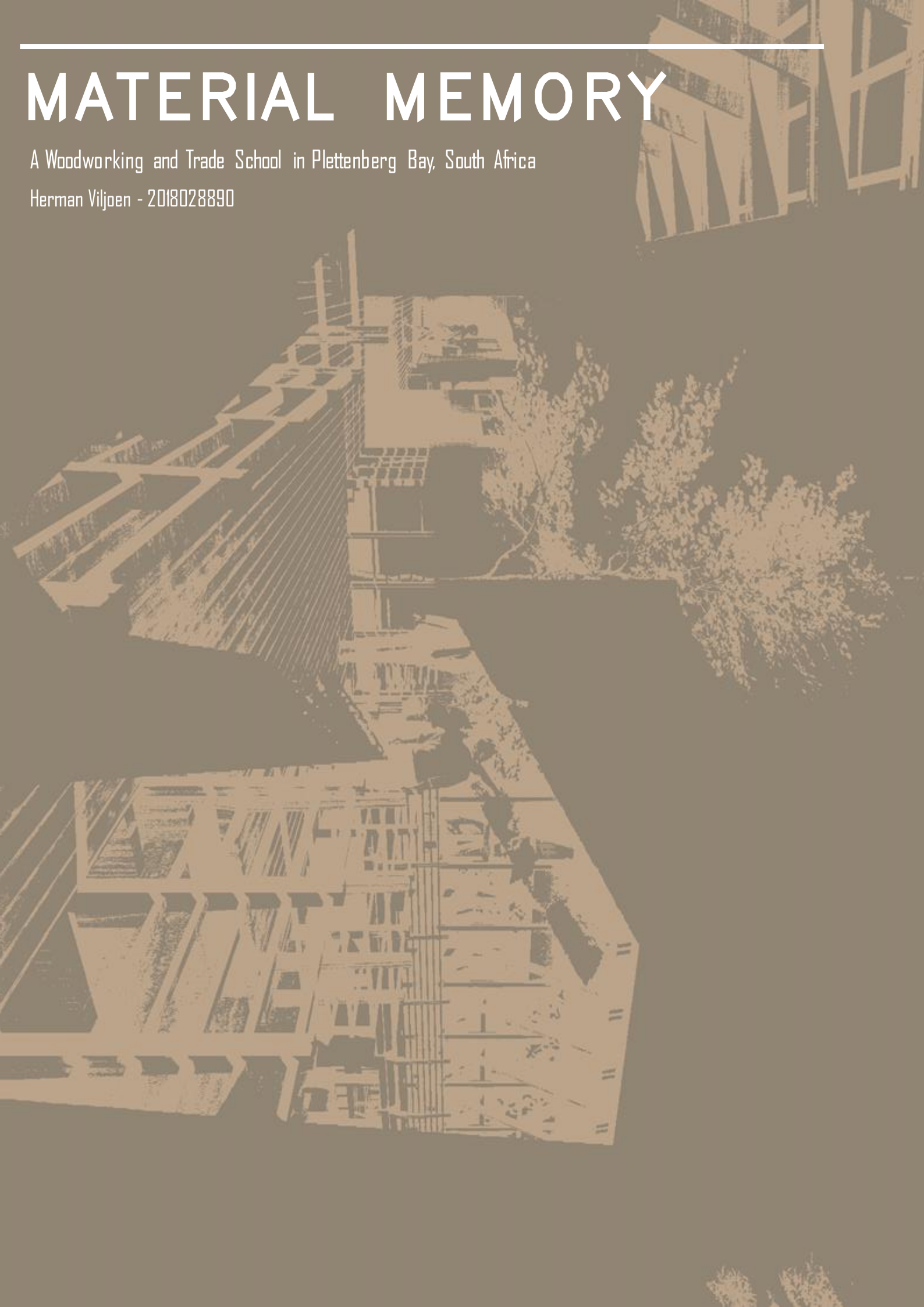
MATERIAL MEMORY

A Woodworking and Trade School in Plettenberg Bay, South Africa

Herman Viljoen - 2018028890



DECLARATION:

As per the requirements to achieve an M.Arch. Prof. degree, this document is in partial fulfillment of the complete body of work throughout the year. All work complied within this document is authentically all my own work unless stated or referenced otherwise.

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Date of submission:
13 October 2023

Declaration of original authorship:
The work contained within this document has not been previously submitted to meet the requirements for an award at this or any other institution of higher education.
To the best of my knowledge, this document contains no material previously published or written by another person except where due reference is made.

ABSTRACT

Woodworking holds universal interest, and each country possesses its distinct techniques and rituals associated with this craft however, architectural education might not consistently offer sufficient exposure to woodworking techniques and their applications. This may potentially result in a limited understanding or appreciation for woodworking and its potential in architectural projects. The oldest site in Plettenberg Bay houses an old timber shed, which, despite its current state of disuse and decay, aspires to embrace new possibilities and transformation into something of profound significance. The site's historical context and original function offer a unique opportunity to establish a woodworking and trade school, aiming to attract and educate individuals such as carpenters, artists, tradesmen, designers, and historians, introducing them to an appreciation for the profound significance of woodworking. How can the incorporation of joinery techniques and *wabi-sabi* principles inform a sensitive approach to heritage preservation, through the thoughtful integration of functional joinery, structural elements, and material narratives, to achieve a balance between the historical past and contemporary present in the design of a woodworking and trade school in Plettenberg Bay? The design is intended to serve as a space that provides its users with a contemporary perception of woodworking but simultaneously educate them about the historical significance of the site.

OVERVIEW

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INVESTIGATION

Figure 1: Joinery and process drawing (Author)

1.1 Project Summary

Program: Woodworking and Trade School, Restaurant, and Exhibition.

Location: 14 Meeding Street, Plettenberg Bay, Western Cape, South Africa

Client: Geelhoutvlei Timbers

Users: Carpenters, artists, tradesmen, historians, and arts and crafts restorers within the area seeking to explore woodworking.

Theme: The significance of precise craftsmanship and woodworking highlighted through joinery techniques, structure, and materiality.

Architectural Approach: As the site is declared a national monument a sensitive approach towards the remains on site, including the ruins and trees, is needed in order to preserve the memory of the site and to restore it into something that would be in dialogue with the past. The connection between wood as a crafting material and joinery techniques is emphasised to highlight the significance of woodworking as a craft.

Aims: This dissertation aims to educate the public about the craft of woodworking and to celebrate its relationship to the historical context of Plettenberg Bay.

Figure 2: Stone wall on site (Author)

1.2 Introduction

The proposed thesis endeavours to establish a woodworking and trade school situated in Plettenberg Bay, South Africa. The primary objective is to explore alternative educational and celebratory approaches centred around woodworking, craftsmanship, and the local trade industry. The intention is to intricately showcase the distinctive qualities of woodworking and craftsmanship through joinery techniques.

In order to fulfill the memory of the site in terms of heritage and its historical functions as a shed, the envisioned school comprises three principal components: exhibition, educational, and social spaces. These spaces will harmoniously blend the preservation of historical memory and the promotion of contemporary craftsmanship. They will serve the dual purpose of enlightening both the public and students about woodworking and its historical significance within the local context. The project aspires to bridge the gap between historical background and present-day woodworking and craftsmanship, revitalising the region's fading recollections of its rich woodworking and trade heritage.

Presently, the site consists of remains that hold historical value, rendering it a significant monument. Furthermore, meticulous consideration must be given to ensure the preservation of the site's character and the sensitive safeguarding of its historical memory throughout the project's development.

Figure 3: Walls on site (Author)

02

GROUNDING

Figure 4: Joinery and process drawing (Author)

2.1 Theme

The dissertation revolves around the central theme of joinery as an influence on architecture, structure, and craftsmanship. Initially, the theoretical framework will delve into the significance of Japanese joinery and its relevance within the realm of architecture. Furthermore, the theory will explore the concept of *wabi-sabi,* its traditions associated with woodworking, and its practical implications in architecture.

2.2 Aims

The dissertation seeks to create a space that serves as a catalyst for education, providing a unique platform for individuals to learn about woodworking, history, and trade. The design in itself aims to act as a piece of craftsmanship, and something that can educate. Furthermore, the design endeavors to celebrate the continuation of a forgotten history, paying homage to the region's rich heritage and rekindling an appreciation for its past.

2.3 Research Question:

How can the incorporation of joinery techniques and *wabi-sabi* principles inform a sensitive approach to heritage preservation, through the integration of functional joinery, structural elements, and material narratives, to achieve a balance between the past and contemporary present in the design of a woodworking and trade school in Plettenberg Bay?

Figure 5: Site from above (Author)

2.4 Client

Geelhoutvlei Timbers is a privately owned sawmill located in the Knysna district along the scenic Garden Route in South Africa. Established in the late 1980s, the sawmill specializes in processing high-quality Southern Cape Pine logs, primarily of the Radiata species.

As a community-oriented timber processor, Geelhoutvlei Timbers focuses on producing various pine products using a labor-intensive approach and minimal capital investment. Their range includes kiln-dried, treated, and molded items such as pallets, bins, fences, floors, cladding, decking, and more. Additionally, they cultivate, process, and treat poles according to SABS specifications (Geelhoutvlei, 2019: online).

Establishing a woodworking and trade school in Plettenberg Bay will have a positive impact on Geelhoutvlei Timbers by enhancing their capabilities and attracting more clients. Since Knysna and Plettenberg Bay share similar woodworking conditions and traditions, this school is an ideal expansion opportunity for Geelhoutvlei Timbers.

The school's curriculum will specifically consist of designing and creating wooden furniture, inspired by Japanese joinery. The knowledge imparted at the school will not only benefit the students but also enhance the business capabilities of Geelhoutvlei Timbers and improve their trading prospects.

WELCOME TO
GEELHOUTVLEI TIMBERS

Figure 6: Geelhoutvlei Timbers Warehouse (Geelhoutvlei, 2017: online)

Figure 7: Geelhoutvlei Timbers Warehouse (Geelhoutvlei, 2017: online)

2.5 Brief Development

The school will accommodate several users with several purposes for using the school. The development will mainly consist of educational, social, and celebrational sections, with each hosting a specific group of people. With that mentioned we can conclude that the user types can be divided into the student, the staff, the tourist, and the visitor.

Figure 8: Stone wall edge (Author)

Students:

The individuals who regularly attend the school to learn woodworking and enhance their craftsmanship skills are referred to as the building's students. These students will have access to dedicated workshops, classrooms, a library, and other spaces designed for educational purposes.

Staff:

To ensure the proper maintenance and functioning of the building and its services, a team of staff is necessary. This team comprises various roles such as receptionists, cleaners, managers, exhibition guides, educators, and more. Each staff member will be assigned to their designated area of expertise to carry out their respective duties.

Tourists:

Plettenberg Bay attracts a significant number of local and international tourists annually. Tourists who are interested in learning about the history of Plettenberg Bay and its local craftsmanship are likely to visit the proposed school. These tourists will primarily utilize the exhibition area, events garden, restaurant, and public workshops available at the school.

Visitor:

A visitor is defined as someone who regularly utilises the building for various purposes, such as grabbing a quick coffee before work, taking a lunch break in the garden, or appreciating the craftsmanship showcased by the school.

2.5 Brief Development

Plettenberg Bay has around 30,000 residents and 40,000 tourists annually. Based on the location of the site, the locals, and the annual tourists of Plettenberg Bay the following estimations have been made around the number of people that will use the building:

Daily:

- Staff: Assuming an average staff size of 20 to 25, including instructors, administration, and support staff.
- Students: With the development planned to be around 1400 sqm, an estimated 25 to 40 students will attend the school each day.
- Tourists/Visitors: With a local population of 30,000 people and 40,000 tourists annually, the building could possibly attract an additional 20 to 50 people a day.

Based on the above estimates, the total amount of daily users could be from 65 to 115 people.

Monthly:

Assuming the building is open 6 days a week and closed on Sundays, the total number of monthly users could be from 525 to 1 365 users a month.

Yearly:

Assuming the building is open 12 months a year for tourists over holidays and the school only for 10 months, excluding December and January, the total amount of annual users could range from 6 200 to 15 600 people.

Figure 9: Stone wall edge (Author)

2.6 Orientation

2.6.1 Location

Address: 14 Meeding Street, Plettenberg Bay, 6600 (Old Timber Shed)

Co-Ordinates: 34˚03’23’’S ; 23˚22’28’’E

Municipality: Bitou

Province: Western Cape

Country: South Africa

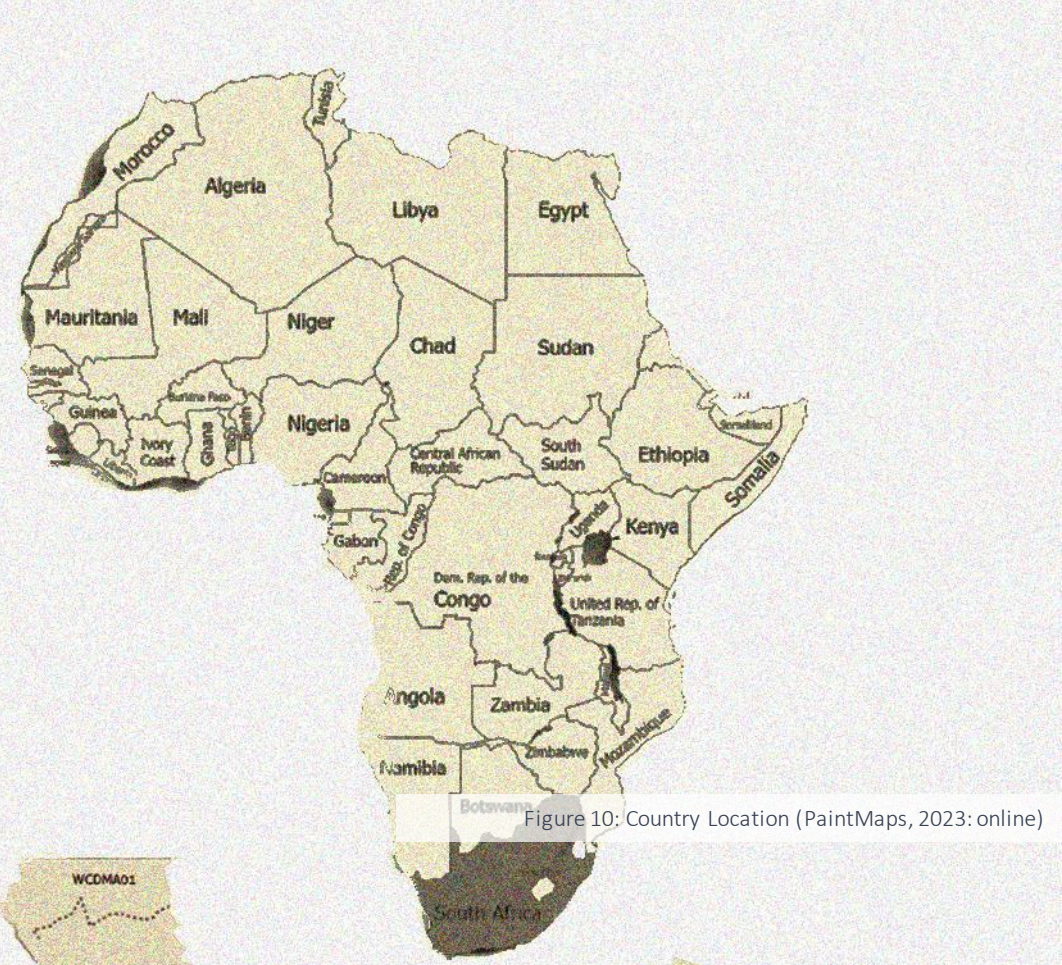


Figure 10: Country Location (PaintMaps, 2023: online)

Figure 11: Province Location (PaintMaps, 2023: online)

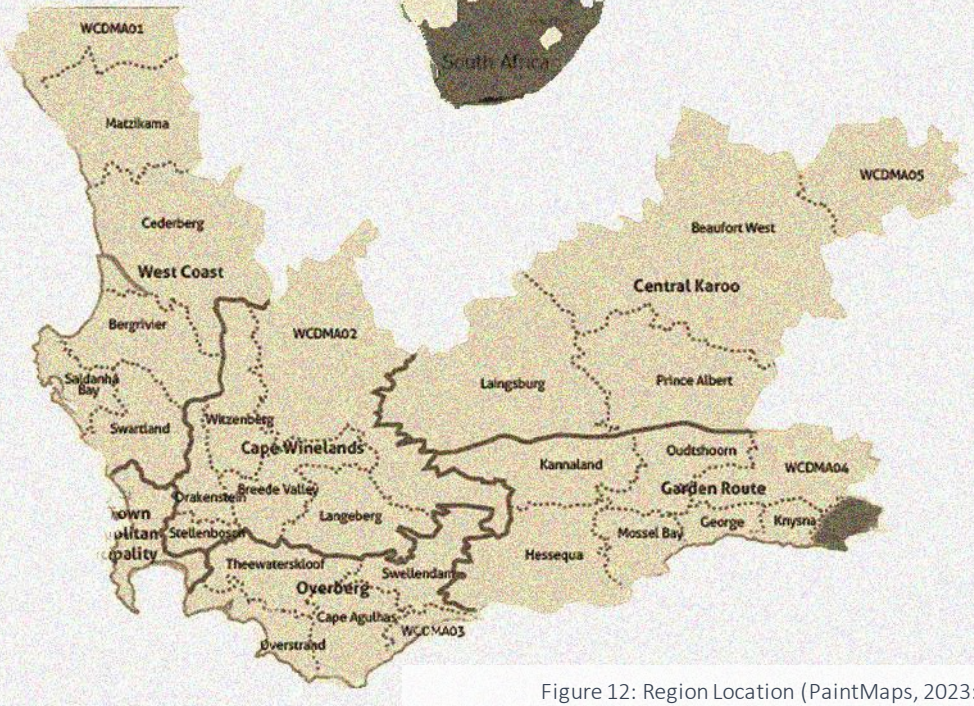


Figure 12: Region Location (PaintMaps, 2023: online)

2.6 Orientation

2.6.2 The site:

The site is located on the east side of Plettenberg Bay, partially overlooking Hobie Beach. The site, today known as 'The Old Timber Shed', has a rich history to it with its remains reflecting the origins of Plettenberg Bay. The remains exist of four walls and no roof and are surrounded by dense vegetation mainly trees.

2.6.3 The Ruin:

In early 1786 Lt. J.G van Reenen was sent to Plettenberg Bay to construct a shed and to assess the possibility of a constant timber supply to the Dutch East India Company in Cape Town. The shed was used to store processed yellow wood after being transported from the Piesangs River and moved to the shed by an ossewa. It was to be 61 meters in length, 6,71 meters in width, and 3,96 meters in height. Two doors on each end of the shed were requested with each opening being 3,2 meters high and 1,83 meters wide for an ossewa to fit into the shed. The shed as it stands today is known to be the second oldest building in Plettenberg Bay, with the Old Rectory Hotel, just north of the site, being the oldest.

The remaining walls of the shed are constructed of dry-stacked stone in various sizes and the window openings that are still left are supported by yellowwood lintels keeping the opening from collapsing. Some of the yellowwood lintels have collapsed over the years leaving a memorable silhouette of the ruin as a part of the history on site.

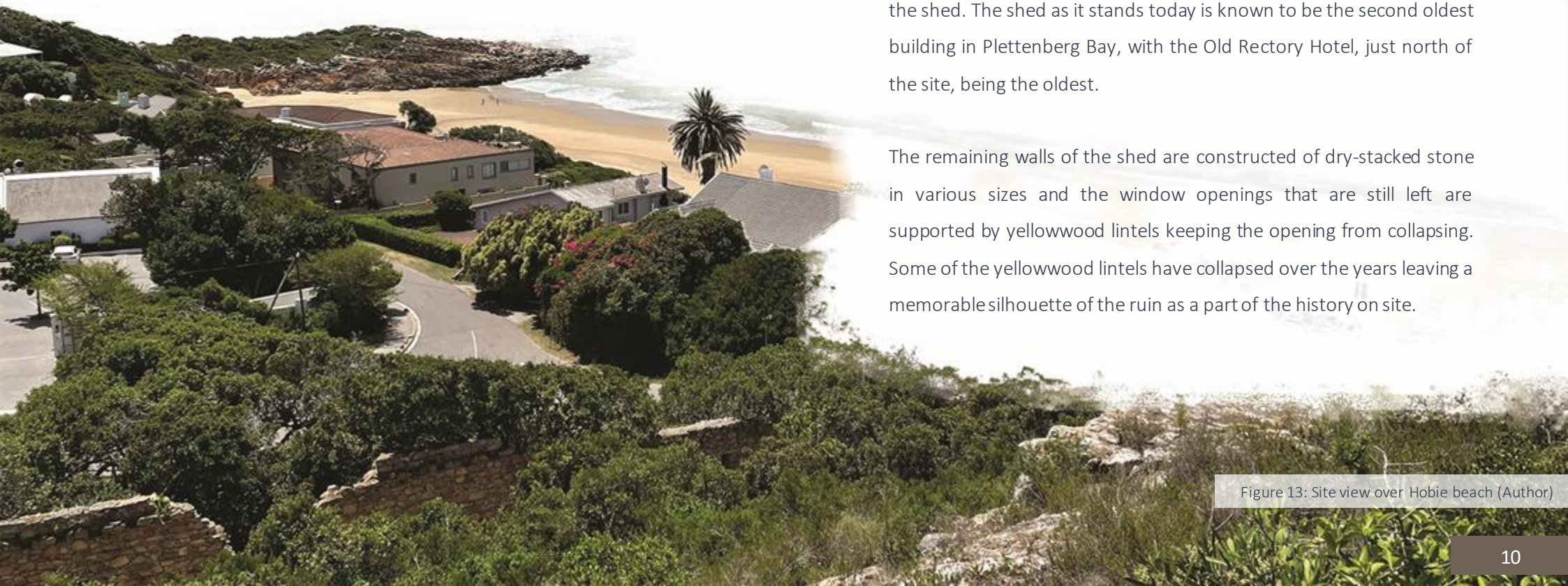


Figure 13: Site view over Hobie beach (Author)

Figure 14: Site Location (Author)

Figure 15: The Old Timber Shed (Author)

2.6 Orientation

2.6.4 Program:

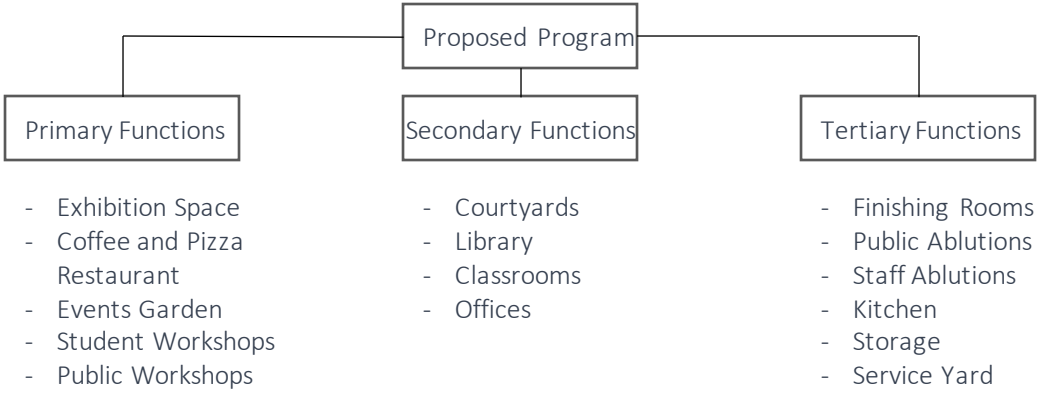
In order to facilitate a comprehensive and multifaceted development, the proposed woodworking and trade school will encompass not only educational spaces but also areas dedicated to celebration and social engagement. The program will be categorized accordingly, ensuring a well-rounded approach.

The educational program will encompass various components essential for comprehensive learning. These will include student workshops, where practical woodworking activities take place, as well as classrooms designed to foster theoretical discussions on craftsmanship. Additionally, the development will feature a library, public workshops, and a sizable exhibition space aimed at educating the public about woodworking and its significance.

Moreover, the development will incorporate celebrational spaces to create a cohesive link between public, private, and semi-public areas. These spaces will encompass outdoor event areas, viewing decks, and designated appreciation spots. Their inclusion will enhance the overall experience, enabling the seamless integration of diverse spaces within the site.

Social spaces will play a pivotal role in the design, extending the functionality of the school beyond its educational aspect. These spaces will encompass amenities such as a pizza and coffee restaurant, gardens, courtyards, and additional viewing decks. By accommodating a broader range of functions, these social spaces will contribute to a vibrant and engaging environment.

The intention is for the site to emerge as a major point of interest in Plettenberg Bay, attracting both locals and tourists. It will serve as a place where individuals can immerse themselves in learning and appreciating the rich legacy of craftsmanship, bridging the gap between the past and present.



2.7 Historical Background

2.7.1 Introduction

This chapter will delve into the comprehensive history of the site, meticulously exploring its past uses and functions that took place over time. By delving deeper into the historical context of the site, it aims to provide a more profound understanding of its previous identity, thereby enabling a sensitive and informed response during the design development phase.

To achieve this, the chapter will first focus on clarifying the history of "The Old Timber Shed," shedding light on its specific uses, functions, and the regulatory framework that governed its operations, ensuring it functioned as intended.

Moreover, it will intricately detail the responsibilities of the post-holder associated with the shed, delve into the intricate methods of processing and storing yellowwood, and illuminate the considerations made in terms of trade during the shed's heyday.

By meticulously examining these historical features, the chapter aims to draw connections and reveal the relevance of the past to the present. In doing so, it emphasizes how this invaluable information can be effectively harnessed and applied in the development of the proposed woodworking and trade school in the charming locale of Plettenberg Bay.

Figure 16: Hobie Beach in 1925 (Friedman, 1925)

Figure 17: The Old Rectory and Timber Shed in Foreground (Friedman, 1925)

2.7.2 History of the 'Old Timber Shed'

In early 1786 Lt. JG van Reenen and two burger councilors were sent to Plettenberg Bay and Mossel Bay to assess the possibility of a constant supply of wheat and timber to the East Dutch India Company in Cape Town.

The commission prepared plans for a timber shed with 10 windows, yellow wood beams, and window frames. They intended to construct it next to a stone monument established by Governor van Plettenberg. Mr. Jan Jerling, a local farmer, was awarded the contract to build the shed and a house for Mr. J.F. Meeding on Mr. C. van der Walt's farm near the spring. The timber shed was scheduled for completion in August 1788 but required re-roofing shortly afterward due to the lime in the binding mixture deteriorating (De Graaf, 2006, p.18).
Unfortunately, the new thatched roof also failed and collapsed by 1803 (De Graaf, 2006, p.18).

Functionally, the shed served as a dedicated storage facility for processed yellow wood, rather than housing the processing activities itself. The shed was designed with ten openings, evenly distributed with five on each side, to facilitate optimal ventilation. This deliberate arrangement significantly enhanced the effectiveness of the wind-drying process. Notably, the shed featured two entrances, positioned on the eastern and western sides respectively, both spacious enough to accommodate the entry of an ossewa. To ensure proper airflow and circulation around the stored wood, the processed yellow wood was thoughtfully positioned at the center of the shed.

On 11th September 1936, the ruins were declared a national monument (Plett-Tourism, 2015: online).

