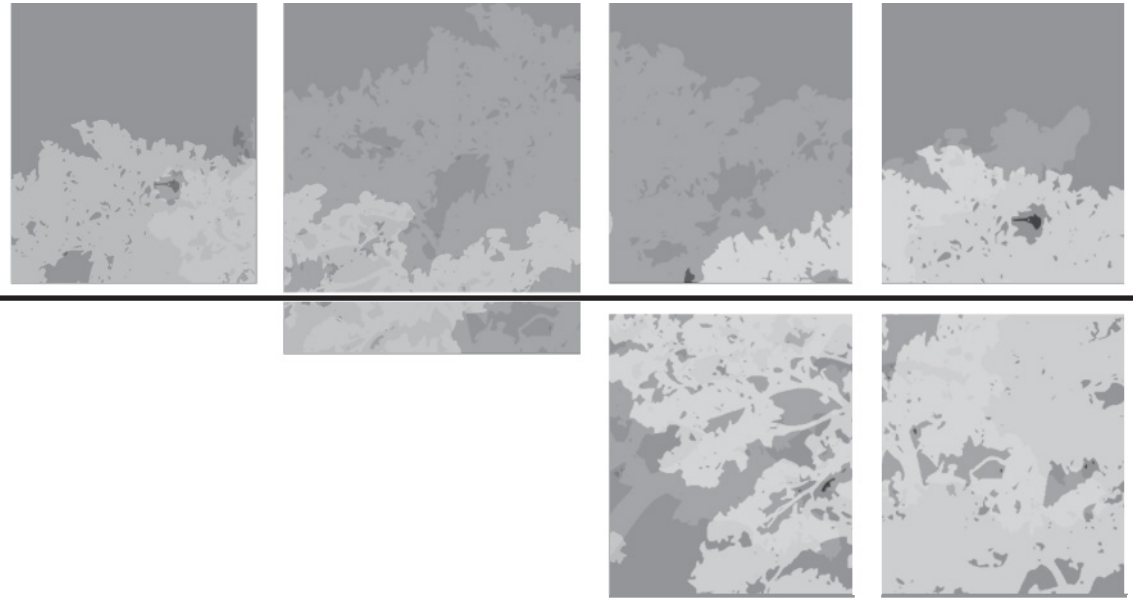


FILM PRODUCTION CENTRE

EXPLORING A LAYERED NARRATIVE
BLOEMFONTEIN, SOUTH AFRICA



FRANCO VAN NIEKERK

DECLARATION

This dissertation is submitted in partial fulfillment of the requirements for the degree
M.Arch. (Prof)The research in this document is my own independent work, unless stated
otherwise.

Department of Architecture, Faculty of Natural and Agricultural Sciences
University of the Free State.

Franco van Niekerk | 2013041955 | franco95vn@gmail.com | 072 395 2973

Supervisors

Prof. J.D. Smit, D van der Merwe

Declaration of original authorship

The work contained in this dissertation has not been previously submitted to meet the 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 any other person except where reference is
made.

This document was text edited by
Godfrey van der Merwe

PREAMBLE

Preamble: The focus of this dissertation stems from an interest in film creation - the process from production to post production. Architects gather data from site to design on plan, elevation and section to create spaces with perspective as a tool of interpretation and envisioning. Film design uses the same rules as a site influence narrative. Film uses these same rules of perspective to envision scenes and use a frame by frame sequence to portray the visual storytelling. South Africa has established itself over the years as a place rich with environments and spaces to portray these narratives through the visual art form of film.

The proposed design is film production facilities in Bloemfontein. The idea is, to produce films on an international standard. The site is situated behind Naval Hill between Long Street and Rudolph Greyling Street on the piece of land that were used for transportation services. Most of these spaces have been abandoned and the existing train station on the site is being used for the project. These spaces exist in a vast natural landscape empowered by the industrial architecture in the context, creating edges and boundaries between nature and an industrial environment.

The idea for this project arose from the lack of professional facilities in South Africa for production of large-scale films. The only facilities that are currently available are found in Cape Town, and these only provide services that can accommodate a few productions at a time. The idea is for the proposed facilities to make provision for the production of international standard films; to accommodate the film crews involved and to invite members of the public to visit the film sets for educational tours. The intervention aims to embrace the landscapes of Bloemfontein and to question the existing typology of film production facilities.

The research conducted in this document investigates the typology of Film production facilities and educational facilities as a regeneration of space within an existing structure in a rural environment. It seeks to investigate the possibility of coming up with a new film-production process. The idea is to create a link between the film production process and the architectural design process in order to create spaces that can relate to film and the environment, and at the same time meet the requirements for film production.

The dissertation will firstly identify the challenges and perimeters associated with the project through statements of aims and a research question. Thereafter, it will seek to explore and ground the concepts relating to the challenges through research, analysis, and interpreting literature. These concepts and theories will be applied as design methodologies in order to create a design and technical synthesis. Finally, the dissertation will seek to reflect on and evaluate the complete investigative process in terms of the final design synthesis and the way in which the conceptual exploration and research aided its development.



Fig. 01
A view of the site (Author, 2019)

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INTRODUCTION

Since 1888 when the world's earliest surviving film was made, film as an art form has evolved immensely. The film industry as a whole has an international net worth of 136 billion dollars, including indie films and big budget films. Cape Town Film Studios is the first world-class, custom-built, Hollywood-style film studio complex in Africa, and has been rated as the best film studio complex of its kind in the developing world by international production executives. This showcases South Africa's capability in producing films of an international standard.

The TransNet industrial area serves as a transportation and storage hub outside the city. There is no real contact between film makers and the inhabitants of Bloemfontein and therefore a real need for them to interact more closely. Producing films on the site will indeed provide the public with an educational experience. It is therefore proposed to be placed outside the city to fulfil the requirements for film production and to renew the existing context with cultural activities.

The main idea of how a film institution can combine the industrial setting and natural influences comes into being from investigating the site qualities, functional requirements of film production and interaction with inhabitants in different spaces. The functions of the train terminal have completely changed over the decades, having originally been a space of creation and engineering to fulfill its purpose of movement and transportation.

Today the space is empty and can be identified as a ruin. The idea is to provide the existing structure with new spaces to complement the ritual of production and creation in a new form, which is film. The site has a cinematic experience on its own with the transition between nature and industrial elements providing a layered experience.

The site has lost its functional contributions due to change in transportation modes where trucks are preferred above train transportation. Where the essence of its original function has been lost the idea is to embrace the movements of the trains through a cinematic experience.

The proposed architectural intervention intends to develop film production studios in Bloemfontein, to provide facilities for film making, focusing on the process from pre-production to post production.

South Africa's film production only exists in small scale facilities able to provide for advertisements and low budget films. Cape Town studios are the only facilities in South Africa to provide for large-scale production. Bloemfontein can add to the film industry with its local narrative, vast landscapes and its city. What makes Bloemfontein suitable for such facilities is its central locality between Johannesburg and Cape Town.

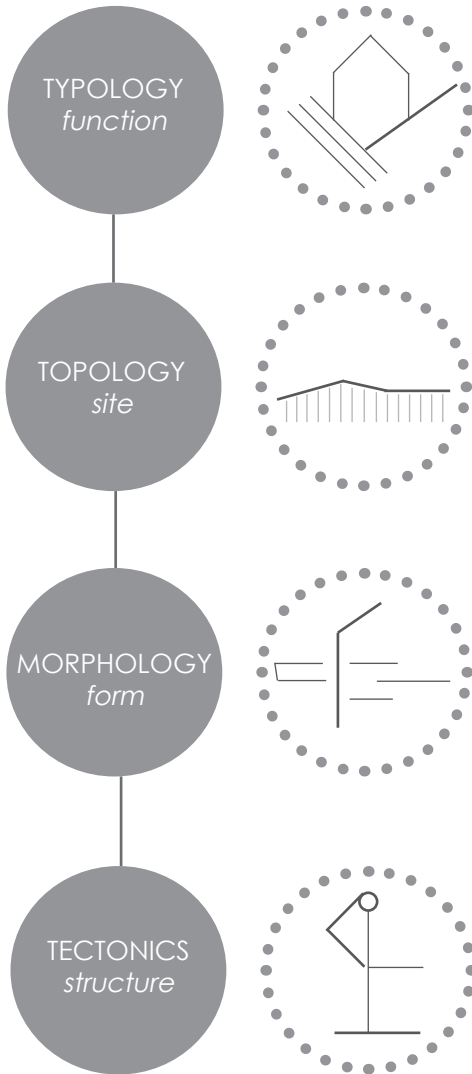
Materials that are required to build large sets for certain scenes in films, also cost less in Bloemfontein than in the other two cities. It would also provide work opportunities for local craftsmen to build sets and be part of the process. Bloemfontein lacks film development with only small scale advertisement facilities.

Form is explored by analyzing typology, topology, morphology, the manipulation of light, the contrast between natural and industrial elements and also by considering, haptic experiences of filmic moments.



Fig. 02
Experiences towards the site (Author,2019)

FRAMEWORK



This dissertation investigates the spatial requirements of the film production process from pre-production to post-production. The main spatial investigation will be focused on the exploration of filmic spaces, the influence of natural elements on the industrial context, how perspective influences architecture and film.

An in-depth investigation into similar building typologies, filmic research and requirements will inform these strategies. A constant analysis of the proposed site and investigation of the theoretical framework principles will be developed in order to create a unique approach towards the design methodology.

The dissertation is divided into four parts. Part 1 and part 2 reveal classifications such as typology, topology, morphology and tectonics. Typology refers to the types of building according to the functional character. Topology refers to specific site location of the proposed building, with investigations of the surrounding context. Morphology is related to the form-giving of the structure in the context that originates through a response to the typology and topology and investigations of various conceptual ideas and theories which will generate the final morphology.

The tectonics refers to the construction methods and details which are expressed through material and structural systems. Part 3 of the dissertation illustrates and explains the design process towards the final product. The influence of the concepts and theoretical points (from part 1 and part 2) will be interpreted and will show how it influenced the design.

Part 4 concludes and reflects on the dissertation and the design as a process and final product. Challenges and achievements will be identified and discussed to determine whether the initial aims and ideas had been achieved through the design and documentation process.

RESEARCH METHODOLOGY

Who?	-----	Typology
What?		
Where?	-----	Topology
How?	-----	Morphology
How?	-----	Tectonics

PROJECT CHALLENGES + AIMS

PART 1

- TYPOLOGY
Client and users
Challenges and aims
- TOPOLOGY
Challenges and aims
- MORPHOLOGY
Challenges and aims
- TECTONICS
Challenges and aims

CONCEPTUAL EXPLORATION + GROUNDING

PART 2

- TOUCHSTONE
- CONCEPTUAL IDEAS
- CONCEPTUAL FRAMEWORK
- TYPOLOGY
Case Studies
Precedent studies
Investigation of usage
Accommodation list
- TOPOLOGY
Macro analysis
Meso analysis
Micro analysis
- MORPHOLOGY
Theoretical grounding
- TECTONICS
Case studies

DESIGN + TECHNICAL SYNTHESIS

PART 3

- DESIGN DEVELOPMENT
Development stage 1
Development stage 2
Development stage 3
Development stage 4
- FINAL DESIGN
- TECHNICAL RESOLUTION
Technical report

REFLECTION + EVALUATION

PART 4

- REFLECTION
Reflecting on the successes
and negative processes on
the years reviews

RESEARCH METHODOLOGY

The research in this dissertation revolves around the exploration of the four architectural problem statements, relating to the design fundamentals: Typology, topology, morphology and tectonics. These investigations will explore the intended use for the client and user, where to design the proposed project within the city of Bloemfontein, and why the specific space; how the gestalt of the design is influenced and lastly, how the construction of the design is executed.



TOUCH STONE

The touchstone was the initial exploration into the conceptual essence of the project. The touch stone focused on the main purpose and expose the layers of the film production process. It explored abstract ideas that can be translated into architectural concepts that serve as a foundation for the design approach.

CONCEPTUAL FRAMEWORK

The conceptual framework acts as a way of guiding the research and the design process. It organizes and analyzes the conceptual ideas through the design. It acts as a map which assists in the translation of the conceptual ideas into architectural solutions.

SITE INVESTIGATION

The site investigation is an analytical approach towards the topology of the site from macro to micro environment. It is further categorized into three parts:

Qualitative data - This involves measurements of the site through various sources, such as maps, floorplans

Quantitative data - This is the representation of experiential measurements and explorations

Cognitive analysis - A phenomenological description of the site

PRECEDENT AND CASE STUDIES

The precedent and case studies are used as a tool to explore examples of typology, morphology, topology and tectonics relevant to the dissertation. The purpose is to compare the projects to gain knowledge and understanding of how these ideas and design principles can be interpreted into the design intervention.

LITERATURE REVIEW

This section explores critical and creative reflection of literature through a process of exploration and analyzing to create a framework of conceptual ideas. The basis of the review is formed by critical interpretive analysis of the theoretical ideas to form an understanding of the ideas and a structure to apply these ideas to influence the design.



Fig. 03
The existing trains on the site(Author,2019)



Fig. 04
A view of the site (Author, 2019)

PART 01

PROBLEM STATEMENTS + AIMS



Fig. 05
Rusted elements on the site(Author,2019)

Part 1 is an introduction to the project, setting out the problem statements through a understanding of the different components of the project

PROJECT CHALLENGES

Project challenges. Problem statements and aims developed from the investigation of the typology of various film schools and film production facilities and the requirements thereof. Challenges arose from a visit to Cape Town Film studios to create multi-purpose film facilities.

The typological investigation revealed challenges regarding the functionality and creating a connection between the new and existing structure. Different parties involved created a layer of complexity to the circulation, where different groups are divided by the site boundaries.

The specific location was chosen due to its potential for the functional requirements of the project. It allows for the movement for production, large scale environments and acoustic situations that contribute to the complex systems in film production. The site boundaries allows for morphological exploration and activation through the public which can be addressed through a theoretical approach.

Morphology will develop around three concepts: a sensitive approach towards the industrial aesthetic found on site, questioning the shed typology of film production architecture, and the interpretation of the natural elements on the site. The functionality of the cinematic spaces plays a role in form-giving as acoustics within cinemas need careful attention.

The tectonic development was structured around large spaces to the existing steel structure. The main challenges arose from realizing a morphology that connects and complements the existing structure. Topology, typology, morphology and tectonics create a complex investigation in fulfilling the conceptual approach regarding the final design of the building.

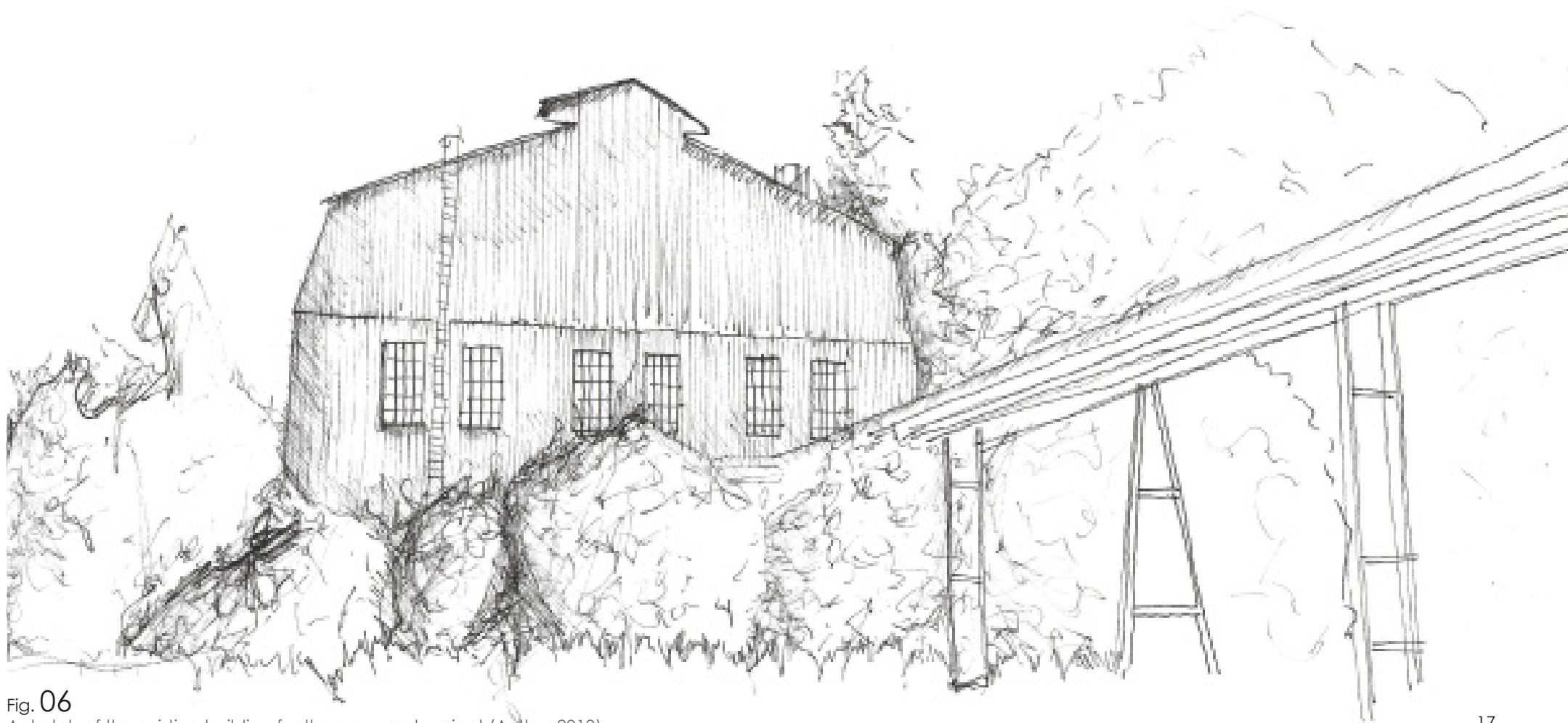


Fig. 06
A sketch of the existing building for the proposed project (Author,2019)

TYOLOGY

For this architectural intervention the typology can be regarded as that of a film production facility. From these archetype specific typological certainties such as Soundstages, Offices, workshops, education spaces and an auditorium can be drawn. Investigation into the research which investigates the nature of the project, patterns associated and processes that occur in film production, the typological needs of the client and user will be identified. After the research, the aim is to identify problems regarding the typology of the intervention. The warehouse typology of film production facilities are questioned and addressed towards a functional experience.

CLIENTS

The client is the National Film and Video Foundation. They are an agency of the Department of Arts and Culture that was established to ensure the growth of the South African Film and Video industry. The foundation provides funding for development, production, marketing and distribution of films and development of film makers. The foundation researches statistics in the film industry that provide both the public and stakeholders with insight into the South African film industry (NFVF, 2019:online). The second client is the University of the Free State which is to provide such facilities for the students and introduce the students to practical experience for principle photography and production management.

USERS

Film production requires a large set of personnel in order to produce a big budget film. The Users are split into five parts, namely: crew members, pre-production crew members, production crew members, post-production crew members, educational users and members of the public.



Fig. 07
nfvf logo (NFVF, 2019:online)



Fig. 08
UFS logo (UFS, 2019: online)

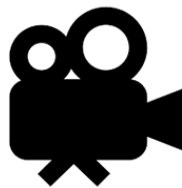
Client



Users



students



film production
team



other professionals

Public



pedestrians



local film makers

PROBLEM STATEMENT

Film production studios mainly consist of a warehouse typology. This is the most efficient low cost system to provide such facilities. Over the years this has become a standard solution to provide facilities. As it is functional, it lacks interesting interiors, has poor circulation for crew members and leads to an uninteresting morphology. It is introverted as it consists of programmatic spaces.

AIMS

The aim of the proposal is to design a suitable solution to accommodate all users and enhance the workflow of film production. Connecting the different facilities with applicable circulation routes enhances the production. The typology of existing film production facilities is questioned and by investigating the morphology and typology of the site a new set of principles will be used to influence the typology.

CLIENT BRIEF

○ THEATRE

The theatre is necessary for performance productions for the public. It can be a space for film screenings.

○ SOUNDSTAGES

This is the space where the raw footage will be filmed.

○ PRODUCTION OFFICES

Pre and post production offices for staff members

○ EDUCATION FACILITIES

Classroom for students that specializes in, script writing, Directing and cinematography.

○ LIBRARY

The library is required by production and education to gain access to information, media for history research and past scripts

○ RESTAURANT/ SERVICES

○ CINEMA

DESIGN CHALLENGES

- The interactivity between public, semi- public and private spaces to connect and be separated, complements public users and the film production process. Fluid movement is essential.
- Deviding the building into separate functional requirements and connecting them. Entrances are therefore important towards each function
- Re-adapting the shed like morphology towards a more natural approach

TOPOLOGY

The proposed site is situated east of Naval Hill between Long Street and Rudolf Greyling Street in Bloemfontein. The site's context consists of a large plot with several warehouses and train tracks. Its main function is several linked transport and storage terminals. When looking at the micro context of the site, there are several existing elements that will influence the design and structure. These elements are the railway and existing trains, the train terminal and warehouses.

The site is located between the city and the airport and is accessible from the N8 main road. The eastern and northern side of the site consists of several warehouses and office infrastructures. On the eastern side of the site three layers can be found. The warehouses and train track links up with the Noordhoek residential area. The typical surroundings are the warehouse typology with relatively large structures on a large scale.

PROBLEM STATEMENT

The build context of the site consists of warehouses connecting to the train tracks for transport via the trains. These warehouses are designed on a grid system with a strong industrial typology and are present throughout the surrounding context. The proposed building is an abandoned train terminal that was used to repair trains and to build train parts, that now stands empty and is surrounded by dense vegetation. The site lacks circulation to the building, with entrances closed off and abandoned. The design proposal will alter the existing building and allow for a different influence that the site requires. Scale becomes a challenge in order to reduce it to a human scale, while retaining its original typological qualities. Another challenge is the placement of functions over the site to accommodate production staff and members of the public.

AIMS

Through investigation and analysis of the proposed site, strategies will be developed in transforming the existing spaces to accommodate the intended functions. The intervention aims to determine whether an existing building, with a specific structure and character, can be reinterpreted to accommodate for a new function unrelated to the intended use. The aim of the topological strategy is to use the existing elements on the site and create a different function, keeping the industrial character. The result will try to achieve, activating the space, by breaking out and incorporate a second influence, in this case the natural elements on the site to provide for a layered experience.

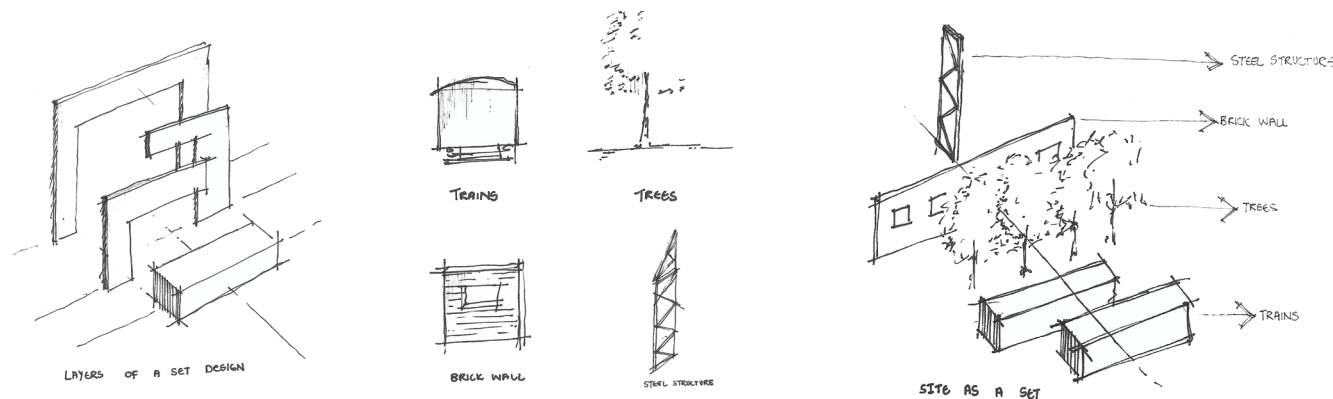


Fig. 09
Layers of the site(Author,2019)

SITE OVERVIEW

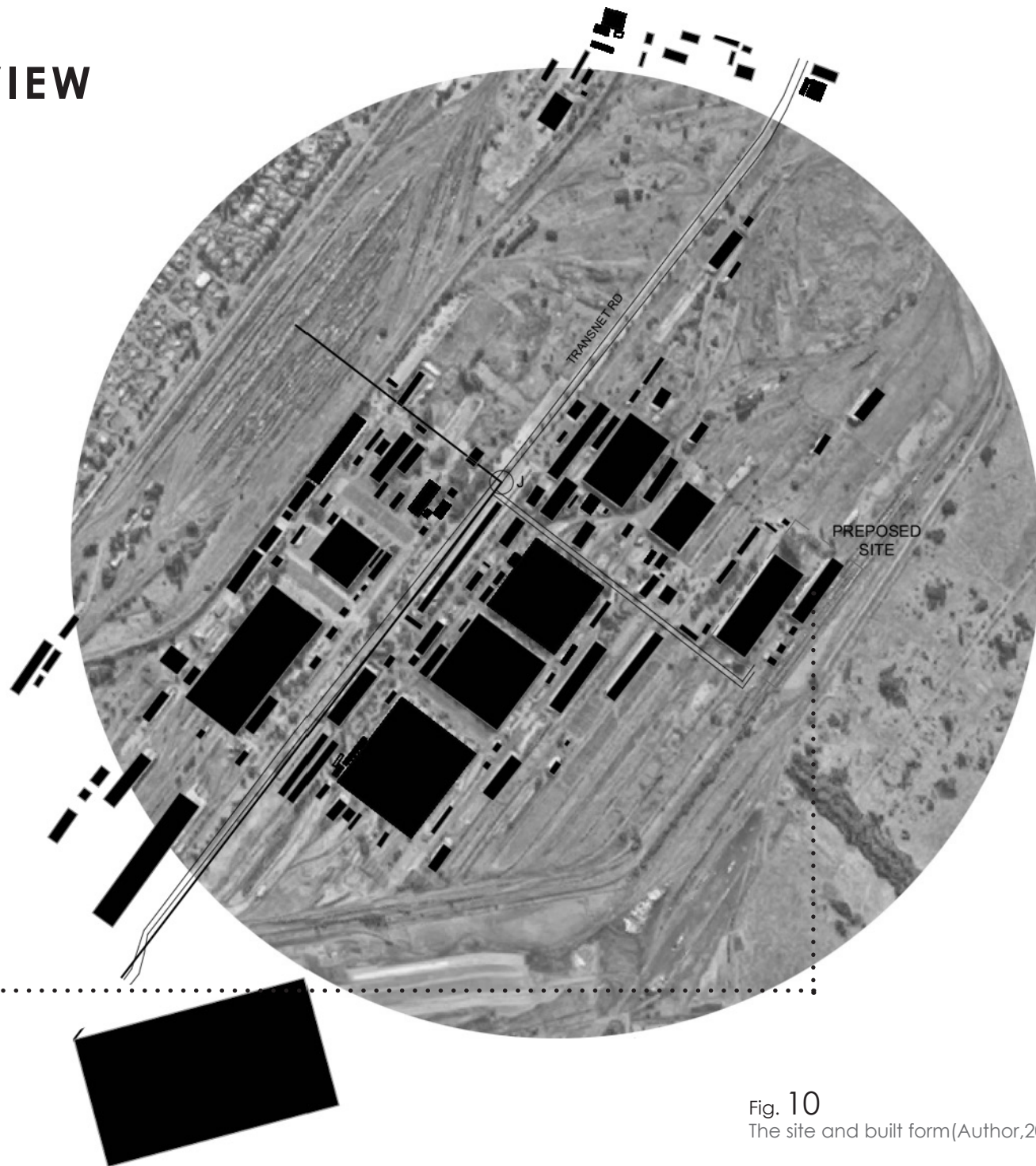


Fig. 10
The site and built form (Author, 2019)

MORPHOLOGY

The morphological exploration of the dissertation is centered on connecting the existing elements on the site and retaining the industrial character. In order to create an effective work environment, changes to the existing structure must be made. A second character will be incorporated, namely the natural influence inspired by the dense vegetation around the building. This requires a juxtaposition of two elements to mimic each other's qualities, conserving certain parts and adding new elements. The morphology will be influenced by a theoretical exploration and functional requirements regarding the film production. Together with conceptual ideas and site analysis a framework will contribute to the morphological development.

PROBLEM STATEMENT

Film and cinema design use large introverted volumes to create dim spaces. The proposed design needs to address the functions with the intention to complement and extend the industrial qualities on the site. Proportions and scale become the main investigation, as it needs to communicate with the micro context and simultaneously communicate the function they hold within.

AIMS

The proposed design aims to become a cinematic experience by itself by using various concepts and progressive thresholds. All different archetypes are being addressed to form a unified whole. It is an aim to achieve this by clearly investigating qualitative and quantitative information that may assist in design decisions to be made. The form-giving is a metaphor that mimics and reacts to the given context.

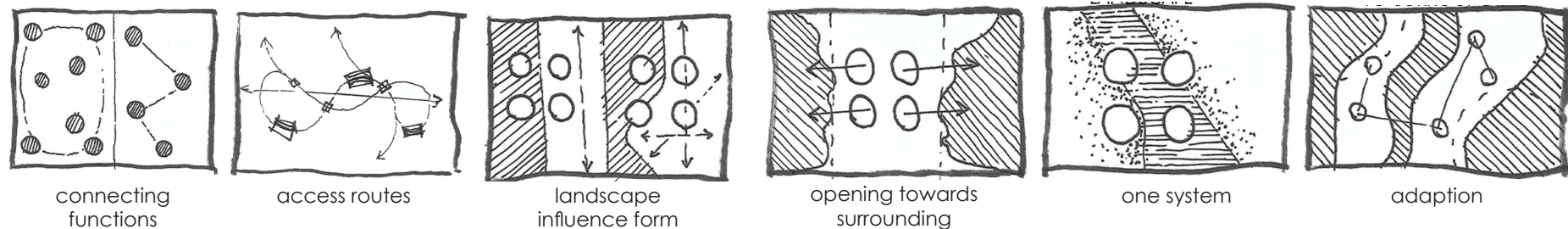


Fig. 11
Initial morphological interpretation (Author, 2019)

TECTONICS

The structural strategy will develop out of the initial conceptual approaches and theoretical platforms. An initial structural solution is investigated by exploring the topological and morphological framework of the intervention.

PROBLEM STATEMENT

The existing steel structure provides a basis for the tectonic development. It, however, creates problems on the connections between architectural elements and removal of certain existing elements. Acoustic environments are crucial in the film production process and it important to develop spaces around a quality sound environment. Developing an acoustic environment within large open spaces becomes a big challenge

AIMS

- To create sustainable architecture with minimal active climate control systems
- A unique approach towards the tectonic development to question the film production typologies
- To include production facilities for editing, animation and visual effects.
- To provide studios, theatres, staging, post-production facilities and production dressing elements in order for the students to complete the various term narrative challenges each year.

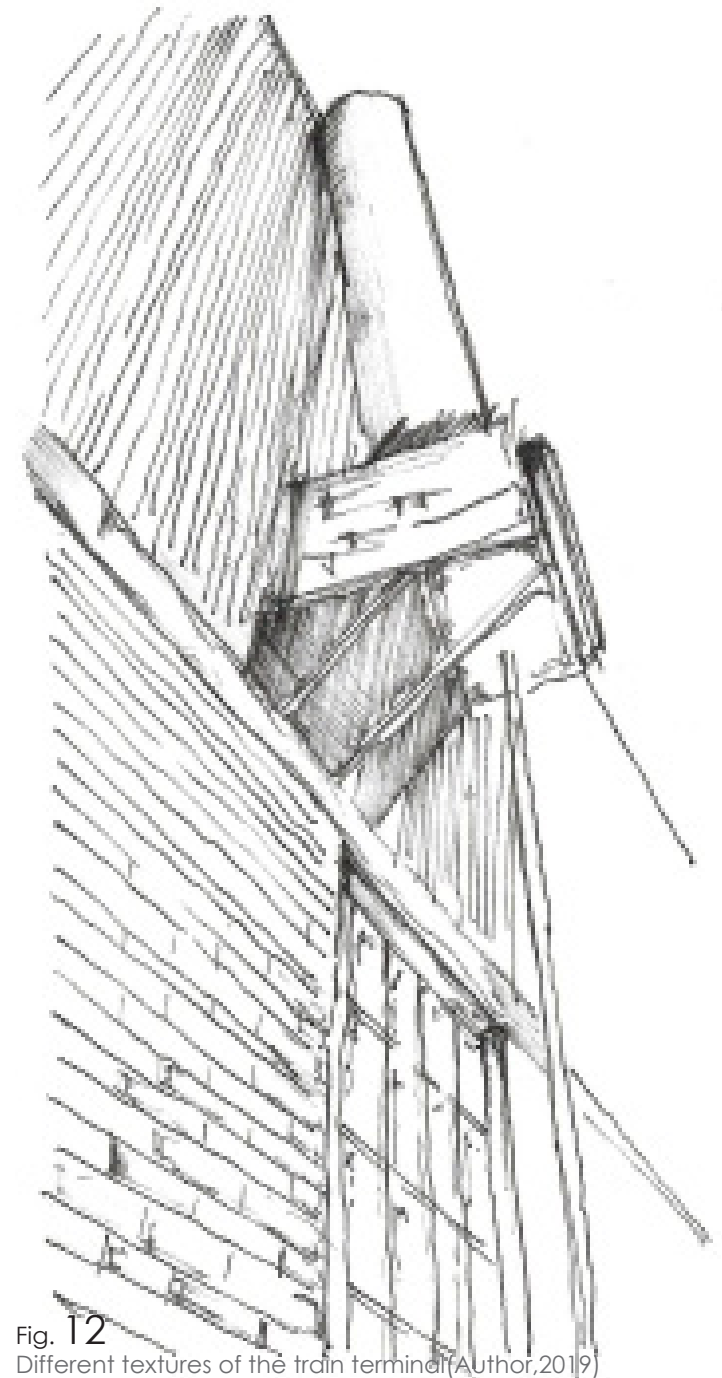


Fig. 12
Different textures of the train terminal (Author, 2019)

RESEARCH THEME

PROJECT OVERVIEW

The exploration of the **qualities of filmic space** on architectural space and how it will **influence the typological qualities** of film production architecture and create a **layered experience in the context of Bloemfontein**

● QUALITIES OF FILMIC SPACE

The theoretical discourse describe these qualities through varies concepts and topics. These topics follow throughout the dissertation and related to the design process, these topics are:

- The three concepts, Refraction, Transcendence and The mechanical body
- Ritual of Filmmaking (A new narrative)
- Interrupted condensation (Juhani Pallasmaa)
- Explosion of space (Anthony Vidler)
- Filmic space and movement
- The scrim- adapting the layers on the site

● LAYERED EXPERIENCE

The term 'industrial elements' refers to the industrial aesthetic that is found on the site. The natural environment refers to the dense vegetation and trees around the site. These layers form an important part of the site analysis that will influence the design. Several layers exist on the site and will be discussed in depth.

The industrial elements



Fig. 13
The structure of the train terminal
(Author,2019)

The natural environment



Fig. 14
The dense vegetation on the site
(Author,2019)

A layered experience

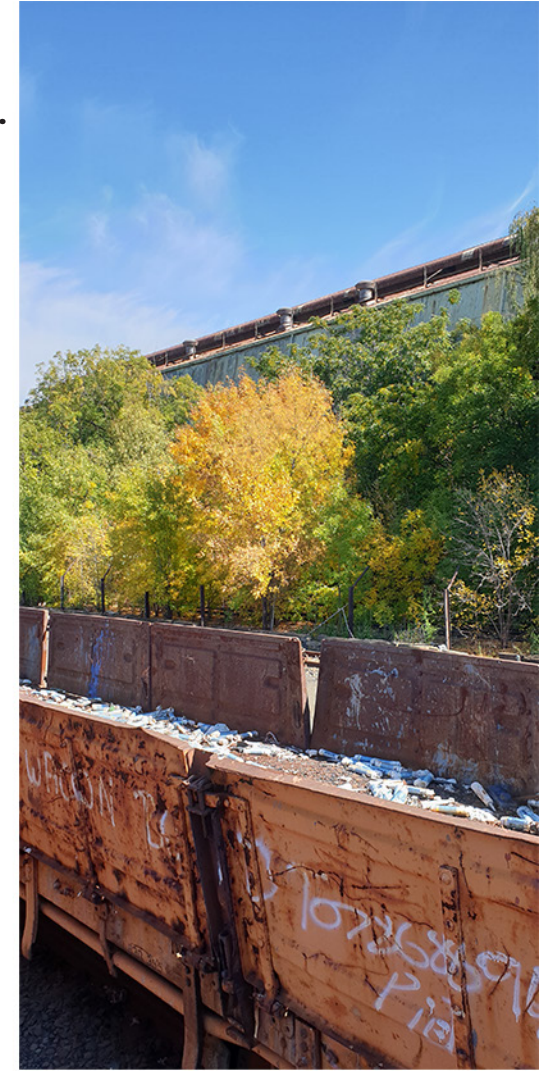


Fig. 15
A layered experience (Author,2019)



Fig. 16
The site context and train terminal (Author, 2019)

CONCEPT AND THEORETICAL UNDERPINNING

PART 02



Fig. 17
Building entrance (Author,2019)

This chapter focuses on the problem statements and aims discussed in part 1 through different conceptual approaches and theoretical investigation. The process involves an understanding of the ideas regarding topology, morphology, typology and tectonics and its translation into a design solution

CONCEPTUAL EXPLORATION

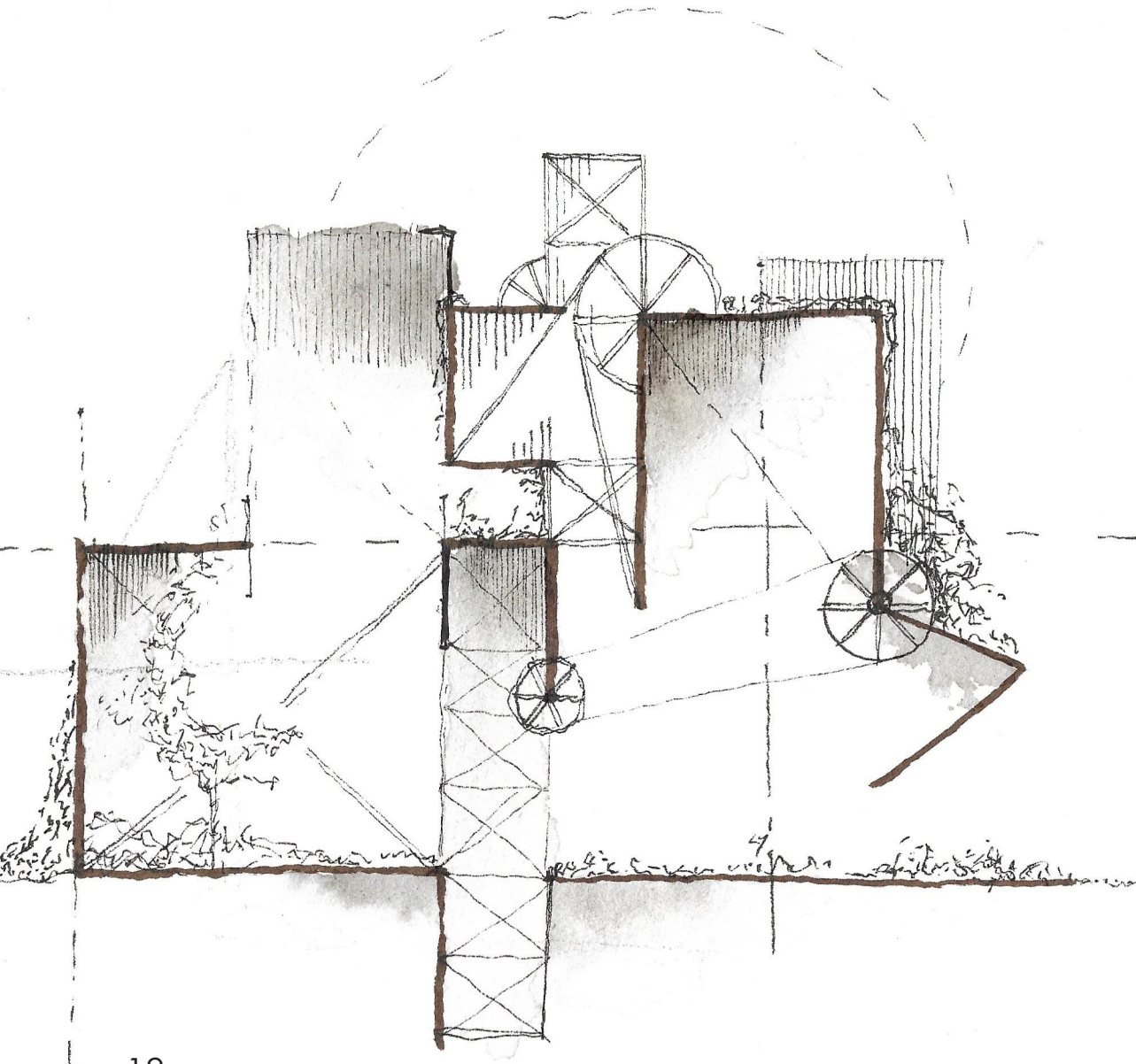


Fig. 18
Mechanical concept sketch (Author,2019)

The development of concepts, and the hypothetical exploration influencing the design strategy to engage the challenges that surfaced, emerged during the initial stages of the design. A touchstone was developed to capture the phenomenological essence of the site and its requirements. The touchstone showcases the main ideas in relation to the design.

The users will give substance to the intervention in the form of private users and the public being involved in the film production process. Case and precedent studies will aid the development of the design in terms of the typology, structure, form and design implications.

The proposed site and context is analyzed by focusing on the qualitative and quantitative qualities. The information is documented into several categories, such as existing buildings, climate, vehicle movement measurements. The qualitative aspects will focus on the personal experiences on the site.

The concepts and ideas are then supported by a theoretical investigation which will expand the stances made and elaborated by theorist.

The integration of all the different investigations attempts to produce a design methodology that is followed through and inheres in the whole process

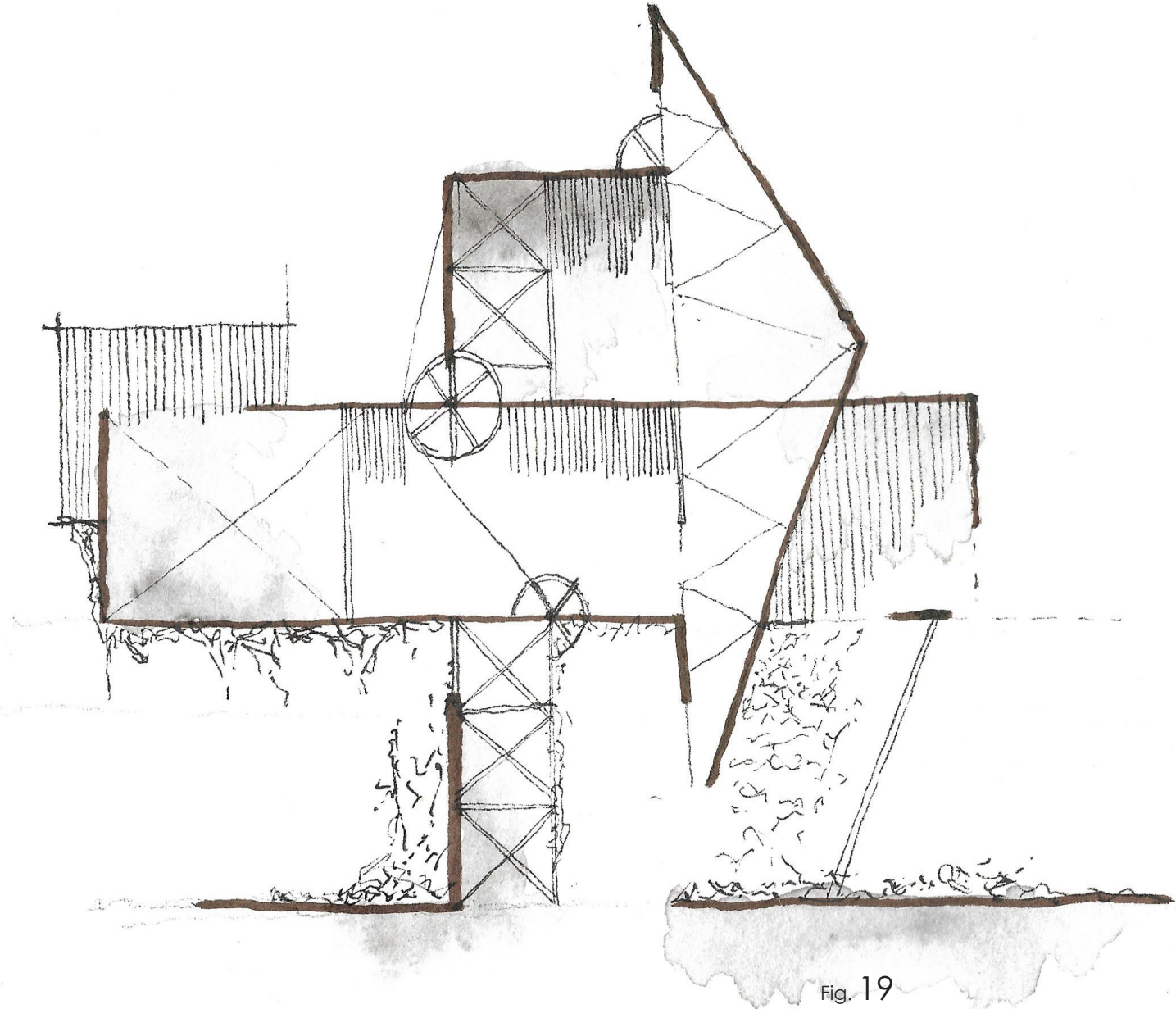


Fig. 19
Mechanical concept sketch 2 (Author, 2019)

CONCEPTUAL REINTERPRETATION

After the leading ideas were established in the touchstone, it was then further investigated in the form of three concepts. The concepts are presented through analytic sketches and built models to portray the essence of the ideas. The conceptual framework assisted with the direction of morphology investigations and theoretical standpoints. The concepts led to sub-interpretations that aided with the theoretical discourse.

01

REFRACTION

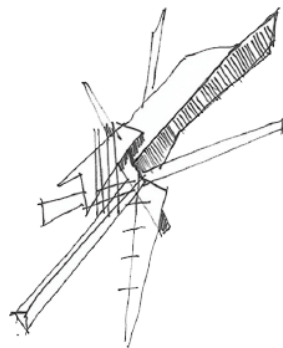
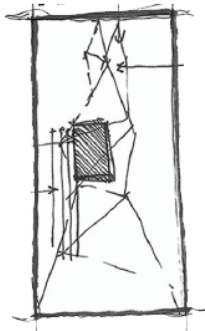


Fig. 20
Diagrammatic idea of
concept 1 (Author,2019)

02

TRANSCENDENCE

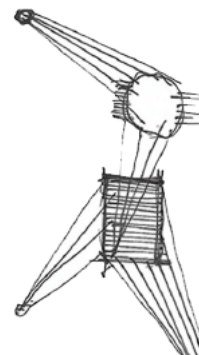
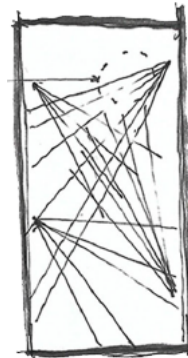


Fig. 21
Diagrammatic idea of
concept 2(Author,2019)

03

MECHANICAL
BODY

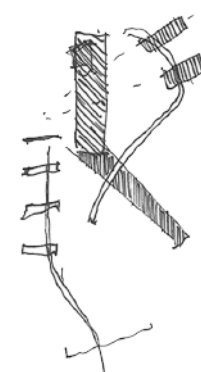
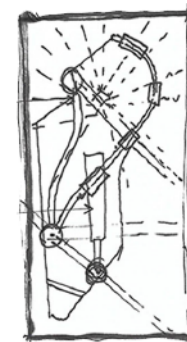


Fig. 22
Diagrammatic idea of
concept 3(Author,2019)

TOUCHSTONE

The site is a point where the industrial aesthetic and natural environment intercept, creating a threshold of natural and man-made bodies. Between these two characteristics a cinematic experience is produced where the two narratives create a contrast. To fill the gap between two contrasting bodies and linking them, the phenomenological character and expression of film will be explored to enhance the layered experience of the site. The goal is to achieve an intertwined relationship between the two opposite phenomena's, complementing and contrasting each other at the same time.

The touchstone is a combination of filmic elements expressed in a layered timeline. The elements are Character, Narrative and Place. They are represented as the same form that moves with the timeline and change between every threshold. The wooden base represents the existing site and stereotomic elements balancing the glass squares, which represent the different thresholds and layers on the site.

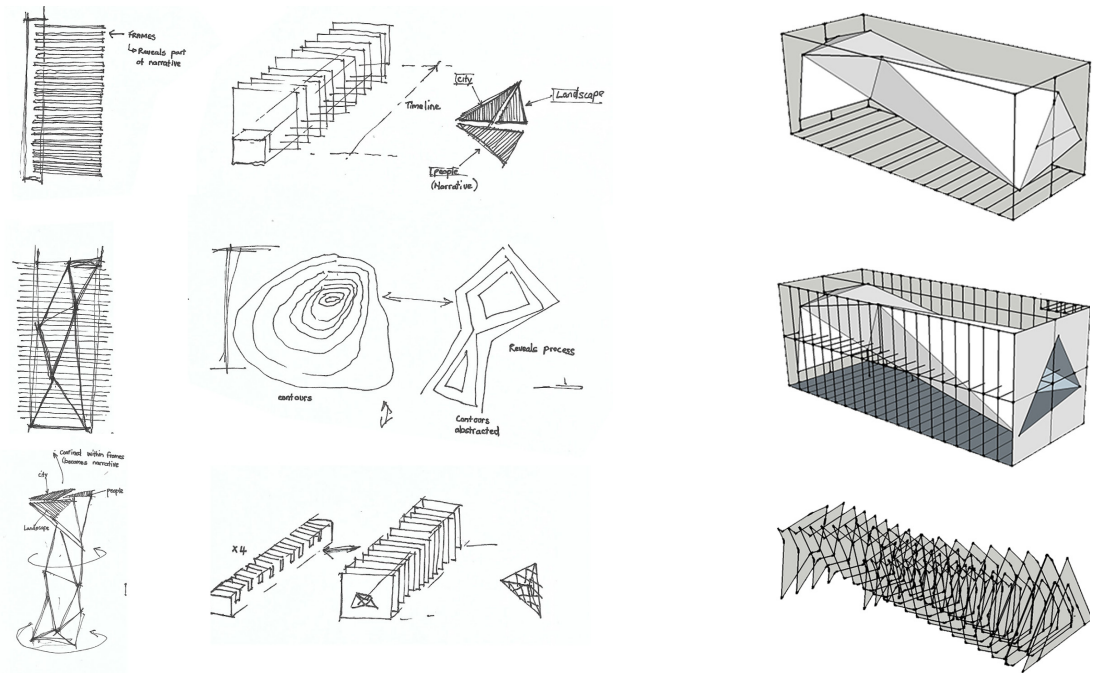
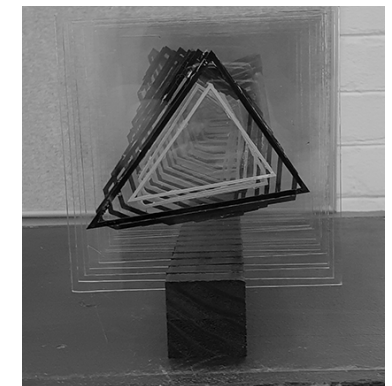
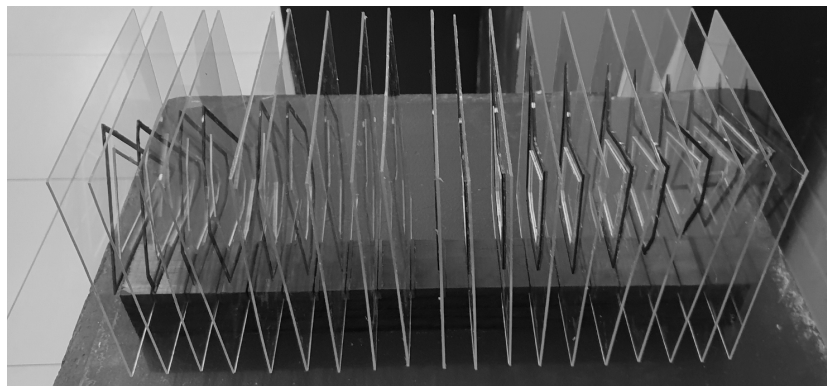


Fig. 23
touchstone development
(Author, 2019)



Fig. 25-27
Touchstone(Author,2019)



REFRACTION CONCEPT 1

ACTION -REACTION
FRAMED VIEWS
GRADUAL CHANGE
REVEALING DIFFERENT MOTIVATED BODIES
ABSTRACTED GEOMETRIES

Refraction is the change in direction of a wave passing from one medium to another or from a gradual change in the medium. This process is called dispersion and causes prisms dividing white light into its constituent spectral colors.

What happens to the spaces architecturally is the explosion of space revealing the different motivated bodies by structure and new set paths. The process causes an equality of effect with a set action and unknown reaction. These definitions led to the ideas of framing views and revealing hidden parts.

The concept of refraction plays with the idea of breaking the fourth dimension. Anthony Vidler expresses that the first solution to explode space is "by dispersing the centre of vision" (Vidler, 2000: 106). The process of refraction gives opportunity to re-arrange set paths with a gradual change. This involves the circulation of the design to go in different directions, changing the spatial qualities

This approach towards cinematography implies a change of direction where cinematography can be seen as a two dimensional flat screen. By fracturing the screen, and pulling it apart, it then conveys a three dimensional experience. This can be achieved by breaking out the original structure and adding a new structure that compliments the old structure

The conceptual interpretation model represents how the morphology and spatial experiences can have an action and reaction on certain points, changing direction, focusing on framed views. A gradual change reveals different bodies by abstracting the geometry.

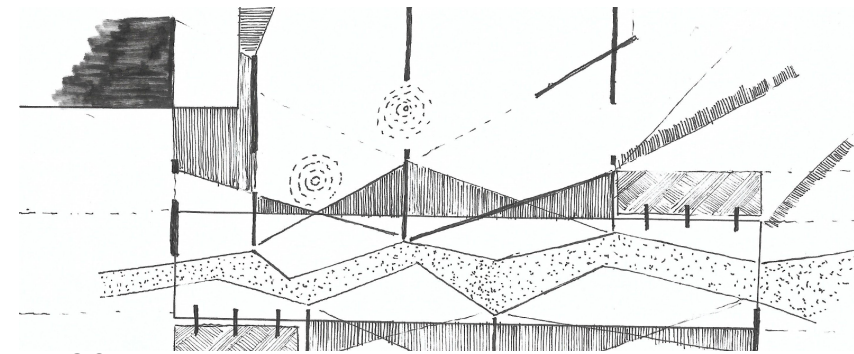


Fig. 28
diagrammatic floorplan
of concept 1 (Author, 2019)

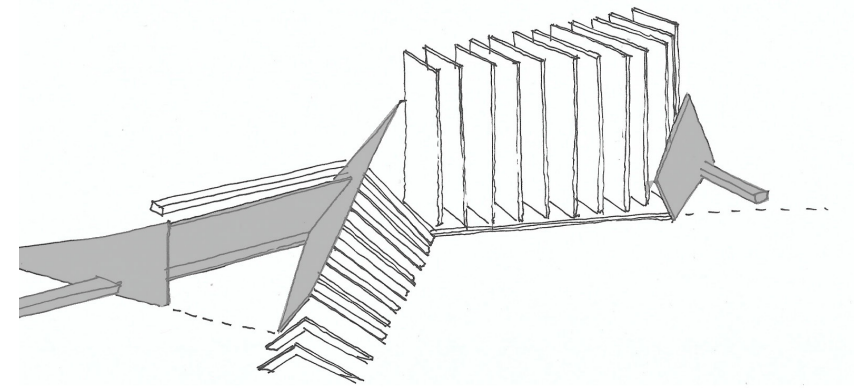


Fig. 29
Perspective of concept 1
(Author, 2019)

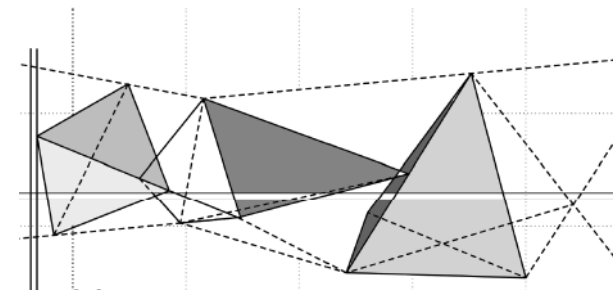


Fig. 30
Fragmented space (Author, 2019)

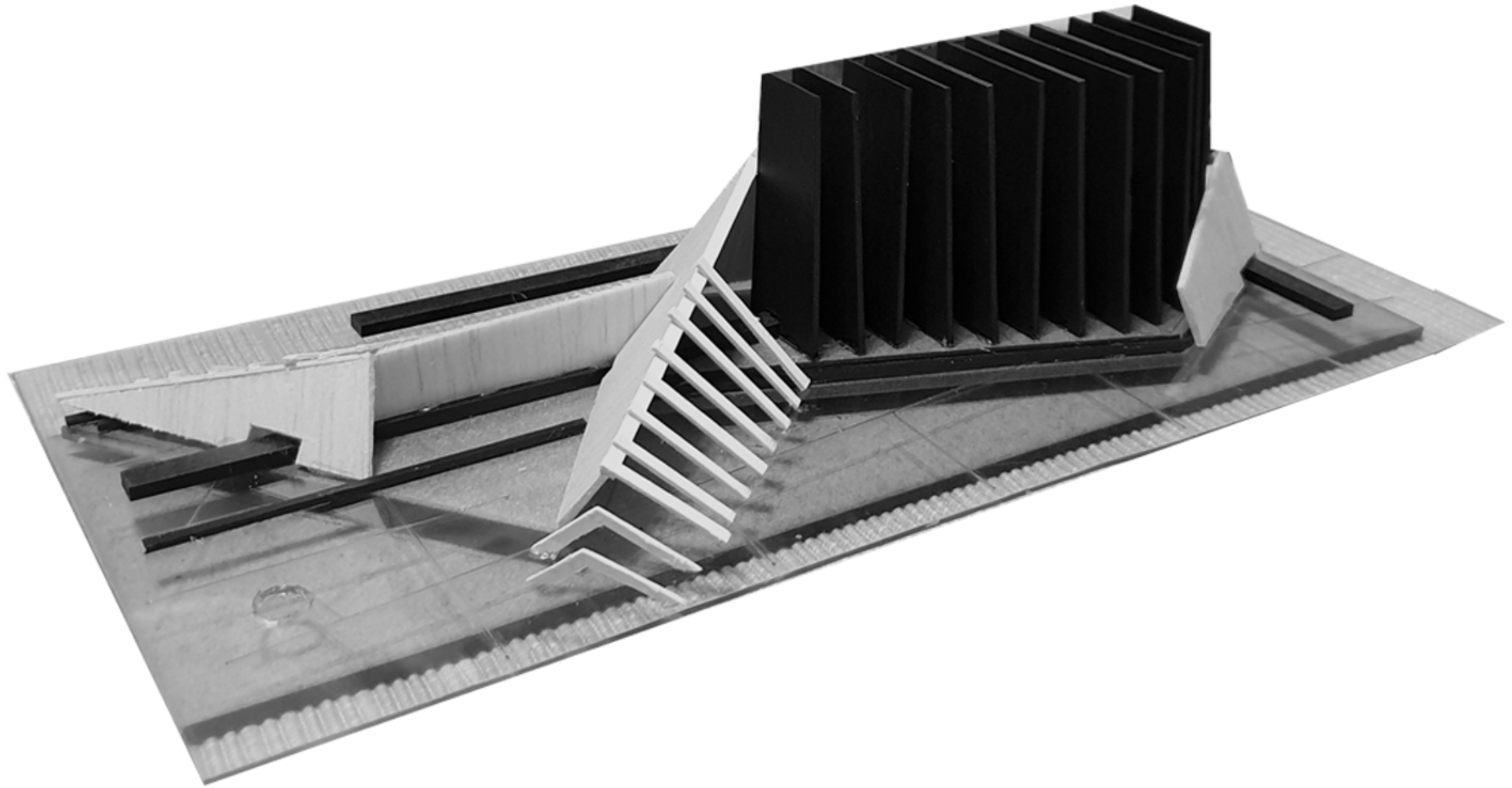


Fig. 31
Built model of concept 1
(Author, 2019)

TRANSCENDENCE CONCEPT 2

THRESHOLDS OF CHANGE
TENSION
ORGANIC - LINEAR
SCALE BEYOND BOUNDARY

Transcendence is the experience beyond the normal or physical level. The threshold between the interior and exterior changes dramatically, with the effect of light and stereotomic structure transforming the environment. The experience is one of an in-between journey with one space transcending into another. There is further tension between an organic environment and a more linear structure.

Casey refers to a threshold as one of seventeen forms of edges. He defines a threshold as "an edge that aids the foremost stances of traditional rituals such as welcoming someone into one's home or into the foyer of the house". A threshold should become similar to a boundary in sense that it is an extensive and porous element and not a edge (Casey, 2011: 386).

