ACCORDANCE WITH SABS 1000 PART 1 AND SABS 204
 - C5: ALL ADHESIVE JOINTS TO BE IN ACCORDANCE WITH SABS 1000 PART 1 AND SABS 204
 - C6: PERMANENTLY MARKED WITH CLASS CODE AND READY VISIBLE
 - C7: WINDOW AREA TO BE MINIMUM 1% OF FLOOR AREA OPENING SECTIONS OF WINDOWS AND DOORS TO BE MINIMUM 1% OF FLOOR AREA OR VENTILATION
 - C8: WATERPROOFING OF FLAT ROOFS TO BE IN ACCORDANCE WITH THE MANUFACTURERS DETAILS AND SPECIFICATIONS
 - C9: WATERPROOFING OF FLAT ROOFS TO BE IN ACCORDANCE WITH THE MANUFACTURERS DETAILS AND SPECIFICATIONS
 - C10: ALL JOINTS TO BE IN ACCORDANCE WITH THE MANUFACTURERS DETAILS AND SPECIFICATIONS
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 - C100: ALL JOINTS TO BE IN ACCORDANCE WITH THE MANUFACTURERS DETAILS AND SPECIFICATIONS

DRAWING TITLE:

DRAWING NAME	SCALE
A101: GROUND FLOOR PLAN	1:200
A102: FIRST FLOOR PLAN	1:200
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PROJECT TITLE:

PROPOSED NEW TEXTILE RECYCLING MILL AND FASHION DESIGN SCHOOL IN COTTESLOE, 1952 ANNET ROAD, COTTESLOE, JOHANNESBURG, 2092