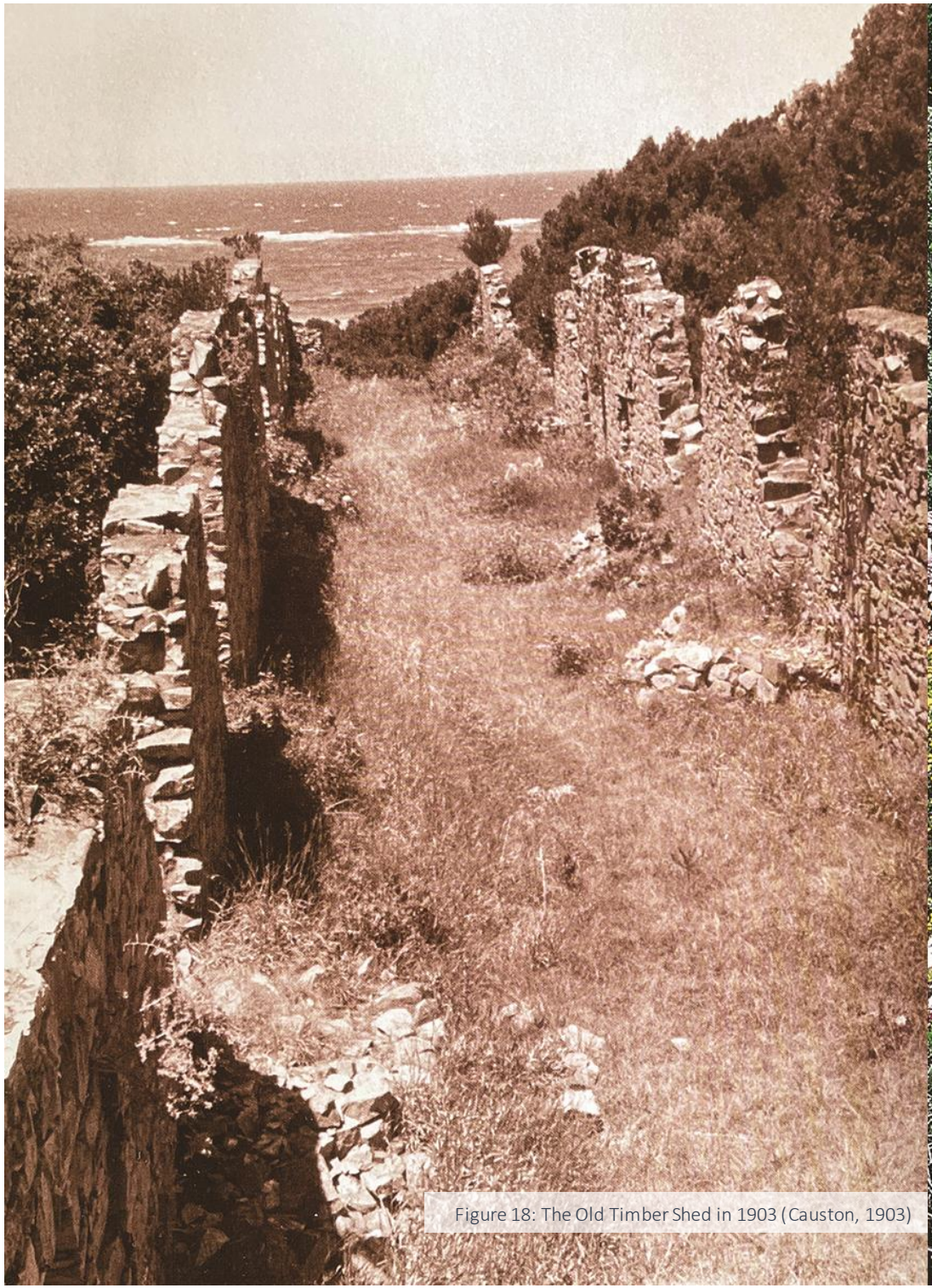


Figure 18: The Old Timber Shed in 1903 (Causton, 1903)

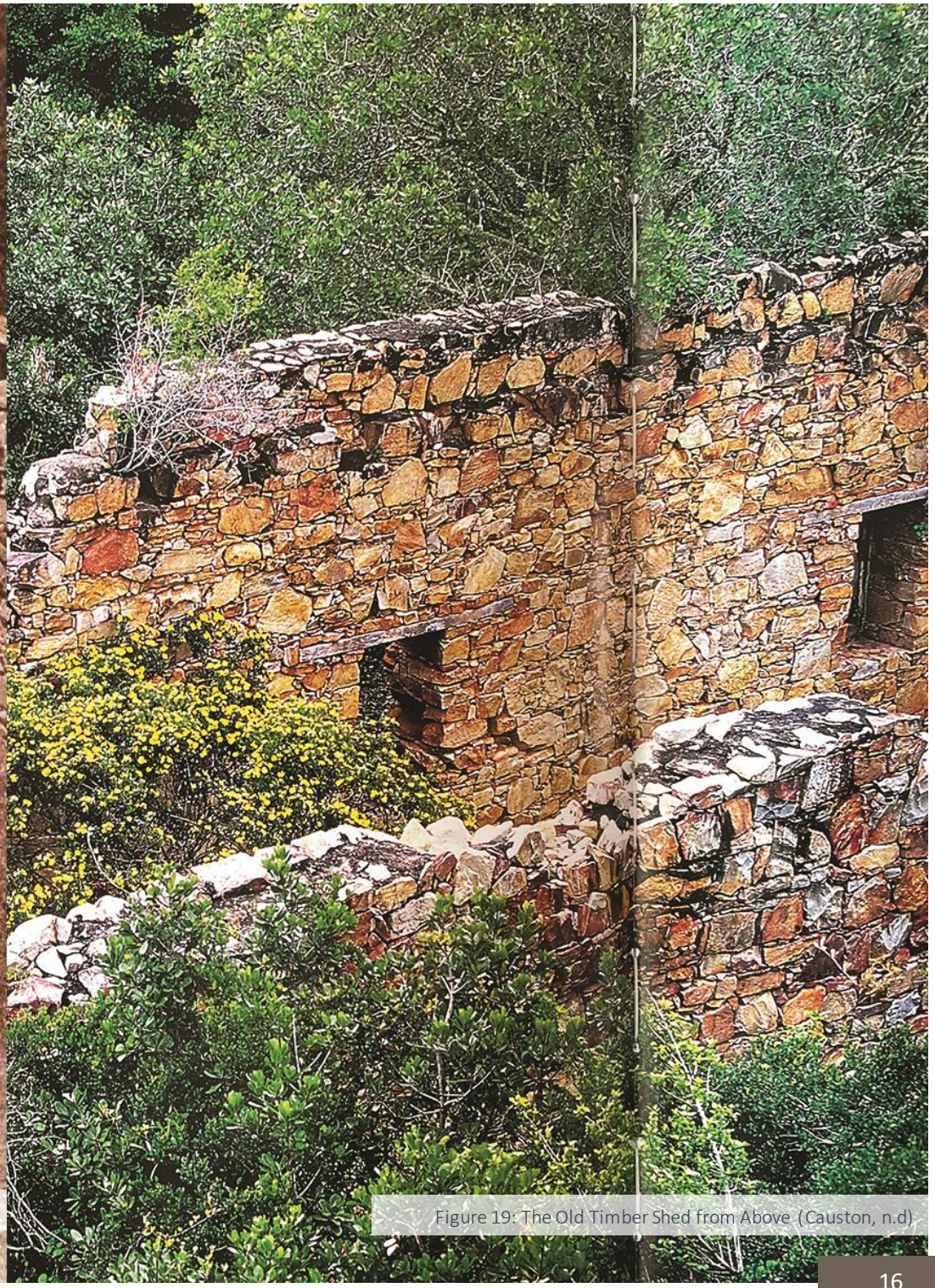


Figure 19: The Old Timber Shed from Above (Causton, n.d)

Figure 20: Keurboomsriver (Friedman, 1930)

2.7.3 Duties of the post-holder

The post holder was assigned a series of tasks within their role. Firstly, they were responsible for branding all pure yellow wood with the VOC (Dutch East India Company) branding iron. Each cargo was required to consist of a minimum of two-thirds pure yellowwood and one-third Outeniquas-yellowwood. Furthermore, the post holder was entrusted with regular inspections of the wood, ensuring proper monitoring of the workers' activities (Sleigh, 1999, p.623).

Additionally, the post holder was tasked with attending every cargo drop-off, meticulously examining and accepting only wind-dried timber that adhered to the specified dimensions and underwent appropriate processing. The accepted timber was then stored in the Timber Shed for gradual drying. Wood that was stored outside was covered with reeds.

Lastly, the post holder assumed the responsibility of constructing a road connecting the beach to the shed. This road aimed to facilitate easier transportation of timber. He ensured that buildings were constructed correctly. The barracks were designated to be located at a distance of 150 steps from the timber shed.

Additionally, a guardhouse constructed from wood was specified to be integrated within the shed's vicinity. This guardhouse served as a dedicated space where shifts were established to ensure round-the-clock surveillance and protection of the shed.

As part of the arrangements, a house was designated to be built on C. van Der Walt's farm specifically for the post holder. Furthermore, lodges were to be established in close proximity to the proposed timber shed for the post personnel. The post holder and the assigned individuals were permitted to cultivate their own vegetable gardens at the natural fountain situated on the farm. Some were also instructed to engage in wheat cultivation. To maintain the proper functioning of the fountain stream near the shed, it was essential to ensure its cleanliness at all times, thus ensuring a continuous flow of water.

Figure 21: Cargo Load and Transportation (Friedman, 1930)

2.7.4 Conclusion

In conclusion, a careful examination of the shed's history reveals the implementation of strict rules and regulations essential for its optimal functioning. Deliberate considerations were made regarding careful measurements and strategic positioning of openings to ensure proper ventilation and circulation within the structure. The use of yellowwood lintels, while contributing to the building's authentic charm, also led to some sections collapsing over time, resulting in the distinctive and memorable profile it exhibits today.

Additionally, the significant role played by the postholder highlights the paramount importance of adhering to specified dimensions and appropriate processing of timber before its dispatch to Cape Town. His responsibilities also offer insight into the rationale behind the timber's processing and the layout of the development.

These historical insights carry great weight when envisioning the design of the proposed woodworking and trade school, as they highlight the need for a sensitive response to the historical ruin on site. This can be achieved by thoughtfully considering measurements and positioning when incorporating additions to the design, while also instilling the same qualities of circulation throughout the development. Furthermore, the incorporation of specified dimensions and meticulous attention to detail will serve as a response of the historical processes that once shaped this remarkable site. By carefully weaving these considerations into the design, the proposed development can authentically embrace its historical roots while serving as a harmonious blend of the past and present, fostering a space that pays homage to its rich heritage.

2.8 Theoretical Discourse

2.8.1 Introduction

This chapter will delve into the theoretical framework underpinning the thesis and its profound impact on shaping the projects design. Currently, the site and its historical significance have been largely overlooked, receiving minimal attention and interaction. The primary objective of this chapter is to investigate potential approaches to joinery techniques, providing the site with renewed meaning and identity while also resurfacing its forgotten memory.

The focus of this chapter will be on Japanese joinery, with an in-depth exploration of its significance, historical background, and technical intricacies in timber construction. Additionally, this chapter will investigate diverse applications and techniques, underscoring its fundamental role within Japanese philosophy.

Furthermore, this chapter will examine the Japanese craft philosophy known as *wabi-sabi* and its profound importance within the realm of woodworking. It will investigate how architecture gains significance through embracing impermanence, imperfection, and the natural progression of aging and decay.

Lastly, the chapter will explore the identity and value of the existing ruin present on the site and discuss the intended identity that the ruin is meant to embody. This exploration aims to unveil a deeper narrative and provide an opportunity for the forgotten memory associated with the site to endure and be remembered.

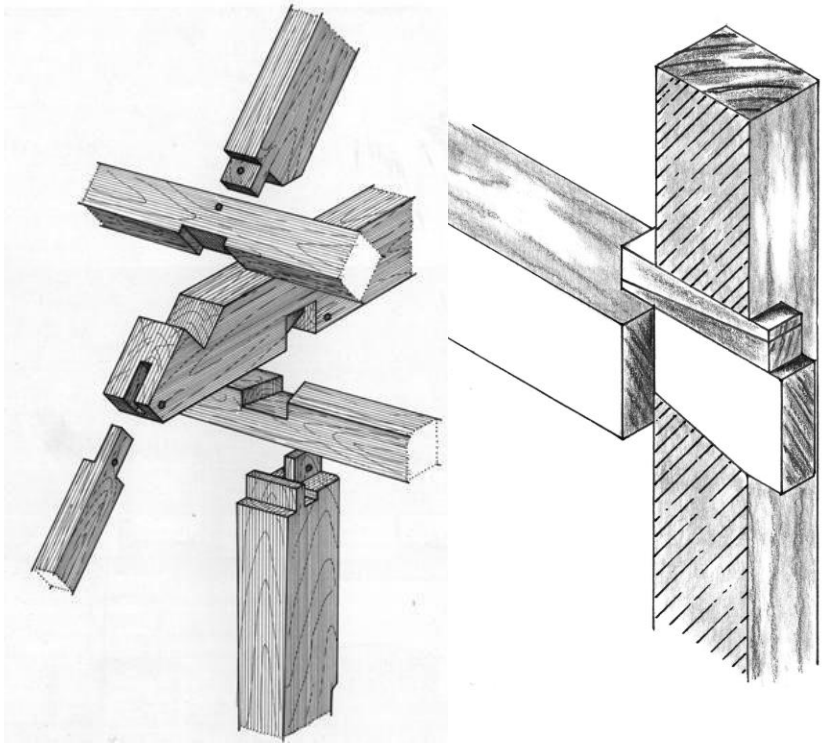


Figure 22: Japanese Joinery Examples (CWP, 2021: Online)

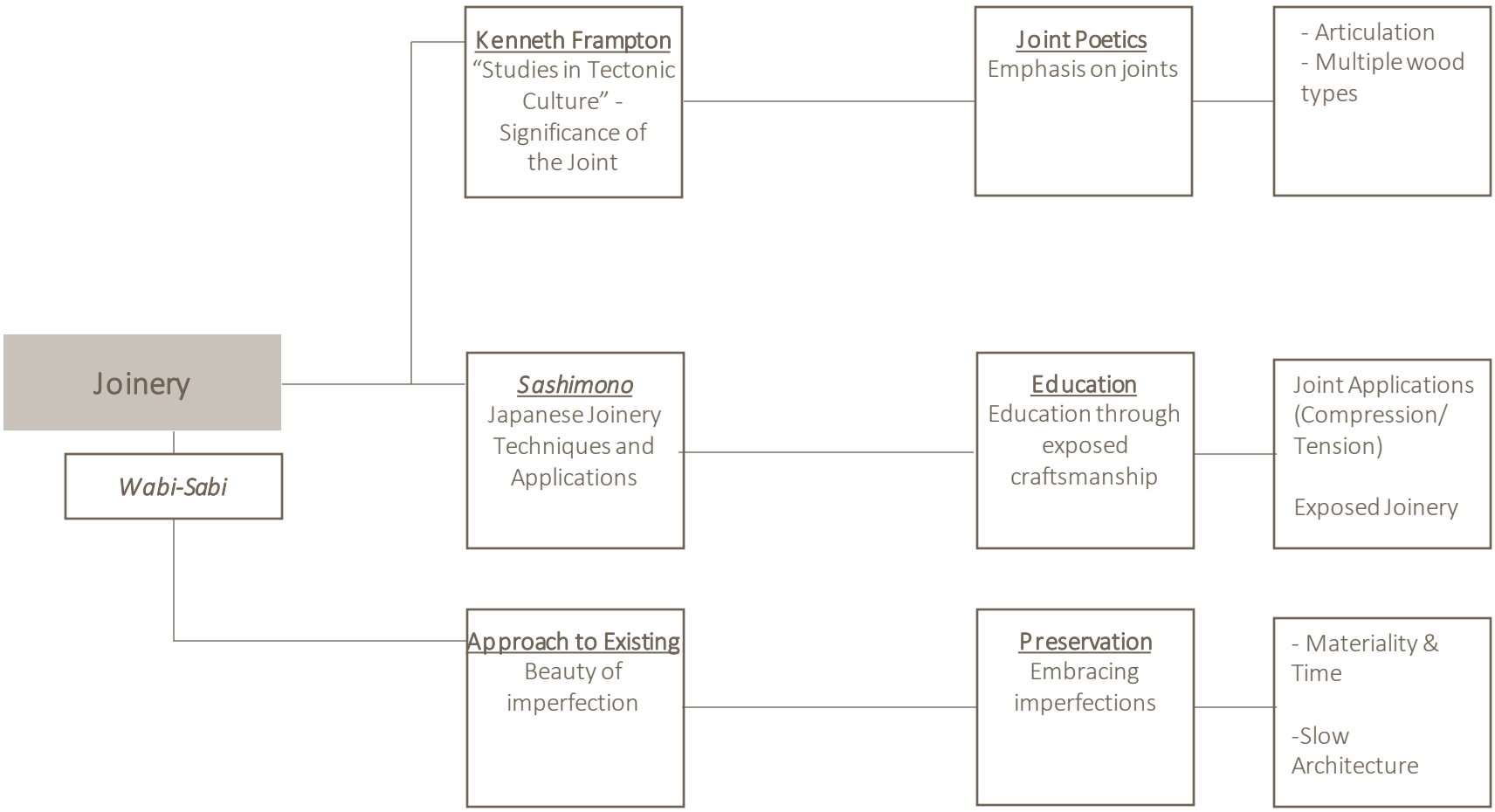


Figure 23: Strategy Diagram (Author)

2.8.2 The Significance of the Joint

Joinery and its significance can often be overlooked. Apart from its primary function of connecting separate elements, it holds poetic qualities as well as an aesthetic component celebrating the whole. The use of joinery can create architecture admired by many if used correctly.

Carlo Scarpa, a renowned Italian architect, significantly influenced the development of twentieth-century architecture. His impact extended beyond his emphasis on joints to his unique utilisation of montage as a strategy for incorporating diverse elements. As noted by Kenneth Frampton in his book, Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth-Century Architecture, Scarpa's architectural creations treat the joint as a form of tectonic condensation. It serves as a point of intersection that emphasises the entirety within a single element, regardless of whether the connection functions as an articulation element, a load-bearing component, or even a larger connecting structure like a bridge (Frampton, 1996: 299).

Joinery holds a crucial place in both woodworking and construction, as it is crucial for the existence of the whole structure. Without these connections, the element can't exist as a whole.

Consequently, joinery, despite its modest scale within a design, deserves acknowledgment and celebration. Japan, a nation recognised for its deep appreciation and exploration of joinery's importance, serves as the focal point of this chapter. Furthermore, we will delve into the utilisation of Japanese joinery techniques and their substantial significance within the realm of architecture.

Figure 24: Railing Joint Detail (Loi, n.d: Online)

Figure 25: Connection Detail (Butler, 2021: Online)

2.8.3 Defining Japanese Joinery

Japanese joinery, known as *Sashimono*, is the practice of connecting individual wooden components without the use of any nails or screws. Instead, intricate wooden joints are meticulously crafted using basic tools like chisels, handsaws, and planes. These joints result in robust, structurally sound connections that are not only sturdy but also exquisitely crafted. These joints are a testament to creativity and rely on a single building material, making them works of art in themselves (Mclellan, 2022: online).

The remarkable precision involved in creating and assembling this joinery ensures the durability of the finished pieces, often enduring for centuries. Importantly, this tradition places significant philosophical value on working in harmony with nature rather than in opposition to it.

Considering the historical context where iron was scarce during the origins of *sashimono*, it becomes clear how craftsmen of that era innovatively devised construction methods that maximized the use of the abundant natural resource, wood.

"We work with this material as an instrument, to fashion useful objects, possibly if so, willed a thing of beauty. In any case, a joining of the rhythms of nature to fulfil its own destiny and ours." - George Nakashima

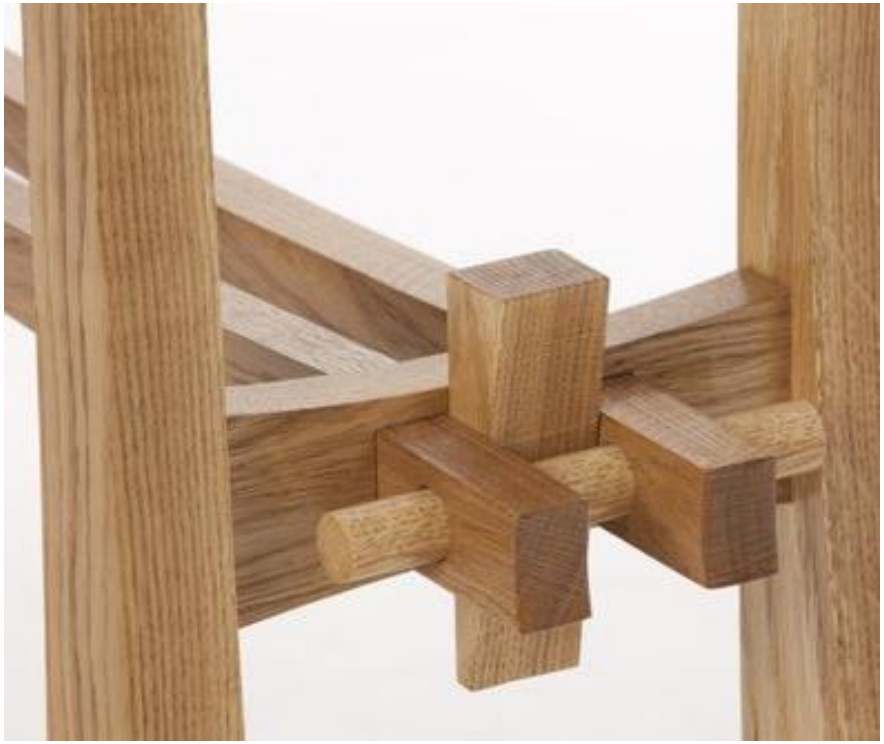


Figure 26: Japanese Joinery Detail (Harvey, 2016: Online)

2.8.4 Historical Significance of Japanese Joinery

Japanese joinery is deeply rooted in Japan's rich architectural heritage and traditions. The use of wooden panels in construction dates to a time when Buddhism was first introduced to Japan during the Asuka Period (592-710 AD) (nicodigital, 2023: online). During this era, the construction of temples and shrines using wooden panels became widespread, requiring skilled craftsmen to create robust yet aesthetically captivating structures through this art form.

Unlike the present era, there were no material imports or exports during that time, and Japan faced constraints in terms of available resources. One of the materials in short supply was iron, which compelled craftsmen to make the most of what they had at hand, namely, wood. They acquired the skill of manipulating timber and connecting it without relying on conventional iron nails (WeXpats, 2020: online).

Japanese joinery is not merely a method for connecting pieces of wood, it represents a philosophy that underscores the importance of harmony between nature and the built environment. The beauty of Japanese wood panel construction is characterised by its simplicity, precision, and the absence of visible connections. Traditional joinery techniques rely on intricate interlocking joints, which offer both structural strength and visual grace.

Ancient joints continue to find relevance in contemporary construction, and numerous innovative joinery techniques have emerged over time, driven by the freedom carpenters have. What distinguishes these joints from standard ones is their intentional adaptability to suit the specific spaces in which they are applied.

2.8.5 Cultural Significance of Japanese Joinery

Japanese joinery excels in the realm of mere construction; it embodies deep cultural and spiritual dimensions deeply rooted in Japan's heritage. At its core, Japanese joinery is a manifestation of the Shinto belief system, which venerates nature and finds divinity in all things. This spiritual connection is evident in the meticulous selection of timber, where every tree is considered a sacred entity. The act of harvesting and shaping wood is regarded as a sacred ritual, fostering a deep respect for the environment.

Craftsmen approach their work with a sense of meditation, focusing on each joint with unwavering attention to detail. This union of mind, body, and materials not only ensures precision but also imparts a sense of spiritual fulfilment.

Figure 27: Japanese Scarf Joint (Iwakuni, 2021: Online)

Figure 28: Joint Types (Iwakuni, 2021: Online)

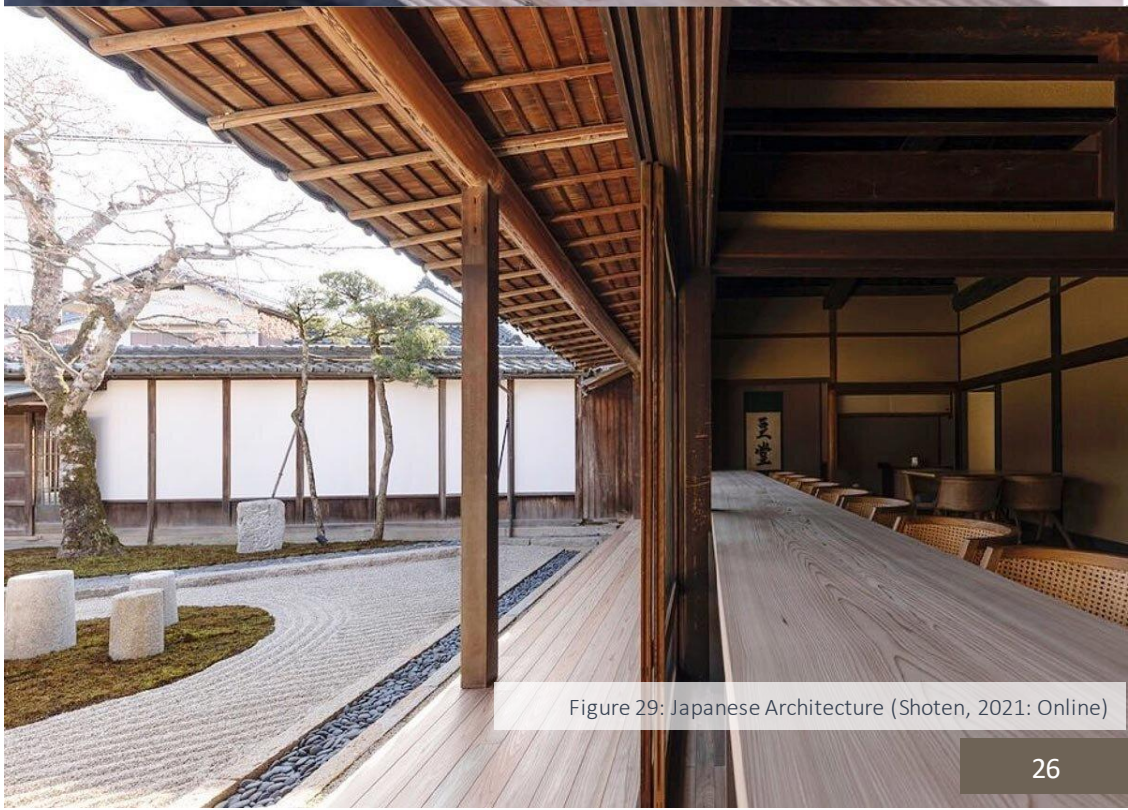


Figure 29: Japanese Architecture (Shoten, 2021: Online)

2.8.6 Types of Japanese Joinery

While a variety of joints have been uncovered over time, these diverse joint types can be categorised into two primary groups. The first category consists of straight joints referred to as '*tsugi*', where two separate wooden elements are connected to create a unified piece. The second category involves angle joints referred to as '*shiguchi*', which pertain to the method of joining two pieces of wood at an angle (Japan House London, n.d: online).

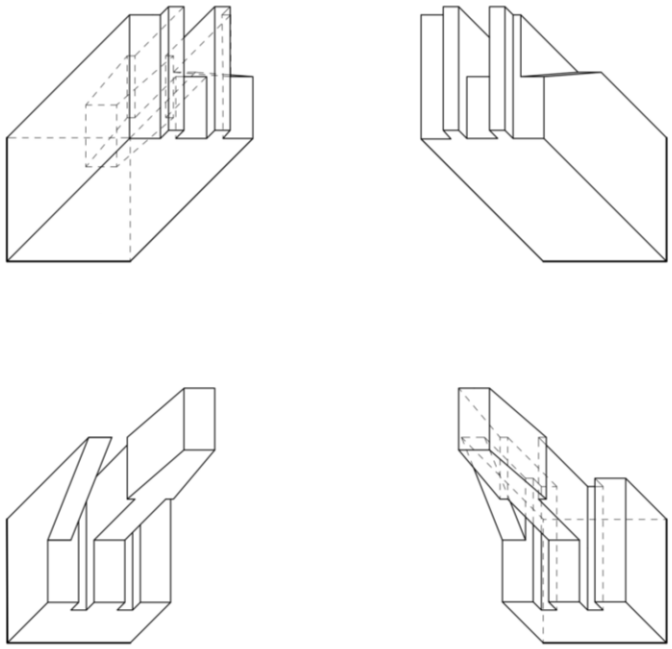


Figure 30: Straight Joint Type (Elise, 2021: Online)

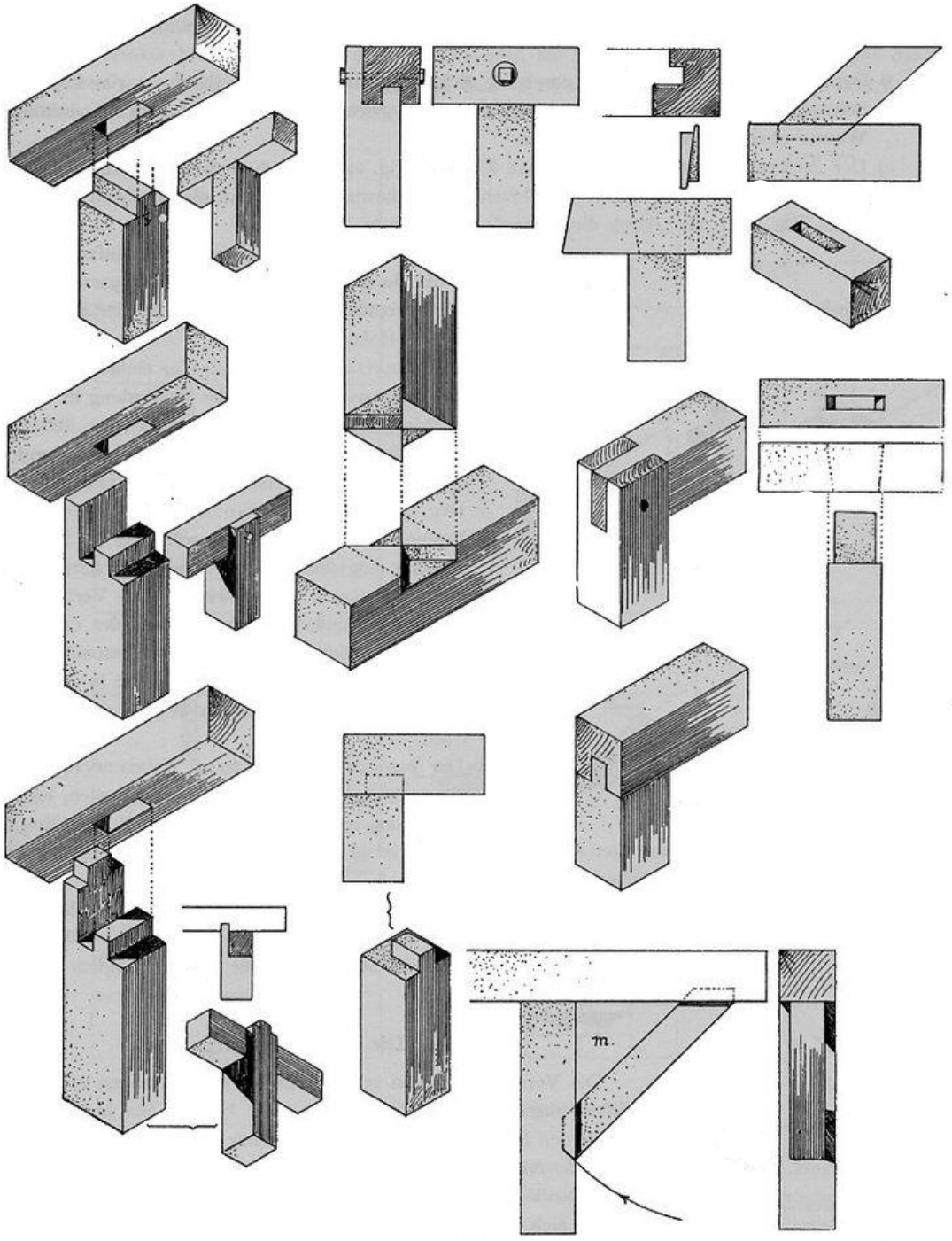


Figure 31: Japanese Joinery Types (Etsy, 2023: Online)

Straight Joints:

Rabbeted Scarf Joint (*Kanawa Tsugi*)

This joint is used to splice two pieces of wood together end to end, to create a single wooden piece capable of sustaining forces in all directions (Hayes K, 2019: online). Everything works off a centreline instead of working off two square faces adjacent to each other. This makes the layout of the joint the hardest and most important feature. Finally, an ingenious 'stick' with five layout lines is used to keep the whole joint intact.

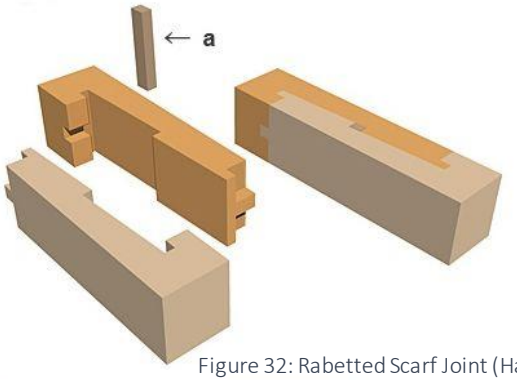


Figure 32: Rabetted Scarf Joint (Hayes, 2019: online)

Figure 33: Rabbeted Scarf Joint Elements (Hayes, 2019: online)

Tenon/Butterfly Joint (*Chigiri Tsugi*)

This joint's original intent was to restore cracked or damaged pieces of wood. A solid piece of wood, specifically shaped, was placed over the crack connecting the two pieces of wood. This joint is also specifically known for increasing the strength of the joined pieces using compression.

