PAUSE THROUGH SHADOW

Dylan Cawte, 2022

A design thesis submitted to Auckland University of Technology in fulfillment of the requirements for the degree of Master of Architecture (professional)

ATTESTATION OF AUTHORSHIP

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgments), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning."

ABSTRACT

This thesis seeks to explore if a multi-sensory building on the banks of Te Whau (the Whau) can have a profound influence in connecting people back to the awa (river). Through design making and testing I investigate various atmospheres through the manipulation of naturally derived materials and weather to gain an understanding of how we inhabit a space, and consequently, experience, learn and know more about our environment.

The proposed location, an old landfill, and brickworks site on the banks of Te Whau Awa, known as Archibald Park, is located west of Tamaki Makaurau Auckland, in the suburb of Kelston. The park lies alongside the ever-changing tidal estuarial arm of Waitemata Harbour and will soon be a major link in the Te Whau Pathway project. A new 15-kilometre-long pathway and boardwalk under staged construction, will connect multiple suburbs and recreational green spaces along the awa. This multi-sensory architecture will be located at the southern end of the park; it will bisect the pathway creating a crucial riverside pause point.

Te Whau banks are comprised of clay. The former brickmaking activities on the site inform an investigation of utilising brick as a material that can reference the whenua (land). In the project, brick and other naturally derived materials are explored based on their potential to register the elements of weather.

Programmatically the centre will offer kayak and bike hire, areas for bathing, washing, and relaxing as well as a place that offers refreshments and kai (food). The building has community rooms to host small scale local activities; classes, hui, talanoa, music, crafts, chess, dance, and yoga as well as storage facilities for residents to store their kayaks. In this way, local activities are bought into proximity with the awa allowing inhabitants to spend time reconnecting and engaging with this urban waterway.

Juhani Pallasmaa proposes that contemporary architects have lost touch with the fundamental sensory and mental issues concerning our relationships with our physical settings.[1] This thesis addresses this through multiple test models and academic literature research from the perspective of Pallasmaa, Hill, Zumthor and Kahn.

Key words: multi-sensory building, atmospheres, weather and weathering, brick building

[1] Pallasmaa, “The Sixth Sense,” 86.

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A huge thank you to Kathy Waghorn for your constant support and guidance throughout this year. Seeing you go through a difficult time personally and still being there 110% for us students is truly inspiring. You are simply the best and I feel grateful I had you as my supervisor. Also, to my amazing partner, Oly for always pushing me when I thought I had nothing left in the tank.

DEDICATION

This is for you Mel <3

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ONE
Introduction

PEPEHA

Ko Whitby ōku waka
Whitby is my waka-ship

Ko Ngāti Pakeha tokū hapu
Ngāti Pakeha represents my tribe of fair complextion

Ko Cawte, ko Tapuae-o-Uenuku ngā maunga
Tapuae-o-Uenuku is my mountain

Ko Goulter, ko Ōpaoa ngā Awa
Ōpaoa is my river

Ko Dean Houghton Cawte tōku papa
Dean Cawte is my father

Ko Susan Moira Cawte tōku mama
Susan Cawte is my mother

Ko Dylan Nicholas Houghton Cawte ahau.
My name is Dylan Nicholas Houghton Cawte

Nō reira, tēnā koutou tēnā koutou tēnā tātou katoa
Therefore, greetings to you all, greetings to you all, greetings to us all

RESEARCH QUESTION

Research Question: How can a multi-sensory building, have a profound influence in connecting people back to the Awa?

Research Sub-question: How can the expression of naturally derived materials be transformed through weather and weathering?



Fig. 01: Wai Te Whau Location

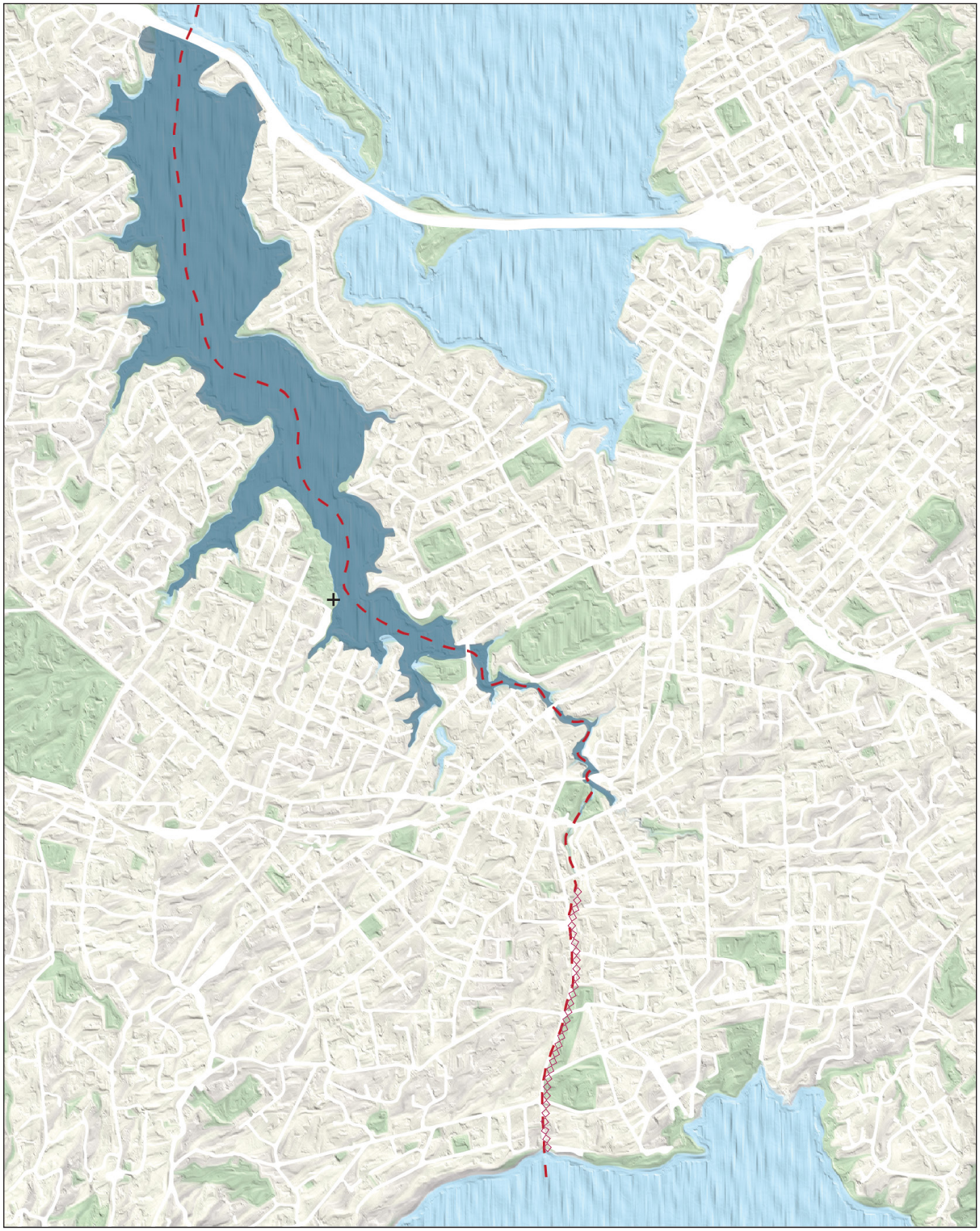

Fig. 02: Te Whau Awa with the historical portage route in dashed lines

– – Historical Portage Route
◇◇◇◇ Isthmus at Green Bay
\+ Proposed Site

INTRODUCTION

Pause Through Shadow investigates how a building on the banks of Te Whau could bring residents back in touch with the awa after urbanisation has left a divide between the two. This thesis focuses on Te Whau Awa, an estuarial arm off the Waitemata Harbour, West of Tamaki Makaurau Auckland. Decades ago, Te Whau Awa was a sanctuary for native New Zealand birds and lush green forests lined the estuary, which flowed pollutant free into a blue harbour.[2] Crossing from the East Coast to the West Coast, alongside Rosebank Peninsula, Te Whau Awa is a significant waterway once used by Māori as a critical portage route connecting two harbours, the Waitemata and the Manukau (refer to Figure 2).

Te Whau Awa was a recreational area; affluent families from Tamaki Makaurau Auckland and residents from Te Whau spent time fishing and swimming in the awa while lorries and wakas (canoe) were used to transport food and goods. During the European colonisation of the Whau area, the awa suffered dramatically through industrialisation of the booming brickworks and tanneries that occupied the banks of the awa, disposing their waste straight into the water.[3]

Today, thousands of meters of roads have become the primary source of transportation, as a result the awa is polluted and disconnected from the buildings, the people, and the rich history.