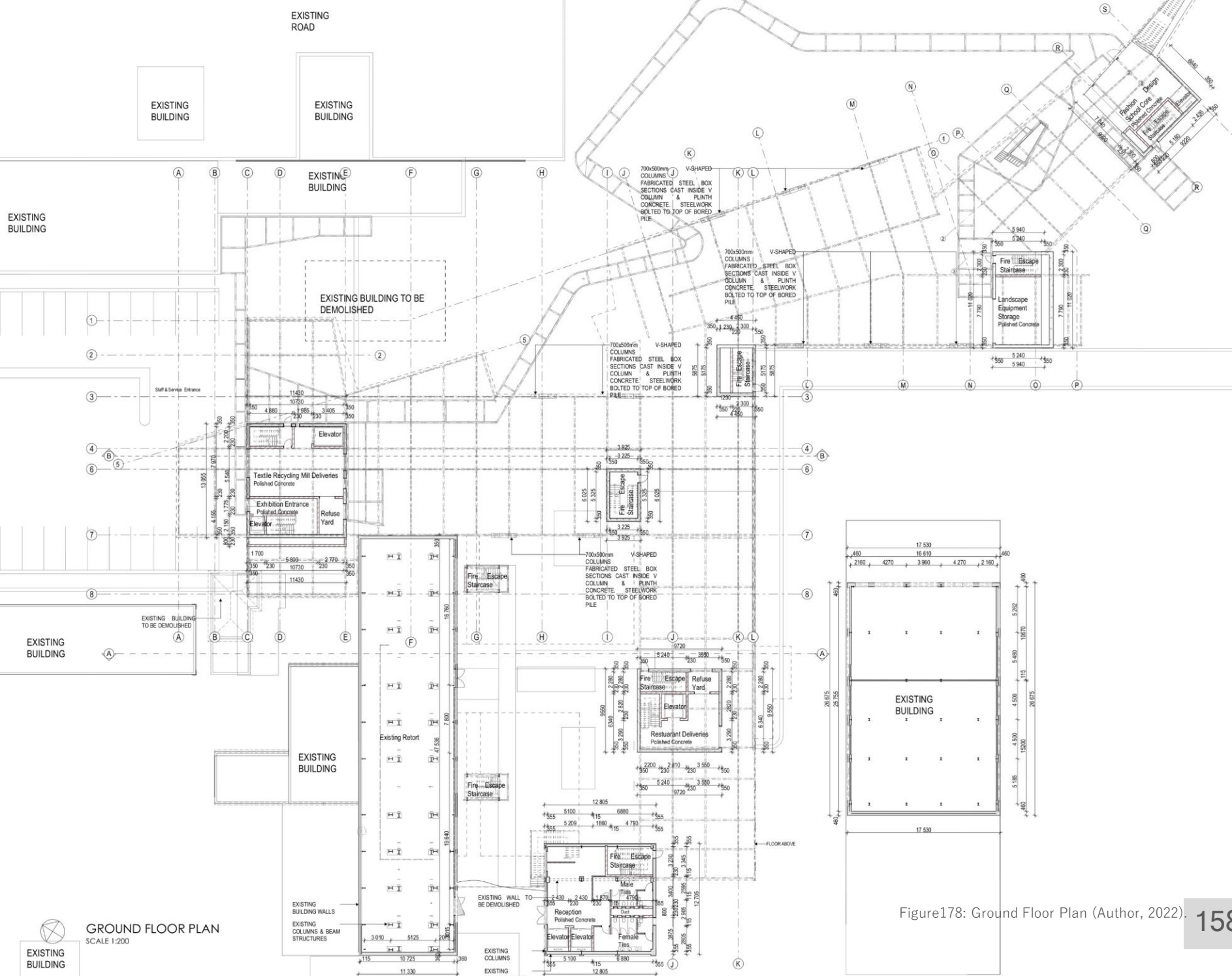
CLIENT: REWOVEN



CONS 7908 PROJECT: DOCUMENTATION DISSERTATION
DRAWN BY: SARIESKE COETZER
 2016027902

DRAWING NUMBER: A702
DATE: 15 NOVEMBER 2022

Figure177: Site Plan (Author, 2022).



- NOTES**
- NOTE: SETTING OUT OF ALL PERIMETER BOUNDARY WALLS TO BE ACCORDING TO LAND SURVEYORS PLANS AND AS APPROVED BY THE CLIENT
- CONSTRUCTION**
- C1. REINFORCED CONCRETE STRUCTURAL STEELWORK INCLUDING RETAINING WALLS AT CHANGE IN FLOOR LEVEL, UNDER WINDOW COLLS AGAINST EXISTING WALLS TO BE ACCORDANCE WITH SANS 1000 PART 1 AND SANS 204 C1. ALL CLADDING TO BE ACCORDANCE WITH SANS 1000 PART 1 AND SANS 204 C1. WINDOW AREA TO BE MINIMUM 10% OF FLOOR AREA. OPENING SECTIONS OF WINDOWS AND DOORS TO BE MINIMUM 1% OF FLOOR AREA OR VENTILATION.
 - C2. WATERPROOFING OF FLOOR ROOFS TO BE ACCORDANCE ACCORDING TO MANUFACTURERS DETAIL AND SPEC.
 - C3. TRIC TO ALL WALLS AT FLOOR LEVEL, UNDER WINDOW COLLS AGAINST EXISTING WALLS TO BE ACCORDANCE WITH SANS 1000 PART 1 AND SANS 204 C1. ALL CLADDING TO BE ACCORDANCE WITH SANS 1000 PART 1 AND SANS 204 C1. WINDOW AREA TO BE MINIMUM 10% OF FLOOR AREA. OPENING SECTIONS OF WINDOWS AND DOORS TO BE MINIMUM 1% OF FLOOR AREA OR VENTILATION.
 - C4. WATERPROOFING OF FLOOR ROOFS TO BE ACCORDANCE ACCORDING TO MANUFACTURERS DETAIL AND SPEC.
 - C5. ALL CHANGES PLANS TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH.
 - C6. ALL CHANGES PLANS TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH.
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 - C100. ALL CHANGES PLANS TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH.

DRAWING TITLE:

DRAWING NAME	SCALE
A101: GROUND FLOOR PLAN	1:200
A102: FIRST FLOOR PLAN	1:200
A103: SECOND FLOOR PLAN	1:200
A 201: SECTION A-A	1:50
A202: SECTION B-B	1:50
A301: ELEVATIONS	1:100
A701: ROOF PLAN	1:100
A702: SITE PLAN	1:500

PROJECT TITLE:

PROPOSED NEW TEXTILE RECYCLING MILL AND FASHION DESIGN SCHOOL IN COTTESLOE, JOHANNESBURG, 2092

CLIENT: REWOVEN



CONS 7908 PROJECT: DOCUMENTATION DISSERTATION

DRAWN BY: SARIESKE COETZER

DRAWING NUMBER: A101

DATE: 15 NOVEMBER 2022

2016027902

Figure178: Ground Floor Plan (Author, 2022).