An edge is different than a threshold. Casey explains edges and their in-between form a relationship and co-exists."If there should only be edges, without a space to define as a place or the in-between, it would be impossible for different places to exist or for one object to be distinguished from another" (Casey, 2008: 6). Thresholds define architectural space and without it space cannot be place

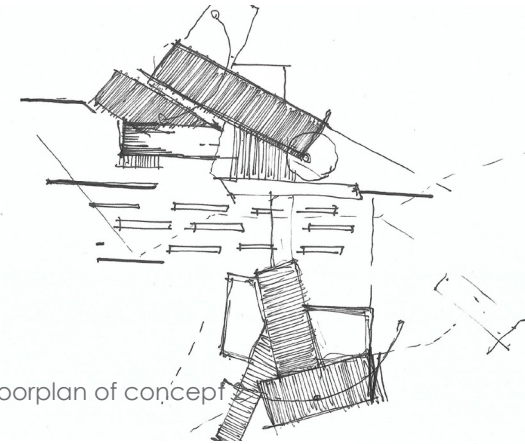


Fig. 32
Diagrammatic floorplan of concept 2
(Author,2019)

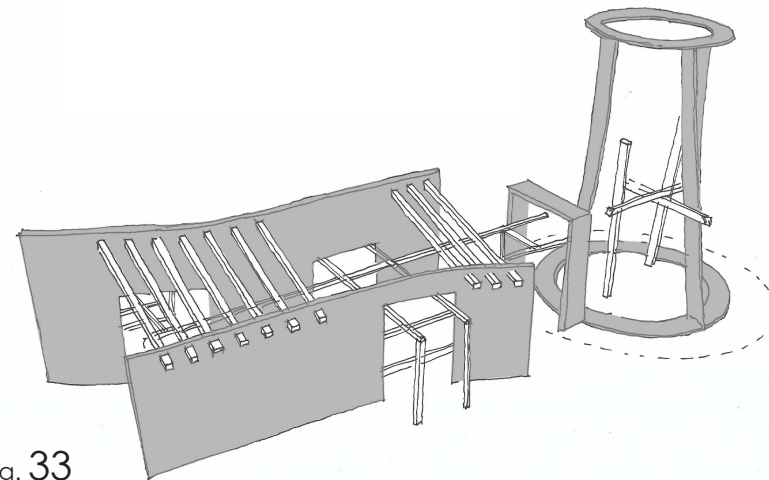


Fig. 33
Perspective of concept 2
(Author,2019)

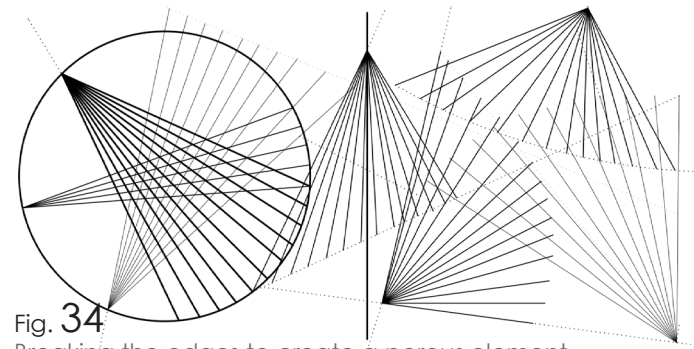


Fig. 34
Breaking the edges to create a porous element.
conceptual approach towards a floor plan
(Author,2019)

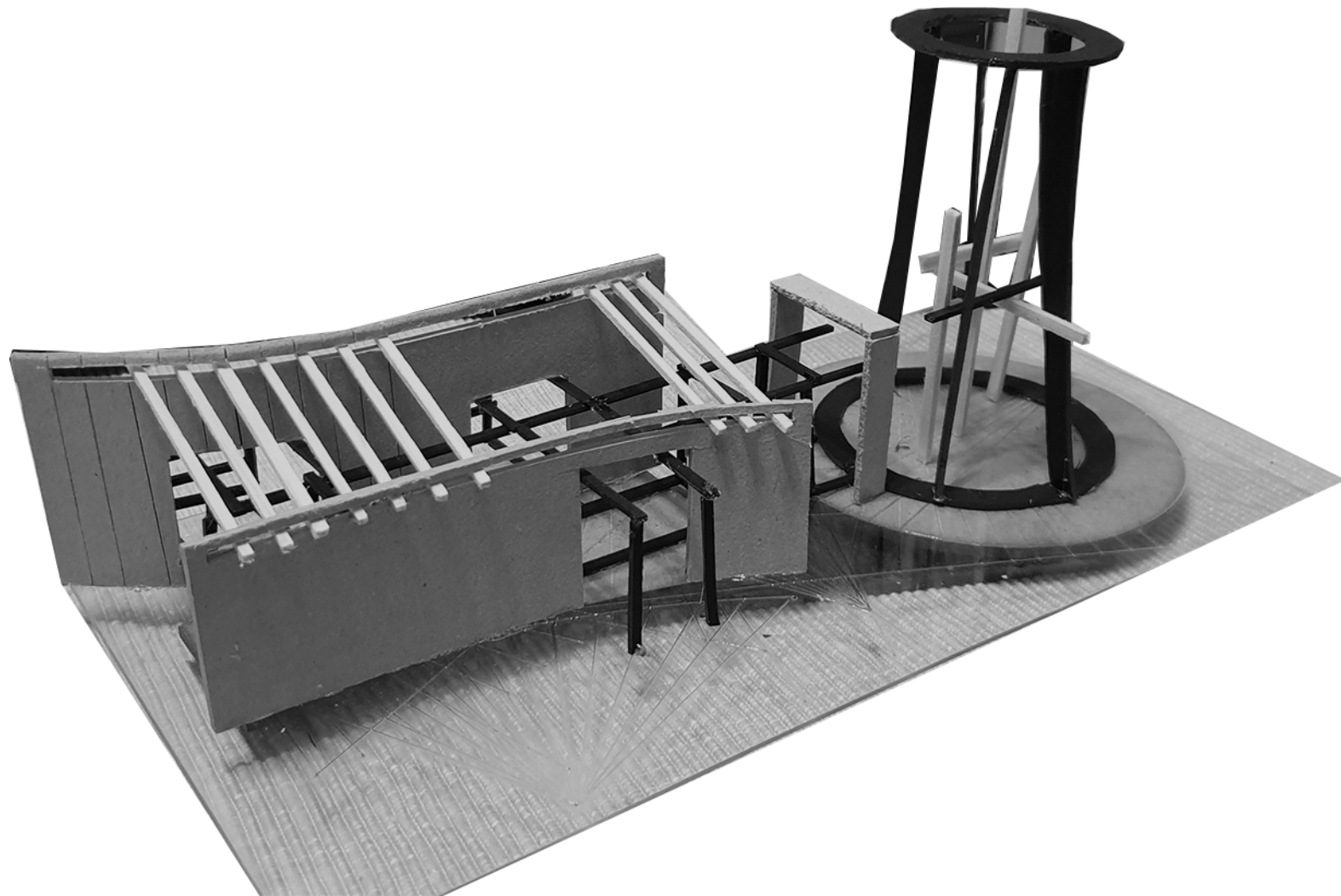


Fig. 35
Perspective of concept 2
(Author,2019)

THE SCRIM

Thresholds is a tool architects use to transcend or to effect transition) into different spaces and environments. It separates volumes and becomes a barrier space.

These barrier spaces can be found in theatre by definition of the scrim. The scrim is a tool used in the film and theatre industry and can be found throughout production. The scrim can be adapted as an architectural design tool supporting the idea of transcendence. The term scrim can be defined as an open-weaved screening system that creates different layers when light is shone through it (Porter, 2006:162). The purpose of a scrim is to cover stage setups, to change the stage backdrops during a performance or when focusing attention on a certain act on stage.

When the scrim is lit from the rear it becomes semi-transparent, depending on the brightness of the light as well as the angle of the light. The whole production can be seen as a layered experience, with different components contributing to stage design, e.g. lights, stage props, built sets.

A scrim in theatre can be defined as a man-made device. The definition of a scrim implies a system that creates different layers when light is shone through it. This term is relatable to the dense tree line around the site. The tree line acts as an environmental scrim defined by the natural elements.

CONNECTION TO THE SITE

The images demonstrate a scrim in theatre. It changes what the user see with different lighting conditions. Image demonstrate the trees on the site that acts the same way according to the sun position, where direct natural light reveals different layers of the site, while shade hides the different conditions.



Fig. 36
The scrim in theatre . Available: <https://www.mosquitocurtains.com/page-theater-scrims> [accessed 15 September 2019]



Fig. 37
Trees on the site acts as a scrim (Author, 2019)

01 MIDSUMMERS NIGHT

Case study *architectural stage design*

- + BAGCHEE ARCHITECTS
- + PERFORMANCE: SEPTEMBER 2007
- + LOCATION: ITALY

“Rachel Miller, at the University of the Arts in Philadelphia, we designed and fabricated a light weight, collapsible, stage set that was transported to Italy for an opera performance. The opera was based upon William Shakespeare’s Comedy, A Midsummer Night’s Dream and called for the creation of a ‘forest’ while leaving room for the cast to move energetically through the space.” (bagcheearchitects, 2007:Online)

The set design was done by using a group of scrim panels hung from the ceiling. These panels has branch like patterns in opaque white cloth. The scrim panels where arrange at different angles and depths to create a layered experience and to portray the density of a forest setting. These forms camouflage the actors as they move between these layers “The game of masked identities and illusion central to the plot, unfolded in the structure of the layered set” (bagcheearchitects, 2007:Online)

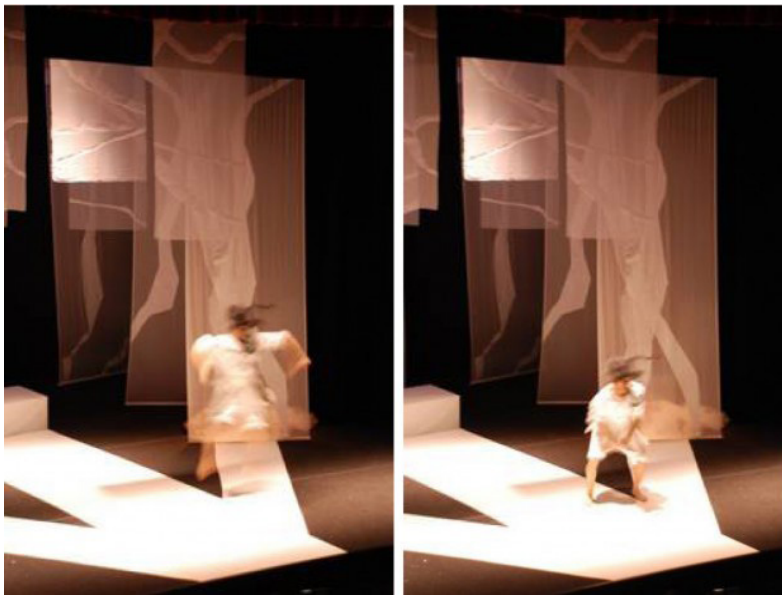


Fig. 37
A layered set design [ONLINE] Available at: <https://www.futurelearn.com/courses/film-production/0/steps/12304>. [Accessed 16 April 2019]

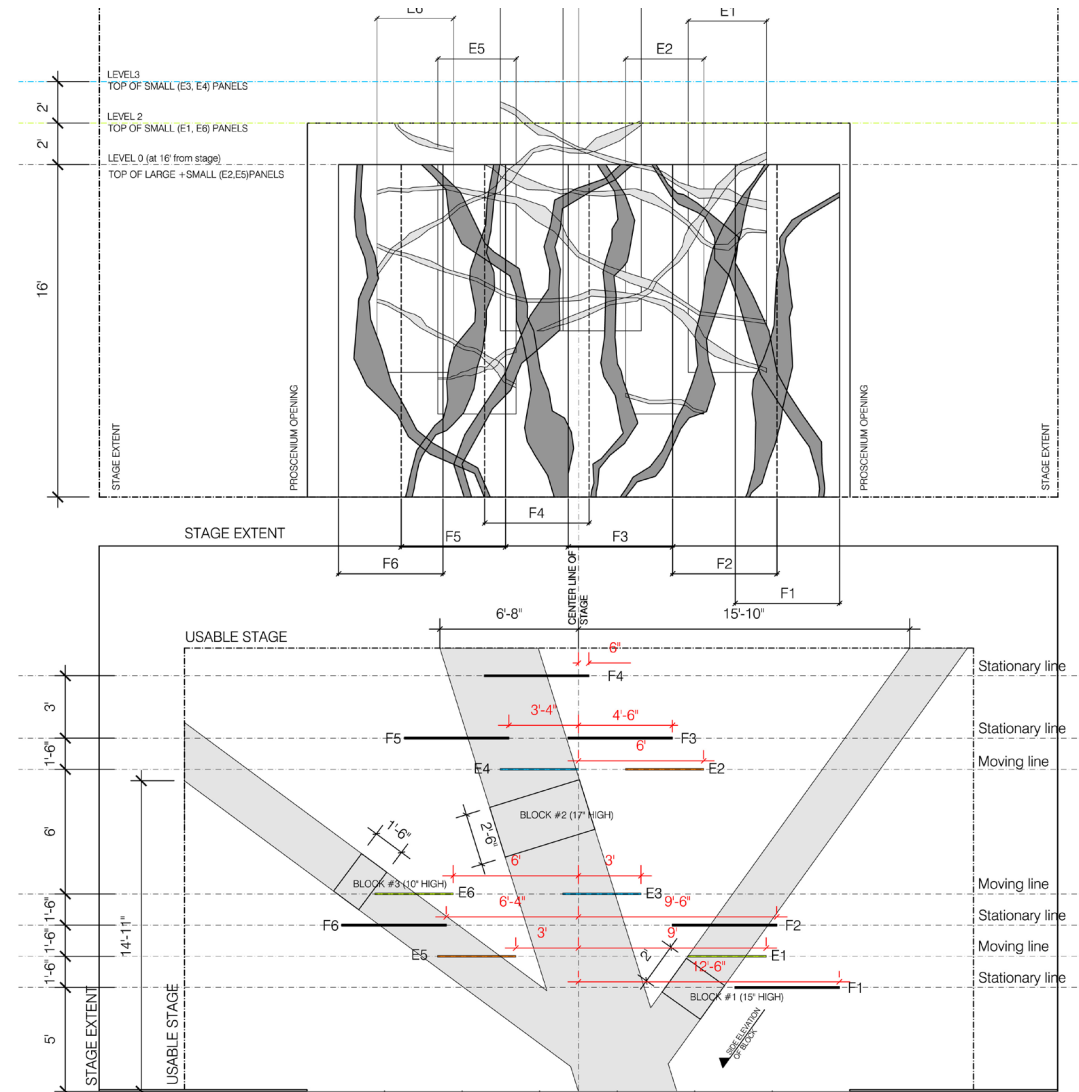


Fig. 38
Elevation and floorplan of precedent [ONLINE] Available at: <https://www.futurelearn.com/courses/film-production/0/steps/12304>. [Accessed 16 April 2019]

MOVING BODY CONCEPT 3

MAN MADE - NATURE
PROCESS DRIVEN
LINEAR FRAGMENTATION
ELEMENT OF DISCOVERY

A mechanical device has parts that move when it is working, often using power from a source. The different parts of the site: The trains, train terminal, existing trees, warehouses and unifying structure already work as process driven system.

This system is emphasized to portray the mechanical qualities that exist on the site. The result of the system is its functional integration and response to the environment and climate and reunifying the different systems. There is a friction between the man-made system and the natural environment.

The mechanically motivated bodies can contribute to different moments projected by movement. Moments themselves can become movement. Through opening up the facades an interaction with the surrounding environment is created, blurring the interior and exterior threshold.

Film can contribute to the concept where a screen can develop further than a two dimensional element, by moving and becoming a filter or framing of thresholds. The built model portrays the different layers of the site in built form, expressing the intertwined system.

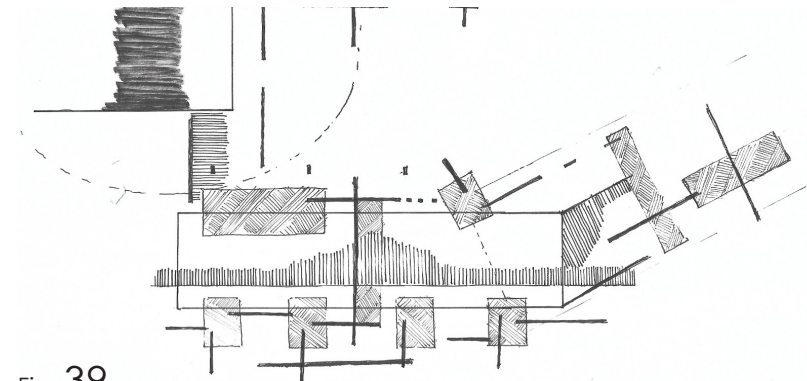


Fig. 39
Diagram floorplan of concept 3
(Author,2019)

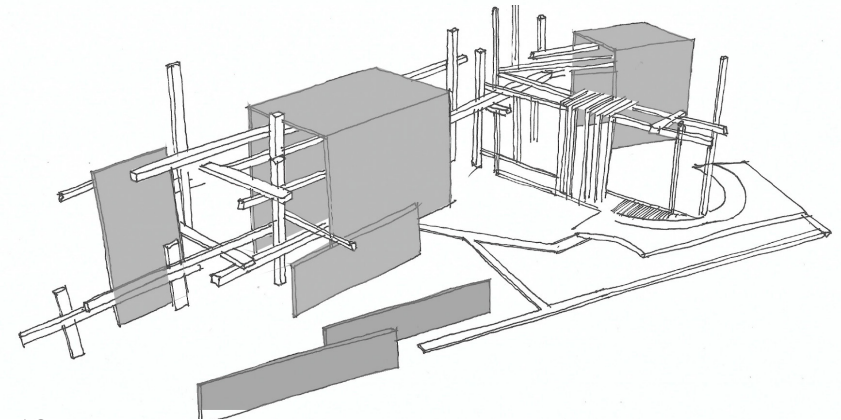


Fig. 40
Perspective of concept 3
(Author,2019)

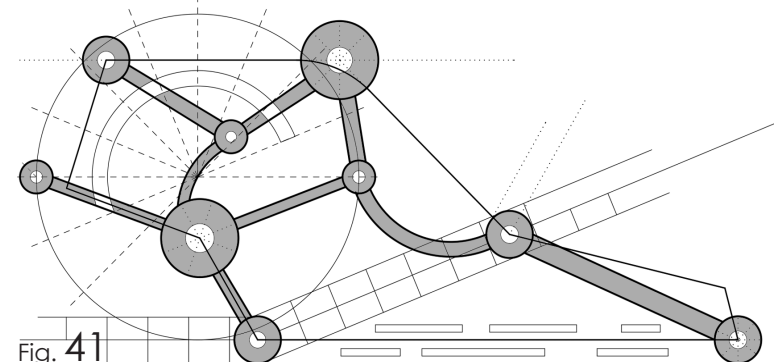


Fig. 41
Conceptual layout of the site as a mechanism
(Author,2019)

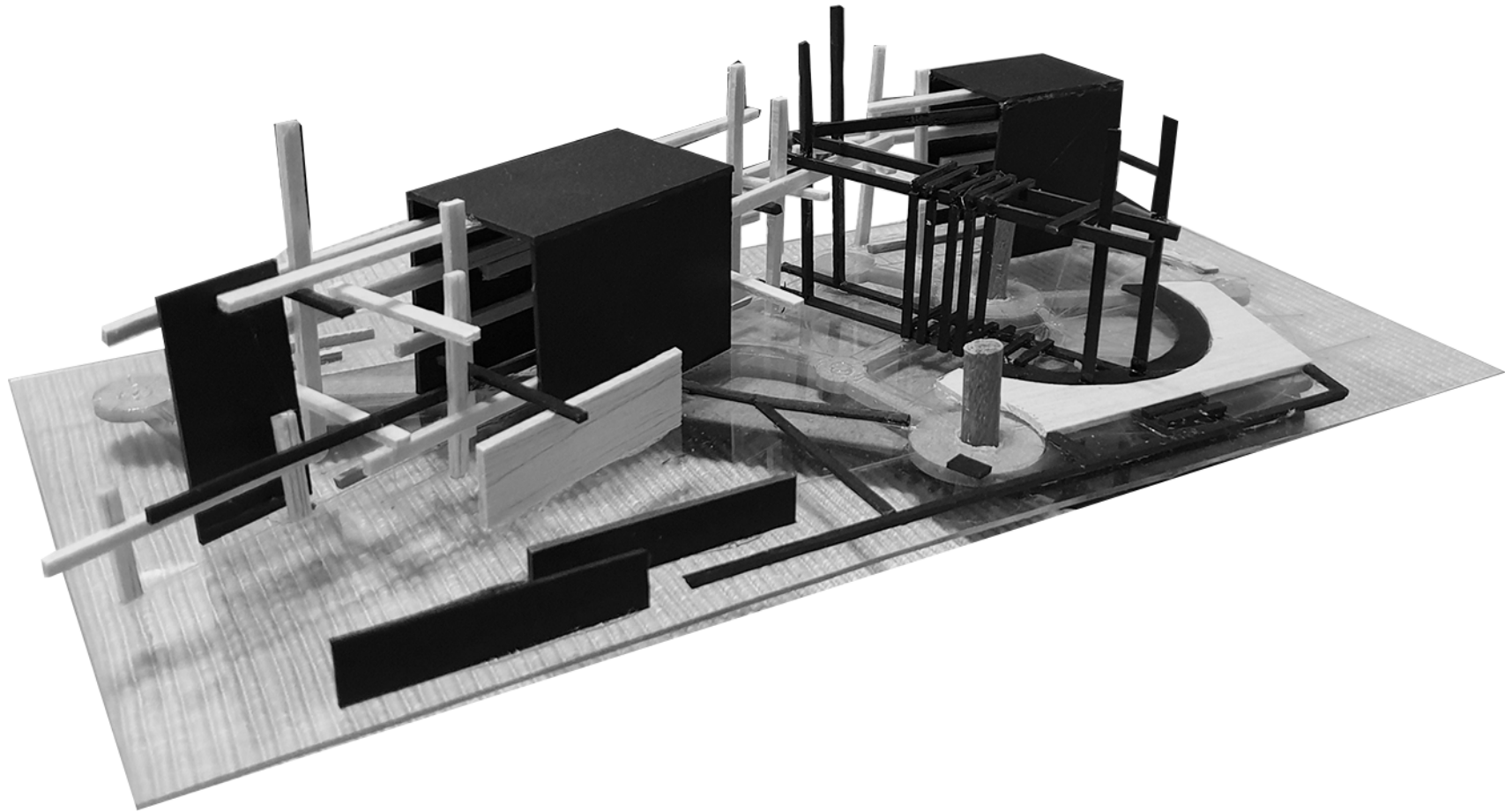


Fig. 42
Perspective of concept 3
(Author,2019)

BUILDING AS A PERFORMANCE

An actor can be described as a person who portrays a character in a performance. This person pretends to be someone else while in performance to portray its role. One can argue that an actor uses a different facade than his own in order to become a different person. When a performance is in play there exist a communication between the audience and the performer. These ideas vary, depending on what message the performer is trying to convey to the audience (Wolf & Block. 2014: 2).

In theatre the performer and the audience are separated by a stage where the performance takes place. In film the audience and the performer is separated by a screen. The facade of the performer can be compared to that of a scrim, as it is between the performer and the audience. The audience can see the performer's real identity, but its portrayal of a different character gives an illusion of something different. The same way a scrim functions when light is shone through it. The spaces and functional requirements within building become stages by itself as the actor performs in front of a camera, where the performance is captured for film.

By allowing an engagement between the audience and the performance the experience is enhanced. In terms of architecture the engagement can come about by creating a visual link between the two, where interplay must exist between the exterior and interior, where the facade becomes the scrim between the audience. As previously mentioned, the facade of the building exists as a screen/scrim and by pulling it apart it conveys a three dimensional experience/visual link. This addresses the main question – that of creating a link between the industrial quality and the natural aspects on the site.

Film conveys a message through the narration of a story. The clarity of the story depends on various factors such as the personalities conveyed during performance, as well as the physical setting and spatial qualities and the interest of the audience. It is therefore important to keep the visual link exciting to keep interest of the viewer(Wolf & Block. 2014: 2).

In order to keep an engagement with the viewer, the users of the building must be engaged by the spatial qualities with the interior and exterior. In order to create an exterior engagement the public cinema and functions must extend out of the building in the form of a bridge and activities placed on the facade.



CONCEPTUAL FRAMEWORK

The conceptual framework aims to address the problem statements and ideas. The ideas regarding the touchstone and conceptual implementations becomes a coherent application process in the design to address the aims and problem statements.

The concepts become an abstract exposition of the qualitative experiences on the site. These ideas are further investigated and implemented by means of theoretical stances that connect the theoretical discourse between film and the site context.

The main purpose of the dissertation is to question the film production typology and to create a link between the existing thresholds of the site, namely the industrial elements and the natural elements surrounding the existing building. To achieve this, the functional requirements and theoretical application, must be seamlessly integrated to provide filmic spatial experiences that complement the film production process.

It is therefore important to understand the production process and movement between the various production facilities in order to formulate an intervention that uses the spaces to optimal use.

The ideas and conceptual terms such as Refraction, The scrim, threshold, for example, are further investigated and explained within the theoretical grounding



Fig. 44

Movement that can be incorporated into the design
[online] Google images, Available: https://www.google.com/search?q=movement+dancing+sketch&rlz=1C1G1GM_
[Accessed 29 September 2019]

TYPOTOLOGY

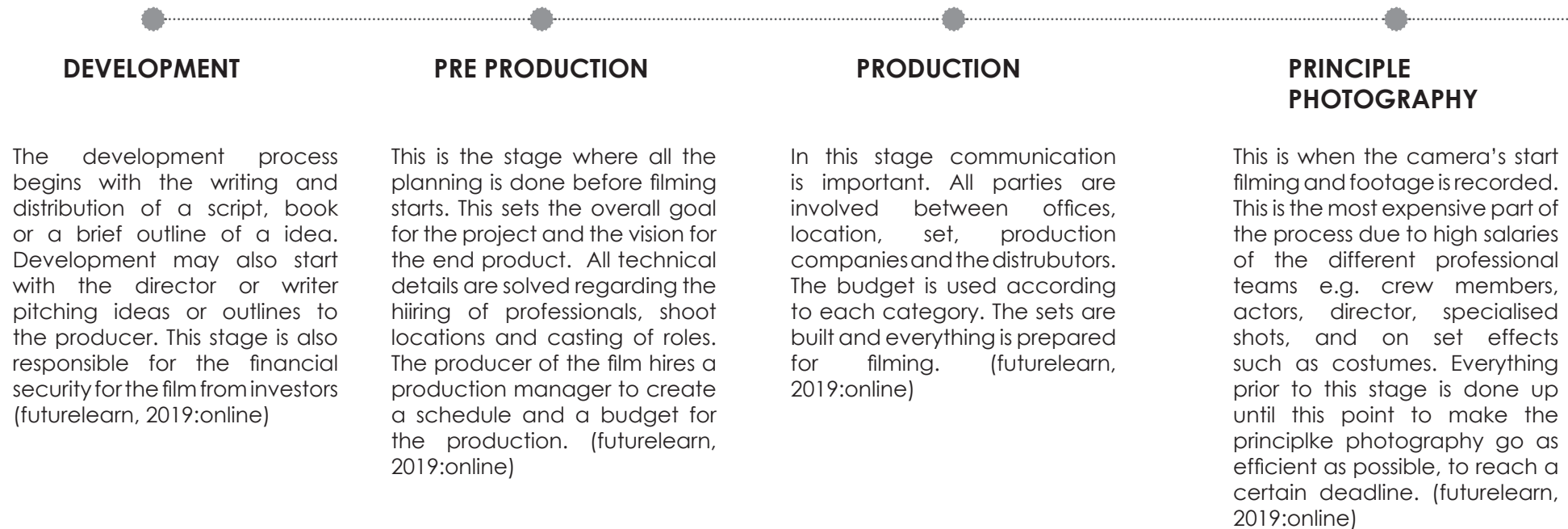
The typological characteristics of a film production facility are mainly explored through the tectonics such facilities with exploration of the existing environment of the site. However the typological considerations go beyond the idea of a shed like morphology, how concepts and ideas are translated into functional architecture for the client's needs. The typological considerations are investigated through precedent and case studies to create a unique approach towards the site



Fig. 45
Building interior
(Author, 2019)

THE STAGES OF FILM PRODUCTION

In order to produce a film, planning is essential. It requires a large team of professionals that aid with every step of the process. The accommodation and functional integration of the intervention aim to ease this process, by focusing on development of a script and idea, providing office facilities for pre-production to post-production. Post-production is important, as the visual effects and music score is implemented. The soundstages on the lot of the intervention will be designed by other specialists as the main focus of the intervention is to provide for pre- production to post-production facilities. The following describes the process to make a successful high-budget film.





WRAP

After shooting ends and the required film footage is gathered, the set is then dismantled and locations are cleared. The equipment is returned to the suppliers. What is important in this stage is full set of records of the shoot. (futurelearn, 2019:online)

POST PRODUCTION

This stage can start when the principle photography ends or during filming. Post production consist of review of footage and assembling the footage for a finished product. Another layer of complexity is the editing of scenes by use of visual effect (VFX) and music in the form of sound design. (futurelearn, 2019:online)

DISTRIBUTION

Once the film is completed into a finished product it must be distributed. This is the stage where producers will get their money back. The film will go into the cinema and/or be distributed via various platforms such as Amazon Prime, Netflix, and HBO etc. (futurelearn, 2019:online)

INVESTIGATION OF USERS

There is a need for more large-scale film production facilities in South Africa. The success of the Cape Town Film Studios has proved that such facilities can bring about great financial rewards and by incorporating local businesses in the production process it can become economically more viable.

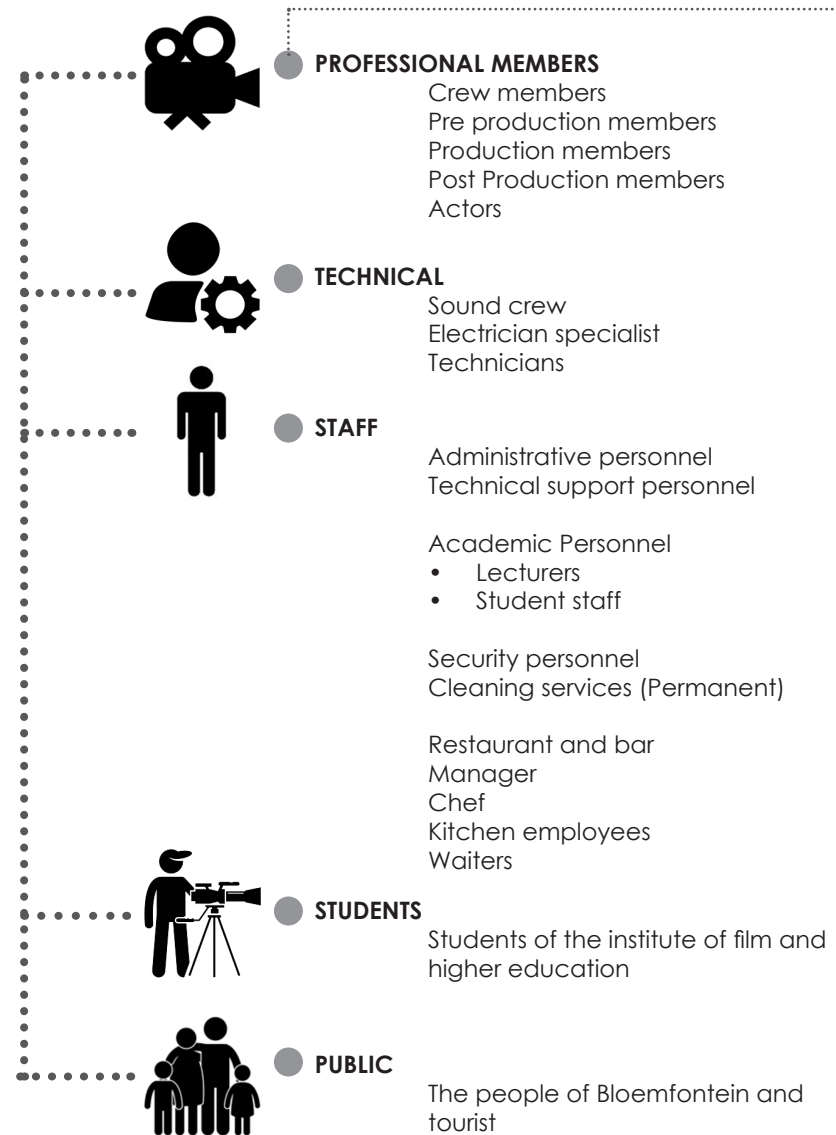
The client, the National Film and Video Foundation, provides funding for such facilities and helps with the marketing of the films, the production contacts and the distribution of the films. The foundation gathers statistics related to film data in order to help investors with insight into the South African film industry.

The general requirements of the users are:

- Office Spaces to accommodate personnel for the production process. This includes soundproof spaces for editing purposes.
- Educational facilities for lecturers and students
- Kitchen facilities
- Soundstages larger than 700 square meters to cater for large scale cinematography (to be designed by specialist)
- A theatre
- Cinema spaces for the public, and private users

The accommodation list is grouped into three categories, namely, Film production, Production, Public. These categories are then divided into sub-categories to provide for private and public functions. The main users are students, visitors and production staff (professional members).

Professional members form the main user profile as they are the most essential part in the creation of a film. The site provides for the spaces needed for the large list and requirements of staff members. The proposed project aims to create an integrated circulation route that complements the film production process.



PROFESSIONAL MEMBERS INVOLVED

USERS IN FILM STUDIO

CREW MEMBERS INVOLVED

DIRECTOR OF PHOTOGRAPHY
PRODUCTION MANAGER
ASSISTANT DIRECTOR
PRODUCTION DESIGNER

PRE PRODUCTION MEMBERS

STORY EDITOR
WRITER
DIALOGUE COACH
SET DESIGNER
ART DIRECTOR
COSTUME DESIGNER

POST PRODUCTION MEMBERS

POST PRODUCTION
SUPERVISOR
EDITOR
COLOR TIMER
NEGATIVE CUTTER
FOLEY ARTIST
ADR EDITOR
MUSIC MIXER
MATTE ARTIST

PRODUCTION MEMBERS

UNIT PRODUCTION MANAGER
LINE PRODUCER
PRODUCTION MANAGER
DIRECTOR
ASSISTANT DIRECTOR
SECOND DIRECTOR
CINEMATOGRAPHER
CHIEF ELECTRICIAN
CAMERA OPERATOR
ASSISTANT CAMERAMAN
FILM LOADER
PRODUCTION SOUND MIXER
BOOM OPERATOR
STUNT COORDINATOR
VISUAL EFFECTS DIRECTOR
FX COORDINATOR
PROPERTY MASTER
SET DRESSER
COSTUMER
MAKE UP ARTIST
HAIRDRESSER
PRODUCTION ASSISTANT
PRODUCTION OFFICE
COORDINATOR
UNIT PUBLICIST
PRODUCTION CATERE
CRAFT SERVICES
TRANSPORTATION SERVICES

FILM STUDIO STAFF

ADMINISTRATIVE STAFF
ACCOUNTING STAFF
TECHNICAL STAFF

POST PRODUCTION STAFF

VIDEO EDITING
RECORDING STUDIO
MASTERING STUDIO
COLOUR GRADIENT

ANIMATION STUDIO STAFF

PRE PRODUCTION
PRODUCTION

WARDROBE STAFF

DRESS DESIGNER
TAILORS

EQUIPMENT, PROP, RESTAURANT STAFF

SCREENING, LIBRARY STAFF

FILM MAKERS

PRODUCER

DIRECTOR

ACRORS

TECHNICAL STAFF

PRE PRODUCTION STAFF
PRODUCTION STAFF

ACCOMMODATION LIST

FILM PRODUCTION

Spaces to compliment the filming process/ private facilities

● SOUNDSTAGE A (DESIGNED BY SPECIALIST)

VEHICLE ROUTE ENTRANCE
FOYER
ABLUTIONS
GANTRY LEVEL
KITCHEN
STORAGE UNITS
OFFICES
READING ROOM
DRESSING/ MAKEUP
SOUND/TECHNICAL
REST ROOM

● SOUNDSTAGE B (DESIGNED BY SPECIALIST)

VEHICLE ROUTE ENTRANCE
FOYER
ABLUTIONS (5/2)
GANTRY LEVEL
KITCHEN
STORAGE UNITS
OFFICES
OPEN MULTIFUNCTIONAL
READING ROOM
DRESSING/ MAKEUP
SOUND TECHNICAL
REST ROOM

● BACKLOT SETS

● FOOD COURT

SEATING AREA
KITCHEN
ABLUTIONS
MULTIFUNCTIONAL SPACES

PRODUCTION

Production spaces addition to film production/ Private spaces

● PRODUCTION OFFICES

LOBBY/RECEOTION
WAITING ROOM
GALLERY
MID STAGE PRODUCTION
SUNKEN PLAZA
FINANCIAL DEPT
MEETING ROOMS
STORAGE
CANTEEN
KITCHEN
AMPHITHEATRE
SCREENING ROOM
POST PRODUCTION
DISCUSSION ROOM
OPEN WORK SPACE
ARCHIVE/ LIBRARY
SLEEPING ROOM
EQUIPMENT SUITE
RECORDING STUDIO/ EDITING/
ABLUTIONS
RENDER FARM

● SOUNDSTAGE C (LIVE TELEVISION)

FOYER
ABLUTIONS
GANTRY LEVEL
KITCHEN
STORAGE UNITS
READING ROOM
DRESSING/ MAKEUP
SOUND/TECHNICAL

● TRANSPORT ROUTE

OPEN SPACES CONNECTING THE DIFFERENT
PRODUCTION FACILITIES

● EDUCATION/ MULTIFUNCTIONAL

LOBBY
MULTIFUNCTIONAL SPACES

ACCOMMODATION + PUBLIC

Open spaces for the public to interact and private residence for film crew

● CREW SUPPORT

ACCOMMODATION ROOMS
ABLUTIONS
KITCHEN

● STUDIO GARDEN

● AUDITORIUM

● EXHIBITION SPACES

STOREFRONT FOR ART AND ARCHITECTURE

Precedent study **TPOLOGY**
+ STEVEN HOLL
+ NEW YORK, 1993

Storefront for art and architecture is an institution located in SoHo, Manhattan focused on the development of innovative ideas. The association has explores a variety of social issues, for example: Gender identity, vagrancy and public housing. It provides alternative platforms to collaborate between different disciplinary, with its primary focus on art and architecture. (Waller,2015: online)

The triangular shaped space functions through different ideas and dialogue of its users in the form of an exhibition space. The storefront explores how a wall can approached in a different manner to create an interaction and connection between the interior and exterior. This is achieved by different shaped hinge panels that can be moved. This creates different shapes and views for the users.

The precedent influenced the design idea of reinterpreting a façade, one that can move to create a connection between the interior and exterior. The goal is not of social interaction, but views towards the site's natural environment, invoking a feeling of being in nature

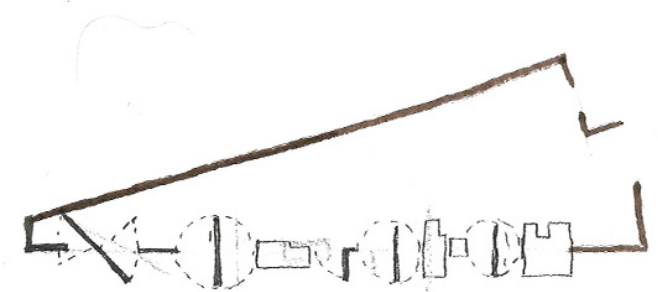


Fig. 46
Storefront floorplan
(Author,2019)



Fig. 45
Storefront by steven Holl, for more available:
<https://www.archdaily.com/100506/storefront-for-art-and-architecture> [accessed 06 September 2019]

CAPE TOWN FILM STUDIOS

Precedent study *Functional requirements*

Cape Town Film Studios is located in Film City Boulevard in the Cape Town district. The production facilities are described as a world class, Hollywood-style film studio complex in Africa, winning several awards for a film studio complex in a developing world. The complex serves as a hub for various media, entertainment and film requirements (capetownfilmstudios, 2019:online).

PROGRAM

The program involves grouping the required functions to ease the process of film production. All the spaces are scattered horizontally on the landscape. Semi-public, public and private spaces are grouped within each function as a separate building. The result is separate facilities to split the different parts of production.

MATERIAL

The materials consist mostly of steel structures and concrete.



Sound stage

SOUND STAGES

The soundstages are designed with a high roof structure and gantry to accommodate different lighting methods. The spaces accommodate the structures built in the workshops. These spaces are used for filming



Offices

WORKSHOPS

The workshops are used to build structures that will be used on the set. Cape town film studios use local craftsmen to build the required structures, creating work

LESSON LEARNED

- + Spaces needed for film production
- + Soundstage layout
- + Workshop layout
- + Sizes



SOUNDSTAGES

WORKSHOP

FILM SET

Fig. 47

Cape Town Film Studio lot [ONLINE] available. <https://www.capetownfilmstudios.co.za/> [accessed 1 March 2019]

ACCOMMODATION LIST

- + Soundstages
- + Production offices
- + Backlot sets
- + Hazardous waste facility
- + Data centre
- + Environmental management
- + Water tanks
- + Artist support
- + Workshops
- + Water tanks
- + Back up energy centre
- + Studio garden
- + Sattelite platform

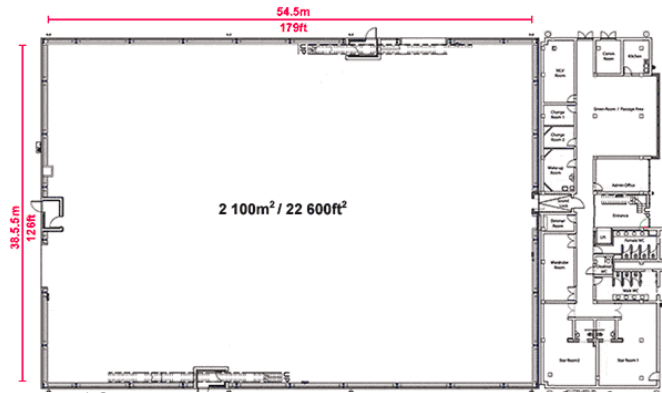


Fig. 49
Cape Town Film Studio site [ONLINE] available:
<https://www.capetownfilmstudios.co.za/index.php/blog/sound-stages/stage1studios.co.za/>
[accessed 1 March 2019]

SOUNDSTAGE A

Size	2100m2
Height to gantry	15m
Length	54.5m
Width	38.5m

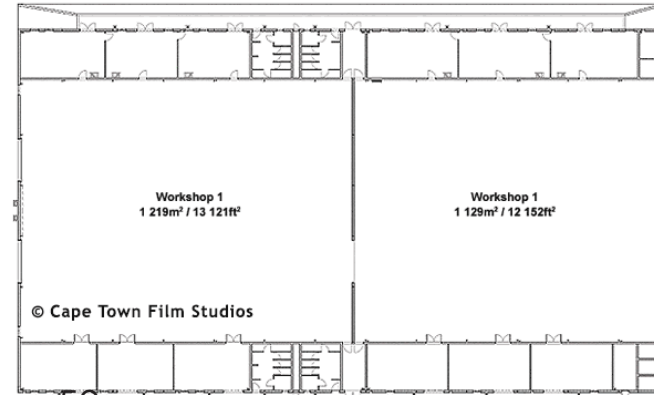


Fig. 50
Cape Town Film Studio site [ONLINE] available:
<https://www.capetownfilmstudios.co.za/index.php/blog/workshops/workshop-audios.co.za/>
[accessed 1 March 2019]

WORKSHOP A

Size	3157m2
Height to gantry	6m



Fig. 48
Cape Town Film Studio site [ONLINE] available:
<https://www.capetownfilmstudios.co.za/>
[accessed 1 March 2019]



02 WATERSHED

PRECEDENT STUDY SPATIAL LAYOUT

+ WOLFF ARCHITECTS
+ CAPE TOWN WATERFRONT

The watershed project was designed to provide office spaces and to function as a business incubator. The idea is to help new companies by providing services for management training. The building creates a professional office environment with private spaces and inviting the public on the ground floor that acts as a market space. (Wolffarchitects,2014:online)

The site is allocated next to a dry dock in the V&A Waterfront area, next to the Two Oceans Aquarium. The building functions acts as a pedestrian street with a long axis with two entrances. The entire shed was opened up with functions along the axis to create a street through the centre of the building. The ground floor is used for public functions and the upper floors for the university building (ArchSA 73, 2015: 11).

Accommodation list

- + Workshops
- + Two main entrances that emphasise a circulation axis
- + Staff facilities
- + Office spaces seperated from public spaces
- + A functional circulation route

Fig. 51
Watershed [ONLINE] Available at: <https://www.wolffarchitects.co.za/projects/all/watershed/>.
[Accessed 10 July 2019].



GROUND FLOOR

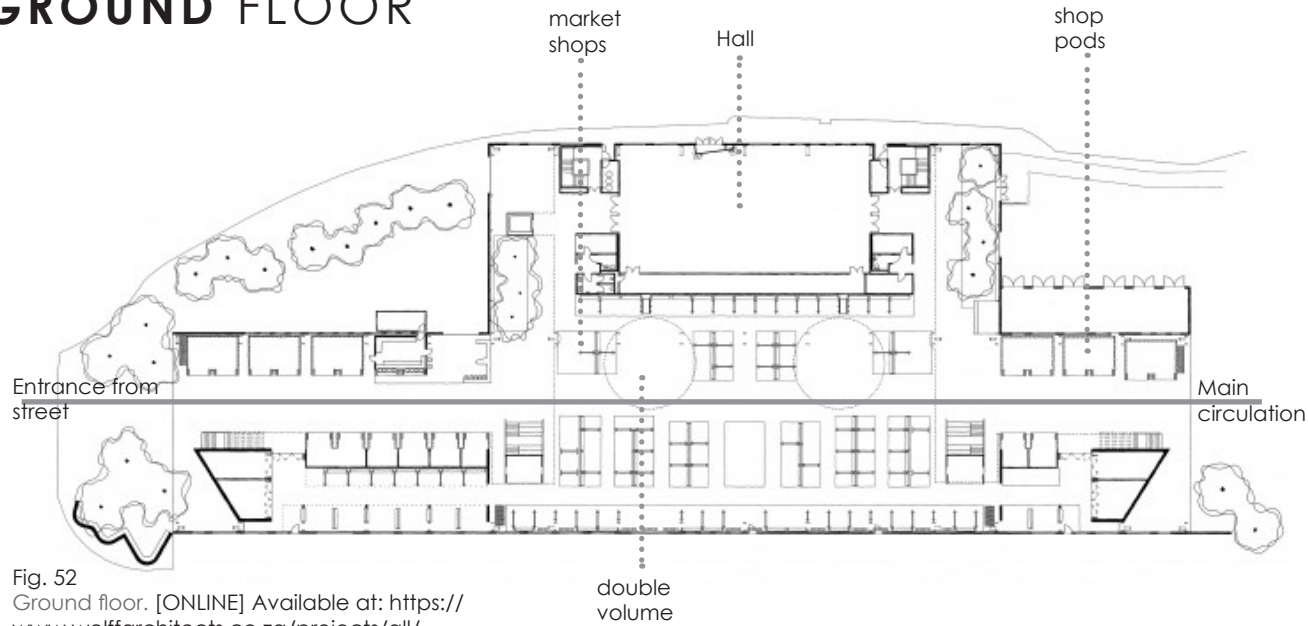


Fig. 52
Ground floor. [ONLINE] Available at: <https://www.wolfarchitects.co.za/projects/all/watershed/>. [Accessed 10 July 2019].

The functions on the ground floor is connected and placed along a circulation axis that acts as a street. These public functions vary from market shops to stalls. The spaces are open with the scale lowered in the middle with an upper floor circulation route, but connected with double volume spaces. The spatial qualities are experienced through the double-volume spaces and circulation paths that complement the building's form.



Fig. 53
Ground floor perspective
(Author, 2019)



Fig. 54
Entrance
(Author, 2019)



Fig. 55
Walkway
(Author, 2019)



Fig. 56
Main entrance
(Author, 2019)

FIRST FLOOR

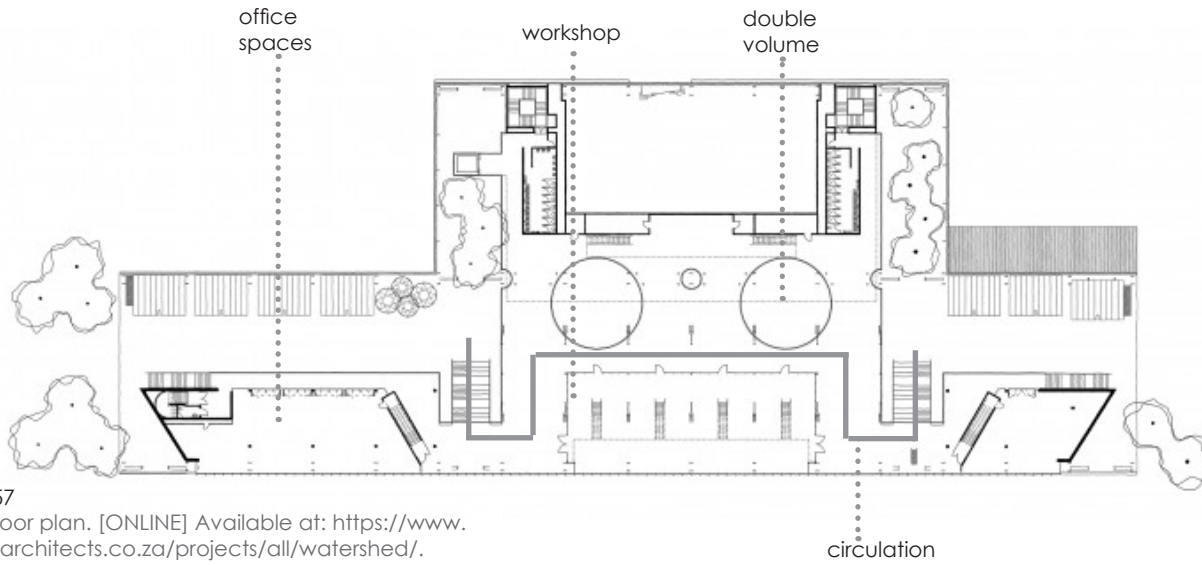


Fig. 57
first floor plan. [ONLINE] Available at: <https://www.wolffarchitects.co.za/projects/all/watershed/>. [Accessed 10 July 2019].

The first floor accommodates the private functions. The circulation path connects to the main axis on the ground floor with two sets of stairs. The functions are grouped, creating an open circulation platform complementing the large scale of the building.



Fig. 58
Perspective of concept 1
(Author,2019)



Fig. 59
Perspective of concept 1
(Author,2019)



Fig. 60
Perspective of concept 1
(Author,2019)



Fig. 61
Perspective of concept 1
(Author,2019)

TOPOLOGY

The investigation regarding the topology consists of several analyses of the site's quantitative and qualitative attributes. These findings will be displayed in three chapters to portray the macro, meso and micro environments. The analysis did not only focus on understanding physical qualities, but sought to comprehend the character of the site and the concepts related to the site. Precedent studies with a similar topological character will further aid with the design process.





Fig. 62
The site as a whole
(Author, 2019)

SITE ANALYSIS

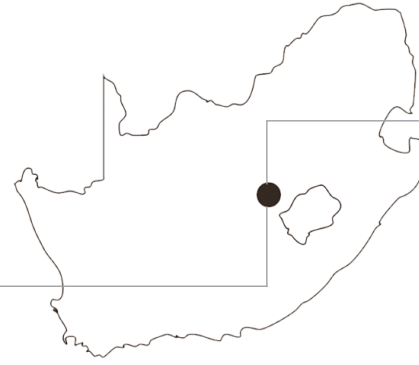
QUANTITATIVE ANALYSIS

The site location is behind Naval Hill between Long Street and Rudolf Greyling Street In Bloemfontein. The site consists of a large plot with several warehouses and train tracks. Its main function is linked transport and storage terminals. This land is private and falls under rural development. When looking at the micro context of the site, there are several existing elements that will influence the design and structure. These elements are the railway and existing trains, the train terminal and the warehouses.



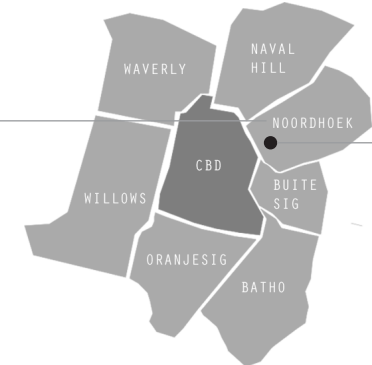
SOUTH AFRICA

Fig. 63
South africa
(Author,2019)



FREE STATE

Fig. 64
Free state
(Author,2019)



NAVAL HILL

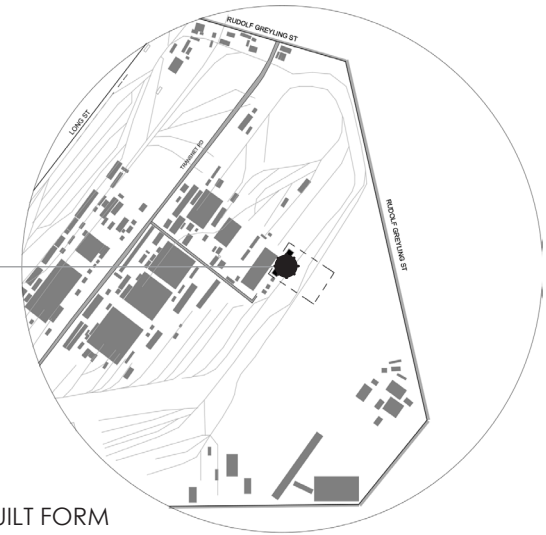
Fig. 65
Naval Hill
(Author,2019)



Fig. 66
The site in context
(Author,2019)



Fig. 67
Bloemfontein devisions
(Author,2019)



BUILT FORM
Fig. 68
Preposed site
(Author,2019)

The proposed site was chosen because of its quiet setting outside of the city and its large scale for the functional requirements. The existing structure was used as a train terminal, where train components were serviced. This structure and the site deteriorated over time with nothing remaining in the interior. The existing structure forms an empty shell on the site, with large open spaces around the building the site is perfect for the program.

A macro, meso and micro analysis will be done to investigate the quantitative and cognitive information related to the site and context.

MACRO ANALYSIS

The site forms a rectangular shape and is located on the east part of the Transnet area. The site has unique features, having a variety of trees and vegetation and a railway system with trains on the site. On the southern side of the plot is Maselspoort Road. The road leads to the city and the airport, creating an axis between the city and the site.

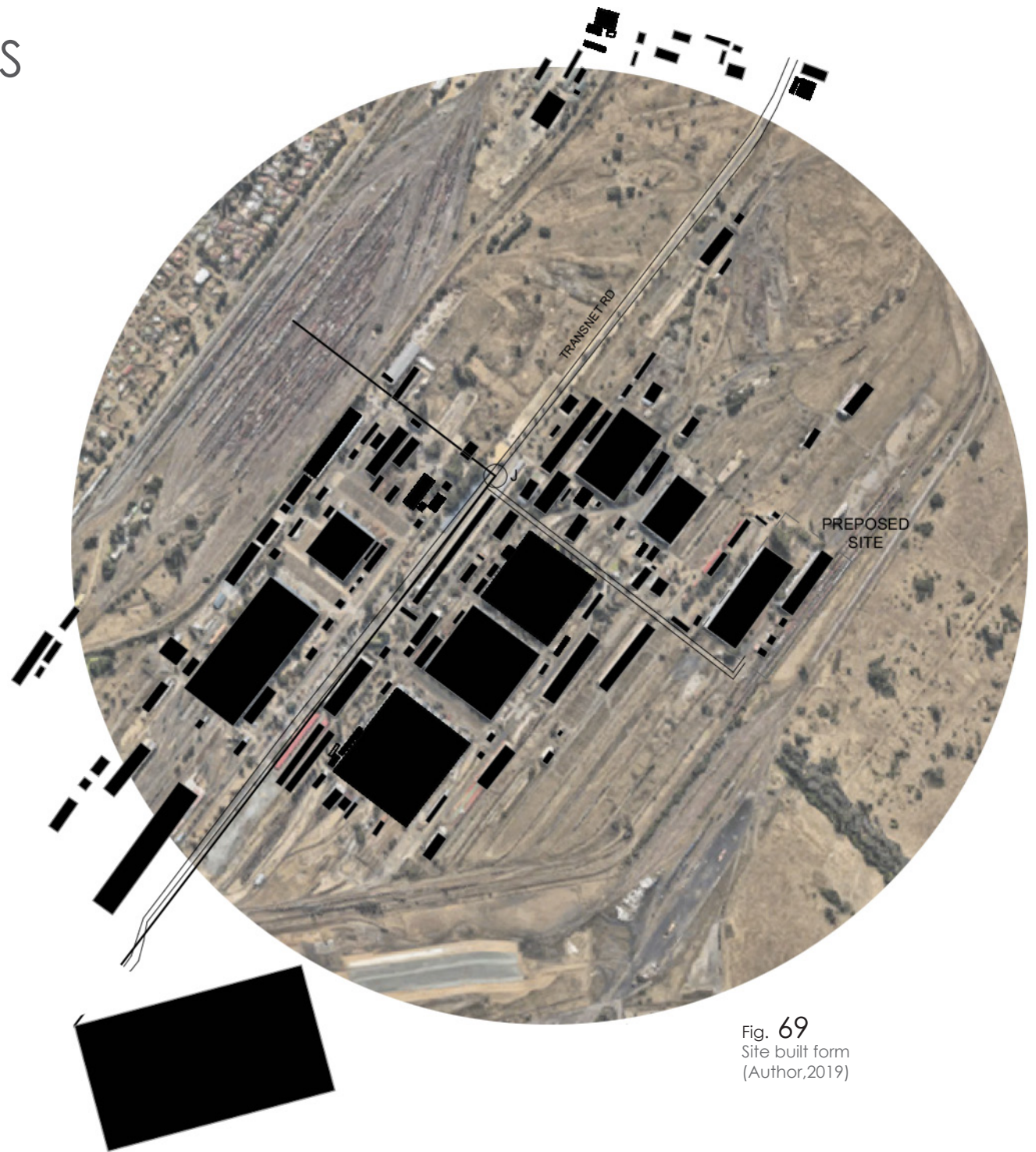


Fig. 69
Site built form
(Author, 2019)



Naval Hill

Rudolf Greyling street

Transnet Road

Proposed site

Long street

Maselspoort road

Fig. 70
Site map [ONLINE] Available: <https://www.google.com/maps/place/Bloemfontein/> [Accessed 15 March 2019]

DENSITY AND BUILT FORM

The plot mainly consists of large warehouses that connect with the railway system and office buildings. The warehouses are large in scale and range from heights of 9m to 14m. These structures are spread out along Transnet Road.

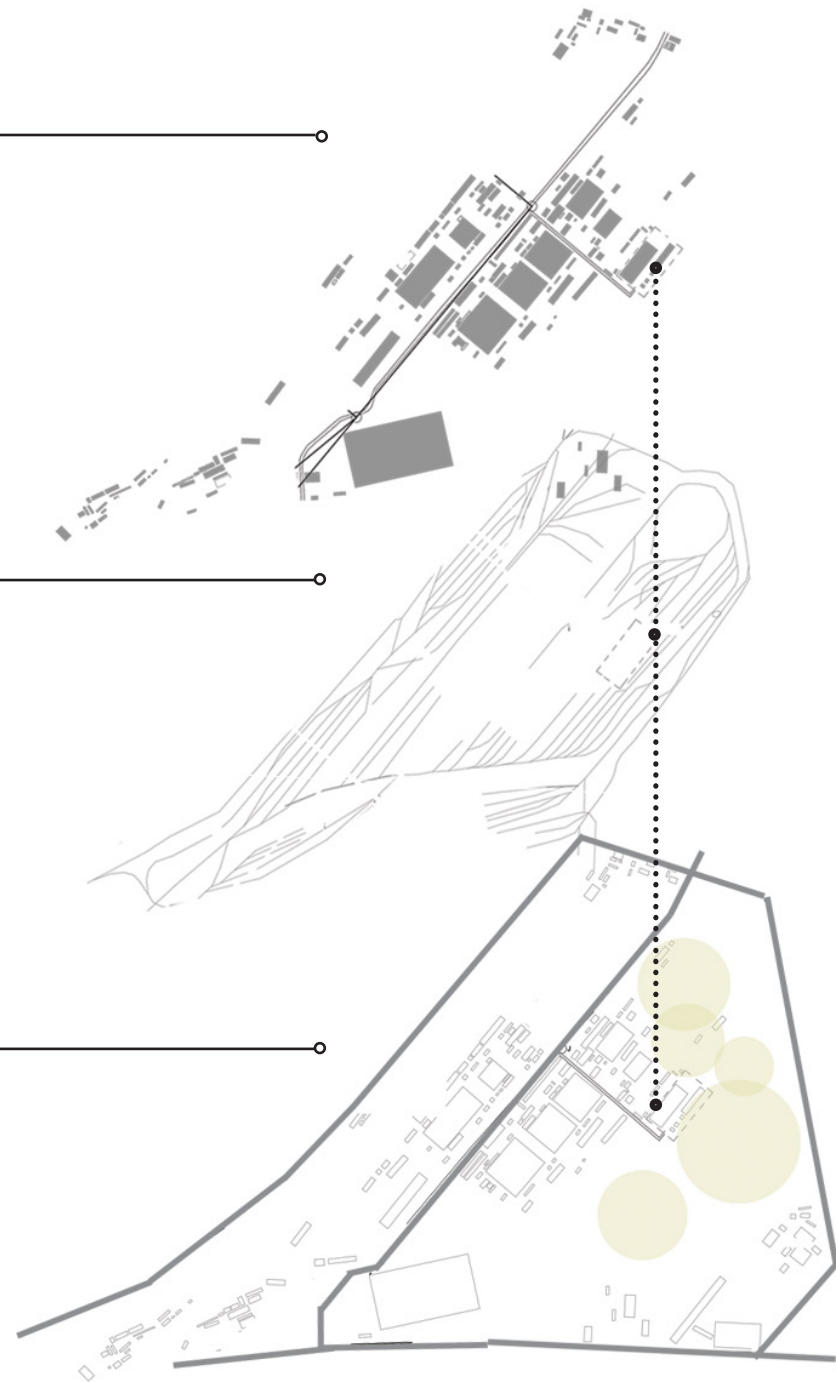
UNIQUE SITE FEATURES

The plot is connected with a railway system that moves along and through the warehouses. This is important as the connected system relies on transportation of various products.

OPEN SPACES AND MAJOR ROADS

The main entrance to the site is through Transnet Road. This road connects with Rudolph Greyling Street and Long Street, that moves around the plot.

Fig. 71-73
Site features
(Author, 2019)





Warehouse

Open space

Warehouse

Proposed site(the existing train terminal)

Existing trains

Warehouse

Fig. 74
Warehouses located on the site [ONLINE] Available: <https://www.google.com/maps/place/Bloemfontein/> [Accessed 15 March 2019]

SUBDEVISIONS + TRAIN TRACKS

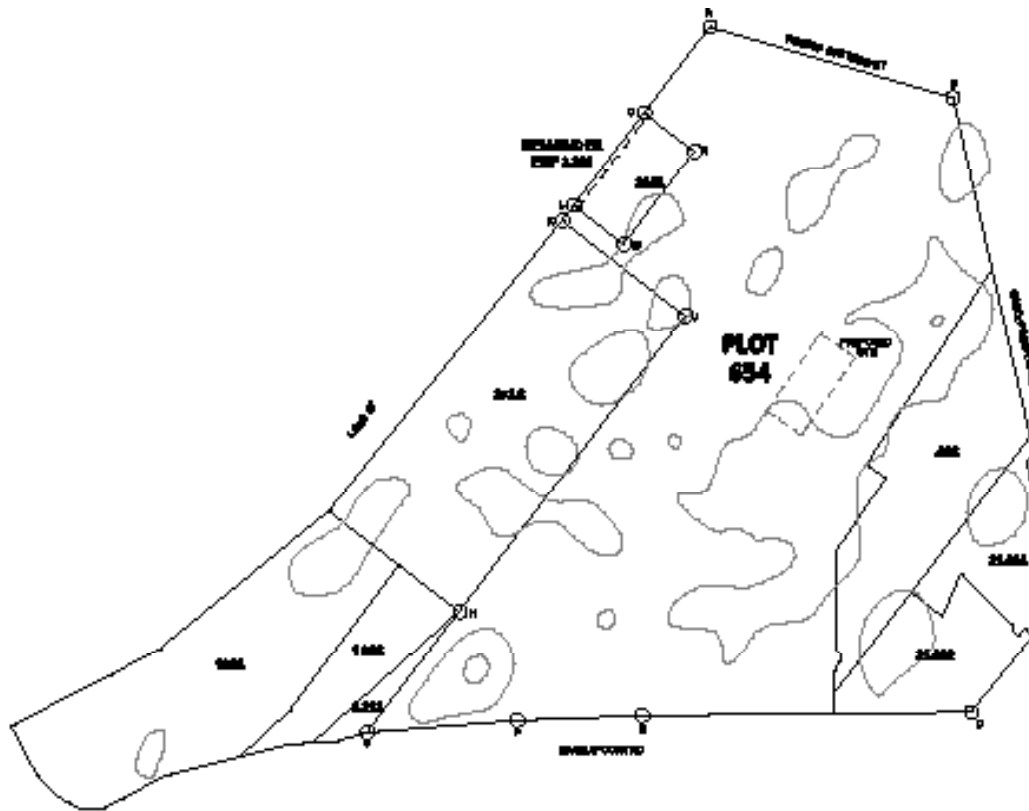


Fig. 75
Plot subdivisions
(Author,2019)

01 SUBDEVISIONS

The site is situated on plot 654. The plot is divided into nine divisions, all owned by Transnet to carry out their services.