Now, Te Whau Pathway and other projects aim to shed light on the regenerative future of the awa. Whau Pathway, a new 15 km long recreational and transportation route under staged construction, will restore and enhance recreational activity and ecological health to the awa,[4] by providing safer pedestrian and cycle networks through the western suburbs, parks and schools of Tamaki Makaurau Auckland.

Pause Through Shadow looks at one specific site along the western side of the awa. From the late 1870's this area housed a brickworks site. For over 40 years bricks were produced on the banks of Te Whau until the Archibald family sold the property in the 1950s. In the 1960's it became a landfill and in later years major reclamation was carried out at the awa's edge to make way for a recreational sports field for Kelston Boys High School, now known as Archibald Park [5] (refer to Figures 7, 8 & 9).

This thesis seeks to explore if a multi-sensory building on the banks of Te Whau could have a profound influence in re-connecting residents to the awa. It explores different atmospheres through model making and testing to gain an understanding of the manipulation of naturally derived material through weather, how it might impact the way we inhabit a space and consequently, learn, know, and experience our environment. Moreover, it asks how the expression of such materials can be transformed through weather and weathering to elevate the user's experience of time and space.

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[2] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 16.
[3] Mackay, 19.
[4] "Te-Whau-Pathway-Uldf-Volume-2.Pdf," 70.
[5] Farley et al., "Te Whau Pathway Main Route, West Auckland: Archaeological Assessment," 15.

This thesis is divided in to 5 parts, Part 1, Pepeha, Site and Context. Part 2, Weather and Weathering, Architecture and the Senses, and Materiality and Atmosphere. Part 3, Precedent Studies, Part 4, The Design Proposal and Part 5, the Findings and Summary.

Part 1 explores the rich history of Te Whau Awa; it examines the wider context to understand current projects such as Te Whau Pathway. Further research looks at the chosen site, Archibald Park by analysing the whenua and environmental patterns that connect the speculative building to the land.

Part 2, dives into academic literature on weather and weathering, multi-sensory architecture and materiality and atmosphere from the perspective of key theorists such as Jonathan Hill, David Leatherbarrow, Juhani Pallasmaa, Gernot Böhme, Peter Zumthor, and Louis Kahn.

Part 3 discusses a curated selection of precedent projects, each investigating a different aspect of multi-sensory design (weather, materiality, and atmosphere). Examples include The Kimble Art Museum, which sees Kahn developing a layered journey into the museum through naturally derived materials, water, shadow, and light, that distract and disconnect the user from the outside world. The Thermal Baths at Vals, designed by Peter Zumthor, explores the deep connection between the surrounding environment and the architecture while looking at how the minimalist design carefully displaces natural light through the deliberately broken structure. The third study looks at a house in New Zealand, designed by Herbst Architects. The Waiheke Lantern House is explored in person, by me, to uncover the true feeling of a building that encapsulates one with its multi-sensorial design.

Part 4, The Design, a multi-sensory recreational centre on the banks of Te Whau, aims to reconnect residents back to the once thriving awa. The speculative building will predominantly be constructed out of brick, referencing the sites history. The speculative building will be highly influenced by precipitation, it will invite the weather in, creating experiences that help foster a deeper connection between resident/visitor, site and awa.

The design interlaces its footprint with the Te Whau Pathway and allows for people passing through the centre to pause and connect with local activities and the awa.
Programmatically the centre will offer all tide access for kayaking and paddle board hire. There will be areas for bathing, washing, and relaxing as well as a place that offers bike hire, refreshments, and kai. The building has community rooms to host small scale local activities; classes, hui, talanoa, music, crafts, chess and yoga. Storage facilities for residents to store their kayaks and paddle boards will also be available.
The design methodology is tested through sketch, 3d modelling and model-making to better understand atmospheric spaces. Each model is manipulated through photography to erase the unwanted scale, focusing the eye on material, light and water.

Part 5, Findings and Summary. Through an extensive review of academic literature and testing, this thesis uncovers many findings that have heavily influenced the outcome of the final speculative design. It addresses the importance of heavy shadow and light shadow, weather and weathering and the power of the senses that is elicited due to the combination of the various aspects. It explains how rich materials and atmospheres go hand in hand and how the speculative building aims to mediate between the disconnected awa and the visitor, to create a place that fosters new beginnings through strengthened nature-culture relations.

TWO

Wai Te Whau





INTRODUCTION TO MUDDY URBANISM

The Muddy Urbanism Lab is an ongoing urban research project focussed on the future of the Wai Te Whau, (the Whau river) in Tāmaki Makaurau Auckland. Te Whau bisects the inner west of Tāmaki Makaurau Auckland. Used as a portage connecting two harbours for Iwi it has provided a natural infrastructure of kai (food), connection and economic production. In the colonial economy the river played a crucial role in the urbanisation of Auckland, as both a transport route and as a source of clay. Bounded by the Rosebank Peninsula and the suburbs of Avondale, New Lynn and Kelston, the river continues to drain away by-product materials from factories and other businesses located on the riverbanks. In latter decades Te Whau, like many other waterways, has lost this 'mobilising' significance and infrastructural importance, and has become ecologically degraded. However, with municipal boundary changes in 2010, the river now sits at the geographical centre of the Whau Local Board area, and this local authority, iwi and others have started to embrace the opportunities a re-connection with the waterway could offer.

Led by HOOPLA, since 2013 the Muddy Urbanism Lab has worked with students, independent researchers and community groups to collaboratively re-imagine the regenerative future of Te Whau. The Lab has produced an archive and a series of speculative urban proposals, leveraging the powerful nature of utopian thought in imagining possible futures for the river and its neighbourhoods. The Muddy Urbanism research has been widely exhibited and published, circulating these speculative proposals with the anticipation that these might enter the public imagination. This has been a fruitful strategy with the proposal for a river-side linear park taking hold, and now a project in the first stages of construction known as Te Whau Pathway.

In 2021 at Huri Te Ao Hoahoanga (AUT's new School of Future Environments) five Lab members Ilycia Laverty, Rebecca Burgess, Nakitha Nagabhushan, Mia Zhang, and Dylan Cawte through our design research thesis projects have asked how we can extend the impact of Te Whau Pathway as a new opportunity for reconnection to the awa. Each lab members' speculative project takes a site along Te Whau Pathway and imagines its specific potential as a neighbourhood or regional place along the linear path. Through this research we have each developed a specific programme for our locations and tested this through design-making, with each project proposing new neighbourhood and river connections to restore the mauri (life force) of the awa.