NOTES

- NOTE: SETTING OUT OF ALL PERIMETER BOUNDARY WALLS TO BE ACCORDING TO LAND SURVEYORS PLANS AND AS APPROVED BY THE CLIENT
- CONSTRUCTION:**
 - C1: REINFORCED CONCRETE STRUCTURAL STEELWORK INCLUDING RETAINING WALLS AT CHANGES IN FLOOR LEVELS, BELOW CONCRETE SURFACE BESS AND AT JUNCTIONS OF P.C. CONCRETE
 - C2: ALL WALLING TO BE ACCORDANCE WITH SABS 1000 PART 1 AND SABS 204
 - C3: ALL ADJACENT EXTERIOR WALLS TO BE FINISHED WITH READY MADE PERMANENTLY MARKED WITH GLASS CODE AND READILY VISIBLE
 - C4: WINDOW AREA TO BE MINIMUM 10% OF FLOOR AREA. OPENING SECTIONS OF WINDOWS AND DOORS TO BE MINIMUM 5% OF FLOOR AREA OR VENTILATION
 - C5: WATERPROOFING OF FLOOR ROOFS TO BE UNDERTAKEN ACCORDING TO MANUFACTURERS DETAILS AND SPECS
 - C6: WATERPROOFING OF ROOF COVERING TO BE WATERPROOFED AGAINST PERIMETER WALLS WITH 2mm GGL FLASHING AND COUNTER FLASHING AND ALL JOINTS SEALED ACCORDING TO MANUFACTURERS DETAILS AND SPECS
- ROOF AND STORM WATER:**
 - R1: ALL ROOFING WORKS TO BE CARRIED OUT BY LICENSED PLUMBERS AND WORK TO COMPLY WITH SABS 1000
 - R2: ALL DRAINAGE PIPES TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH
 - R3: ALL DRAINAGE PIPES TO BE ACCORDING TO ENDS DETAIL AND SPECS
 - R4: ALL DRAINAGE PIPES TO BE ACCORDING TO ENDS DETAIL AND SPECS
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 - R100: ALL DRAINAGE PIPES TO BE ACCORDING TO ENDS DETAIL AND SPECS
- FIRE PROTECTION:**
 - F1: ALL WORK TO COMPLY WITH SABS 3001-1993, OCCUPANT CLASSIFICATION
 - F2: INSTALLATION OF FIRE EQUIPMENT TO BE ACCORDING TO SABS 6105 FOR EXTINGUISHERS, SABS 5481 FOR FIRE HOSE REELS AND SABS 138 PART 1 FOR FIRE ALARMS
 - F3: STRUCTURAL ELEMENTS AND COMPONENTS TO COMPLY WITH REQUIREMENTS AS SPECIFIED IN THE NATIONAL FIRE REPORT AND SABS 1000E1
 - F4: ALL TO HAVE FIRE RESISTANCE OF MIN. 120 MINUTES
 - F5: PORTAL FIRE EXTINGUISHERS TO BE INSTALLED ON PURPOSE MADE DOORS AND WINDOWS IN BUILDING PROXIMITY TO BE INSTALLED ON THE PLAN AREA HEIGHT NOT EXCEEDING 750mm
 - F6: FIRE HYDRANTS TO INCLUDE 15mm PIPES WITH DOUBLE ENDER BOOSTER CONNECTION, PRESSURE GAUGE AND NON-RETURN VALVE TO ENDS SPECS
 - F7: SMOKE CONTROL AND DETECTION TO BE ACCORDING TO ENDS DETAIL AND SPECS AND NATIONAL FIRE DESIGN REPORT
 - F8: EMERGENCY LIGHTING TO BE INSTALLED ACCORDING TO THE ENDS SPECS
 - F9: SMOKE C.S. SAFETY DOORS TO BE IN ACCORDANCE WITH SABS CODE 11M AND POSITIONING AS REQUIRED BY THE FIRE DEPARTMENT
 - F10: ALL DOORS TO BE FITTED WITH EMERGENCY EXIT LOCKERS
 - F11: CLASS B FIRE DOORS TO COMPLY WITH SABS CODE 12S AND TO BE FITTED WITH APPROVED SELF-CLOSING OR AUTOMATIC CLOSING DEVICES
- MOVEMENT JOINTS:**
 - M1: ALL MOVEMENT JOINTS ACCORDING TO ENDS DETAIL AND SPECS
 - M2: NO STRUCTURAL FLOOR OR WALL FINISH TO BE TAKEN OVER EXPANSION JOINTS
- TIMBER:**
 - T1: TIMBER WALLS SHALL BE TANKALIZED
 - T2: STRUCTURAL TIMBER TO BE IN ACCORDANCE WITH SABS 1285 AND MARKED WITH STRESS GRADE, DAMAGED TIMBER TO COMPLY WITH SABS 1000E1
 - T3: THE CONTRACTOR TO PROTECT ALL TIMBER MATERIALS AGAINST WEATHER AND PESTS THROUGHOUT CONSTRUCTION, HANDLING AND CLEARANCE TO BE IN ACCORDANCE WITH ENDS DETAIL AND SPECS
 - T4: THE CONTRACTOR TO CHECK CORRECT FIXING OF ALL SPECIFIED BRACING
 - T5: ALL BRACES AND TIMBER LOAD BEARING STRUCTURES TO BE IN ACCORDANCE TO ENDS DETAIL AND SPECS, INCLUDING TRUSS HOLD-DOWN, CONNECTIONS, HANDS AND GLETS.