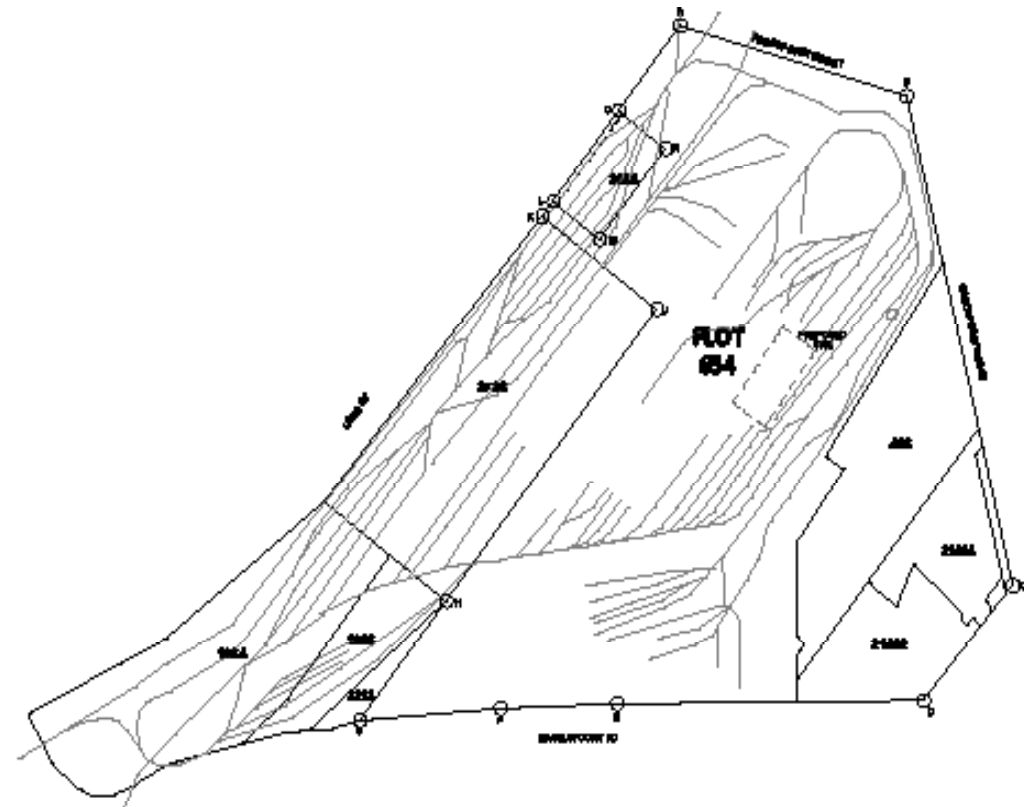


Fig. 76
Existing train tracks on the site
(Author,2019)

02 TRAIN TRACKS

Train tracks are present throughout the site. The function of these tracks is to connect the different warehouses and transportation of products. Most of these tracks are out of use, with only a small percentage being used.

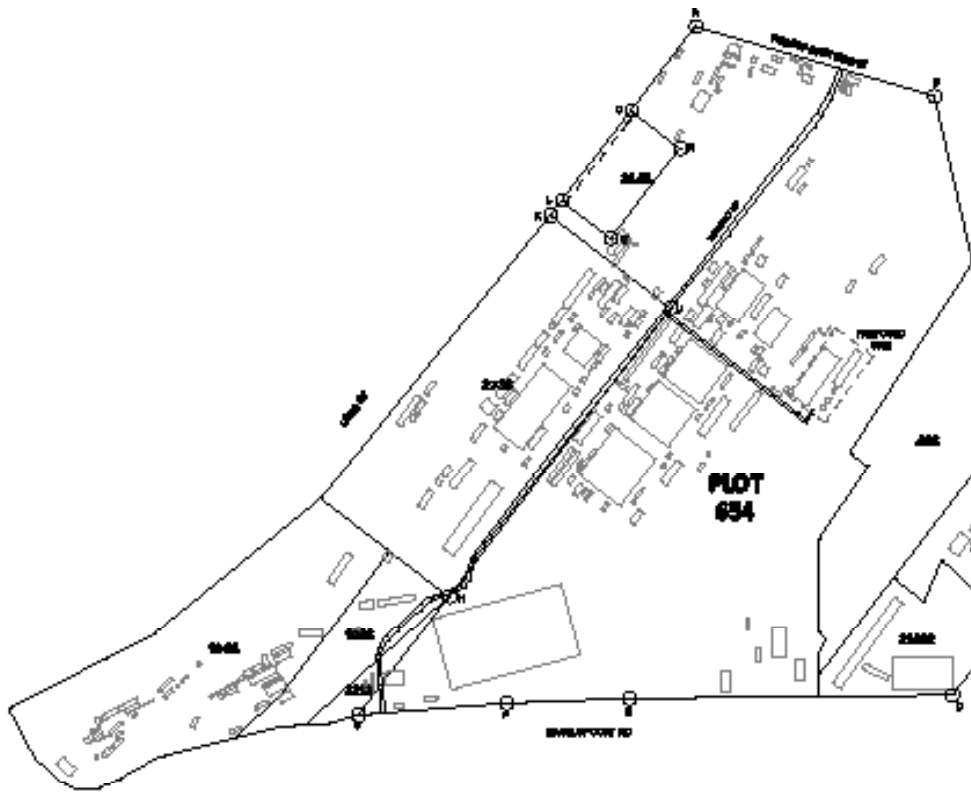


Fig. 77
Buildings in the context
(Author,2019)

03 BUILT FORM

There is a strong industrial warehouse typology on the site. These buildings are mainly rigid steel structures and are grouped closely, as the warehouses and offices functions in unison.

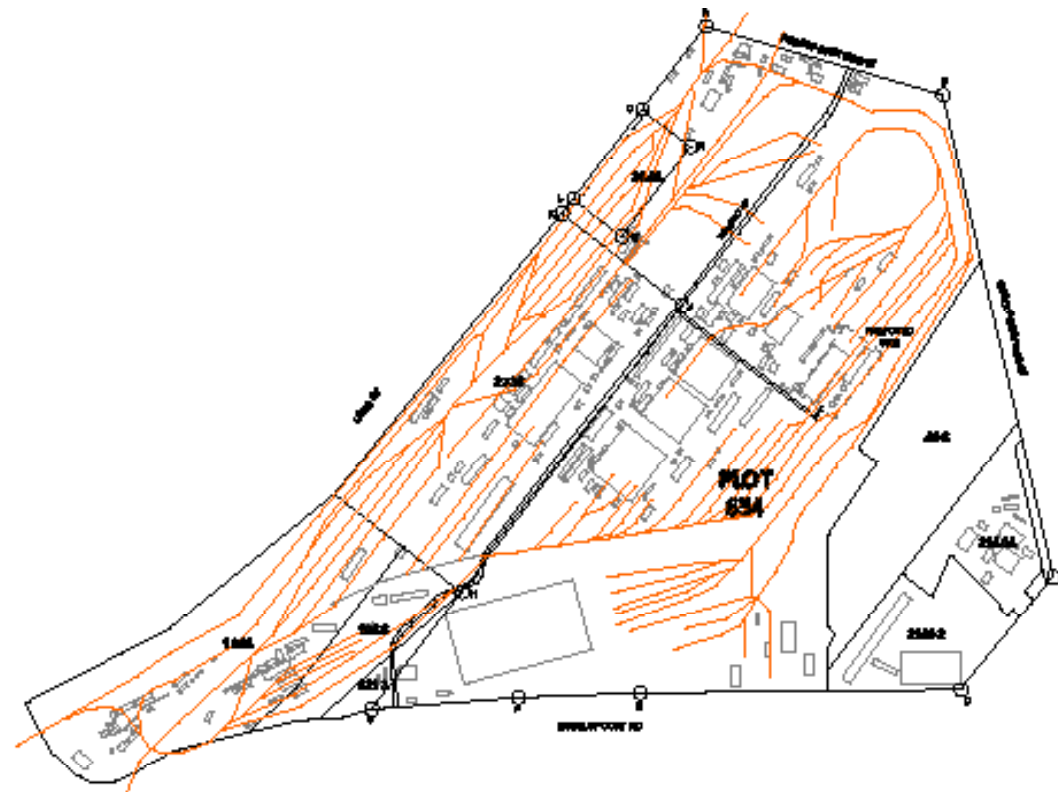


Fig. 78
Train tracks connected to the warehouses
(Author,2019)

04 INTERCONNECTED NETWORK

The train tracks connect the warehouses all around the site. These networks connect to the main train track that runs through Bloemfontein.

MESO ANALYSIS



Fig. 79
Building in the context
(Author, 2019)



Fig. 80
Existing structure to be developed for
the intervention
(Author, 2019)



Fig. 81
Warehouse in the context
(Author, 2019)

The site makes use of an open lot and is placed outside of the urban framework in a rural industrial environment. The existing feel and character of the industrial setting is an important aspect of the intervention so as to express this in a natural environment. The existing train terminal is to be altered to accommodate for the functional requirements of film production.

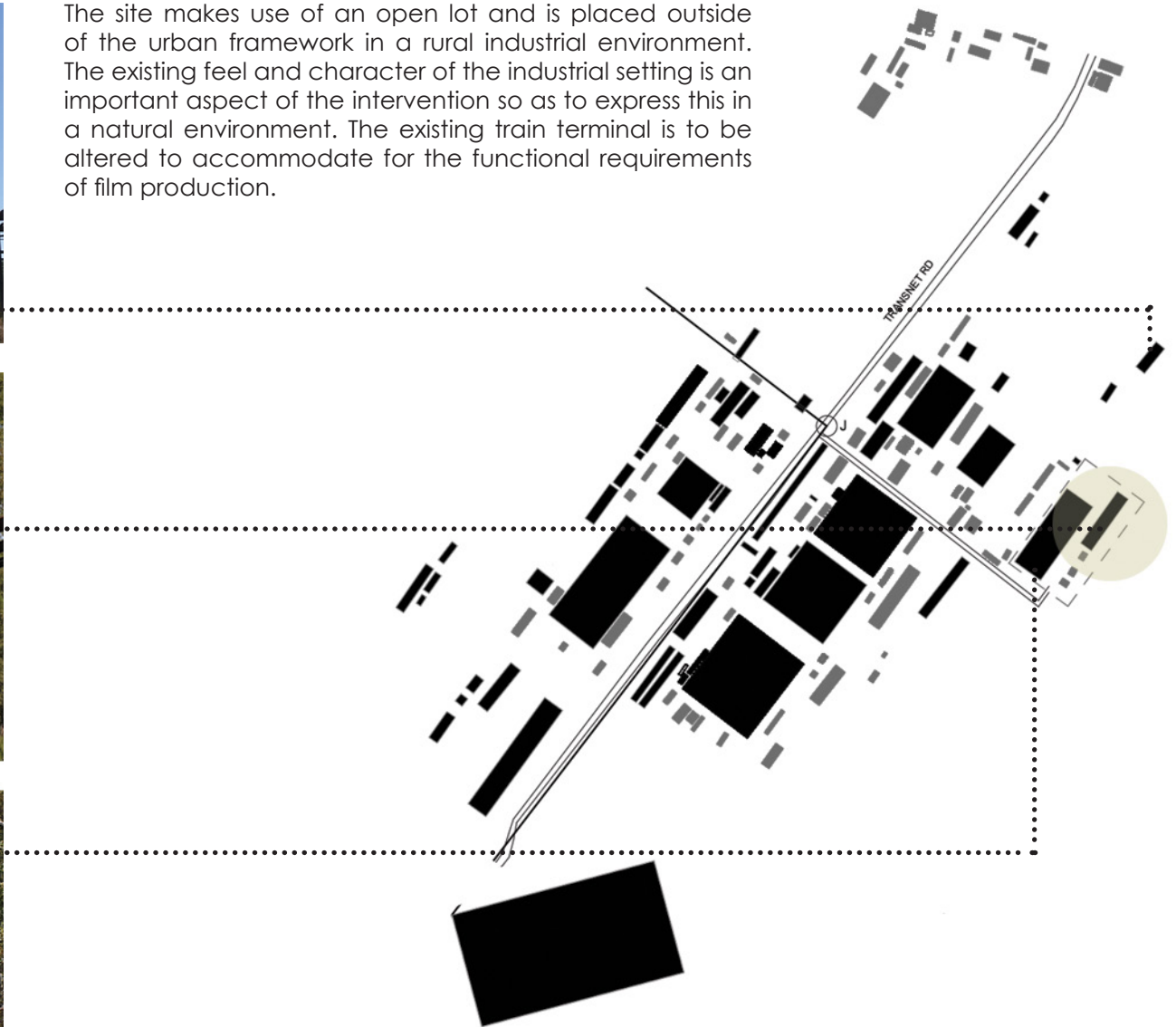


Fig. 82
Locality of the existing building for the
project and context
(Author, 2019)

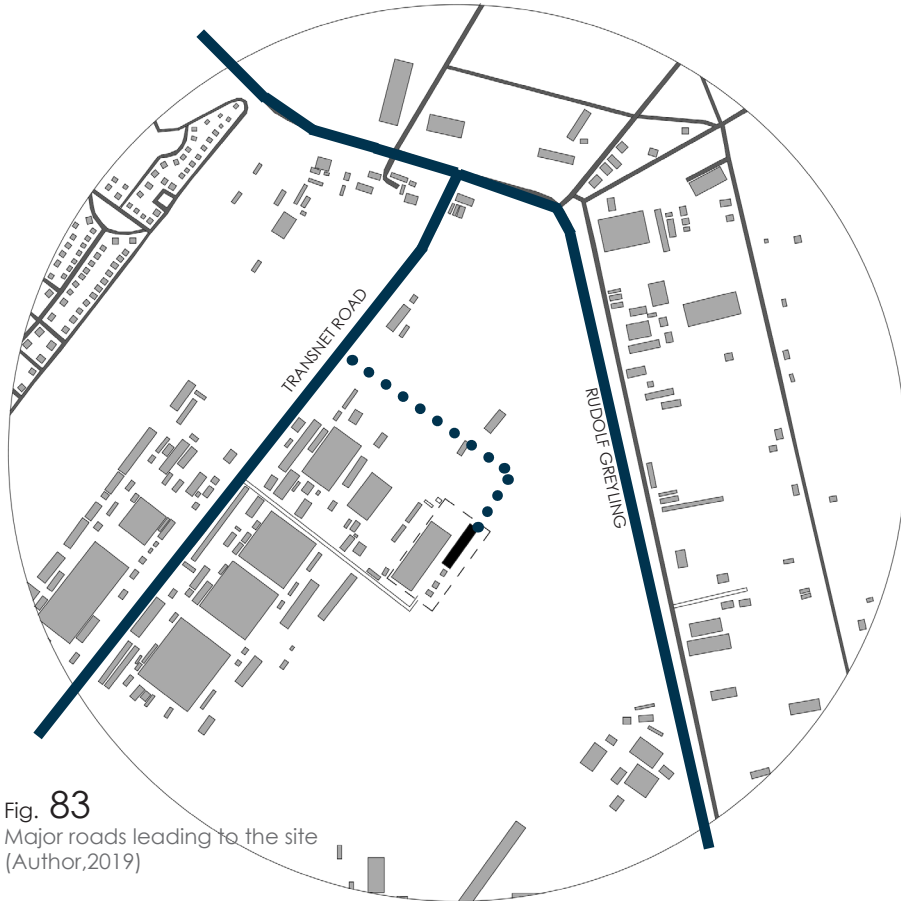


Fig. 83
Major roads leading to the site
(Author,2019)

01 MAJOR ROADS

Rudolf Greyling street and Transnet Road forms the main roads that provides access to the site. In recent years the Rudolf Greyling access to the site was closed down.



Fig. 84
street link between warehouses
(Author,2019)

02 STREET LINK

Transnet Road is the main link between all the warehouses and offices and forms a spatial axis. There are currently two roads from Transnet road that lead to the site

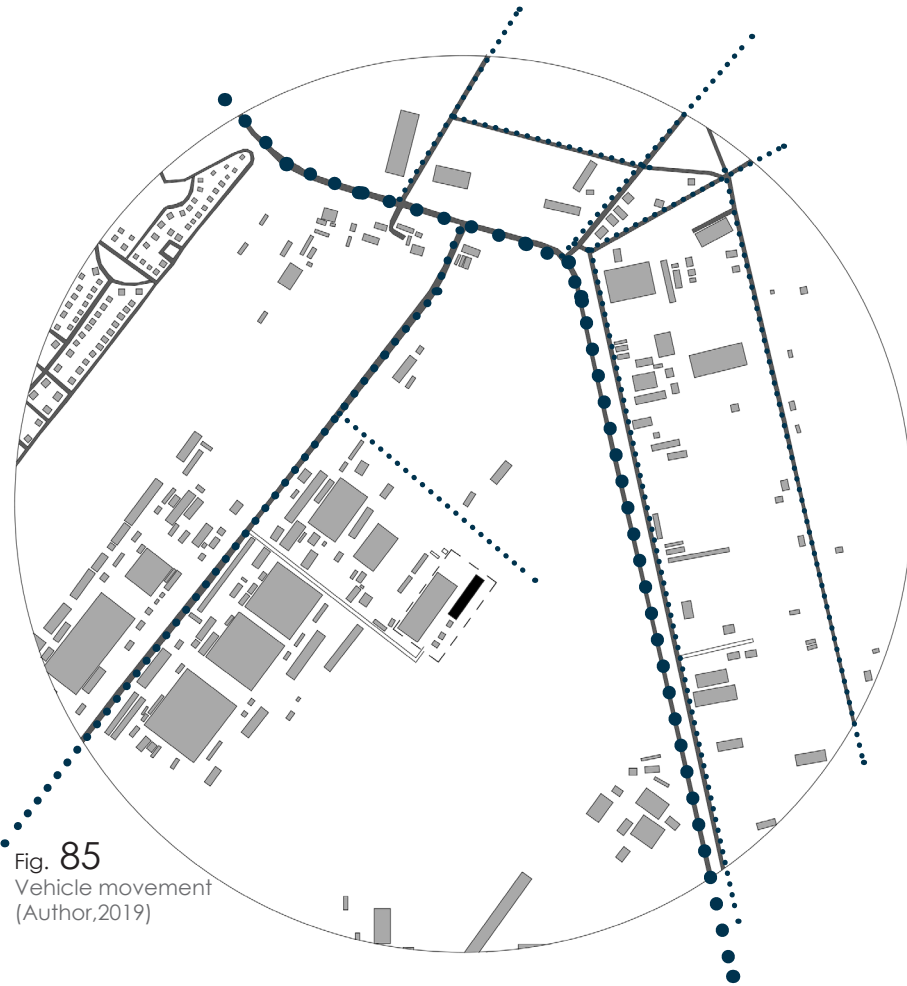


Fig. 85
Vehicle movement
(Author,2019)

03 VEHICLE MOVEMENT

The main vehicle flow can be seen on Rudolf Greyling street.

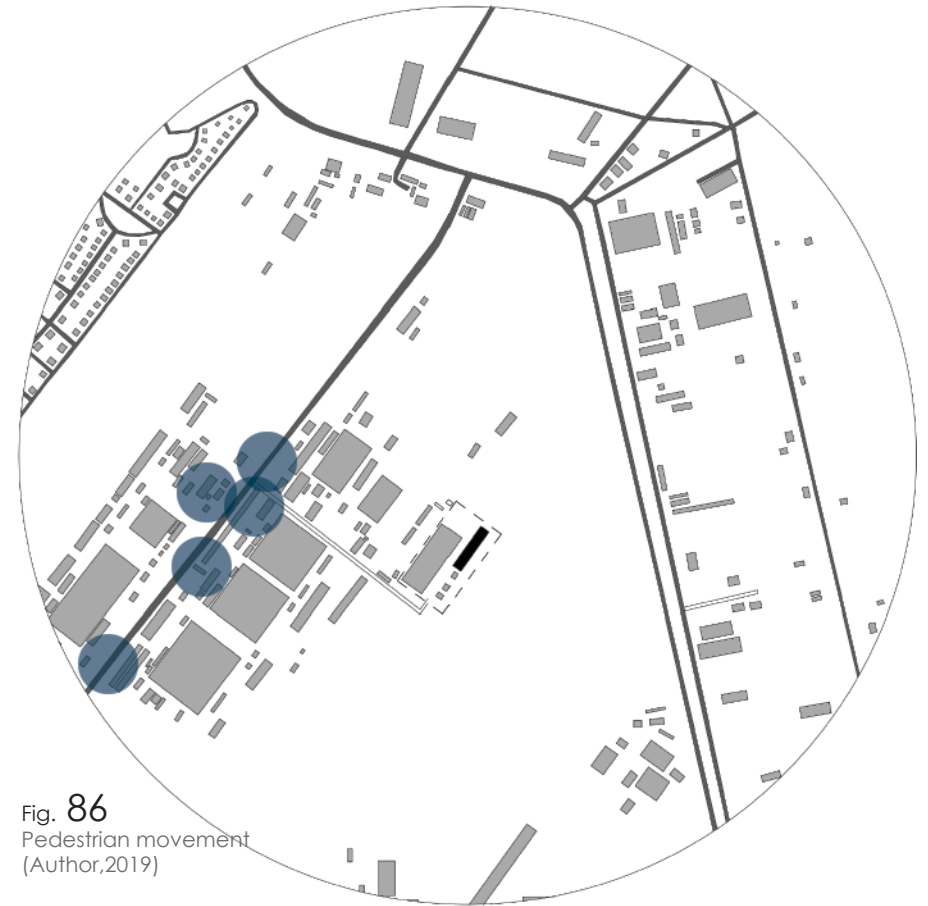


Fig. 86
Pedestrian movement
(Author,2019)

04 MAIN PEDESTRIAN MOVEMENT

Minimal pedestrian movement can be seen in the site. Most activity can be seen between the warehouses. This is due to private grounds with no access for the public.

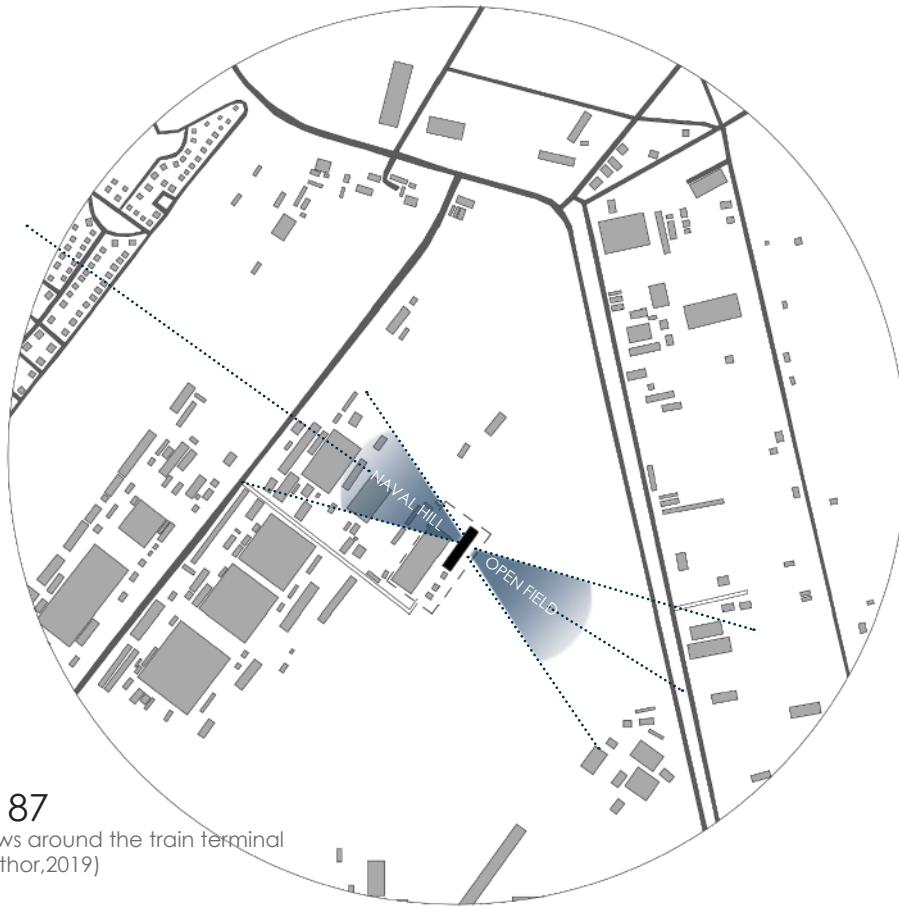


Fig. 87
Views around the train terminal
(Author,2019)

05 VIEWS

Views from the proposed site creates visual links with the warehouses on the plot, the open field next to the site and Naval Hill as a backdrop

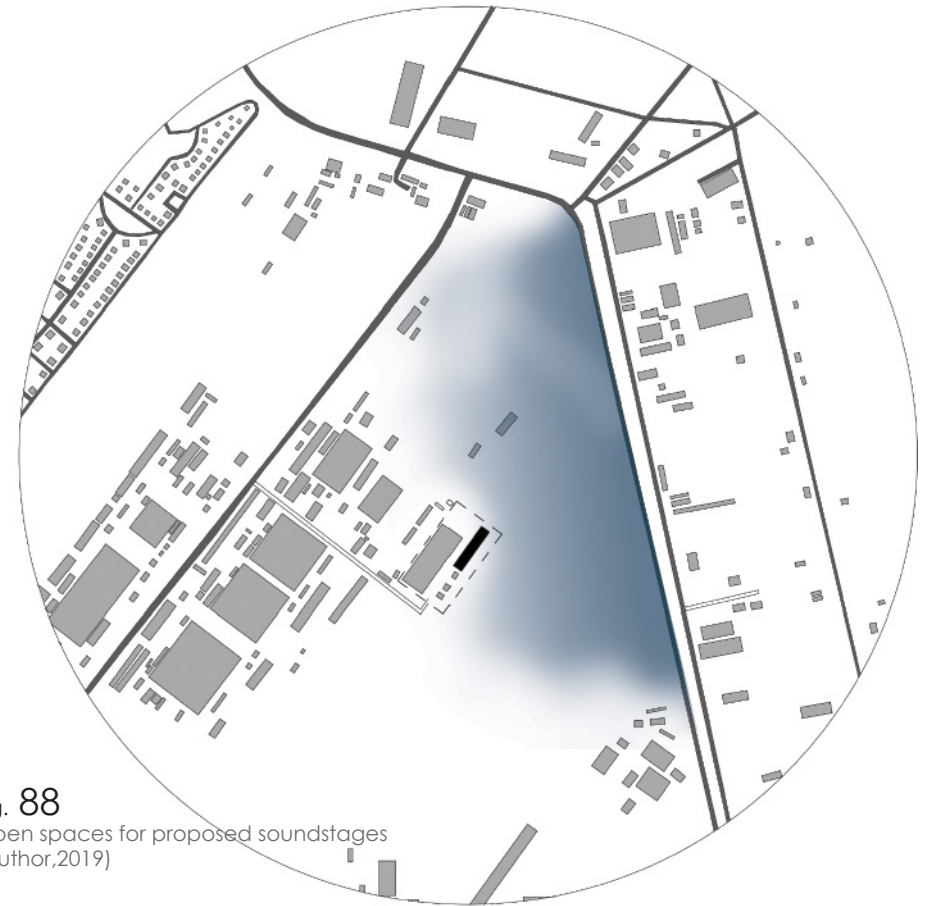


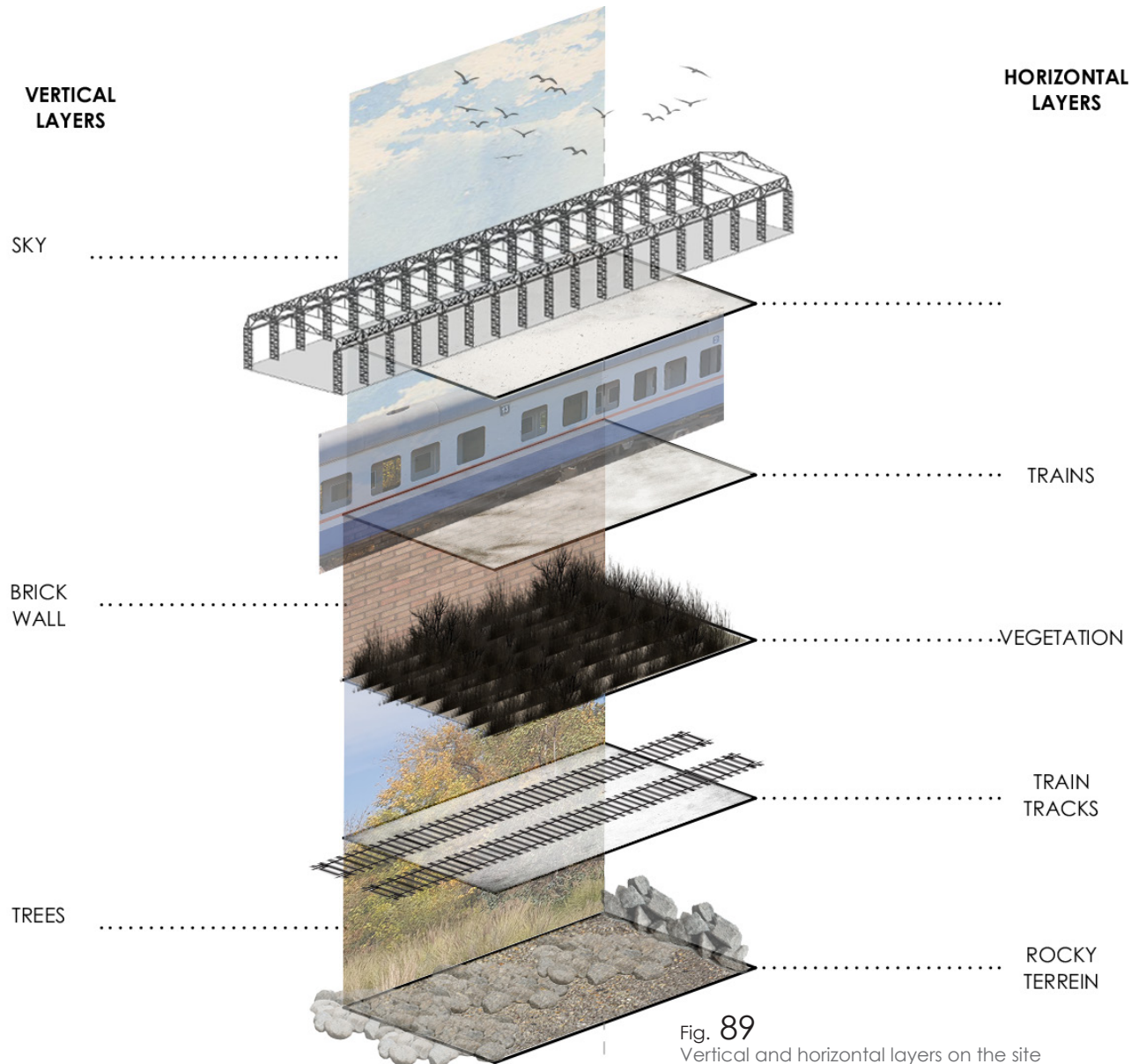
Fig. 88
Open spaces for proposed soundstages
(Author,2019)

06 USABLE OPEN SPACES

The relation of the site to the open spaces in the rural industrial area. These spaces are important so as to determine the placing of the soundstages and exterior set building.

MICROANALYSIS

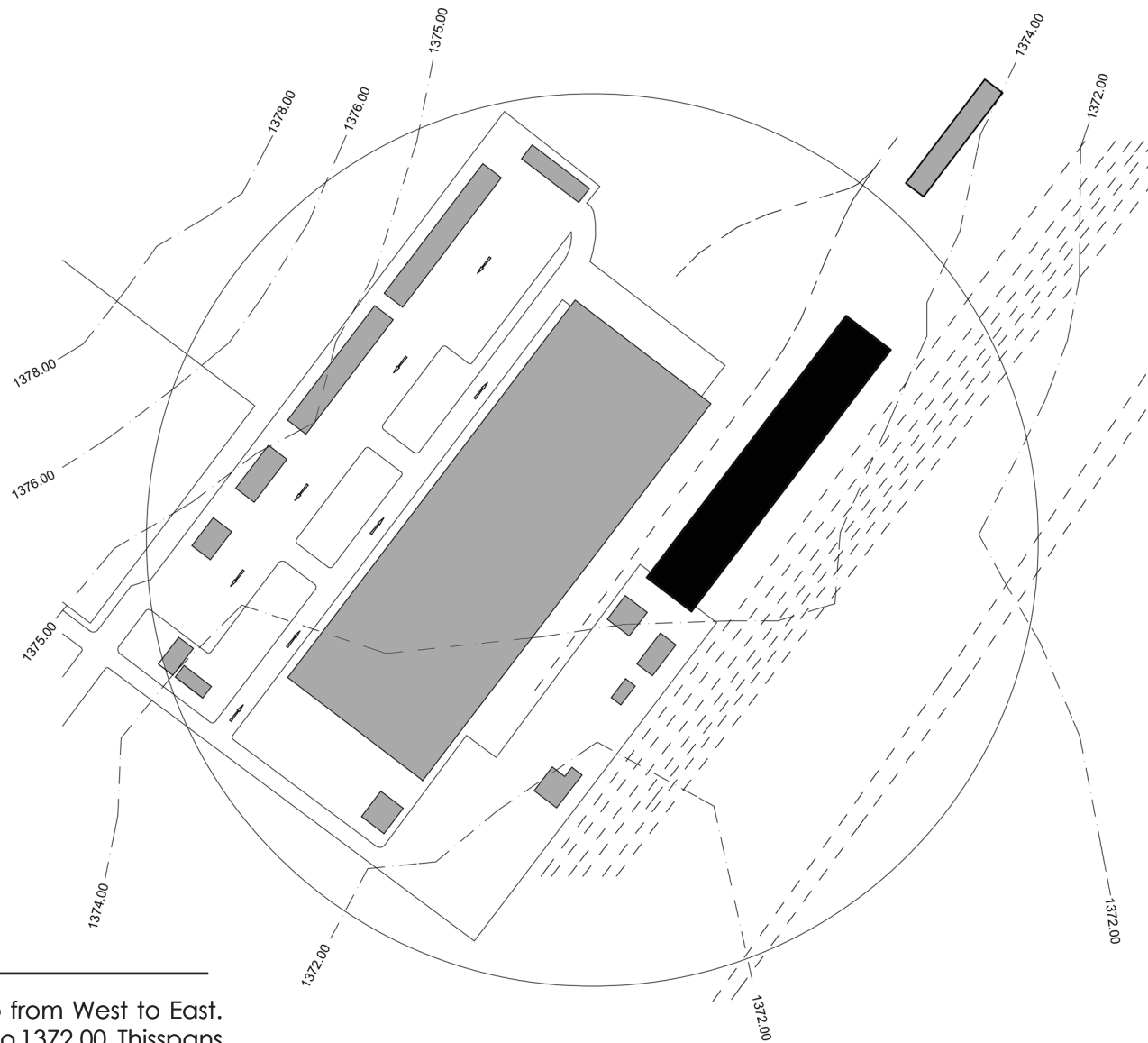
A layered experience



07 LAYERS

The site consist of several layers that can be interpreted as a film set by itself. It gives a site a unique quality, rich with textures and different colour schemes.

Fig. 89
Vertical and horizontal layers on the site
(Author,2019)



08 CONTOURS

The site has a two meter drop from West to East. The height range from 1374.00 to 1372.00. This spans over a length of 70m, making the site fairly flat

Fig. 90
Contours
(Author, 2019)



Fig. 91
Trains as a layer in the context
(Author, 2019)

09 RAILWAY AND SITE FEATURES

The proposed building for the intervention is covered by dense vegetation and trees. These form the natural elements. The railway and rocky terrain stand in contrast in terms of a color scheme but are the same in terms of a busy texture. The large trees on the site give a point of orientation. All the elements on the floor contribute to a busy texture, where the sky acts as a simplistic element framing all the elements on the ground floor.



PROPOSED SITE

OPEN RAILWAY SEGMENT

PROPOSED
SITE

DENSE TREE
LINE

LARGE TREES
FORMING
POINT OF
HIERARCHY

TRAIN TRACKS
CONNECTED
TO THE SITE

APPROACHING THE SITE



SKY CREATES A
SIMPLISTIC TEXTURE

GROUND AND
VEGETATION CREATES A
PATTERNED TEXTURE

Fig. 92
Approaching the site, via the railway
line (Author,2019)



Fig. 93
 Unique colour palette of the vegetation
 (Author,2019)

10GREEN LINK

The vegetation and trees create a mythical surround as they grow around the building. The colour scheme can be classified as warm, with rusted, busy textures. The trees act as a perforated screen element on the site, covering and exposing at the same time different objects on the site, in this case the trains and the existing building

DENSE
 VEGETATION
 CREATING A
 PERFORATED WALL



Fig. 38
 Project: 10GREEN LINK
 Author: 2019

TRAIN COVERED BY TREES

SKY CREATES
SIMPLISTIC
TEXTURE AS A
BACKGROUND

TRAINS AS SOLID
OBJECT AND
VEGETATION AS
PERFORATED
SCREENS

RUSTED ELEMENTS
ON THE SITE

LARGE TREES
FORMS POINT OF
HIERARCHY ON
THE SITE

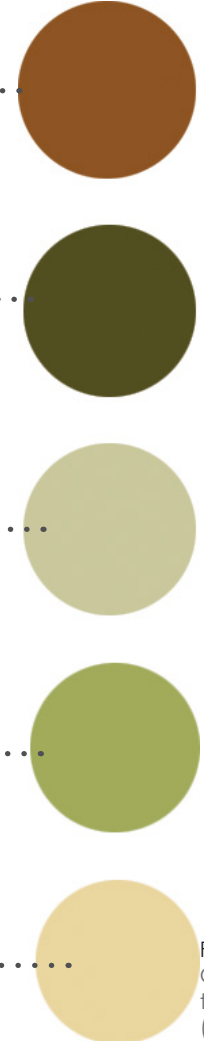


Fig. 94
Colour palette of
the trains and vegetation
(Author,2019)

TRANSITION SPACE

TREES
CREATING
PERFORATED
WALL

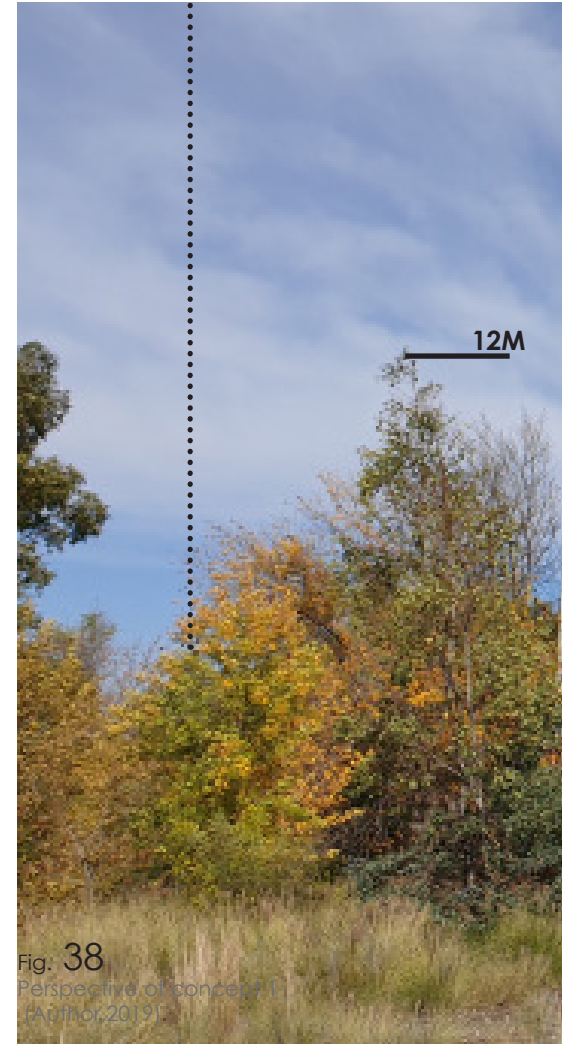


Fig: 38
Perspective of concept 1
(Author,2019)



Fig. 95
Existing entrance blocked by the
vegetation (Author,2019)

11 SCALE

Building height to the roof level is 16m. The trees range from 10-18m, lowering the scale.

PROPOSED BUILDING

TREES
CREATING
PERFORATED
WALL

COVERED MAIN
ENTRANCE

HIGHEST POINT
OF BUILDING



Fig. 96
Scale analysis
(Author,2019)





12TEXTURES



TRAIN TRACKS



TRAINS



CORRUGATED
IRON CLADDING



VEGETATION



TREES



RUSTED STEEL



STEEL GRID



LIGHT



MASONRY

Fig. 97
Textures
(Author,2019)



Fig. 98
Colour palette
(Author,2019)

13COLOR SCHEME

With the industrial influence, heavy steel elements and vegetation in the context, the colour scheme can be compared to a warm palette. A warm color palette is used in film to portray emotions such as curiosity, love, security and calmness. The interior has a darker tone. This can be compared to a cold colour palette that portrays emotions such as anxiety, fear, curiosity.



Fig. 99
warm exterior and cold interior
(Author,2019)

14 EXISTING FLOORPLAN AND STRUCTURE

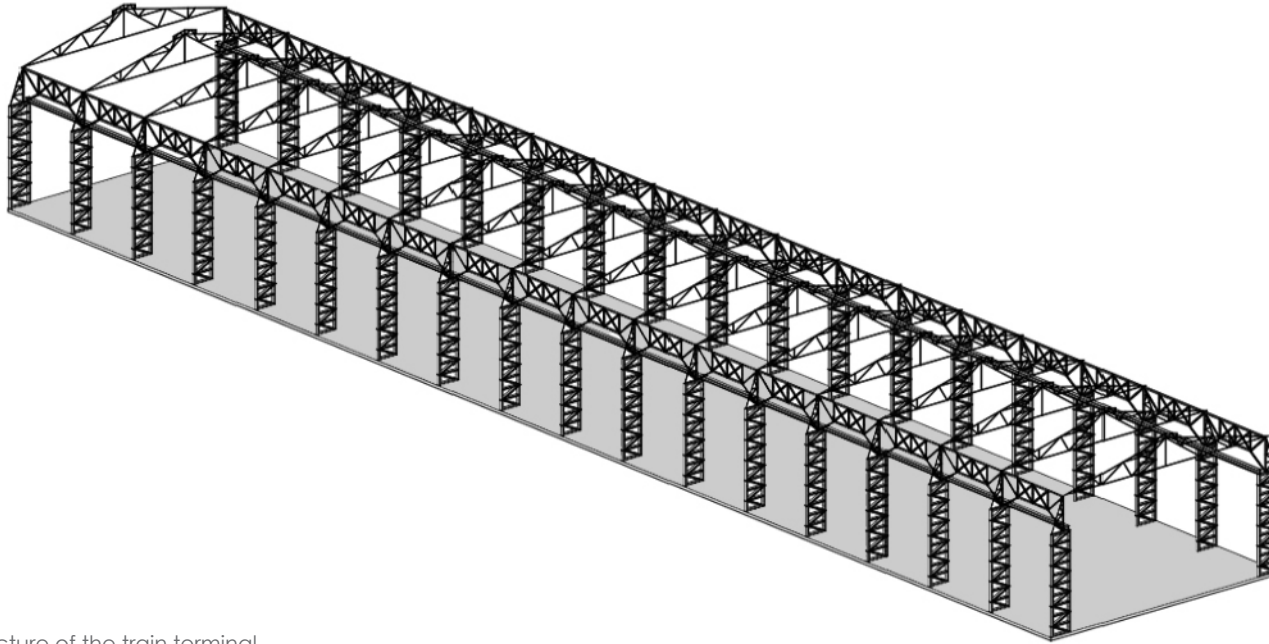


Fig. 100
Existing structure of the train terminal
(Author,2019)

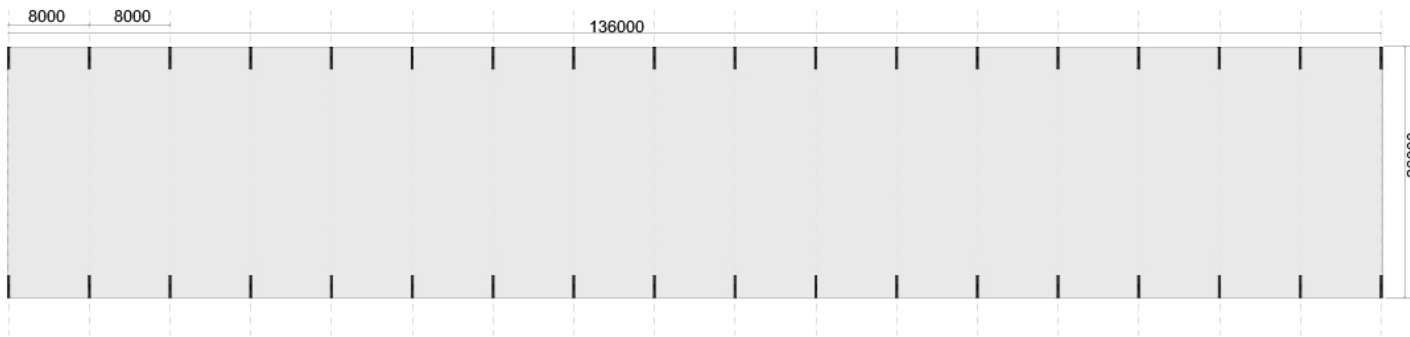


Fig. 101
Floorplan of existing train terminal
(Author,2019)

The existing warehouse, to be developed, consists of a steel construction with a height of 16m. For functional requirements, this is relevant towards film production facilities. The train terminal is between 16 m in height and consists of masonry construction with steel elements in the interior. The existing building is a train terminal with its main functions being the service of trains and part maintenance.

15 EXISTING STRUCTURE

The proposed site is full of green spaces and vegetation. The trees are dense around the building, creating shade and interesting spaces on ground floor. The vegetation and trees create a mythical surround as they grow around the building



BRICK WALL

COLUMN
STRUCTURE

STEEL TRUSS
STRENGTHENED WITH L-
SECTIONS

C-SECTION PURLINS
SPACED 1400 C/C

WINDOWS CREATING A
CATHEDRAL LIKE LIGHT
EXPERIENCE



Fig. 104
Natural light experience
(Author, 2019)

BIG FISH FILM STUDIO

PRECEDENT STUDY FUNCTION REQUIREMENTS

+HYPERSTY ARCHITECTS [2017]
+RFIING

The site is located in the Chaoyang Art district in Beijing. The new office spaces were developed in an old plant with a 9m height. The building retained the original walled structure with a new foundation constructed to ensure stability. To articulate the new functions a new steel structure is added, without interrupting the industrial atmosphere (Archdaily,2018:online).



Fig. 105
Natural light experience. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersty-architects?ad_medium=gallery. [Accessed 5 March 2019].

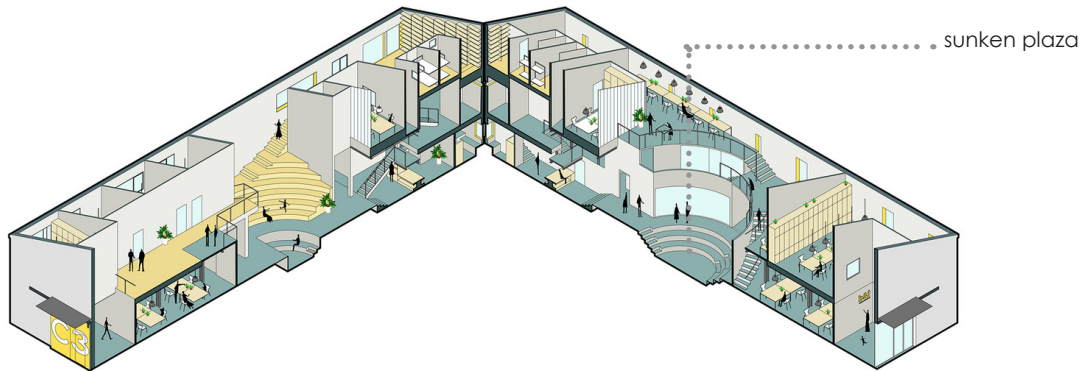
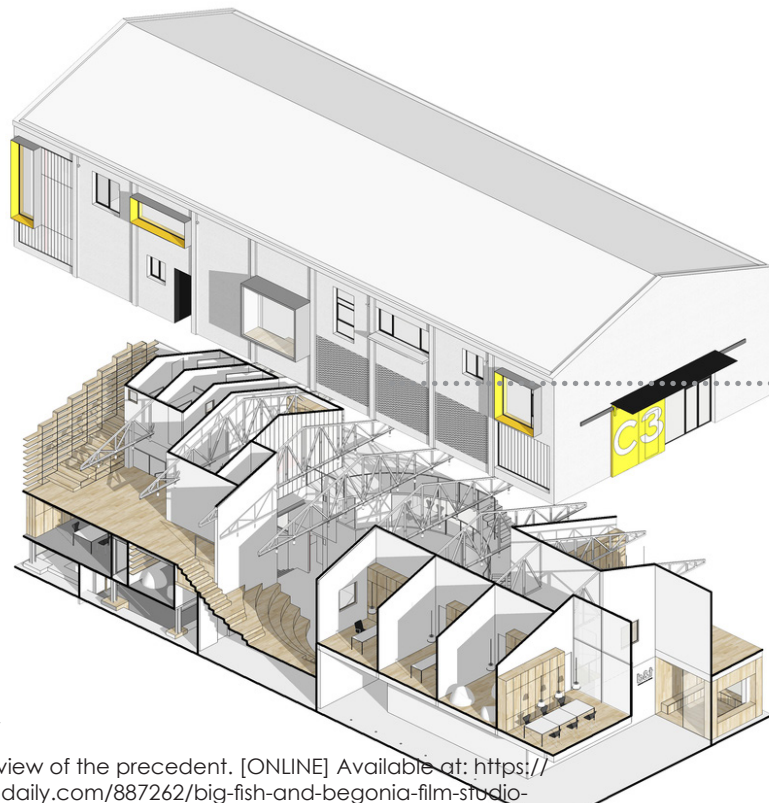


Fig. 106
 Sectional view of the precedent. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

The offices are designed to provide services for different filmmaking target groups. The workflow is categorized into pre-, mid- and final stage production. The pre-production required free air that can lead to the creative thinking process while the production stage requires strict control of skylight bursting through interior space.



The facade express different patterns to emphasize the interior function

Fig. 107
 Sectional view of the precedent. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

The design is kept in a rectangular building, while the interior spatial profile follows an organic design. The interior elevation is no longer a single level, but is differentiated for various functions and territories, connected through corridors and steps. The layers are used to maximum effect. The indoor levels determine the sizes of the windows that puncture the facades. Seen from outside at night, inner activities are projected, presenting the dynamic of the indoor filmmaking rhythm. (Archdaily,2018:online).

The following elements can be used:

- The project respected the old structure and rather than changing the morphological elements, the building expressed the new functions around an **original form**
- **Functions** are grouped around a central double volume plaza space. The circular plaza became a centre point for functional layout and for influencing the interior form.
- The facade reflects the interior functions with different patterns
- The interior has an organic influence on plan with the use of a sunken plaza.

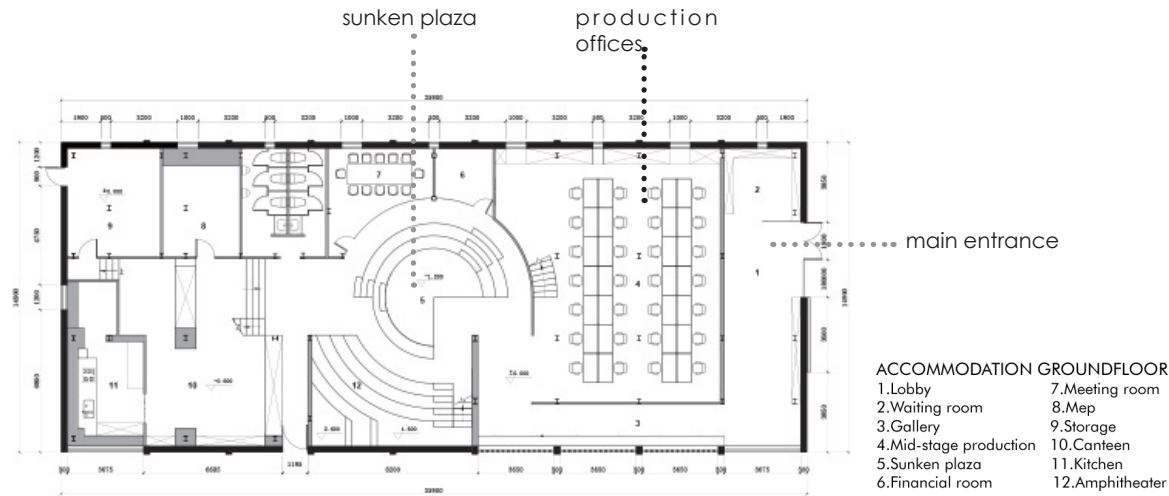


Fig. 108
Ground floor plan. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

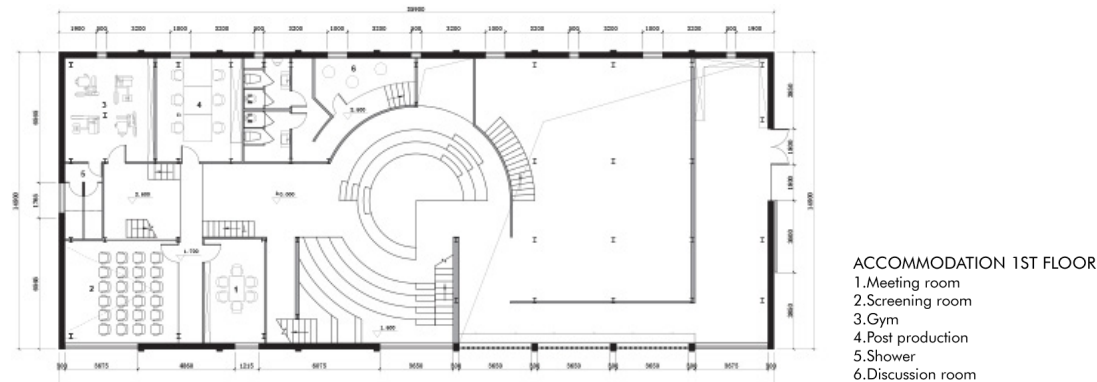
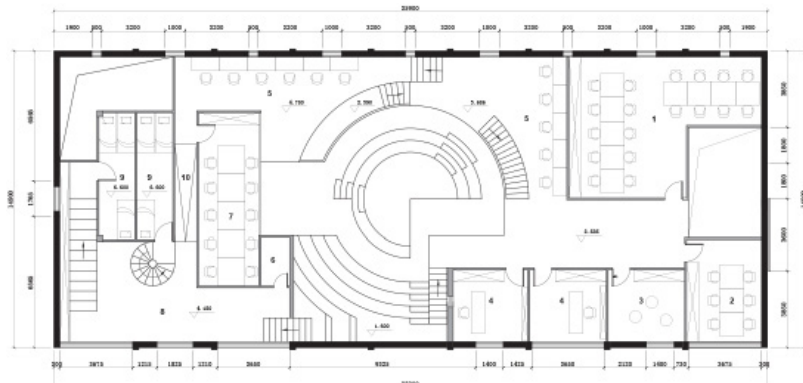


Fig. 109
First floor plan. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

The ground floor introduces a central gathering point in the building in the form of a sunken plaza. The space features a double volume where the building can be experienced as a whole. The main approach towards the plans are placing and grouping of the functions, with the circulation flowing around it. Rather than placing the functions on axis, it is spread out on the existing facades, keeping the centre of the building open. The first and second floor plan is an extension of the functions.



Fig. 112
Interior. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].



- ACCOMMODATION 2ND FLOOR
- | | |
|-------------------------|--------------------|
| 1. Mid stage production | 6. Archive |
| 2. Pre stage production | 7. Post production |
| 3. Discussion room | 8. Library |
| 4. Partner room | 9. Sleeping room |
| 5. Open working space | 10. Gallery |

Fig. 110

Second floor plan. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

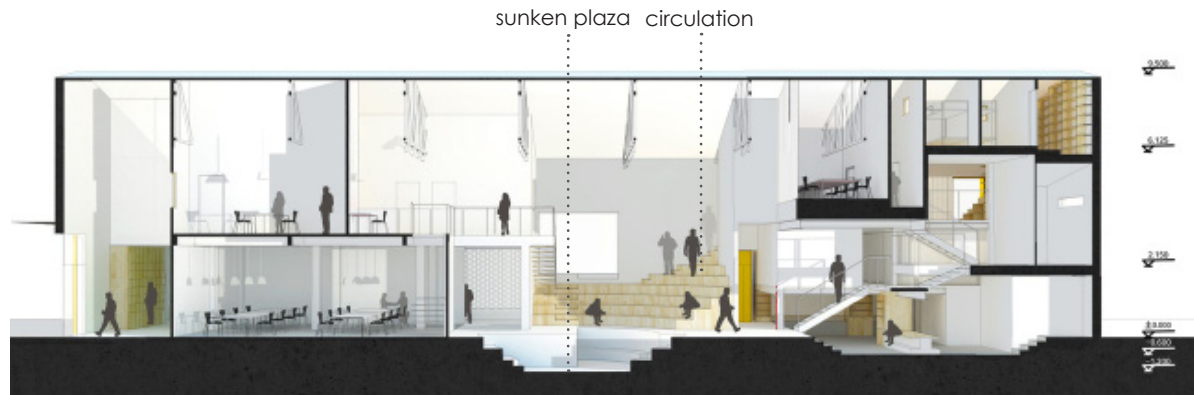


Fig. 111

Section. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

The section illustrates the movement around the grouped functions with the sunken plaza and double volume space in the middle. The original structure is retained with the emphasis on form rather than on materiality. The new design expresses a new purity with the white interior.



Fig. 112

Original structure. [ONLINE] Available at: https://www.archdaily.com/887262/big-fish-and-begonia-film-studio-hypersity-architects?ad_medium=gallery. [Accessed 5 March 2019].

MORPHOLOGY

The ideas regarding the exploration of refraction and linking the process with the layers of the site to achieve physical transformation and a new connectivity will serve as a guideline for the structure of the research. Theories that related to the topics of transformed space and a layered experience are found in Anthony Vidler's *Exploration of Space*. The interpretation of a scrim will further emphasise the layered approach to influence the morphological aspects.

The existing phenomenology of the context has potential for providing spaces that express filmic qualities and changed into a meaningful place by breaking out and exposing the existing layers on the site. By connecting the existing Natural environment and industrial aesthetic, movement through these thresholds can be transgressed into filmic moments and experiences with an emphasis on views and light. It is important to understand the history of the site where the Train terminal and functional aspect of transportation defined the architecture on the rural land.



Fig. 113-114
Warehouse typology in the context
[Author, 2019]



CREATING AN IDENTITY

Through time the train terminal lost its essence as a place of engineering and creation. The space went unused and turned into a ruin through time, where nature reclaimed its space with the dense vegetation on the site, hiding the buildings identity

The existing train terminal can be defined as a shed constructed to fulfil its functional requirements, in this case servicing the trains. It is important that the past identity be expressed within the new interpretation that still relates to the industrial context.

The site can be categorized into two groups namely the natural environment and the industrial aesthetic. The industrial part can be defined as the existing structure and the trains on the site that holds a historical layer as well as a functional input. The metaphor of refraction will influence the programmatic and technical aspects. The Natural part of the site will influence spatial qualities, thresholds and circulation while using the metaphor of the scrim.

Film production architecture consists of a shed typology. With most production facilities built around cost and pure functional requirements. The typology of film production architecture is questioned in order to connect the layers on the site and provide a new interpretation.



Fig. 115
Multiple identities on the site
(Author, 2019)

PART 1 A FILMIC ENVIRONMENT

Refraction is the process where new light enters a object and undergoes a gradual change(). The wave lengths of the light change direction upon entering the object, causing a refracted image, splitting the white light into three wave lengths (Green,blue and red). This process can be reversed where multiple narratives project through an object and create a single element.

When investigating the site, two components, namely nature and the industrial environment, form the layers on the site. In order to complement and connect both layers a new metaphor must be implemented to extend the narrative, in this case the process of refraction

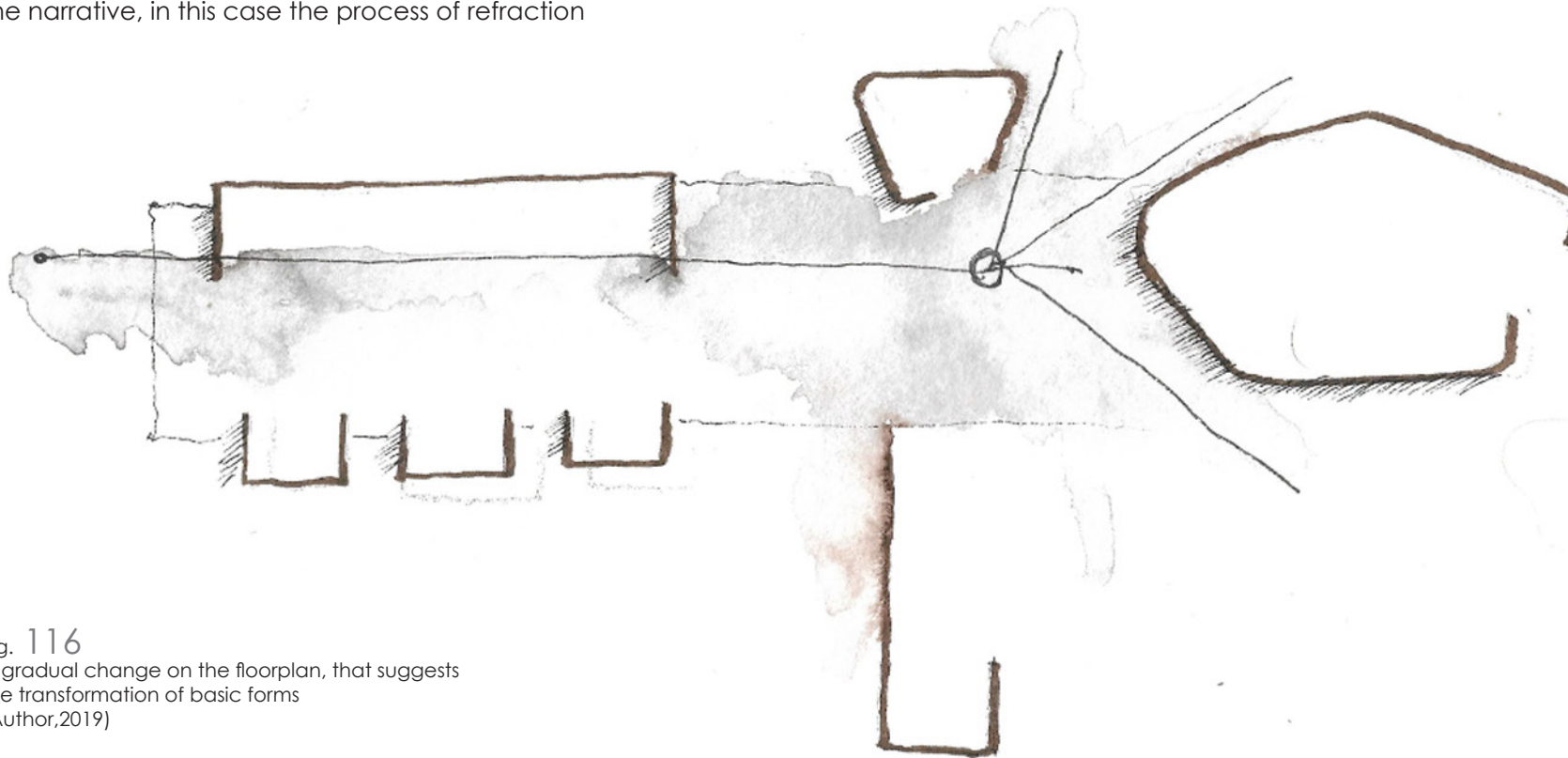


Fig. 116
A gradual change on the floorplan, that suggests
the transformation of basic forms
(Author,2019)

Explosion of space- Anthony vidler

Anthony Vidler explains that beyond our perspective, lies "imaginary space", the fourth dimension, where architecture is transferred into narrative. Vidler uses filmic moments to express and help understand the fourth dimension. It implies that beyond the physical world of the rural grounds of the site, there is an imaginary space with stories of everyday life experiences.