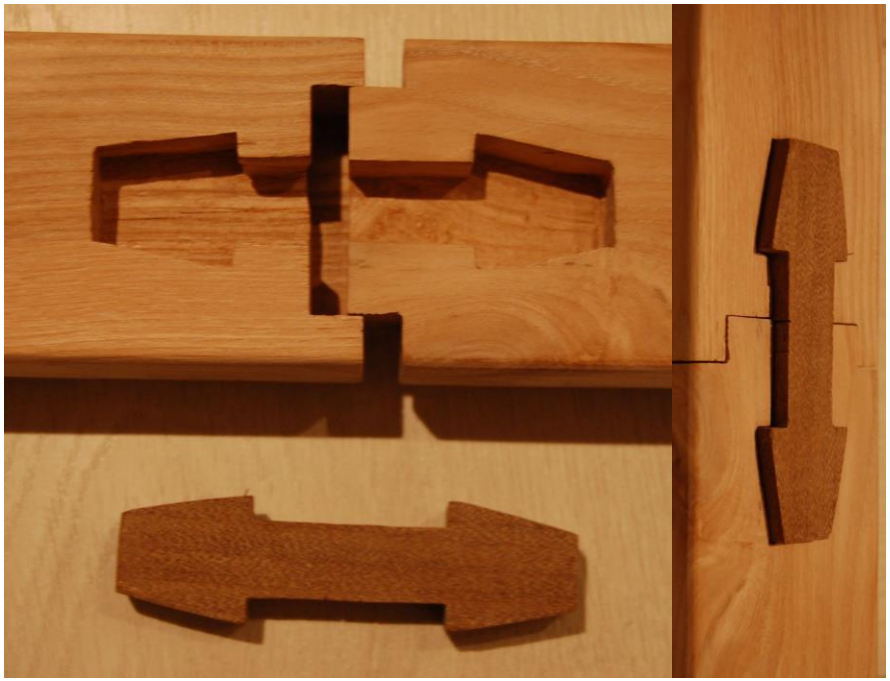


Figure 34: Tenon Joint Example (Omm, 2017: online)

Straight Joints:

Housed rabbeted oblique scarf splice (Hako-Kakushi Tsugi)

This joint exists of splice where only half of the width of the section is rabbeted oblique. The other half is housed producing a clean straight line on two faces once assembled. This joint is useful when no significant strength is required. The length of the splice and inclination of the oblique surface arc are arbitrary.

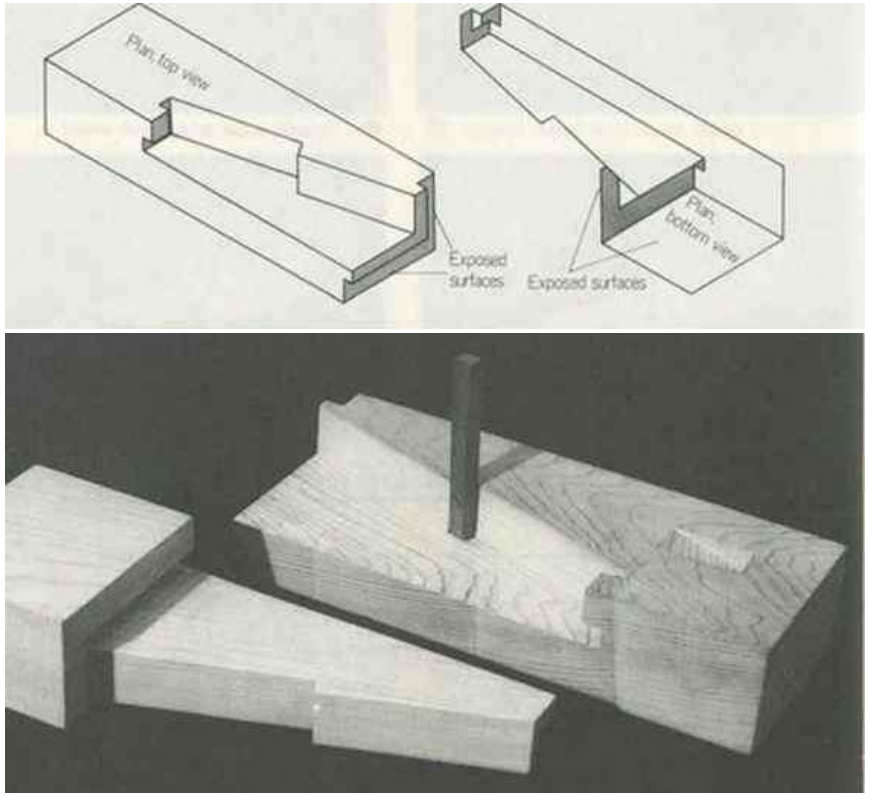


Figure 35: Housed Scarf Splice (Hesson, 2023: online)

Awn Splice/Dadoed Gooseneck (*Noge Tsugi*)

This joint adapts a very similar shape to the *chigiri tsugi* joint, but with one half being part of one element. This joint is also known to have great compressive strength and can withstand multi-directional forces. This joint is often used in wooden posts as it is preferred to carry load through compression.

Figure 36: Dadoed Gooseneck (The Joinery, 2022: online)

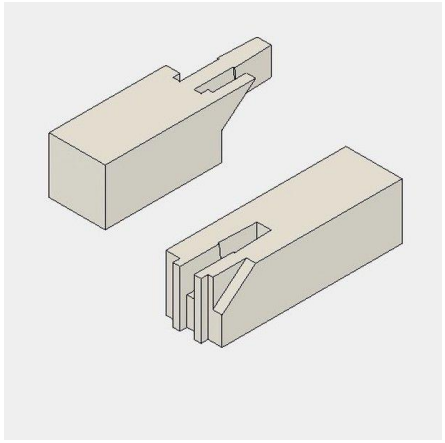


Figure 37 Dadoed Gooseneck Joint (Elise, 2021: Online)

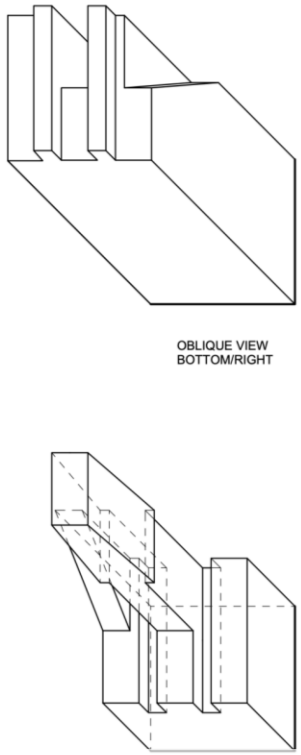


Figure 38 Dadoed Gooseneck Joint (Elise, 2021: Online)

Design Application:

The following straight joints have been incorporated in the design. The joint illustrated by figure 40 mainly received influence from the traditional rabbeted scarf joint, and is used to connect the bottom of a wooden post to steel footings throughout the design. This joint is used because of its significant strength under compression.

Figure 39: Applied Dovetail Joint (Author)

Figure 40: Applied Rabbeted Scarf Joint (Author)

Design Application:

Furthermore, the joint illustrated by figure 39 can be seen as a combination of the traditional 'dovetail joint' and the 'dadoed gooseneck' joint. Although they are applied at an angle within the design, they are considered straight joints because of the linear connection between the two elements.

Angle Joints:

Watari-ago Joint (*Watari-ago Shiguchi*)

The *Watari-ago* joint is mostly used to connect horizontal and vertical elements, such as a wooden post and beam. The joint consists of two beams with interlocking notches, which build resistance against in-plane shear forces. Experimental results show that these joints can retain resistance after reaching their yield strength and that their behaviour depends on the shape and size of the notch (Sasaki, 2015: online).

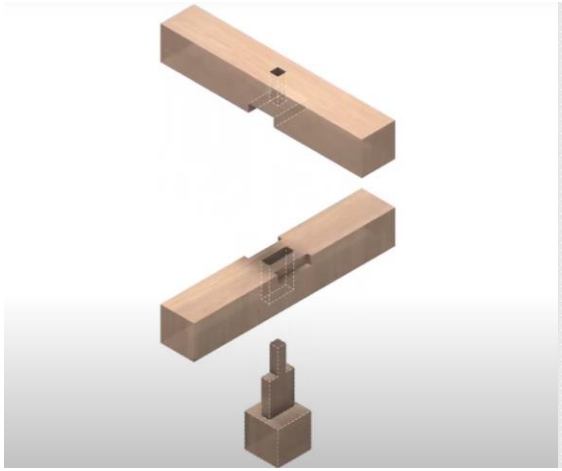


Figure 41: Watari-ago Joint (Perez, 2020: online)

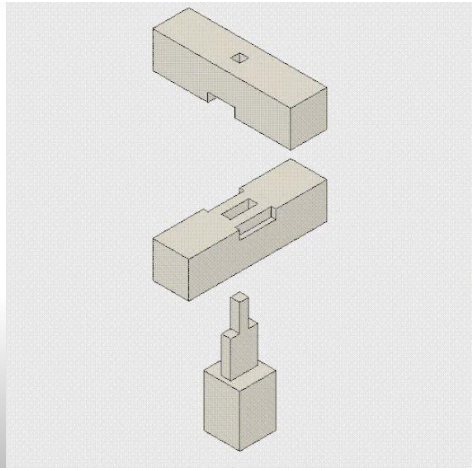


Figure 42: Angle Joint Example (Hesson, 2023: online)

Four-way plug joint (*Shachishen Shiguchi*)

This joint is popular for the use of connecting four horizontal elements to a singular vertical element. The vertical connections adapt the same profiles as the *Noge Tsugi* joint but with the vertical element also having notches allowing the horizontal pieces to slide in.

This is a great joinery method for the use of connecting beams with posts as the vertical piece can withstand compressive strength and the horizontal elements distribute load allowing it to withstand a substantial amount of tensile strength.

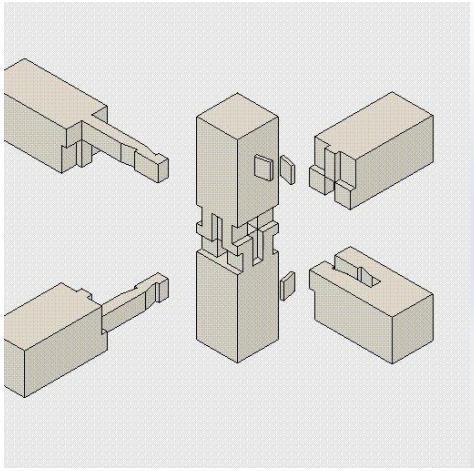


Figure 43: Four-way plug (The Joinery, 2022: online)

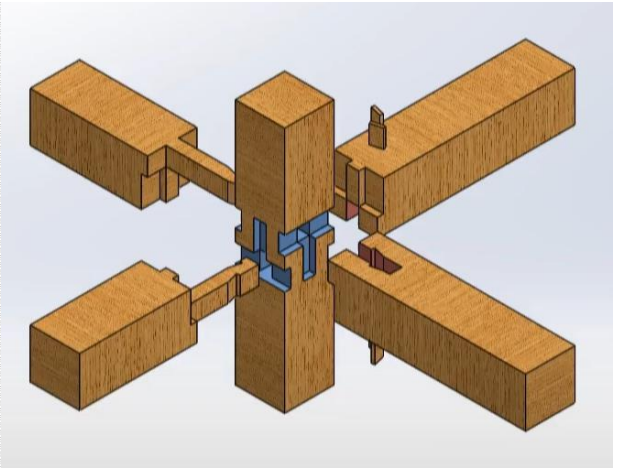


Figure 44: Four-way plug joint (Derynck, 2022: online)

Angle Joints:

Mitered/Keyed Lap Joint (*Hako-Aikaki Shiguchi*)

A mitered half-lap joint is ideal for connecting workpieces of equal thickness. To create this joint, you typically cut two wooden pieces, each with 45-degree angles at both ends. Then, you align and connect the slanted edges of one piece with those of the other piece, securing them in place with a wooden wedge. This joint doesn't have great tensile strength, so it is better used when supported on the opposite ends.

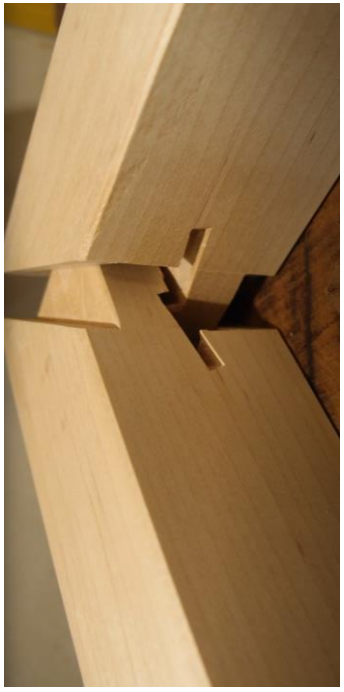


Figure 45: Keyed Lap Joint (Bracht, 2020: online)

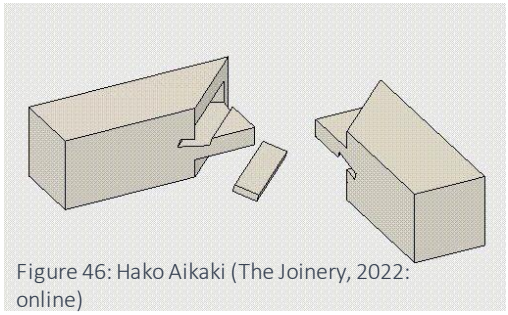


Figure 46: Hako Aikaki (The Joinery, 2022: online)

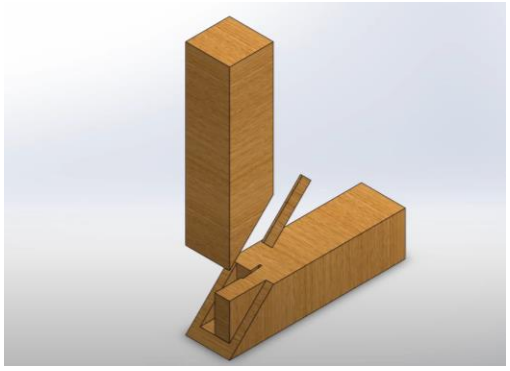


Figure 47: Assembly Diagram (Derynck, 2020: online)

Ashikatame Beam Joint (*Ashikatame Shiguchi*)

An *ashikatame* beam serves as a linkage between posts and beams in situations where there is no uninterrupted foundation sill to bear the weight of the flooring. In this design, long tenons interlock, extending over and beyond one another, thereby expanding the contact area and enhancing resistance against torsion. The beams are firmly attached to the column using a pair of square hardwood pins. Additionally, there is a groove along the length of the beams that accommodates the installation of flooring boards (Shinmura, 2021: online).

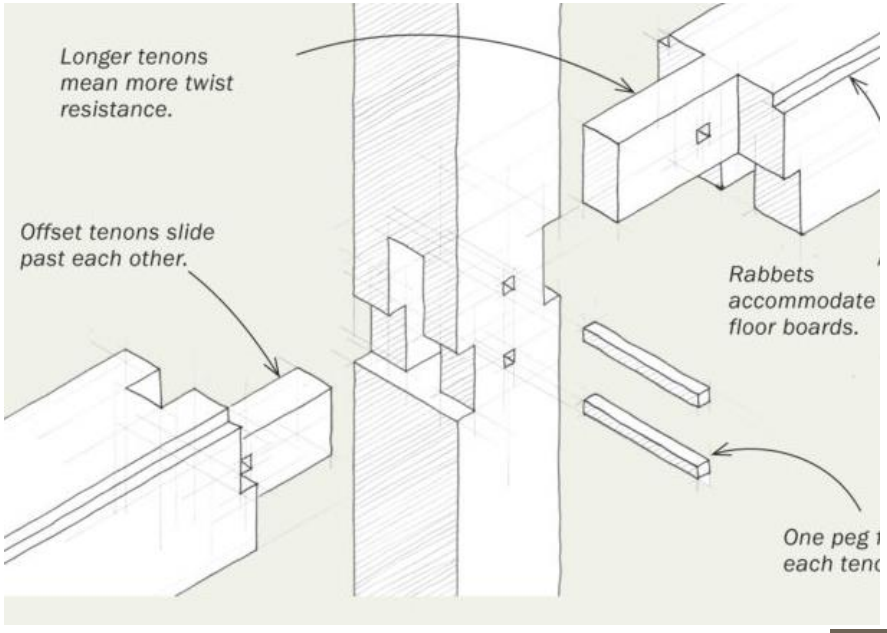


Figure 48: Ashikatame Assembly (Fine Woodworking, 2021: online)

Design Application:

The following angle joints have been incorporated in the design. The three angle joints illustrated by figures 49 to 51 are all secured by wooden pieces wedged into openings from opposite directions in order to keep separate elements in position.

Although these joints have been designed from scratch, some of the qualities and functions of it has been influenced by Japanese joints.

Figure 50: Angle Joint Design (Author)

Figure 49: Angle Joint Design (Author)

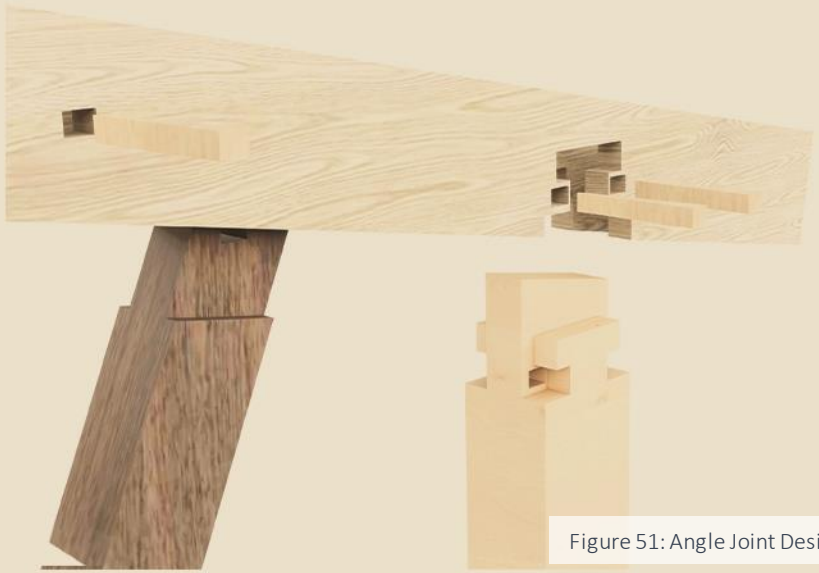


Figure 51: Angle Joint Design (Author)

2.8.7 Precision and Craftsmanship

Many people regard joinery as a measure of a woodworker's skill since the ability to cut fine joints takes time and practice to master accurate cutting techniques using saws, chisels, and planes. It's often said that the choice of joint is no less important than the quality of the making thereof. The primary focus of any joint is to be functional and create strength, but also contribute to the overall style of the architecture or project (Jackson, 2019: 216).

Japanese joinery is mostly designed to conceal the methods used to hold the parts together, but in some cases, they are designed in a way to be a feature of the design. Generally, dimensions aren't specified as different projects require different unique joints. Instead, relative proportions over the years have been provided to enable craftsmen to make sound joints to suit the requirements of their projects.

The significance of joinery lies in the precision, as the joint can only contribute to function and structural integrity if it is designed and crafted with precision.

Figure 52: Carving a Joint (Fine Woodworking, 2021: online)

Figure 53: Carving a Joint (Fine Woodworking, 2021: online)

2.8.8 Contemporary Architectural Examples

Tamedia Office Building, Zurich, Switzerland by Shigeru Ban

The Tamedia office building represents the use of Japanese joinery in a great way. The primary timber structure of this building is to a great extent its most significant quality. Exposing the structural elements and timber frame gives special character and high-quality spatiality to the working atmosphere. This building mostly makes use of 'dry joints' within the timber framework of the building. The primary structure consists of thick timber posts, with beams sliding through them. Although these joints can be seen as one of the more basic joints when it comes to Japanese joinery, it clearly depicts that simplicity can also contribute to the character of a building.

As the building consists mostly of single timber elements sliding into each other, very little angle joints are used. And when it comes to straight joints, they are only used to secure elements and keep them in position. As seen in Figure 56, the sides of the timber posts have been carved specifically to allow the beams to partially rest on them. The ends of the beams consist of a fixed circled shape piece of wood, glued to the beam, as well as a vertical timber element keeping the beam in place. This clearly illustrates that fixed joints aren't required at every connection for a timber frame to work, precision combined with gravity allows a much simpler way of constructing a timber frame.

Figure 54-57: Applied Joinery in Tamedia Offices (Archdaily, 2014: online)

Odunpazari Modern Art Museum, Turkey by Kengo Kuma & Associates

The areas name, Odunpazari, translates to 'wood market' in Turkish, and the building not only functions as a museum for modern Turkish art but also serves as a work of art itself, displaying intricate joinery techniques employed in its construction. The outer shell of the museum is entirely constructed from timber, symbolizing the historical significance and the memory of its past as a bustling wood trading market.

The building consists of several "boxes" sliding into each other. In terms of joinery wooden planks are specifically carved at both points to allow them to slide into each other repetitively, creating this beautiful timber skin. The skin can be seen as a 3D puzzle consisting of wooden planks placed in a specific order in order to construct the timber structure.

Similar to the Tamedia office building, the building consists of joints only at the corners of the frame, with solid and single timber elements being joined to one another. Each element, at both ends, is carved on the top and bottom, allowing an identical piece of timber to be placed below and on top. The corners of the frame are secured with dowels keeping the whole structure in position. This building acts as a great example of how corners can be joined without the use of nails or screws.

Figure 58: Odunpazari from front (Archdaily, 2019: online)

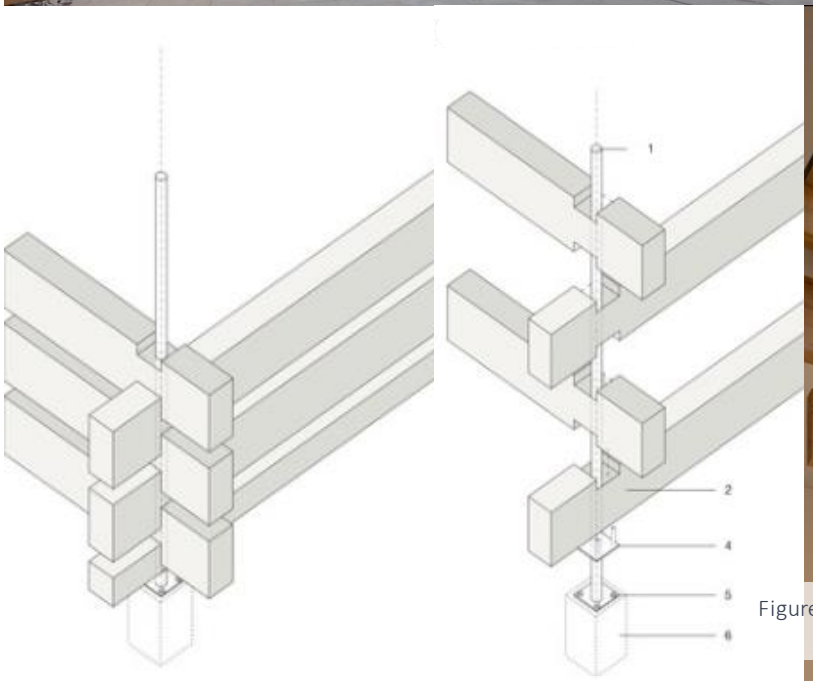


Figure 59: Joinery Details (Archdaily, 2019: online)

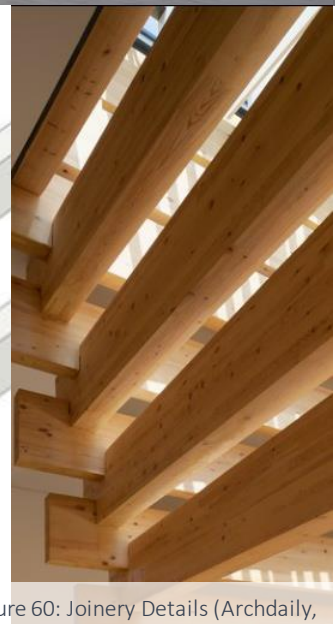


Figure 60: Joinery Details (Archdaily, 2019: online)

Kamogawa House, Japan by Makoto Fukada

The *Kamogawa* House reflects typical Japanese construction and joinery techniques as the house's structure and membranes are constructed from the material mostly accessible in Japan, wood. Traditional joinery techniques are used in this house, with them being very evident as they are exposed as part of the artistic celebration of joinery.

Although the house exposes the whole timber framework, angled joints are very evident within the house. Rafters and beams are fixed to wooden posts through tenon joints all over the design. They are then secured and positioned with multiple wedges in between the end of the beam and posts, as seen in Figure (). Wedges are the most common alternatives to screws, nails, and bolts within Japanese joinery. Furthermore, purlins and certain parts of the roof trusses are specifically carved out in a way for it to fit or slide into beams.

Thick pieces of wood are used for the construction of this home, allowing for significant tensile and compressive strength within the structural framework. Upon completion of the timber structure, membranes made from thatch, and wood are added to enclose the structure, dividing it into several living spaces.

Figure 61: Kamogawa House Interior (Fukada, 2020: online)

Figure 62: Joinery Detail Kamogawa House (Fukada, 2020: online)

Figure 63: Interior (Fukada, 2020: online)

2.8.9 Wabi-Sabi Origin and Philosophy

Wabi-sabi is a Japanese concept that revolves around embracing simplicity and embracing imperfections in the world around us. It centres on discovering beauty in the ordinary, cherishing spaces that bear the marks of time and love. As stated by Anne Walther, “In a few words, one could say wabi-sabi is the beauty of imperfect things”.

This philosophy finds its origins in 16th-century Japan and draws from Chinese Zen Buddhism. The term itself comprises two core elements, namely *wabi* and sabi. *Wabi* represents something that is fresh, unpretentious, and possesses a rustic allure. On the other hand, *sabi* refers to the beauty that comes from the effects of ageing and the passage of time.

In contrast to sleek, modern, and shiny aesthetics, *wabi-sabi* appreciates the allure of rustic charm and the beauty found in imperfection. Rather than seeking flawlessness, it celebrates the imperfect, viewing it as perfectly unique. As a design philosophy, *wabi-sabi* goes beyond mere aesthetics, impacting one's perception and approach to everyday life. Since everyone has their own individual tastes, various design aesthetics and styles will resonate with different individuals.

The essence of the wabi-sabi aesthetic lies in appreciating and finding value in imperfect and unfinished aspects, fostering a humble, modest, and unassuming environment.

The proposed design can align well with this philosophy since it incorporates elements of history and decay, which are often seen as "imperfect." By embracing and celebrating these aspects in architecture, people can come to appreciate the site's unpretentious and humble character.

In the context of architecture, the wabi-sabi philosophy can be applied in the following manners:

- Imperfection as beauty: Embrace irregularities, imperfections, and natural characteristics of wood in the design.
- Slow architecture: Emphasise the deep connection between the artist and the material.
- Materiality and time: The use of materials that respond to environmental conditions and age over time.
- Simplicity and essentiality: Explore minimalistic aesthetics that allow the beauty of the wood/ruin to take centre stage.
- Harmony with nature: Harmonise with the site’s natural features by imitating its surroundings.

2.8.10 Imperfection as Beauty

Beauty as imperfection can be described as a nurturer of authenticity (Powell, 2004: online). In an architectural context, the concept of embracing imperfection as beauty involves appreciating and incorporating the irregularities and natural characteristics of wood within the design.

This approach is accentuated by intentionally celebrating unfinished and imperfect elements in the overall composition. The use of organic materials like wood and stone enables these qualities to be visually manifested in the design.

Design Application:

Firstly, the design exemplifies imperfection as beauty by skilfully integrating the existing state of the ruin. By purposefully incorporating its imperfections, the design not only preserves the ruin's original character but also makes it functional for the inhabitants. Sections of the collapsed ruin are ingeniously employed as circulation spaces, establishing the ruin as a prominent threshold that connects various areas within the design, thus seamlessly integrating the imperfect ruin into the overall design.

Furthermore, the philosophy of imperfection as beauty finds expression in the design through the deliberate exposure of structural elements, where wood joinery and other connections are proudly displayed and celebrated. The arrangement of floors intentionally introduces an "imperfect" order within an otherwise perfect space, creating a captivating interplay of design elements.

These elements are combined with untreated material finishes to highlight their natural imperfections but simultaneously celebrate their true character.

2.8.11 Slow Architecture

Slow architecture refers to spaces designed to encourage slow living or deliberately crafted over time (Gattupalli. 2021: online). This approach is evident in both the construction process and the resulting durability of the structures. It emphasises a close connection with environmental sustainability, advocating for building with environmental sustainability to create long-lasting structures.

When applied to a woodworking school, the materials and construction methods employed deliberately showcase the dedication and time invested in the wall, roof, and floor finishes, reflecting the essence of slow architecture.

Design Application:

Firstly, the incorporation of distinctive floor finishes embodies the principles of slow architecture, as they can only be arranged in a specific order to achieve a successful outcome. This exemplifies the time and commitment invested while maintaining a straightforward and minimalist approach.

Additionally, the utilisation of unconventional joints underscores the significance of precision and dedication in effectively connecting separate structural elements, thereby reflecting the essence of slow architecture.

Various design elements, like the intricate wood structure at the entrance, illustrate the meticulous planning and positioning of wood to ensure structural integrity. This aspect allows the structure to reflect the devotion and durability inherent in slow architecture.

2.8.12 Materiality and Time

Materiality and time are one of the major characteristics of *wabi-sabi* as the imperfections of ageing can add a layer of beauty to a building. Frequently, as architects, we overlook the future development of the buildings we design once they are exposed to the elements. While we invest considerable effort into understanding how people will use the structure, we may unintentionally disregard its interactions with the weather and how it will withstand its impact over time (Thorns, 2018: online).

Instead of diminishing the building, natural forces have the potential to enhance the material's strength and soften its initially plain and unremarkable appearance. Taking this ongoing building process into account is crucial to creating a structure that will progressively gain beauty and character over time.

Design Application:

The on-site ruin stands as the sole evidence of historical events that occurred there, with its aged structure carrying a compelling story. Introducing new materials that naturally age over time adds another layer to the narrative and ensures the place's identity continues to thrive.

Incorporating materials that purposefully age over time enables the building to share a similar evolving narrative in the future, allowing the entire structure to age gracefully. This approach turns the building into a living entity, gaining beauty with the passage of time.
By exposing these materials to the elements, the building undergoes changes that celebrate its imperfections through its evolving materiality.

This process embraces and highlights the charm of the building's ageing, creating a fascinating story in itself.

2.8.13 Simplicity and Essentiality

Leonardo da Vinci famously stated that simplicity represents the epitome of sophistication. The calming and inspiring effect of simplicity in design extends beyond architecture to various other forms of creative expression (Spry, 2013).

At times, simplicity can redirect your focus from complexity. To highlight the beauty of woodwork and craftsmanship, it's essential to embrace simple and minimalist aesthetics. Introducing a simplistic addition to the existing ruin creates a compelling contrast that complements both the old and new elements, allowing the added structure to celebrate the beauty of the "imperfect" ruin.