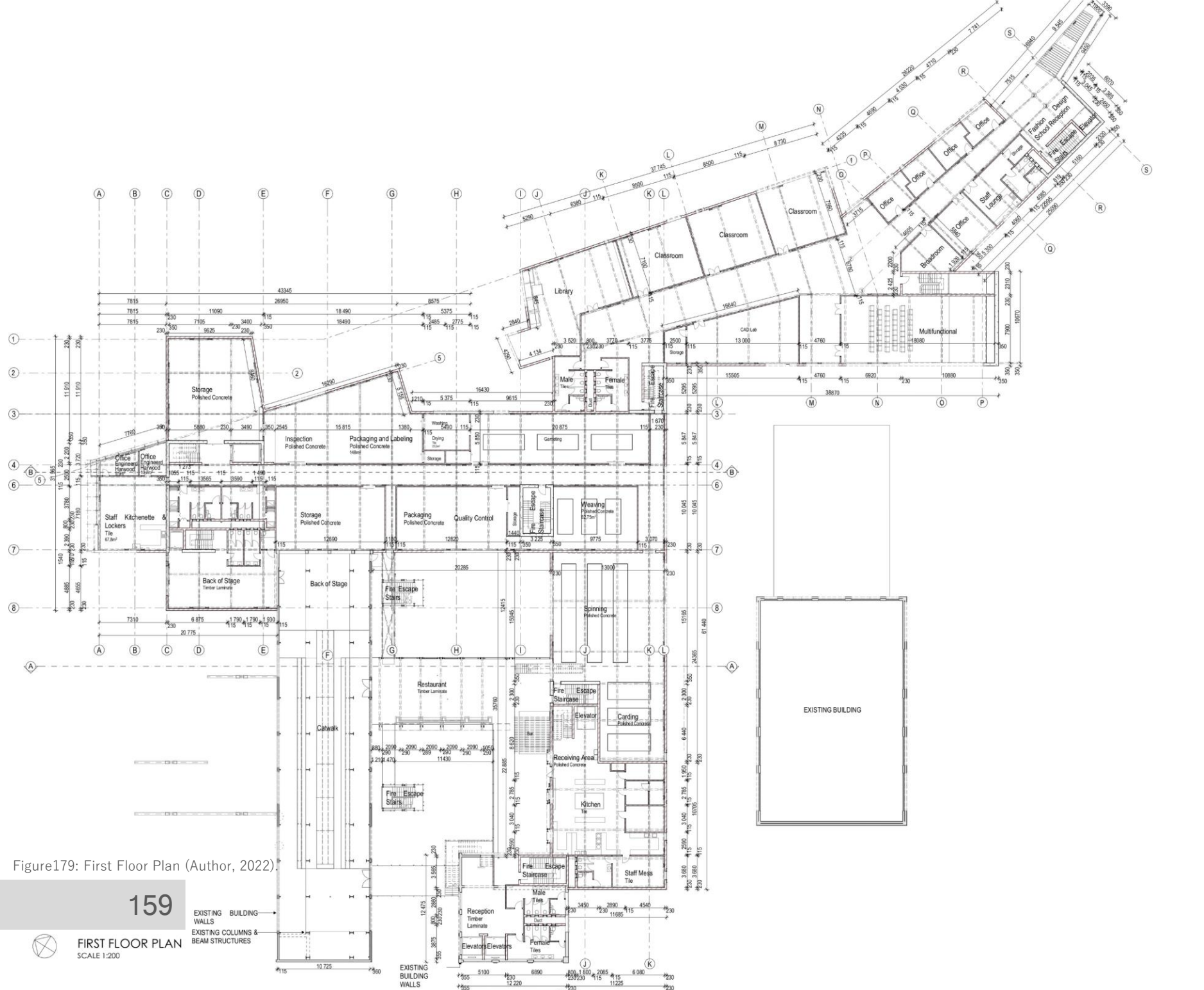


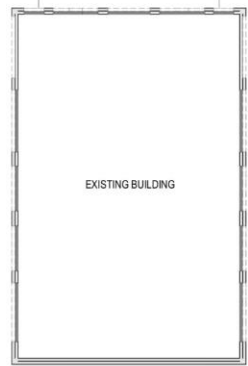
Figure179: First Floor Plan (Author, 2022).