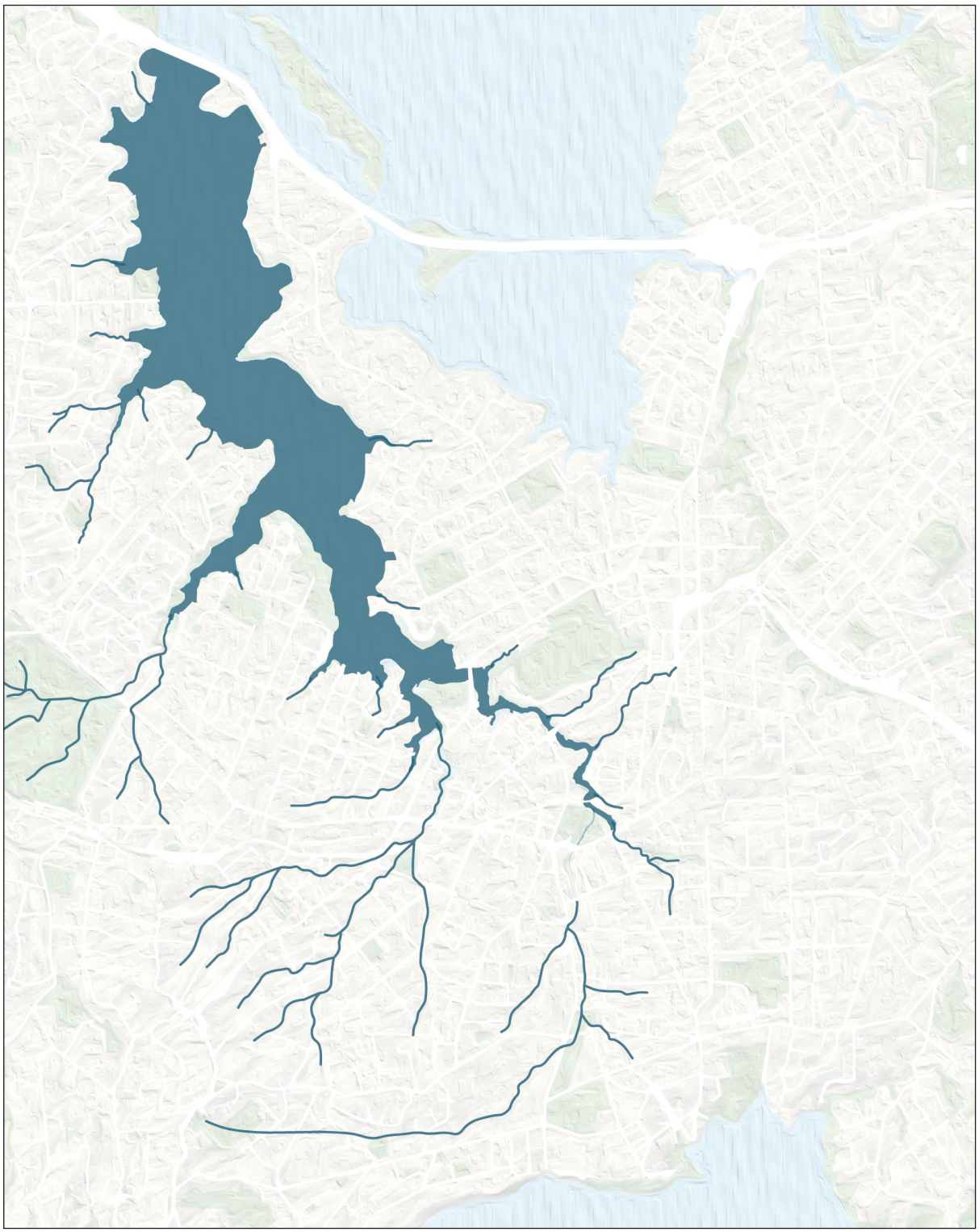

Fig. 03: (Pages 16-17) Proposed Site - Archibald Park South
Fig. 04: (above) The Whau Catchment

TE WHAU THEN AND NOW

An urban waterway that has endured many transitions in its time, Te Whau Awa, is a historically rich estuarial arm that branches off Waitemata Harbor, West of Tāmaki Makaurau Auckland. The awa is one of Waitemata Harbor's three estuarial arms. It was created over 20 million years ago as the land was raised by the sea. The name 'Whau' comes from the Whau tree that grew in abundance along the shores of the 6-kilometre awa. [6]

The Whau catchment area encompasses all or parts of 11 suburbs and sprawls across 29.4 square kilometres of land. The tidal awa itself spans a huge 800 meters at its widest point and measures around 400 meters wide at its mouth.[7]

Before humans discovered the area, large shrubs, and native trees such as Kauri, Whau and the Manuka engulfed the topography. The streams at the bottom of every gully were cool and clear with thriving riparian zones slowing down and cleansing water from precipitation and land, these flourishing ecosystems were once home to hundreds of species.[8]

Providing a calming refuge for millions of flora and fauna, the awa makes way for thousands of Kuaka (godwit), the most common Arctic migrate in New Zealand that nurse their young and feed on the wealthy mudflats once the tide is out. For Māori, these birds hold cultural significance as they used to be a source of kai and were understood as the carrier of departed spirits, knowledge, and the bringer of positive messages.[9]

The mana whenua, the people who have historic and territorial rights over the land and waters are Te Kawerau a Maki and Ngati Whatua Orakie[10]. Te Whua Awa was a significant portage route for many iwi and European settlers. They would row their wakas up the awa, through Avondale Stream (*wai tahurangi*) where they would carry them across the narrow isthmus at Green Bay to reach the Manukau Harbour (see Figure 2). This is how current day Portage Road got its name, as it runs alongside the stream. Iwi had summer fishing camps along the awa, collecting kai moana[11] for their papa kāinga stocking up for the winter months, and today the leftover shell middens that can be found are a reminder of that time.[12]

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[6] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 8–9.
[7] Mackay, 10.
[8] Mackay, 16.
[9] Conklin et al., "Breeding Latitude Drives Individual Schedules in a Trans-Hemispheric Migrant Bird"; "Story of the Kuaka."
[10] http://www.aucklandcity.govt.nz/council/documents/districtplanwaitakere/policy/policies/tangatawhenua.pdf "Tangatawhenua.Pdf," 14–15.
[11] "New-Lynn-Urban-Plan-2010-Part-1.Pdf," 14.
[12] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 17.

Pakeha settlers began to populate the awa in the 1800s as affluent families journeyed from the small town of Tāmaki Makaurau Auckland to the Whau for recreational water activities. Several months after the signing of the Treaty, Governor Hobson raised the British flag on the shores of Waitemata Harbour in preparation to establish the capital of New Zealand. [13]

In 1852 Dr Pollan founded West Auckland's first brickworks site on the Whau Creek. By 1865, the port of New Lynn, on the upper reaches of Te Whau, was a bustling trade centre, with a total of five wharves for commercial boats to moor, while over 13 brickworks lined the banks of the Whau by the end of 1870[14] (see Figure 27). Fishing was an important commercial and recreational activity right up until the 1900s. Fisherman would row out to Pollen Island, at the mouth of the awa, where fishing was more active although copious amounts of flounder could be found up stream in the Whau. [15]

In 1890, the New Lynn borough consisted of only 29 buildings which were connected through Great North Road, Titirangi Road and four other roads constructed from clay, and the vast surroundings were predominantly farmland and forests.

For most of the 19th century, New Lynn was a successful hub for pottery, brickworks and tanneries, due to the advantages of water transportation for trade and the raw heavy clay which lined the banks of Te Whau. At its peak, up to 200,000 bricks were produced daily. [16] In 1888, Astley & Sons started tanning leather along portage road next to the Avondale Stream. Astley Tannery and Crown Lynn soon became two of the largest businesses in the area. After the first world war, demand for leather boots, belts and leather military supplies increased greatly which helped to turn the tannery business into the success it was.[17]

While these thriving businesses helped boom the local economy, their environmental impacts have had enormous repercussions on the health of the awa. For almost a century, all these industries discharged their waste directly into the awa causing it to become extremely polluted.[18]
In addition to the industrial discharge, urbanisation has played a significant role towards the awa's diminishing health. The Whau ward which covers over 29 square kilometres of land comprises hundreds of sub-catchments that all feed into the awa. It doesn't stop at polluted water quality; degraded habitats and impaired ecological health are just a few of the other daunting realities due to many years of elevated levels of sediments, bacteria, heavy metals, and other pollutants originating in the urban environment. [19]

The Whau ward has lost many of its habitats and eco-systems have been severely damaged, streams are blocked with excess weed, and garbage, causing obstruction to water flow, resulting in area flooding. [20]

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[13] Taonga, "Hobson, William."
[14] "New-Lynn-Urban-Plan-2010-Part-1.Pdf," 14.
[15] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 18.
[16] Dick Scott, *Fire on the Clay: The Pakeha Comes to West Auckland* (Auckland (N.Z.) : Southern Cross Books, 1979), 117.
[17] "Historic Tannery Closes Shop."
[18] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 19.
[19] Mackay, 50-52.
[20] Mackay, 22.

In 2018, New Lynn's census recorded a huge 79,356 people living in the Whau area in almost 24,738 households. Since then, the population has grown significantly, requiring more and more dwellings to be built.[21] The population of New Lynn and Avondale is expected to double in the next 20 years and today there are well over 209 kilometres of sealed roads mapping through the area which continue to expand as developments take shape.[22]

Action has now been taken to revitalise the neglected Whau awa in hopes of rehabilitating the damage and to shed light back on the historical waterway. The restoration process is well underway by not-for-profit organisations, such as Friends of the Whau, established in 1999. Alongside holding events that engage in the ecological restoration of streams and banks they plant new native trees in local parks and monitor water quality.[23] This organisation falls under The Whau River Catchment Trust is a volunteer-based group that fosters strong community values to revitalise the Whau.

The Whau Day Out, formally known as The Flotilla Whau, though independent of the Whau Catchment River Trust, is an event created to provide both land and water activities to locals. It aims to reconnect residents to the Whau awa while providing environmental educational awareness for issues affecting water quality.[24]

With support from the Whau Local Board, these events engage the community with the awa and benefit from the enjoyment that residents and the public gain through their encounters with the Whau. Thus, a positive association with the waterway is created by reconnecting and engaging people with the waterway, helping to restore, maintain and improve its quality.

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[21] "Place Summaries | Whau Local Board Area | Stats NZ."
[22] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 20.
[23] Mackay, *The Whau Our Streams, Our River, Our Backyards*, 60.
[24] "Te Whau Day Out – Te Whau Pathway."