Design Application:

Despite various elements in the design carrying imperfect qualities, they are thoughtfully arranged in a simple manner. The deliberate use of consistent rhythms and measurements between structural components ensures that the ruin remains a prominent and essential feature of the design. Simultaneously, this approach accentuates the value and elegance of the craftsmanship displayed in the joinery and woodworking throughout the building.

The emphasis on simplicity enables the inhabitants to fully appreciate and observe the intricate woodworking details without being diverted by intricate elements. This uncluttered approach allows them to perceive the beauty of the connections between the flawless and "imperfect" aspects harmoniously coexisting within the structure.

2.8.14 Harmony with Nature

Harmony with nature can refer to many things, especially when it comes to architecture. Harmony can be defined as the quality of forming a pleasing and consistent whole. In the case of the site, the ruin and its surroundings can be seen as elements of the whole, and any additions made to the site can be seen as the last 'puzzle piece', forming a consistent whole. To harmonise with nature doesn't only mean sensitively sit within the landscape, but also complete its narrative or called identity.

Design Application:

As there will be elaborated on in chapter 3, the ruin holds a specific narrative, and new additions are made in such a way to contribute to a further narrative and complete the identity of the site. This is achieved by embracing the imperfect narrative of the existing stone wall, through additions of imperfect datums, and rhythms within parts of the design.

Although imperfect datums and rhythms are found within the design, strict arrangements and expansions were made with additions as the protected Milkwood trees on site, as well as the ruin, restrict how additions can be made to the site. Although this can be seen as limiting, it is what the site and its nature calls for, and therefore it should be responded in a way for it to harmonise with that calling.

2.8.15 The existing ruin

Similar to construction sites, ruins possess abundant potential, serving as a window into not just the past losses but also the elements that remain unfinished. Each ruin carries a chronological thread, interwoven with a captivating narrative, while simultaneously hinting at future prospects and transformations. As stated by Johnathan Hill's book, The Architecture of Ruins, the incomplete and fractured shapes of ruins have the power to evoke an awareness that a building need not reach completion, both in physical reality and in the realm of imagination, thus redirecting the focus of its users (Hill, 2019: online).

According to Dylan Trigg's book, The Memory of Place, the body and mind exhibit peculiar and mismatched reactions to the surroundings, resulting in the formation and recollection of a place (Trigg, 2013, p.82).

The current memory associated with a place contrast with those from the past, and every individual perceives the space uniquely. Despite these diverse experiences, the onsite ruin possesses a distinct character that renders it exceptionally memorable in the present moment. Therefore, the ruin acts as the main thread of memory for the present and future.

The remains on the site reflect a partial historical narrative of the site and provide the site with a specific identity of the present. With some aspects of the past still evident, the ruin seeks a continuous narrative in order to fulfil its identity. To better understand the value of the ruins memory we should ask ourselves what makes the ruin memorable in the first place?

The ruin bears evidence of historical attributes, including conventional construction techniques and the shed's original purpose. The incorporation of dry stacked stone walls and yellowwood lintels plays a vital role in representing its remembered past. Certain lintels gave way under the weight they bore, resulting in collapsed openings within the structure, which surprisingly enhances its current beauty while preserving its historical memory. How can we design additions to the ruin in a way that upholds this cherished memory as an integrated memory of the overall design?

2.8.16 The Future Ruin

To maintain the ruin's prominent memory and identity throughout the design, it will serve not only as a central space but also as a connecting threshold that links various areas within the design. This approach enables users to circulate through the spaces while being constantly reminded of the site's rich history and identity.

The collapsed portions of the ruin will create gaps through which people can navigate the building, forming a tapestry of memories that interweave between the past and present. This design allows each inhabitant to have their own distinctive and memorable experience, deeply connecting with the site's historical essence.

Furthermore, the ruin remains either untouched or touched lightly by new additions to the design, allowing it to age freely. The ultimate aim is to let the ruin continue ageing harmoniously with its environment, thus ensuring its ongoing narrative extends into the future.

Figure 64: Integrated Ruin (Author)

2.8.17 Conclusion

In conclusion, this chapter highlights the clear intent of the proposed design, which aims to strengthen the profound relationship between the historical ruin and the proposed development, while also celebrating the intrinsic significance of joinery techniques and the influence of *wabi-sabi* principles. Achieving this vision involves a deliberate emphasis on the intricate details through joinery, structural considerations, simplicity, and the essence of slow architecture.

By prioritising the symbiotic connection between the artist and the material, selecting materials that respond to the surrounding environmental conditions, and exploring minimalistic aesthetics, the design embraces the irregularities and imperfections inherent in both the ruin and the carefully incorporated additions within the design. In this development, a truly enriching and educational experience awaits its users, creating unforgettable memories.

Furthermore, the design adopts a thoughtful approach, allowing the ruin to age gracefully in sync with its natural surroundings, while ingeniously employing it as a linking threshold, connecting and enlivening spaces throughout the development. In doing so, it ensures an ongoing narrative that constantly reminds dwellers of the beauty derived from imperfection, echoing the site's enduring historical essence. This narrative aims to deepen the connection between woodworking and the craftsmen involved, while also elevating the lived experience of those visiting the site, as they are immersed in an environment that intricately weaves the present with the past, celebrating the essence of craftsmanship and embracing the essence of wabi-sabi.

03

EXPLORATION

Figure 65: Joinery and process drawing (Author)

3.1 Touchstone

In the early phases of the thesis, the projects objective was to uncover the underlying theme that would guide the intended project objective. The touchstone process was employed to gain a deeper comprehension of the project's aims and to form a general idea of what the project seeks to accomplish. Before commencing the actual design process, this exercise was undertaken with the aim of bringing greater clarity to the project's direction and approach moving forward.

The touchstone is inspired by the concept of burning wood and the energy transfer during the process. During combustion, wood acts as the prospective energy source and when set alight this energy is transferred into visible energy. Once the combustion process is completed, ash acts as the only visible evidence of the process that occurred.

The touchstone reflected this concept by burning small pieces of wood. After the burning process is complete, ash filters through the metal mesh, piling up at the bottom. The ash is then evenly spread across the sandstone where a print of the ashes is finally made on an oil-treated piece of paper. The final product depicts artwork from the ashes of memory.

When visiting the proposed site, one gets a similar feeling. The remains of The Old Timber Shed, act as the prospective energy source of the site seeking for a process that brings new energy to the site. Once additions are made in order to achieve this new energy, the development hopes to act as an art piece reflecting the memory of the site.

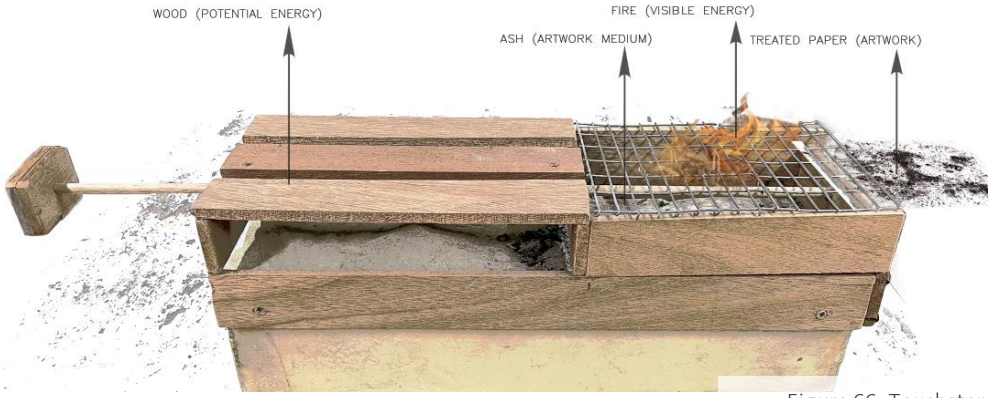


Figure 66: Touchstone (Author)

Figure 67: Touchstone Results (Author)

3.2 Concepts

In the project's early stages, three concepts were thoroughly examined to discover site-specific, formalistic, and project-specific factors that would propel the project's progress. These three explored concepts centered around three primary influences: a conceptual response to the environment, morphological influence, and exhibition throughout the design. Much like the touchstone, these concepts also emphasized the energy of the space, with a specific focus on visible energy as the connecting element between the ruin and the proposed development.

3.2.1 Concept 1 | Transcendence of Space

This concept explored visible energy through translucent membranes and light. The incorporation of translucent membranes and controlled ways of light entering the building allows the past to merge with the present in a subtle and ethereal way. By obscuring some details while illuminating others, a sense of mystery is created that engages the imagination. Translucent layers and light evokes the natural world by exhibiting the dynamic movement of the surrounding environment. This creates a permanent presence of the surroundings throughout the design. It allows the past to not be fully hidden but rather diffused into the present, creating a sense of continuity that is both timeless and contemporary.

This seeks to influence the design in a way to sensitively react to its surroundings and provides the development with “visible energy” through mysterious membranes highlighting the presence of the natural world.

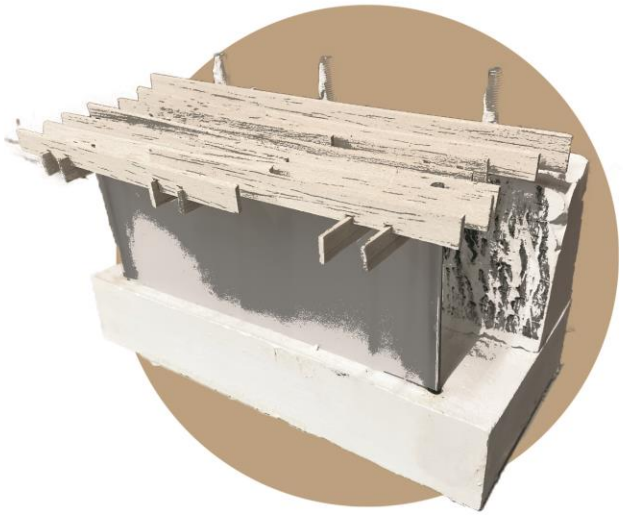


Figure 68: Concept 1 Model (Author)

Figure 69: Concept 1 Drawing (Author)

3.2.2 Concept 2 | Tapestry of Memory

This concept emphasises the significance of materiality and the morphological elements within the design. Given that the development involves a dry-stacked stone ruin, any new additions must be carried out thoughtfully to preserve its memory while also contributing to the overall identity of the site.

The "Tapestry of Memory" concept portrays visible energy by blending various materials from different times and contexts, creating a story of transformation. The existing ruin on the site is combined with new materials like wood, steel, and glass, fostering a connection between the past and present. The integration of these materials can be done with sensitivity, either imitating and complementing each other or accentuating their differences. By layering these materials, the design achieves depth and texture, resulting in a building with a captivating and intricate character.

The central idea of this concept is to exert a significant influence on the design by ensuring that new additions sensitively respond to the presence of the existing ruin on site.

The goal is to accentuate the past by making the ruin a prominent feature, while also skillfully imitating and complementing its unique character. This is accomplished by dedicating meticulous attention to the connections, joinery, and overall structure throughout the design, thereby highlighting these crucial qualities. The objective is to create a harmonious blend between the old and new, allowing the two elements to coexist seamlessly while showcasing the distinctive charm of the ruin. By achieving this careful balance, the design aims to preserve the historical essence while infusing it with a fresh and complementary energy.

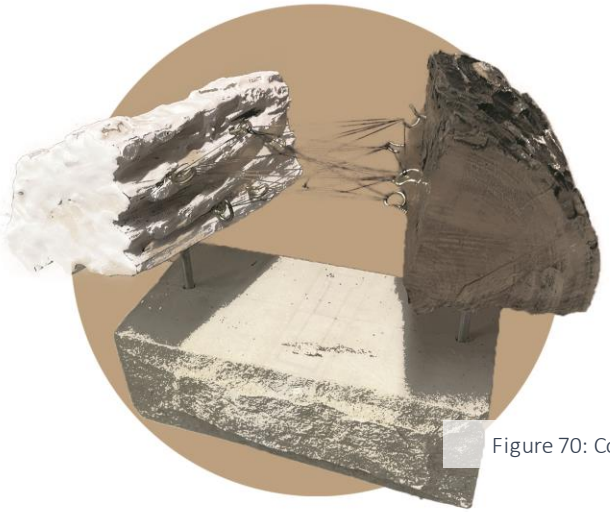


Figure 70: Concept 2 Model (Author)

Figure 71: Concept 2 Drawing (Author)

3.2.3 Concept 3 | Artistic Alchemy

This concept delves into methods to design the proposed development in a manner that not only preserves but also showcases the captivating beauty of the existing ruin. Since the ruin holds a central and vital position on the site, it deserves utmost acknowledgment and a celebration of its rich history and enduring presence.

Artistic alchemy reflects visible through installations that transmute ruins into beauty. When craftsmen and architects collaborate they can create installations that both celebrate and transforms the ruin into something new and beautiful. These installations might incorporate elements of the existing, such as fragments of stonework, or create something that references the past in subtle ways. Artistic Alchemy is a way of transmuting the raw material of ruins, into something transcendent, something that speaks to the human spirit and the power of craftsmanship. This evokes the past in unexpected ways and creates a sense of wonder and delight.

The primary aim of this concept is to significantly impact the design by effectively showcasing the past through carefully crafted installations that accentuate the presence of the ruin; instead of altering the ruin itself, the approach involves creating ingenious installations that vividly portray the metamorphosis of the past ruin into an exquisite display of new artistic alchemy, thereby immortalizing its historical essence while breathing new life and enchantment into its narrative.

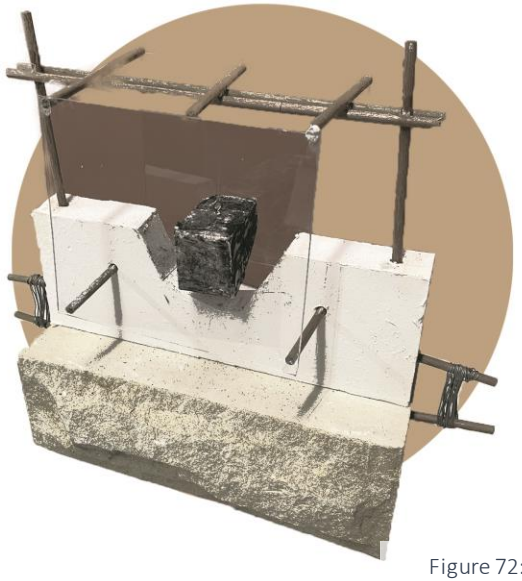


Figure 72: Concept 3 Model (Author)

Figure 73: Concept 3 Drawing (Author)

3.2.4 Conclusion

In conclusion, the three fundamental concepts outlined in this study collectively aim to apply a profound influence on the design process, with the goal of expressively portraying visible energy through carefully considered surroundings, morphological elements, and an artful exhibition of the existing ruin situated on the site. By diligently concentrating on visible energy as the integral link between the ruin and the envisioned development, these concepts aspire to bring to the forefront the inherent beauty of the ruin, skillfully augmenting the site's existing identity, and ultimately transforming it into an indelibly memorable and captivating masterpiece.

Through a harmonious interplay of architectural elements and a sensitive approach to preservation and transformation, the design endeavors to create a mesmerizing tapestry of history, craftsmanship, and innovative vision, perpetuating the essence of the past while embracing a transformative and memorable future.

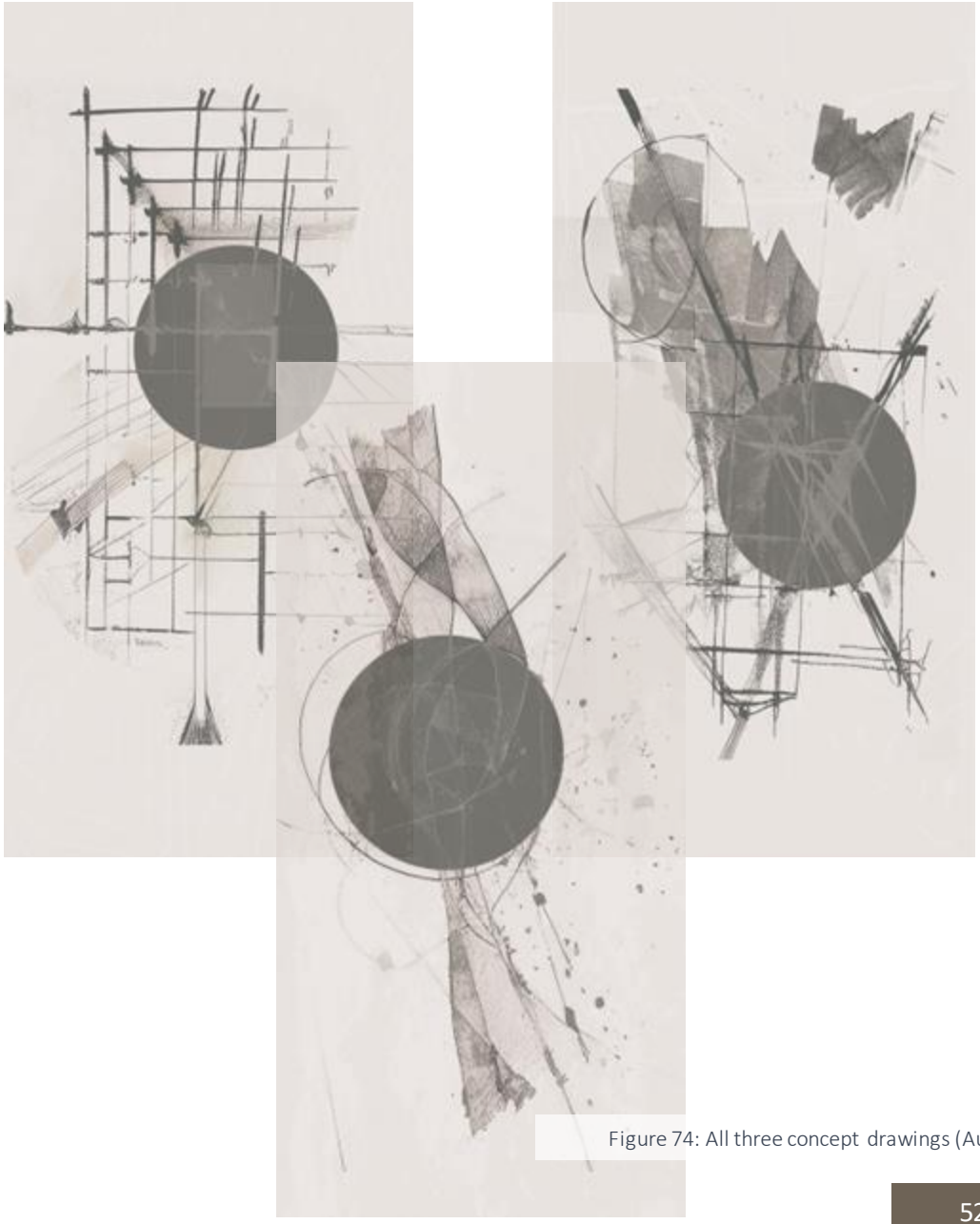


Figure 74: All three concept drawings (Author)

3.3 Alternative Site Analysis

As an integral component of the dissertation, an alternative site analysis was conducted to gain a more profound comprehension of the site's distinct voice and identity. This distinctive approach to site analysis involved engaging with the site in a poetic and unconventional manner. To achieve this, a device was crafted to measure a specific aspect of the site, enabling its interpretation and offering valuable insights that were then sensitively utilized to respond to the site's unique requirements and characteristics.

Syllables in Stone:

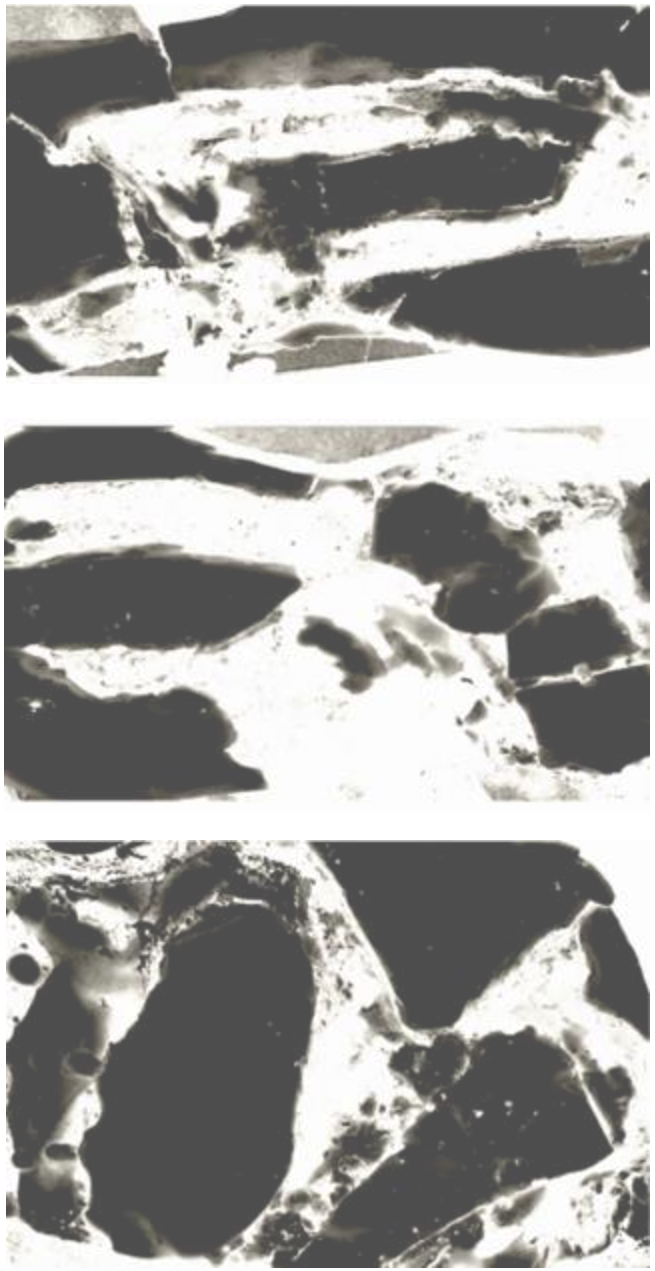
A stone wall's construction method tells a unique story that reflects its distinct character. It stands apart from ordinary walls not just due to its aesthetics but also the special arrangement of its stones. To truly grasp its historical narrative, one must pay attention to the smaller details, as the existing ruin only represents a part of the whole story.

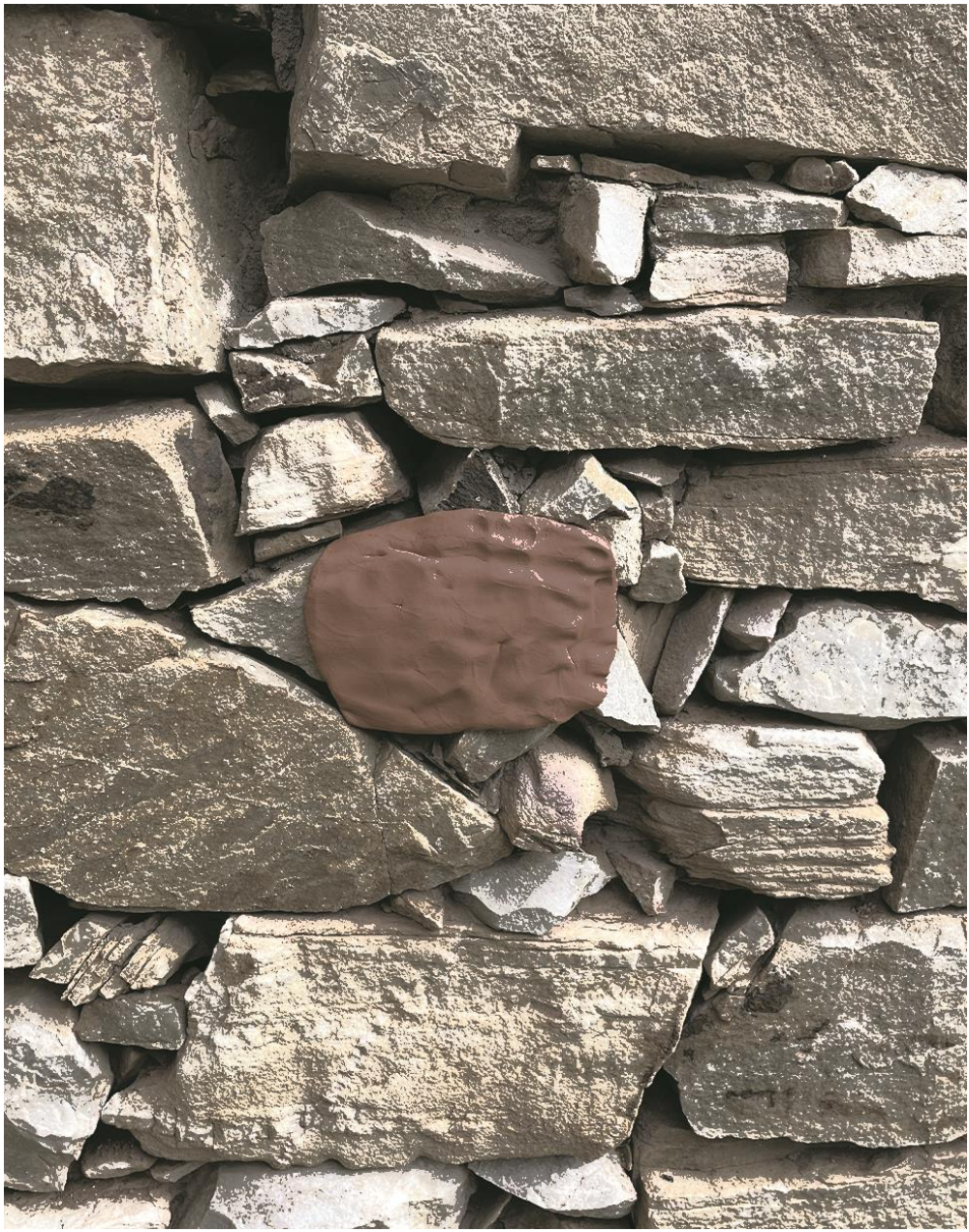
“Stone walls, despite being made of one of the heaviest objects on the planet all have a lightness and delicacy in the way the stones touch and balance.” (Zeitlin, 2016: online). To comprehend the wall's unique character, we must pay attention to the spaces in between the stones. Similar to well-crafted poems, where even the lightest words demonstrate strength, the in-between spaces in a stone wall reveal its sturdiness, with each stone perfectly coupled to others, forming a cohesive structure.

The in-between spaces not only indicate the wall's lightness, delicacy, and strength, but also reveal how shape, size, and orientation contribute to its overall sturdiness. These spaces give each stone wall its individuality and distinct narrative, and by measuring the gaps, we uncover a part of that compelling narrative hidden within the wall's construction.

As depicted in figures 76 to 78, the measured narratives offer valuable insights, providing a clearer understanding of the wall's character. Figure 75 presents a compilation of these narratives, portraying a more comprehensive essence of the remaining identity. This aids in discerning the existing narrative and guides the approach for shaping a further narrative on-site.

The alternative site analysis serves as inspiration for a design that harmonizes with the historical narrative and the current identity of the site. This can be achieved by introducing elements that strike a similar balance between lightness, delicacy, and sturdiness, similar to the observed components. As a result, the development will be a thoughtful response to the site's present identity, allowing its narrative to endure and continue thriving. By carefully integrating these elements, the design will breathe new life into the site while respectfully honoring its past, ensuring its captivating narrative persists through time.





Figures 75-78 : Clay print results (Author)

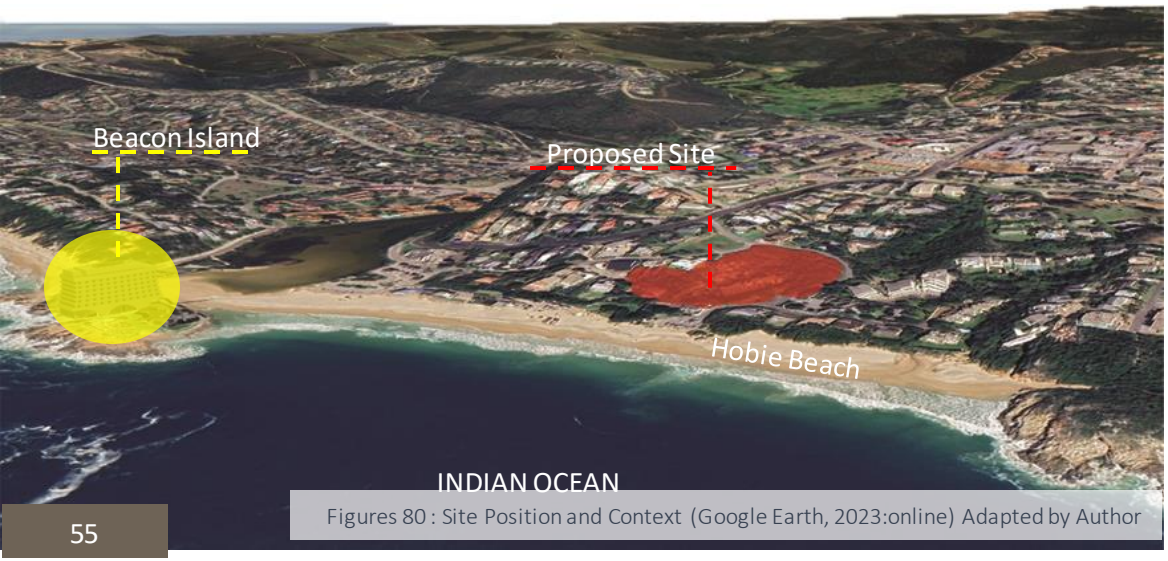
Figures 79 : Measuring site narratives (Author)

3.4 Site Analysis

3.4.1 Macro Context

The proposed site is located to the east of Plettenberg Bay, north of the Piesangs River, and south of the Keurbooms River which was used for the transportation of processed yellowwood in the late 1700's. Furthermore, just east of the proposed site is the Indian Ocean, where the cargo load of the stored yellow wood occurred before it was sent to Cape Town.

Although the site is found in a developed part of the town, the site itself remains untouched for centuries. The site fortunately is surrounded by active buildings and municipal services and is easily accessible as it is one turn off one of the main roads of the town, Marine Way.