Euclidean geometry presents a boundary of the third dimension. Vidler presents three solutions to break three dimensional spaces in reality. The first solution is to explode space "by dispersing the centre of vision" (Vidler, 2000: 106). The second solution uses Malevich's Suprematism which uses illusions by playing colour surfaces off against one another. Each surface should be differently placed and shaded differently, thus creating different spatial experiences.

The third solution is the most important as it relates to the moving bodies on the site, the trains. Vidler refers to the third solution as "The conquest of an imaginary space by means of mechanically motivated bodies, which this very movement, by their rotation or oscillation, produce precise figures" (Vidler, 2000: 107). A simple example is how a rotating pole can produce an apparent circle or from another perception an elliptical form. Vidler further emphasize movement and states that a static body cannot create "imaginary space" but movement act a generator of the inner world, memory and imagination (Vidler, 2000:108).

Vidler relates architecture to film and describes, that it is not the form of the aesthetics that brings the spatial characteristics but rather the moments "framings of movements of the camera itself that would serve to construct reality far more freely" (Vidler, 2000: 109).

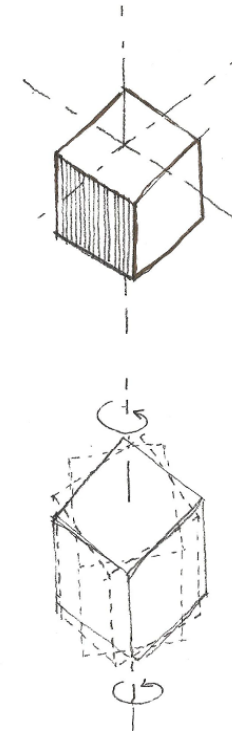


Fig. 117
Mechanically motivated geometry, that warps the form (Author,2019)

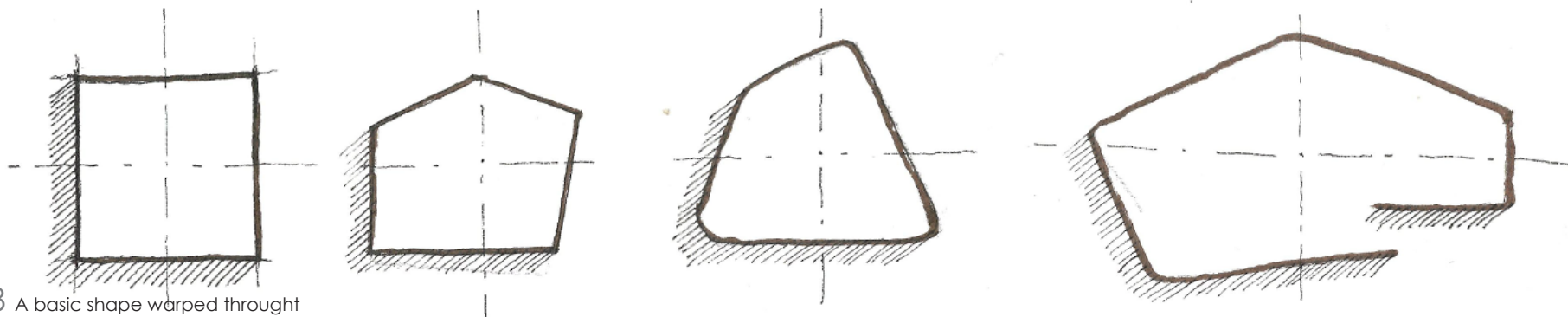


Fig. 118 A basic shape warped through movement to become a new interpretation. (Author,2019)

Filmic space and movement

Filmic space is described as the space where filming takes place, where the camera moves to capture the scene with its entities. The qualities of filmic space can be categorized as:

- A projection, a visual illusion; it operates on the rules of perspectives.
- Creates the appearance of space through a lens or a frame.
- Filmic space fragments true space to provide an interpretation of the complete space.
- The observer sees and hears only what the camera allows.
- Within filmic space there is no private space/ all space is public.

In order to capture the fragments of space, the camera relies on the rules of perspective. Perspective can be defined as “the art of representing three-dimensional objects on a two-dimensional surface so as to give the right impression of their height, width, depth, and position in relation to each other”. (Lexico,2019)

What makes architectural or real space different is it has public and private delineations that both exist in one structure. Spaces are created between masses and voids and confronts programmatic needs of the user.

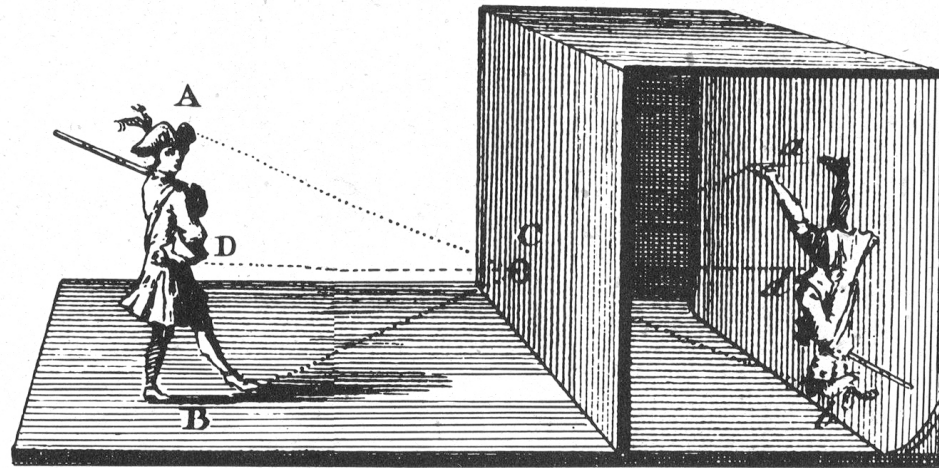


Fig. 119
Camera obscura [online] Google images, Available from: https://en.wikipedia.org/wiki/Camera_obscura [Accessed on 12-09-19]

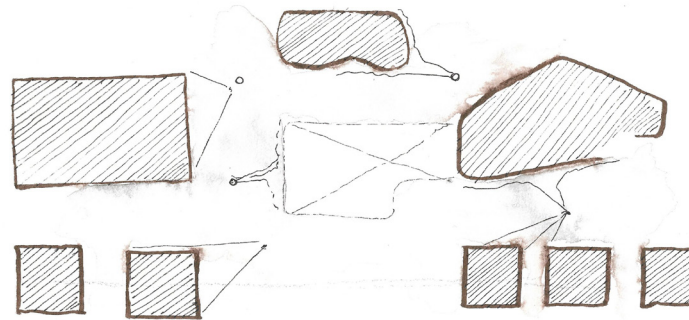


Fig. 120 Curving the edges of the form, distorts the two dimensional surfaces, creating a visual illusion. (Author,2019)

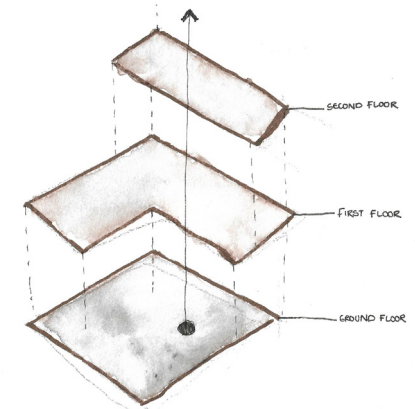


Fig. 121 A triple volume can change perspective and change the experience for the user within the structure. (Author,2019)

PRATT INSTITUTE FILM DEPARTMENT

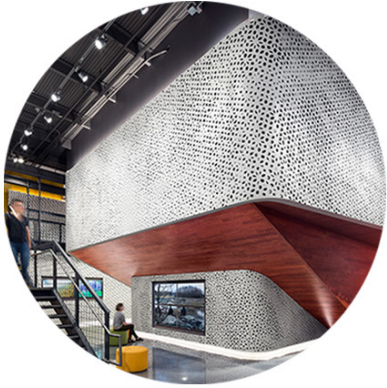
Precedent study *Education facilities*

Pratt's institute is a film department on the Brooklyn Pratt's campus. The institute offers students facilities to produce films. These facilities include, soundstage space, green screen facilities, screening rooms, a recording studio and production suites. The two-story building focuses on its connection between the spaces



Fig. 122

Elevation of the present. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-was-a-studio-a>. [Accessed 15 May 2019].



"The design focused on honoring the expansive, open quality of the building. Built using free-span trusses, the interior space is column-free and features 23-foot high ceilings. Specially-created by Pratt alumnus and Architecture Professor Haresh Lalvani, a stunning series of perforated, sculptural metal panels wrap around the entrance lobby and envelop rooms requiring sound-proofing and darkness" (Archdaily,2015: online)

The perforated metal panels complement the organic shape of the screening room and gives a sense of nature with the pattern



"A floating bridge spans over the building's first floor and connects classrooms and offices on the second floor while various interstitial spaces throughout serve as dynamic social areas for students to meet and interact. The design is intended to foster 'the spirit of students learning from each other' and create 'a vibrant and collaborative filmmaking environment'. (Archdaily,2015:online).

lessons learned:

- Changing the morphology on the interior to introduce a more organic element.
- A circulation route that connects the different functions in terms of the production process



Fig. 124-126

Interior and exterior of the precedent. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].

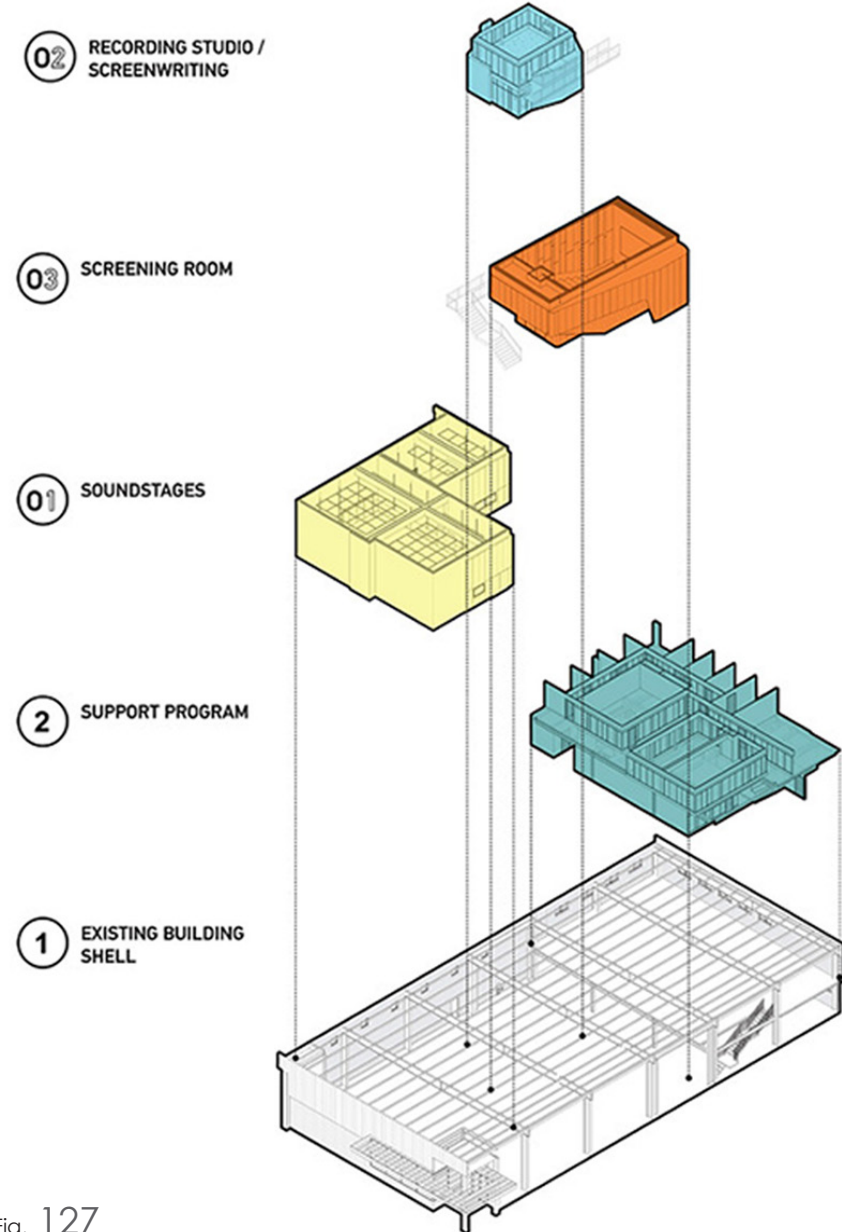


Fig. 127

Function diagram for the program. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].



Fig. 128
Ground floor plan. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].



Fig. 129
First floor plan. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].

The functions are grouped as separate entities within the rectangular structure. Rather than moving along an axis the circulation takes you around the functions, in particular the screening room, recording studio and classrooms. The soundproof rooms are placed in the centre of the building and follow an organic morphology.

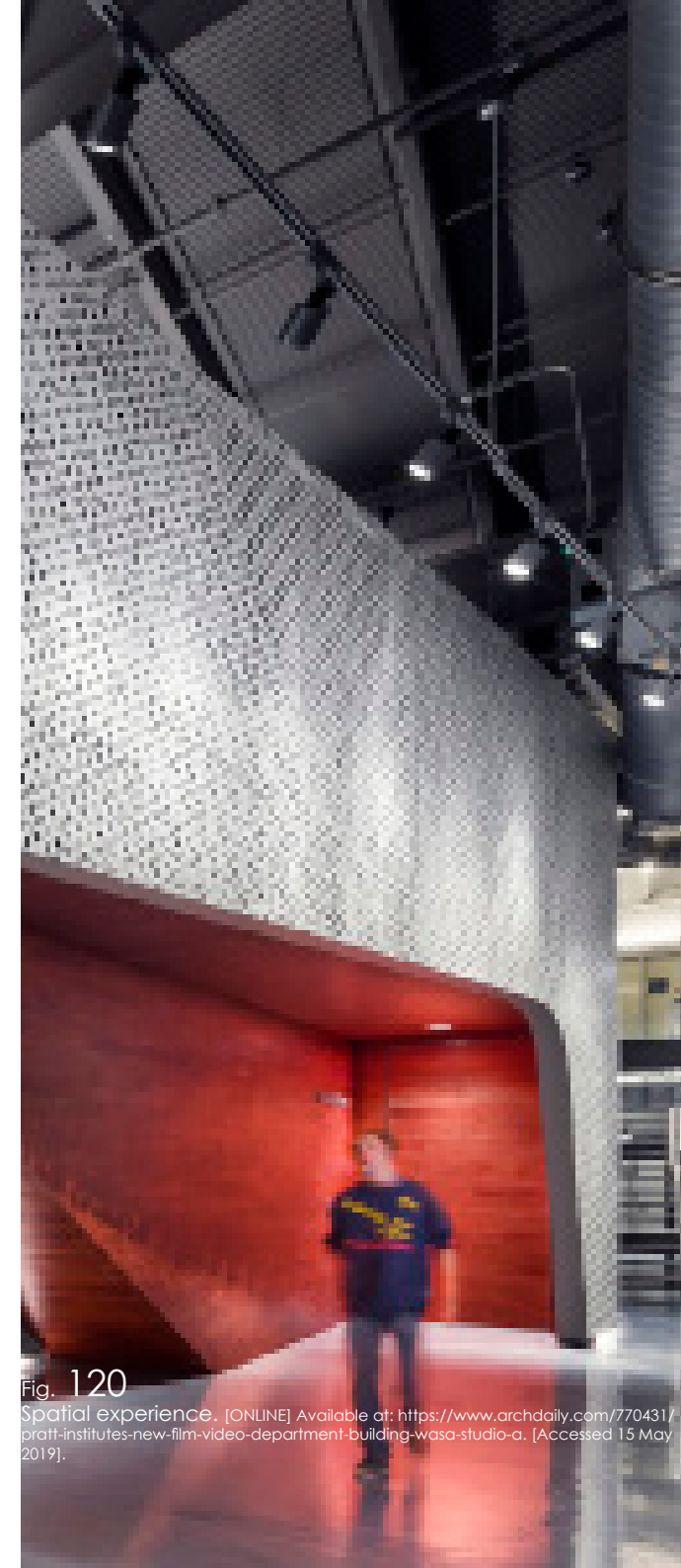


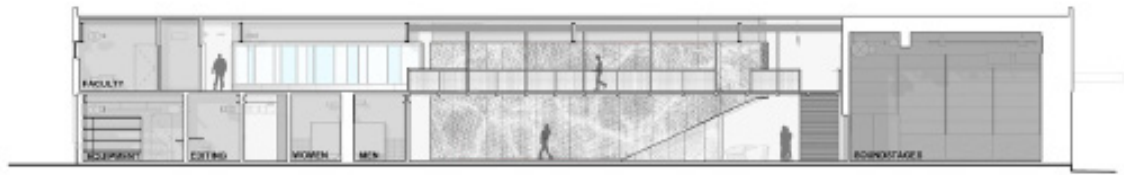
Fig. 120
Spatial experience. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].



SECTION THROUGH WALKWAY - LOOKING EAST

Fig. 130

Section A. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].



SECTION THROUGH WALKWAY - LOOKING WEST

Fig. 131

Section B. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].



Fig. 123

Perforated screens used as cladding system. [ONLINE] Available at: <https://www.archdaily.com/770431/pratt-institutes-new-film-video-department-building-wasa-studio-a>. [Accessed 15 May 2019].

PART 2 THE SCRIM

The term scrim can be described as an open weaved fabric screening device that creates different layers when light is shone through it. The function of a scrim is to create a layer in front of a backdrop that open and close revealing different layers. This contributes to a sense of distance and allow for set changes without the audience seeing. Set design is not limited to one scrim, as they create the layers of space.

When light is shone from the front of the scrim, the scrim appears to be solid. This often happens when a change of scene has to occur. When this change of scene has been completed, the scrim is then lit from the back, where it appears to be translucent, allowing the audience to see beyond the scrim (Block & Wolf, 2014: 416-417).

Making use of props, lighting and sound, allows the audience to feel as if they are in a heterotopic environment opposed to the actual environment in which they really are. (Block & Wolf, 2014: 416-417). A Scrim is an essential tool used in the industry, and can be found almost anywhere throughout a production in various forms. This scrim can also be adapted into architecture, and in turn becomes a design tool.



Fig. 132
Fondation Cartier, A scrim in architecture [online]
Google images, Available from: <https://www.fondationcartier.com/en/building>

Filmic space and movement

In order to apply a new narrative to the site, existing layers must be identified. From the South east view towards the site several existing layers can be found on the site. The tree line around the building acts as a scrim hiding the identity of the building. The structure of the building is further hidden with the corrugated iron cladding.

Again, Heidegger brings forth the essence of technology; it being a way of revealing the totality of man. Architecture becomes views through which human life, imagination and fantasy is revealed. It is necessary to apply the characteristics of the scrim to the existing structure. In architectural terms, a scrim is used to describe a 'second skin membrane' or 'lining' that, like a stage curtain, fronts a building façade (Porter, 2004:162). To expose the different layers, light must be shone from behind the scrim in order to reveal partial identities.

These layers are planes that provides transitional sequences of spaces that extends the limits of the threshold. Edward Casey states that the physical threshold can be defined through architectural interpretation as a transitional space (Casey, 2008: online).

When the scrim is placed on the outside of the structure, a spatial zone is created. This can also be extended to the interior as the existing structure is empty, to create zones. This spatial zone is neither interior, nor exterior in nature and can be used to create the illusion of a solid wall, or to suggest haziness to that of a scrim (Porter, 2004:162). The layers of space, behind scrims and objects can relate to the functioning of the building. These layers group the building into different required functions and circulation spaces.

The scrim can be defined on the site as the trees, blurring the views and boundary from the interior and exterior. The scrim is defined by the natural environment, creating patterns by the trees. The building, must therefore open up and create a viewpoint towards the exterior



Fig. 133 The trees creating a scrim on the site
(Author, 2019)

The layers on the site can be identified as the trains, the trees, the brick wall (cladding) and the hidden steel structure. The trains provide for accommodation and have no direct connection to the structure, functioning as a private object. The only connection can be found with a circulation route to the main structure. The significance of the trains is its contribution to the original narrative of the train terminal and not only do they provide a mechanical sense of movement, but a historical layer.

The trees form the existing scrim on the site. It creates a spatial zone between the structure and a threshold through nature. It blurs the spaces behind it, in this case the structure. The tree line becomes an independent layer that allows partial views into the structure. This in between threshold will connect the interior to the exterior and create a public space on ground floor. By allowing this space to be elevated in the same way in which a stage is elevated, this space can become the front of the stage, where the rest of the building becomes the other layers of the stage which contribute into creating a heterotopic space.

The next layer is the brick wall and corrugated iron cladding. This layer hides the structure, and its original nature. In order to expose the rest of the layers, the cladding must be removed in order to expose what the building is. The last layer is the original steel structure. This is the most important layer as it contributes to the past narrative and influence the new narratives. Not only is it an aesthetic quality, but also acts as a structural component.

By connecting these layers with its historical narrative and functional contributions, the history of the site can be acknowledged in the design, and create an order for a programmatic layout and a unified design.



Fig. 134 The bridge creates a threshold between the layers for the user to experience the interior and exterior. (Author, 2019)

04 RED SEA INSTITUTE OF CINEMATIC ARTS

PRECEDENT STUDY TOPOLOGY

+SYMBIOSIS DESIGN [2008]
+AQABA, JORDAN

The architect describe the design as “an architectural and spatial interpretation of the explorative and creative process of film-making and producing, designed specifically to encourage reflection on oneself and observation of the world outside oneself.” (Archdaily,2011:online).

The architecture was designed with a layered experience in mind to capture large ground-scape environment. “The building stages different conditions that allow the student to understand a great measure of intangibles or often immeasurable notions and conditions that are best understood intuitively through experience.” (Archdaily,2011:online). The spatial experiences by using certain conditions, expresses a filmic environment and experience that is unique.

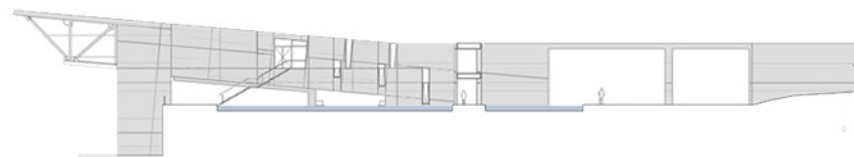
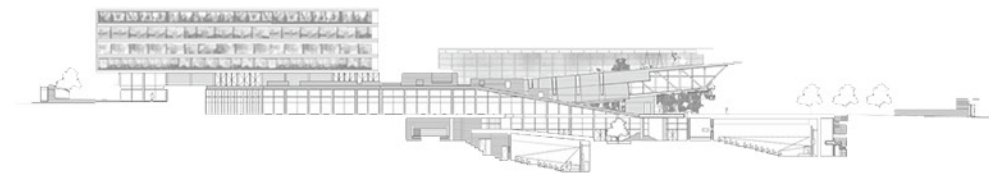


Fig. 135

Elevations .

[ONLINE] Available at: https://www.archdaily.com/124343/red-sea-institute-of-cinematic-arts-%25e2%2580%259csrcica%25e2%2580%259d-s-y-m-b-i-o-s-i-s-design?ad_medium=gallery. [Accessed 16 April 2019]



Fig. 124

Perspective of the precedent within the landscape.

[ONLINE] Available at: https://www.archdaily.com/124343/red-sea-institute-of-cinematic-arts-%25e2%2580%259csrcica%25e2%2580%259d-s-y-m-b-i-o-s-i-s-design?ad_medium=gallery. [Accessed 16 April 2019]

Topology

The structure was spread out in order to fill the property . To give the building a sculptural disposition, functions were pushed to sub- grade levels. The landscape was interpreted as "The landscape theme is a minimalistic one and where oases are introduced as sub-grade light wells, rocks from the Rum desert are staged as mystical elements and reflective pools capture sun rays and passing clouds above."(Archdaily,2011:online).

The different natural elements on the site defined the approach towards the design and influenced the morphological aspects. These elements are further emphasised by the layers in the design. These layers are:

Light

Natural light is emphasised by projecting washed out light and intense light, by using the sculptural form of the building and through skylights in the interior of the building

Shadow

Shadows are emphasised throughout the design with the use of dark areas, still shadows formed by the morphology

Motion

The building moves vertically with the forms descending into the ground and rising above the ground, creating spaces and circulation described as spaces in flux (Archdaily,2011:online). The building on the site becomes a scenographic element by itself.

Introspective domain

Smaller spaces fold inward, creating a detached reality. These spaces encourage exploration and imagination.

Exchange domain

Circulation and outdoor spaces are designed to become social domains for conversations and sharing of ideas. Rather than just movement, the circulation is emphasised as a social aspect to the design.

Layering

Forms and spaces were juxtaposed as single layers, as if it is a filming montage. Different compositions can be experienced depending on the position. "Long visual axes inlayed with a variety of compositional elements are staged as Forced Perspectives offering the students explorative grounds of visual montage" (Archdaily,2011:online).



Sculptural form



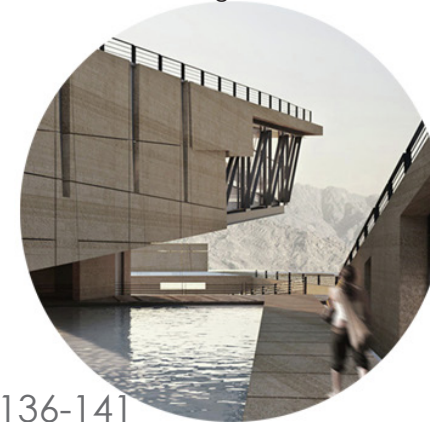
Layered experience



light



shadows



Motion



Introspective domain

Fig. 136-141
Different elements

incorporated into the design.
[ONLINE] Available at: https://www.archdaily.com/124343/red-sea-institute-of-cinematic-arts-%25e2%2580%259crsica%25e2%2580%259d-s-y-m-b-i-o-s-i-s-design?ad_medium=gallery. [Accessed 16 April 2019]

Lesson learned:

- The form is influenced by the **topological elements** on the site and interpreted on plan by juxtaposed spaces. By using the elements on site, the conceptual interpretation becomes strong and relatable
- **Forms at an angle** give a sense of motions and contributes to a scenographic environment.
- By adding social domains on the circulation, the spatial environment also becomes a social space and encourages interaction between people.

The functions on the floorplans are grouped along an axis. This axis is distorted by different angles. There is four angles that define the form and floorplans

Fig. 142

Axis used for the layout of functions on the ground floor plan
[ONLINE] Available at: https://www.archdaily.com/124343/red-sea-institute-of-cinematic-arts-%25e2%2580%259crsica%25e2%2580%259d-s-y-m-b-i-o-s-i-s-design?ad_medium=gallery. [Accessed 16 April 2019]

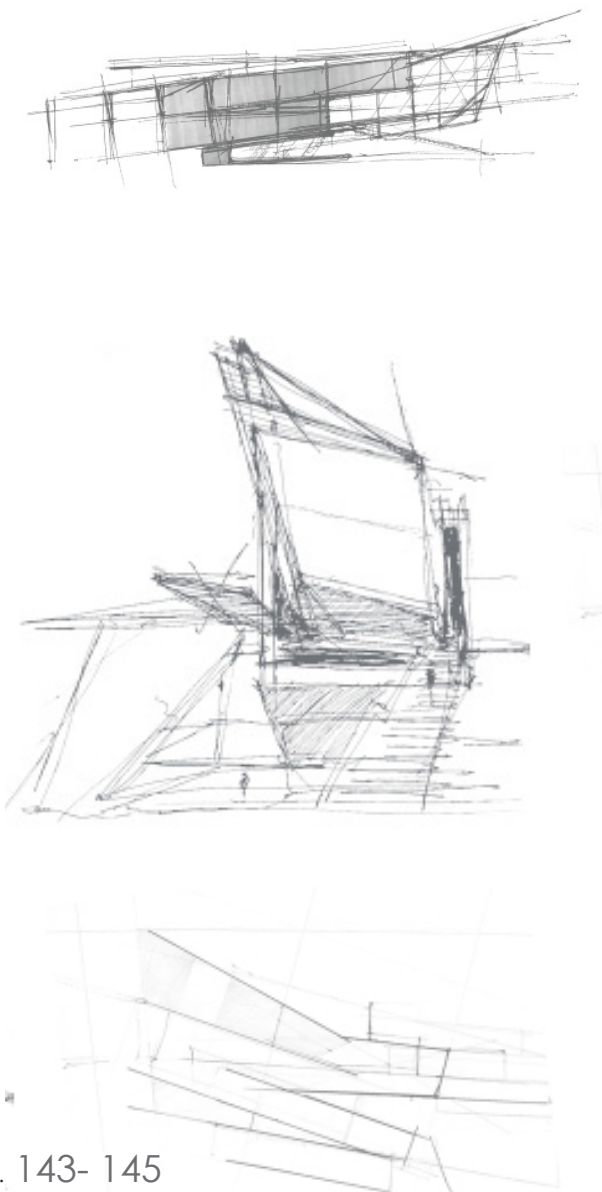


Fig. 143- 145

Conceptual approach to the design

[ONLINE] Available at: https://www.archdaily.com/124343/red-sea-institute-of-cinematic-arts-%25e2%2580%259c%25e2%2580%259d-s-y-m-b-i-o-s-i-s-design?ad_medium=gallery. [Accessed 16 April 2019]

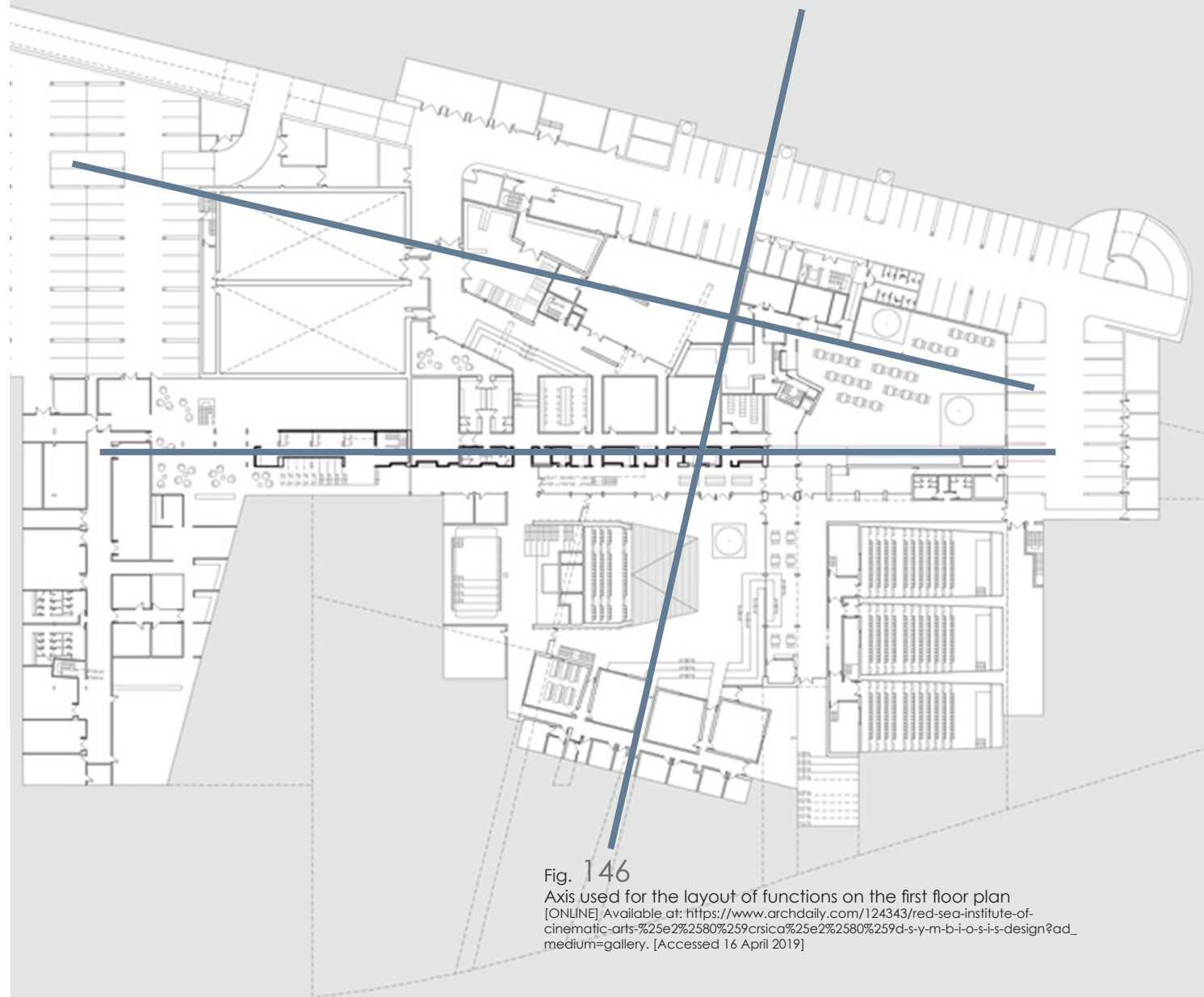


Fig. 146

Axis used for the layout of functions on the first floor plan

[ONLINE] Available at: https://www.archdaily.com/124343/red-sea-institute-of-cinematic-arts-%25e2%2580%259c%25e2%2580%259d-s-y-m-b-i-o-s-i-s-design?ad_medium=gallery. [Accessed 16 April 2019]

CONCLUSION

The conceptual approaches towards the design creates a foundation for the design interpretation. These approaches towards design aims to create a choreographic environment that relates to film. The scale of the building and layout led the development and interpretation to focus from the interior outwards, rather focusing on the exterior. The building must be experienced as a moving body where the exterior is portrayed on the interior.

The investigated theories supports the concepts of refraction, transcendence and a moving body, by a response towards the natural environment to create a cinematic experience. The use of a mechanised facade system that opens up, and a bridge that spills onto the environment reveals the narrative of the site, changing the users environment from the interior.

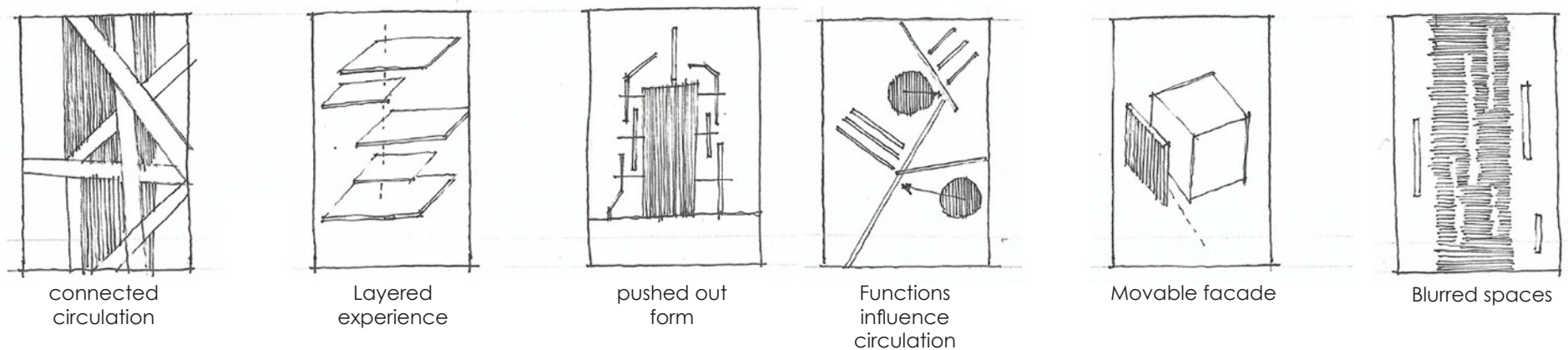


Fig. 147 Diagrammatic interpretation of theoretical components related to design implementation.
(Author,2019)

TECTONICS



TECHNICAL RESOLUTION

The proposed film production facilities will be analyzed in terms of design, development, program and its function. This will be done through research of technical solutions, materials, construction detailing and methods.

The project aims to conserve the existing steel structure and the existing masonry walls on the ground floor and aims to extend the structure to the interior and exterior and being sensitive towards the Topography. The existing concrete surface and existing steel structure will serve as the basis for the construction and space allocation. The multi-storeyed building requires a rhythmic and systematic approach in order to allocate functions and keep the existing 136m x 26m building in scale.



THE SITE AND DEVELOPMENT OF THE CONCEPT

The site is located in Bloemfontein, Transnet Road. The site is connected by a railway track that connects all the different warehouses on the plot. The main purpose for the connectivity is its main function - a transport hub. The existing structure for the proposed intervention is an abandoned train terminal that was used to service the trains and for part maintenance.

The existing building is covered with dense vegetation. The intervention aims to exploit the industrial architecture and natural elements by incorporating both in the new structure. The following illustrations show the initial exploration regarding systems that can be implemented into the design. A structural philosophy started from a conceptual approach towards the intervention. The main conceptual approach is the idea of refraction. Refraction is the change in direction of a wave passing from one medium to another or from a gradual change in the medium. This process is called dispersion and causes prisms divide white light into its constituent spectral colors.

What happens to the spaces architecturally is the explosion of space, revealing the different motivated bodies by structure and new set paths. The process causes an equality of effect with a set action and unknown reaction. These definitions led to the ideas of framing views and revealing hidden parts.

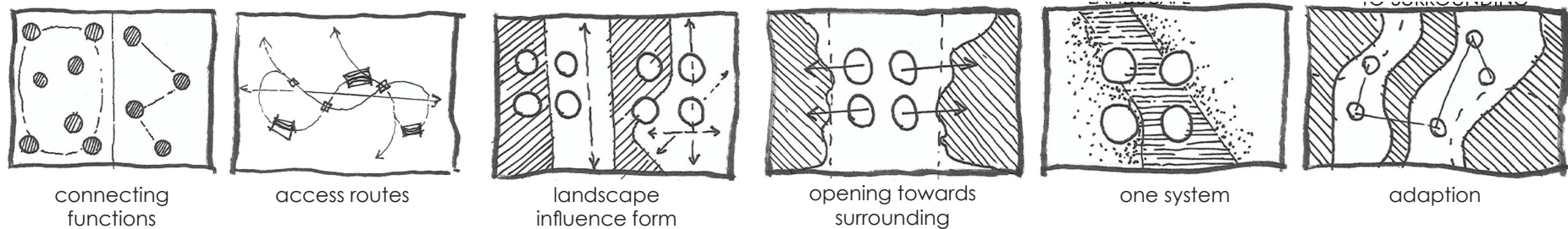


Fig. 148
Initial conceptual ideas
(Author, 2019)

TECHNICAL ANALYSIS

ENVIRONMENT AND MICROCLIMATE

LOCATION

The site location is located east of Naval Hill between Long Street and Rudolf Greyling Street. The site consists of several warehouses and train tracks spread out over the Transnet area. Its main function is several linked transport and storage terminals. This land is privately owned and classified as rural development. The micro context of the site has several existing elements that will influence the design and structure. These elements are the railway and existing trains, the train terminal and warehouses.

MICRO CLIMATE

Bloemfontein receives about 407mm of rain per year. It receives the lowest rainfall of in June and the highest in January. Its average summer temperature is +/- 23°C and its average winter temperature is +/- 8°C. January the hottest month has a temperature range of 15 – 32°C, while June is the coldest, its range a cold 1°C to mild 17°C. (SA Explorer, 2014).

The climatic factors of the zone can be described as:

- Four distinct seasons
- Hot summers
- Summers with rainfall
- Low humidity
- Both summers and winters exceeds human comfort
- Cold winters



Fig. 149
Site information
(Author, 2019)

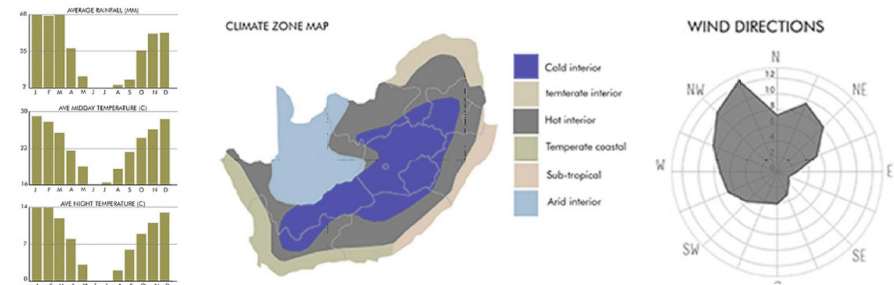


Fig. 150
Climatic zone map. (Schmidt, 2014:104)

ORIENTATION

A North South orientation in Bloemfontein will be ideal for sunlight. The existing structure is a linear structure with measurements of 136m in the North-South axis and 26m on the East West axis, with its two longitudinal facades facing West and East. Orientation of the structures is therefore important to avoid the harsh western sun.

SOIL CONDITIONS

Bloemfontein is located within the Grassland Biome. The vegetation of the region can be described as dry grasses, with the soil profile classified as a red color and high clay content. The soil mixture can be analysed as: clay (20-25 %), silt (10-15%) and sand (60-65 %). (Dingaen & DuPreez, 2013: 3).



Fig. 156
View of the site. (Author, 2019)

TOPOGRAPHIC ANALYSIS

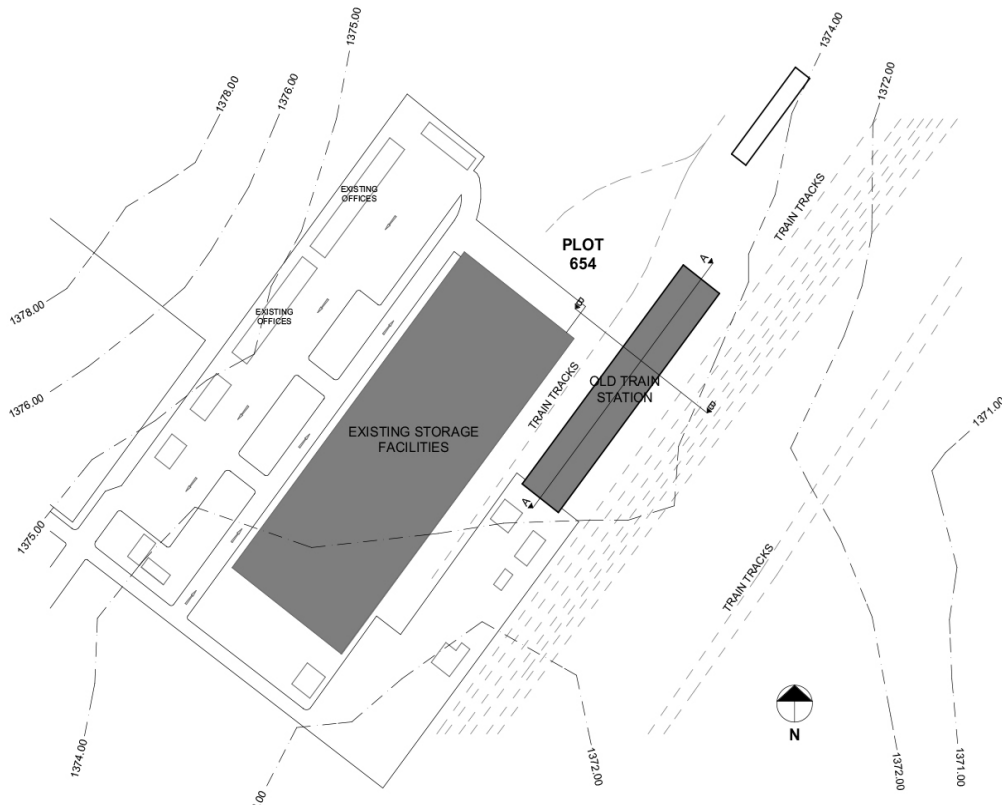


Fig. 151
The existing train terminal
(Author,2019)

The main access road is Transnet Road with several secondary roads that lead out of it. The buildings in the surrounding buildings mostly consist of single-storey office buildings and large warehouses for storage facilities. There is a water reticulation system, but currently no municipal supply. Naval Hill is west from the proposed site. The site is fairly flat with contours on micro context ranging from 1372 - 1375m with an altitude of 1372m above sea level. The topography can be defined by a gentle gradient of slopes from West to East with a fall of 2m. The ground was leveled for the excessive use of train transportation and the implemented railway line. This makes the site ideal for large structures that are necessary for the intervention.



Fig. 152
Elements on the site
(Author,2019)

Vegetation on the site consists of trees and grass, and bushes. The trees are fairly large and dense on the site. As the Old train station is not in use the grass has grown immensely around the building.

SITE SPECIFIC INFLUENCES

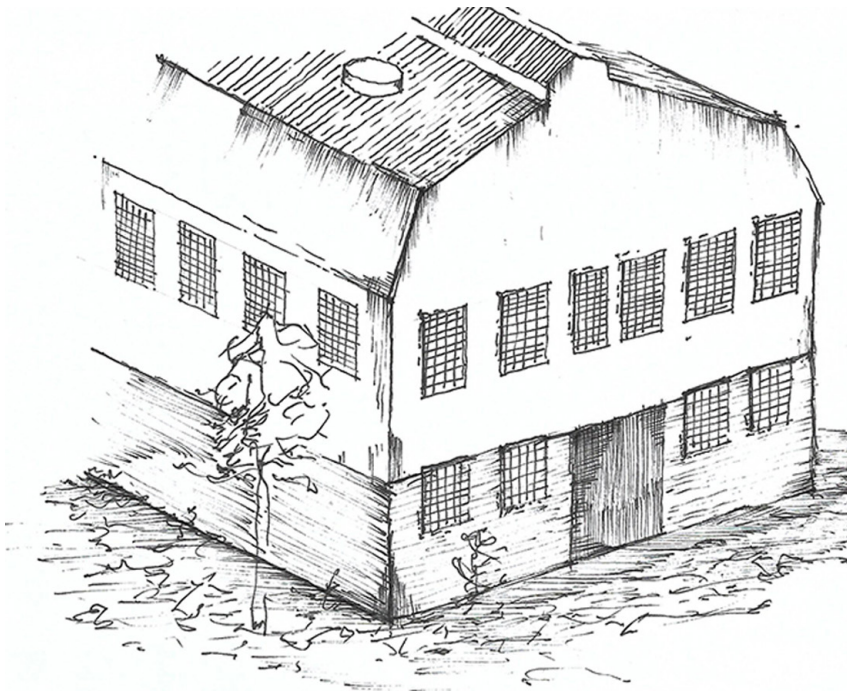


Fig. 153
Perspective of existing train terminal
(Author,2019)

The existing warehouse, to be developed, consists of steel construction with a height of 16m. For functional requirements, this is relevant towards film production facilities. The train terminal is between 16 m in height and consists of masonry construction with steel elements in the interior. The existing building is a train terminal with its main functions, being the service of trains and part maintenance.

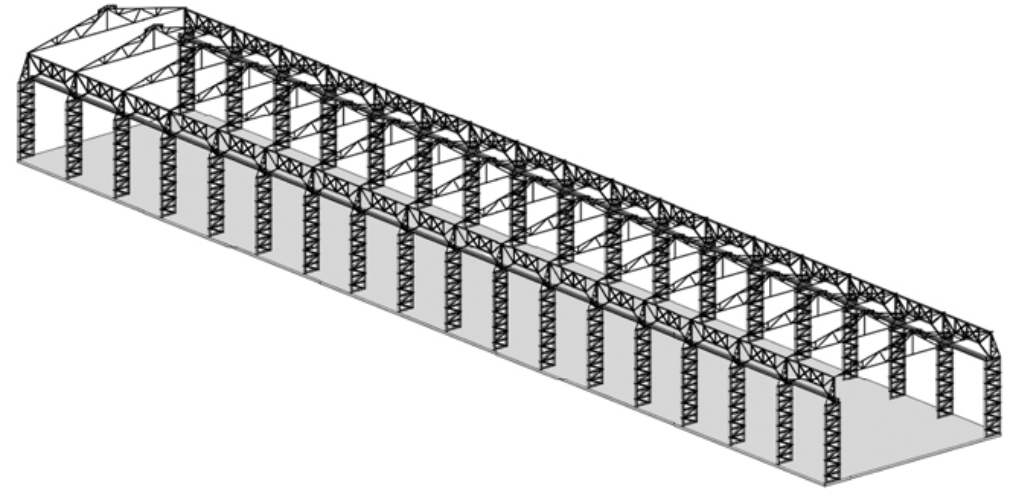
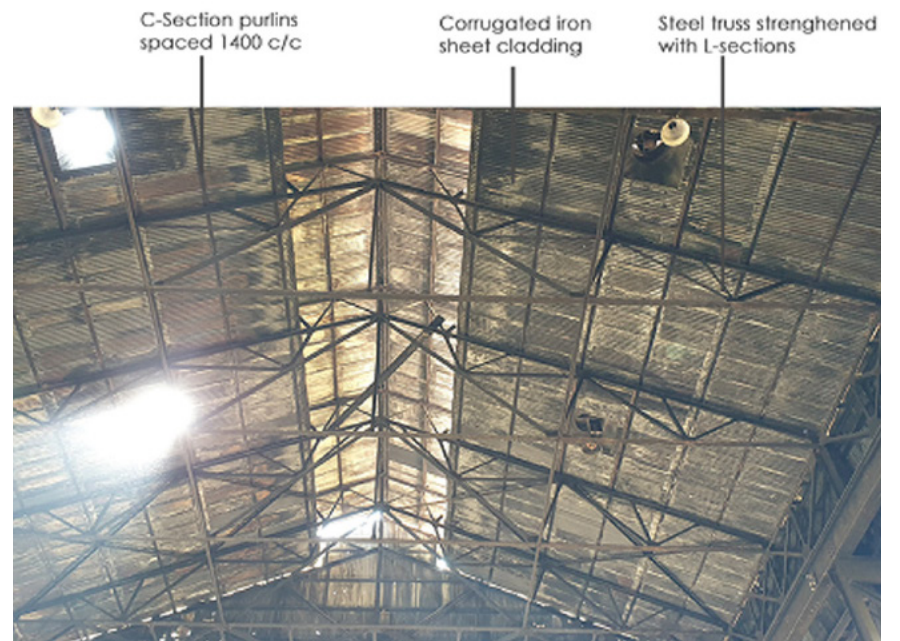
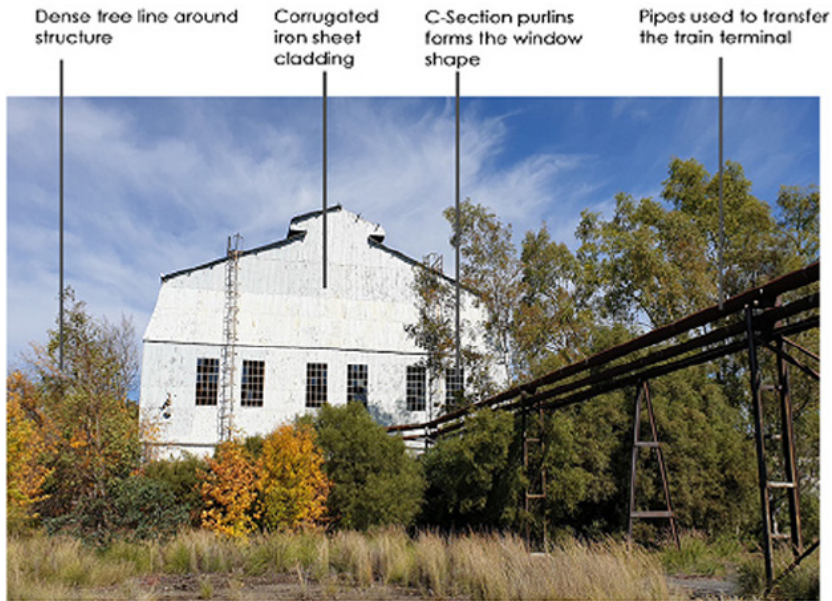


Fig. 154
Existing structure of the train terminal
(Author,2019)





The roof structure will be kept. New sheeting gives opportunity to let light in

Gantry level implies for a movable system that can contribute to film production

Bracing in every fourth module (proposed entrance)

Window opening defined by hollowcore steel structure clad with corrugated sheeting

Columns in a grid layout each 8m
These grids will be used to insert pods for the functions

The existing 220mm masonry walls will be kept. This implies masonry construction for the interior walls on ground floor

300mm concrete floorslab

Fig. 155- 160
Visual analysis
(Author,2019)

SUSTAINABLE ARCHITECTURE

Sustainability can be described as methods to reduce negative impacts on the environment, and the health and comfort of building occupants. (gsa.gov;2019). The existing train terminal for the intervention is situated with functions facing towards the eastern and western façade. The building is uninhabitable and therefore require cross ventilation and northern sun. The design aim to reduce the consumption of non- renewable resources and create a healthy environment.

DESIGN AIMS TOWARDS SUSTAINABILITY

Bloemfontein falls under the Cold interior zone. The summers and winters exceed human comfort range with low humidity and summers with rainfall (Schmidt, 2013)

Suitable design response

- High thermal mass
- Insulate thermal mass
- Maximise north facing windows.
- Use adjustable shading
- Minimise east, west facing windows.

Sustainable ideas were investigated with the following design strategies to create a habitable environment. After a site investigation and building analysis the following points were identified that will influence the sustainable aims.

- Natural influence (Existing trees on northern and eastern façade as shading devices)
- Façade systems that open and close (Pulley system)
- The bridge as a ventilation tunnel
- Rainwater harvesting

NATURAL INFLUENCE/GROUPING

The existing structure is surrounded by large trees. The new spaces will be designed with the idea of using the trees as a shading device. The second function of the trees is a sound barrier. The private spaces are placed where the trees are denser. The trees also reduce surface temperature, glare and reducing heat exchange. The soundstages and offices are located where the trees are denser. This creates a quieter environment and shading as these are the most important spaces. The functions are grouped to create a new circulation path. This path will allow for cross-ventilation and natural light entering the building. The large trees therefore provide thermal and acoustic comfort with spaces positioned for maximum shading and if they require acoustic insulation.

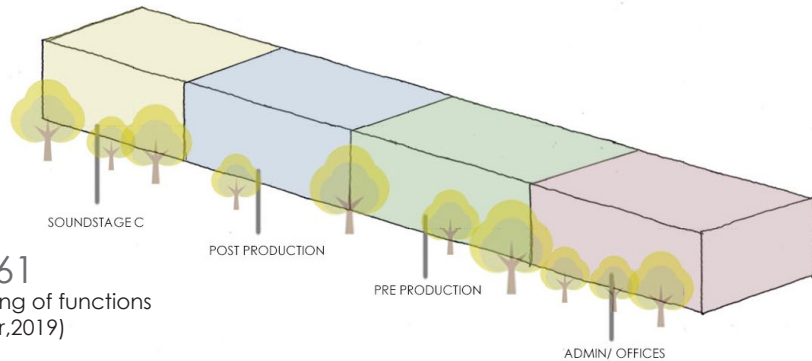


Fig. 161
Grouping of functions
(Author,2019)

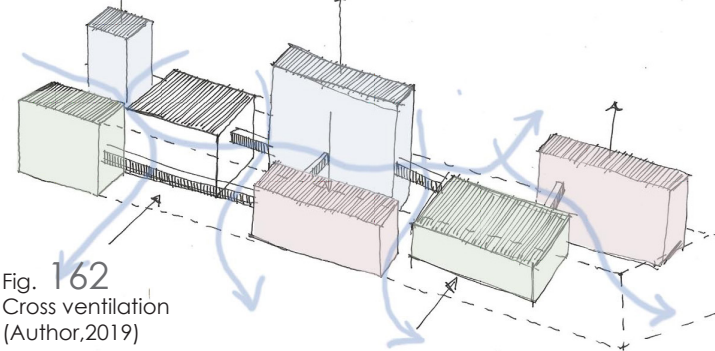


Fig. 162
Cross ventilation
(Author,2019)

SUN ANGLE/ BREATHING FACADES

The existing structure is closed off towards the northern sun therefore the structure will be broken into parts for natural light and ventilation. A suspended roof will allow for ventilation through the building. Diebedo Francis incorporated three elements into his designs in Gando: suspended roof structures for cross ventilation, perforated walls for cross ventilation, and holes in the roof in the form of clay pots for light and letting the hot air flow out. (MOMA,2019). A façade system that opens and closes will help improve ventilation and control the light entering the building. The idea is for the system to close during harsh sunlight in the morning and afternoon.

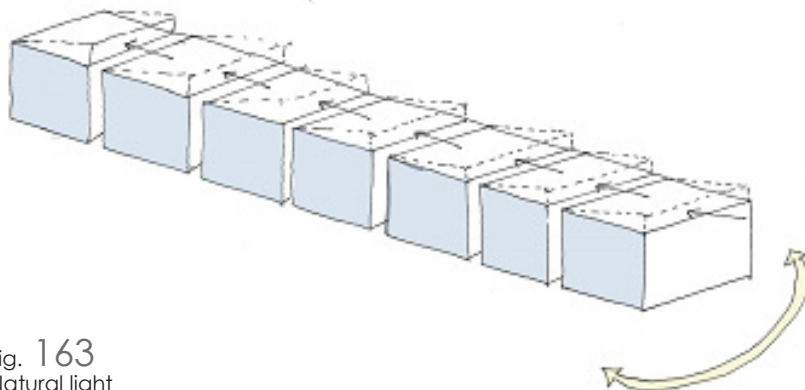


Fig. 163
Natural light
(Author,2019)

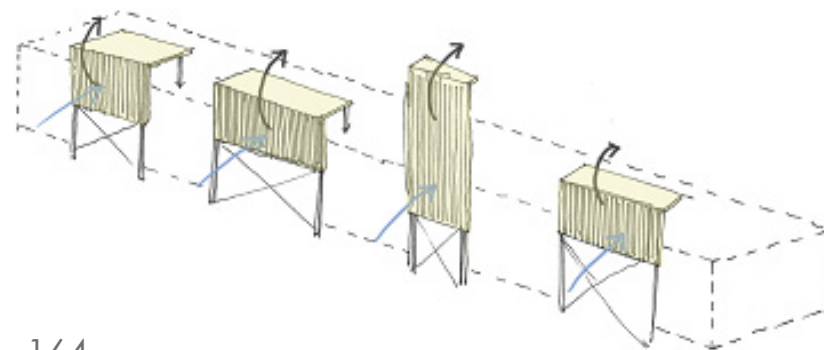


Fig. 164
Mechanical facade
(Author,2019)

SUSTAINABLE METHODS

The above stated methods derive from the site and existing building. These methods will allow for habitable spaces and a better work environment. By investigating the above methods two sustainability systems were identified to further improve the proposed design.

RECYCLING THE ABANDONED TRAINS

There are more than two hundred abandoned cargo trains on seven tracks on the site. Most of the trains are not in working condition. Cargo trains are the easiest to recycle since 60- 80% of their mass is composed of cast iron and steel. Freight trains are typically divided into two parts: the locomotive and the cargo railcars. As the design will incorporate steel components and the secondary structure only consists of steel, this is a solution for the needed material. (Recycling,2017)

The used materials coming from rail vehicles are classified into the following seven categories

- steel
- polymers, excluding elastomers
- reinforced polymers, polymer compounds , all other undefined polymers, foam, sorted fractions, duromers,
- elastomers (rubbers),
- glass,
- fluids
- oils, lubricants, all chemical fluids,
- modified organic natural materials (MONM), such as leather, wood, cardboard and cotton fleece,
- other, including components and/or materials for which the material composition cannot be ascertained (e.g. compounds, electronics and electrics)

Material that can be incorporated into the design

- Steel (used for the structure)
- Glass (used for glazing)
- Leather and wood (interior design)
- Cotton (used for insulation)

The process of disposal of rail vehicles is similar to the process of motor vehicles. The following steps are used for the procedure. (Merkisz,2019)

- forwarding the rolling stock for recycling,
- pre-treatment,
- dismantling,
- shredding,
- treatment of recovered materials and parts.

THE BRIDGE AS A VENTILATION SYSTEM

The bridge will connect the soundstages with the pre-production offices. This is a pathway for quick access and connecting the functions to the gantry level of the soundstages. The soundstages must be dark and use artificial lighting for shooting scenes for film. This causes no natural ventilation in the space and heat from machinery needed for the specific scene in the film heats will add more heat to the space. Traditional soundstages use air-conditioning to provide a comfortable work environment. The three ventilation principles discussed under point 4 will be implemented. The idea is to design a tunnel that capture the wind and transfer it to the soundstages and release hot air through the roof structure.

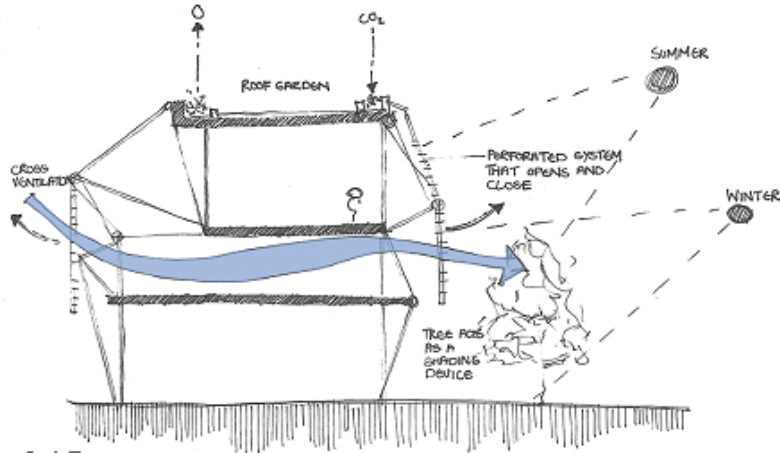


Fig. 165
Ventilation
(Author,2019)

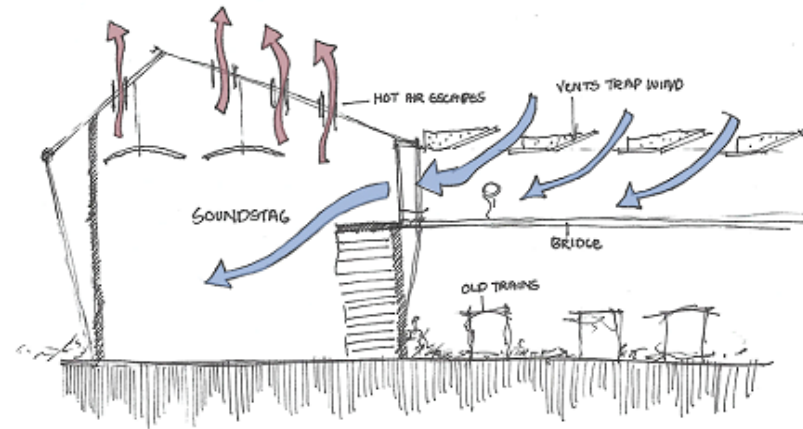


Fig. 166
The bridge as a air tunnel
(Author,2019)

RAINWATER HARVESTING

The reason for rainwater harvesting, is because of the natural environment on the site and the large exterior spaces, ranging from 50-136m, makes it perfect. When principle photography takes place during film production, some scenes and sets require large amounts of water. Rain water harvesting refers to the collection of rainwater and purposed for re-use. The system that will be implemented will be a ground catchment system. The ground system use pavers to collect the storm water and store the water below ground level in tanks. These tanks will be placed on the southern edge of the site as the slope moves south- east. Permeable paving can be used in the courtyard spaces. This system requires a 32mm stone base and covered with geofabrick laid under the bedding stone. Above the fine bedding stone is a 4mm sand bedding that filters the rainwater and keeps the pavers in place. The pavers are kept into place by a 2mm crushed stone layer in the joints. Corobrik Piazza Pavers will be used for the paving due to its high absorption rate. (Loyola University Chicago, 2018: Online)

USER BEHAVIOR AND REQUIREMENTS

BUILDING REQUIREMENTS

The building use gallery spaces which require storage facilities. These storage facilities should be in ratio 1:1 to the exhibition spaces to meet requirements, with protection from water leakage and fire (SANS, online). The following portray the occupancy classification according to SANS 10400

A1 – Entertainment and public assembly Occupancy where persons gather to eat, drink, dance or participate in other recreation.