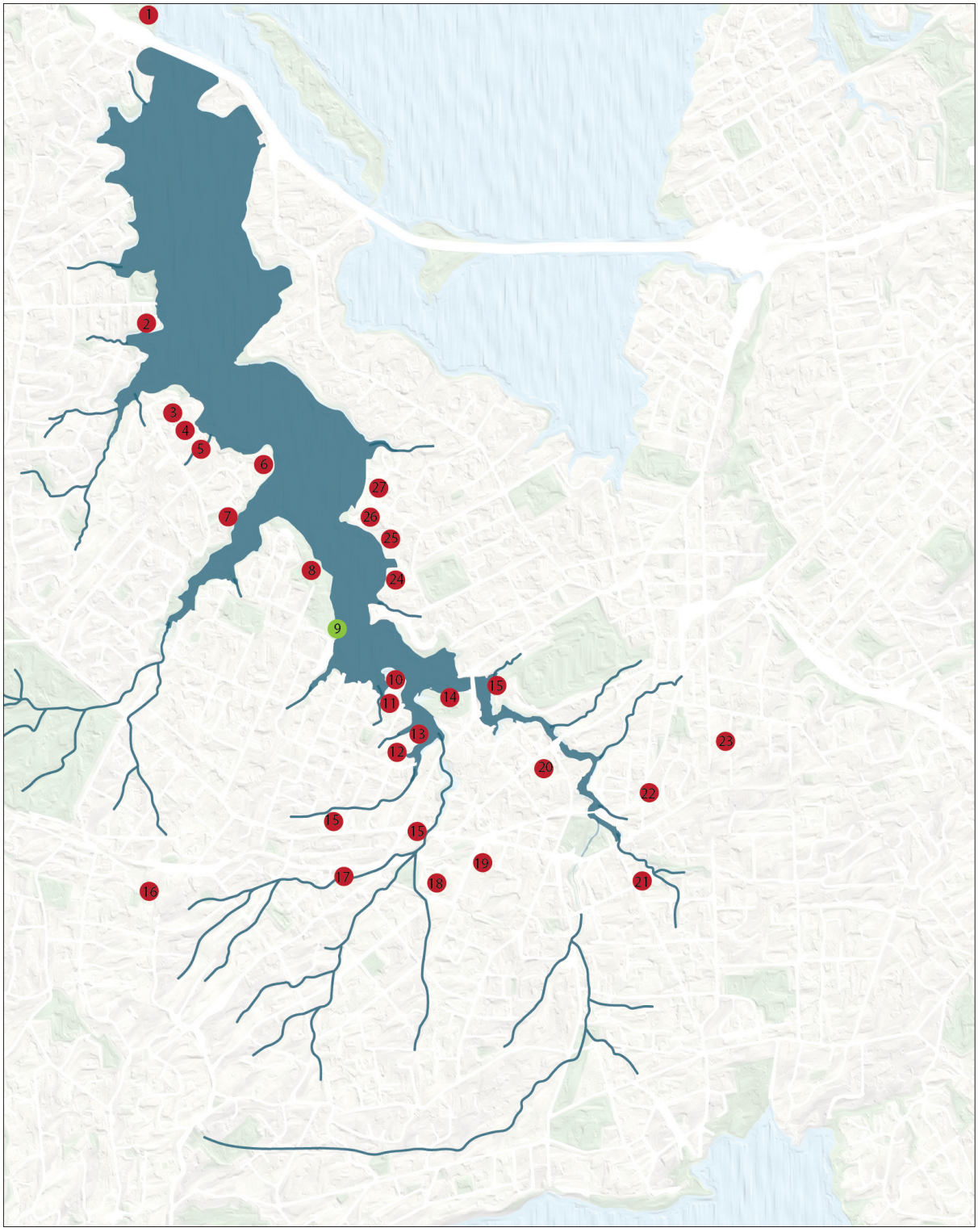

Fig. 05: Historical brickwork sites.

HISTORICAL BRICKWORKS

01. Auckland Brick & Tile Co	1890
02. Hepburn's	1880
03. Laurie's Brickworks	1879
04. Malam's yard	1861
05. Laurie Bros	1863
06. Black & Scott works	1880
07. Hepburn's work	1862
08. Hepburn's work	1895
09. Archibald Brickworks - Proposed Site	**1879 - 1926**
10. Thomas	1906
11. Thomas's work	1909
12. Redfern works	1870
13. Wright works	1863
14. Ringross & Wright	1865
15. Bourke & Kane	1892
16. Johnstone	1880
17. Remsden	1882
18. Jagger Bros & Parker	1892
19. Thompson & Gardener	1902
20. Crum Brick Tile Pottery Ltd	1930
21. Clark's Potteries	1930
22. Glenburn Potteries Ltd	1882
23. Exler's Pottery	1877
24. Redfern	1890
25. Archibald	1870
26. Aiken's	1890
27. Archibald Bros	1909

TE WHAU PATHWAY

One of the most recent endeavours, the Te Whau Pathway, is a project developed by the Te Whau Pathway Trust and Auckland Council, it is currently under staged construction. This project aims to re-instate the portage route by building a 15 km shared path and boardwalk. As a project it aims to increase community awareness whilst reversing the decline in the quality of the Whau Awa. Movement, identity, and legibility are Te Whau Pathway's three key principles.[25] Cultural, social, and ecological environments are among the many aspects Te Whau Pathway focuses on improving, serving as a key link in Tāmaki Makaurau Auckland's developing cycle network and walking routes. Essentially it will provide much safer access throughout the western part of the city, by creating transportation routes between New Lynn and Tāmaki Makaurau Auckland CBD[26].

Over two-thirds of the 15 km pathway will border the western edge of the awa and will mark the historical portage route by linking up Waitemata and Manukau Harbours. The recreational transport route consisting of four-meter-wide segments will weave over the top of the mangroves while three-meter grounded divisions will pave the land/whenua. Together, the goal is to safely connect the suburbs within the Whau catchment, including Te Atatu South, Glendene, Kelston, New Lynn, Avondale, and Blockhouse Bay, creating a link between 33 reserves, multiple sports parks, and local schools. [27]

Through this project, ecological habitats will be restored as native planting is rolled out along the awa banks. The awa will become more accessible to neighbourhoods and strategic pause destinations will be dotted along the pathway, creating viewpoints for locals and tourists to "pause" at and enjoy the historical awa. [28]

The speculative project proposes a new route for the southern end of Te Whau Pathway (section 3) at Archibald Park. The change will mean the pathway could interlace with the speculative project, making it easy for one to 'pause' and take in the qualities of the site and centre. This will help visitors connect with local activities while transportation users could take the fast route that bypasses the centre along the beautiful tree lined awa until it crosses over to Queen Mary Reserve. The proposed new route will minimise risk from the carpark and boat ramp crossover while creating a much more in-depth enjoyable pause destination for visitors (see Figure 7).

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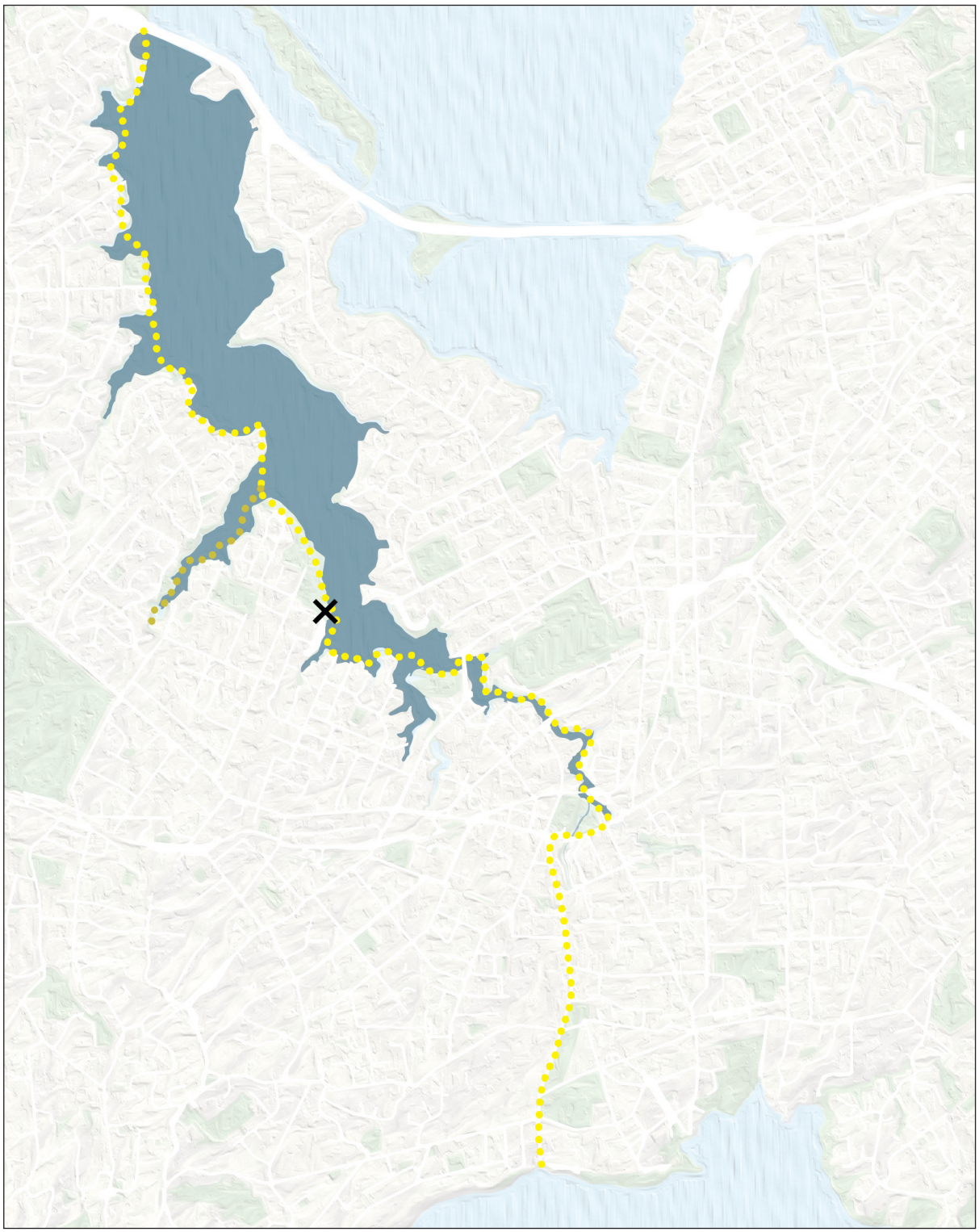
[25] "Te-Whau-Pathway-Uldf-Volume-2.Pdf," 3.
[26] "Te-Whau-Pathway-Uldf-Volume-2.Pdf," 5.
[27] "Te Whau Pathway - Erosion and Sediment Control Plan Principles and Practices," 5.
[28] Te Whau Pathway Social Impact Assessment.Pdf', 3, accessed 9 November 2021, https://www.aucklandcouncil.govt.nz/ResourceConsentDocuments/56BUN60337530AppxNSocial%20Impact%20Assessment.pdf.