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FIRST FLOOR PLAN
SCALE 1:200

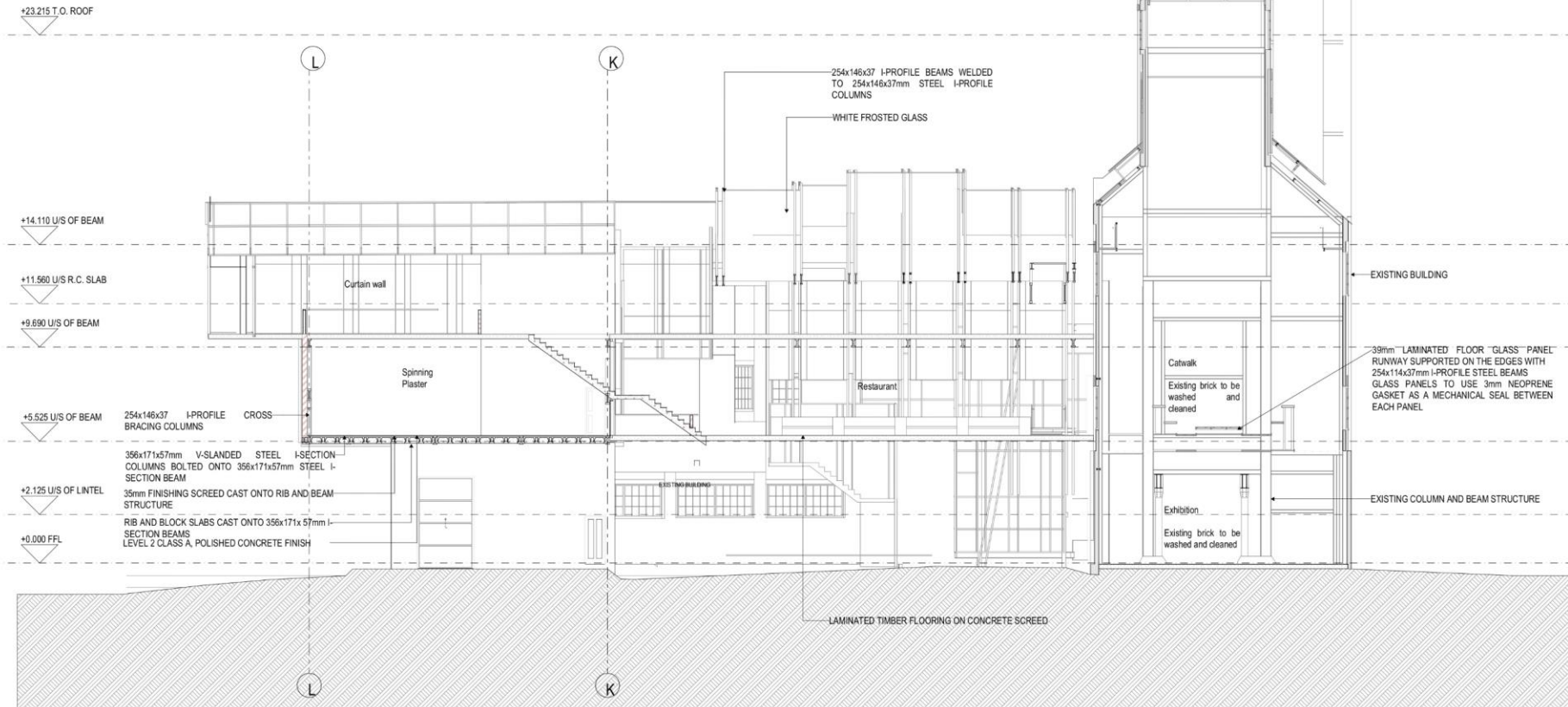
EXISTING BUILDING WALLS
EXISTING COLUMNS & BEAM STRUCTURES

CONS 7908	DRAWING NUMBER:
PROJECT:	A102
DOCUMENTATION	
DISSENTATION	
DRAWN BY:	DATE:
SARIESKE COETZER	15 NOVEMBER 2022
2016027902	