A2 – Theatrical and indoor sport Occupancy where persons gather for the viewing of theatrical, operatic, orchestral, choral, cinematographical or sport performances.

C1 – Exhibition hall Occupancy where goods are displayed for viewing by the public

C2 – Museum Occupancy comprising a museum, art gallery or library.

Most of the spaces for the intervention requires methods of soundproofing, these Basic facilities needed for film production are:

- A cinema
- A Theatre
- Screening rooms
- Office Spaces
- Soundstages
- Editing rooms
- Fx affects stage

SITE PLANNING AND LANDSCAPE DETAILING

ORIENTATION ON SITE AND ACCESS

The existing building is orientated towards east and west, with entrances on the North and Southern side. The functions are placed on the East and West orientation along the axis from North to south. The functions placed on the western elevation are enclosed spaces with the main functions, being recording rooms and screening rooms. The offices and open circulation are placed on the eastern elevation for natural light. The sunlight will be controlled with a electronic pulley system that controls the amount of light. Dense vegetation and trees can be found around the building creating a filter for the natural light.

The only access to the site is from the Southern side and Northern side. The main entrance will be located on the Northern side, as the Southern entrance has been cut off from the main Transnet road. The ground floor acts as a open circulation, therefore all the functions are accessible from the Northern entrance

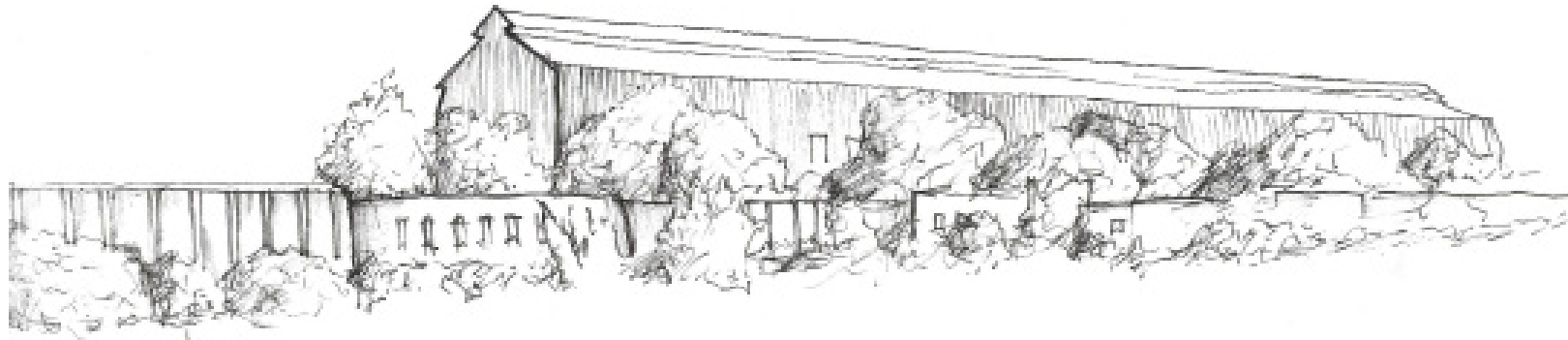
SOCIO- ECONOMIC PROFILE OF USER GROUP

The Accommodation list is grouped into three categories, namely, Film production, Production and Public. These categories are then divided into sub categories, to provide for private and public functions. The main users are students, visitors and production staff (professional members)

Professional members form the main user profile as they are they are the most essential part in order to create a film. The site provide for the spaces needed for the large list and requirements of staff members. The proposed project aims to create an integrated circulation

LANDSCAPING

The natural environment around the existing structure is left as is, as the building is surrounded with dense vegetation and several different trees. The context complements the architecture and in this case creates links between the eastern and western side of the building. The exterior walkways are kept to a minimum and only placed where circulation is essential. The existing trees act as a mesh itself, filtering the amount of sunlight.



WATER AND WASTE MANAGEMENT

There is no storm water drainage on the site, therefore exterior walkways are sloped, for the water to run onto the vegetation on the site. The restaurant and soundstages will produce the most waste, Both functions have direct access to the waste management building outside the main structure on the western side. The waste management building is on the transport route for ease of dispath. SANS10400 Part U states "Any building, excluding a dwelling house, in which refuse is or will be generated shall be provided with an adequate storage area for refuse containers" (SANS10400, 2010)

UTILITY AND SPACE ENHANCEMENT

The building is placed along a North- South axis. The building is not orientated for optimal control. The functions placed on the western elevation are enclosed spaces with the main functions being recording rooms and screening rooms. The offices and open circulation are placed on the eastern elevation for natural light. The sunlight will be controlled with an electronic pulley system that controls the amount of light. Dense vegetation and trees can be found around the building creating a filter for the natural light. The interior functions are fragmented to allow for ease of circulation between functions.

The design must meet the spatial requirements needed for film production and essential equipment. The design makes use of double volume spaces and wooden flooring to enhance the acoustic environment. A delivery bay has been implemented for the ease of transporting and delivering. The building has been designed around filmic environments that is specialised towards film, where audiences are seated and viewing a screen or a performance.

HORIZONTAL AND VERTICAL CIRCULATION

The building functions along an axis with longitudinal spaces with several exits. The main movement is along the North- South axis. The functions are oriented and placed within the structure to give a sense of orientation between the different parts of the building. The spaces are designed bearing in mind the movement of film equipment. The double volume spaces create a change of environment within the building.

To make the design accessible for everyone, stairs and elevators are implemented throughout the design. All the elevators are accessible from each floor. Fire escape routes are placed along an axis and comply with SANS10400 Part T (Sans10400, 2010).

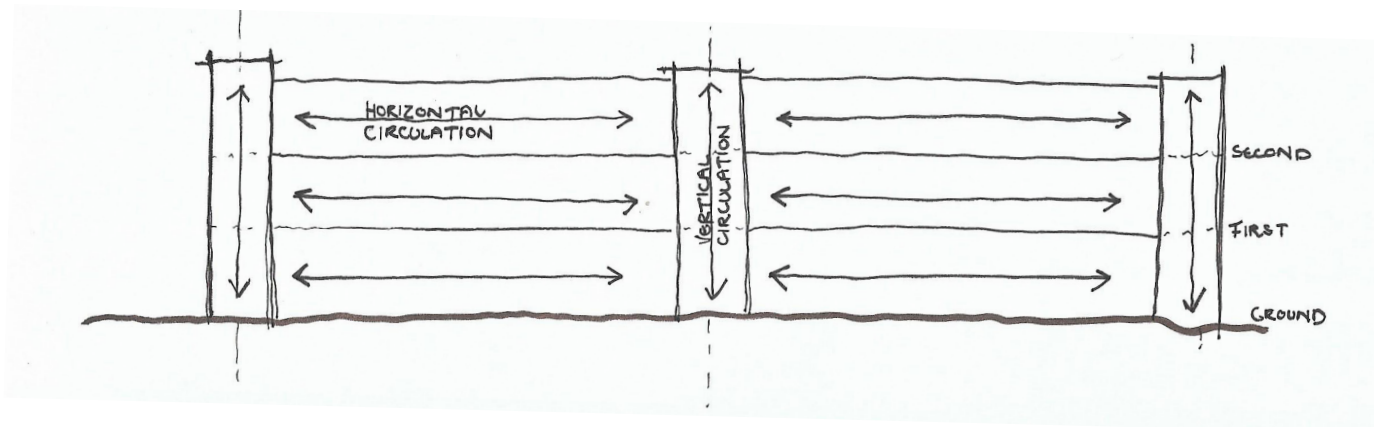


Fig. 167
Circulation
(Author, 2019)

FORM AND FUNCTION

The form of the design complements the existing structure, with its strong horizontal elements than vertical. Each function is grouped as a separate space and its requirements. The linear rigid form is in contrast with the landscape. The landscape influences the design on the interior where the people will experience the spaces. The facades are a simplistic rhythmic design to emphasize the natural elements and allow the tree line around the building to become an architectural element and as part of the design.

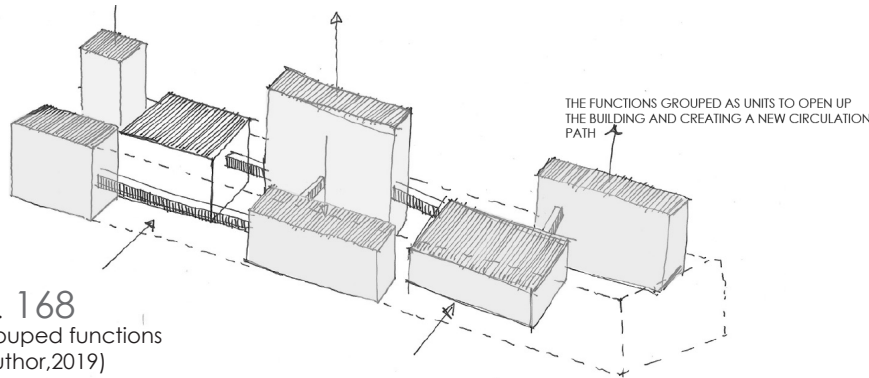


Fig. 168
Grouped functions
(Author, 2019)

- Ground Floor is open for public use, trading and pedestrian movement, as well as vertical entrance into functions
- First Floor is lecturer offices and admin offices with the renovated theatre and added film pods
- Second Floor is studios for the students as well as film pods.
- Third Floor is the same plan as the Second Floor with the addition of an outdoor cinema which is readily accessible from outside.
- Fourth and Fifth Floor has the same form giving as the Third Floor and makes provision for a set design studio and graphic design.
- The whole building is bound together by the presence of the added steel constructed cinematheque, which functions as an everchanging mechanically motivated body.

DESIGN DETAILING

Building and site is integrated as a single system. Water from the building feeds the plants and other living systems of the landscape. The two are visually connected by the transparency of each research indoor space. Parking is situated on the south-west side of the design and public stairs are on the north east side – thus allowing the public to enter from either side of the proposed building and encourages movement through the space, making the site more accessible for the public interface. Elevators, stairs and ramps are designed and placed accordingly for users and researchers, and the physically challenged to be able to access them where needed with ease.

TECHNICAL REPORT

STRUCTURAL SYSTEMS

By investigating the existing structure on the proposed site, the new materials were chosen in order to complement the existing form, structure and function. The approach towards material selection was categorized by investigating different structural parts of the building, e.g. roof, floor sub structure.

As a building with an existing foundation and existing structural system, the following problem statements must be addressed regarding material selection:

- Complement the existing rather than creating new structural typology.
- The materials must reflect the exterior nature of the site
- Materials in some modules must be in contrast to the surrounding
- Gantry levels implies for mechanically moving levels to enhance the film production process
- Connection of the new structures to the old structure

CONDITION OF EXISTING STRUCTURE

The existing train terminal is in a bad condition, with fractured masonry walls and holes in the concrete surface. The structure is in good condition with minimal to no damage. Most of the load bearing elements can be adapted and reused. Deterioration over a period of time has given the corrugated iron cladding a new character.

DEMOLITION OF EXISTING STRUCTURE

All the parts that will be demolished are non- load bearing elements. The brickwork removed from the ground floor can be reused in other parts of the new structure. Most of the building will be conserved to sustain the existing applied load and strengthened with the newly added structure.

MAIN AND SECONDARY STRUCTURE

The main existing steel structure of the existing building will be conserved. This consists of the columns, roof trusses and concrete floor slab. The additions will mainly constitute steel column and beam construction on the interior, with the use of concrete elements. The interior is the main focus of the construction as the existing steel elements in the building will define the functions.

New steel columns of 254x254mm H-Profile will be used in the interior and connected to 254x254mm H-Profile beams that will form structure for the circulation platforms. The columns will follow the existing grid system of 8mx8m and include a 4x4m grid system where more support is necessary. These columns will only carry the load of the functions placed on it, as the existing structure already carries the roof load and cladding. Therefore the interior has more freedom regarding morphology as loads are less. This system minimizes site disruptions and is quicker to assemble. It requires less water during construction as the site is not near any water sources.

Existing facades of the train terminal are supported by the use of lipped channel steel profiles with corrugated steel sheets bolted onto these profiles and connected to the main steel profile system that consist of two 254mm H-Profile columns connected with L sections on both sides. Coating that is applied to the steel system should be able to resist weather conditions as well as have a high fire resistance. All coatings should be applied directly after welding takes place to prevent corrosion.

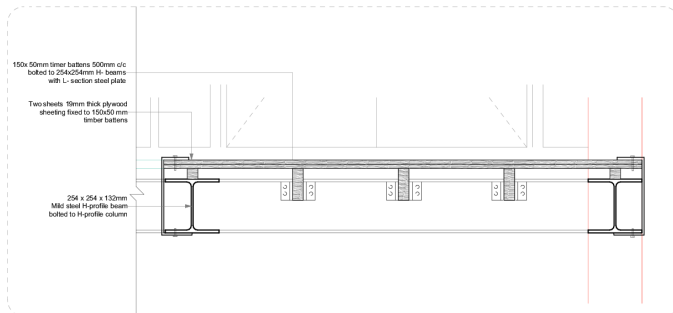
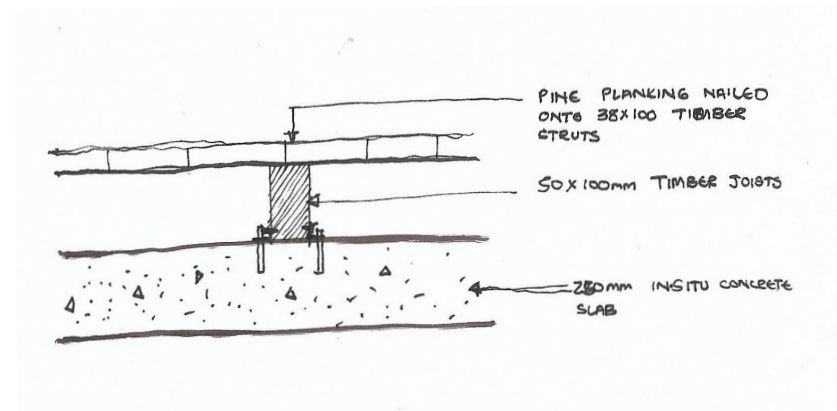
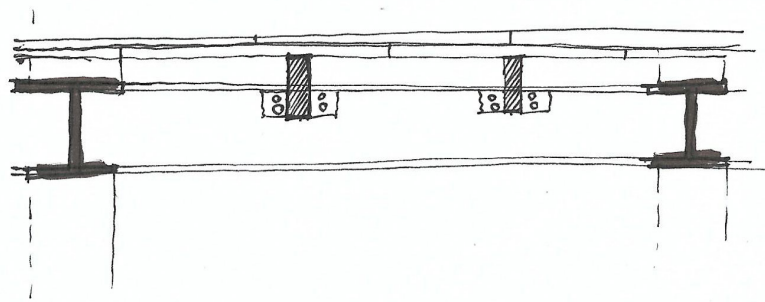
CINEMA CAGE SYSTEM

Steel truss Cinema Cage System welded and bolted to main structural core of cinema pod system and bolted to 254x 254 H-profile steel column bolted to 300 x 300mm structural square tube column to reinforced concrete footings structure is stabilized to horizontal movement by connecting the system with two column system 90 x 50mm cold formed lightweight steel siteform construction welded and nailed with cleats to main steel cage members which consist of 250 x 150 x 8mm rectangular hollow steel sections

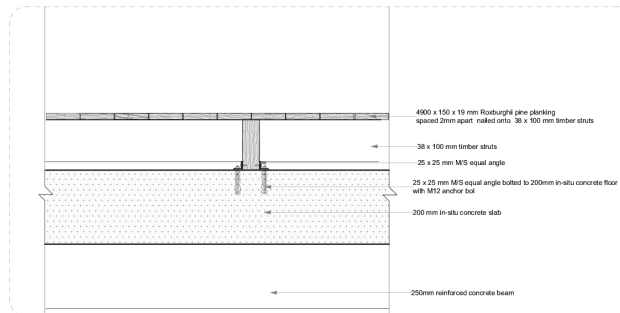
FLOORS

The existing concrete ground floor slab will be maintained and reused. The floors are separated into two parts, namely concrete-constructed and steel. The cast in situ concrete slabs of 250mm will form the basis for the functions. The slab will be connected to the newly added structure on the northern and eastern side using C-channels. This will function as a movement joint and articulation between the new and the old structure.

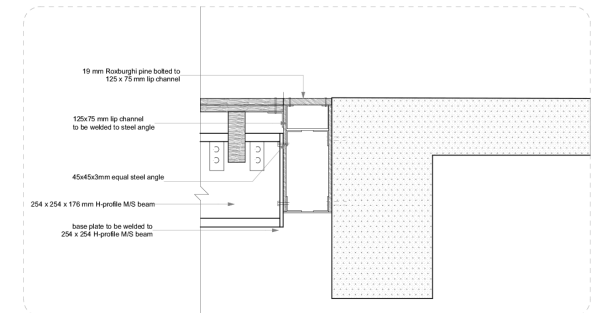
The steel column and beam system will add a timber sprung floor system with added acoustillation insulation to sound proof the cinemas and certain area of the circulation, as the large scale and floor levels will resonate sound. In other areas of the building 150x50mm timber battens are bolted with a steel plate to the 254x254mm H- section beams. Fixed on the timber battens is two sheets 19mm thick plywood sheeting 500x4000mm



D3: WALKWAY FLOOR DETAIL
SCALE 1:10



D4: THEATRE STAGE FLOOR DETAIL
SCALE 1:5



D5: TIMBER FLOOR TO CONCRETE CONNECTION
SCALE 1:5

FOUNDATIONS

The new structure is to be constructed upon an existing concrete surface as it already a stable foundation. Excavations will be for the newly added columns and the lift shaft that will comply with SANS 10400 Part G (SANS10400, 2010). The existing concrete floor slab has a thickness of 300mm and consists of a raft foundation due to the soil's high clay content.

WALLS

Certain walls on the ground floor are retained. These are 220mm exterior masonry walls. Interior walls will comply with a thickness of 110mm with bricks refurbished from demolished walls on the ground floor. The office and cinema pods that consist of various functions will be constructed out of a composite system using Alucobond panels bolted to 90 x50 mm site-form steel profiles. It is a system using suspended tray panels that is instantly ready for fitting with a surface finish that requires no painting. The skeleton structure will be filled with insulation and acoustic panels. In these spaces acoustic panels are fixed at different angles to reduce sound reflection.

COLUMNS AND BEAMS

The main steel profile system consists of two 254mm H-Profile columns connected with L-sections on both sides. The H- Profiles are spaced 4000mm from each other. On the top is 254mm H- Profile beam that connects all the columns.

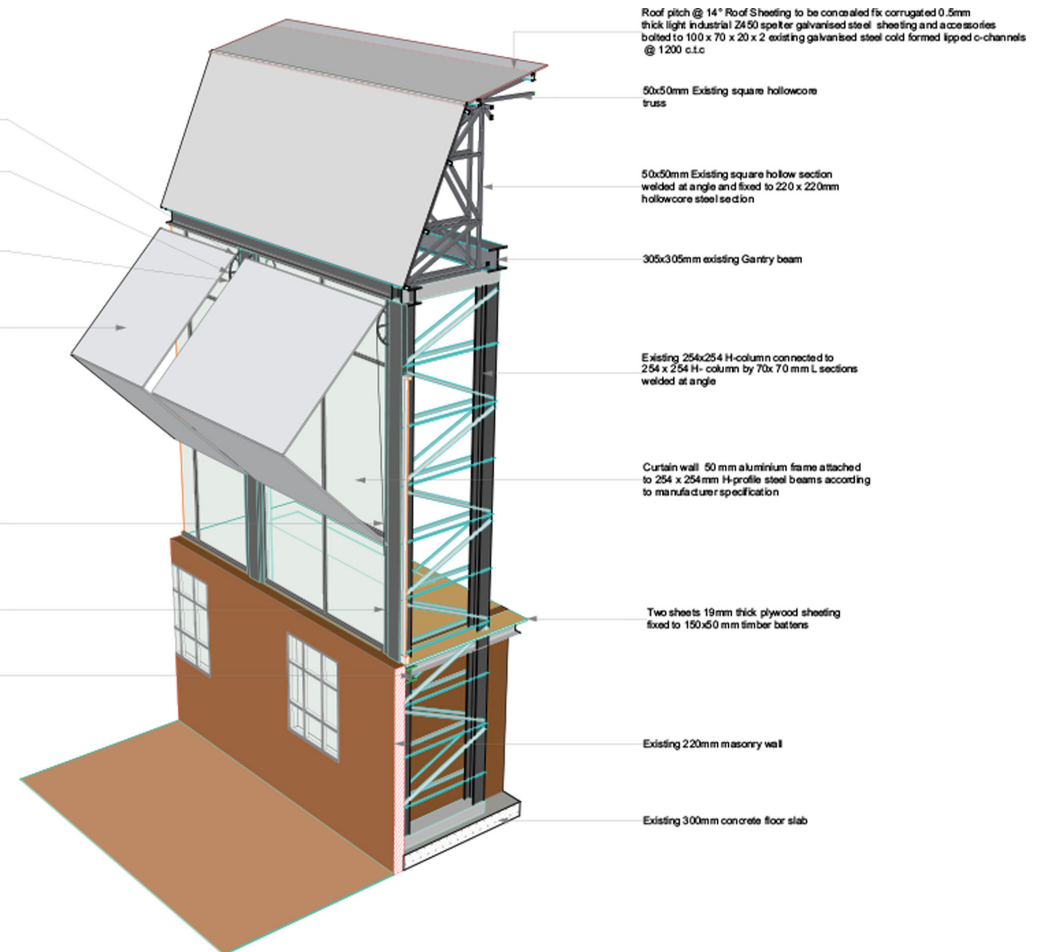
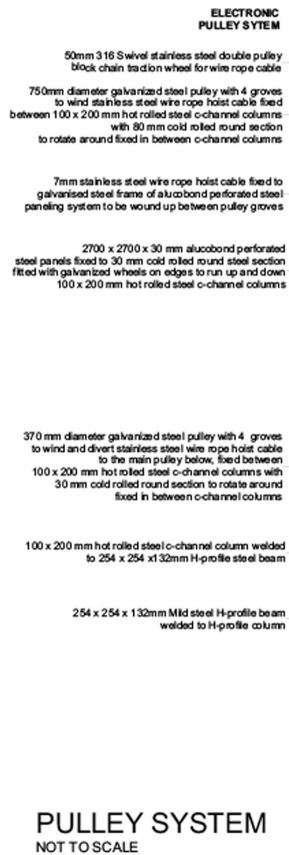
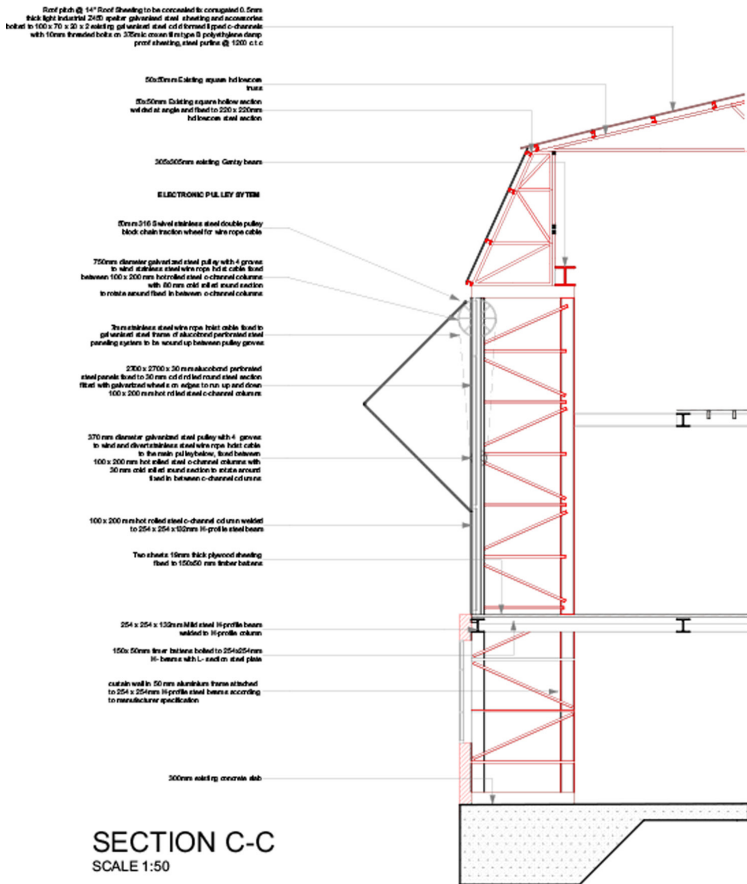
The new steel structure is made up of a series of H and I-profile columns and beams. Most stanchions are 254x254x15.6mm Mild steel wide-flange sections that range from 20m to 30m in length. 250mm rounded reinforced concrete columns and 250mm thick concrete slabs will provide for the concrete platforms.

FACADE AND SCREEN SYSTEM

The eastern facade consist of 50mm aluminium frame curtain walls that is attached to the mild steel 254 x 254mm H-profile beams, on the first and second floor.

100 x 200 mm hot rolled steel c-channel column is welded to the 254 x 254 x 132mm H-profile steel beam with a 30mm gap for the 370 mm diameter galvanized steel pulley with 4 groves to wind and divert stainless steel wire rope hoist cable to the main pulley of 750mm in diameter. The steel pulley's are fixed between 100 x 200 mm hot rolled steel c-channel columns with 30 mm cold rolled round section to rotate around fixed in between c-channel columns.

2700 x 2700 x 30 mm alucobond perforated steel panels are fixed to 30 mm cold rolled round steel section fitted with galvanized wheels on edges to run up and down 100 x 200 mm hot rolled steel c-channel columns. The system is pulled mechanically with a 7mm stainless steel wire rope hoist cable fixed to galvanised steel frame of alucobond perforated steel paneling system to be wound up between pulley groves.



BUILDING SERVICES

FIRE ALARM SYSTEMS

The design follows the SABS fire requirements. The SABS requires several devices for fire protection, being: Smoke detectors, thermal, flame and fire gas detectors. The building is more than two storeys high therefore more than two escape routes should be provided.

The distance between exit doors should not be less than 15m apart. Exit doors between fire escapes are kept within regulation of 45m travel distance. Hose reels are installed within the H-columns of the existing structure and installed within every 500m². (SANS, 2011: Part T-Fire Protection).

PARKING STANDARDS

Parking is designed according to the National Building Regulations with a parking space 2.5m x 5m. Between parking rows there is a 7.5m distance for access.

HVAC

The air-conditioning system is located in the ceiling above the soundstage on a concrete roof. The airflow will be dispensed from this main hub throughout the spaces. The pipes will be exposed within the building and form part of the industrial aesthetic. Spaces such as the cinema and theatre service spaces are located within the ceilings. Extracted air from the air-conditioning units are ventilated to the exterior of the building through existing vents on the roof.

WATER SUPPLY

Within the design, only the kitchenettes and ablutions need water supply. These functions are placed on the sides of the building for a more comfortable sewage solution. These services are grouped together and stacked upon each other, with accessible shafts that have the necessary water and drainage pipes.

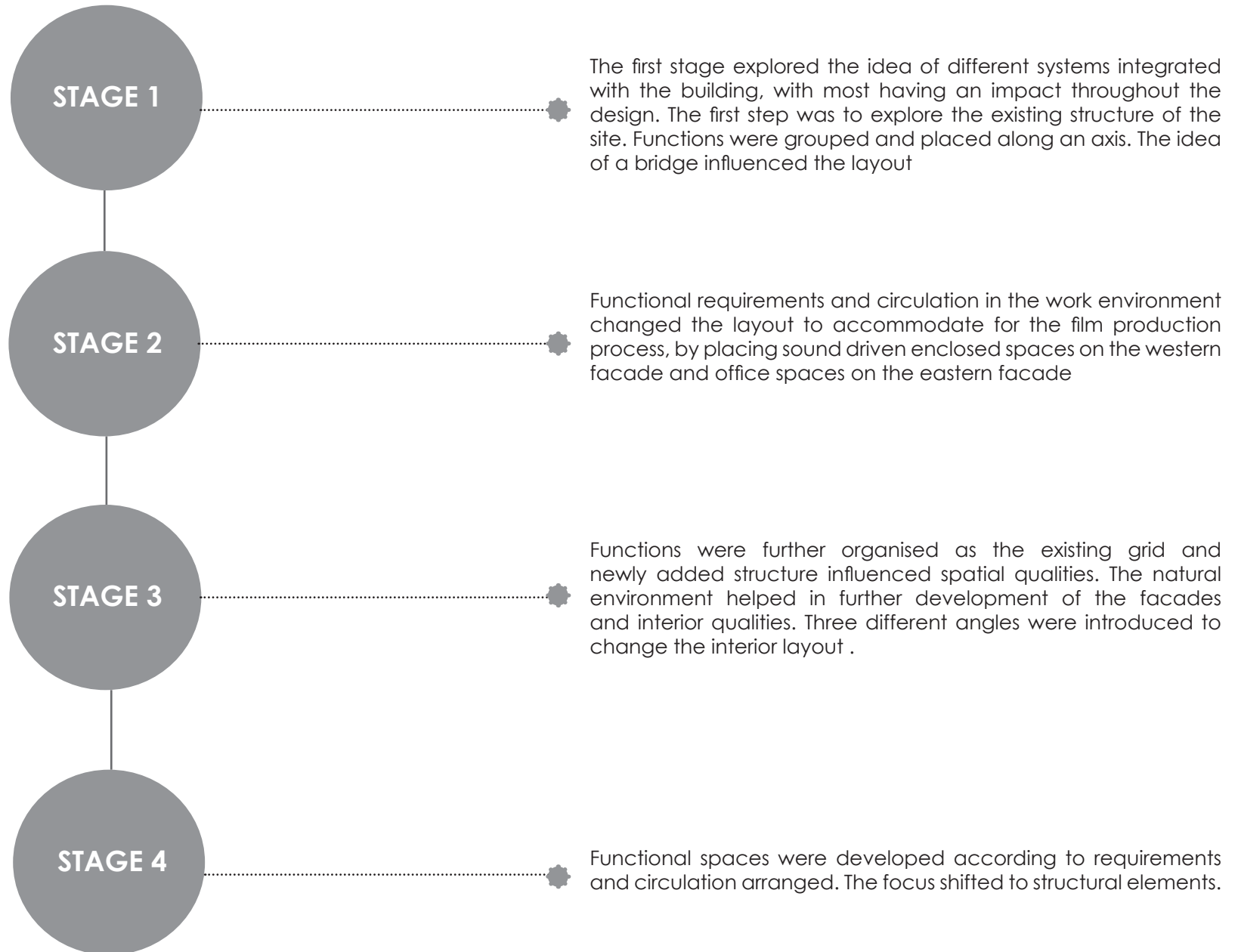
DESIGN AND TECHNICAL SYNTHESIS

PART 03





DESIGN DEVELOPMENT



INITIAL DESIGN CONSIDERATIONS

1. GROUPING

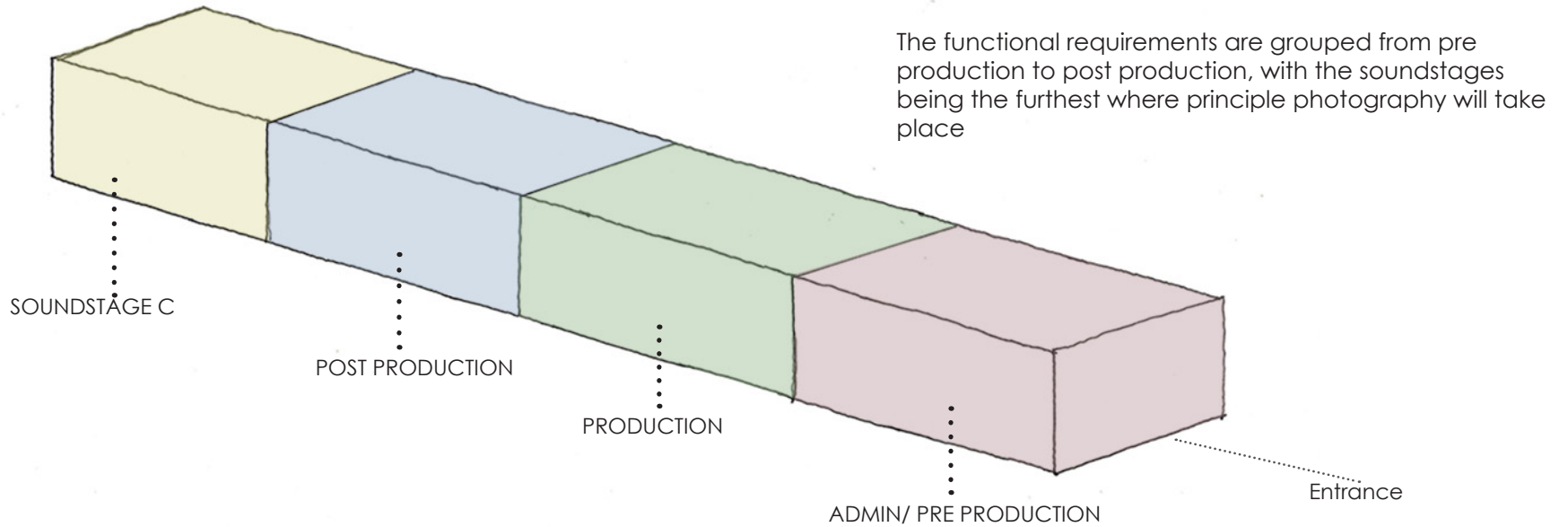


Fig. 169
Grouping
(Author,2019)

2. OPEN THRESHOLD

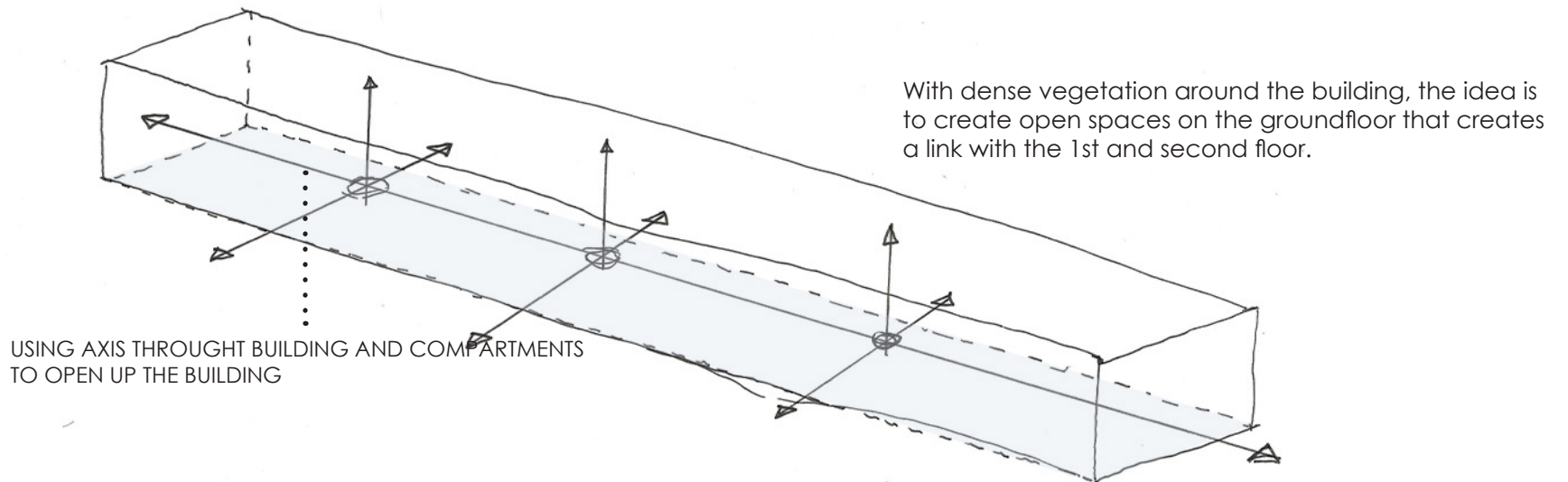


Fig. 170
Open threshold
(Author,2019)

3. NATURAL INFLUENCE

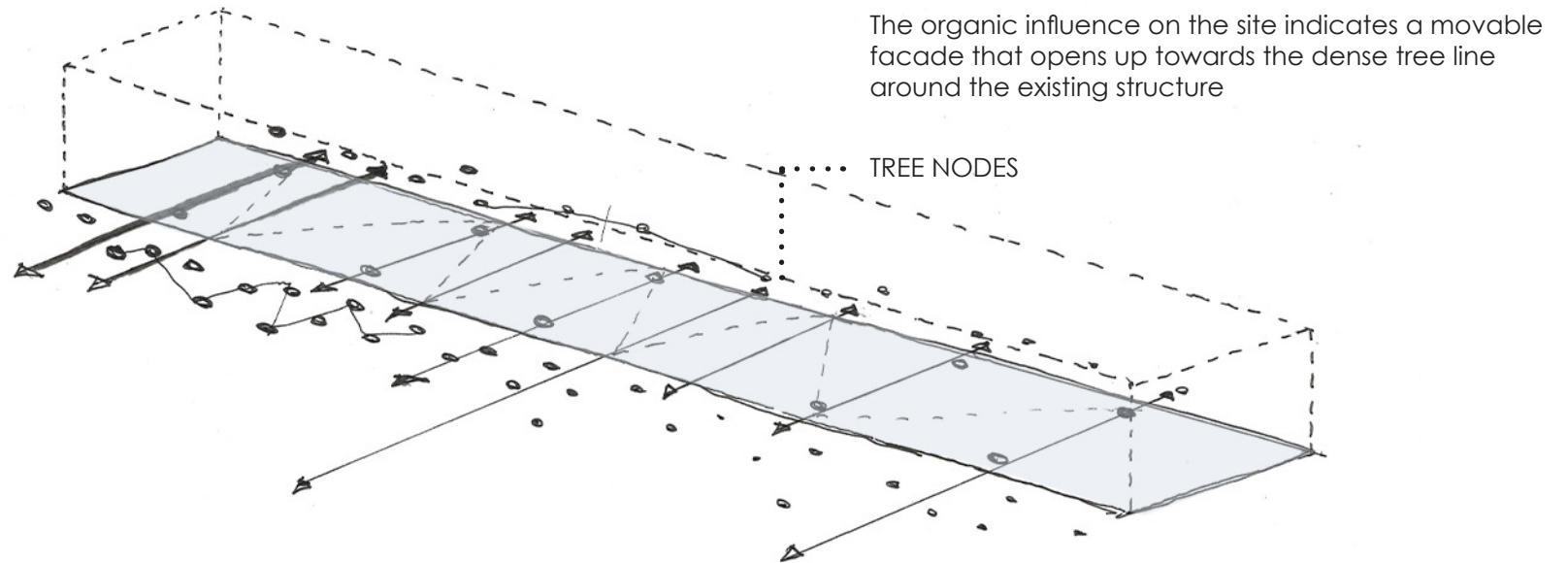


Fig. 171
Natural influence
(Author,2019)

4. NATURAL INFLUENCE (INTERIOR)

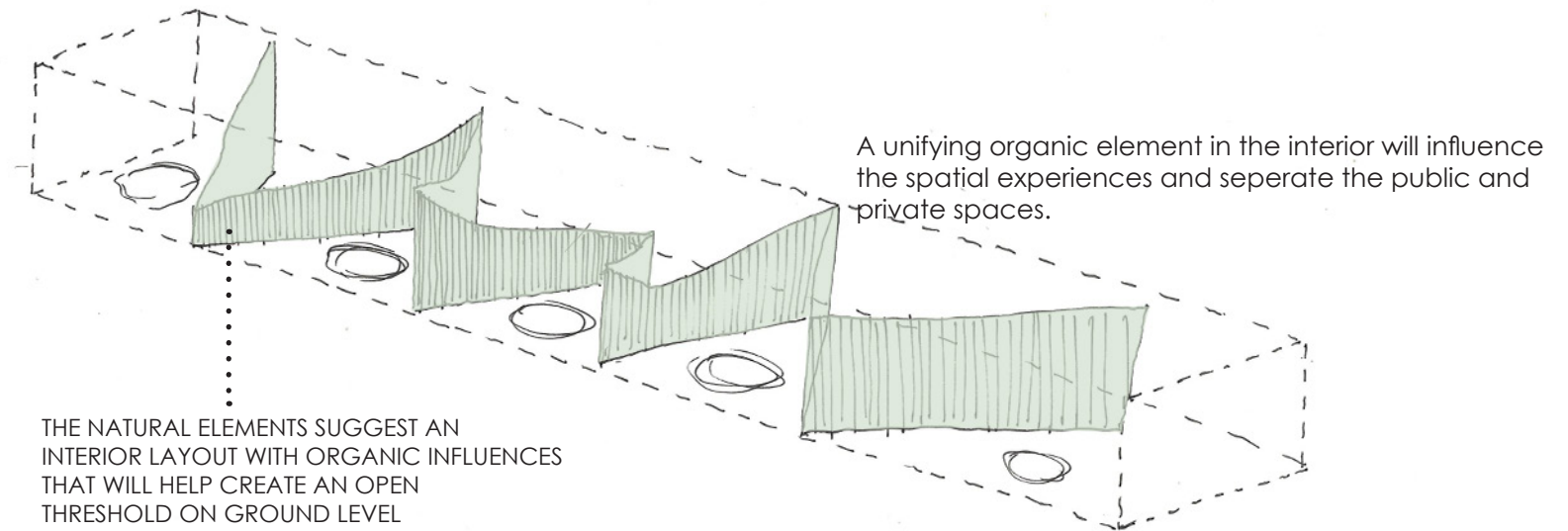


Fig. 172
Natural environment influence on the interior layout
(Author,2019)

5. SPATIAL EXPERIENCE (VERTICALITY, CIRCULATION)

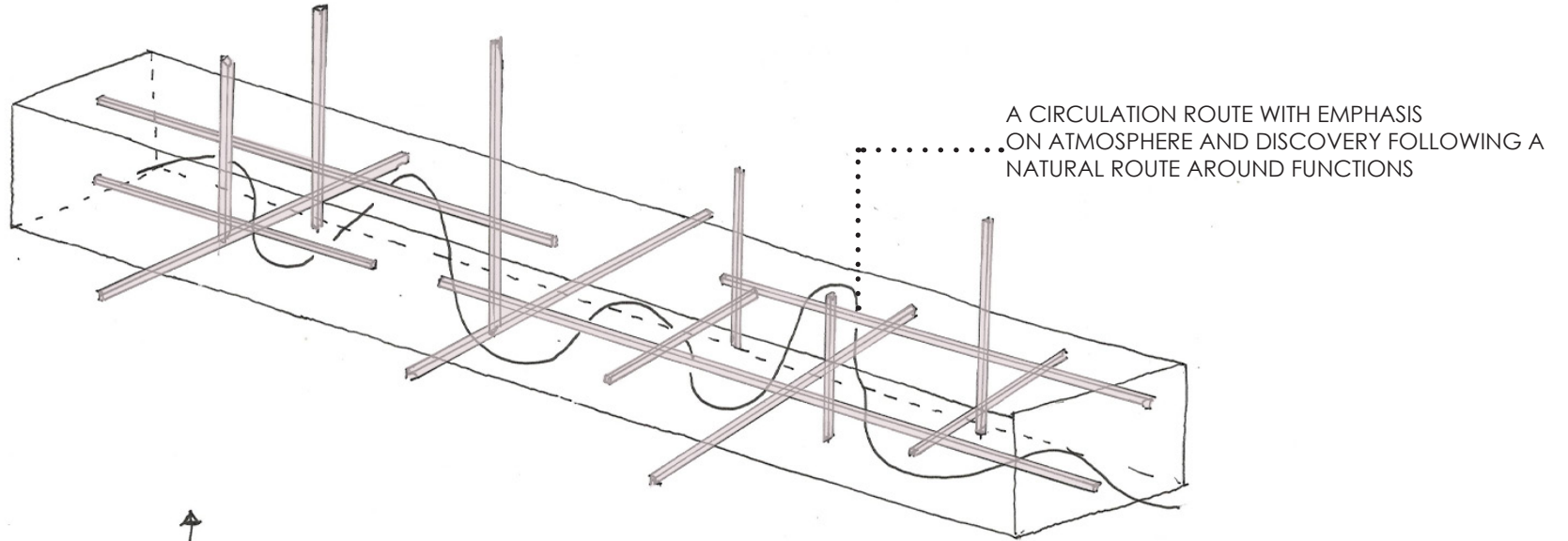


Fig. 173
Circulation
(Author, 2019)

6. SPATIAL EXPERIENCE (FUNCTIONS)

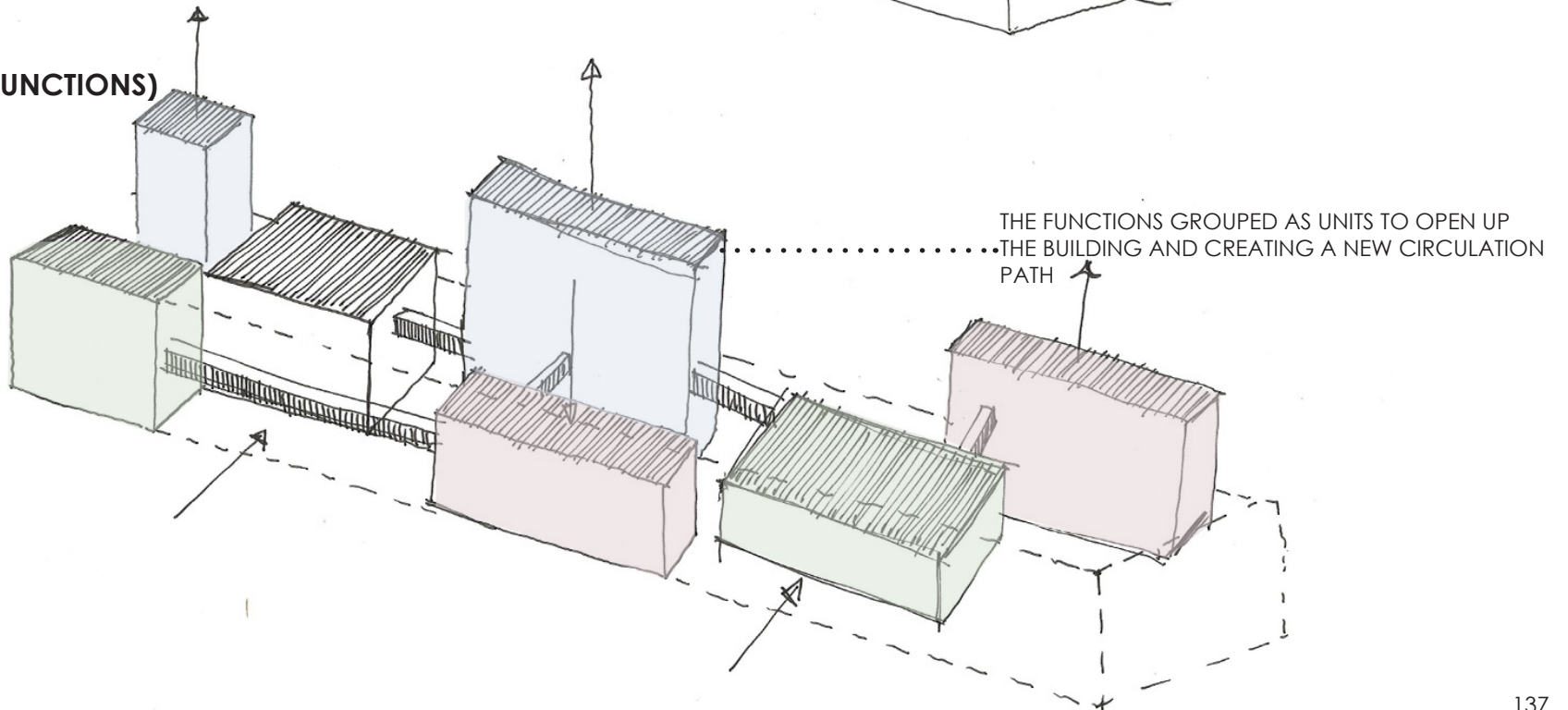


Fig. 174
Functions
(Author, 2019)

7. PUBLIC PARK

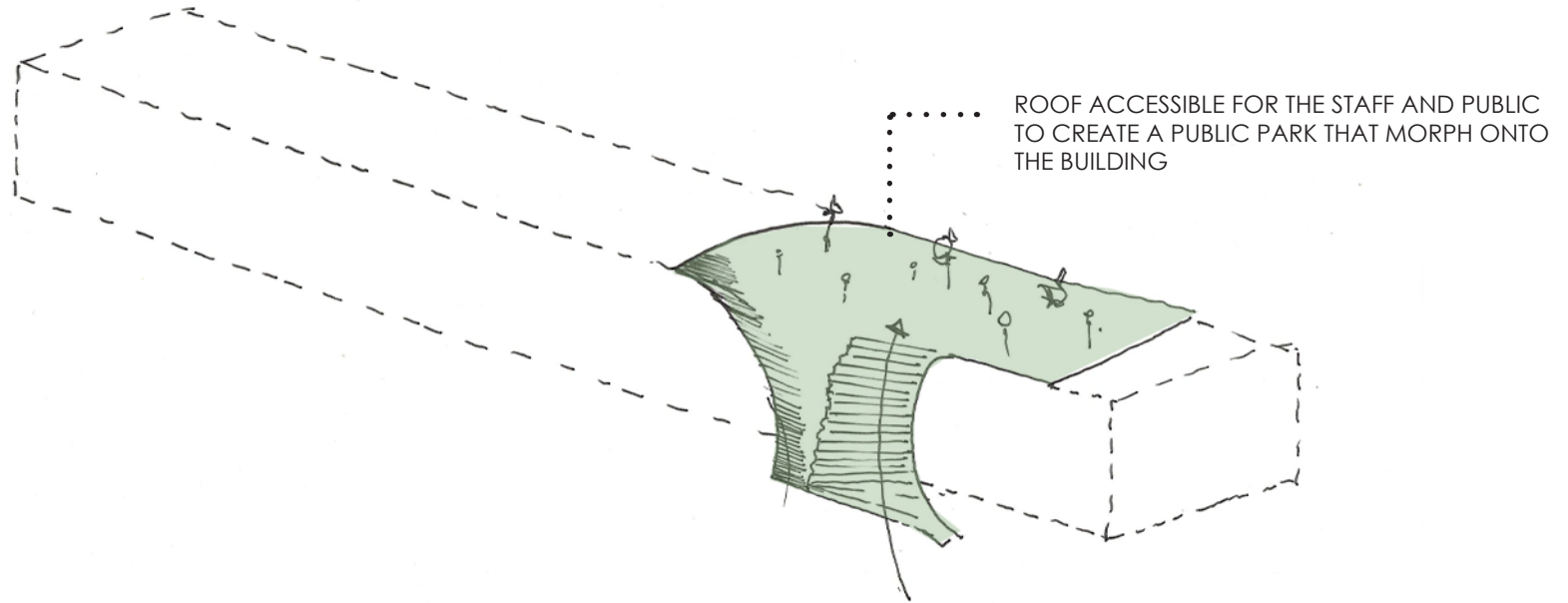


Fig. 175
Public park
(Author, 2019)

8. SUN ANGLE

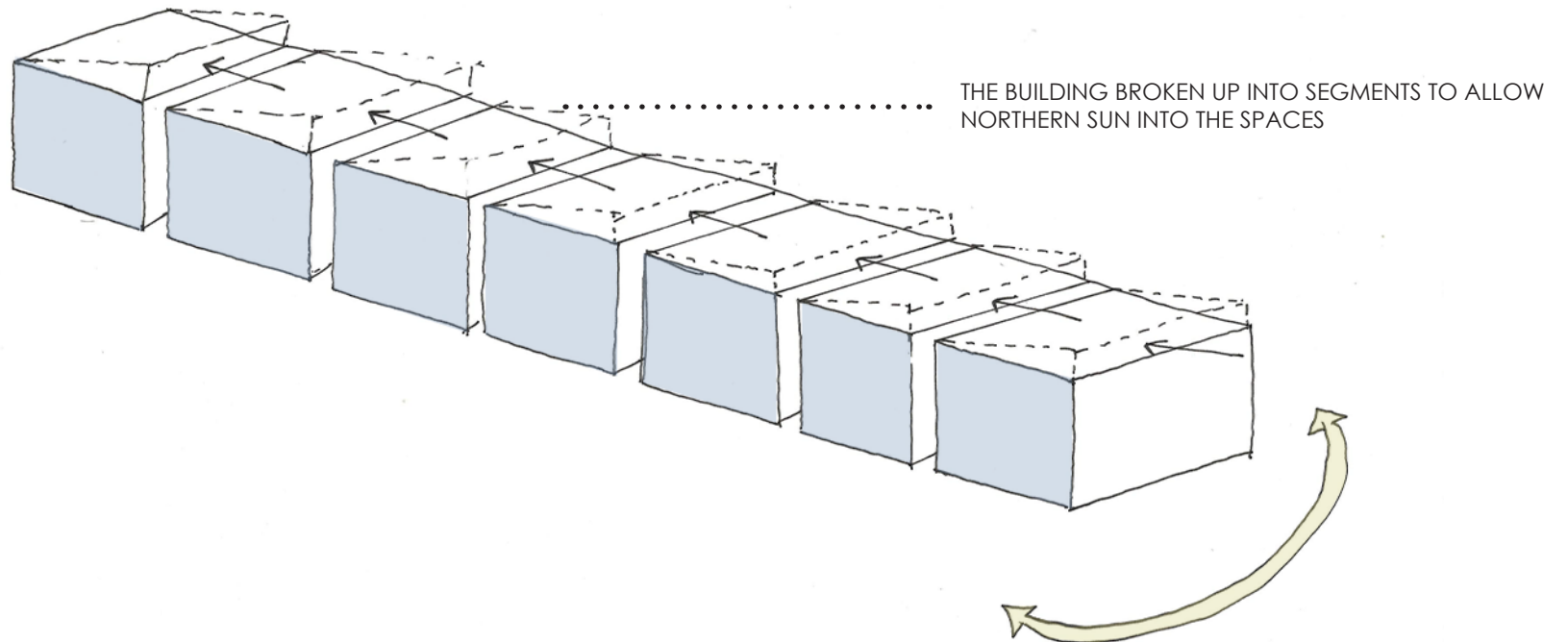


Fig. 176
Sun angle
(Author, 2019)

9. BREATHING FACADES

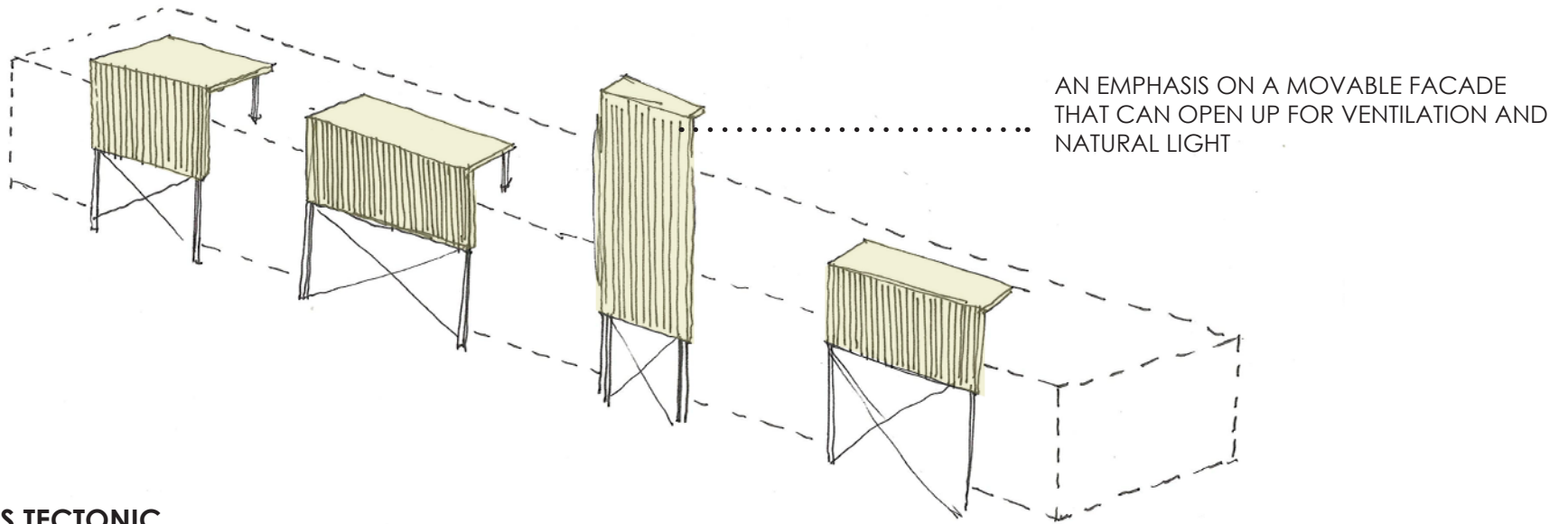


Fig. 177
Breathing facades
(Author,2019)

10. STEREOTOMIC VS TECTONIC

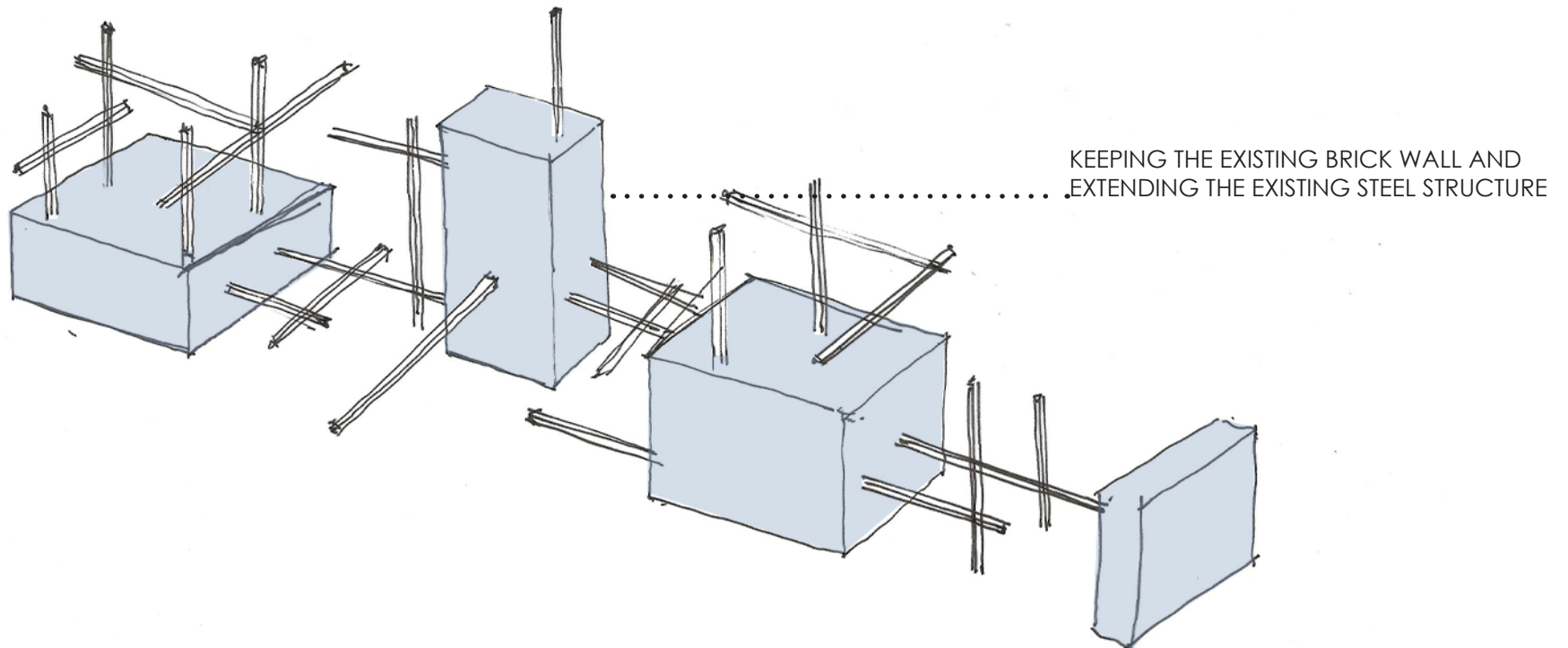


Fig. 178
Tectonic interpretation
(Author,2019)

DESIGN DEVELOPMENT

STAGE 1

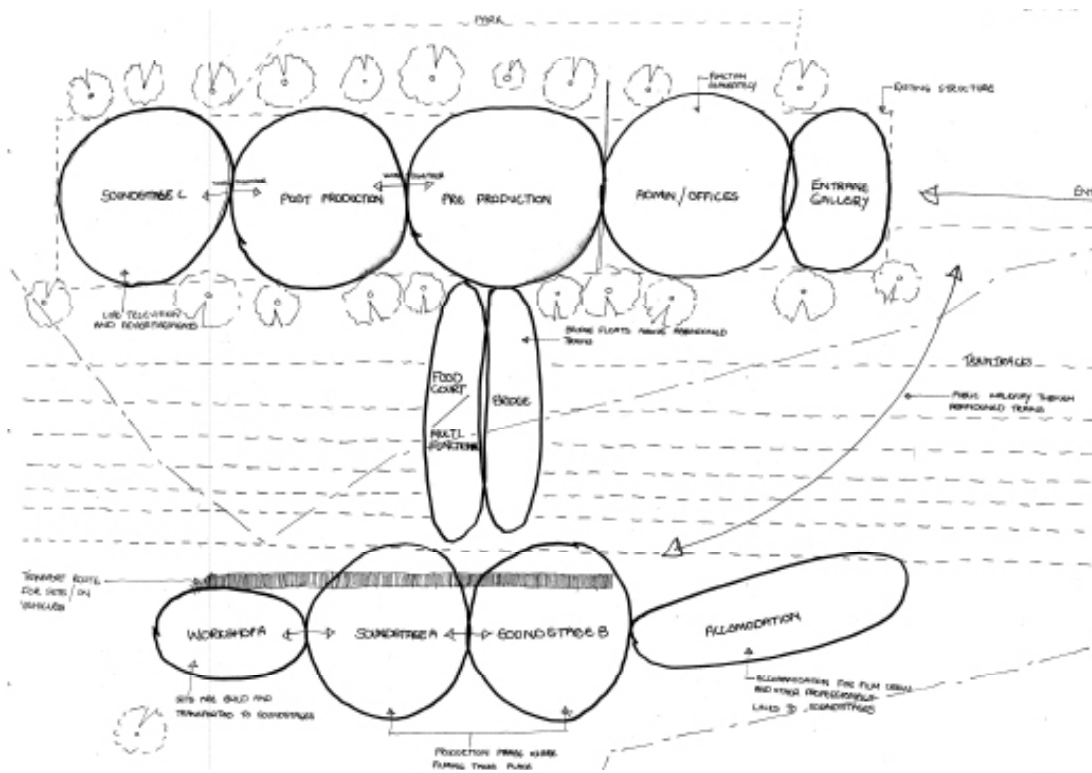


Fig. 179
Diagram of the initial functional layout
not to scale

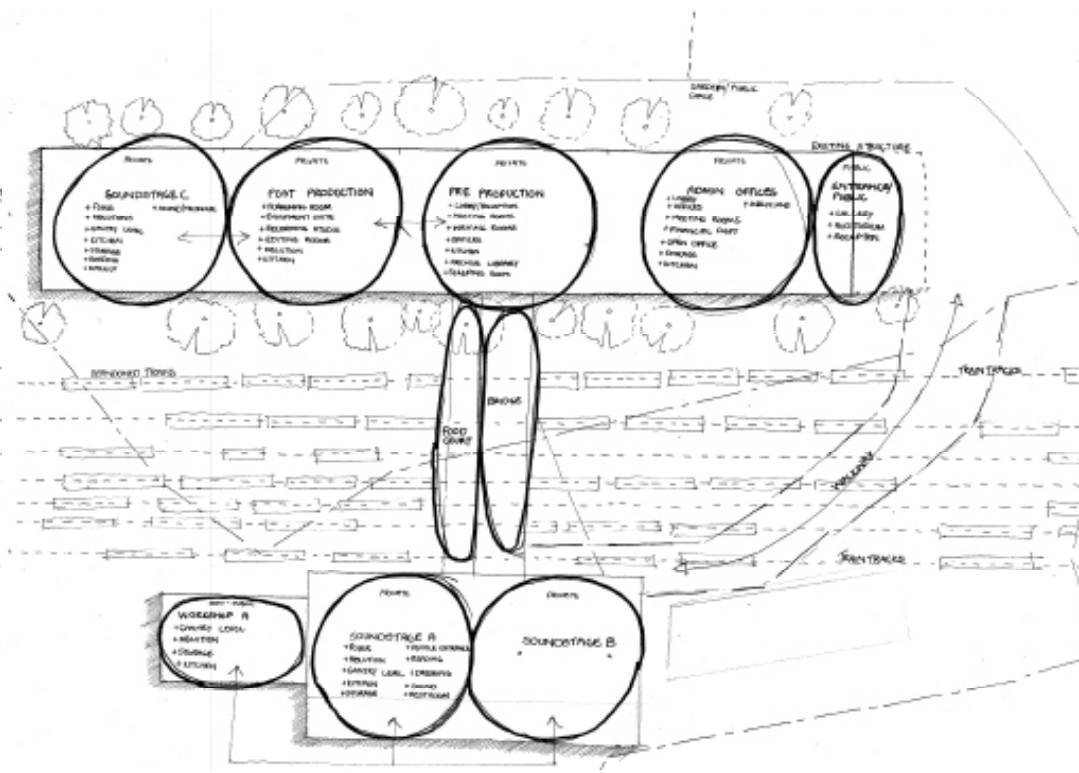


Fig. 180
Development of functional requirements
not to scale

INITIAL DRAWINGS AND IDEAS

The First drawings were based on the functional requirements and layout within the existing structure and how a film production facility could work. The site context was taken into consideration to retain the existing elements, such as the trees and the trains. The soundstages was initially part of the project, but was removed due to the large scale of the project. The concept of refraction, heavily influenced the initial drawings, to design on two axis. The idea of a bridge developed to connect the existing building with the new structure.