Proposed Site

Te Whau Pathway

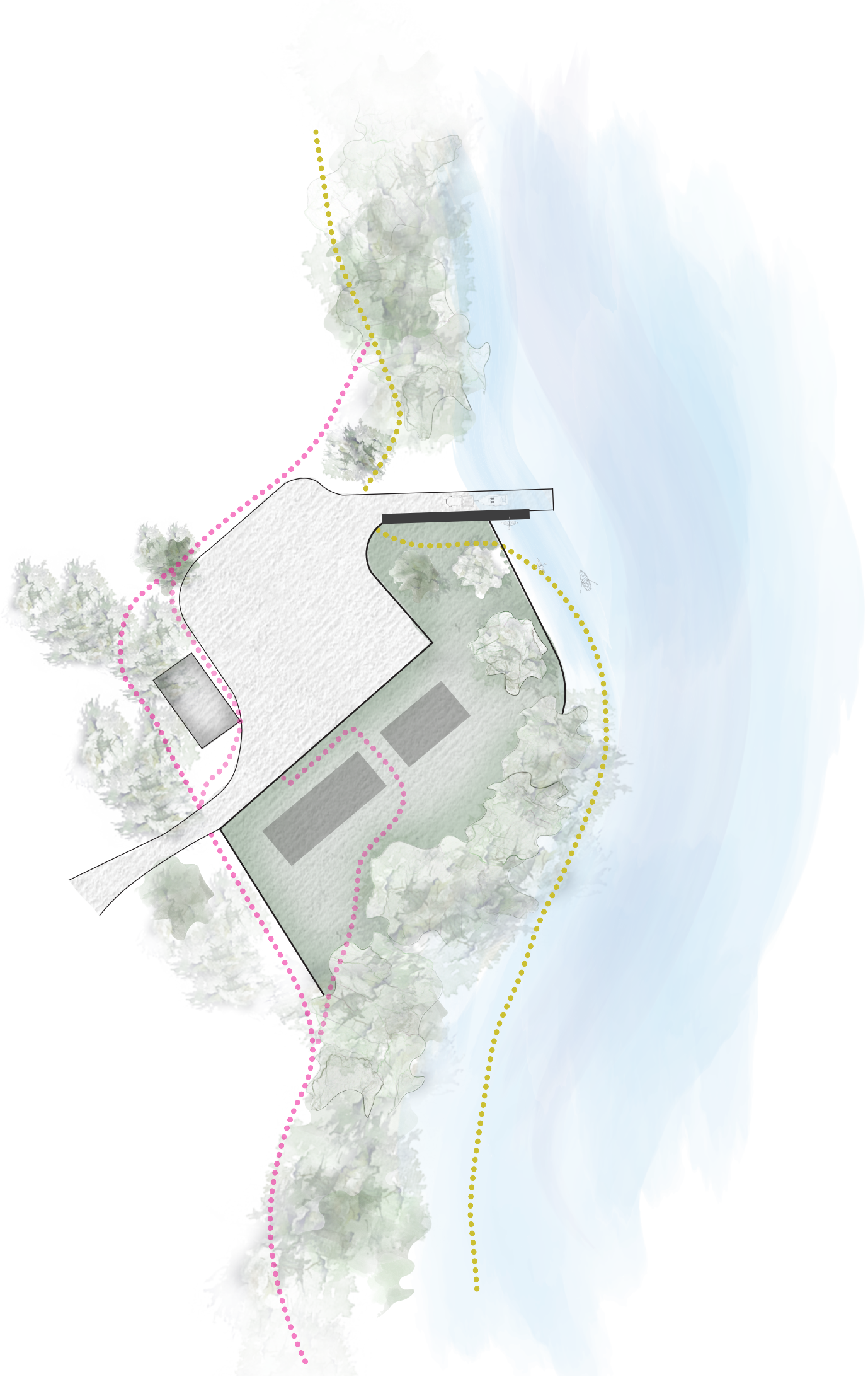
Fig. 06: (pages 26-27) Te Whau Pathway rendering over mangroves

Fig. 07: (above) Te Whau Pathway map

Fig. 08: (page 31) Proposed new pathway route for site

PROPOSED CHANGES TO TE WHAU PATHWAY AT ARCHIBALD PARK SITE

Te Whau Pathway
Proposed new route for pathway



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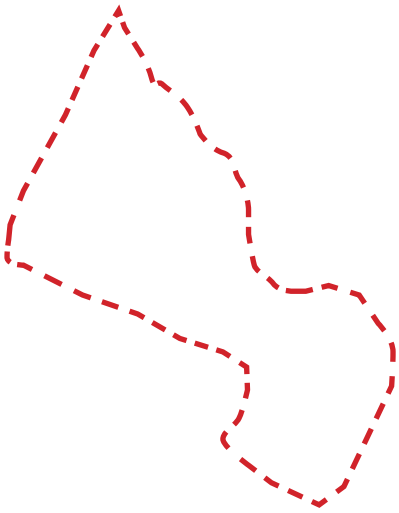

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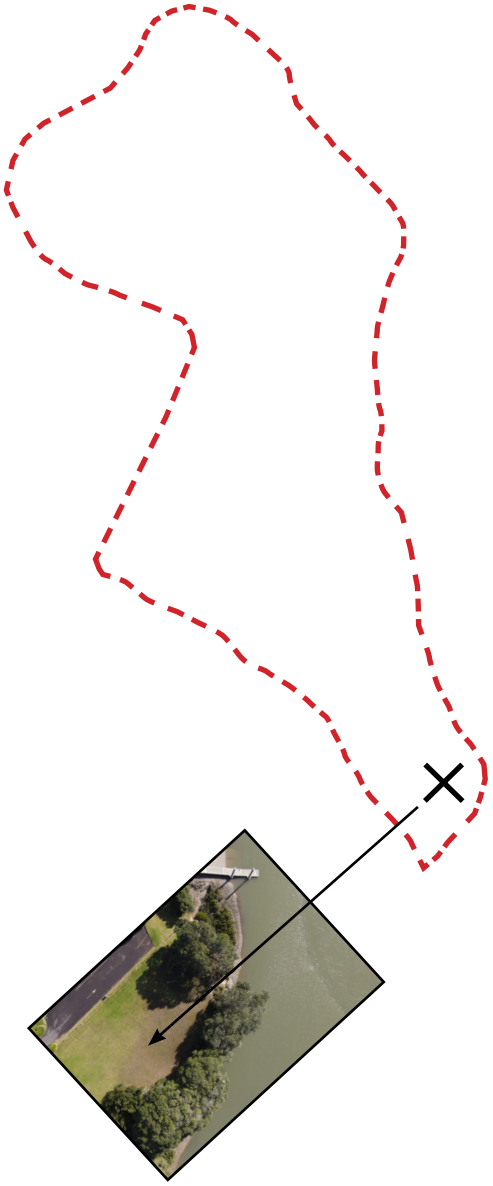

Proposed Site

Fig. 09: Archibald Park in 1940

Fig. 10: Archibald Park in 2017

PROPOSED SITE - ARCHIBALD PARK SOUTH

After completing the research and analysis of the wider Whau ward area, a more intimate analysis was conducted of the chosen site, a quiet grassy area at the southern end of Archibald Park (see Figures 2 & 9).