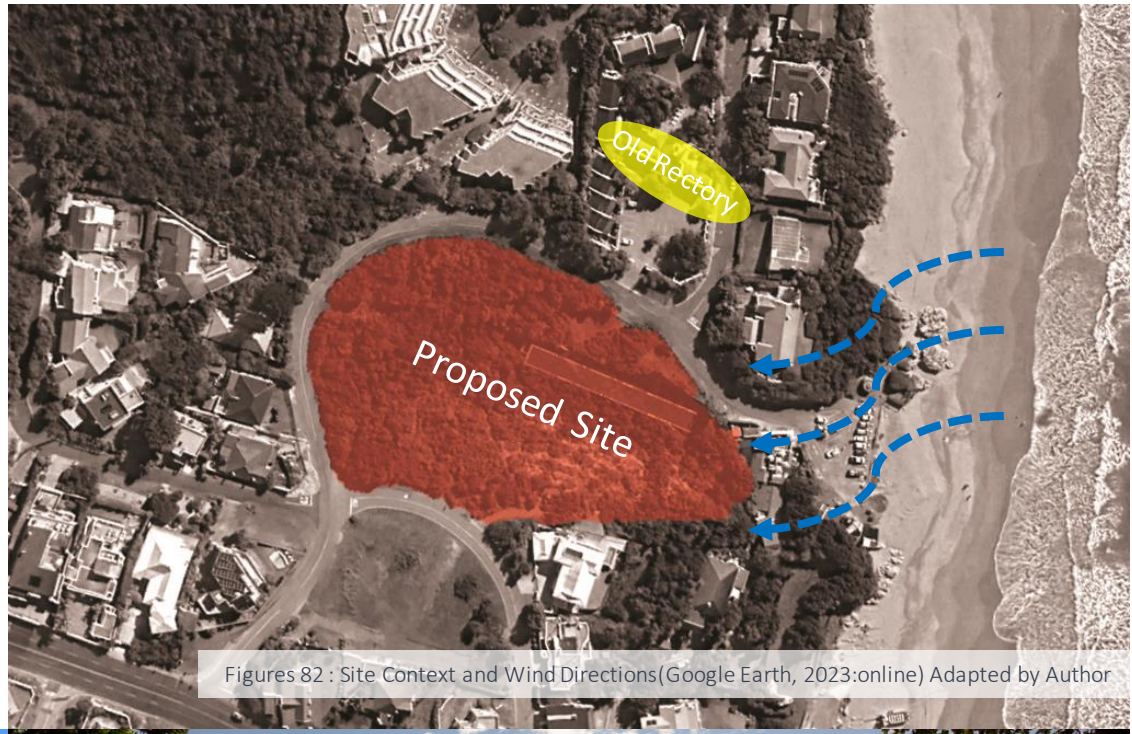
Figures 80 : Site Position and Context (Google Earth, 2023:online) Adapted by Author

Figures 81 : Site Position and Context (Google Earth, 2023:online) Adapted by Author

3.4.2 Mezzo Context

The Old Rectory is located just north of the site and is the closest and most important historical building related to the Old Timber Shed. The Old Rectory, together with the Timber Shed are the oldest buildings in Plettenberg Bay and were both constructed in 1786. In 2015 the Old Rectory was renovated and transformed into a boutique hotel.

Furthermore, the site is located just west of Hobie Beach, therefore making it exposed to coastal winds. Luckily, the site, especially to the west and around the ruin, is densely populated by trees, which may block most of the eastern wind reaching the site.



Figures 82 : Site Context and Wind Directions(Google Earth, 2023:online) Adapted by Author

Figures 83 : Site from Meeding Street (Author)

Figures 84 : Old Rectory Hotel (Author)

3.4.3 Micro Context

In terms of orientation and slope, the site is ideal. It slopes down toward the north, with the highest point being on the northwestern side of the site. This allows the site to receive sunlight throughout most of the day without any obstructions. Marked in green (see figure 85) the site is densely populated with milkwood trees, which is a protected tree in South Africa. Therefore, the site limits possible developments to the west of the site.

In order to leave the site untouched, visitors will be able to park either on the open field south of the site, or the existing parking to the east of the site.

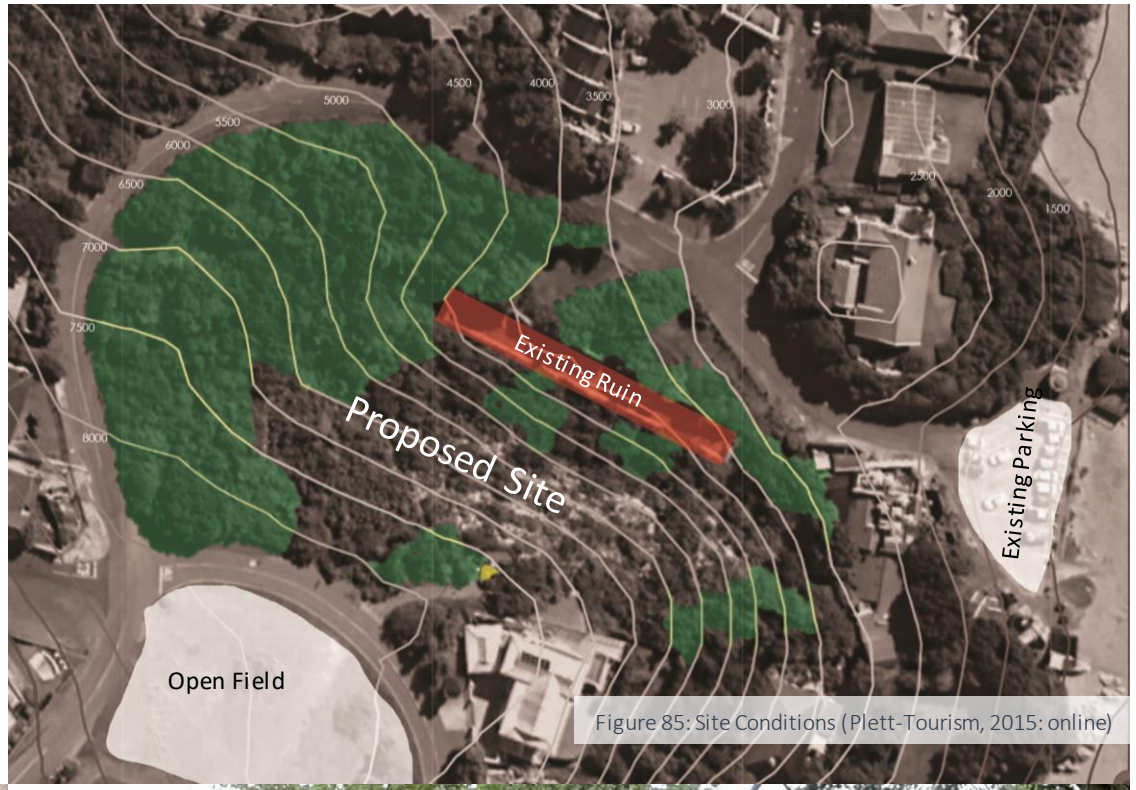


Figure 85: Site Conditions (Plett-Tourism, 2015: online)

Figure 86: Current walls on site (Plett-Tourism, 2015: online)

Figure 87: Walls in landscape (Plett-Tourism, 2015: online)

3.5 Precedents

Precedent 1: The Parchment Works House by Will Gamble Architects

Will Gamble Architects breathed new life into a dilapidated 17th-century structure by incorporating a sleek addition made of steel, brick, and glass. The chaotic charm of the ruin creates a striking contrast against the contemporary design, which expands the original Victorian-era residence. To maintain harmony with the surroundings, the architects mainly utilized reclaimed materials for the facade's brickwork in the new section, sensitively blending it into the environment.

The purpose of analysing this building was to gain deeper insights into how new additions can be seamlessly integrated into a ruin, preserving its prominence and essential role within the design. The ruin serves as a unifying element, threading its historical significance throughout the design and simultaneously creating thresholds within both interior and exterior spaces. Additionally, the collapsed sections within the ruin form circulation spaces, enabling dwellers to move freely throughout the building and traverse the thresholds of the ruin seamlessly.

Figure 88: Parchment Works House Exterior (Archdaily, 2015: online)

Figure 89: Parchment Works House Exterior (Archdaily, 2015: online)

Design Application:

The design draws inspiration from the precedent to strategically open up the collapsed areas, facilitating circulation between the ruin's walls. This approach also transforms the ruin into a connecting threshold, linking spaces in a similar way The Parchment Works House does. The proposed design achieves this in a similar way through the ruin acting as a central threshold connecting several spaces on the lower ground floor.

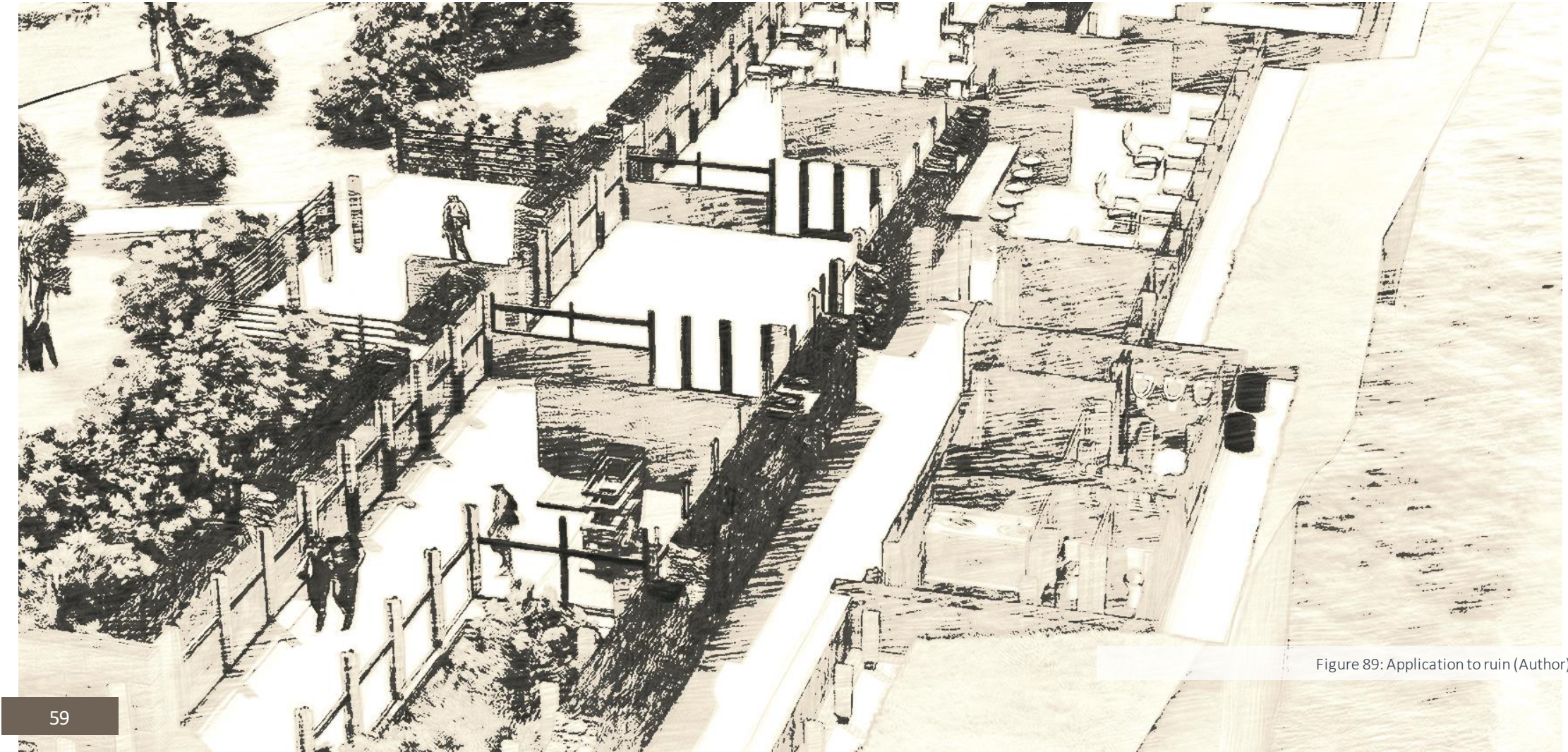


Figure 89: Application to ruin (Author)

Precedent 2: Wagner Education Center for Wooden Boats by Olson Kundig

This educational center embodies various elements associated with a woodworking school, evident in its spatial layout. With its double-volume space, open floorplans, and clever utilisation of structure, the building offers a vast and well-suited working environment. Craftsmanship takes center stage through the use of exposed wood joinery structures and the prominent steel framework. The successful combination of wood and steel highlights the artistry involved in constructing the building, exemplifying a true sense of craftsmanship and keeping it simplistic.

Design Application:

The influence of this precedent extends beyond spatial considerations, it also guides the thoughtful integration of structural materials to embody the essence of craftsmanship in an elegantly simplistic manner. Through the utilization of a steel framework as the primary structure and a wooden substructure to showcase the art of wood joinery, the design seamlessly balances the prominence of the ruin with a profound celebration of craftsmanship. This approach not only preserves the ruin's prominence within the overall design but also serves as a captivating testimony to the timeless value of skilled craftsmanship.

Figure 90: Wagner Interior (Archdaily, 2020: online)

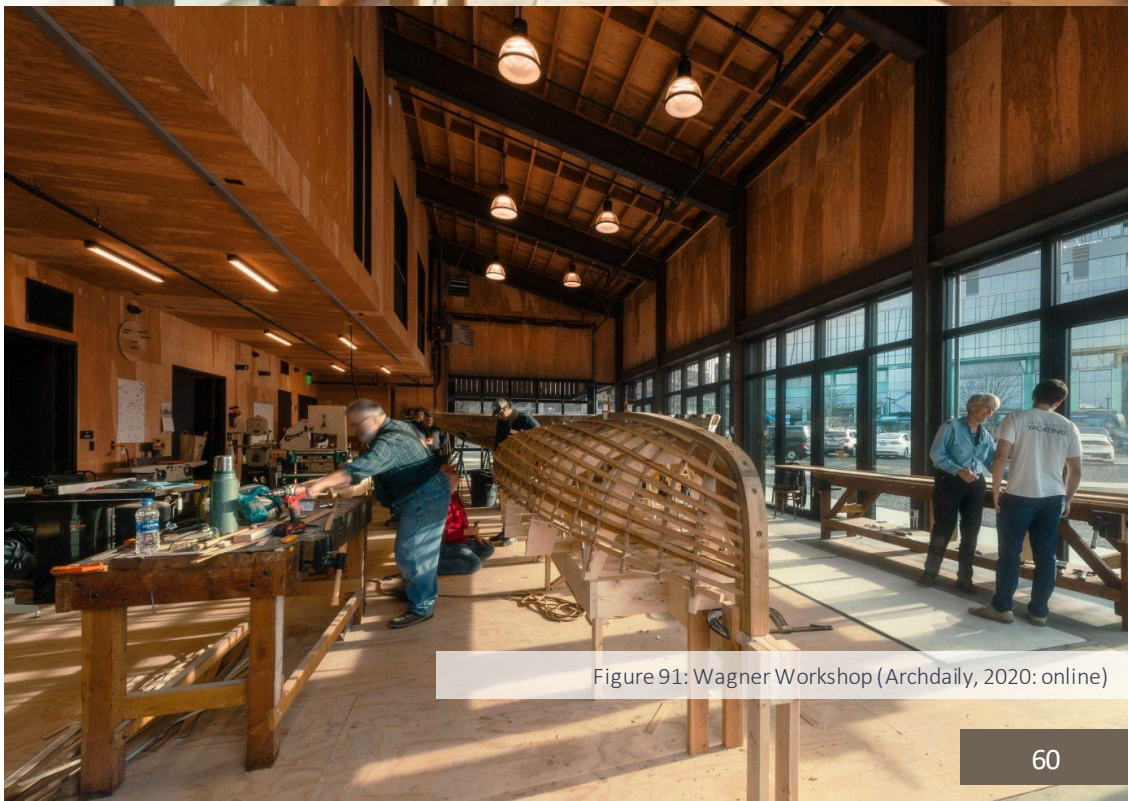


Figure 91: Wagner Workshop (Archdaily, 2020: online)

04

DESIGN SYNTHESIS

Figure 92: Joinery and process drawing (Author)

Program and Accommodation List

The proposed woodworking and trade school will consist of two main masses. On the lower end of the site, to the north, there will be an exhibition where the works of the students will be exhibited, as well as a restaurant and café open to the public and visitors.

Furthermore, on the southern end of the site, will be both the student and public workshops, where both students and the public can explore the significance of woodworking.

Figure 93: Upper and Lower Development on Site (Author)

The design will consist of the following spaces:

Primary Spaces:

- Exhibition (200sqm)
- Restaurant (124sqm)
- Heavy duty student workshop (155sqm)
- Assemble Student Workshop (140sqm)
- Public Workshop (140sqm)

Secondary Spaces:

- Workshop Offices (3x 16sqm)
- Exhibition Offices (3x 20sqm)
- Library Lounge (50sqm)
- Library (124sqm)

Tertiary Spaces:

- Storage
- Kitchen
- Ablutions
- Boardrooms

Figure 93: Working Drawings (Author)

Design Exploration

After the exploration phase, initial ideas of the design started to develop. Multiple ideas for a layout, diagrammatic sections, and floorplans were explored.

During the initial stages of the design it was found that the explored floorplans wasn't as sensitive towards vegetation and surroundings on site as it could've been.

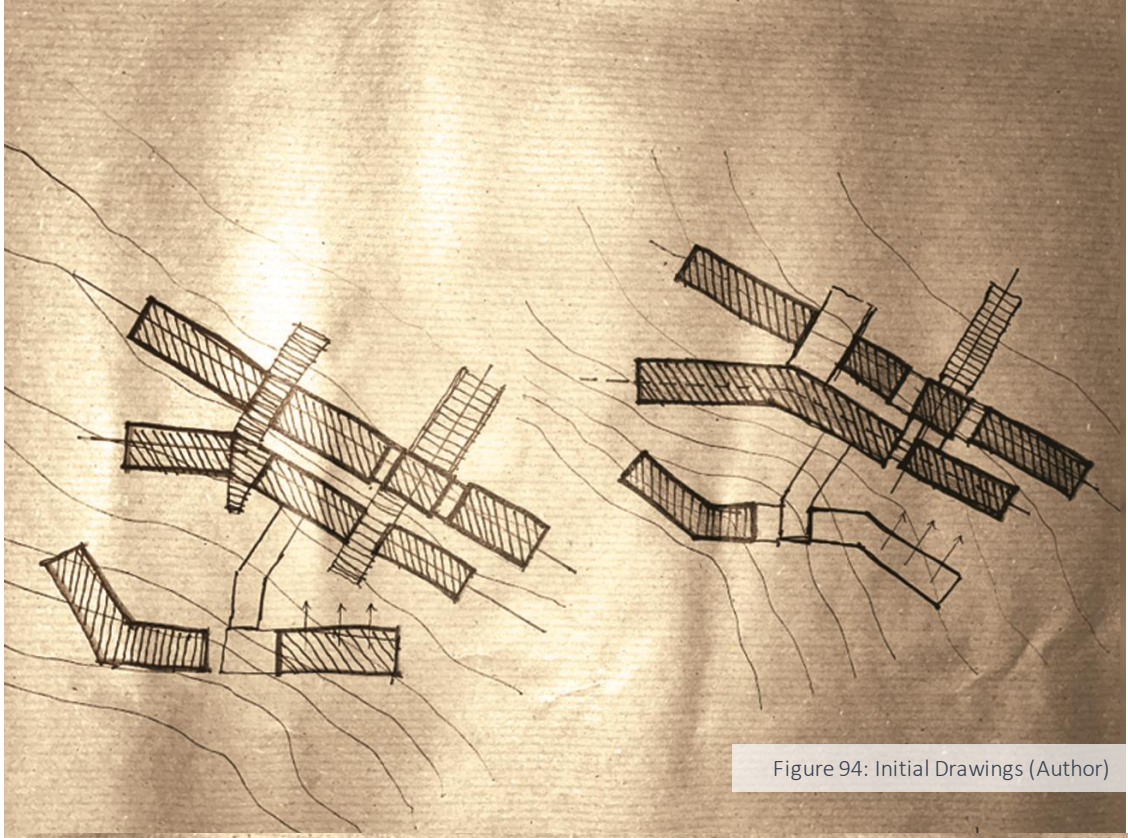


Figure 94: Initial Drawings (Author)

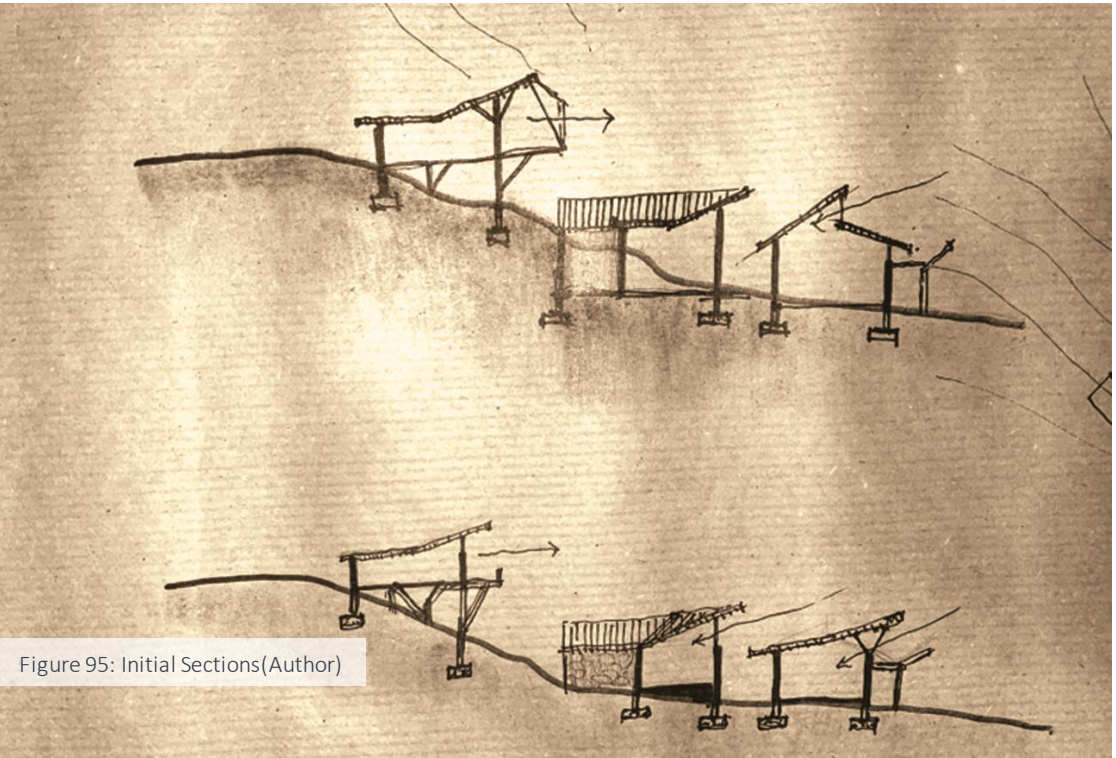


Figure 95: Initial Sections(Author)

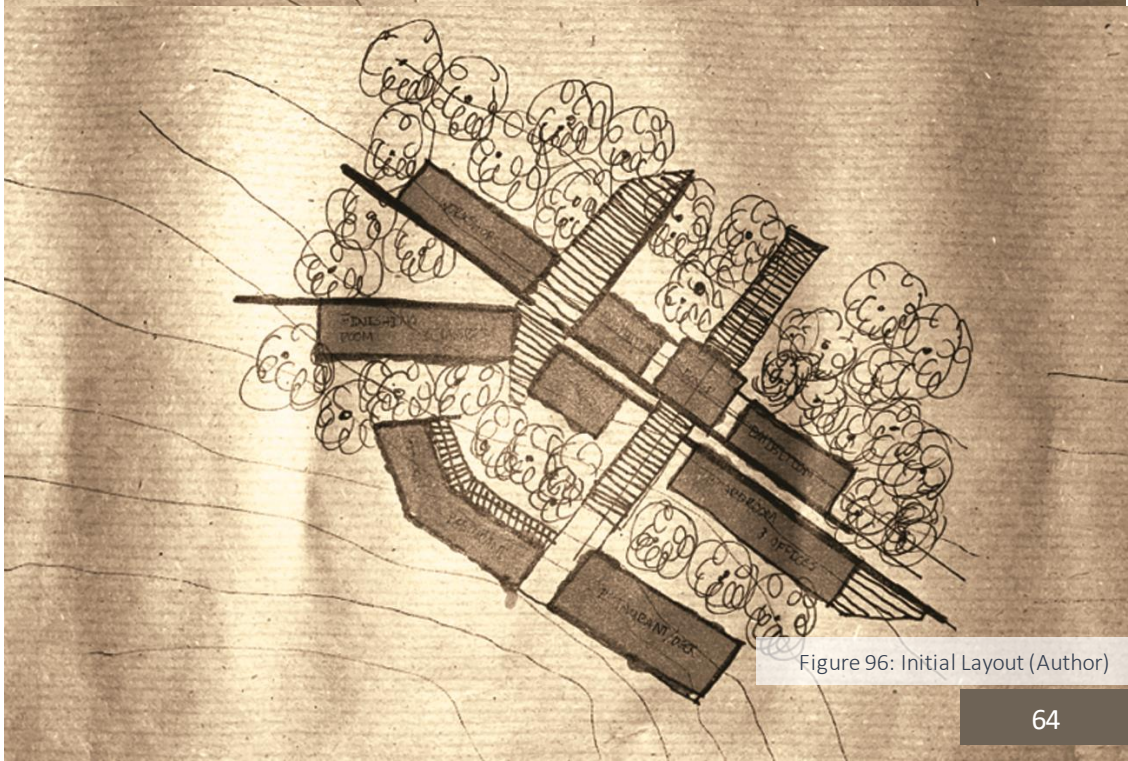


Figure 96: Initial Layout (Author)

External Review 1

After initial ideas were explored, some of them were developed and transformed into a working floorplan, layout and sections. During this stage of the development, an initial structural approach towards the ruin was explored as well as different mass placements on the site.

Figure 97: ER 1 Floorplan (Author)

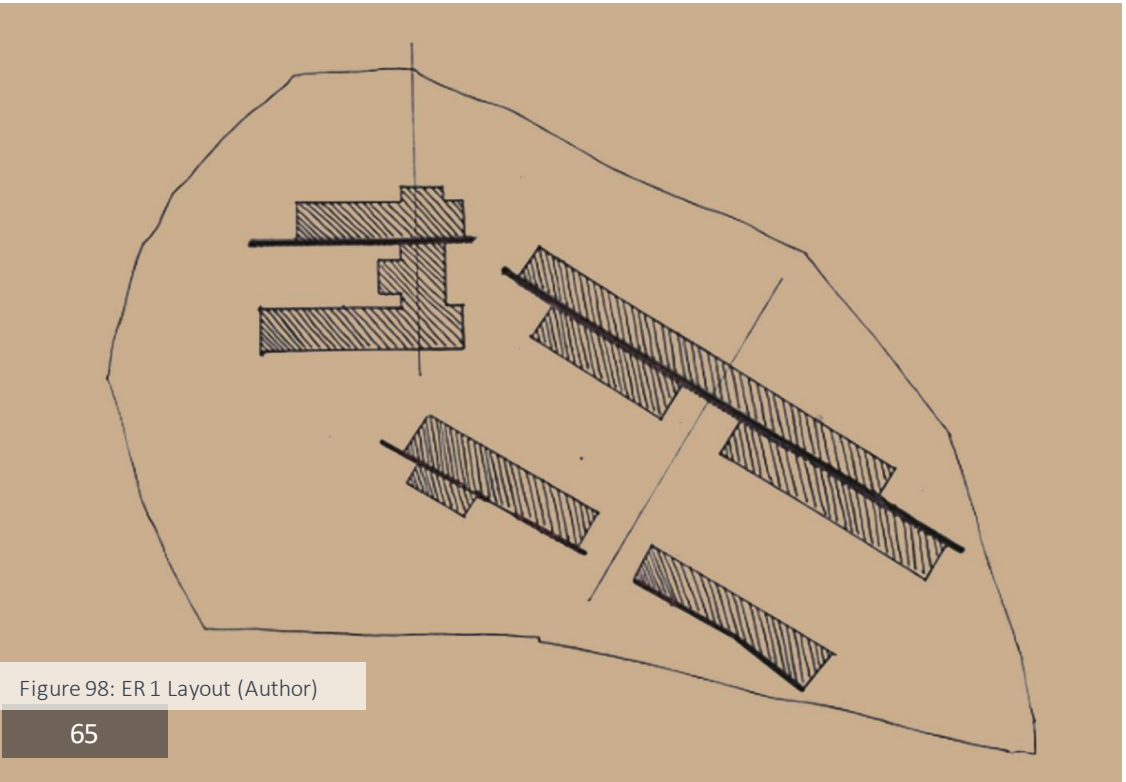


Figure 98: ER 1 Layout (Author)

Figure 99: ER 1 Sections (Author)

Figure 100: ER 1 Floorplan (Author)

External Review 2

During this phase a more responsive layout was created. It was realized that the majority of the trees on site are the protected White Milkwood tree, which doesn't allow too much expansion, especially to the west of the site.

The possibility of adding a first floor on top of the ruin was explored, while maintaining a structure that doesn't touch the ruin at all.