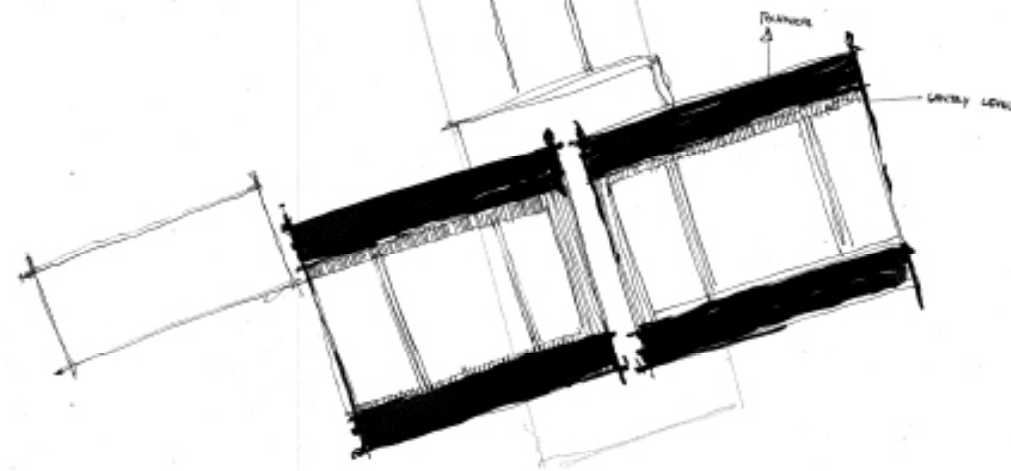
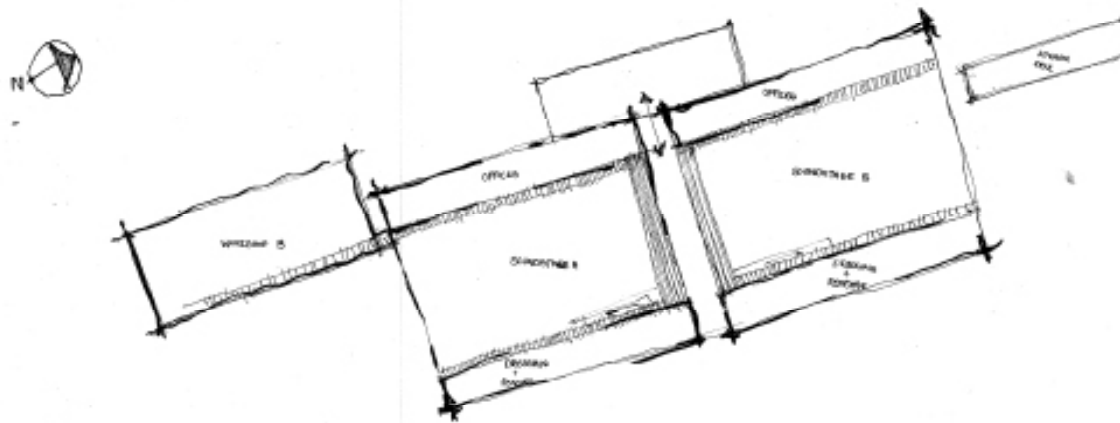
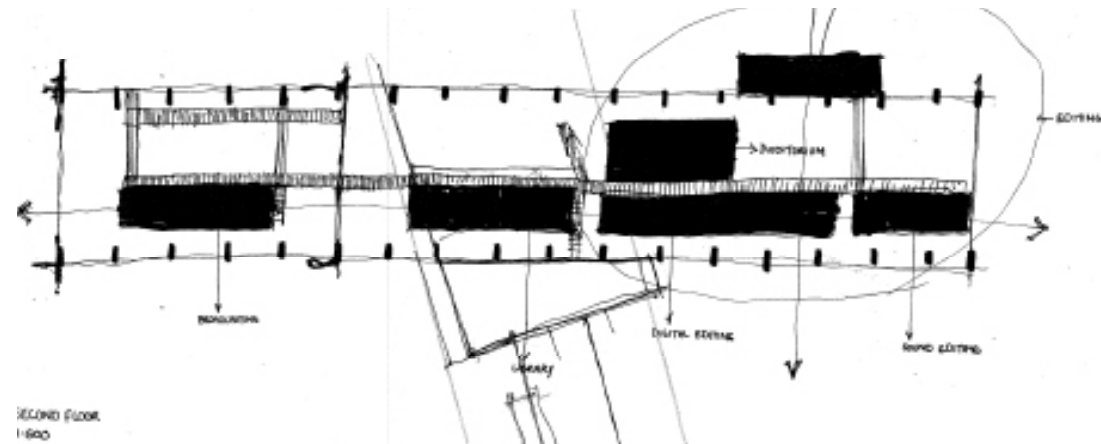
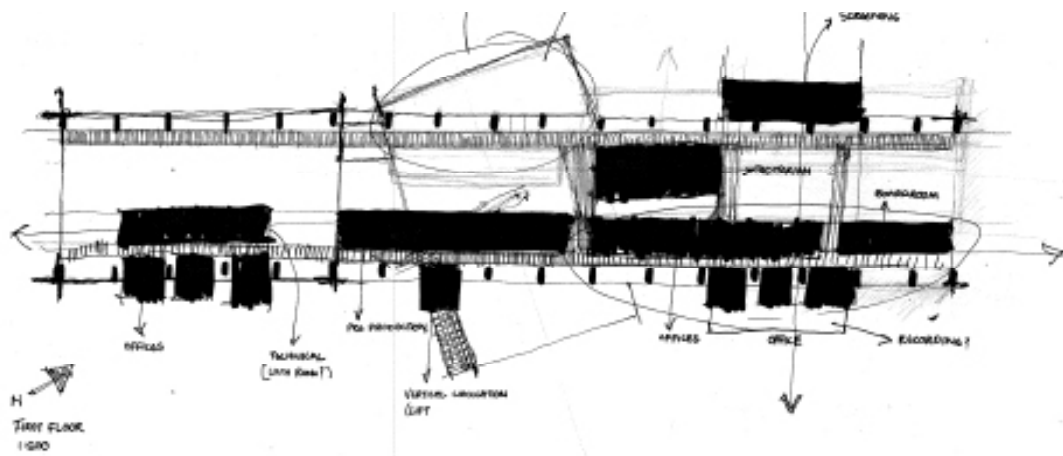
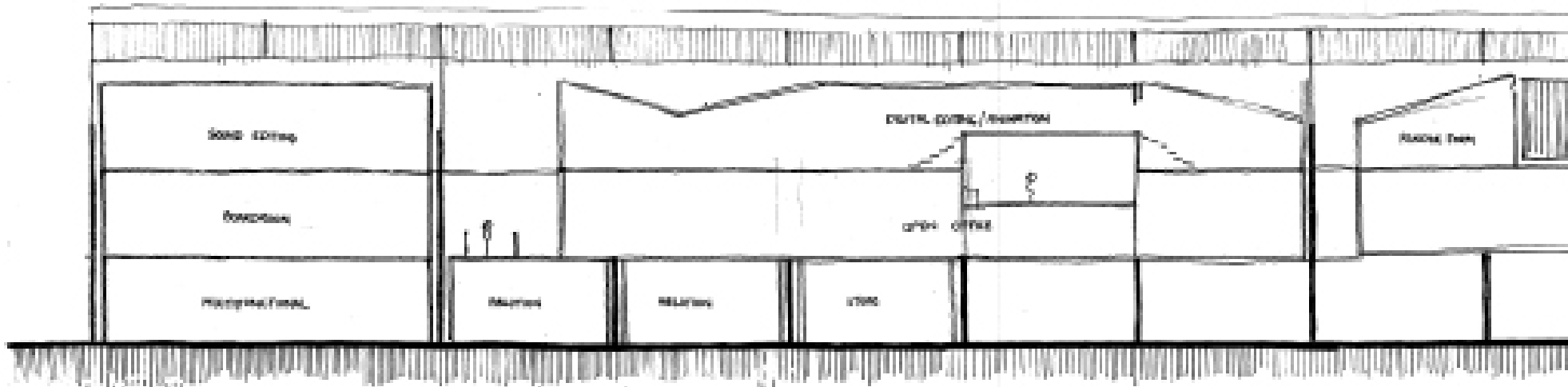
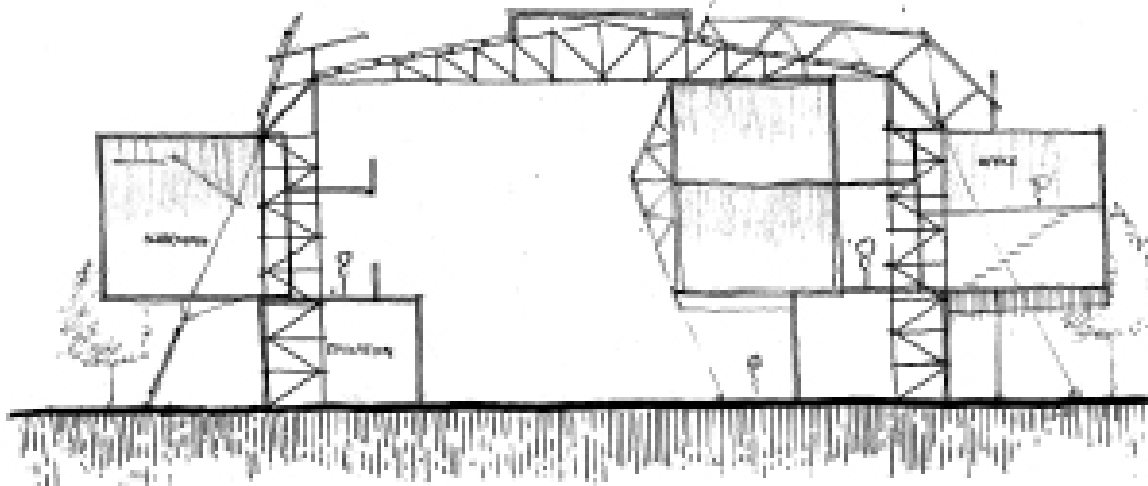


Fig. 184
first floor plan development
not to scale

Fig. 185
Second floor development
not to scale



SECTION
1:100 Fig. 186
Section 1
not to scale



SECTION
1:100 Fig. 187
Section 2
not to scale

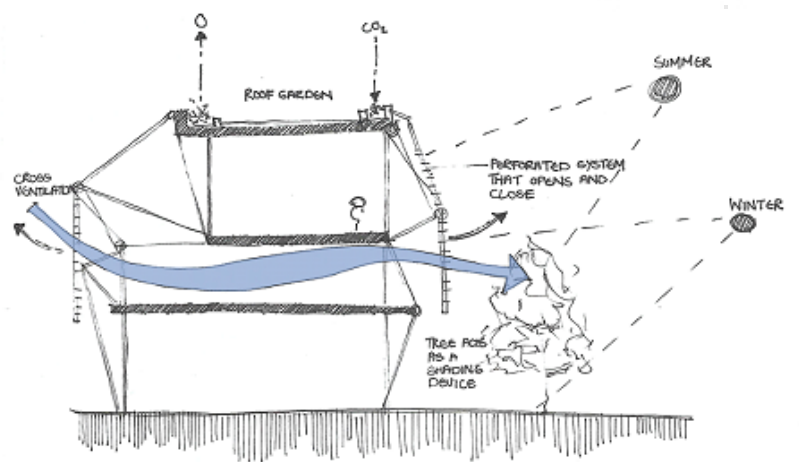
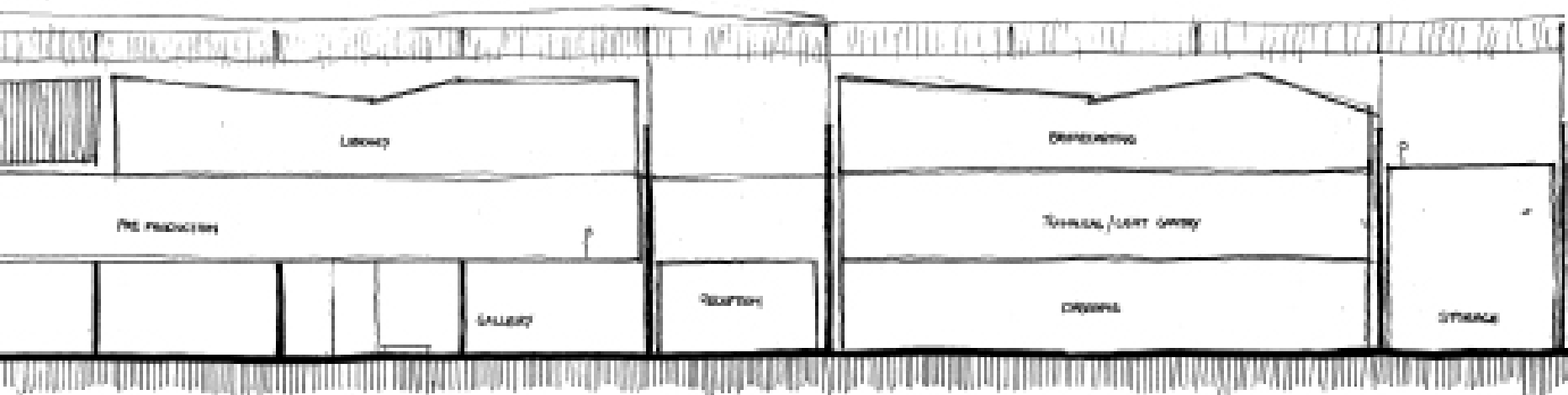


Fig. 188
Mechanical facade

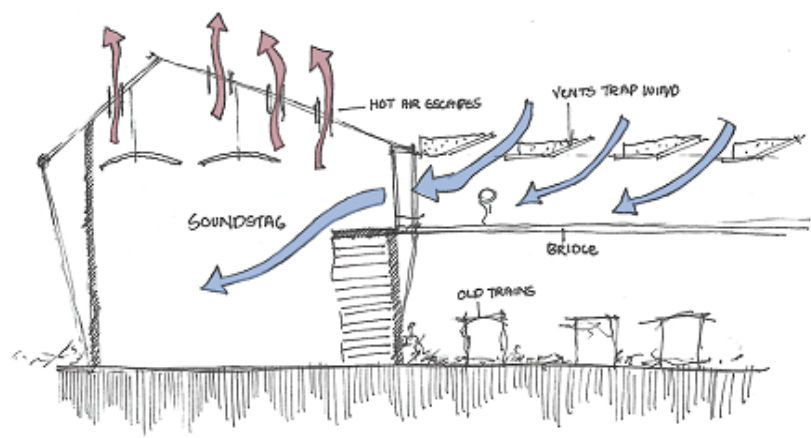


Fig. 189
A bridge connecting the train terminal
and soundstages

DESIGN DEVELOPMENT
STAGE 2

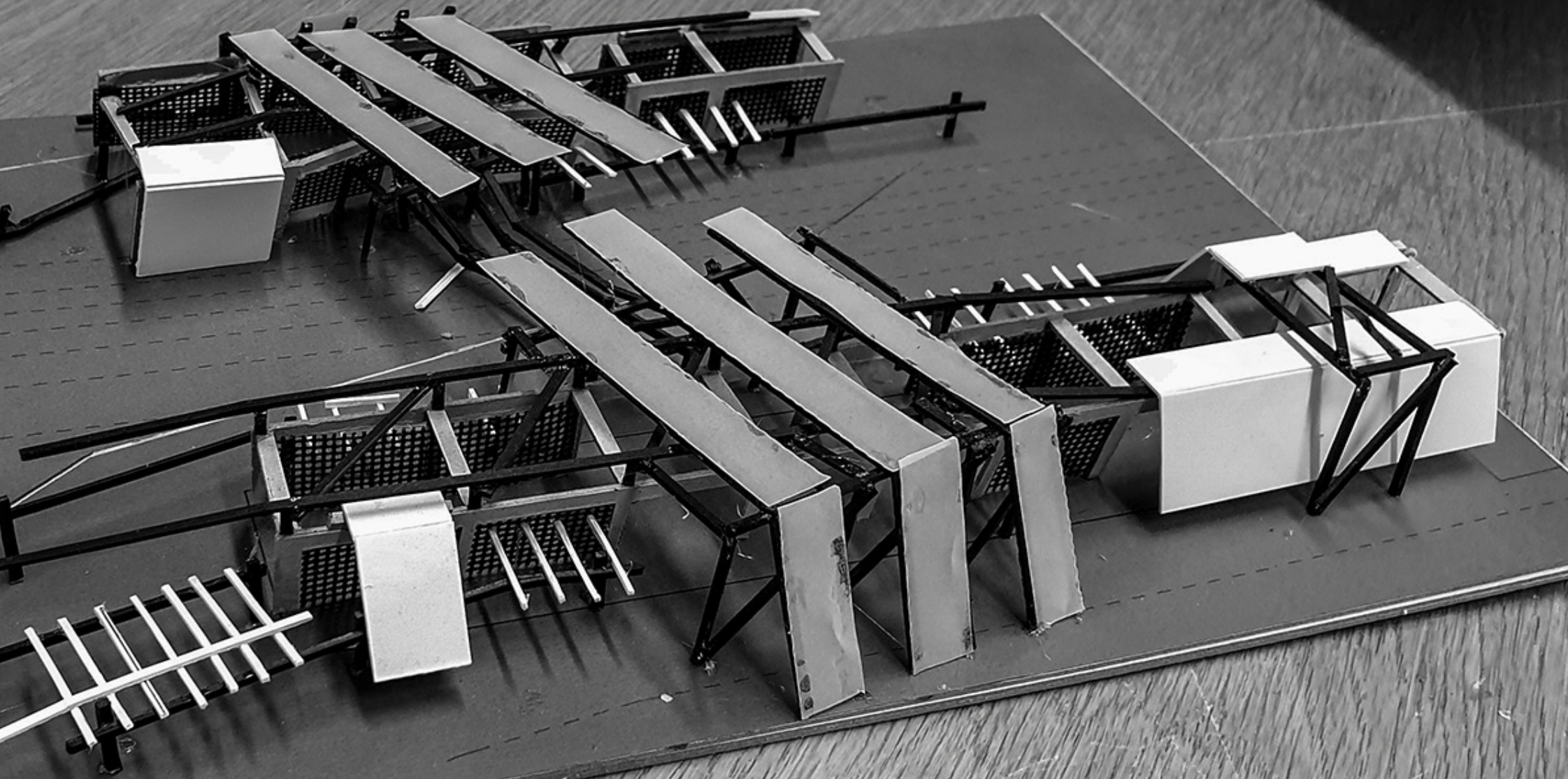
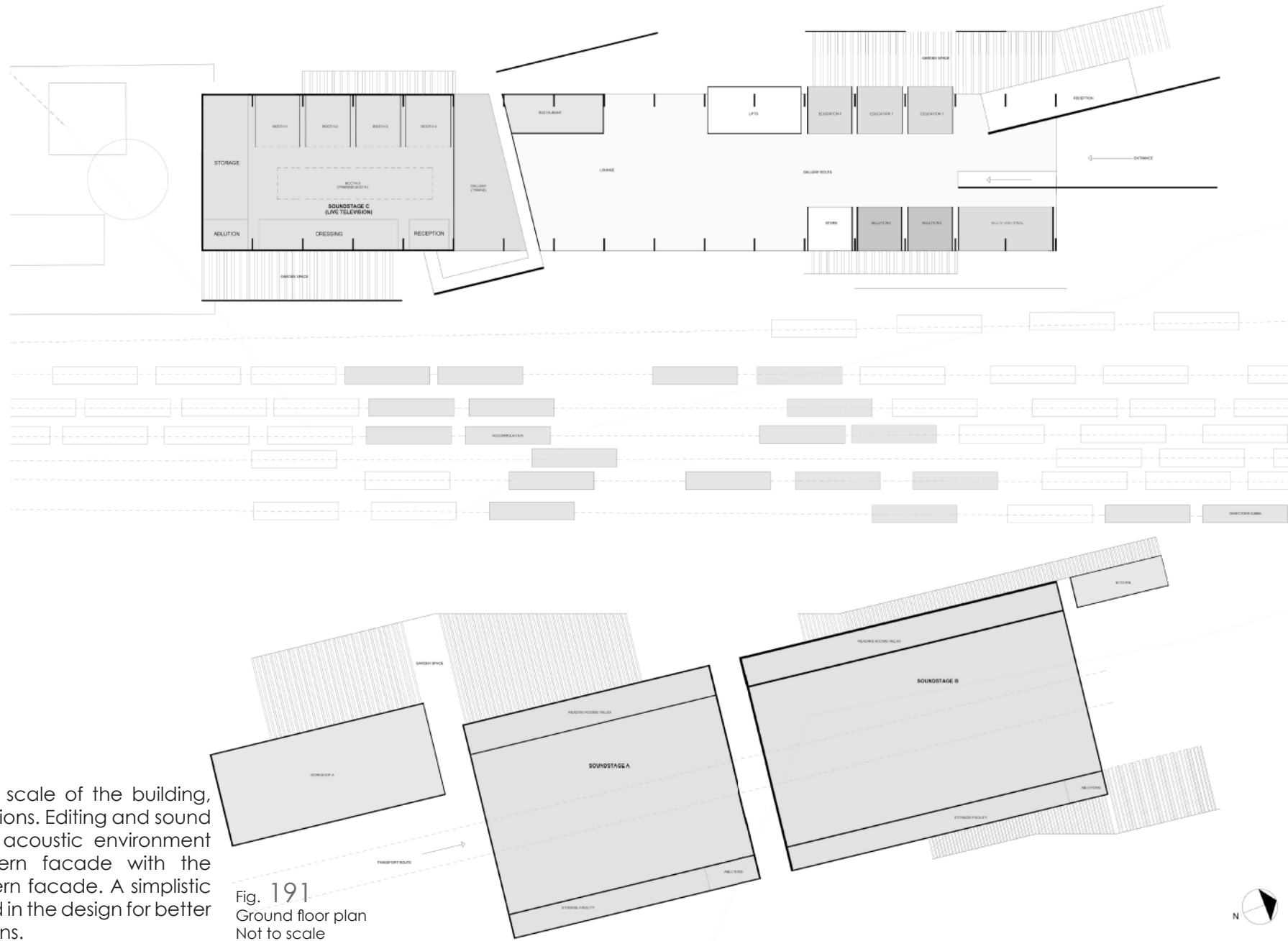


Fig. 190
Model 1



Stage two focused on the scale of the building, and regrouping of the functions. Editing and sound functions that requires an acoustic environment was moved to the western facade with the offices placed on the eastern facade. A simplistic approach was incorporated in the design for better circulation between functions.

Fig. 191
Ground floor plan
Not to scale

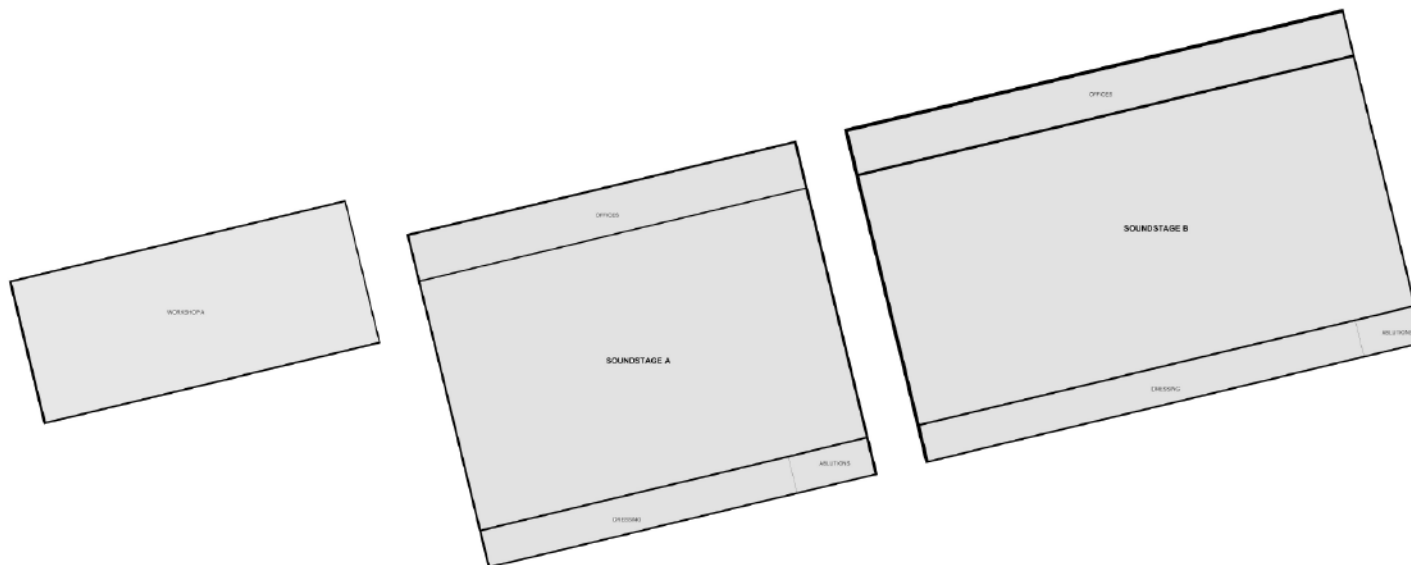
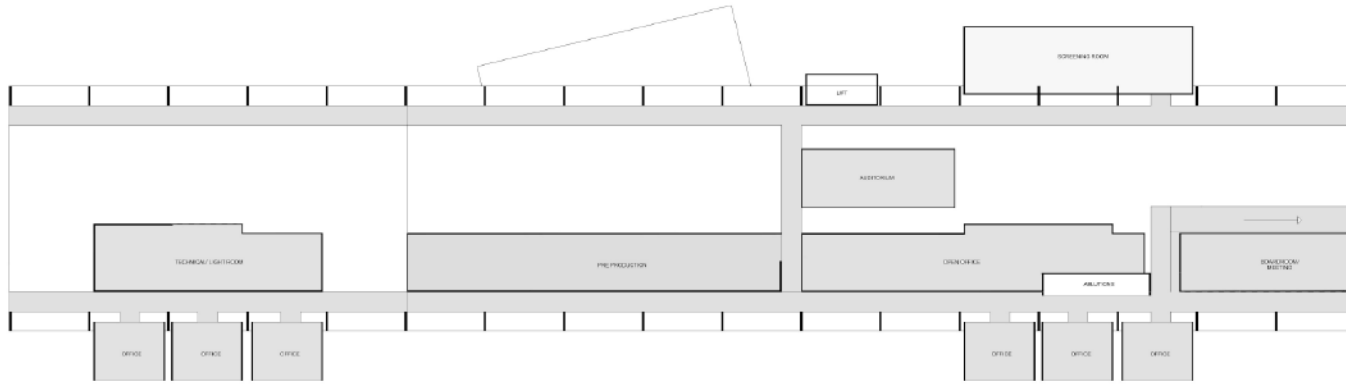


Fig. 192
 First floor plan
 Not to scale



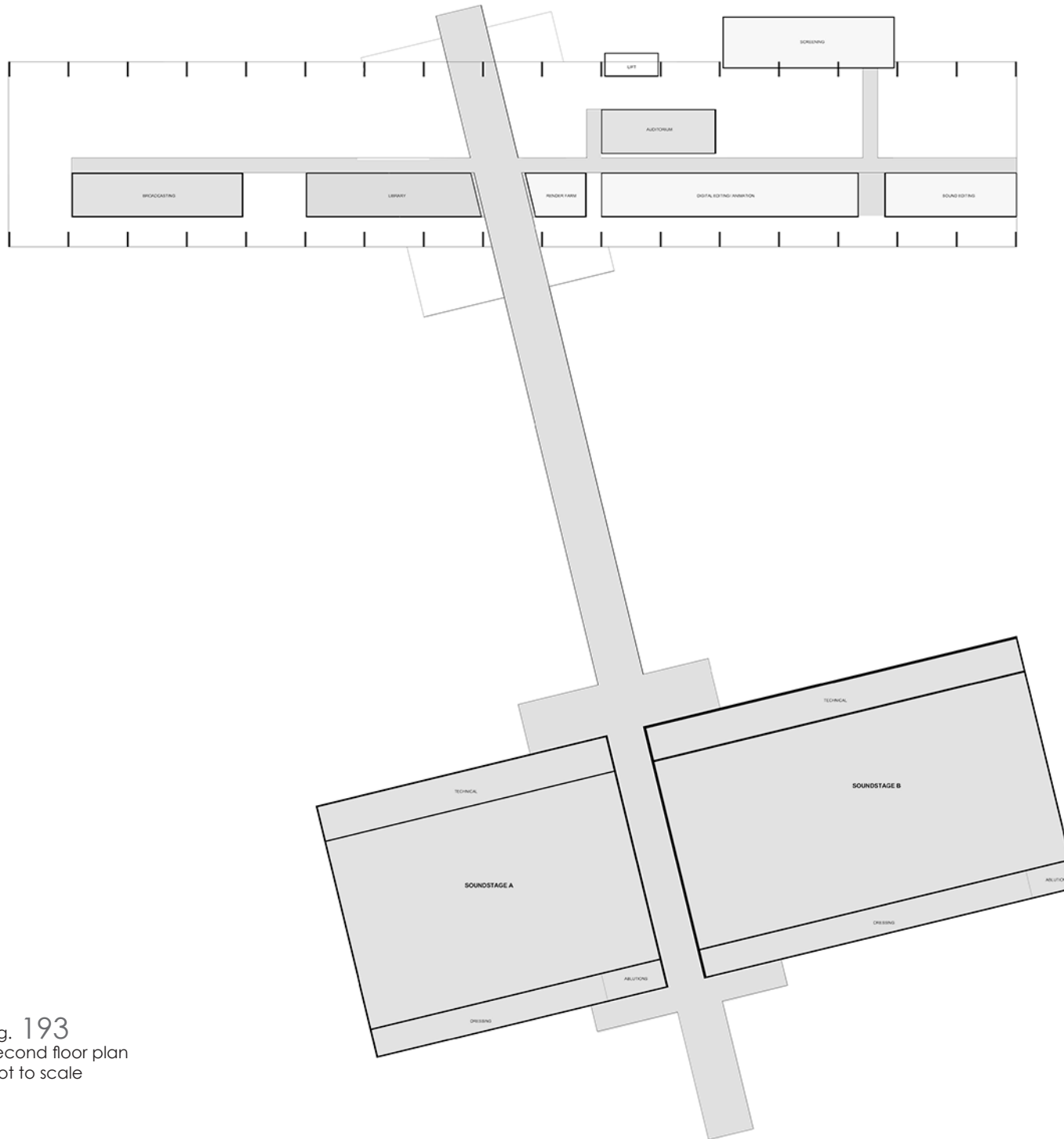


Fig. 193
 Second floor plan
 Not to scale



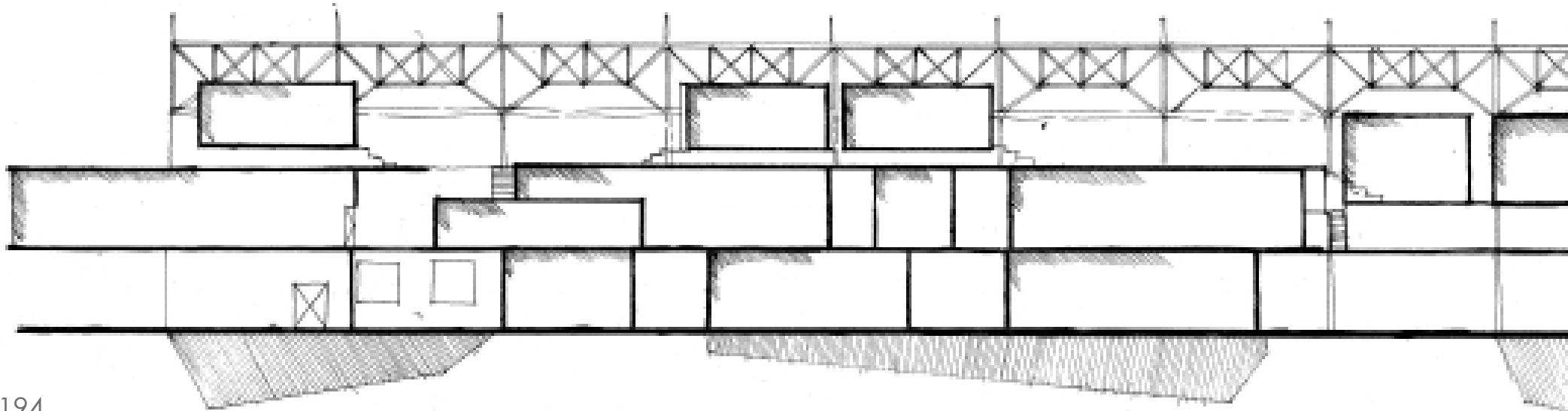


Fig. 194
Section development 1
Not to scale

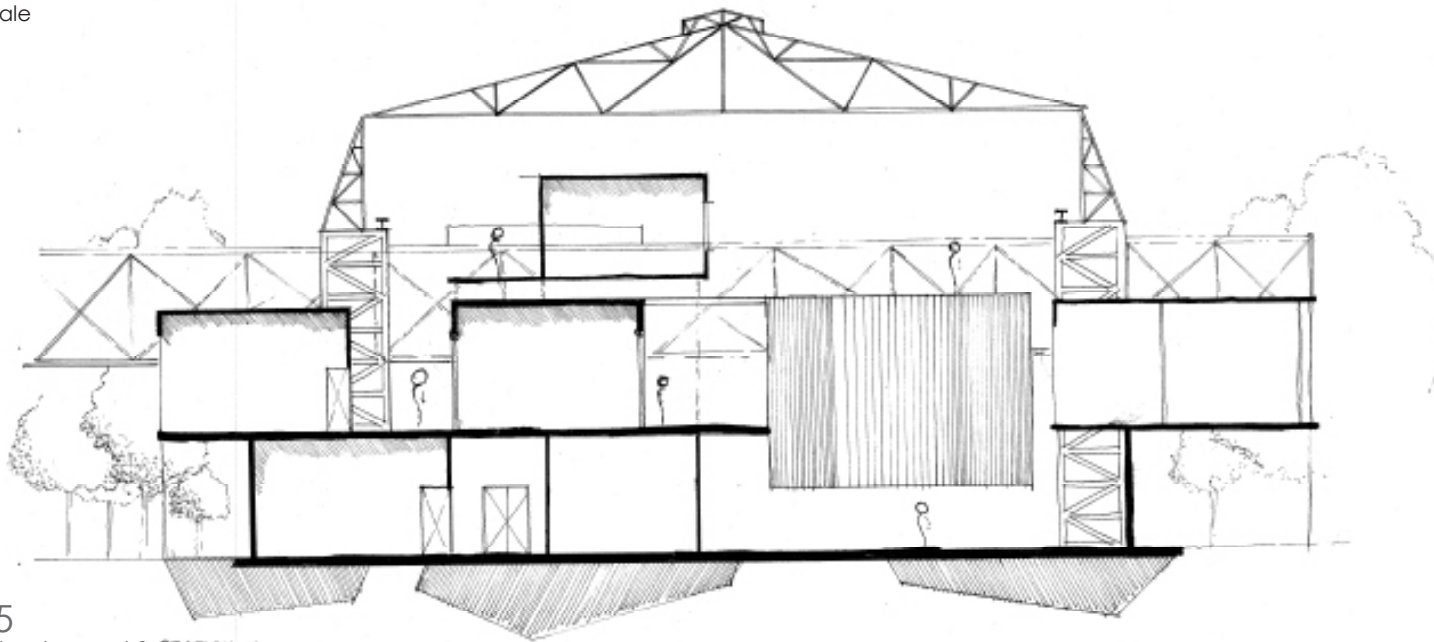


Fig. 195
Section development 2 SECTION 1
Not to scale

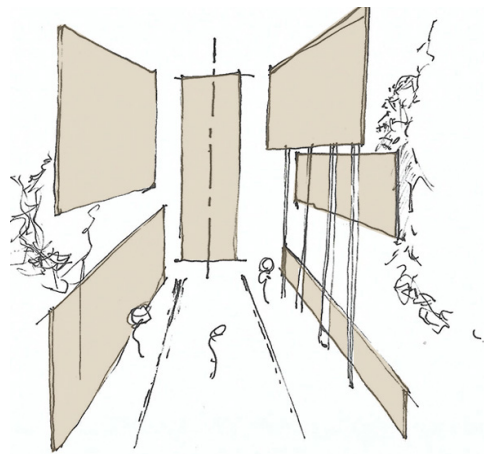
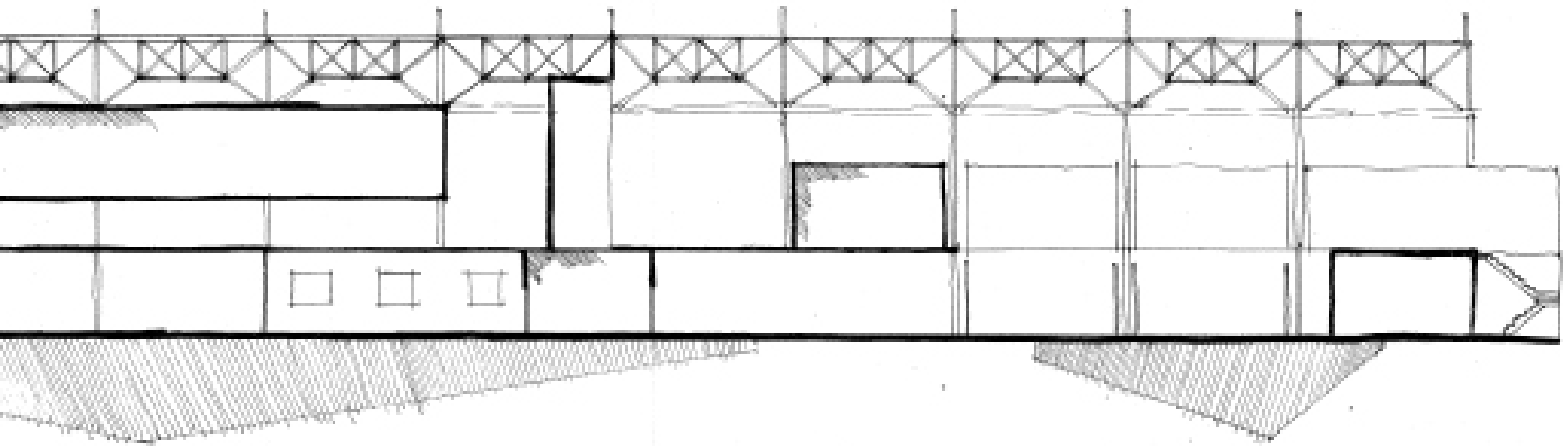


Fig. 196
Breaking out of the original structure

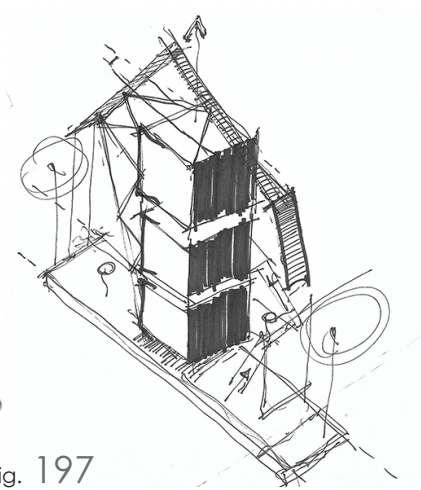


Fig. 197
Section of a pod structure

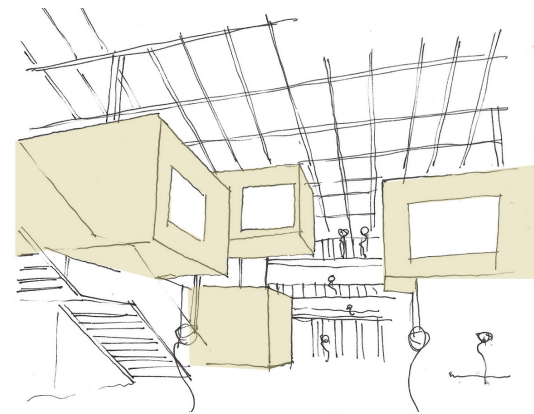


Fig. 198
Pods as a office structure

DESIGN DEVELOPMENT

STAGE 3

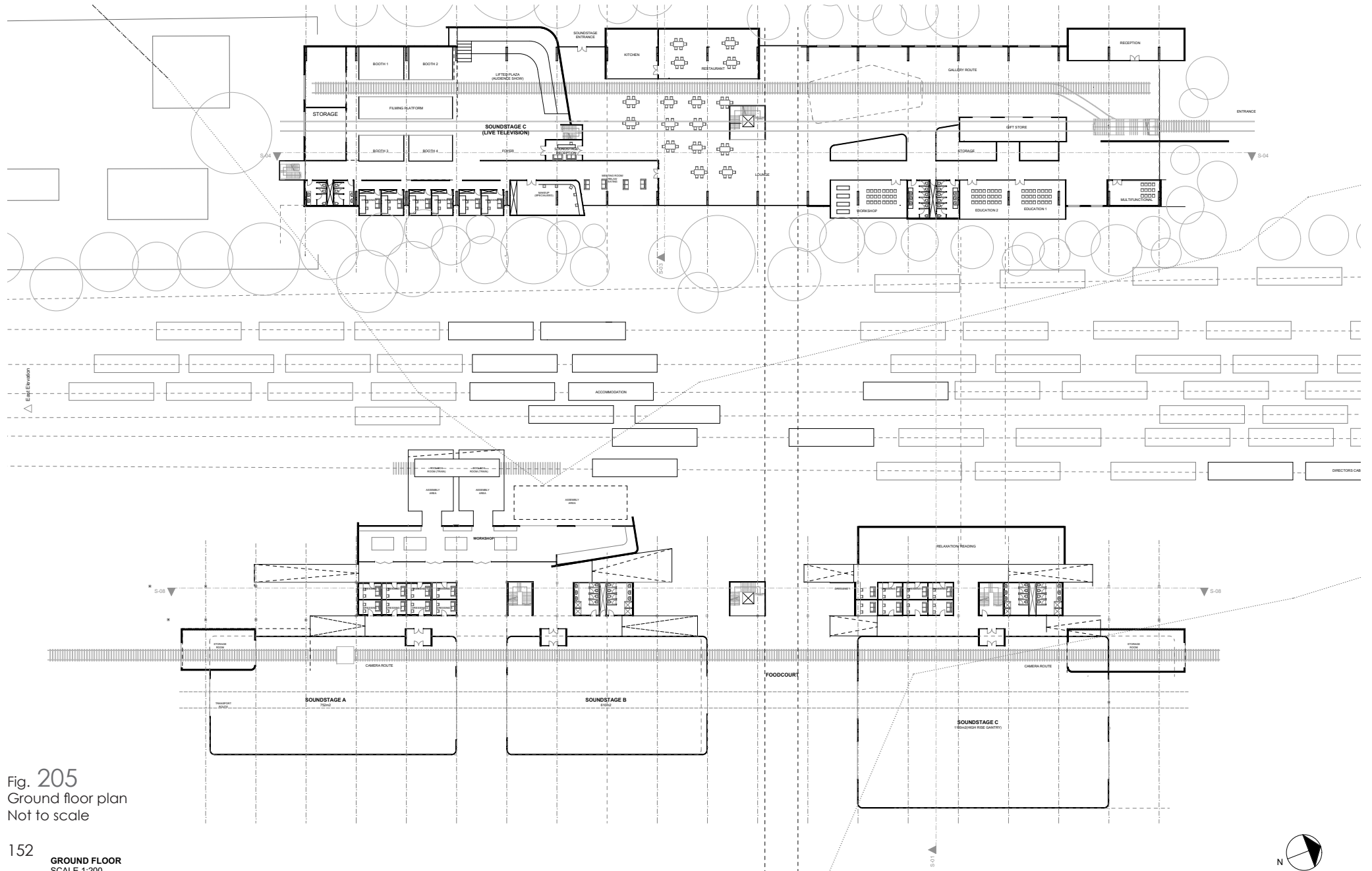


Fig. 205
Ground floor plan
Not to scale



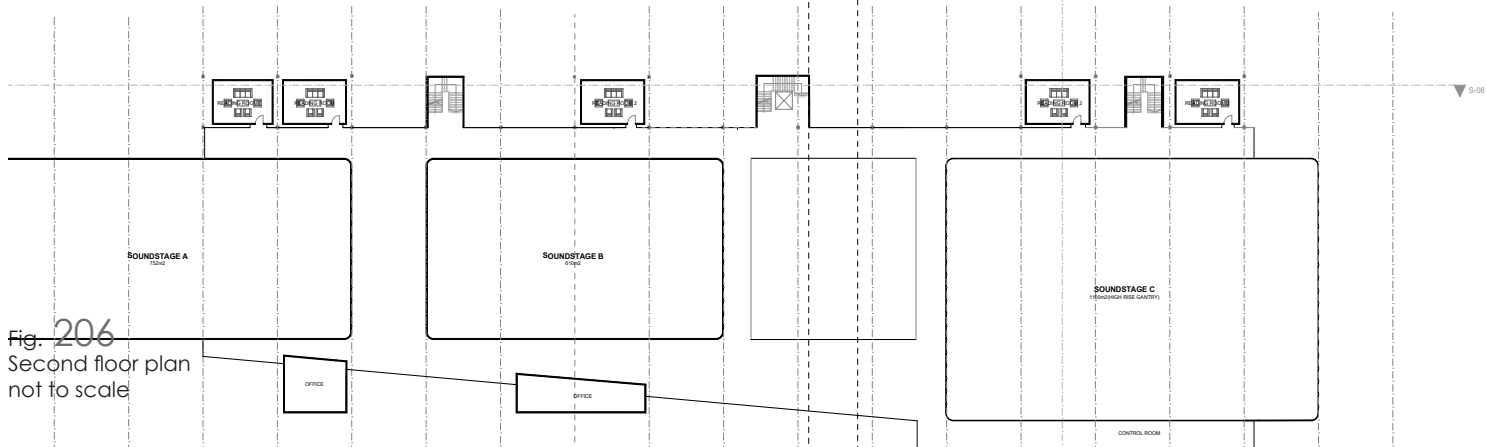
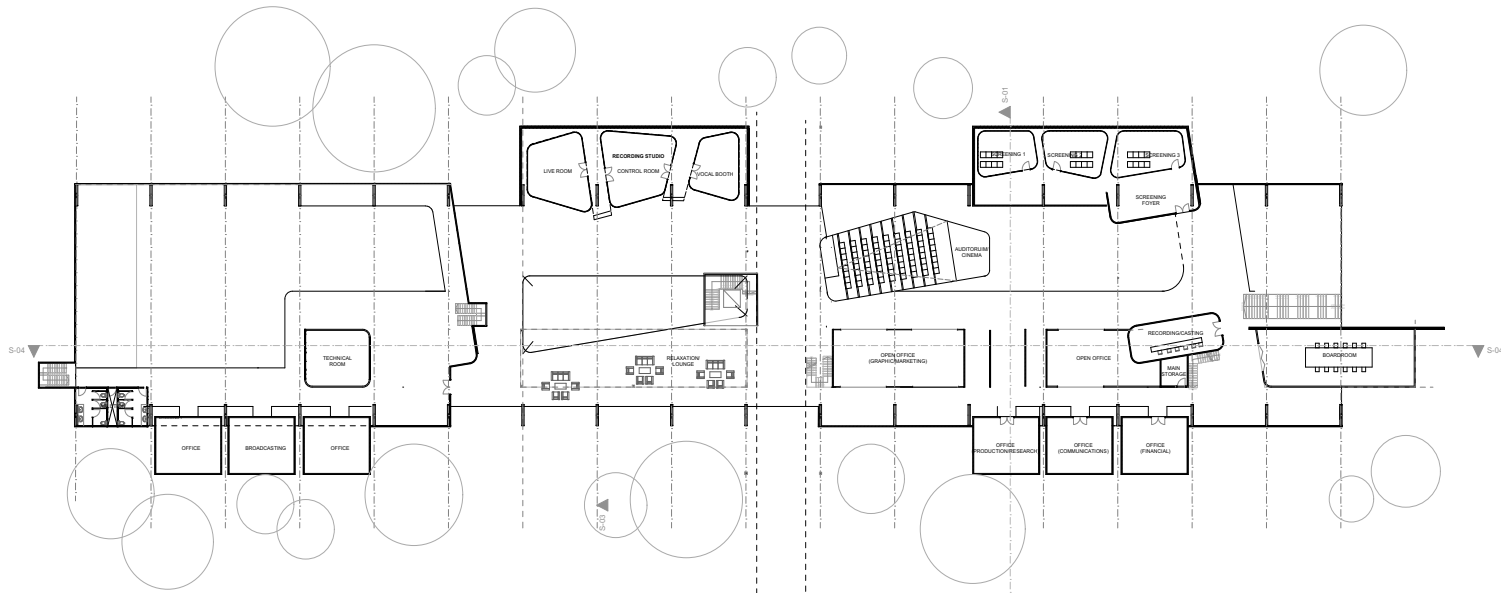


Fig. 206
Second floor plan
not to scale

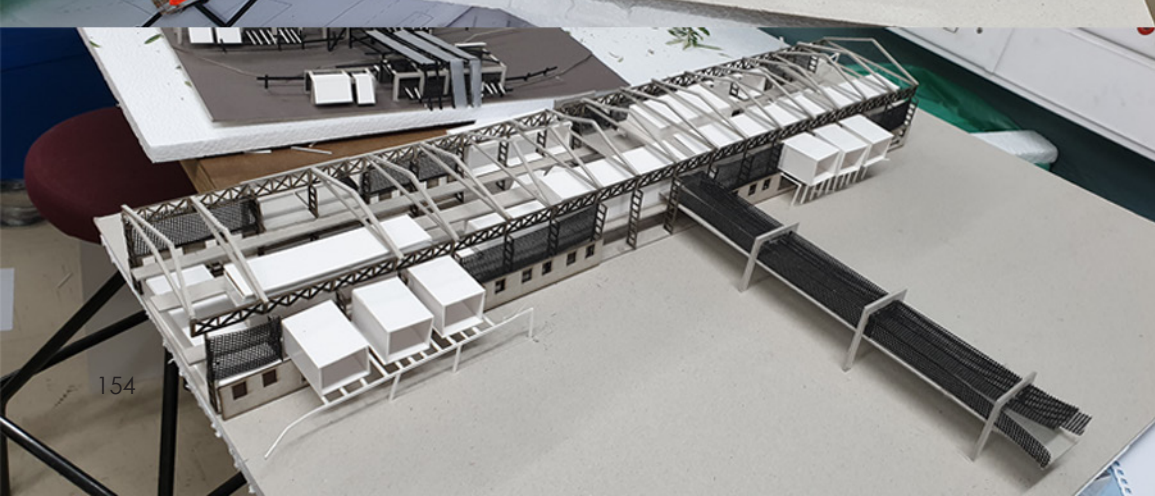
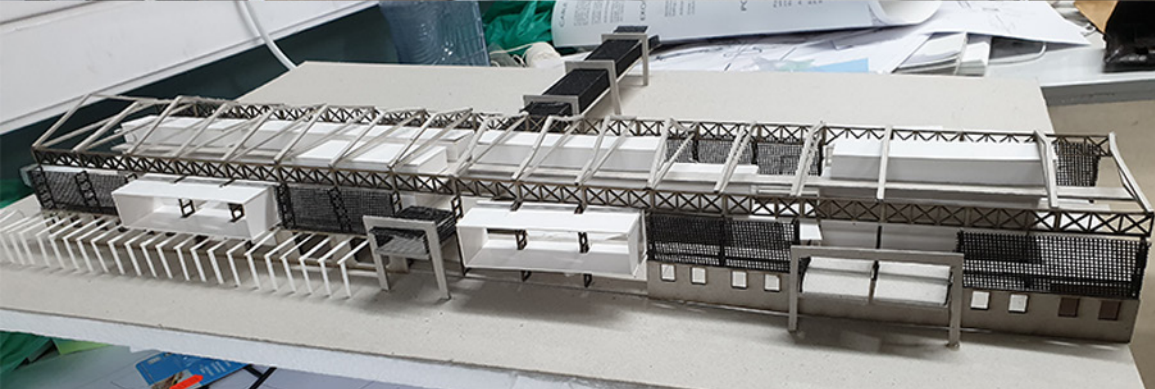
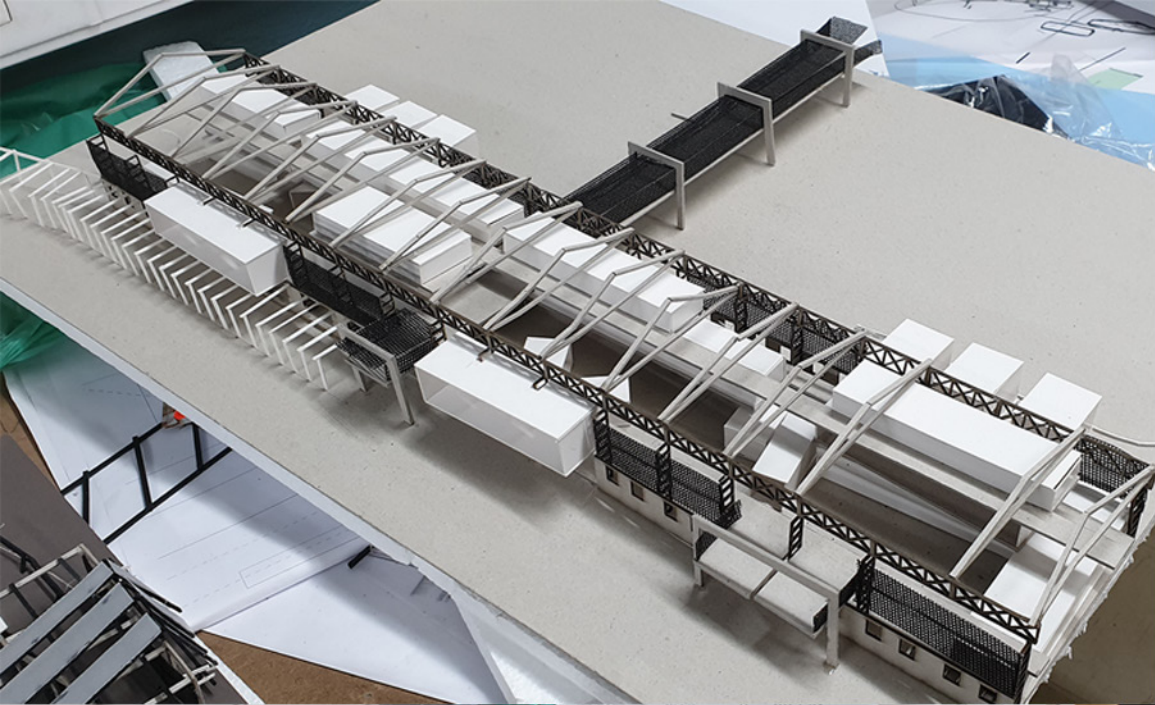




Fig. 207- 212
Model development



Fig. 213
Perspective from the trains



Fig. 214-215
Top down perspective of the model

DESIGN DEVELOPMENT
STAGE 4

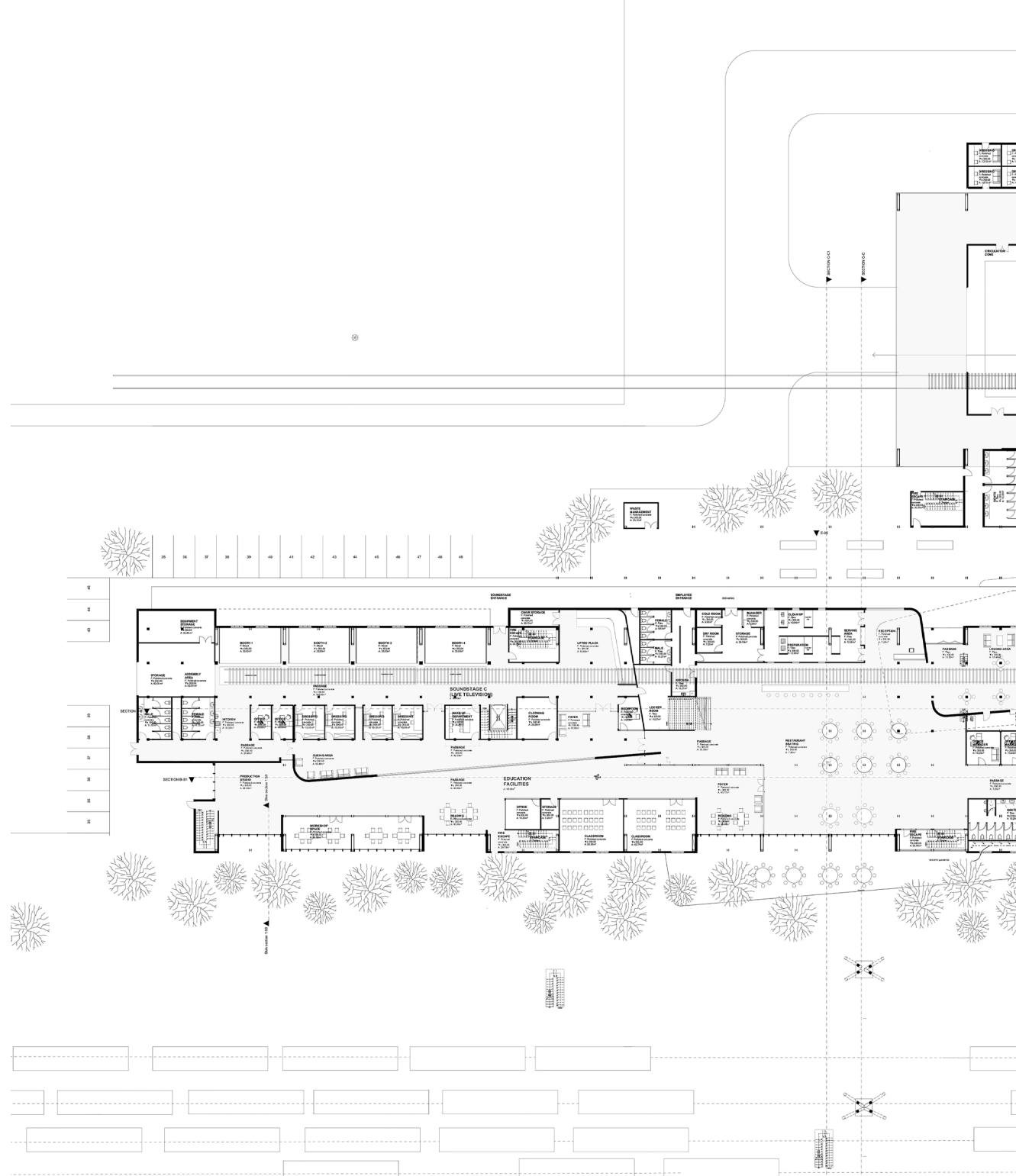
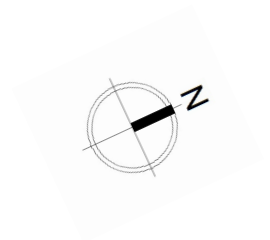
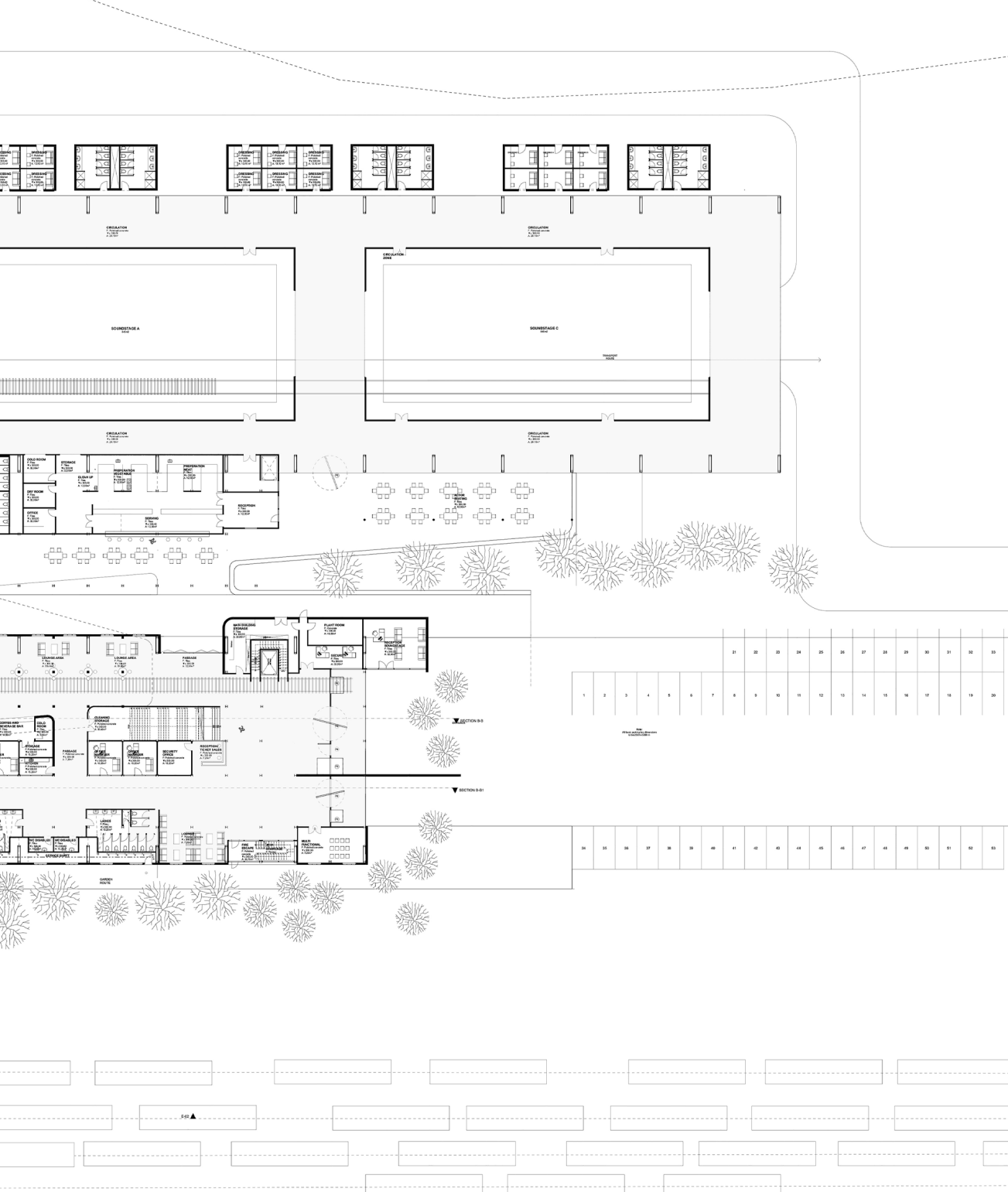