James Archibald and his family owned 25 acres in the Kelston suburb, some of which bordered the awa's edge. In 1879 the family started their own brickworks at the southern end of the park (the chosen site).[29] James's death in 1910 didn't stop the brickworks from operating. Operations carried on producing and distributing bricks up until 1926. A few decades later in the 1950's, the family sold the property. In the 1960's, the land was used as a landfill and in later years major land reclamation was carried out at the awa's edge, forming Archibald Park.[30]

Today the park is enjoyed predominantly for sports and leisure by a very diverse ethnic demographic. During the winter months the Ponsonby-Kelston Rugby Club occupies four fields at the southern end of the park while cricket and kilikiti are played at the northern end of the park during the summer months. The boat ramp located at the southern end of the park was upgraded and widened in 2018 allowing small boats to enter the awa while the new pontoon helps people with smaller vessels such as kayaks.

Archibald Park hosts one of the newest playgrounds in the area inspired by a maimai overlooking the awa so kids can spot the bird life. In addition to the playground and boat ramp, the park offers public toilets, picnic tables, and a selection of walking routes and awa side seats.

The site has been carefully selected for its rich history, sensuous qualities, and its deep connection to the awa. It is a calming and often quiet place apportioned from the majority of Archibald Park by a tarmac carpark. Mature Pohutukawa trees border the south and east banks of the awa, allowing glimpses of water, mangroves, and Avondale through the shadowy foliage (see Figure 25).

Over the course of this design thesis, multiple site visits have taken place which have helped nurture a deeper connection to the whenua. These visits guided and influenced the specific design elements and decisions while the historical connection to bricks has substantially shaped the materials used in the final speculative design. This will be discussed in more detail in part 4, The Design Proposal.

The opportunity to create an architecture, a pause destination that mediates between the awa, Te Whau Pathway, activities and the people is right here at Archibald Park. Creating more positive associations to the awa by reconnecting and engaging people with this natural waterway, will help to restore, maintain, and improve its quality.

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[29] Farley et al., "Te Whau Pathway Main Route, West Auckland: Archaeological Assessment," 10.
[30] Farley et al., 15.

SITE ANALYSIS

Average of 2000 sunshine hours annually.

The proposed site gets an average of 1300mm of rain annually in comparison to Auckland CBD which gets 1200mm. The wettest month for Archibald Park is July with an average of 147mm of rain across 22 days while Auckland CBD is getting 114mm.



Average of 16 days of fog annually.

Te Whau Pathway.

Sewage pipe running through the back of the site.

The prevailing winds in winter predominantly come from the Southwest.

The prevailing winds in summer predominantly come from the Northwest.

Historical midden site.

Archibald Brickworks former landing site.

Grassy area looking over Te Whau Awa.

T Existing toilet and storage block.

Proposed building site.



Archibald Park North, sports fields, walking loop and playground.

Average water temperature of Te Whau Awa in February is 20.5 degrees and 14 degrees in August.

Average air temperature annually is 16 degrees.

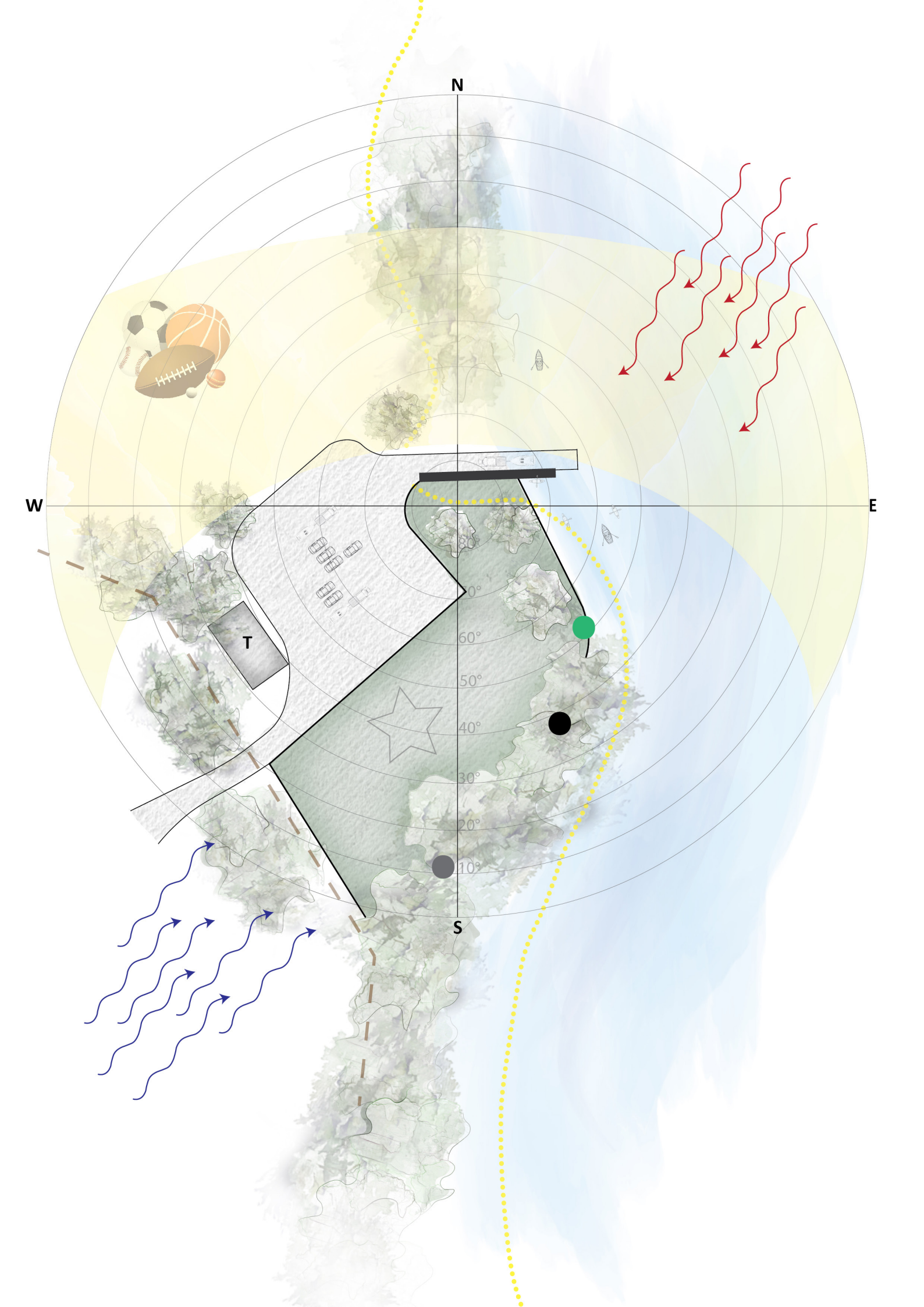
3 days of hail on average annually.



6 days of thunder on average annually.

Statistics can be found at https://niwa.co.nz/static/Auckland%20ClimateWEB.pdf

Fig. 11: (right) Site analysis diagram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30°
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10°


















Milkybar
CREAMY MILK






PUMP

PROPOSED SITE IN PICTURE













CAPTIONS FOR PREVIOUS PAGES

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Fig. 12: Traces of clay bricks in the banks from the Archibald brickworks.
Fig. 13: Kelston resident walking his kayak home after spending time on the awa.
Fig. 14: Aerial shot of proposed site.
Fig. 15: Far western end of the proposed site where sewage pipe runs through.
Fig. 16: Rubbish found on the proposed site.
Fig. 17: Rubbish found on the proposed site.
Fig. 18: Rubbish found on the proposed site.
Fig. 19: Mature Pohutukawa tree on the eastern side of the proposed site, used by kids for jumping into the awa.
Fig. 20: Green and red Pohutukawa tree leaves on the site.
Fig. 21: Proposed site from the awa.
Fig. 22: Car park that is connected to the proposed site**.**
Fig. 23: Proposed site from the awa.