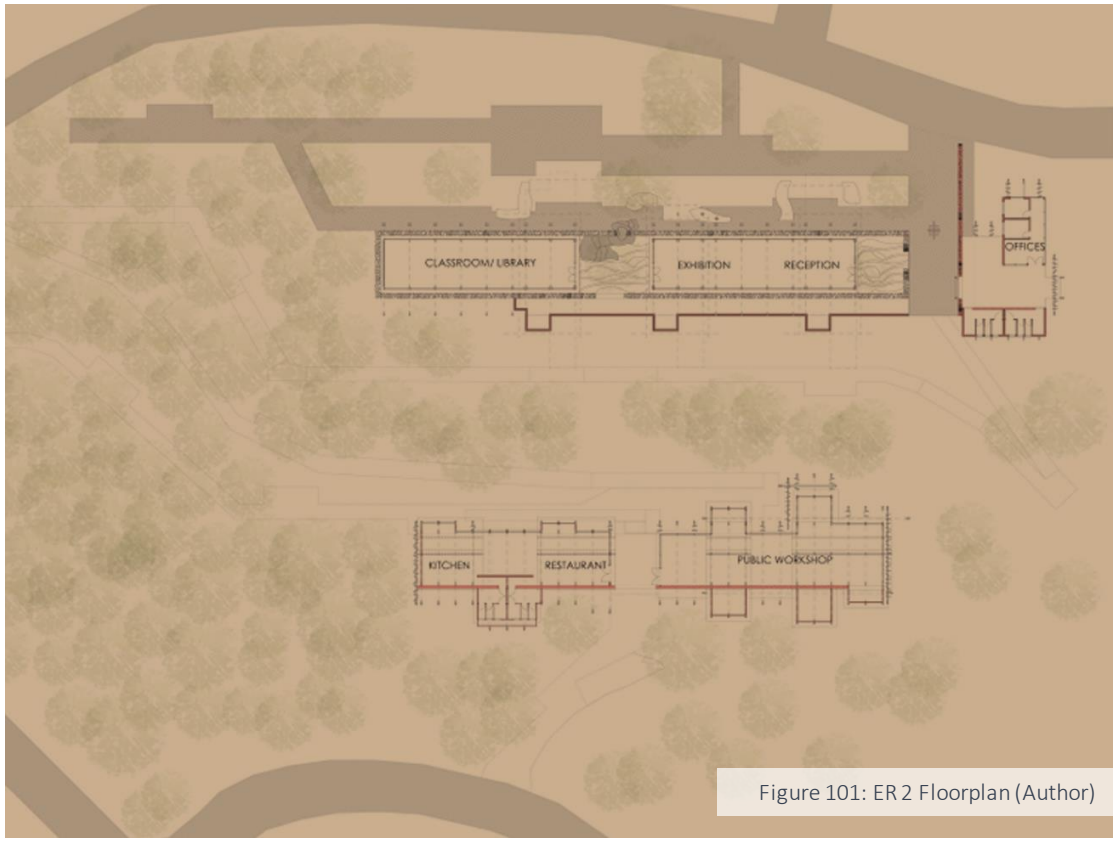


Figure 101: ER 2 Floorplan (Author)

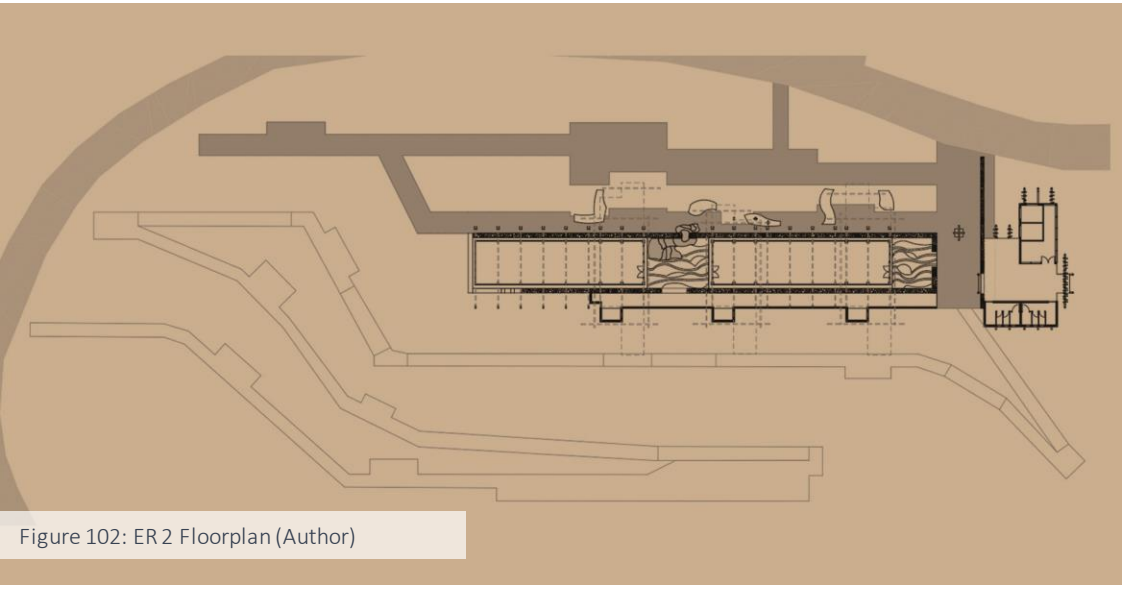


Figure 102: ER 2 Floorplan (Author)

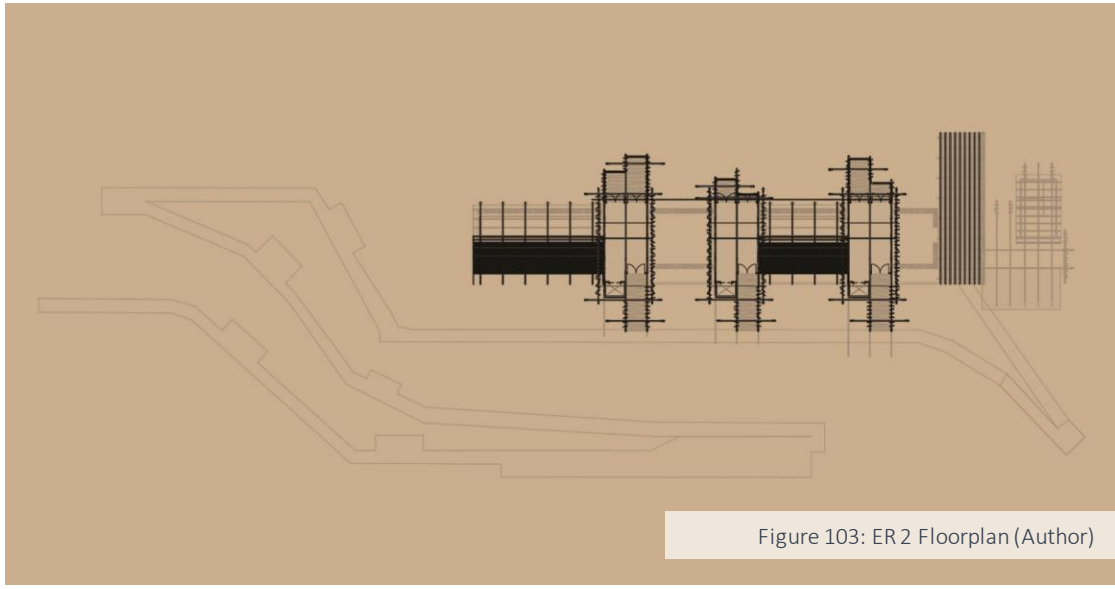


Figure 103: ER 2 Floorplan (Author)

Figure 104: Walkway Render (Author)

Figure 105: Entrance Render (Author)

Figure 106: Walkway Render (Author)

Figure 107: Front View Render(Author)

External Review 3

During this phase of the design, sensitive approaches toward the site in terms of foundation details and structure were made. The focus was on the structural approach toward the ruin and ways for the upper mass of the site to be as least disruptive as possible.

This design phase started to shape the final layout of the building, as from here on forward most of the changes made were focused on joinery details.

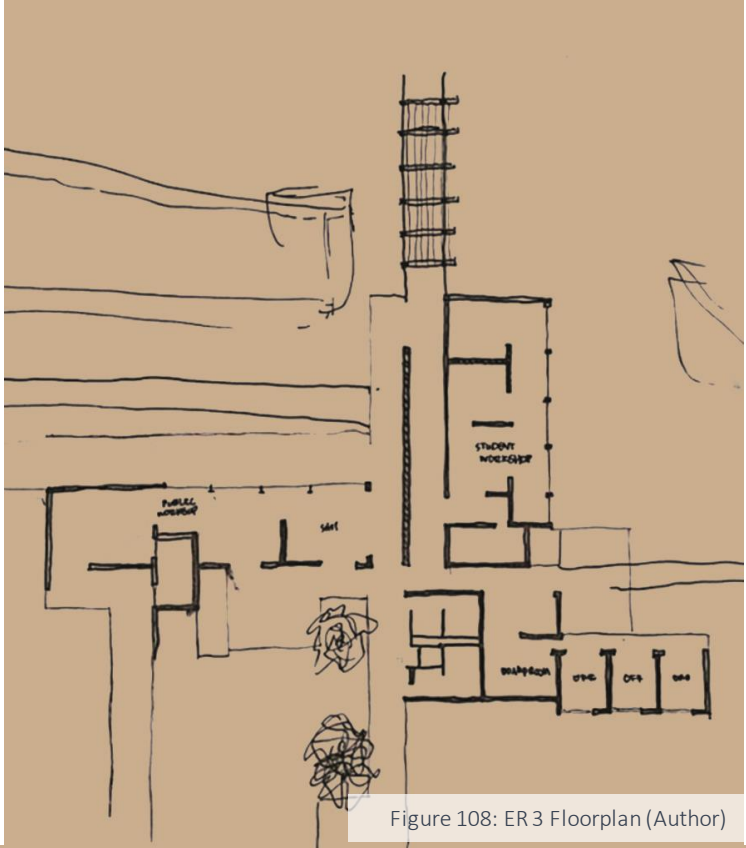


Figure 108: ER 3 Floorplan (Author)

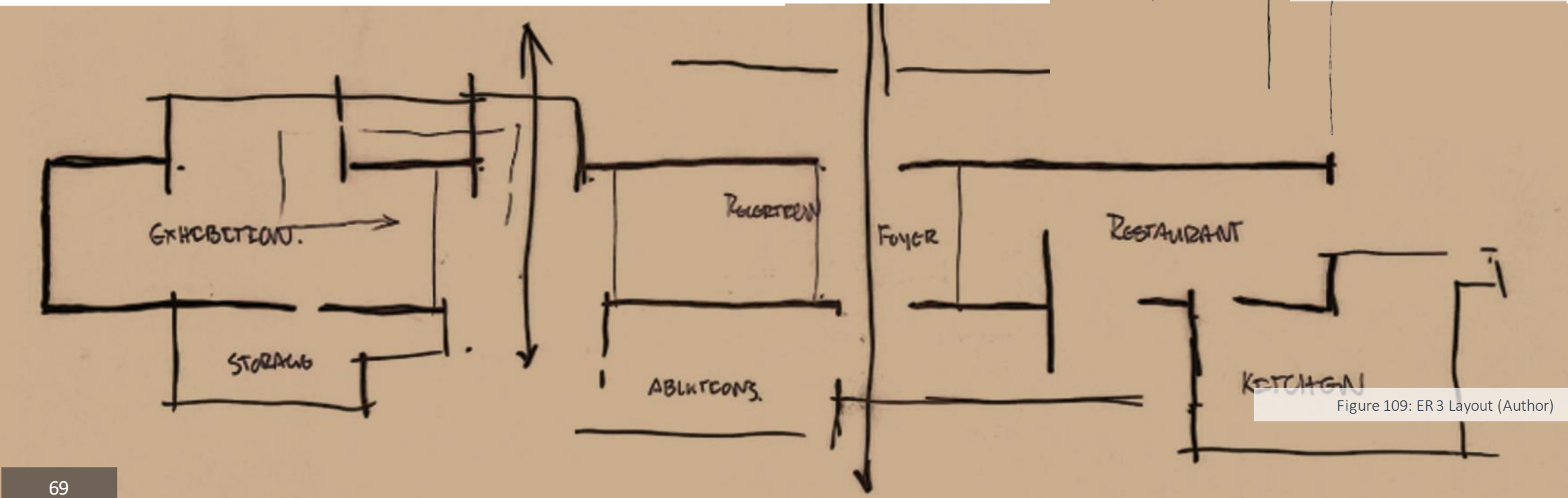


Figure 109: ER 3 Layout (Author)

Figure 110: Site Plan ER 3(Author)

Figure 111: ER 3 Final Lower Ground Floor (Author)

Figure 112: ER 3 Section through workshop (Author)

Figure 113: ER 3 Final Upper Floorplan (Author)

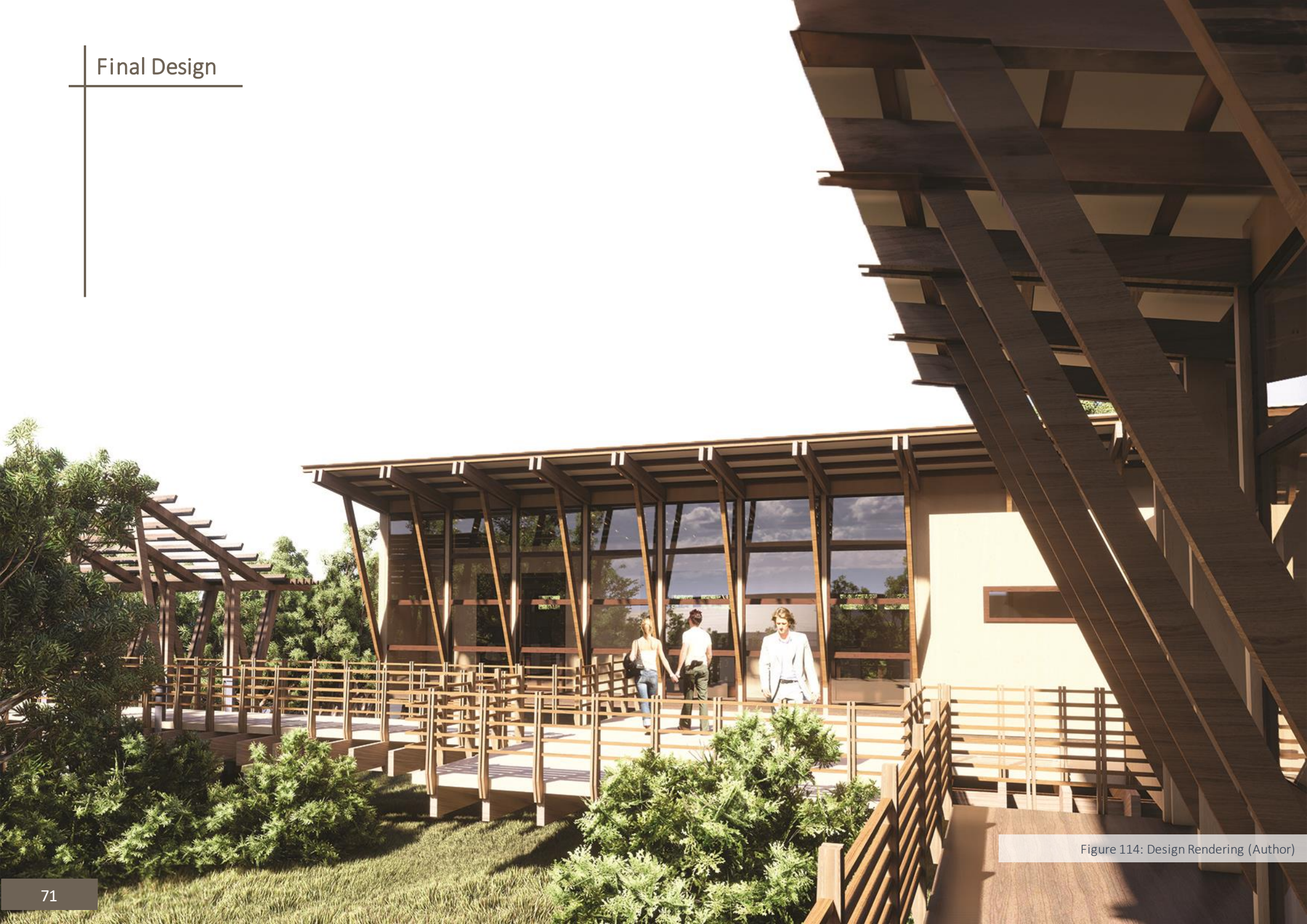


Figure 114: Design Rendering (Author)

Figure 115: Final Lower Ground Floor (Author)

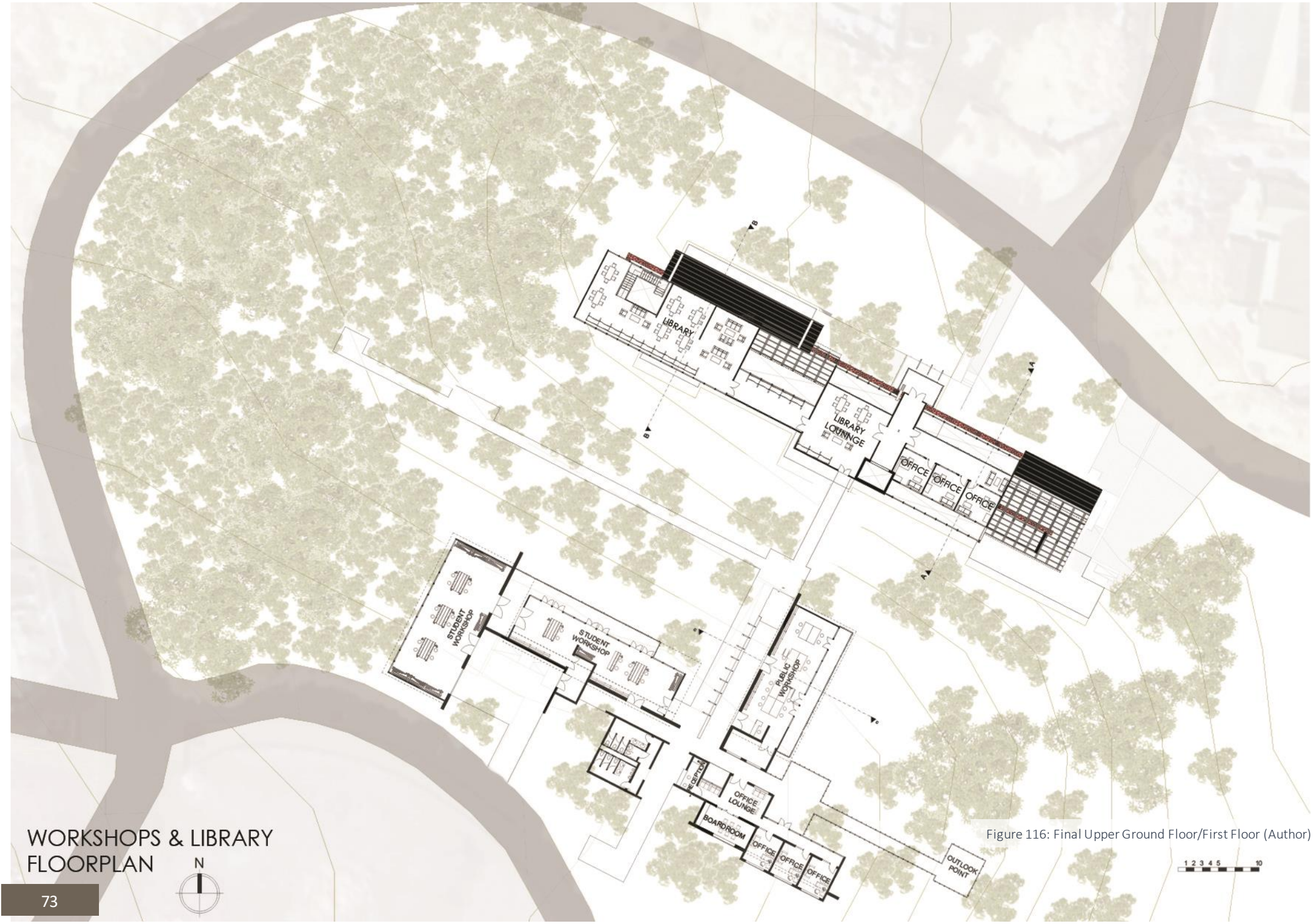


Figure 116: Final Upper Ground Floor/First Floor (Author)

Figure 117: Final Site Plan (Author)

SITE PLAN

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Figure 118: Upper North Elevation (Author)

Figure 119: Lower North Elevation (Author)

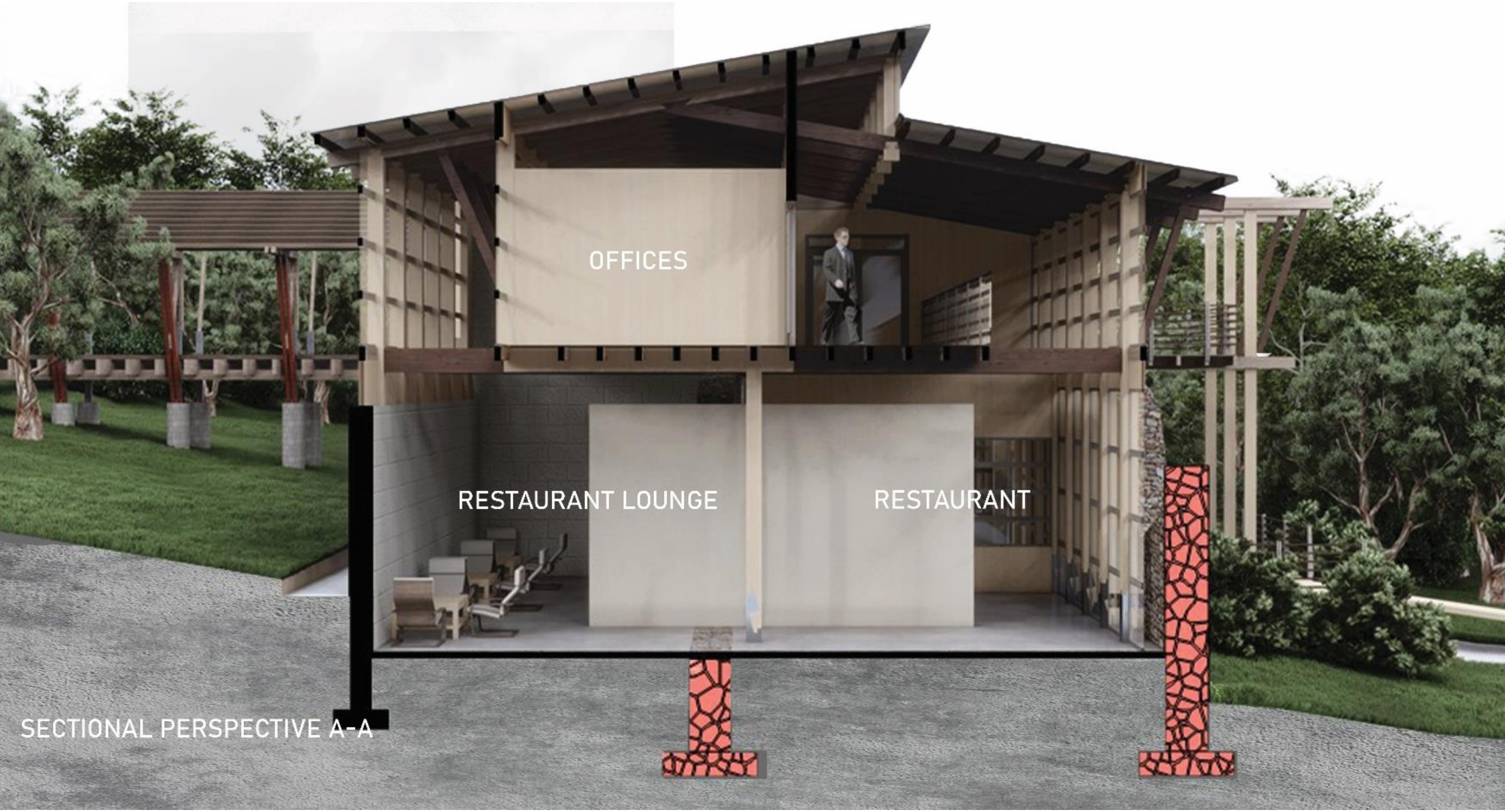


Figure 120: Sectional Perspective of Ruin and Additions (Author)

SECTION B-B

Figure 121: Final Section (Author)

Figure 122: Final Long Section (Author)

Figure 123: Airial View from Meeding Street (Author)

Figure 124: Exhibition view from entrance (Author)

Figure 125: Front View of Building (Author)

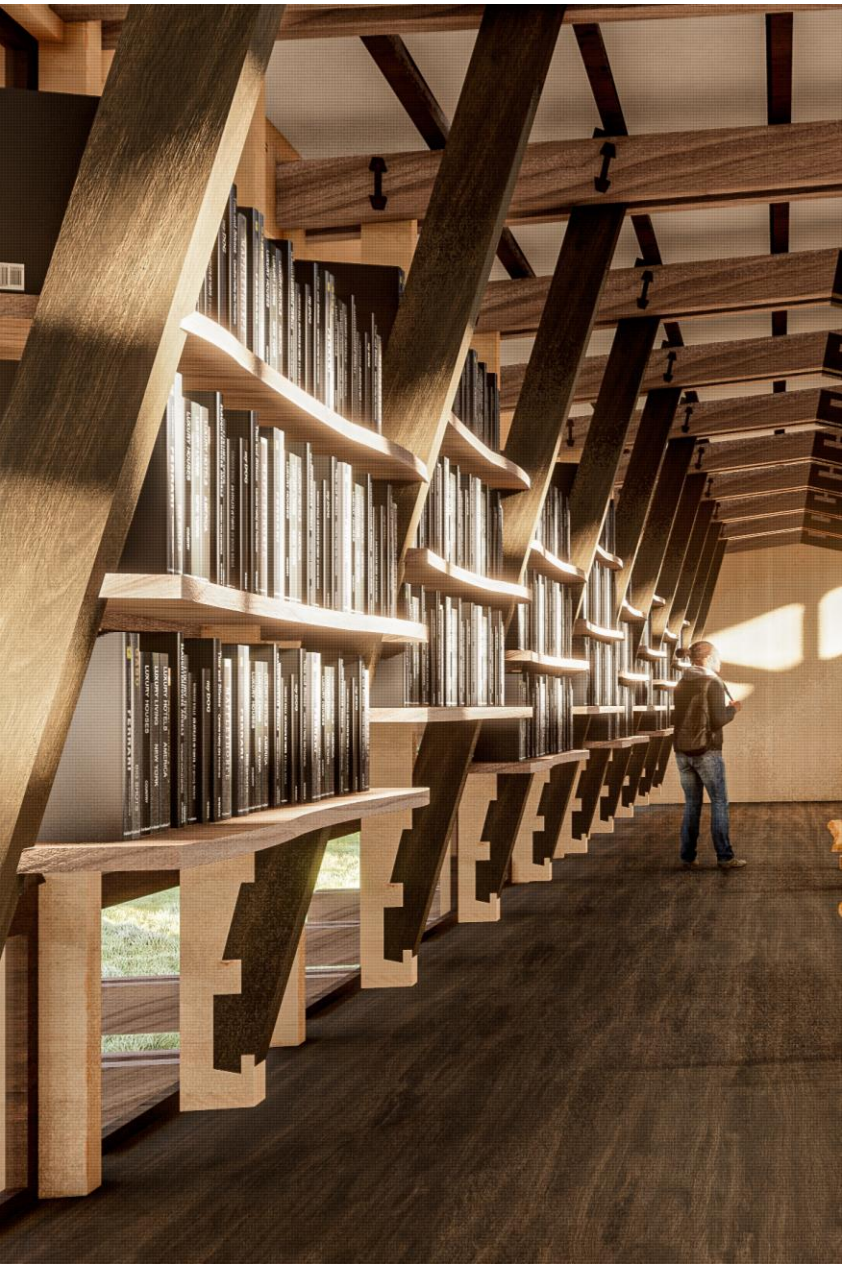


Figure 126: Library and Workshop Renders (Author)

Figure 127: Exterior View of Workshops (Author)

05

TECHNICAL SYNTHESIS

Figure 128: Joinery and process drawing (Author)

5.1 Introduction

This chapter focuses on the technicalities of the project. It covers details such as the environment, microclimate, foundation details, circulation, structural systems, joinery techniques, and related technical solutions. A comprehensive examination of materials, methods, and construction techniques is essential to ensure both structural integrity and aesthetic coherence. This chapter seeks to create a better understanding of both design and technical decisions made throughout the design process.

Firstly, the chapter will discuss the construction touchstone and how its influence shaped a structural approach to the design. It will discuss the key role that construction plays in shaping the design. Furthermore, technicalities such as soil types, micro-climate, environment, and vegetation will be explored. Thereafter, foundation details, structural details, and approaches, as well as applied joinery techniques will be discussed. Finally, the chapter will conclude with an overall analysis of the explored technicalities and how their application contributes to a sensitive and considerate design.

5.2 Construction Touchstone

A Sensitive Approach Towards The Historical Ruin

The touchstone aims to highlight a comprehensive representation of the ruin's identity by carefully framing the existing ruins on the site. This approach clarifies the way structural additions can carefully conserve the essence of memory. The structure bears the entire weight of its components while refraining from direct contact with the ruins, thereby allowing it to exist freely. To capture the essence of the project, the external structure exhibits the existing ruins, thereby showcasing its artistic and inherently imperfect qualities.

This guiding principle aims to inspire the development of a design that approaches the historical ruin with both sensitivity and careful consideration. The goal is to create a solution that seamlessly incorporates the historical ruin into the current design, highlighting its ongoing importance and relevance.

Figure 129: Construction Touchtone illustrating structural approach (Author)

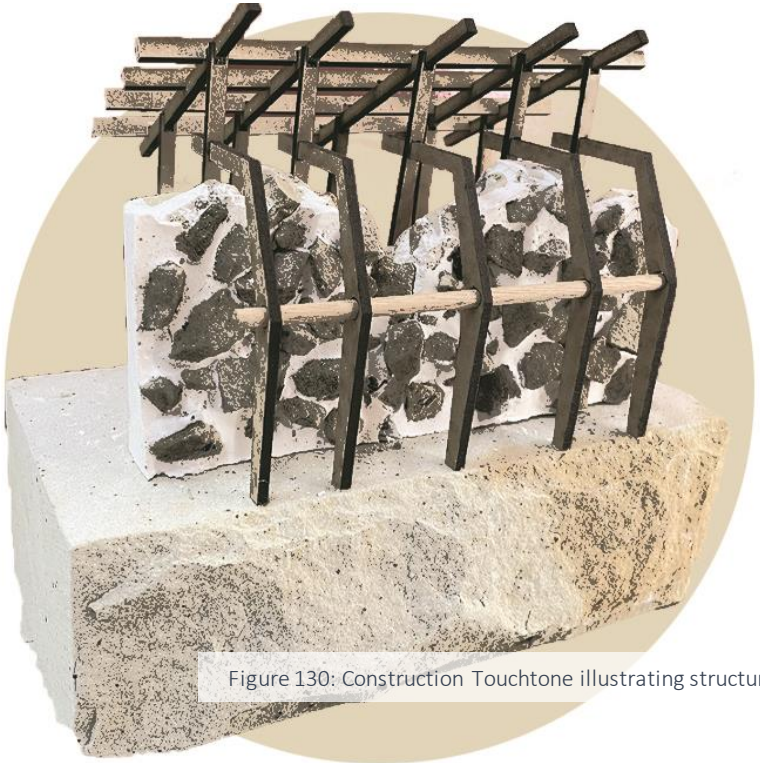


Figure 130: Construction Touchtone illustrating structural approach (Author)

5.3 Environment and Microclimate

Soil Conditions

The site is primarily composed of sandy loam soil in the northern and western areas. In the southern part of the site, you'll also find sandy loam soil, while the central region transitions into rocky terrain that extends towards the southwestern section of the site.

Vegetation

The site consists of dense vegetation, with milkwood trees making up more than 90% of the tree population and red bush willows occupying the northwestern region. Due to the protected status of milkwood trees in South Africa, there are restrictions on expanding into the western part of the site, as these trees cannot be relocated or removed. Additionally, the site is teeming with coastal shrubs throughout, except in the central rocky area.

Temperatures

Plettenberg Bay is known for its moderate temperatures with little variations throughout the year. Temperatures average around 16.9˚C with 14˚C average in the winter and 20.2˚C in the summer. With these moderate temperatures comes relatively high humidity, ranging from 67.84% to 77.83%. (ClimateData, 2022: online). These conditions should be taken into consideration when designing a woodworking school in Plettenberg Bay.