Fig. 216
Ground floor plan
Not to scale



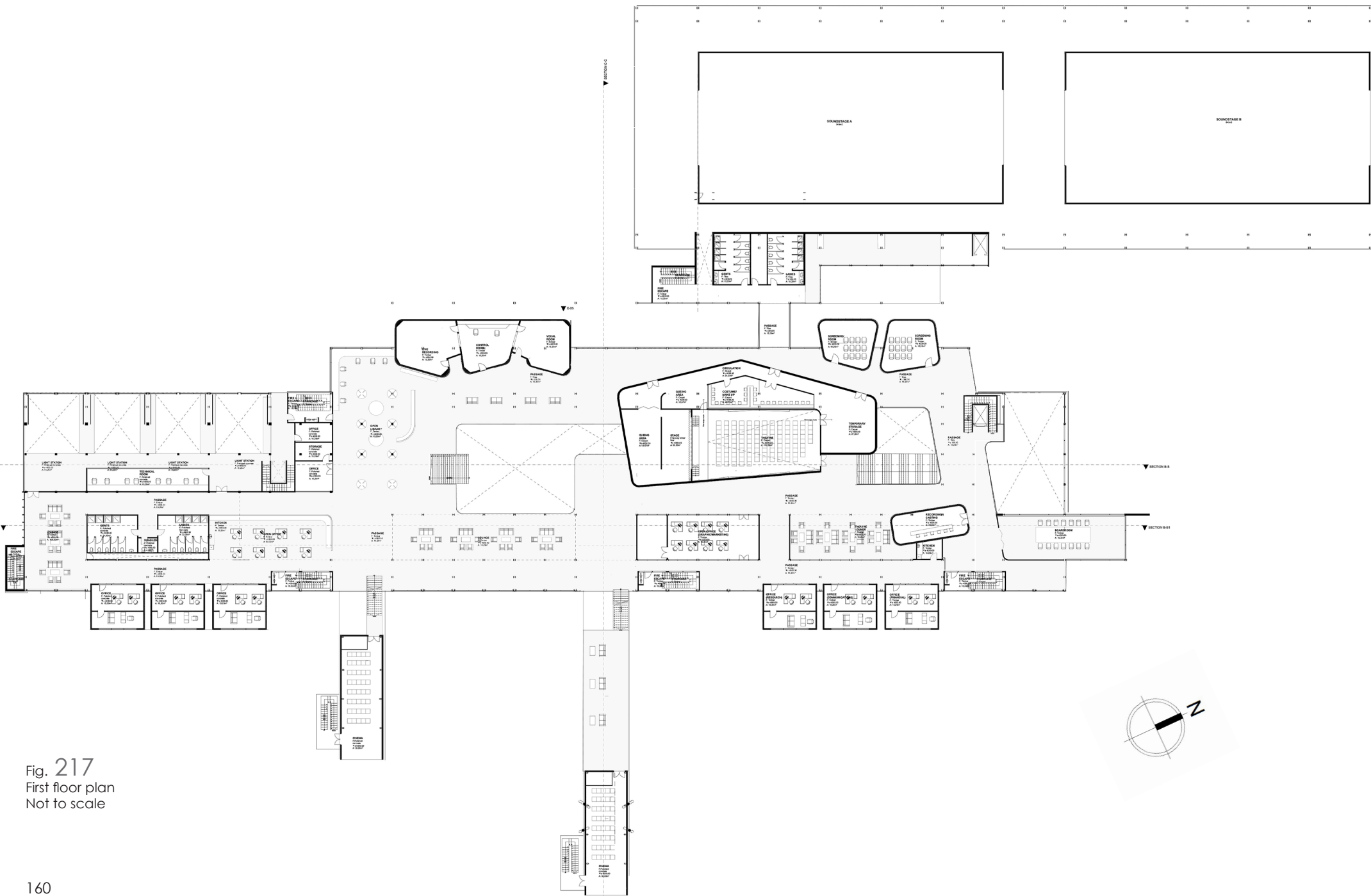


Fig. 217
 First floor plan
 Not to scale

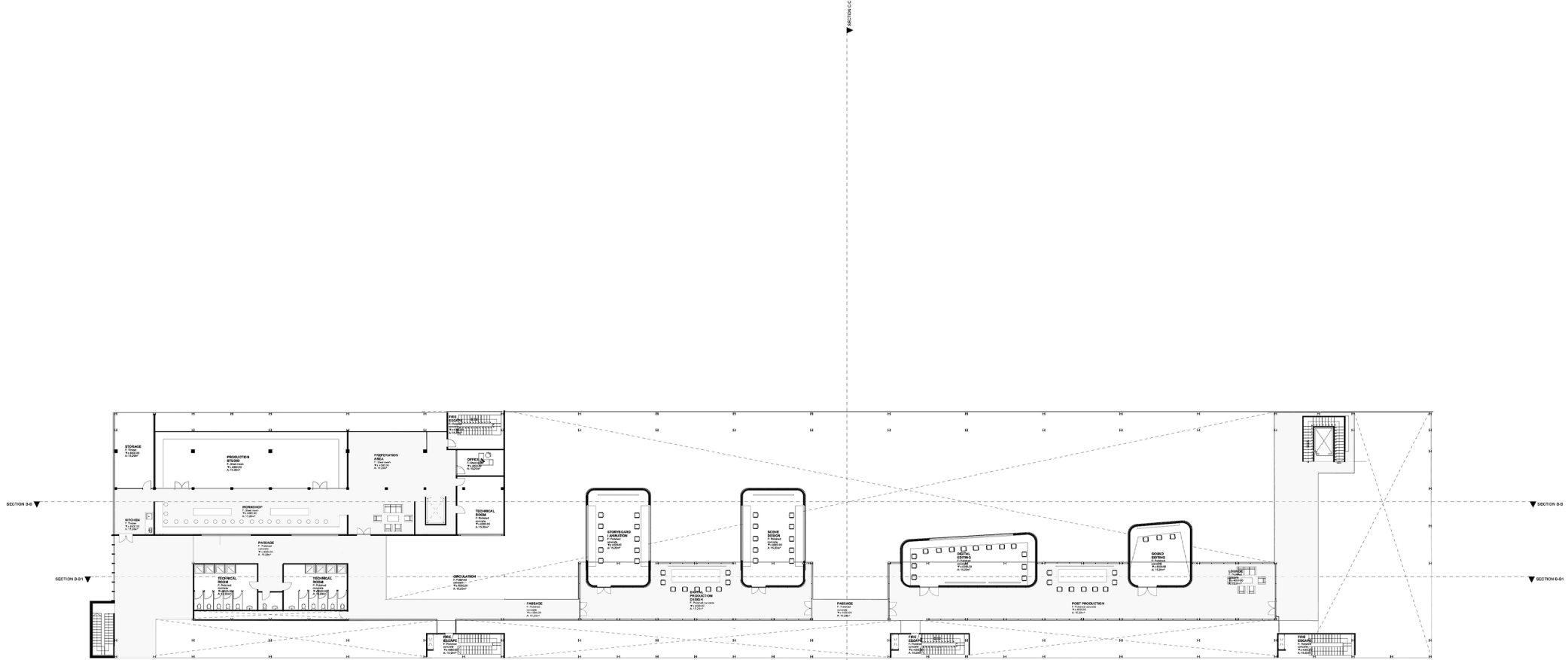


Fig. 218
Second floor plan
Not to scale

SECOND FLOOR PLAN
SCALE 1:200

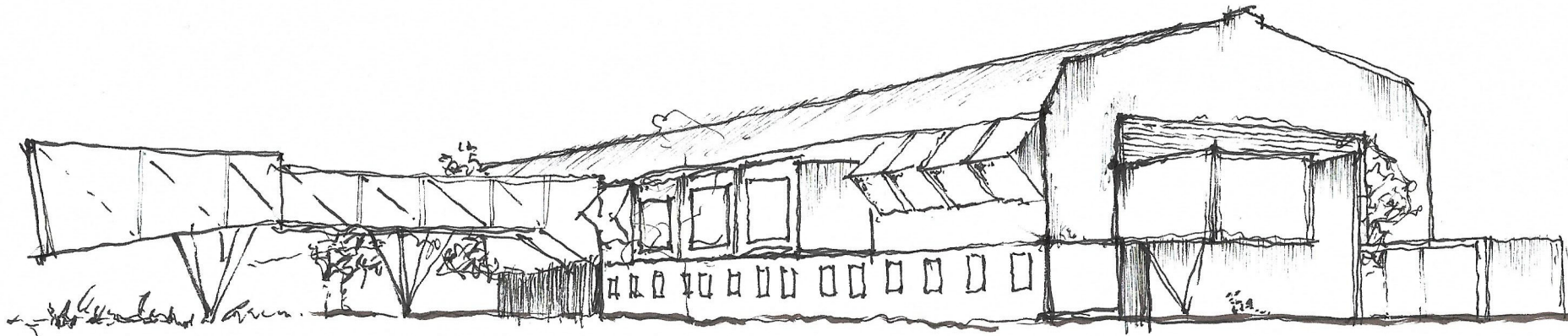


Fig. 219
North- East perspective

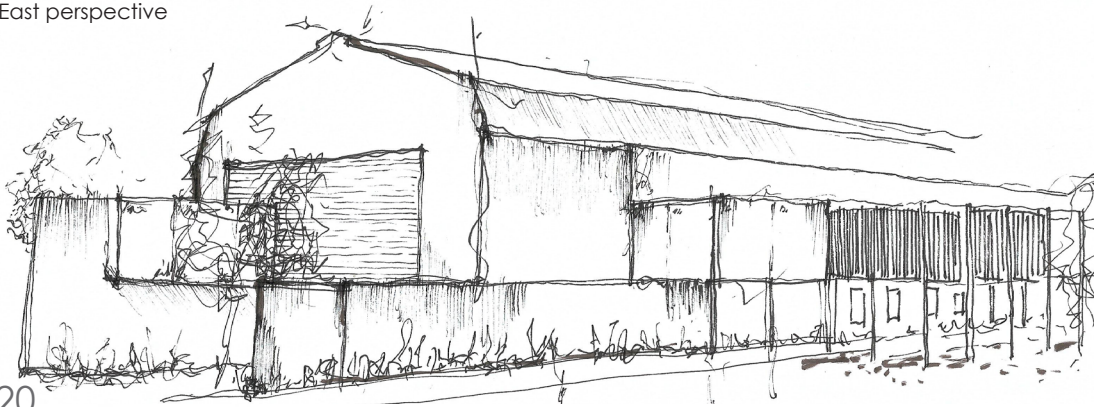


Fig. 220
North- West perspective

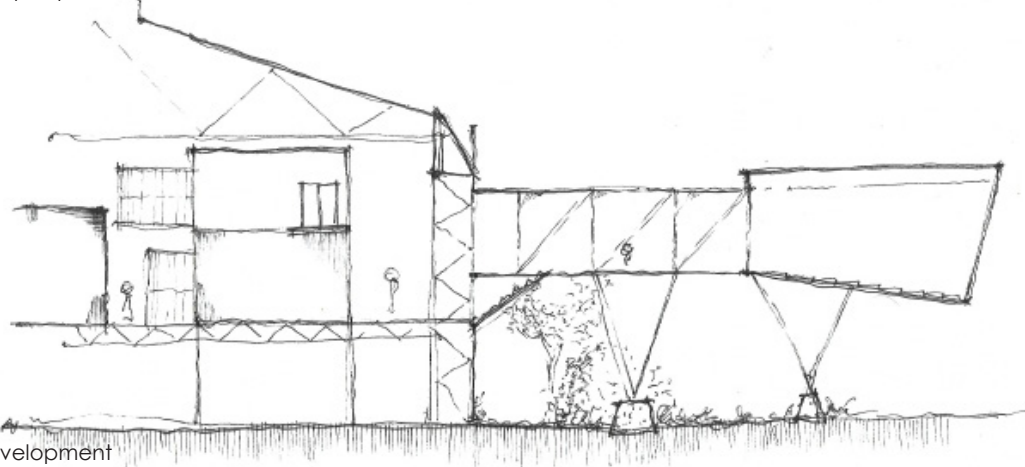


Fig. 221
Section development



Fig. 223
Entrance



Fig. 225
Cinema lounge



Fig. 224
First floor lounge



Fig. 226
Triple volume



Fig. 227
Entrance



Fig. 229
Pulley system facade



Fig. 228
East elevation

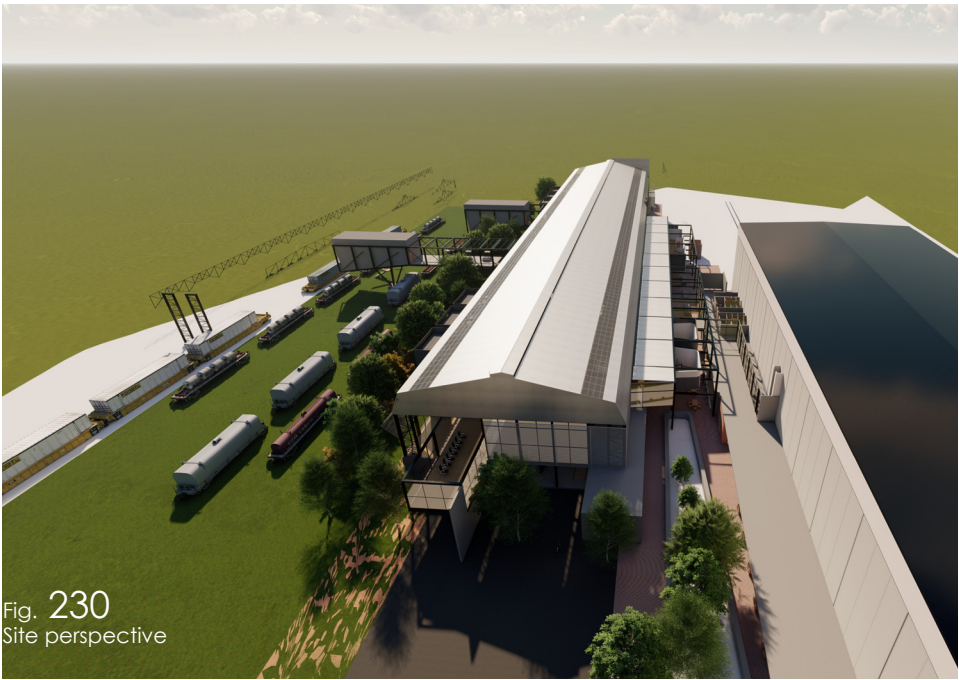


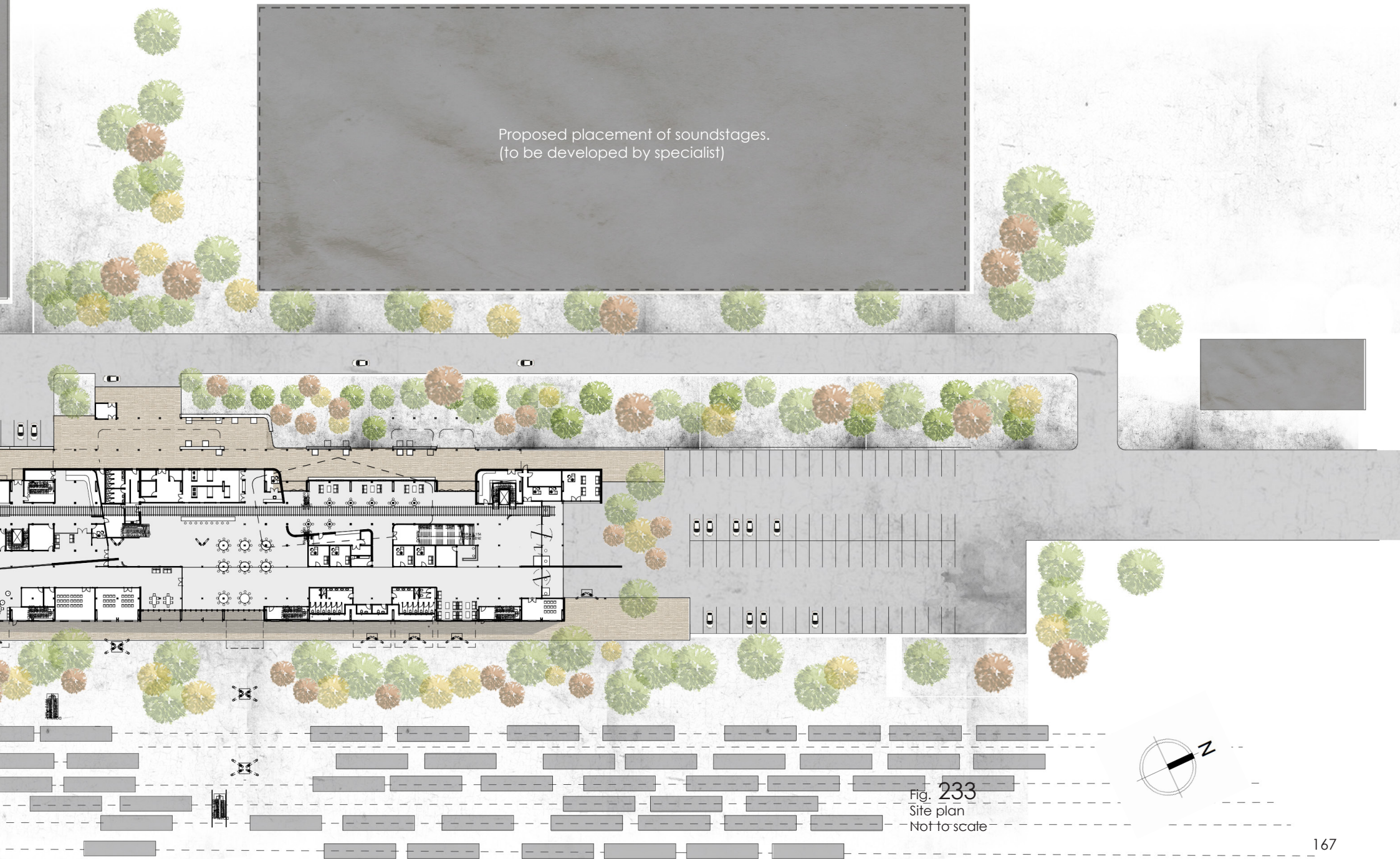
Fig. 230
Site perspective



Development stage 4 improved the layout of the design and focused on each function individually. The overall feel did not communicate the essence of the existing structure and site. The soundstages were removed from the accommodation list to focus on the materiality and character of the building and to lower the scale of the dissertation

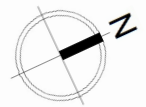
FINAL RESOLUTION





Proposed placement of soundstages.
(to be developed by specialist)

Fig. 233
Site plan
Not to scale



FLOOR PLANS

GROUND FLOOR PLAN
NOT TO SCALE

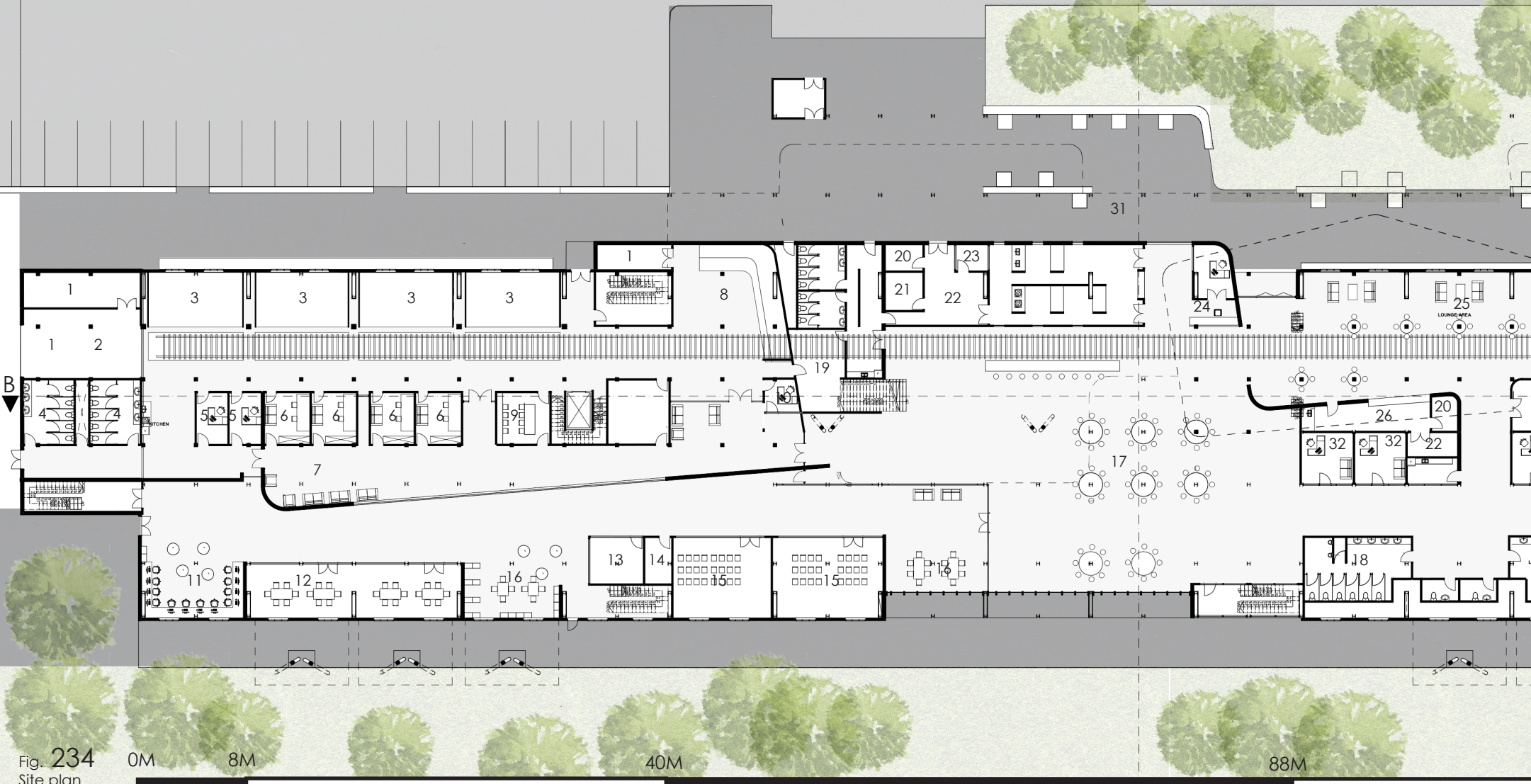


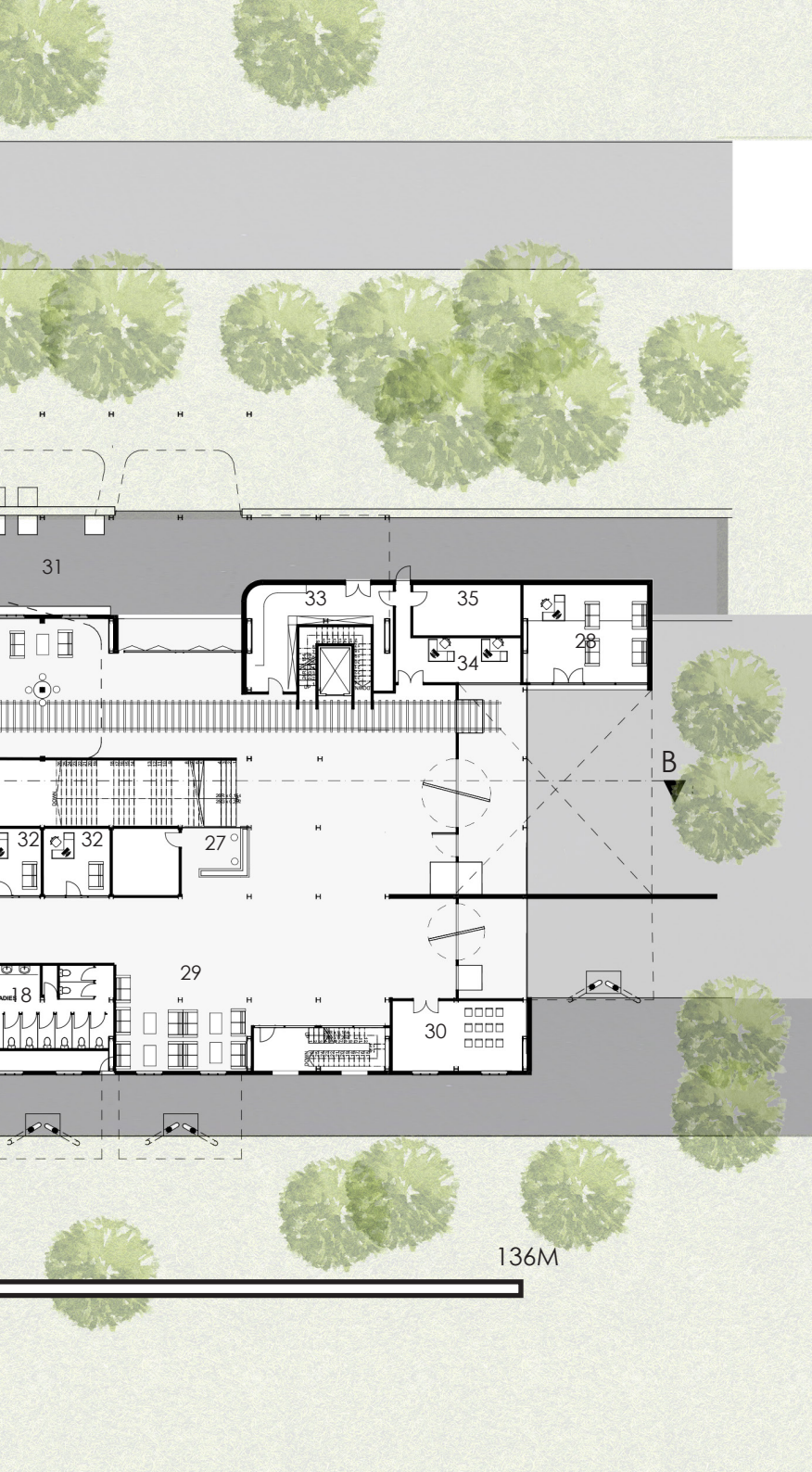
Fig. 234
Site plan
Not to scale

0M

8M

40M

88M



GROUND FLOOR PLAN

SOUNDSTAGE C

1. STORAGE X3
2. ASSEMBLY SPACE
3. FILMING BOOTH X4
4. BATHROOM X2
5. OFFICE X2
6. DRESSING ROOM X4
7. QUEING AREA
8. LIFTED PLAZA
9. MAKE UP DEPARTMENT
10. RECEPTION

EDUCATION FACILITY

11. COMPUTER LAB
12. WORKSHOP SPACE
13. OFFICE
14. STORAGE
15. CLASSROOM X2
16. READING SPACE X2

RESTAURANT

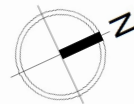
17. SEATING
18. BATHROOM X2
19. LOCKER ROOM
20. COLD ROOM X2
21. DRY ROOM
22. STORAGE X2
23. MANAGER OFFICE
24. RECEPTION
25. LOUNGE
26. COFFEE BAR

PUBLIC

27. RECEPTION
28. SOUNDSTAGE RECEPTION
29. LOUNGE
30. MULTI FUNCTIONAL
31. GARDEN SPACE

PRIVATE

32. OFFICE X4
33. STORAGE
34. SECURITY
35. PLANT ROOM



FLOOR PLANS

FIRST FLOOR PLAN
NOT TO SCALE



Fig. 235
First floor plan
Not to scale



FIRST FLOOR PLAN

SOUNDSTAGE

1. LIGHT STATION
2. OFFICE
3. STORAGE
4. TECHNICAL ROOM

PRE PRODUCTION/ PRODUCTION

5. LOUNGE
6. PRODUCTION STUDIO X3
7. OPEN OFFICE
8. SCREENING ROOM X 3

CINEMA X 2 (PUBLIC)

9. SEATING
10. SCREENING ROOM
11. LOUNGE

MUSIC STUDIO

12. LIVE RECORDING
13. CONTROL ROOM
14. VOCAL BOOTH

THEATRE (PUBLIC)

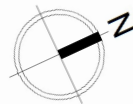
15. SEATING
16. QUEING AREA
17. BATHROOM X2
18. DRESSING/ MAKEUP
19. STORAGE
20. SCREENING ROOM

PRIVATE

21. OPEN OFFICE
22. OFFICE X 3
23. BOARDROOM
24. KITCHENETTE
25. LIBRARY OFFICE
26. LIBRARY STORAGE
27. CASTING ROOM

PUBLIC

28. LOUNGE
29. OPEN LIBRARY
30. BATHROOM X 2



FLOOR PLANS

SECOND FLOOR PLAN
NOT TO SCALE

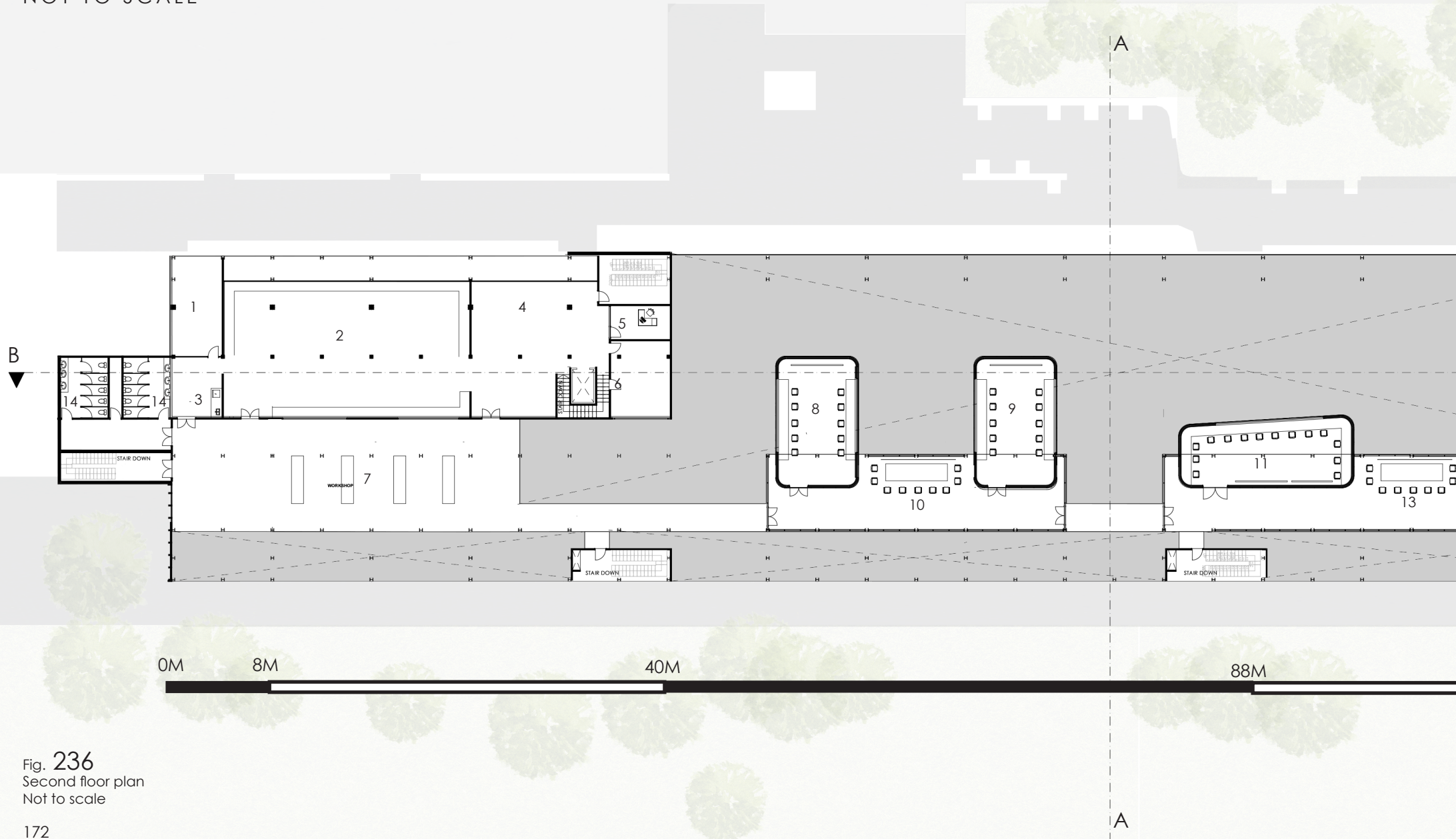


Fig. 236
Second floor plan
Not to scale

SECOND FLOOR PLAN

PRODUCTION STUDIO

1. STORAGE
2. PRODUCTION SPACE
3. KITCHEN
4. PREPERATION AREA
5. OFFICE
6. TECHNICAL ROOM
7. WORKSHOP

DIGITAL PRODUCTION DESIGN

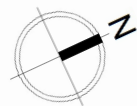
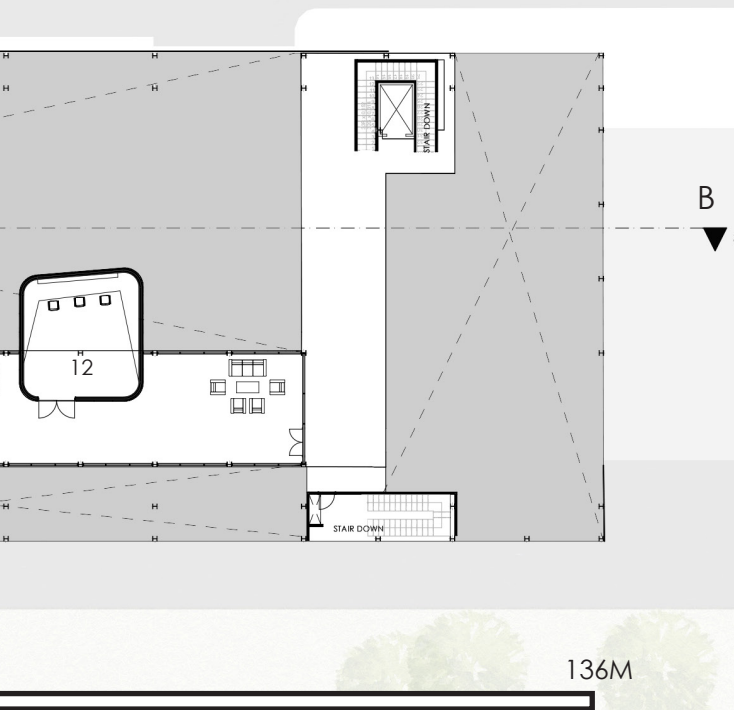
8. STORYBOARD
9. SCENE DESIGN
10. MULTIFUNCTIONAL