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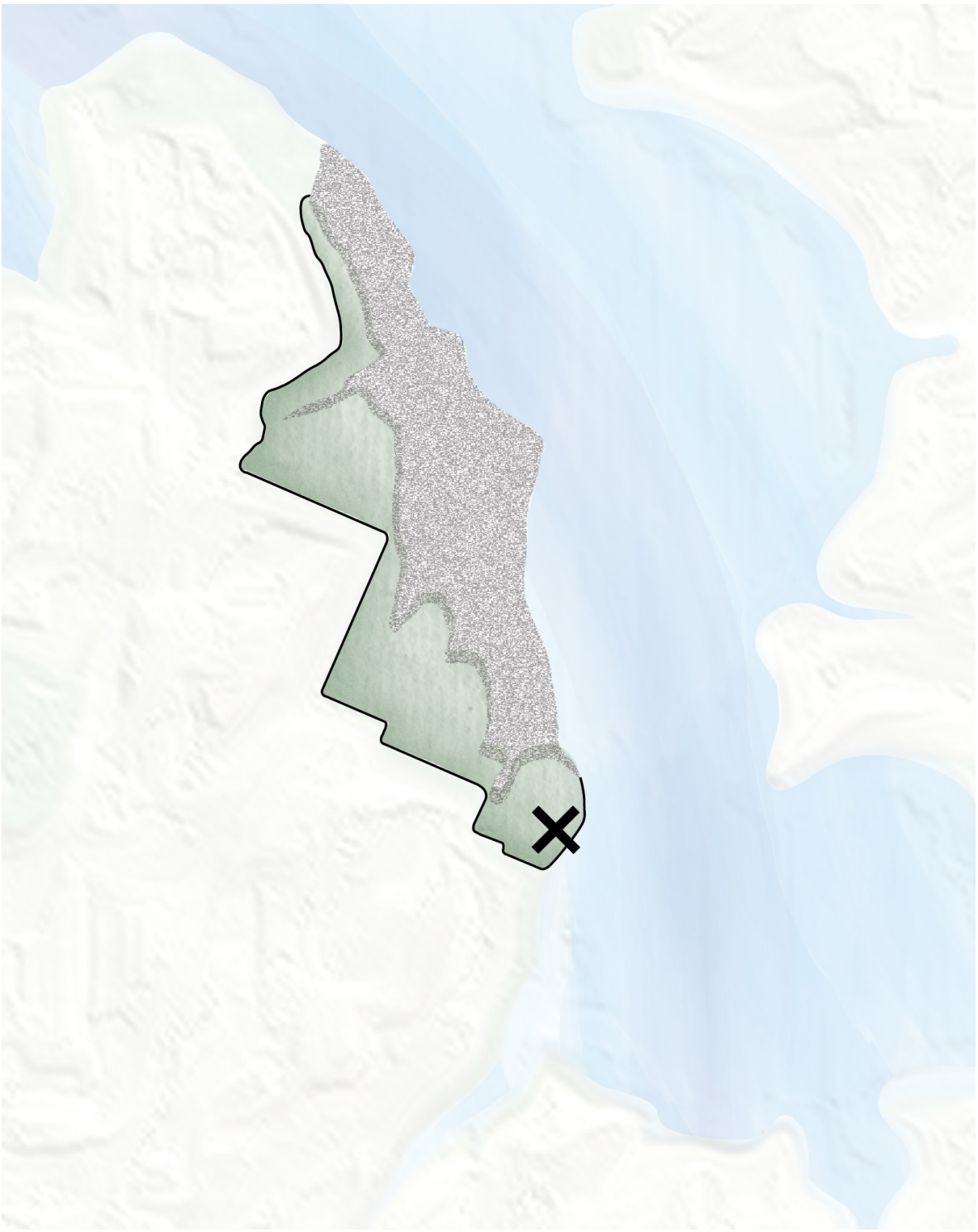
Fig. 24: Mature Pohutukawa trees on the southern side of the proposed site.
Fig. 25: Aerial shot of proposed site.
Fig. 26: Car park and proposed site in the rain.
Fig. 27: Aerial shot of eastern end of proposed site.
Fig. 28: On the banks of the proposed site in the rain with the tide on its way out. The muddy bottom can be seen with traces of bricks.
Fig. 29: View through Pohutukawa trees out to Avondale and the Whau awa.

LAND RECLAMATION AT ARCHIBALD PARK



✕ Proposed Site
Fig. 30: Archibald Park Reclaimed Land Diagram

Fig. 31: (right) Traces of bricks on the muddy awa floor when the tide is out.



THREE

Weather and Weathering

WEATHER AND WEATHERING

This chapter gains an understanding of weather and weathering through key theorists and architects such as Hill, Pallasmaa and Leatherbarrow. It seeks to uncover and understand the significance and the affects weather and weathering leave on the built environment.

Weather and weathering run on different time frames and cause different effects over time that can heighten the perceiver's experience of a building. The weather is felt in the present, its often-volatile nature impacts us daily, typically determining our mood and our activities. Yet, weathering is associated to the future and the past, its effects take place over time. Often seen as a liability in the built environment, weathered surfaces register the passing of time and the interaction of a building with its local environment and users.

WEATHER

Weather, we see, hear, taste, feel and smell it and tend to hide away from it. Weather is experienced in the present; it has the power to set the mood of a building. As Hill says, weather shouldn't be something we block out of our buildings, it should be used as an "architectural material" [31] that helps to enhance the users' experience of space.

RAIN, WATER AND FOG

Looking at the hydrological cycle of the proposed site for this design research at Archibald Park, wai/water travels from far and wide to reach the Whau Awa, the most distant flows emanate from Te Waonui-a-Tiriwa (the great forest of Tiriwa), which is the mana whenua Te Kawerau-a-Maki known as the Waitākere Ranges, in the west of Tāmaki Makaurau, Auckland.[32] This waters' journey begins across thousands of square kilometres of native New Zealand forests. Naturally, precipitation that falls on the earth and through surface movement or as ground water, finds its way to the nearest stream or river. If buildings stop the natural flow of water through and across land, the water becomes an 'environmental problem'. Building design typically aims to prevent the ingress of water and strives after 'weathertightness', [33] by adding a roof, guttering and downpipes, directing the water into underground stormwater systems.

Closer to Te Whau, in the surrounding suburbia, non-permeable surfaces, such as roofs and roads start to suffocate the whenua, and as the waters move, they begin to collect the many pollutants accumulated in the urban environment including metals, rubbish, oils and the like. This degraded water then either moves across the catchment as ground water or through underground stormwater systems that flow into Te Whau Awa and on to Waitemata Harbour.

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[31] Jonathan Hill, *Actions of Architecture: Architects and Creative Users* (Routledge, 2003), 161.
[32] Rāwiri Taonui, 'Tāmaki tribes - The tribes of Tāmaki', Te Ara - the Encyclopedia of New Zealand, http://www.TeAra.govt.nz/en/photograph/3926/tiriwa (accessed 5 December 2021)
[33] "Weathertightness."

Naturally, precipitation falls on the earth and through catchments, finds its way to the nearest stream or river. As buildings stop a waters' natural flow through and across land it becomes an environmental problem that architecture solves by typically adding a roof and directing it into man-made underground stormwater systems.

DESIGNING AGAINST THE WEATHER

In New Zealand, in response to our temperate climate, architecture generally aims to keep the warm in and the cold out, although many buildings through poor insulation and design fail to support these basic values.[34] Timber framed construction with brick veneer or synthetic weatherboards are the most used materials among New Zealand homes today. The typical 1890s villa and the 1920s bungalow with their natural timber weatherboard exterior are a thing of the past. Synthetic fibre cement weatherboard products have become the new 'go to' building material thanks to their affordability and 'low maintenance' stance towards weathering. However, as Pallasma notes, the desire for low maintenance comes at another kind of cost – the loss of time. As he says, "Buildings of this technological age usually deliberately aim at ageless perfection, and they do not incorporate the dimension of time, or the unavoidable and mentally significant processes of aging".[35]

Hill proposes that understanding how a building interacts with its wider environment can help create huge impacts on nature-culture relations.[36] Looking at the hydrological cycle of the Archibald Park site and understanding the movement of water across the site has helped facilitate a design that embraces rain of many different kinds (soft, heavy, sideways, stirred up, misty) and of puddles, drips, and other water aspects.

DESIGNING WITH THE WEATHER

Archibald Park is situated alongside Wai Te Whau (the Whau River) at the point where fresh water and saltwater mix. Unlike the awa mouth or the more inland parts, this part of the awa changes dramatically with the tide, moving from a fully flooded basin at high tide to an expanse of mud and mangroves with just a narrow channel of water while the tide is at its lowest. The site is just over four meters above sea level and is situated at a low point between the Waitakere Ranges and the Waitemata Harbour. This position means that the site is exposed to the sun from the north, east and west, so in the mornings of winter and spring it is often clouded with a heavy, wet fog (see Figure 109).

Utilising the environmental conditions of rain, sun, wind, and fog and incorporating them into the speculative design evokes a more in-depth connection between the user, the wider environment, and the architecture. The use, integration and unveiling of water throughout the buildings' design will allow for opportunity. In the design, water, that is generally hidden in our

[34] "Weathertight Homes – a Bold Response to Regulatory Failure | Ministry of Business, Innovation & Employment."
[35] Pallasmaa, *The Eyes of the Skin*, 31.
[36] Hill, *Weather Architecture*, 320.

Fig. 32: Water falling from the roof into an in-door trough at the Hakka Indenture Museum in China

buildings, is put on display, with the aim of starting a reaction, a feeling or emotional connection between building, user and environment that helps unite it with space and place. This can be seen in multiple design elements throughout the building. For example, sheets of falling water can be seen as water falls from roofs that have been directed into rain gardens (see Figures 106, 107 & 115).