Figure 131: Sandy Loam Soil (Campbell R, 2022: online)

Figure 132: Rocky Soil (Campbell R, 2022: online)

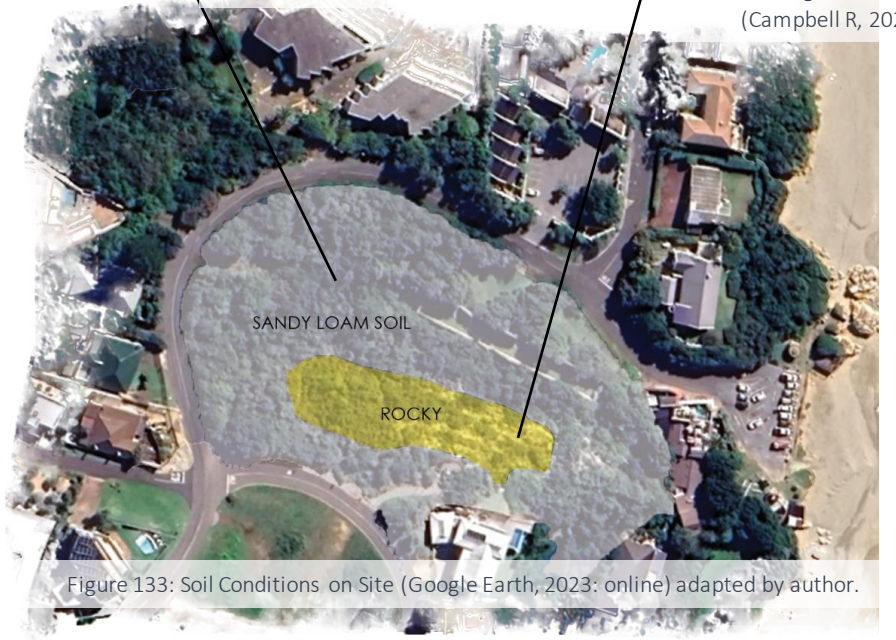


Figure 133: Soil Conditions on Site (Google Earth, 2023: online) adapted by author.

Figure 134: Tree Types on Site (Google Earth, 2023: online) adapted by author.

5.3 Environment and Microclimate

Prevailing winds, originating from the east, are consistently present for most of the year. The site is positioned to the west of the ocean, and its terrain slopes downward towards the north, allowing coastal winds to reach the eastern portion of the site. Thankfully, there are trees situated to the east of the site, which provide a barrier, reducing the wind's impact on the lower section. However, the upper eastern part of the site remains the most exposed to the coastal winds.

Figure 135: Arial view explaining wind and site conditions (Google Earth, 2023: online) adapted by author.

5.4 Foundation Details

The site's most prominent feature is its abundant and thriving plant life, and mainly consists of the protected milkwood tree. This emphasises the importance of careful planning and consideration when choosing the right foundation types and determining how the site will be used. The goal is to minimise any negative impact on the fragile ecological balance. Circumstances on the lower and upper parts of the site differ, therefore different considerations should be made for foundation types in these areas.

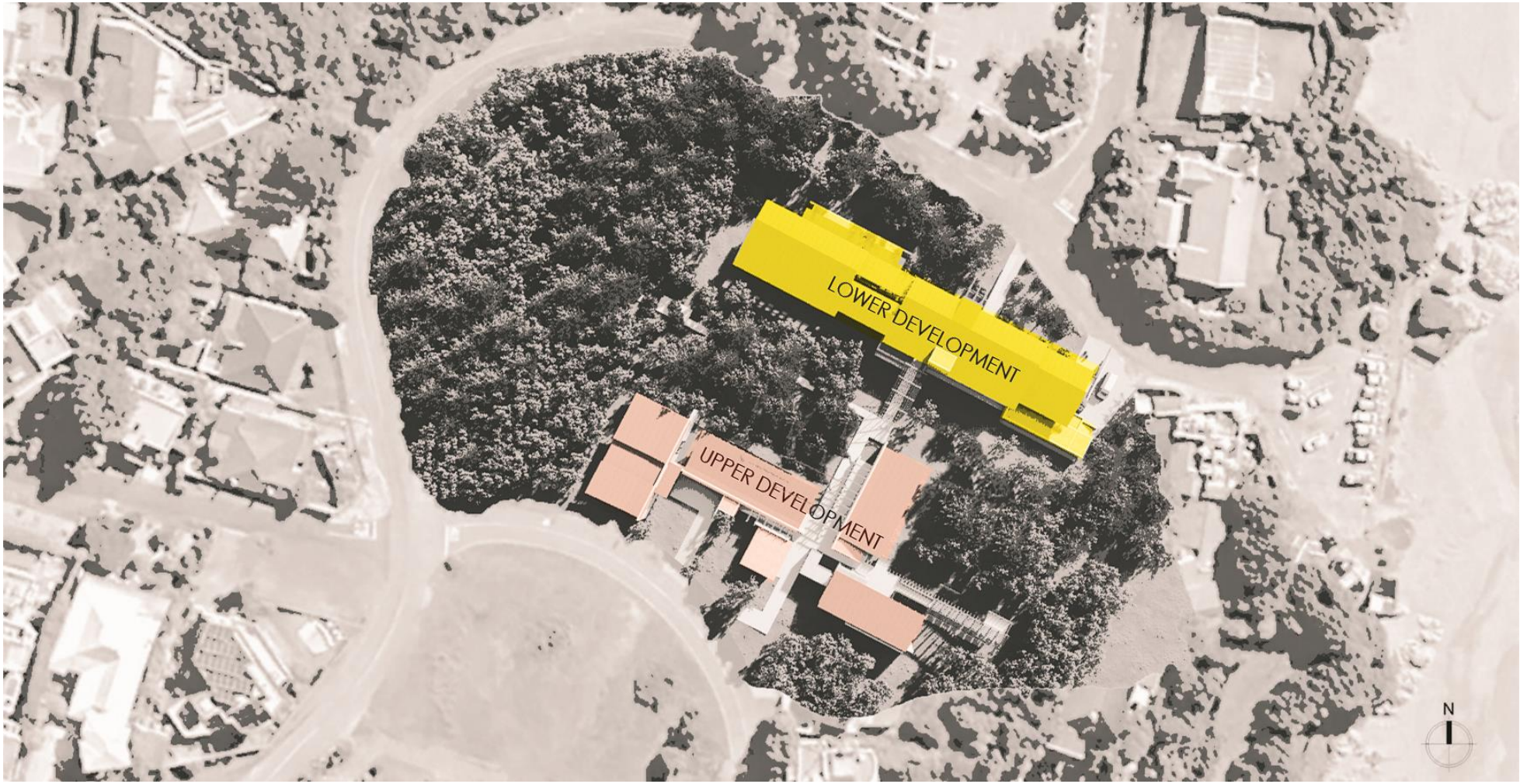


Figure 136: Upper and Lower Developments on site (Google Earth, 2023: online) adapted by author.

In the lower part of the site, there is an existing structure with trees that have previously been removed. In this area, open spaces that offer opportunities for expansions to the north and south are found. Because of the current state of vegetation in this specific area, it is possible to use more robust construction methods such as thicker walls and strip foundations without causing significant harm to the existing vegetation. This approach helps preserve the ecological health of the site.

However, the upper part of the site presents a different situation. It features even denser vegetation, particularly notable are the coastal shrubs that grow in the transition zone between the lower and upper parts of the site.

To ensure minimal disruption to this part of the site, the implementation of pile foundations are being considered. By utilising raised platforms supported by piles, both the subsurface root systems and the above-ground vegetation can be safeguarded from harm during the construction process, particularly in the development of the proposed student and public workshops.

The same considerations are made for the walkways expanding to the east and west of the site where even more dense vegetation is present.

Figure 137: Lower Development Conditions and Foundations (Author).

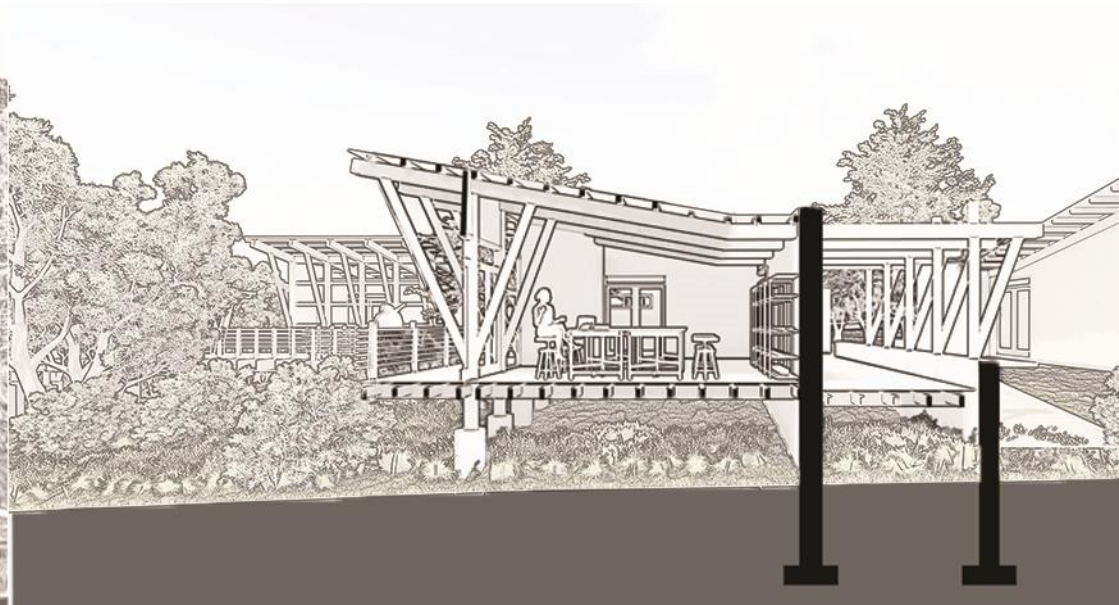
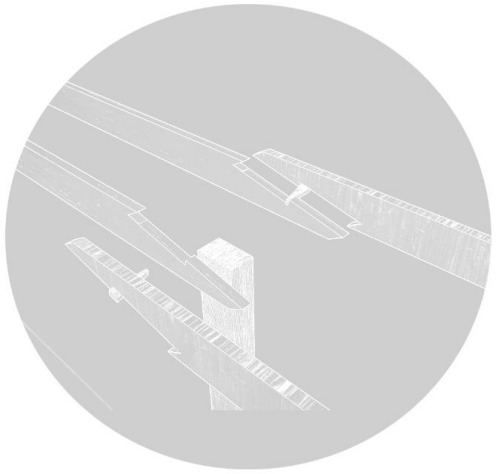


Figure 138: Upper Development and Foundations (Author)

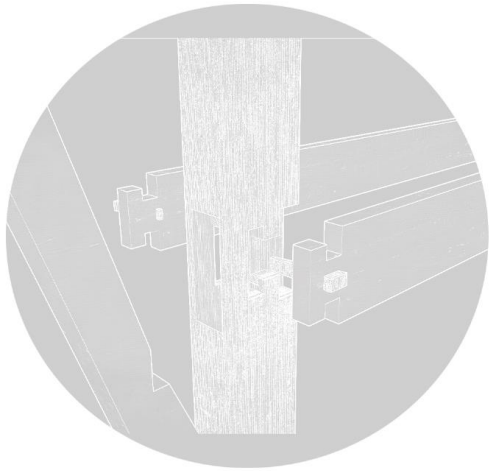
5.5 Joinery Details

This thesis places a significant emphasis on joinery, with a specific focus on dry joints. The design approach throughout the project accentuates the importance of joinery by revealing connections and incorporating various materials to highlight these connections.

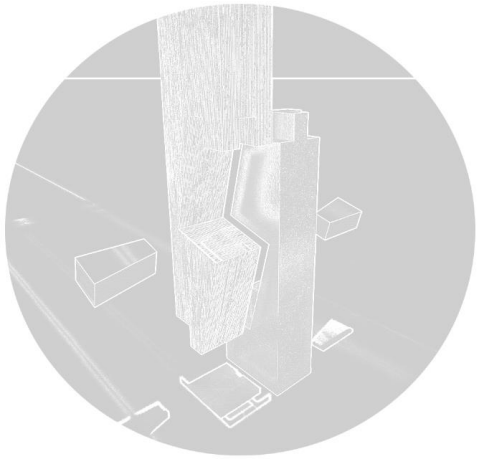
Given the significant influence of wabi-sabi on the thesis, Japanese joinery techniques take precedence in shaping the joinery methods employed in the design. Numerous types of joints have been incorporated into the design, each serving distinct purposes. Some joints are more suited for bearing compression loads, while others excel in handling tension. The following joints have been applied in the design:



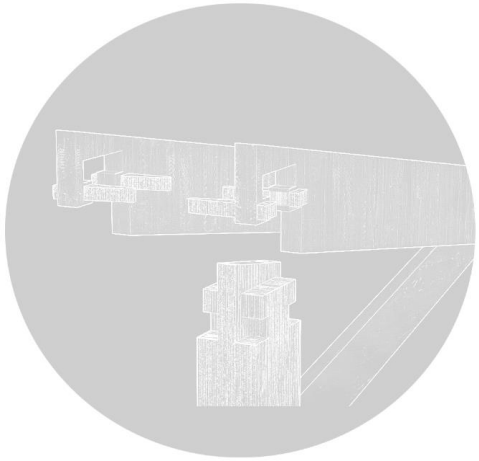
ADAPTED HOUSED SCARF JOINT
(USED IN COMPRESSION)



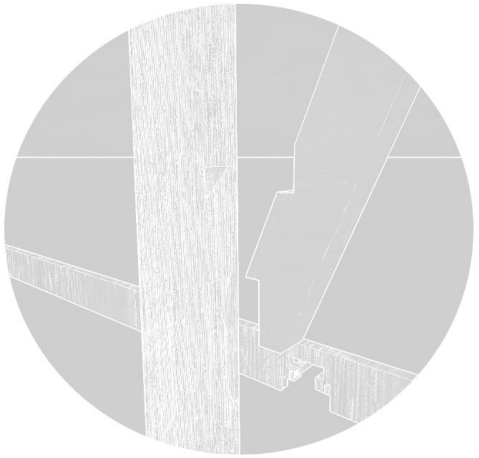
ADAPTED ASHIKATAME JOINT
(USED IN TENSION)



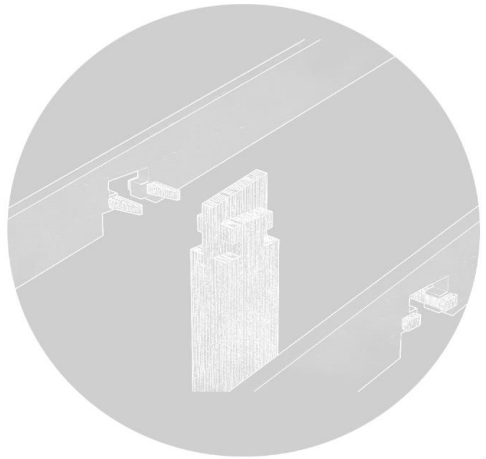
ADAPTED RABBETED SCARF JOINT
(USED IN COMPRESSION)



ADAPTED ASHIKATAME JOINT
(USED IN TENSION)



ADAPTED RABBETED OBLIQUE SCARF SPLICE JOINT (USED IN COMPRESSION)



ADAPTED ASHIKATAME JOINT
(USED IN TENSION)

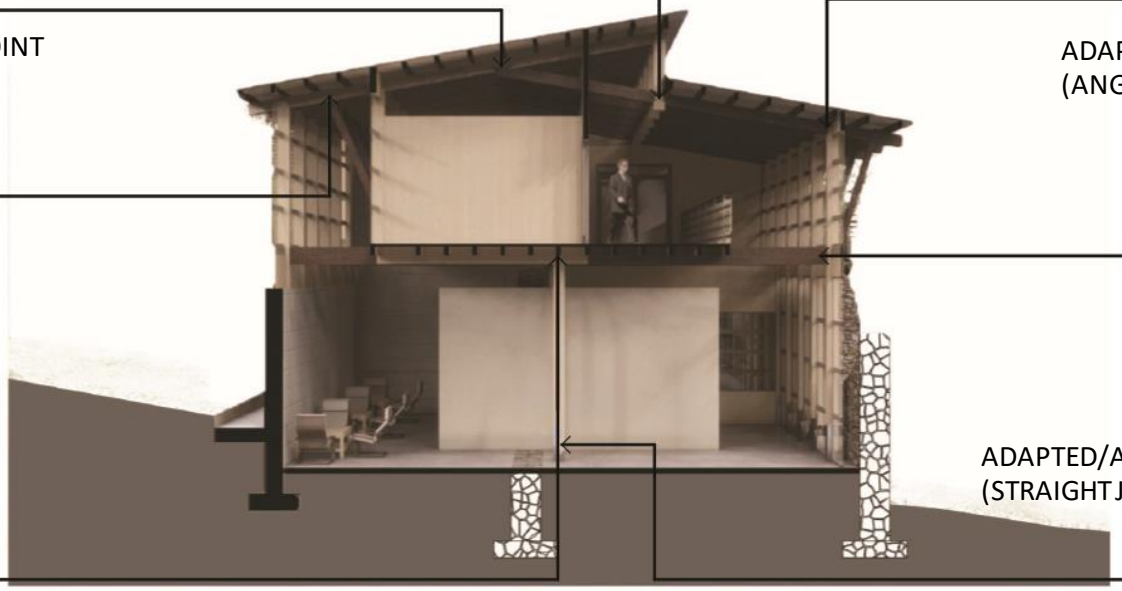
Dry Joints: The connection of elements without the use of screws, nails, etc.
Wabi-Sabi: Japanese philosophy concerned with finding beauty within imperfections.

Figure 139 - 144: Joinery Types Within Design (Author)

ADAPTED/APPLIED *ASHIKATAME* BEAM JOINT
(ANGLE JOINT)

ADAPTED/APPLIED DOVETAIL JOINT
(STRAIGHT JOINT)

ADAPTED/APPLIED *ASHIKATAME* RAFTER JOINT
(ANGLE JOINT)



ADAPTED/APPLIED *ASHIKATAME* RAFTER JOINT
(ANGLE JOINT)

ADAPTED/APPLIED *WATARI-AGO* JOINT
(ANGLE JOINT)

ADAPTED/APPLIED SLIDE JOINT
(ANGLE JOINT)

ADAPTED/APPLIED RABBETED SCARF JOINT
(STRAIGHT JOINT)

Figure 145: Adapted and applied joinery within design (Author)

5.6 Structure

5.6.1 Structural System

In the southern part of the site, we find the student and public workshops, which deviate from the structural system employed in the rest of the design. Here, the predominant construction method involves the utilisation of a timber frame, and these structures are supported by pile foundations, with the structural frame being enclosed by either windows or wooden walls.

This part of the site can be divided into three distinct spaces: the student workshops, the public workshops, and the offices. In each of these masses, a 330mm-thick stone wall acts as a strong load-bearing element on one side of the structure, while the other end relies on support from pile foundations. These structures feature mono-pitched roofs designed to direct water to runoff toward the thick stone walls, ensuring efficient drainage. This structural approach forms a great portion of the aesthetics of the design and creates a perfect balance between sturdiness and tectonic qualities within the design. Furthermore, the structure, combined with pile foundations allows for an eco-sensitive approach, disrupting as little plant life as possible.

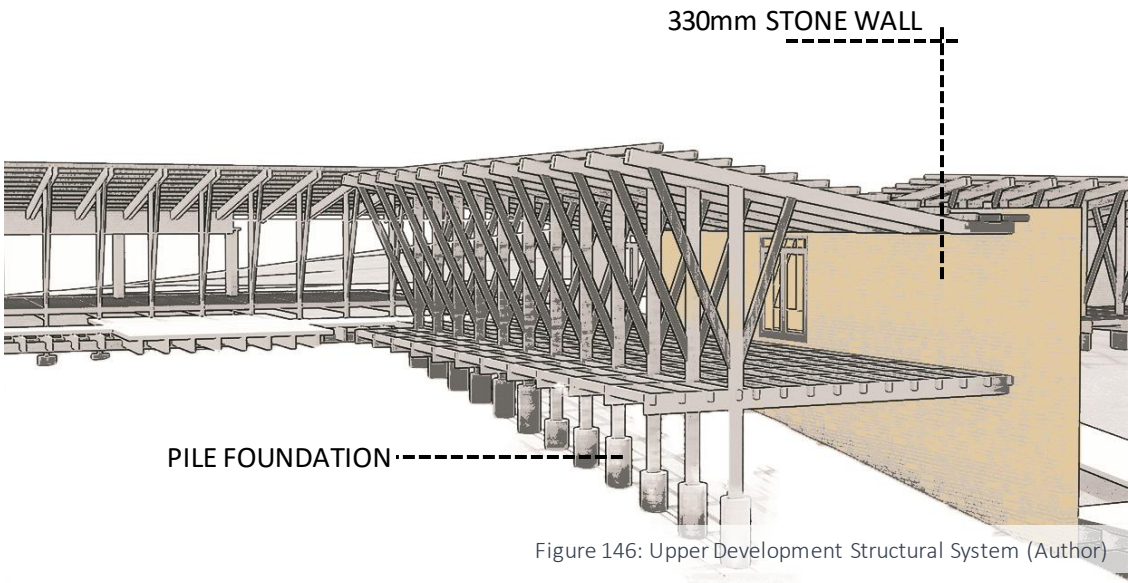


Figure 146: Upper Development Structural System (Author)

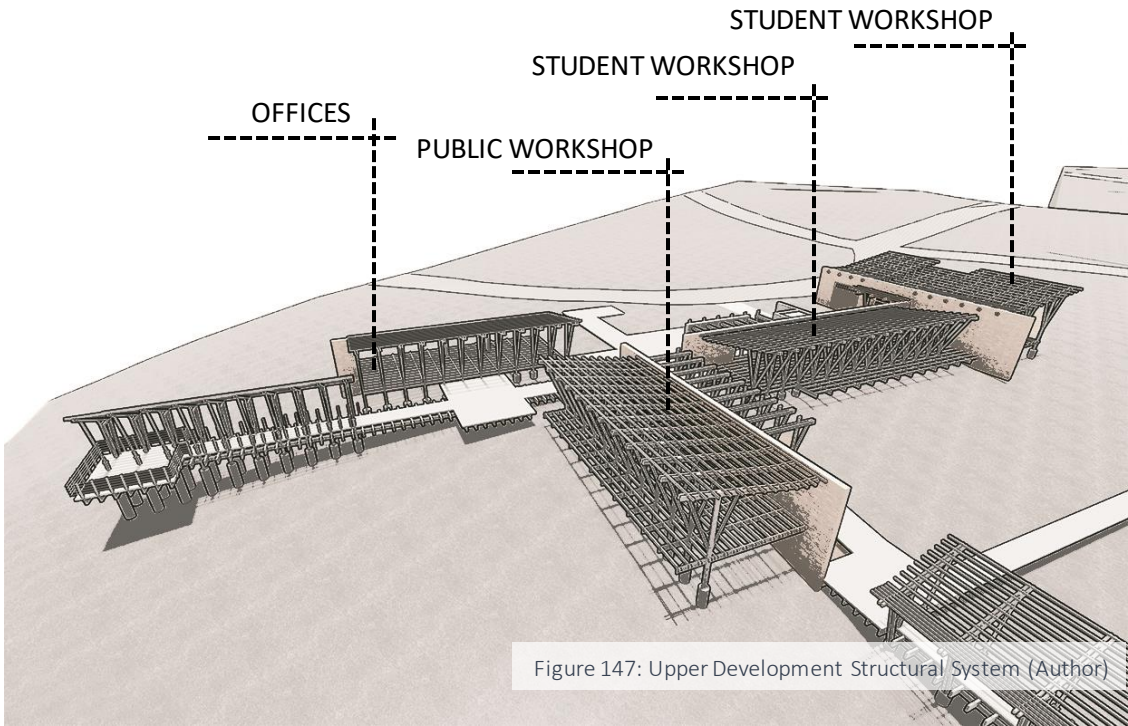


Figure 147: Upper Development Structural System (Author)

5.6.2 Structural Approach to Ruin

As indicated by the construction touchstone, the initial intent of the structural approach concerning the ruins was to be extremely sensitive, preserving the ruins' original state by not imposing any additional load on it, allowing it to exist freely. In accordance with this objective, the introduced structure adheres to this state, enclosing certain sections within the ruin while avoiding any contact with the ruin.

With this approach in mind, the structural framework contributes to the formation of new spaces within the ruin, where beams, posts, and connections are deliberately exposed, celebrating the craftsmanship involved in its construction. The structural profile is composed of four wooden posts, beams, and roof trusses that slope in opposite directions. This core profile of the framework is extended across the length of the ruin, effectively creating functional areas on both the ground floor and the first floor.

This integration of the structural elements with the ruins not only pays respect to the historical significance of the site but also offers users a unique and immersive experience, where the threshold between old and new becomes an architectural highlight.

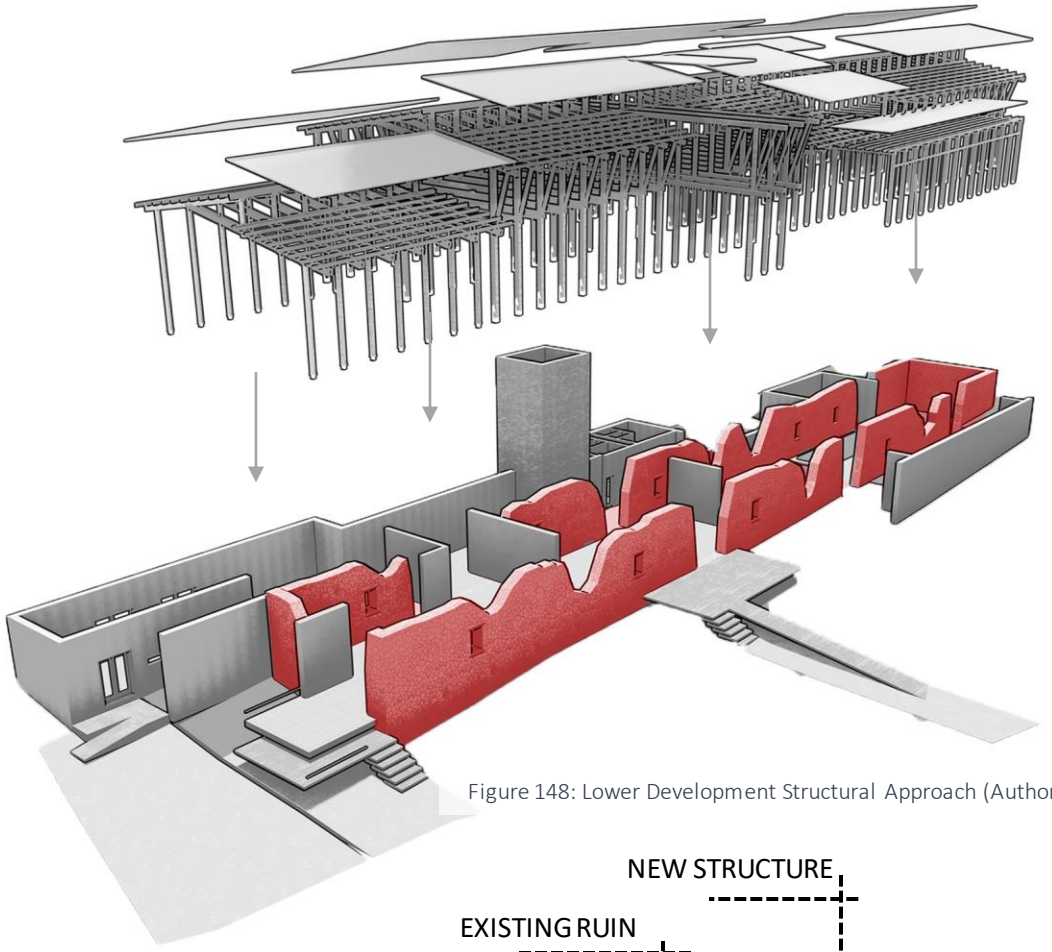


Figure 148: Lower Development Structural Approach (Author)

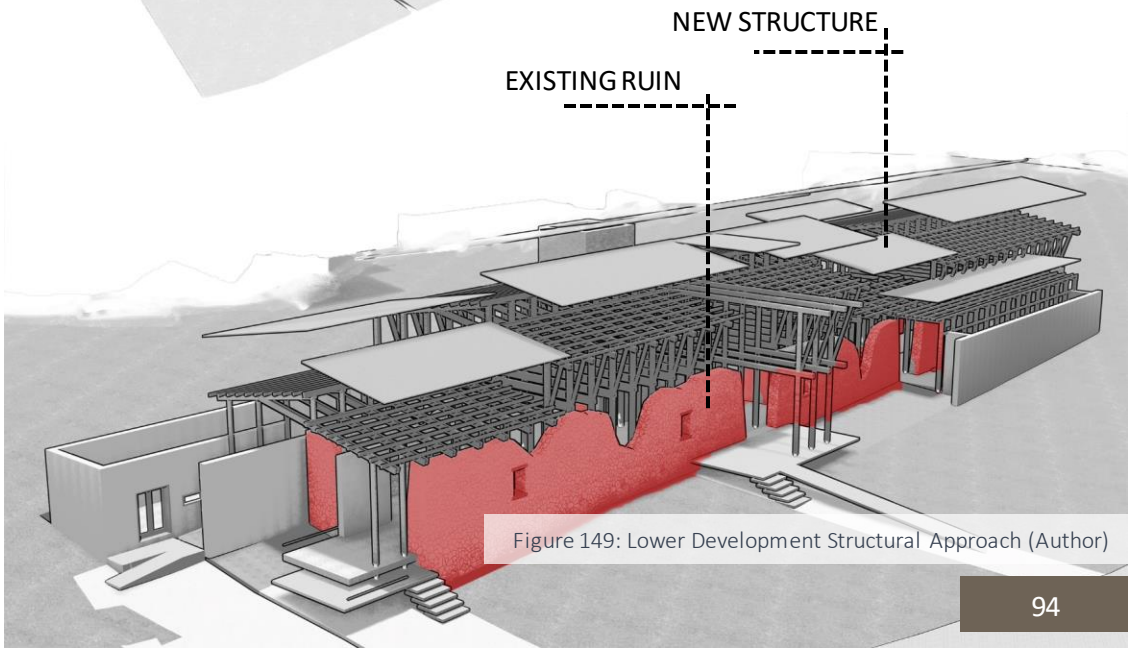


Figure 149: Lower Development Structural Approach (Author)

5.7 Materiality

Regarding the choice of materials, the design strives to preserve a profound narrative. The existing ruin, comprised of dry-stacked stone walls, was reinforced in certain areas through a unique technique involving the creation of specialised cement using seashells, sand, and ash mixed with water, providing much-needed strength to the walls where required.

To honour and perpetuate the historical significance of these materials, the same elements have been thoughtfully integrated into the additions of the design. In the southern section of the site, substantial stone walls have been incorporated, with the lower half strengthened to bear the structural load, while the upper portion retains the dry-stacked stone wall aesthetic, reflecting the balance between the solidity and delicacy of the existing stone walls.

Furthermore, seashell cement takes on a role as a wall finish in certain spaces within the design, such as the bathrooms. In these areas, the same traditional methods of blending shells with ash, sand, and water have been employed and meticulously applied to the walls, not only for their aesthetic appeal but also to leave a lasting impression.