PRODUCTION EDITING

11. DIGITAL EDITING
12. SOUND EDITING
13. MULTIFUNCTIONAL

PUBLIC

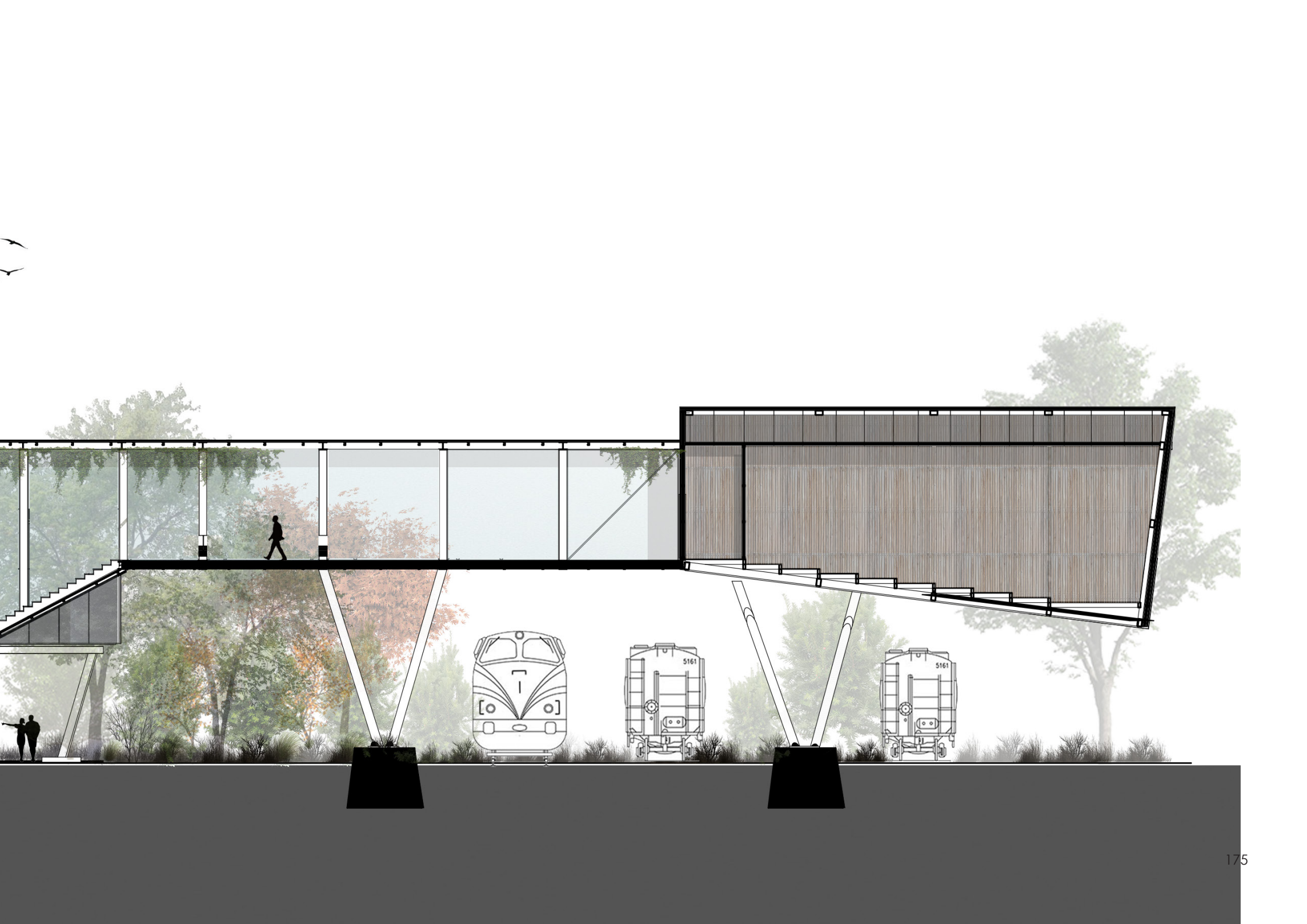
14. BATHROOM X 2



SECTIONS

SECTION A-A
NOT TO SCALE





SECTIONS

SECTION B-B
NOT TO SCALE

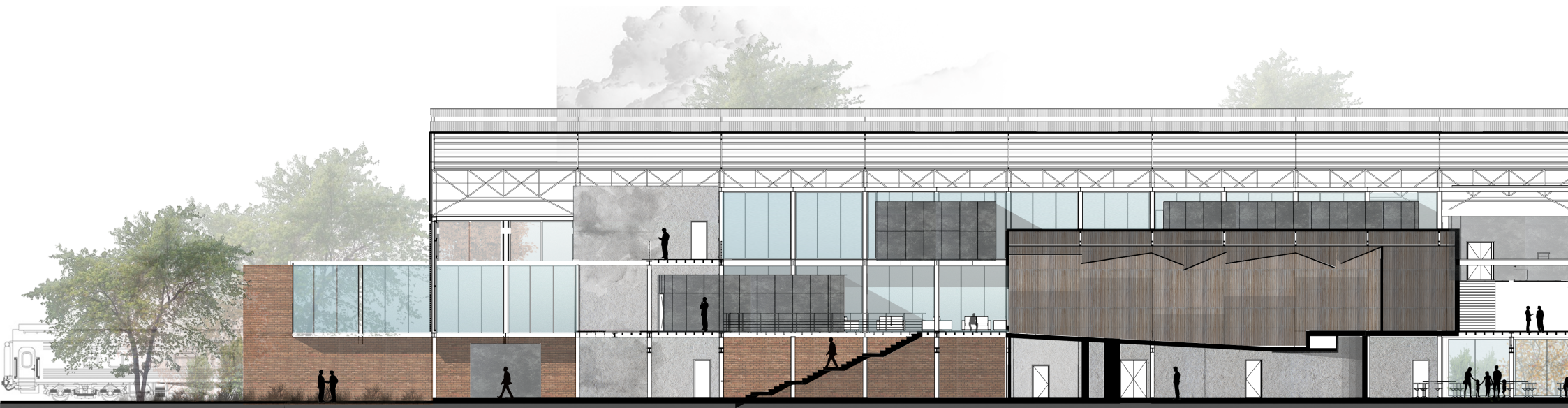


Fig. 238
Section B-B
Not to scale



ELEVATIONS

EAST
NOT TO SCALE



Fig. 239
East elevation
Not to scale



ELEVATIONS

NORTH
NOT TO SCALE

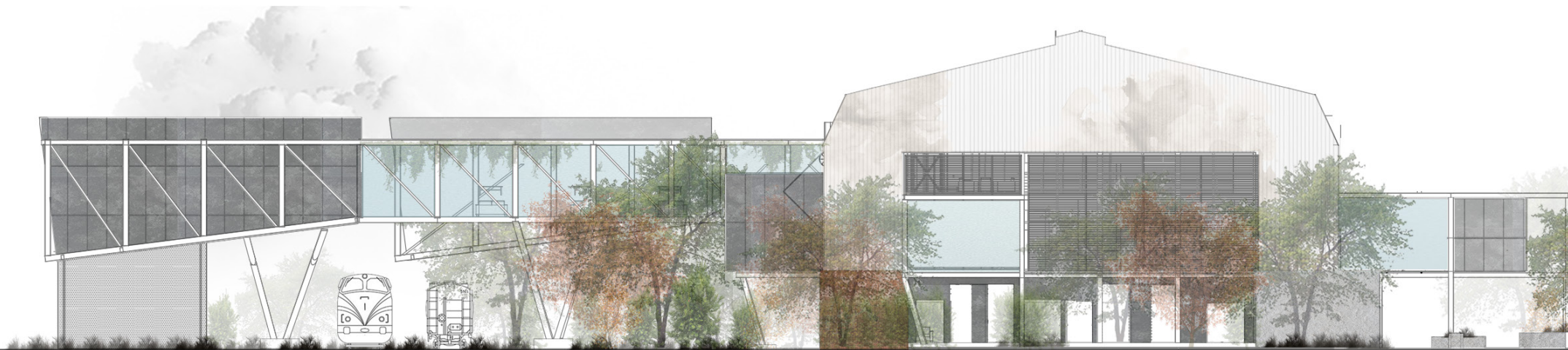


Fig. 240
North elevation
Not to scale



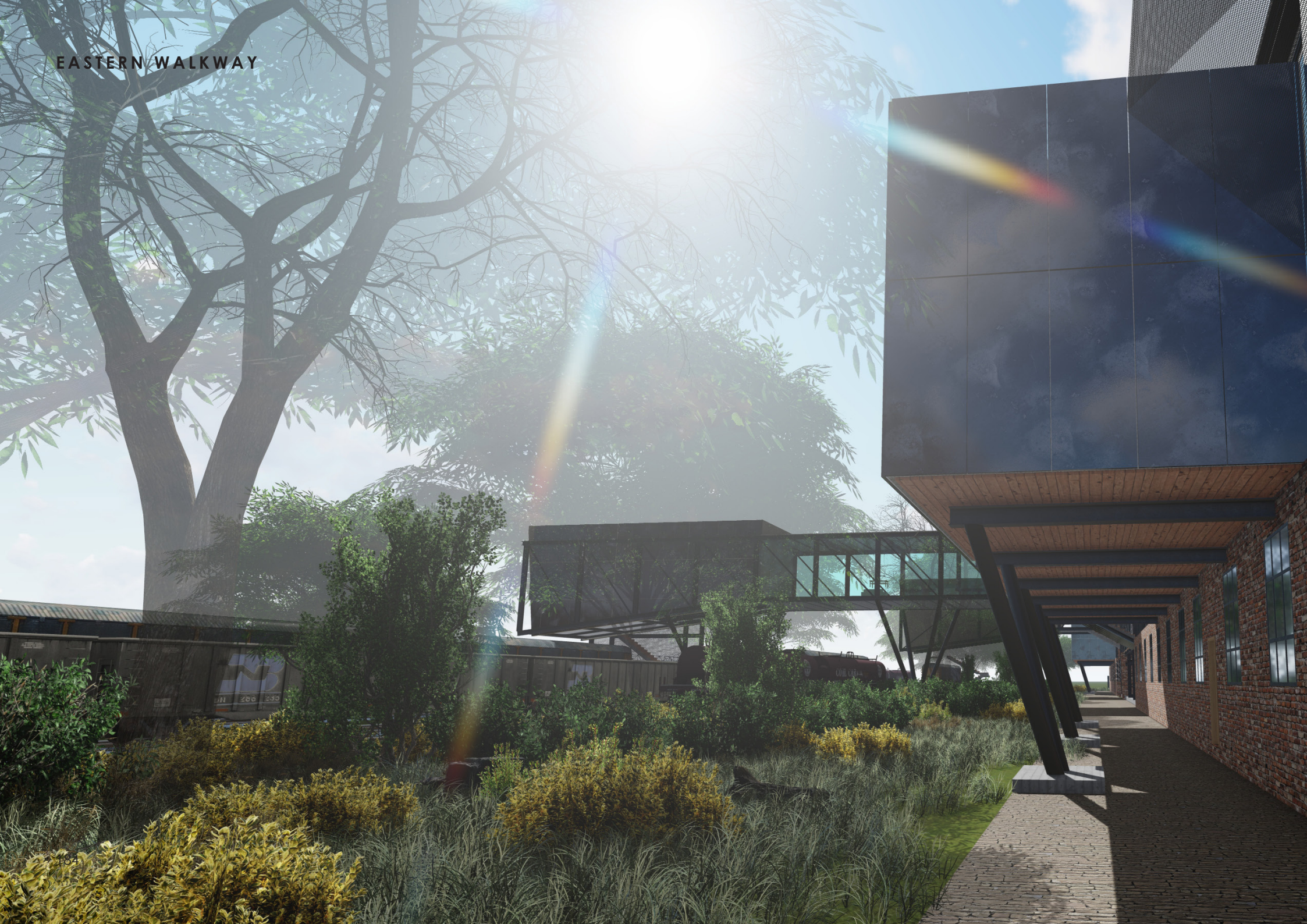
PERSPECTIVES

NORTH PERSPECTIVE
NOT TO SCALE



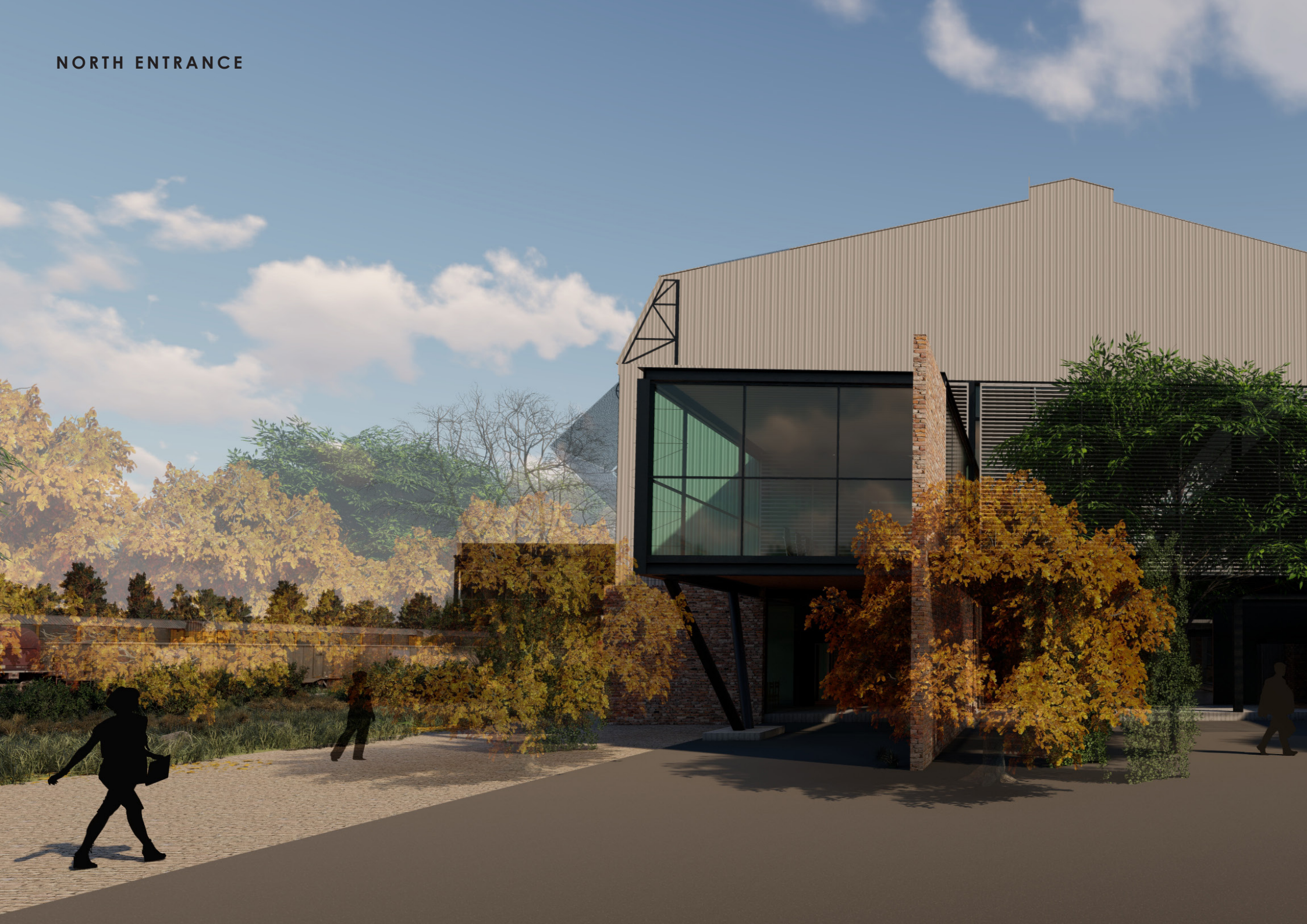


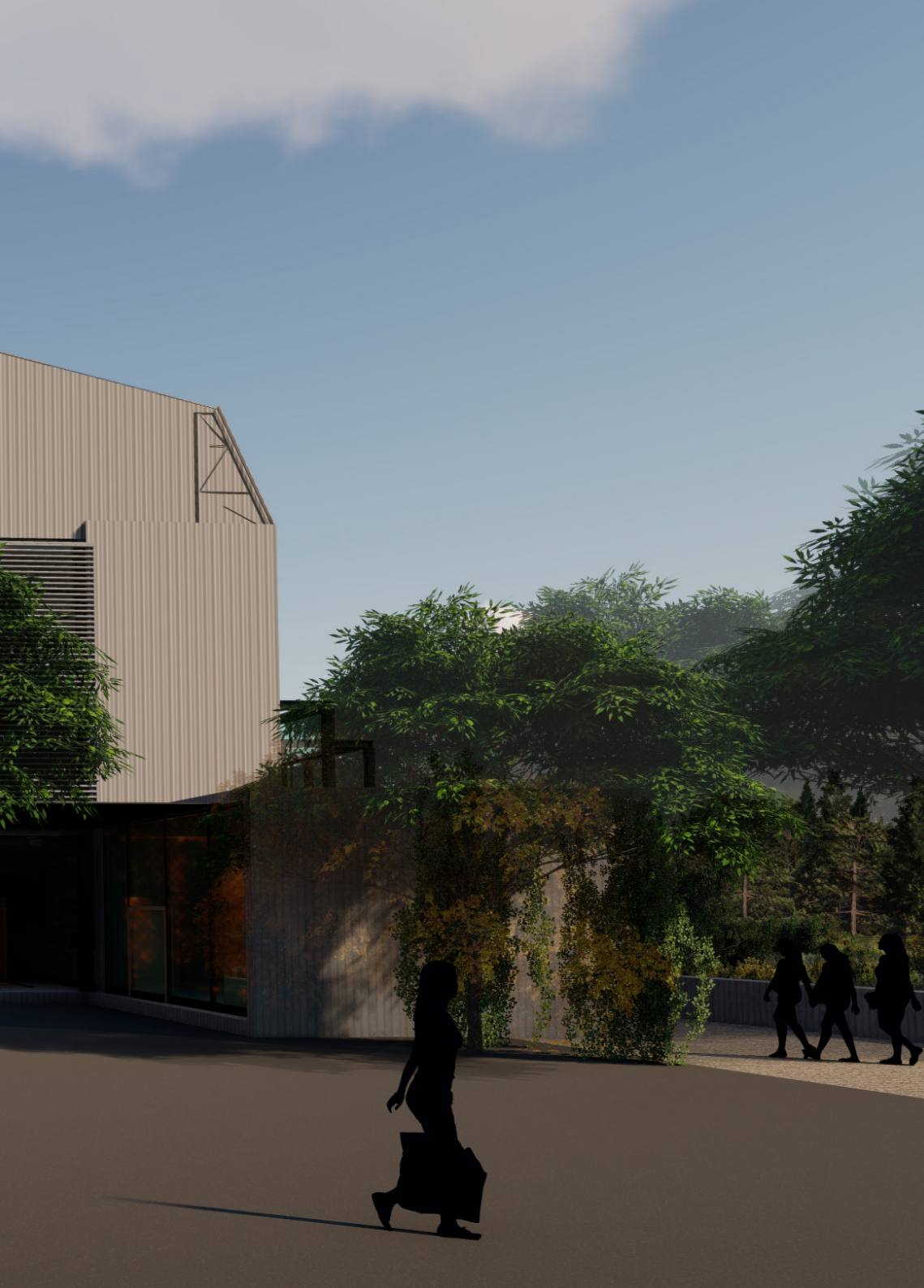
EASTERN WALKWAY





NORTH ENTRANCE

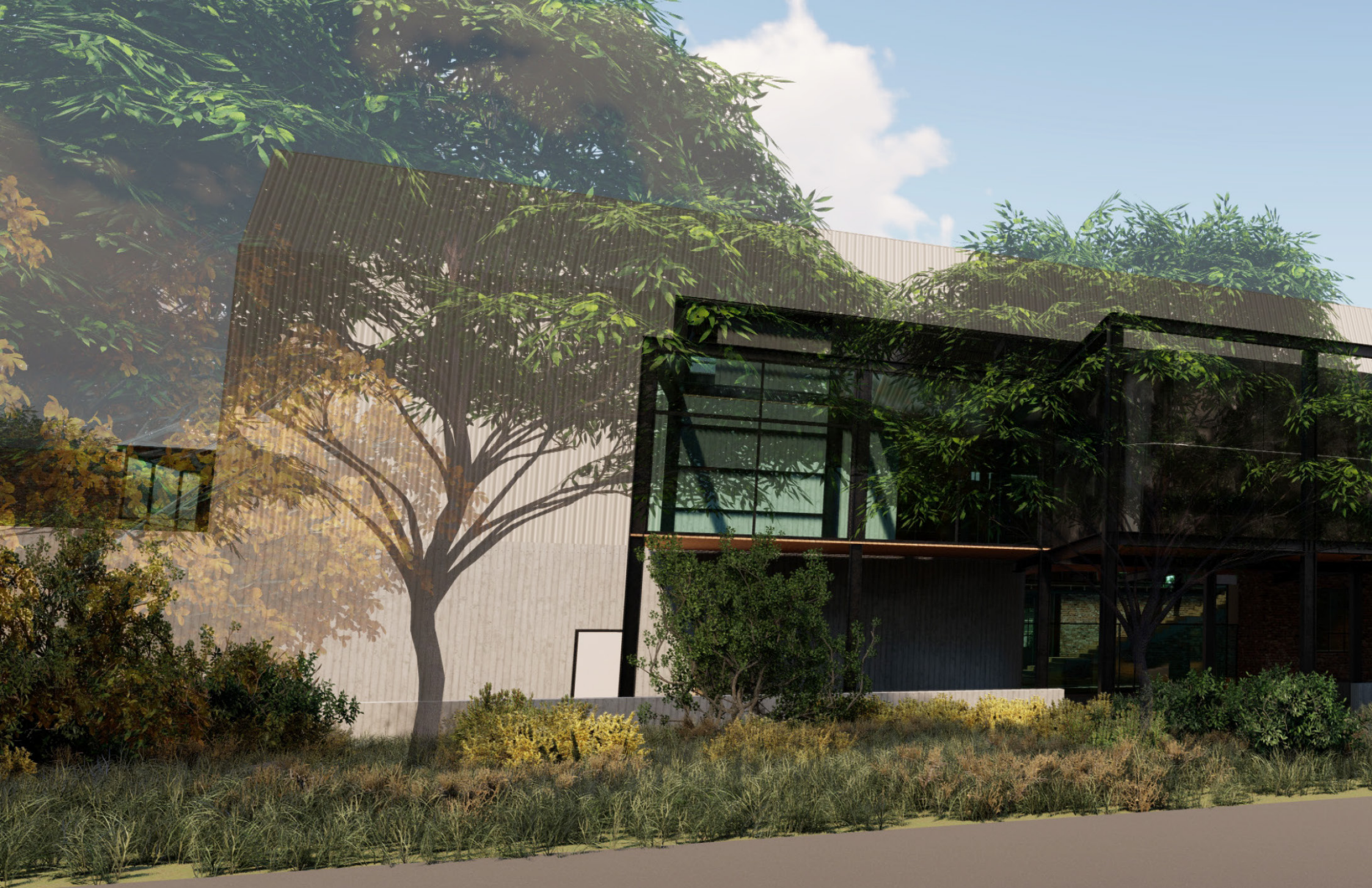


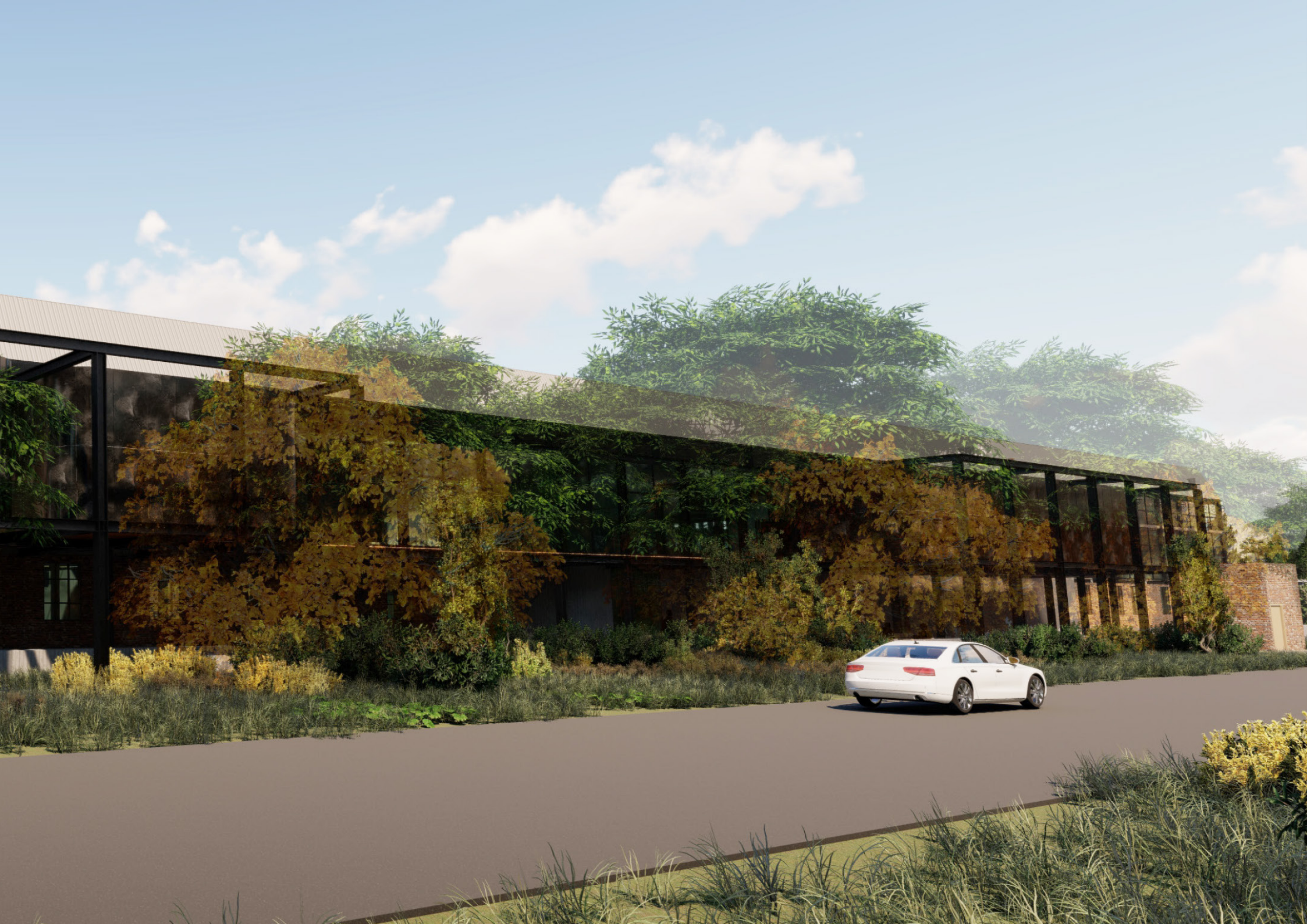


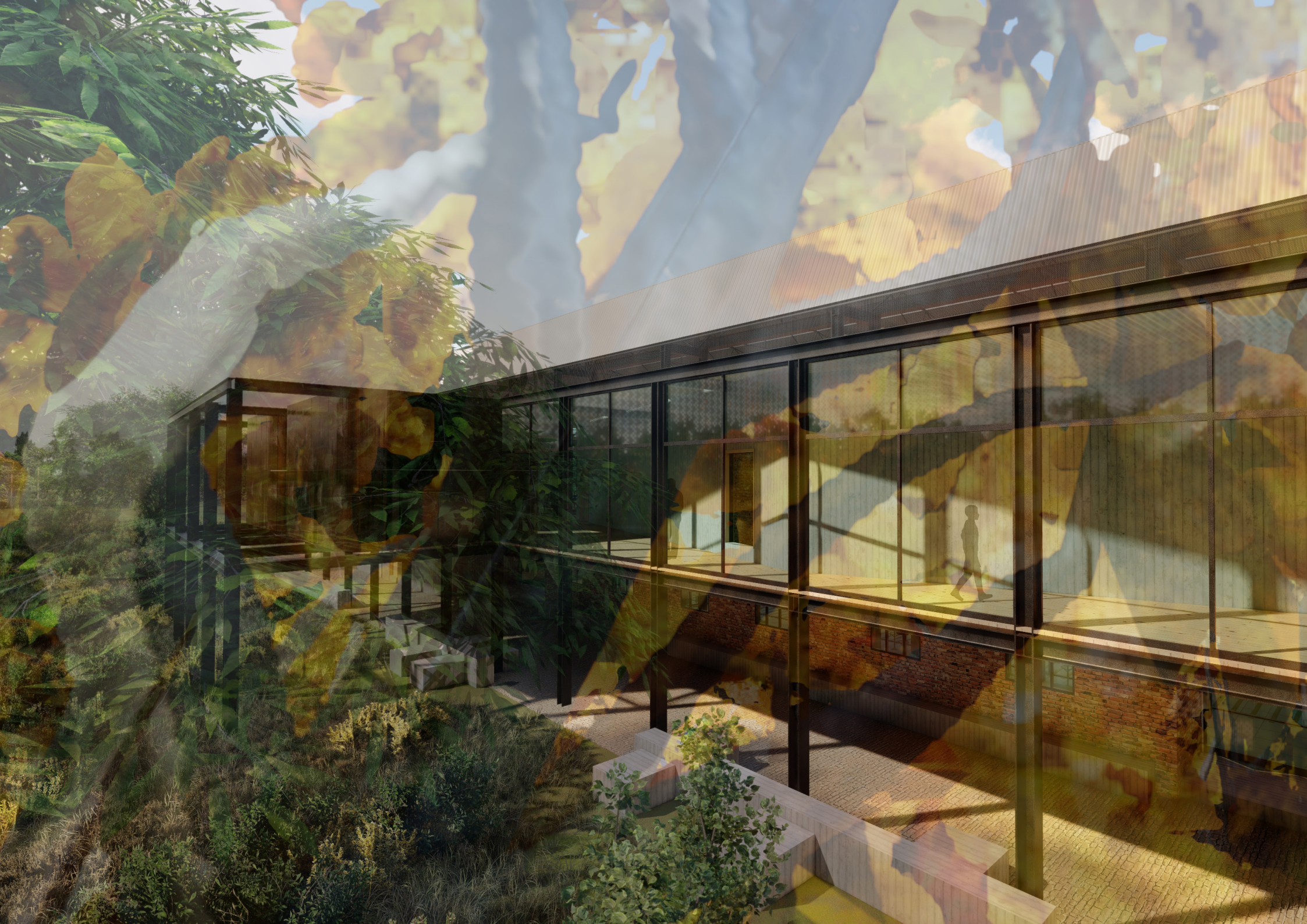
VIEW FROM THE RAILWAY LINE









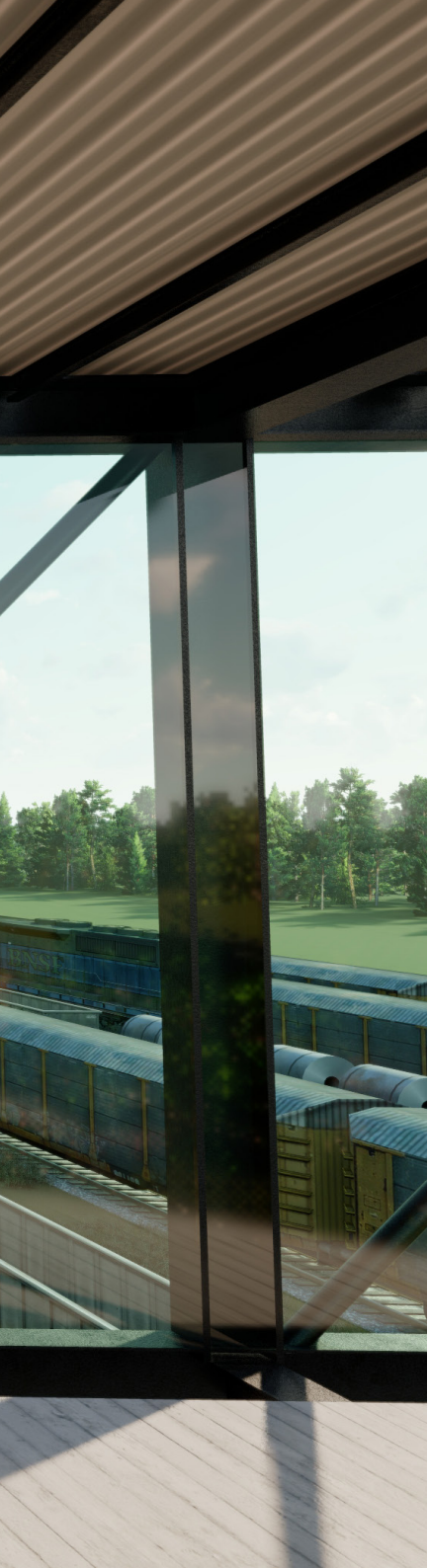


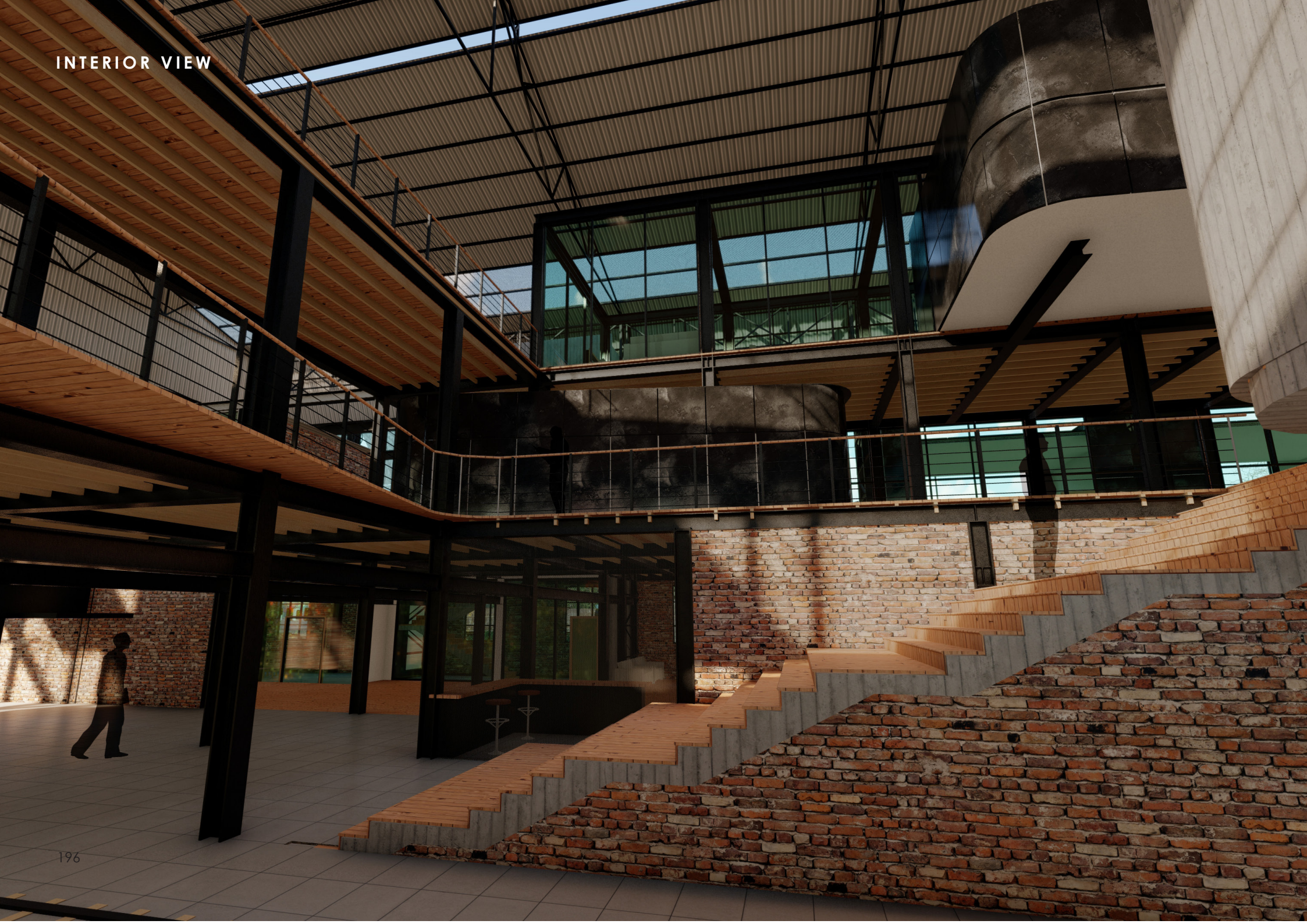


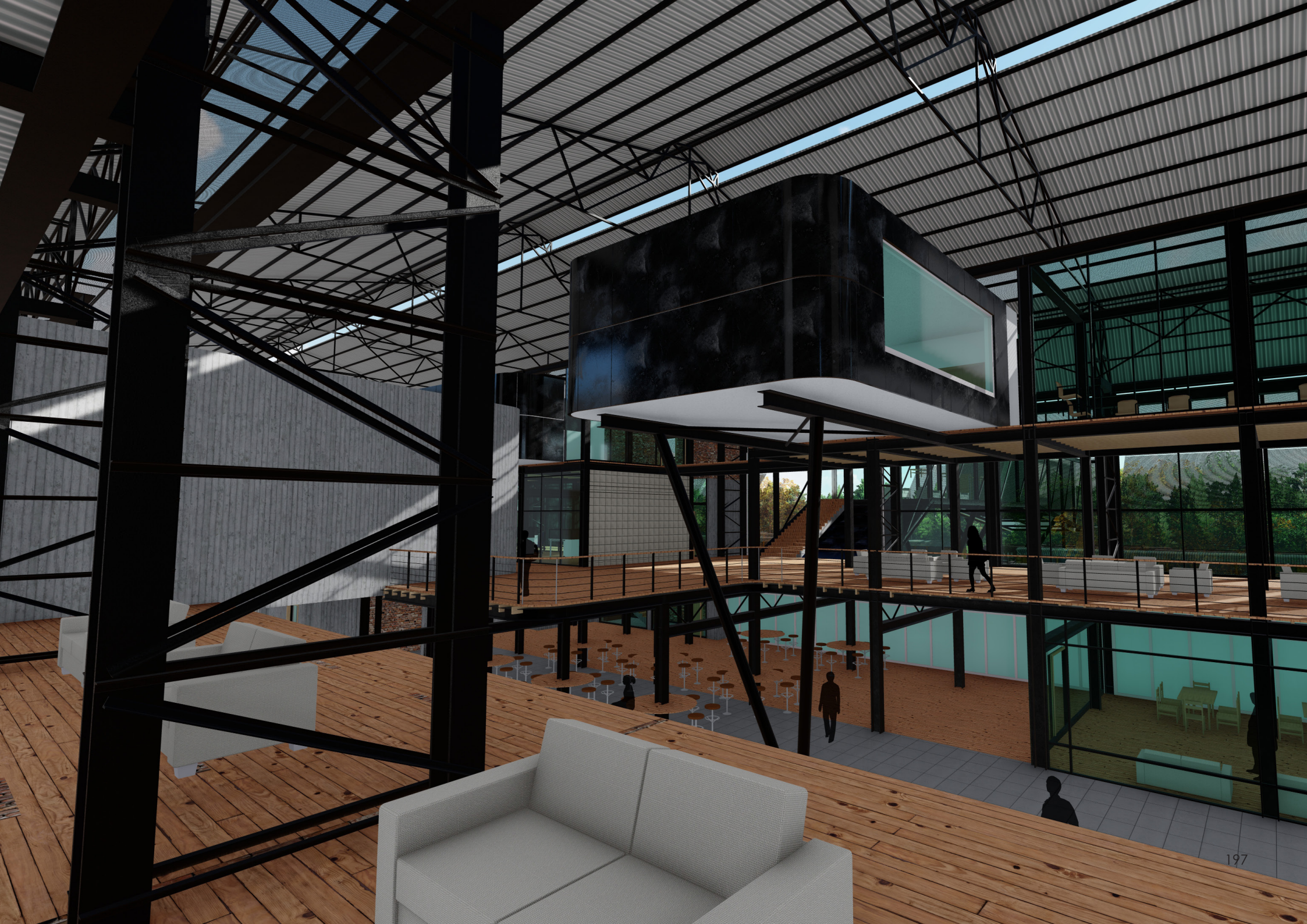
VIEW FROM THE BRIDGE



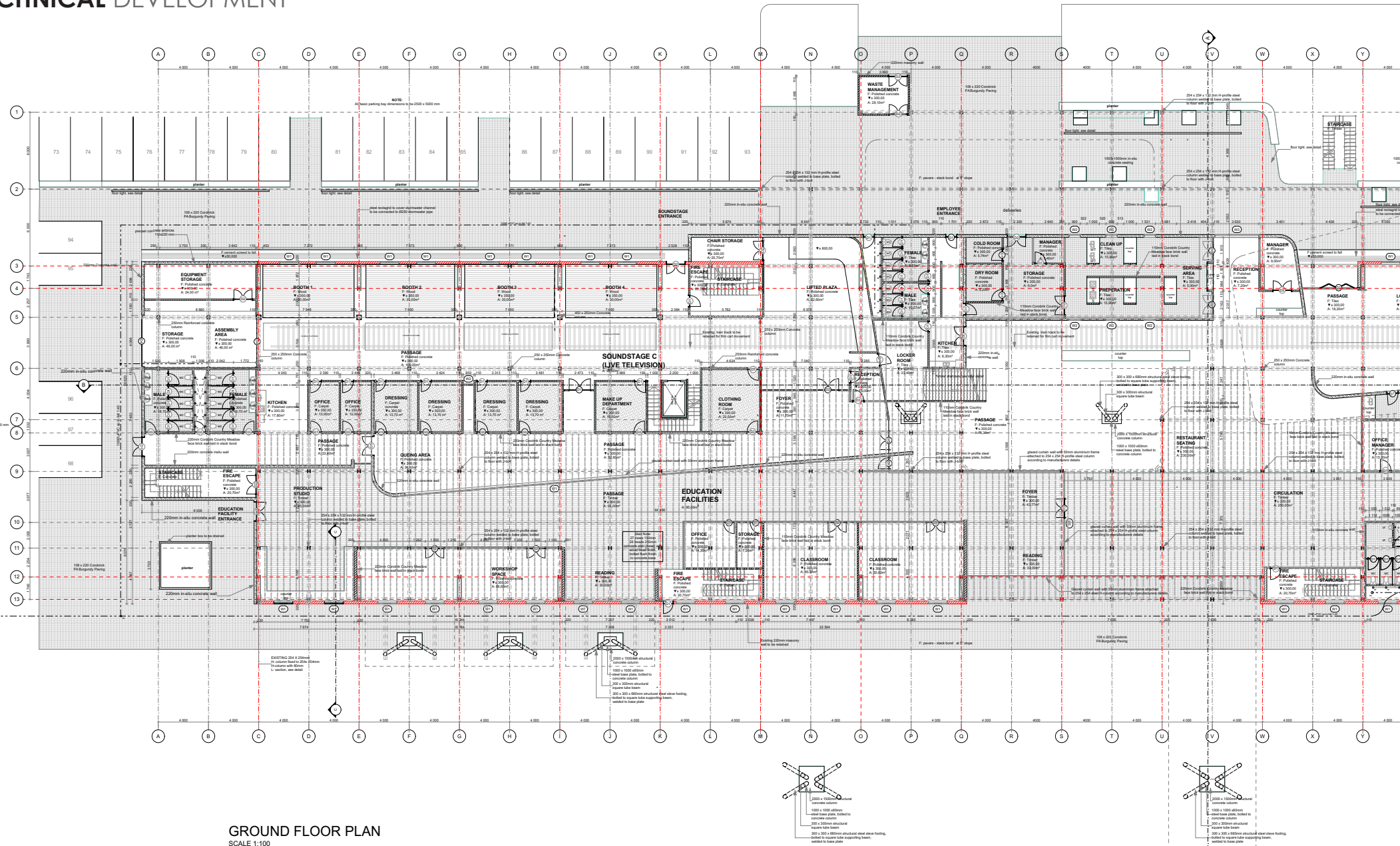
VIEW TOWARDS EXTERIOR GARDEN

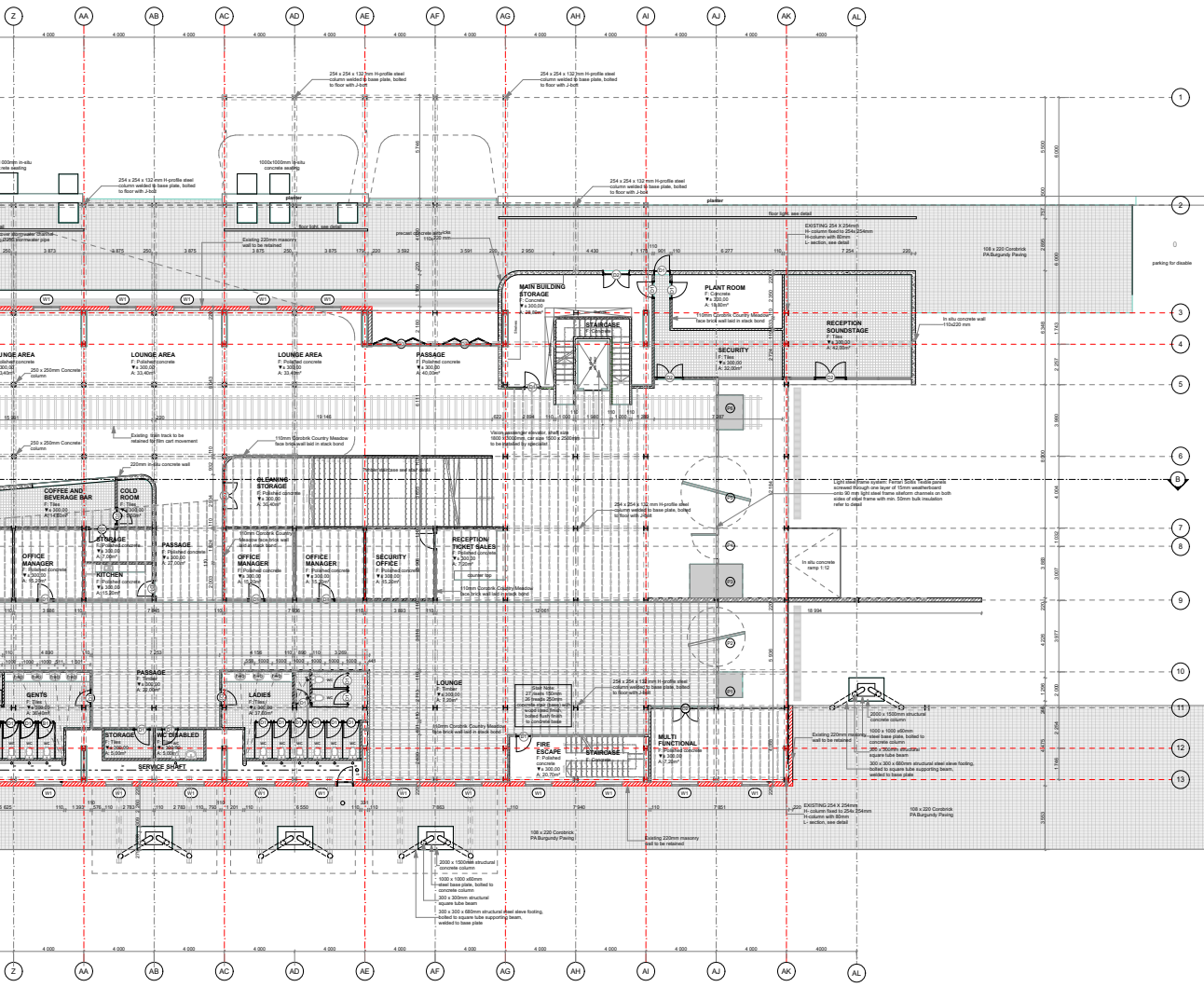






TECHNICAL DEVELOPMENT





	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
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11																				
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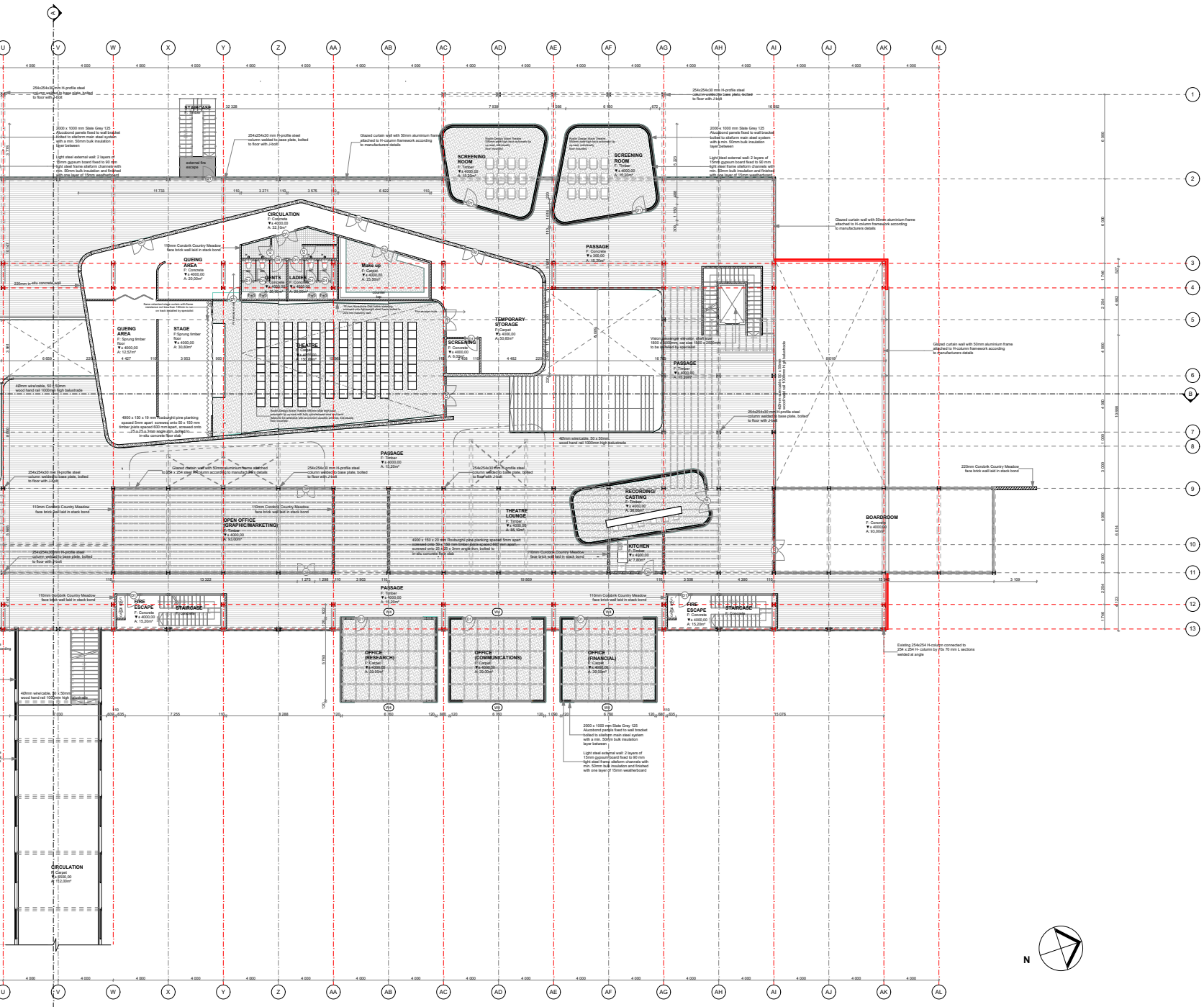
NOTE: All basic parking bay dimensions to be 2500 x 5000 mm

NOTE: All basic parking bay dimensions to be 2500 x 5000 mm



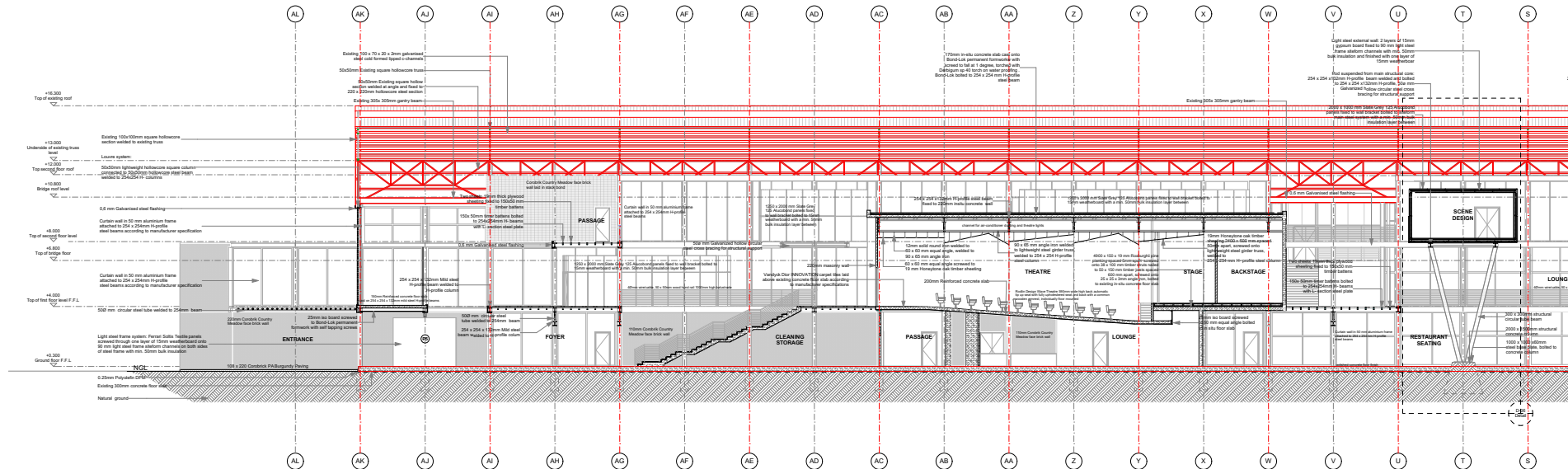
New construction —————

Existing elements to be maintained ————



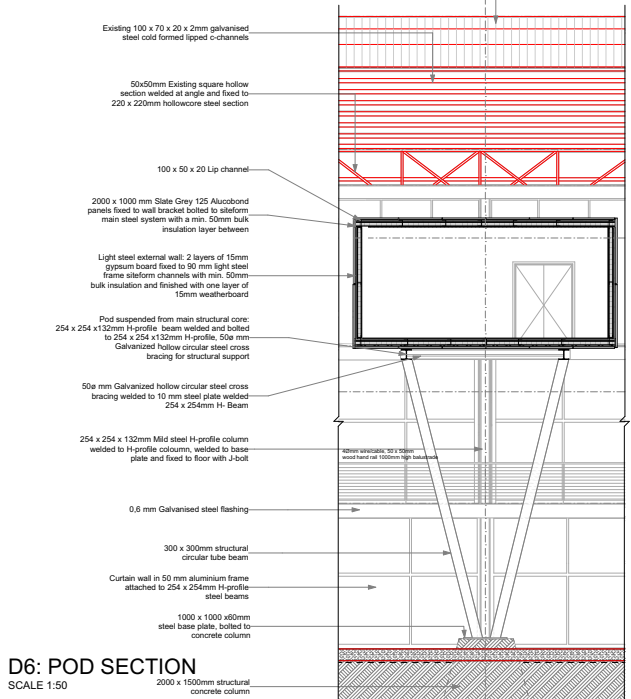
New construction ———
 Existing elements to be maintained ———

Drawing number 2012
 FIRST FLOOR PLAN

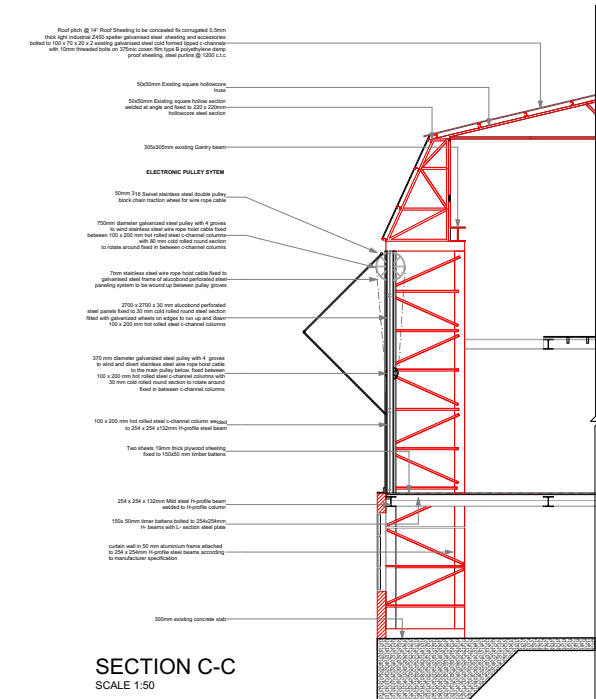


SECTION B-B
SCALE 1:100

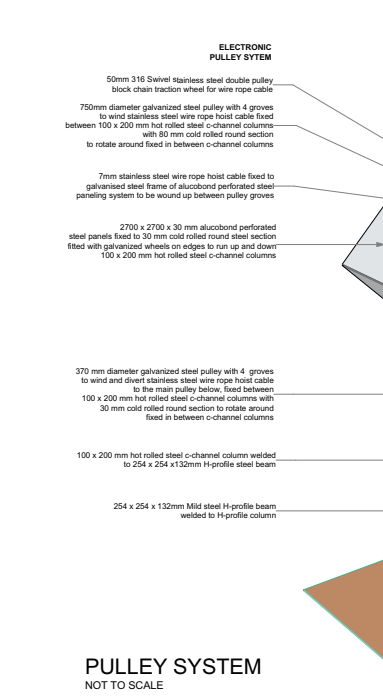
1.14" Roof Sheeting to be concealed fix corrugated 0.5mm thick galvanised steel sheeling and accessories bolted to 2 existing galvanised steel cold formed lipped channels steel purlins @ 1200 cc



D6: POD SECTION
SCALE 1:50



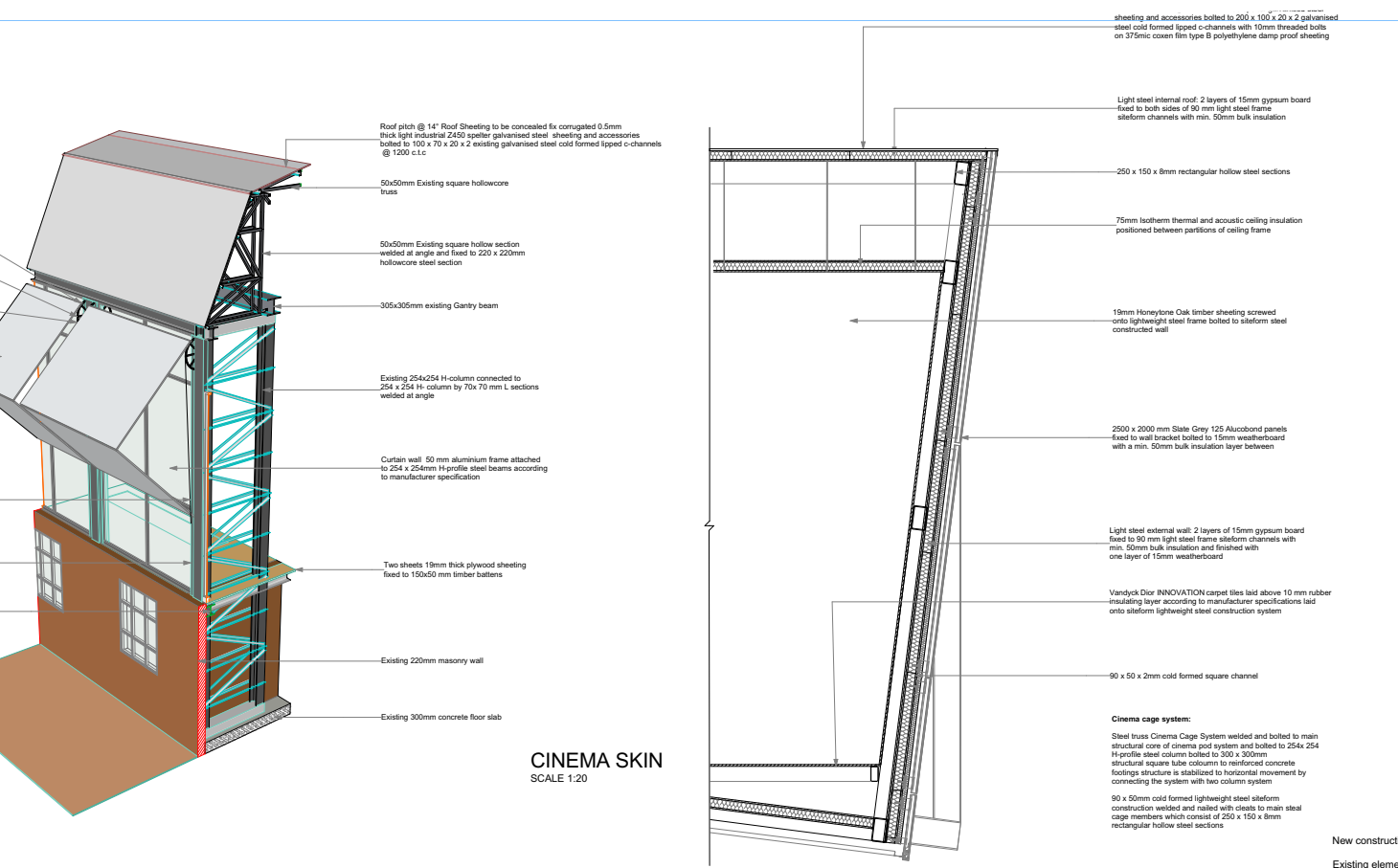
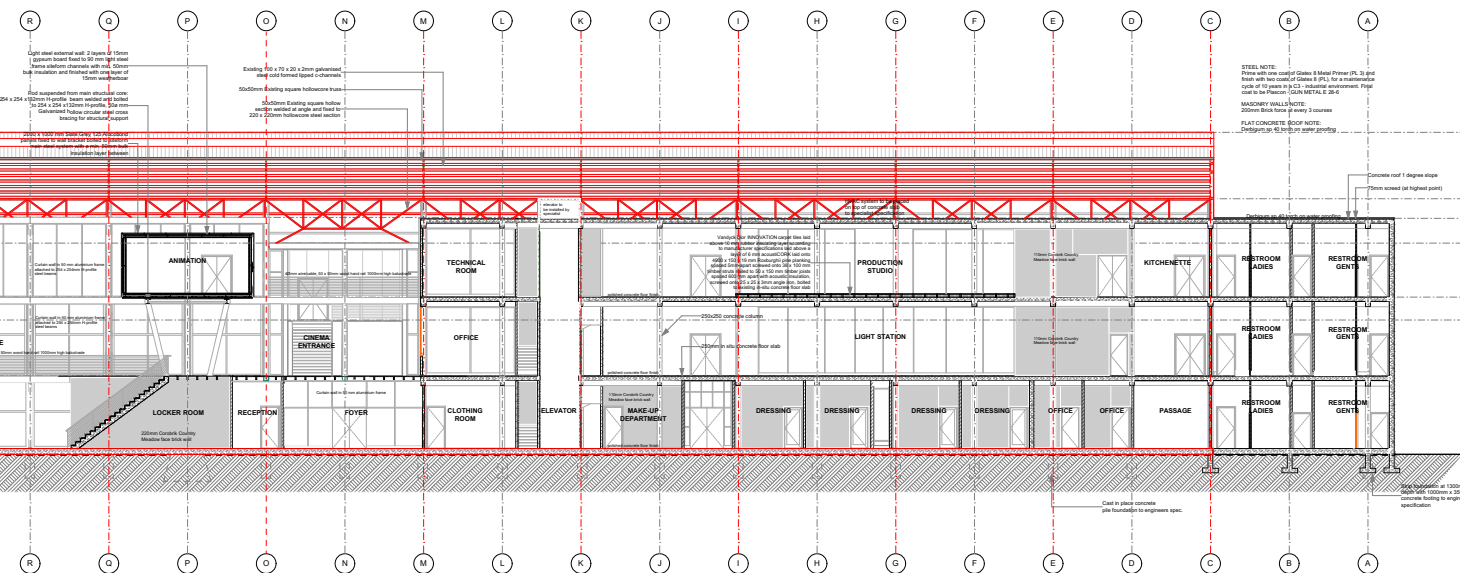
SECTION C-C
SCALE 1:50



PULLEY SYSTEM
NOT TO SCALE

FILM PRODUCTION CENTRE

BLOEMFONTEIN
FRANCO VAN NIEKERK
2013041955



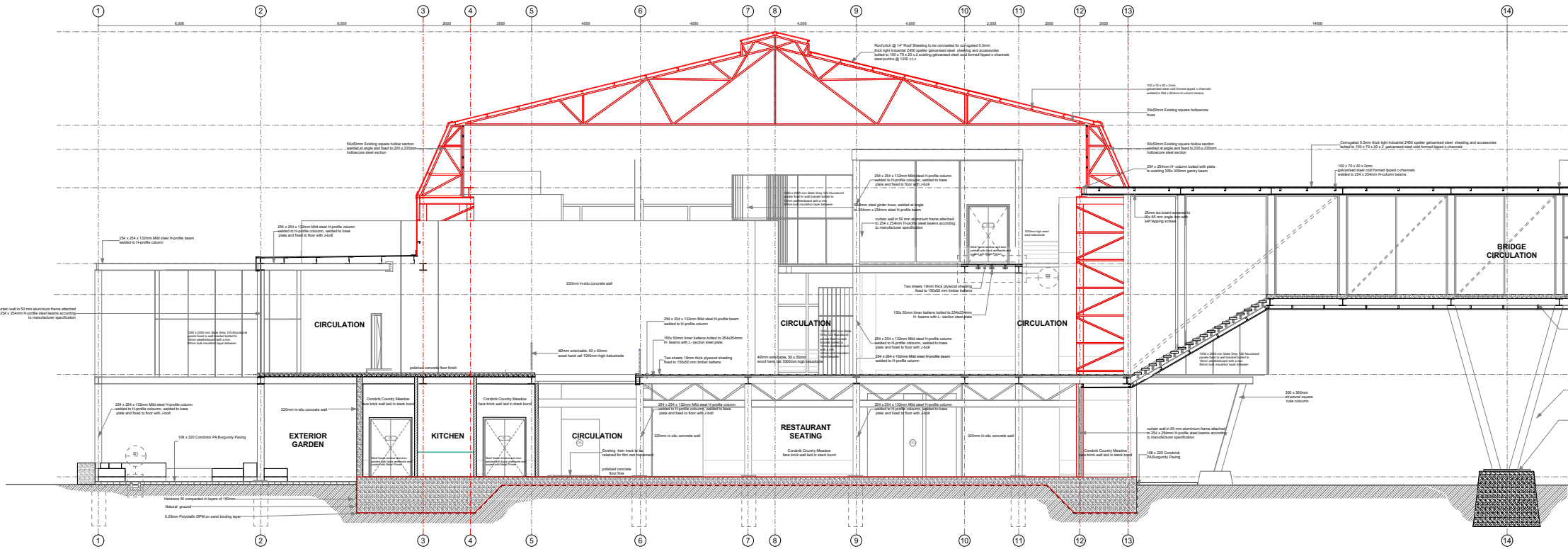
CINEMA SKIN
SCALE 1:20

New construction ————

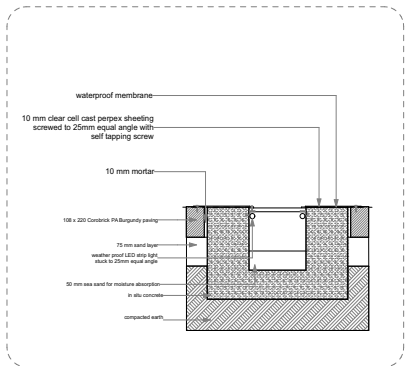
Existing elements to be maintained ————

Drawing number: 4

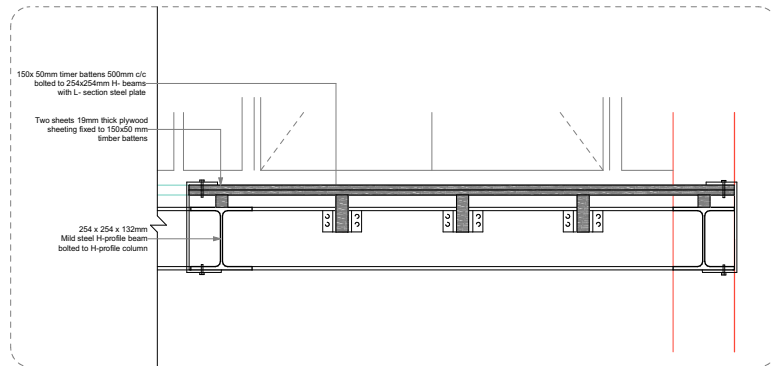
SECTION B-B
POD SECTION
SECTION C-C
PULLEY SYSTEM
CINEMA SKIN



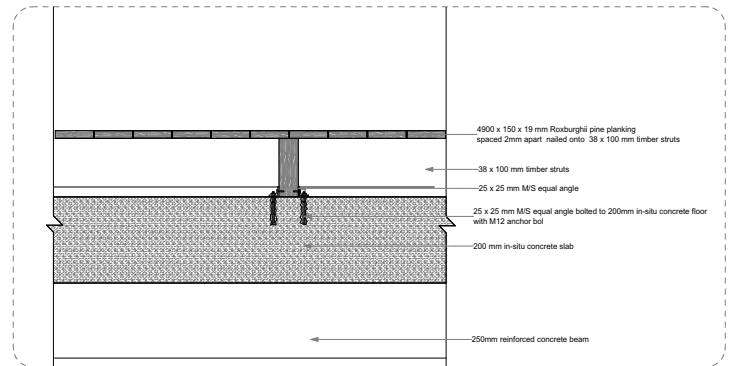
SECTION A-A
SCALE 1:100



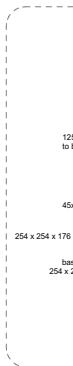
D1: FLOOR LIGHT
DETAIL
SCALE 1:5



D3: WALKWAY FLOOR DETAIL
SCALE 1:10



D4: THEATRE STAGE FLOOR
DETAIL
SCALE 1:5

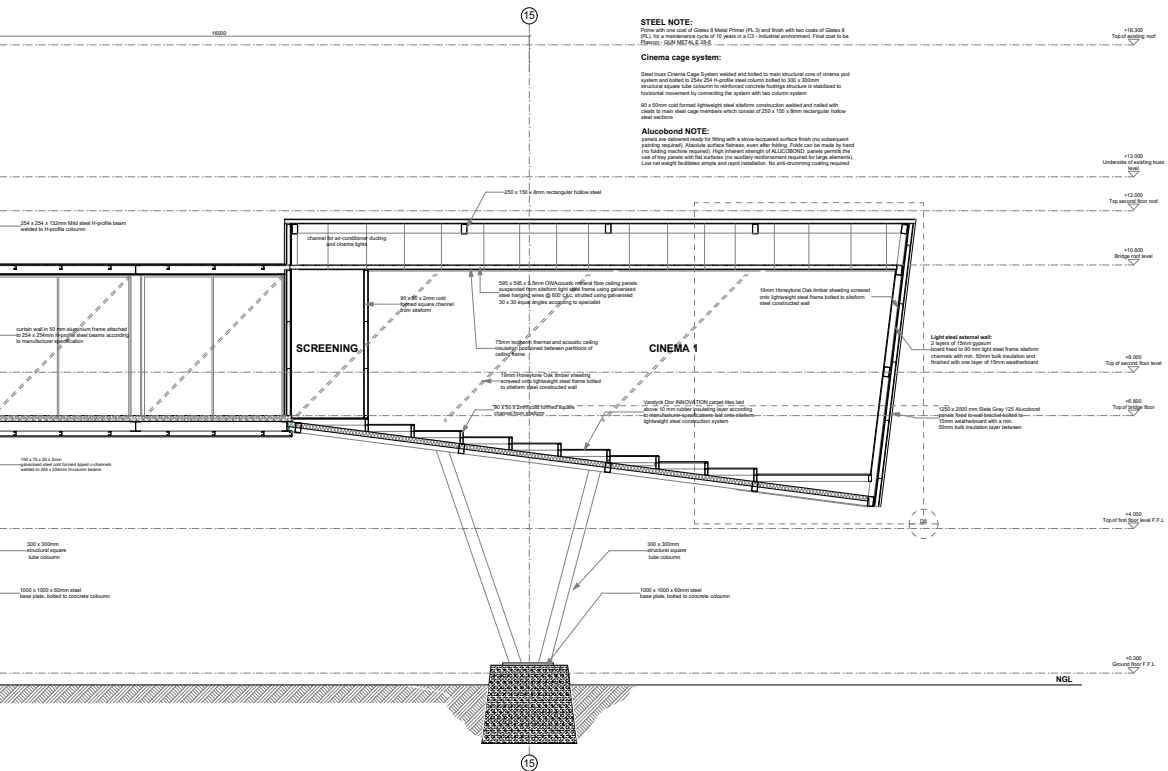


D5: TIMBER
SCALE 1:5

FILM PRODUCTION CENTRE

BLOEMFONTEIN

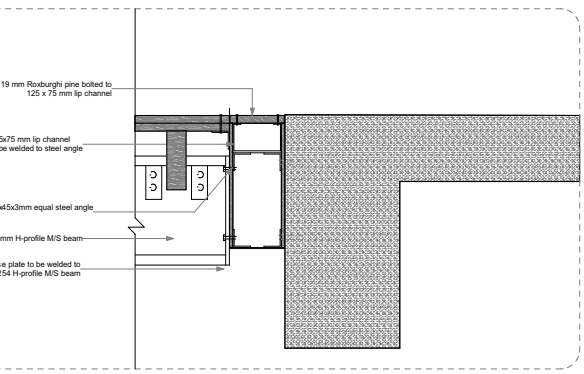
FRANCO VAN NIEKERK
2013/04/19/15



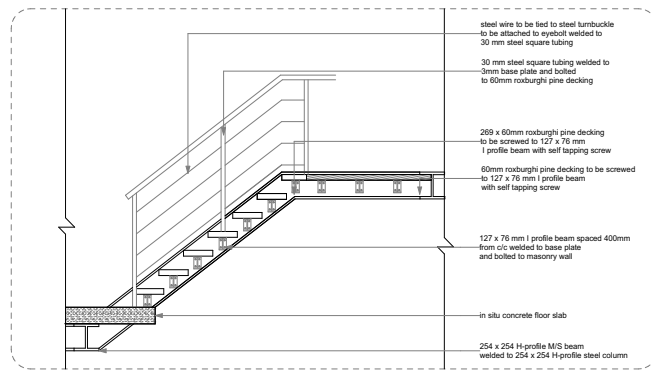
STEEL NOTE:
 Frame with one end of Gable & Metal Primer (P1, P2) and finish with two coats of Gable & P2. In a translucent color of 10 years in UV-irradiation environment. Final coat to be Gable & P2 (RAL 7035 - R15).

Cinema cage system:
 Steel tube Cinema Cage System welded steel bolted to main structural core of cinema post system and bolted to 254 x 254 H-profile steel columns bolted to 300 x 300mm structural steel tube column to reinforced concrete bridge structure to eliminate horizontal movement by connecting the system with base column system.

Alucobond NOTE:
 Alucobond panels are delivered ready to fit on a sub-structural surface (with the subsequent painting required). Alucobond surface finishes, even after fitting, Alucobond can be made by hand and fitting machine requires a high clearance enough of 40-50mm. panels should be cut off the panels with flat surface (no auxiliary reinforcement required for large elements). Use the right fasteners, enough and equal distribution. No air absorbing coating required.



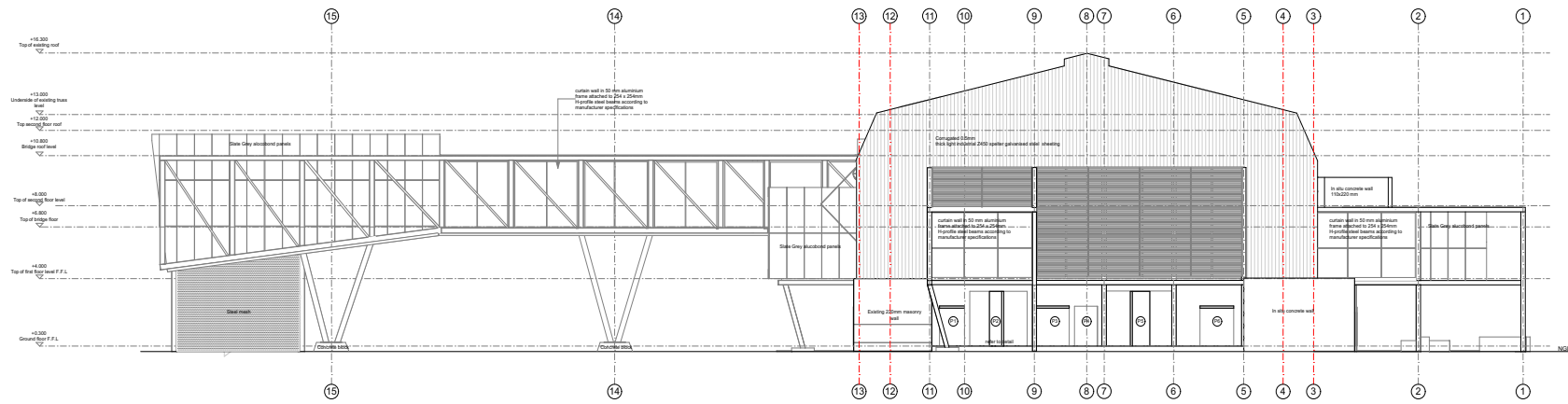
W: TIMBER FLOOR TO CONCRETE CONNECTION



D6: THEATRE STAIRCASE DETAIL
 SCALE 1:20

New construction —————
 Existing elements to be maintained —————

Drawing number: 4
 SECTION A-A
 D1: FLOOR LIGHT DETAIL
 D3: WALKWAY FLOOR DETAIL
 D4: THEATRE STAGE FLOOR DETAIL
 D5: TIMBER FLOOR TO CONCRETE CONNECTION
 D6: THEATRE STAIRCASE DETAIL



NORTH ELEVATION
SCALE 1:100

Roof pitch @ 14° Roof cladding to be completed @ 5mm
 Risk light coloured 1200 square galvanneal steel cladding and waterproofing
 below to 100 x 75 x 25 x 2 existing galvanneal steel and 100mm thick concrete
 with 10mm thermal break on 250mm column for type 9 polystyrene slabs
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 joint cladding steel panel @ 1200 x 1200

30x30mm Existing square hollow section
 steel
 30x30mm Existing square hollow section
 welded at angle and fixed to 200 x 220mm
 hollow section steel section
 30x30mm existing Gantry beam

ELECTRIC PALLEY SYSTEM

50mm 315 Serval stainless steel double pulley
 block chain reaction wheel for wire rope cable
 750mm diameter galvanneal steel pulley with 4 grooves
 to wind stainless steel wire rope that cable runs
 between 100 x 200 mm hot rolled steel channel columns
 to make around fixed to between channel columns

From stainless steel wire rope cable fixed to
 galvanneal steel frame of structural perforated steel
 purling system to be wound up between pulley grooves
 2700 x 2700 x 30 mm aluminium perforated
 steel panel fixed to 50 mm steel pulley block reaction
 fixed with galvanneal wheels on edges to run up and down
 100 x 200 mm hot rolled steel channel columns

370 mm diameter galvanneal steel pulley with 4 grooves
 to wind and fixed stainless steel wire rope cable
 to the steel pulley block fixed between
 100 x 200 mm hot rolled steel channel columns
 50 mm cold rolled steel section to make around
 fixed to between channel columns

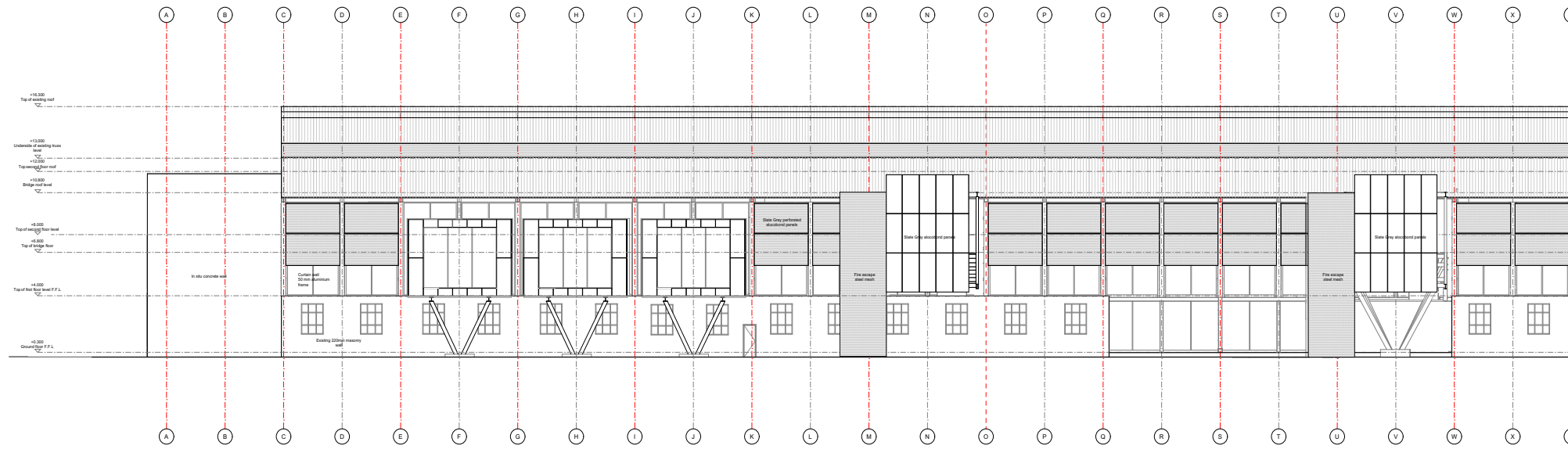
100 x 200 mm hot rolled steel channel columns welded
 to 254 x 254 x 130mm H-profile steel beam
 Two shafts 18mm 304 stainless steel
 fixed to 100x200 mm channel columns

254 x 254 x 130mm H-profile steel H-profile beam
 welded to the profile column

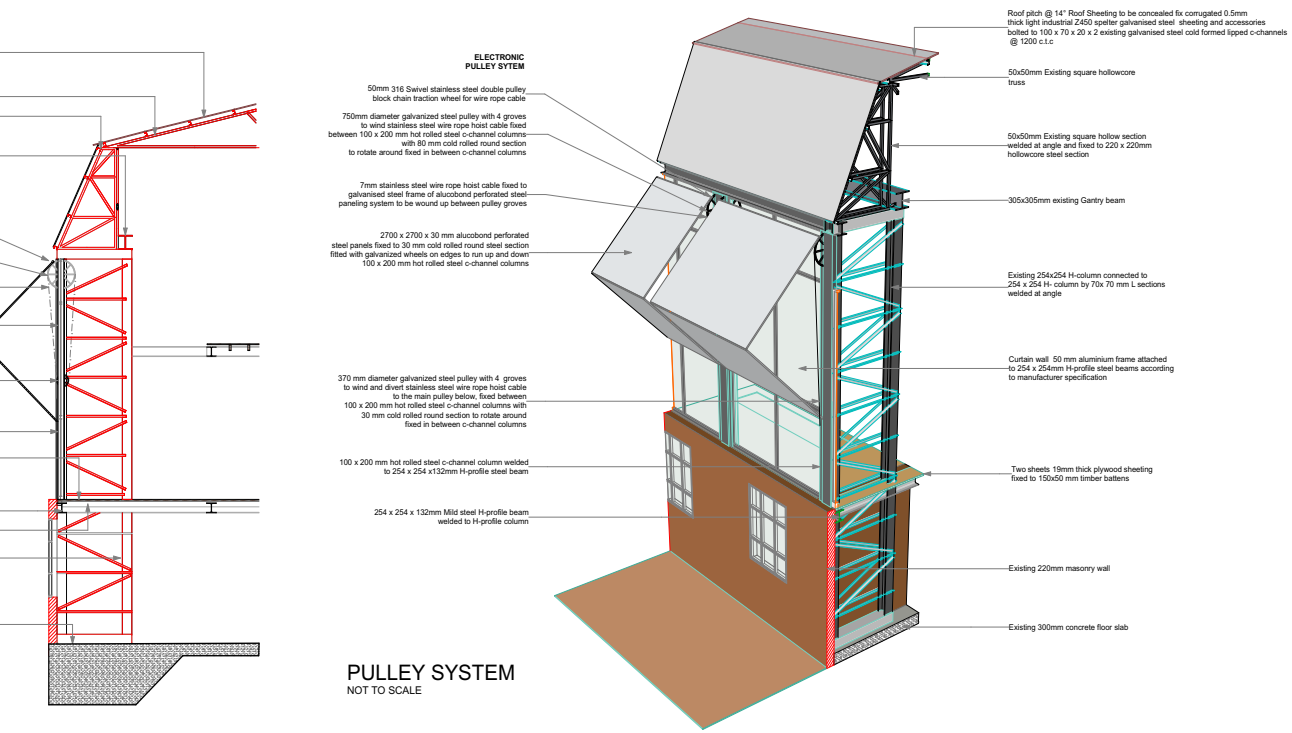
100x200 mm steel beam welded to 254x254mm
 H-beam with L-section steel plate

300mm existing concrete slab

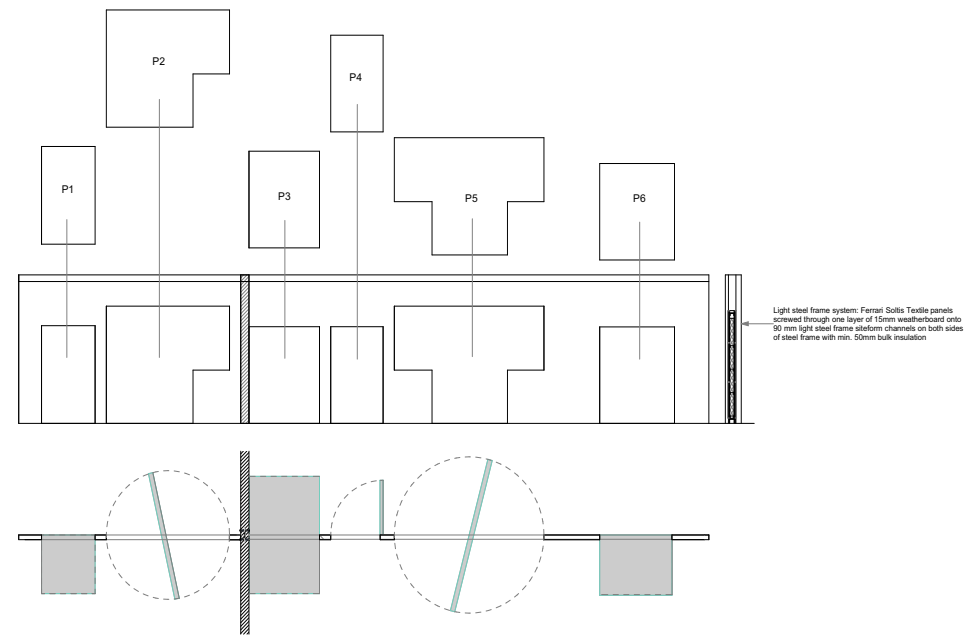
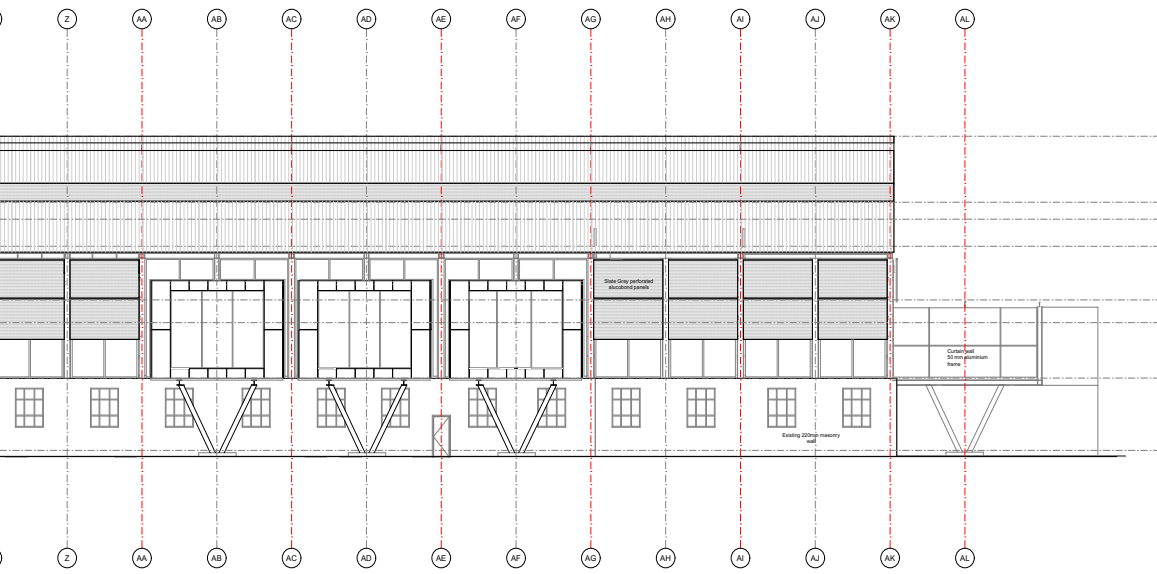
SECTION C-C
SCALE 1:50



EAST ELEVATION
SCALE 1:100



PULLEY SYSTEM
NOT TO SCALE



REFLECTION

The topic of a film production facility was chosen due to my interest in filmic arts and the opportunity to do such an intervention after the success of Cape Town Film Studios. This topic allowed me to do something that is relevant today and attempted in other parts of South Africa.

In the initial stages I struggled with the project as the intention was to create a conceptually inspired project in the landscape, but after site investigations and the program of the intervention, it became much more practical and technical. A balance was achieved between the technical and conceptual elements after a theoretical investigation.

Sketches and literature were the main parts that helped with the design development. The project was large in scale and requirements and forced me to focus on the existing building on the site, rather than designing the whole film lot.

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