NOTES

- NOTE: SETTING OUT OF ALL PERIMETER BOUNDARY WALLS TO BE ACCORDING TO LAND SURVEYORS PLANS AND AS APPROVED BY THE CLIENT
- CONSTRUCTION**
- C1: REINFORCED CONCRETE STRUCTURAL STEELWORK INCLUDING
 - C2: ALL CASTING OF EXISTING AND LAMINATED BEAMS TO STRUCTURES, LOAD BEARING MASONRY WALLS AND TIMBER STRUCTURES ALL TO BE IN ACCORDANCE WITH THE STRUCTURAL ENGINEERING DETAILS AND SPECS.
 - C3: SPEC TO ALL WALLS AT FLOOR LEVEL UNDER WINDOW COLLS AGAINST RETAINING WALLS AT CHANGES IN FLOOR LEVELS. BELOW CONCRETE SURFACE BESS AND AT JUNCTIONS OF PC CONCRETE
 - C4: ALL SLABING TO BE ACCORDANCE WITH SABS 1000 PART 1 AND SABS 204
 - C5: ALL ADVA. CLIMBER BRICKS INDICATED AS TO BE MARKED SAFETY BRICKS PERMANENTLY MARKED WITH CLASS CODE AND READILY VISIBLE
 - C6: WINDOW AREA TO BE MINIMUM 10% OF FLOOR AREA. OPENING SECTIONS OF WINDOWS AND DOORS TO BE MINIMUM 1% OF FLOOR AREA OR VENTILATION
 - C8: WATERPROOFING OF FLAT ROOFS TO BE ACCORDING TO MANUFACTURERS DETAILS AND SPECS
 - C7: PITCHED ROOFS WITH STEEL OR TILED COVERING TO BE WATERPROOFED AGAINST PERIMETER WALLS WITH 12mm GGL FLASHING AND COUNTER FLASHING AND ALL JOINTS SEALED ACCORDING TO MANUFACTURERS DETAILS AND SPECS.
- SEWER AND STORM WATER**
- S1: ALL DRAINAGE TO BE CARRIED OUT BY LICENSED PLUMBERS AND WORK TO COMPLY WITH SABS 1000
 - S2: ALL CHANGE PLANS TO BE ACCESSIBLE ALONG THEIR ENTIRE LENGTH.
 - S3: ALL DRAINAGE TO BE ACCORDING TO ENDS DE TALLS AND SPECS
 - S4: VENT PIPES TO EXTEND TO MINIMUM 1M ABOVE ROOF OR OPENING IN THE BUILDING OR ANY OTHER BUILDING WITHIN A DISTANCE OF 6m
 - S5: 6" TOTAL RISES AND SLOPES OF SOIL AND WASTE PIPES. 1:10 TO HEADS OF DRAINS AND AT A MAX 20m INTERVALS ALONG RUNS OF DRAINS
 - S6: RESEA TRAPS TO ALL WASTE FITTINGS
 - S7: COVERS AT DRAINAGE LEVELS TO BE MANUFACTURERS SPECS WITH A GRIP TRAY AND TO SABS 624 REGULATIONS
 - S8: ALL RAIN FALL OFF 100mm LONG TO BE 1:10 WITH A MIN COVER OF 300mm FALLS EXCEEDING 1:10 TO BE PROVIDED WITH BACK DROPS
 - S9: SOIL DRAINING UNDER DROPS TO BE FITTED IN PC CHAMBER FILLED WITH CRUSHED STONE AND PC COVER WITHOUT CHANGES IN DIRECTION. NO BOWER IS TO BE CAST IN FOUNDATION FOOTING
 - S10: ALL BRANCH DRAINS EXCEEDING 6m IN LENGTH TO BE VENTED
 - S11: LPTC SEWER PIPES TO SABS 10 CLASS 4 STANDARDS AND LHD IN ACCORDANCE WITH THE MANUFACTURERS DETAILS AND SPECS
 - S12: HOT AND COLD WATER PIPES FOR INTERNAL RETICULATION TO BE CLASS 1 COPPER TUBING AND REGULATED ACCORDING TO SABS 204
- FIRE PROTECTION**
- F1: ALL WORK TO COMPLY WITH SABS 300-1980 OCCUPANCY CLASSIFICATION
 - F2: INSTALLATION OF FIRE EQUIPMENT TO BE ACCORDING TO SABS 615 FOR EXTINGUISHERS. SABS 543 FOR FIRE HOSE REELS AND SABS 118 PART 1 FOR FIREMANS
 - F3: STRUCTURAL ELEMENTS AND COMPONENTS TO COMPLY WITH REQUIREMENTS AS SPECIFIED IN THE NATIONAL FIRE REPORT AND SABS 1066-T 2.1 AND TO HAVE FIRE RESISTANCE OF MIN. 120 MINUTES
 - F4: PORTAL FIRE EXTINGUISHERS TO BE HUNG ON A PURPOSE MADE BOARDS AND HANGERS IN ACCORDANCE WITH THE PLAN AND HEIGHT NOT EXCEEDING 750mm
 - F5: FIRE HYDRANTS TO INCLUDE 75mm PLANS WITH DOUBLE HEADED BOOSTER CONNECTION, PRESSURE GAUGE AND NON-RETURN VALVE TO ENG SPECS
 - F6: EMERGENCY LIGHTING TO BE INSTALLED ACCORDING TO THE ENDS DETAIL AND SPEC, AND NATIONAL FIRE DESIGN REPORT
 - F7: EMERGENCY LIGHTING TO BE INSTALLED ACCORDING TO THE ENDS DETAIL AND SPEC
 - F8: ALL DOORS TO BE FITTED WITH EMERGENCY EXIT LOCKERS
 - F9: ALL DOORS TO BE FITTED WITH EMERGENCY EXIT LOCKERS
 - F10: CLASS B FIRE DOORS TO COMPLY WITH SABS CODE 125 AND TO BE FITTED WITH APPROVED SELF-CLOSING OR AUTOMATIC CLOSING DEVICES
- MOVEMENT JOINT**
- M1: ALL MOVEMENT JOINTS ACCORDING TO ENDS DETAIL AND SPEC
 - M2: NO STRUCTURAL FLOOR OR WALL FINISH TO BE TAKEN OVER EXPANSION JOINTS
- TIMBER**
- T1: TIMBER WALL PLATES TO BE TANAULIZED
 - T2: STRUCTURAL TIMBER TO BE IN ACCORDANCE WITH SABS 1285 AND MARKED WITH STRENGTH GRADE. LAMINATED TIMBER TO COMPLY WITH SABS 1486
 - T3: THE CONTRACTOR TO PROTECT ALL TIMBER MATERIALS AGAINST WEATHER INCLUDING HOLD-DOWN, CORRECT TONGUE, HANGERS AND GLUES TO BE IN ACCORDANCE WITH ENDS DETAIL AND SPEC
 - T4: THE CONTRACTOR TO CHECK CORRECT FINISH OF ALL SPECIFIED BRACING
 - T5: ALL BRACES AND TIMBER LOAD BEARING STRUCTURES TO BE IN ACCORDANCE TO ENDS DETAIL & SPECS INCLUDING TRUSS HOLD-DOWN, CONNECTIONS, HANGERS AND GLUES