Wood stands as another important material applied throughout the entirety of the design, and is used for not only the structural components but also interior wall finishes and the flooring on both the upper ground floor and the first floor. The choice to interweave stone and wood into the design is a deliberate consideration to the site's historical functions and aesthetics, creating a seamless connection between the past and the present while offering a tactile and visually compelling experience to all who engage with the space.

Figure 150: Existing Dry Stacked Stone Wall (Author)

5.7.1 Types of wood used in structure

Figure 151: Applied Cedar Wood Texture (Nedecky M, 2017: online)

Figure 152: Applied Oak Wood Texture (Nedecky M, 2017: online)

Figure 153: Applied Meranti Wood Texture (Nedecky M, 2017: online)

Figure 154: Applied Cedar Wood Texture (Nedecky M, 2017: online)

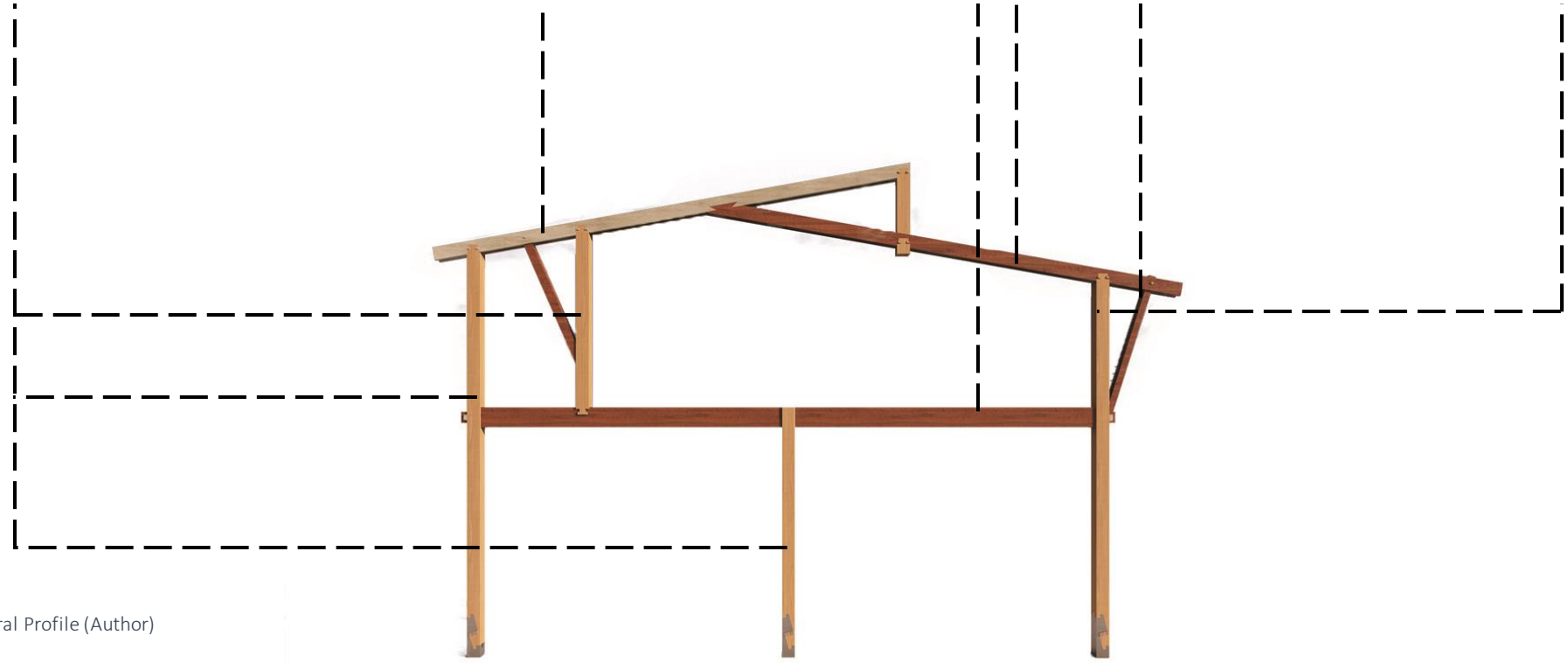


Figure 155: Structural Profile (Author)

5.8 Conclusion

In conclusion, this chapter has delved into the technical aspects of the architectural design, showcasing the importance of various components such as the construction touchstone, environmental considerations, microclimate analysis, foundation details, structural system details, and materiality. Choices of materials, construction methods, and details all play an important role in the design's functional and aesthetic qualities.

Throughout this exploration, the significance of aligning the design with the specific structural requirements and constraints has been highlighted. Different foundation types have been explored and their relevance is dependent on their circumstances.

Furthermore, the detailed exposition of the structural system choices sheds light on their important role in not only maintaining stability and load-bearing capacity but also contributing to spatial formation within the design in a way that is sensitive to both the ruin and vegetation on site.

06

CONCLUSION

Figure 156: Joinery and process drawing (Author)

6.1 Conclusion

In conclusion, the proposed woodworking and trade school in Plettenberg Bay, South Africa, represents a visionary initiative that seeks to rekindle the appreciation for woodworking, craftsmanship, and the local trade industry. By creating a harmonious blend of exhibition, educational, and social spaces, this project aims to bridge the gap between the rich historical background of the region and the contemporary practice of woodworking and craftsmanship.

The school's commitment to preserving the site's historical value and character highlights its dedication to safeguarding the region's cultural heritage. As this project takes shape, it has the potential to become a symbol of renewal and revitalization, reigniting the fading memories of the area's woodworking and trade legacy. The establishment of this school holds promise for not only enlightening students and the public about woodworking but also celebrating the local trade industry. It's a testament to the power of education and cultural preservation, and it signifies a bright future for Plettenberg Bay and its heritage.

It is crucial to adopt delicate strategies when dealing with a historical site like the Old Timber Shed. Rather than attempting to convert the dilapidated structure into something aesthetically pleasing and commendable, it is vital to accept and showcase its flaws and "worn" characteristics.

Furthermore, it is evident that architecture has the potential to honour the art of woodworking and enlighten individuals, whether they are visitors or students, in unexpected ways. Architects often conceal the significance of joinery and the construction techniques used in a building. This proposed design illustrates that by highlighting the craftsmanship involved in both architecture and woodworking, it may inspire artists, carpenters, or other enthusiasts to nurture their woodworking skills.

By carefully considering the above-mentioned attributes, one facilitates the development of a space that not only imbues significance for its occupants and surroundings but also pays homage to its inherent historical importance.

6.2 Reflection

This study explores both philosophies and techniques related to woodworking and its place within architecture. As a master's student I had the privilege to choose this project for the year. As timber construction isn't fully developed in South Africa, and we as locals aren't necessarily educated to perform all techniques involved in timber construction, it was very intriguing to educate myself around techniques used in an experienced country such as Japan. Furthermore, their philosophies also teaches one to appreciate the imperfections of life, and instead of trying to make it perfect, embrace the imperfections and see the beauty within.

As a student who explored the creation of spaces that are shaped through structure was completely new to me, and I learned that interesting spaces can be designed and created even through repetitive timber structural profiles. Personally, it was a great journey to learn about joinery techniques and its application in timber structures.

I truly hope that this document, to whoever may read it, make them realise that there are more to imperfect things in life, and that a philosophy such as wabi-sabi might lead to them exploring their curiosities related to craftsmanship.

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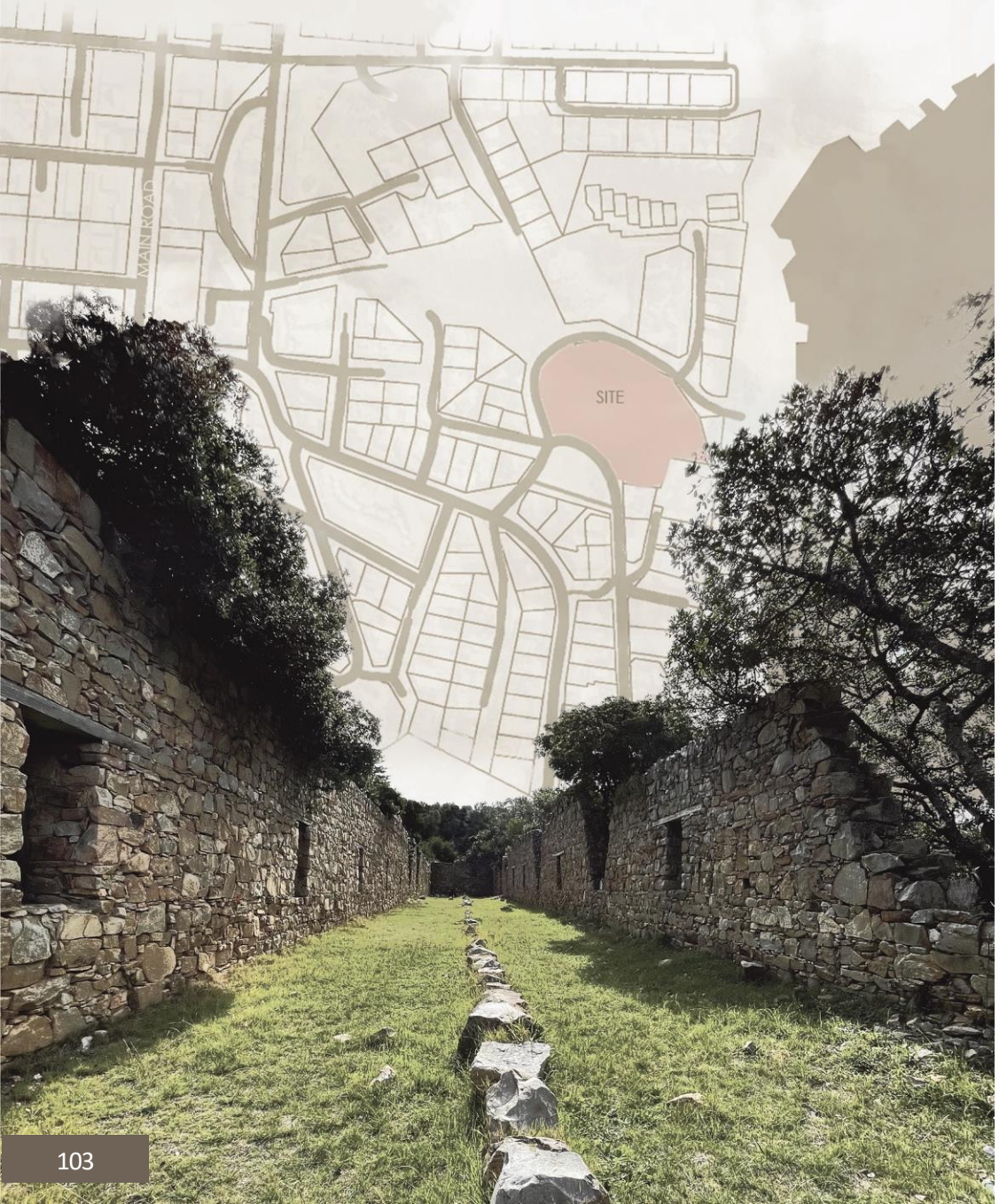
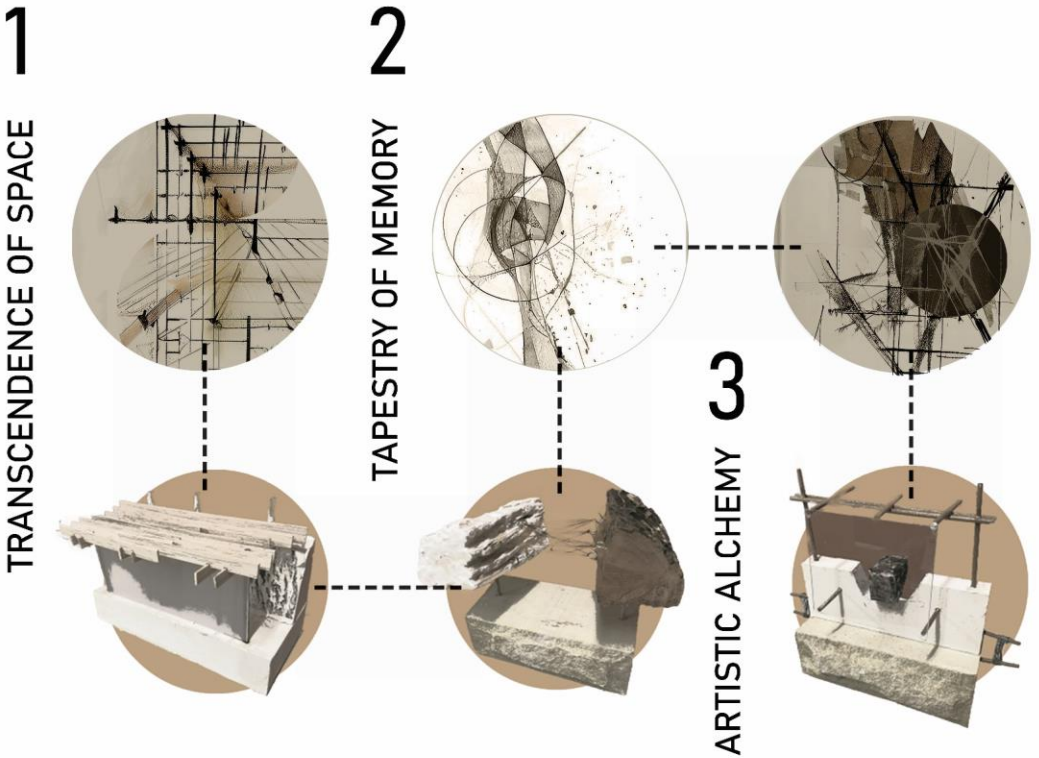
MATERIAL MEMORY

A WOODWORKING AND TRADE SCHOOL IN PLETTENBERG BAY, SOUTH AFRICA.



CONCPETS



TOUCHSTONE

THEME

The dissertation revolves around the central theme of joinery as an influence on architecture, structure, and craftsmanship. Initially, the theoretical framework will delve into the significance of Japanese joinery and its relevance within the realm of architecture. Furthermore, the theory will explore the concept of wabi-sabi, its traditions associated with woodworking, and its practical implications in architecture.

AIMS

The dissertation seeks to create a space that serves as a catalyst for education, providing a unique platform for individuals to learn about woodworking, history, and trade. The design in itself aims to act as a piece of craftsmanship, and something that can educate. Furthermore, the design endeavors to celebrate the continuation of a forgotten history, paying homage to the region's rich heritage and rekindling an appreciation for its past.

RESEARCH QUESTION

How can the incorporation of joinery techniques and wabi-sabi principles inform a sensitive approach to heritage preservation, through the thoughtful integration of functional joinery, structural elements, and material narratives, to achieve a balance between the historical past and contemporary present in the design of a woodworking and trade school in Plettenberg Bay?

SITE

The site is located on the eastern side of Plettenberg Bay, partially overlooking Hobie Beach. The site, today known as 'The Old Timber Shed', has a rich history to it with its remains reflecting the origins of Plettenberg Bay. The remains exist of four walls and no roof and are surrounded by dense vegetation, mainly trees.

THE RUIN & HISTORICAL BACKGROUND

In early 1786 Lt. J.G van Reenen was sent to Plettenberg Bay to construct a shed and to assess the possibility of a constant timber supply to the Dutch East India Company in Cape Town. The shed was used to store processed yellow wood after being transported from the Piesangs River and moved to the shed by an ossewa. It was to be 61 meters in length, 6,71 meters in width, and 3,96 meters in height. Two doors on each end of the shed were requested with each opening being 3,2 meters high and 1,83 meters wide for an ossewa to fit into the shed. The shed as it stands today is known to be the second oldest building in Plettenberg Bay, with the Old Rectory Hotel, just north of the site, being the oldest.

The remaining walls of the shed are constructed of dry-stacked stone in various sizes and the window openings that are still left are supported by yellowwood lintels keeping the opening from collapsing. Some of the yellowwood lintels have collapsed over the years leaving a memorable silhouette of the ruin as a part of the history on site.

PRECEDENT 1: THE PARCHMENT WORKS HOUSE BY WILL GAMBLE ARCHITECTS

Will Gamble Architects breathed new life into a dilapidated 17th-century structure by incorporating a sleek addition made of steel, brick, and glass. The chaotic charm of the ruin creates a striking contrast against the contemporary design, which expands the original Victorian-era residence. To maintain harmony with the surroundings, the architects mainly utilized reclaimed materials for the facade's brickwork in the new section, sensitively blending it into the environment.

The purpose of analysing this building was to gain deeper insights into how new additions can be seamlessly integrated into a ruin, preserving its prominence and essential role within the design. The ruin serves as a unifying element, threading its historical significance throughout the design and simultaneously creating thresholds within both interior and exterior spaces. Additionally, the collapsed sections within the ruin form circulation spaces, enabling dwellers to move

PRECEDENT 2: TAMEDIA OFFICE BUILDING BY SHIGERU BAN ARCHITECTS

The Tamedia office building represents the use of Japanese joinery in a great way. The primary timber structure of this building is to a great extent its most significant quality. Exposing the structural elements and timber frame gives special character and high-quality spatiality to the working atmosphere. This building mostly makes use of 'dry joints' within the timber framework of the building. The primary structure consists of thick timber posts, with beams sliding through them. Although these joints can be seen as one of the more basic joints when it comes to Japanese joinery, it clearly depicts that simplicity can also contribute to the character of a building.

freely throughout the building and traverse the thresholds of the ruin seamlessly.

. Some of the yellowwood lintels have collapsed over the years leaving a memorable silhouette of the ruin as a part of the history on site.

MATERIAL MEMORY

A WOODWORKING AND TRADE SCHOOL IN PLETTENBERG BAY, SOUTH AFRICA.

ALTERNATIVE SITE ANALYSIS: SYLLABLES IN STONE

Problem Statement

A stone wall's construction method reveals a particular story that is specific to its character. It stands out from a typical wall not just because of its aesthetics but also because of the special way the stones have been placed. Smaller measures of the historical narrative must be taken in order to comprehend what it once was because the existing ruins only represent a portion of the historical narrative.

Poiesisphilia

"Stone walls, despite being made of one of the heaviest objects on the planet, all have a lightness and delicacy in the way the stones touch and balance." (Zeitlin, 2016: online). In order to understand the unique character of a stone wall, the in-between has to be measured. Like the best poems, the lightest things on the planet (words), demonstrates a sturdiness, with words coupled so perfectly that one cannot be removed without the whole structure crumbling. The in-between demonstrates the level of lightness and delicacy as well as the sturdiness of a wall. It demonstrates how shape, size, and orientation contribute to sturdiness. It's the in-between that provides a stone wall with individuality and a narrative of its own, and by measuring the gaps, a part of that narrative is revealed.

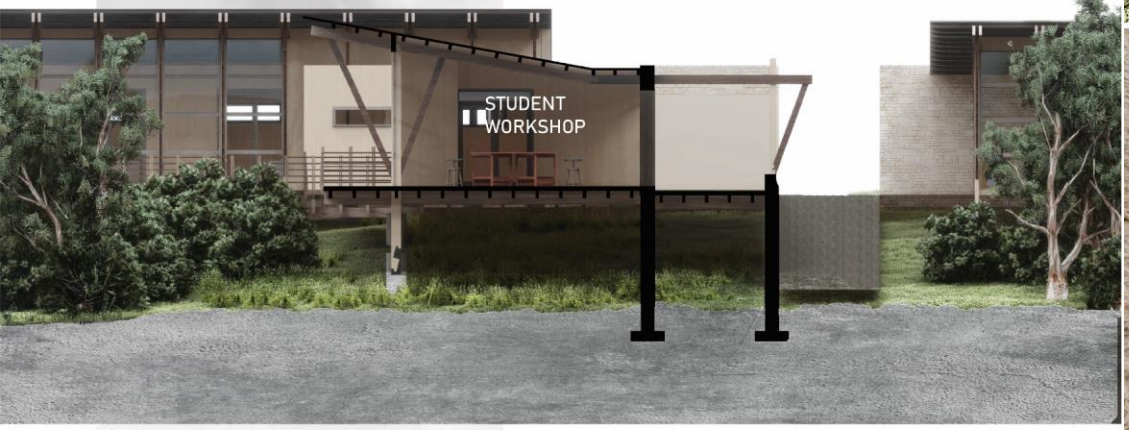
N

SITE PLAN
SCALE 1:500


EXHIBITION
EXHIBITION
FOYER
RESTAURANT
RESTAURANT LOUNGE
KITCHEN
COLD STORAGE
DRY STORAGE
CONTROL OFFICE
N
LOWER GROUND FLOOR
SCALE 1:100
NORTH ELEVATION LOWER DEVELOPMENT
SCALE 1:100


LIBRARY
LIBRARY LOBBY
OFFICE
OFFICE
OFFICE
PUBLIC WORKSHOP
STUDENT WORKSHOP
STUDENT WORKSHOP
WORKSHOP DELIVERIES
LOOKOUT POINT
RECEPTION
OFFICE LOUNGE
BOARDROOM
OFFICE
OFFICE
OFFICE
N
UPPER GROUND/FIRST FLOOR
SCALE 1:100
NORTH ELEVATION UPPER
SCALE 1:100

SECTION B-B
SCALE 1: 50

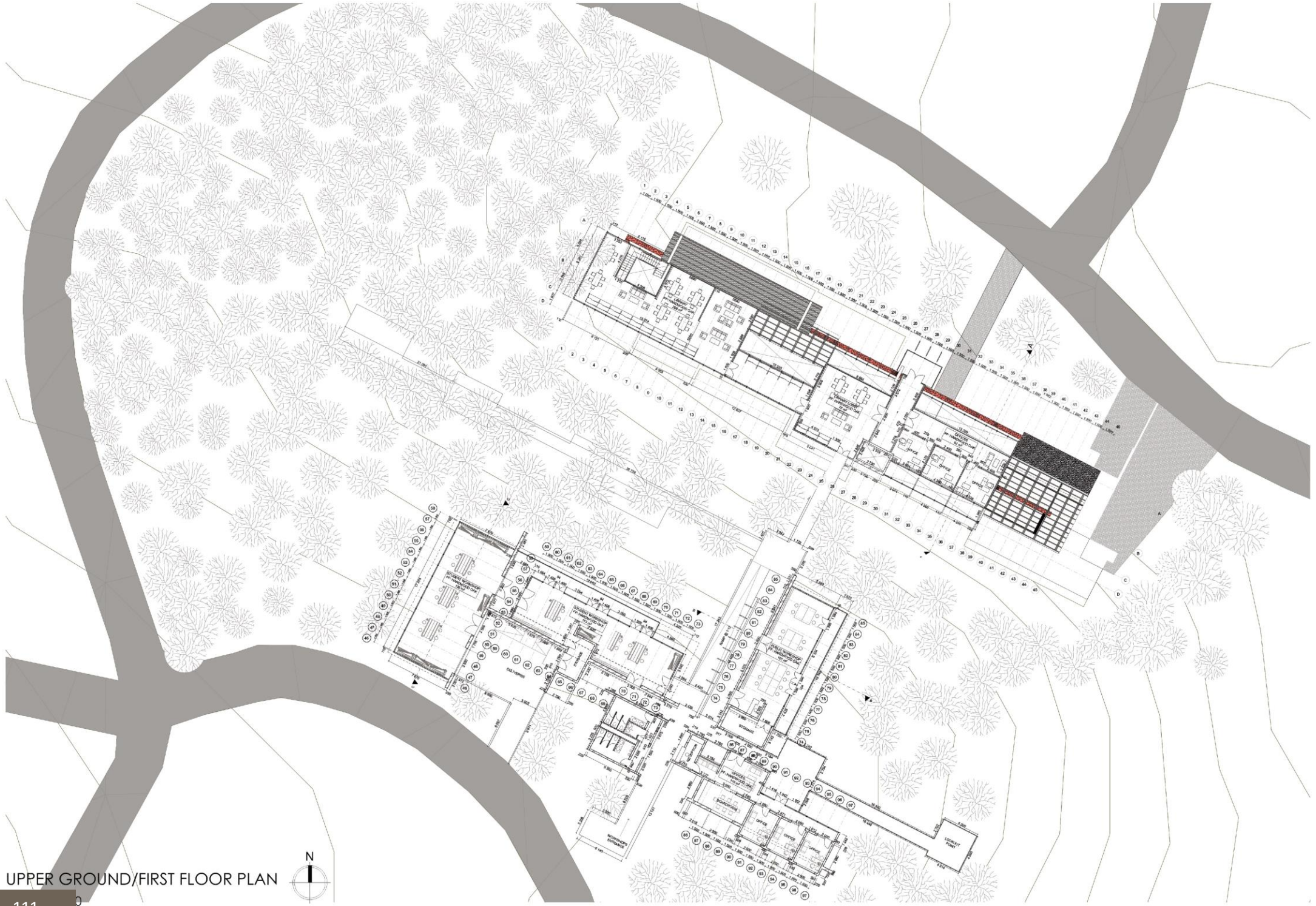


SECTION C-C
SCALE 1: 50

PECTIVE A-A

LOWER GROUND FLOOR PLAN

SCALE 1:200



UPPER GROUND/FIRST FLOOR PLAN

HERMAN VILJOEN

SITE PLAN
SCALE 1:500

N

ADAPTED RABBETED SCARF JOINT (COMPRESSION)

ADAPTED SLIDE JOINT (COMPRESSION)

ADAPTED AHIKATAME BEAM JOINT (TENSION)

ADAPTED DOVETAIL JOINT (TENSION)

ADAPTED WATARI-AGO JOINT (COMPRESSION)

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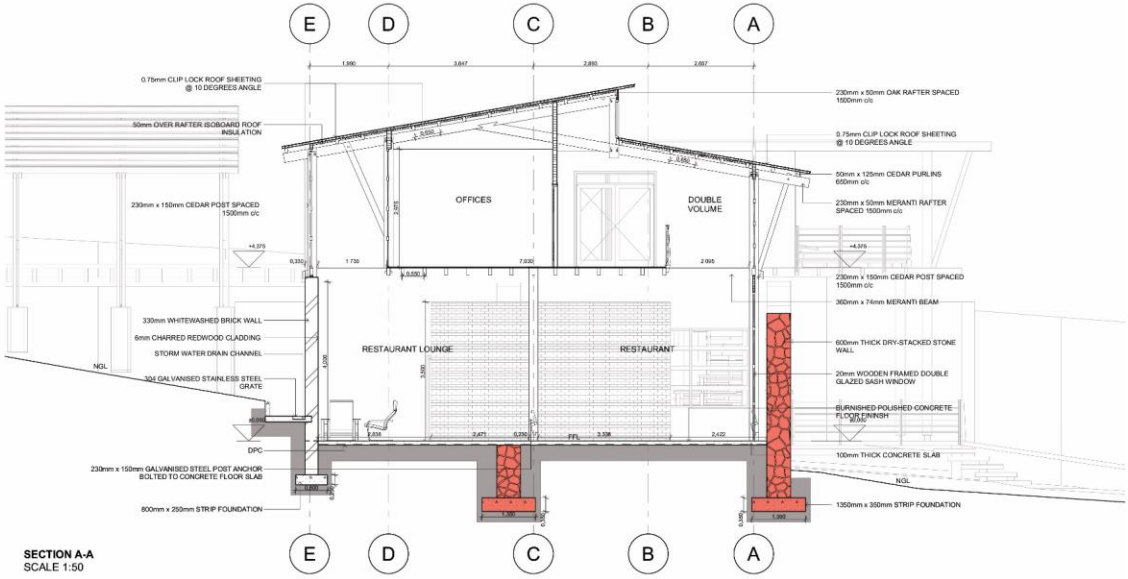

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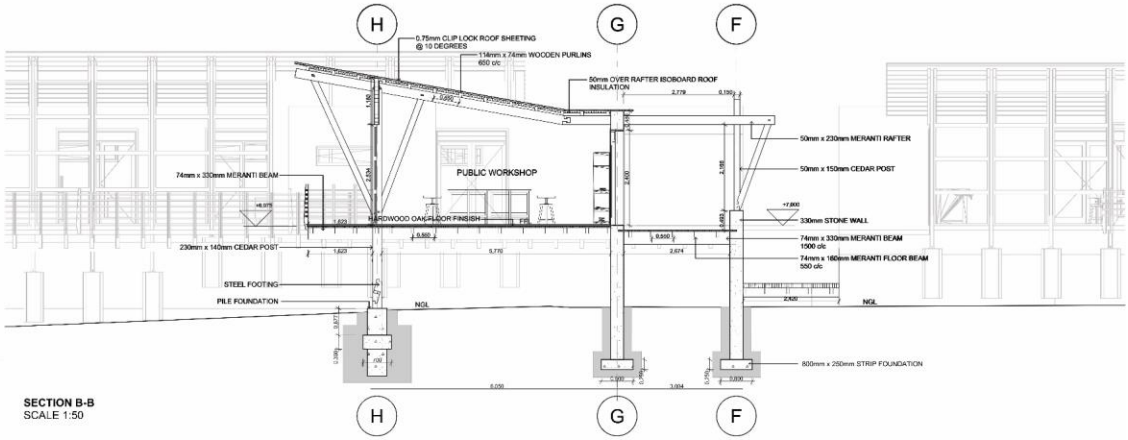

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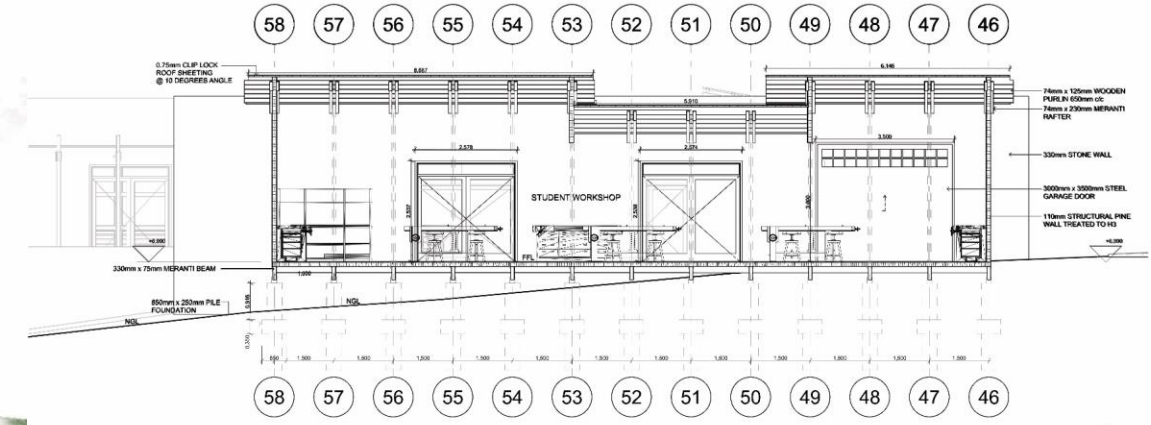

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