SECTION A-A
SCALE 1:100

Figure181: Section A-A (Author, 2022).

DRAWING TITLE:

DRAWING NAME	SCALE
A101: GROUND FLOOR PLAN	1:200
A102: FIRST FLOOR PLAN	1:200
A103: SECOND FLOOR PLAN	1:200
A 201: SECTION A-A	1:50
A202: SECTION B-B	1:50
A301: ELEVATIONS	1:200
A701: ROOF PLAN	1:100
A702: SITE PLAN	1:500

PROJECT TITLE:

PROPOSED NEW TEXTILE RECYCLING MILL AND FASHION DESIGN SCHOOL IN COTTESLOE, 1952 ANNET ROAD, COTTESLOE, JOHANNESBURG, 2092

CLIENT:

REWOVEN



CONS 7908	DRAWING NUMBER:
PROJECT:	A201
DOCUMENTATION DISSERTATION	A202
DRAWN BY:	DATE:
SARIESKE COETZER	27 OCTOBER 2022
2016027902	

Figure183-185: Elevations (Author, 2022).

CONCLUSION & REFLECTION

07

07 CONCLUSION & REFLECTION

Conclusion

The dissertation's basis was to adaptively reuse the old Johannesburg Gasworks into a Textile recycling hub and Fashion design school. Abandoned historical buildings must be engaged to prevent them from falling to ruin. The Fashion hub engages with skin and the parallels between fashion and architecture to create expressions of fashion.

The Fashion hub creates an expression of dressing the body, the existing is dressed in new fabrics on the interior, whilst the exterior is kept intact, as it is a dramatic colossal building. Skin as a form of dwelling was applied to the existing and the new to safeguard the users' experiences on the site.

The explorations into the mutuality of fashion and architecture allowed the building to engage with a language that speaks to both art forms. Skin as a metaphor permitted the building to construct a new narrative that contrasts with the existing one.

The ecological self creates an outlook of how the built environment and sustainable practices should be engaged. It is essential to consider the mediation between the inhabitants and the building and the facilitation between the new and historical structures. The idea of elasticity was applied to create this mediation as the skin on the new structure continues towards the existing.

The rejuvenation of the buildings allows the site to become a functional component in the urban context. Characteristics of fashion were incorporated into the design as visual stimulation of textiles; the users can engage with the fashion motif imagery.

Reflection

The approach to historical situations is according to the existing situation, needs, context, viability and users. The perspective on adaptive reuse in historic buildings is a daunting endeavour but ultimately one that has become increasingly important as many buildings are being abandoned and left to decay, especially in the Johannesburg context.

The Johannesburg Gas Works has been selected as a site by a few Master's students throughout the years, each providing a different response to the existing.

The approach was centred on allowing the new to coexist with the existing, where the new contrasts the existing, demonstrated through the buildings' structure, material and form. The Fashion hub aimed to respond to the contextual language and the current need to allow the site not to be alienated from its surroundings.

Change Clothes is an approach followed as the new building disrupts the formal, rigid organisation of the historical buildings. The project, however, runs the risk of disrupting the historical remnants if the project is deemed to consume the existing. The project intended to create a new language of architecture on the site that can reinhabit the site whilst creating an awareness and appreciation of the existing.

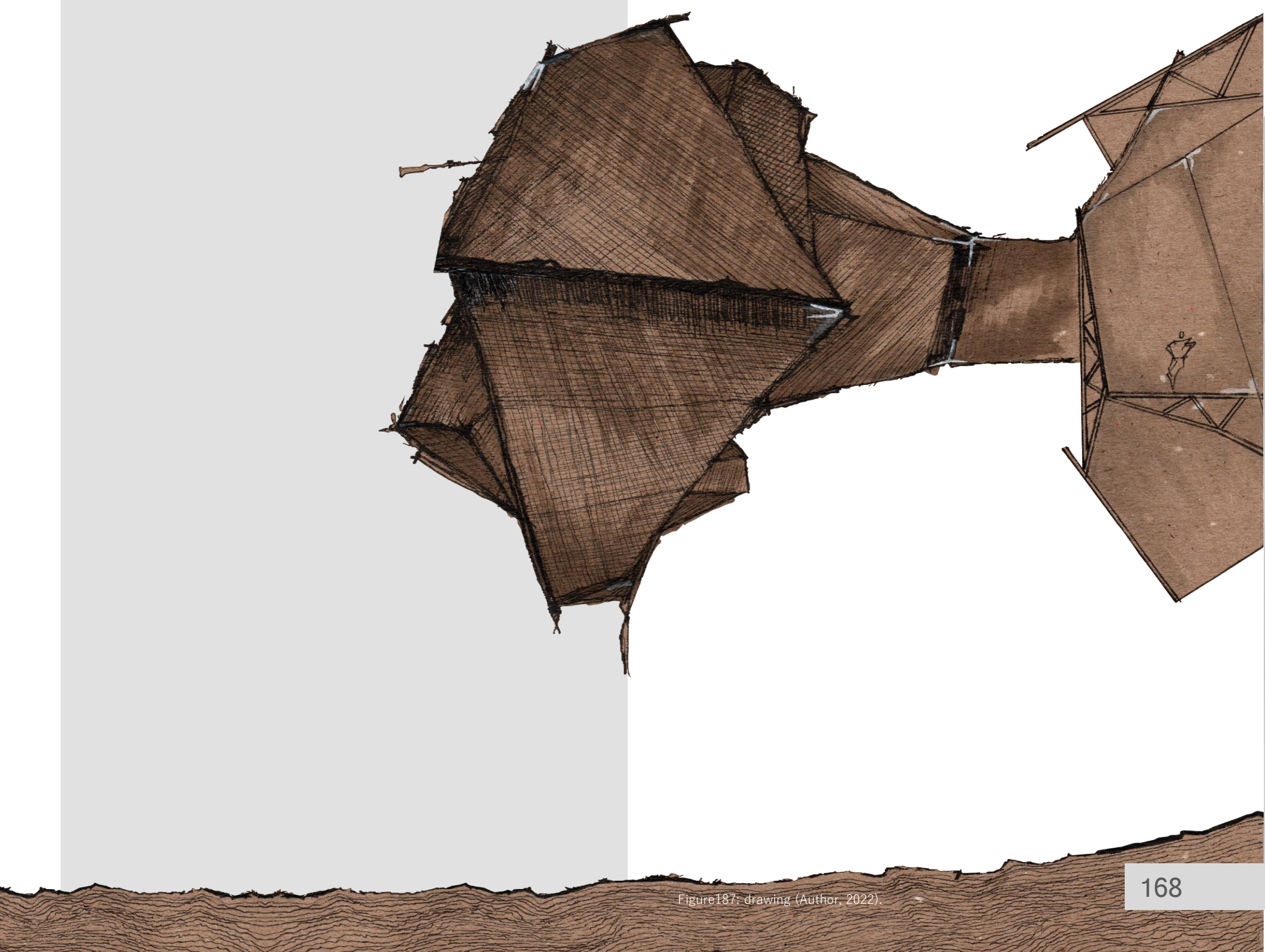


Figure187: drawing (Author, 2022).

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