Architect Peter Zumthor proposes a three-step design method for this kind of connection. He outlines the steps as follows:

- Enhancing what is valuable
- Correcting what is disturbing
- Creating what he feels is missing[37]

Following his method, this speculative design for Archibald Park strategically incorporates rainwater gardens that collect the rain from the roof and filter it through plant beds before it enters the whenua as ground water and moves into the awa (see Figures 108, 110 & 113). While acting to filter pollutants this also evokes a sense of connection between rangi/sky and whenua/land. Other parts of the building collect rainwater and store it for use in the building, such as in toilets and basins. This reduces the amount of water entering the awa. The project brings its users into physical contact with the many variants of weather, sparking enriched nature-culture relationships.

[37] Zumthor, *Thinking Architecture*, 1999; quoted in "How to Start Thinking Like an Architect?"

WEATHERING

Weathering is the decay process that happens to the built environment. It takes place on a different time frame than weather. It is the visual and structural affect that weather and inhabitation have on materiality. In their essay "*On Weathering: The Life of Buildings in Time*" Leatherbarrow and Mostafavi note the following:

> "Weathering reminds one that the surface of a building is ever-changing. While a potential nuisance, the transformation of a building's surface can also be positive in that it can allow one to recognize the necessity of change, and to resist the desire to overcome fate-an aspiration that dominated much of modernist architectural thought through its resistance to time".[38]

In today's environment, time has become a weakened experience that is causing mental effects. American therapist Gotthard Booth says, "nothing gives man (*sic*) fuller satisfaction than participation in processes that supersede the span of individual life".[39] In the constructed world, architecture enables us to grasp the need of our rooting in the continuity of time. Limitless space is shaped by the architecture we inhabit, so shouldn't it too, be shaping endless time while enabling us to inhabit the continuum of time?[40]

Through industrialisation, materials, such as concrete have become more efficient and effective while slow growing hardwoods have become hard to source. Now, construction is crafted to encourage the endurance of our architectural output, meaning less costly and labour-intensive synthetic materials often surpass natural materials. Stone, brick, and timber allow a building to obtain a patina layer over time that helps support its story while enhancing its design. Pallasmaa says,

> "The flatness of today's standard construction is strengthened by a weakened sense of materiality. Natural materials – stone, brick, and wood – allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use." [41]

As our buildings weather due to impacts from their environment, the 'detrimental' and 'destructive' process becomes visible, and even though this process can be seen as "exposing newer surfaces of the same material in its depth, at once the erasure of one surface and the revelation of another" [42] appears, allowing architecture to continually evolve through time.

If we start to think of weather as a material that designers infuse into our designs, weathering could be seen as an opportunity, not an inconvenience, enhancing the buildings' life through its ever-changing skin. Leatherbarrow and Mostafavi suggest that we should embrace the

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[38] Leatherbarrow and Mostafavi, *On Weathering: The Life of Buildings in Time*, 116.
[39] as quoted in "Introducing Architectural Theory by Thanhcn - Issuu," 128.
[40] Pallasmaa, *The Eyes of the Skin*, 32.
[41] Pallasmaa, 31.
[42] Leatherbarrow and Mostafavi, *On Weathering: The Life of Buildings in Time*, 64.

effects of weather by “creating situations that both recognise and utilise the everchanging characteristics of materials as a way of renewing beginnings by allowing refinishing”.[43]

The speculative building is designed to evolve through time and use by the community and the environment. Small hints of brass will become tainted by reactions of the environmental elements while the bricks invite moss to accumulate around wet areas. Figures 116-118 showcase how the building might weather through time and use.

CONCLUSION

In conclusion, buildings are therefore “understood not as perfect, finite objects but as provisional and open to change during conception, construction, use and decay”.[44] The weather has significant control over our architecture so instead of trying to hide it and hide away from it, why don’t we work with it as an “architectural material”[45] to create architecture that harmonises with weather.

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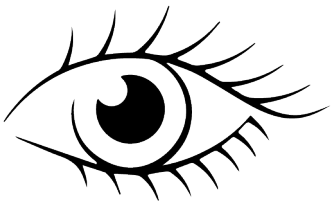
[43] Leatherbarrow and Mostafavi, 120.
[44] Hill, *Weather Architecture*, 314.
[45] Hill, *Actions of Architecture:Architects and Creative Users*, 161.



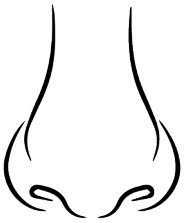
Fig. 33: (above) Weathered stone.
Fig. 34: (page 53) Orange deposits from the weathering oxidized concrete at the Thermal Baths in Vals.

FOUR

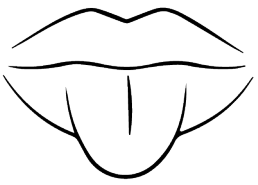
Architecture and the Senses











ARCHITECTURE AND THE SENSES

As perceptive, multi-sensory, embodied beings we are tuned to touch, taste, smell, see and hear the world around us. A multi-faceted pool of sensory information helps elevate our life-experiences on top of cognitive thought and visual memory.

In the late 20th century, many writers have highlighted the dominance of the eye in architecture, and that which Pallasmaa coins as the "narcissistic eye" [46] has caused architectural theory to become two dimensional. This has led us to "live increasingly in [the] perpetual present, flattened by speed and simultaneity".[47] It is only recently that philosophical and architectural discourse has begun to realise a fully unified, embodied experience is achieved once architecture goes far beyond form and construction, as described in *Thinking Architecture*, a book written by Peter Zumthor.

This chapter briefly considers each of the five senses in turn to investigate the many characteristics that comprise a cohesive multi-sensory approach to a building overall. Drawing from the design ideas and theories from Pallasmaa, Kahn, Zumthor, Tanizaki and New Zealand architect Lynda Simmons, the researcher considers and explores the senses and how to fully engage them through design. This perspective (as it relates to a multi-sensory approach, to the experience and design of places) has shaped and influenced the outcome of this speculative design on the banks of Te Whau Awa.

[46] Pallasmaa, *The Eyes of the Skin*, 21.
[47] Pallasmaa, 21.

Fig. 35: (left) Illustrations of the eye, ear, nose, hand and mouth.

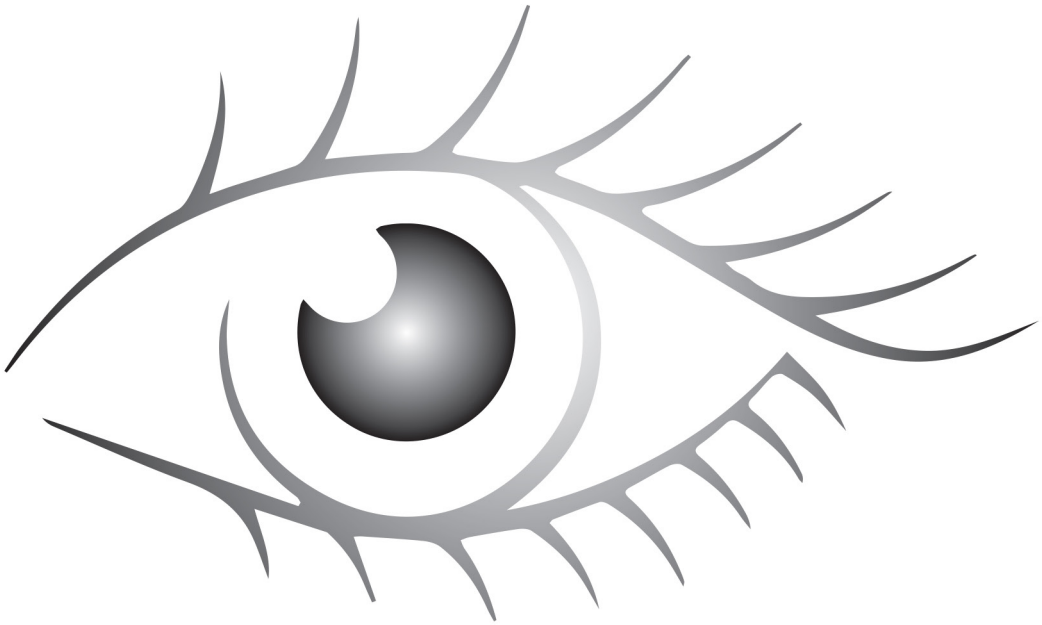


Fig. 36: Eye illustration.

THE EYE

The eye is the prominent driver for spatial perception, it controls and investigates, it defines distance and separation. Dimming the sharpness of vision needs deep shadows and darkness to assess depth and distance ambiguously, thus engaging unconscious peripheral vision and tactile fantasy.[48]

Using light and shadow to evoke a connection between the perceiver, the mythical and poetical quality of space and the ephemeral nature of sunlight, "depends on a variation of shadow, heavy shadows against light shadow – it has nothing else".[49]

In a lecture Louis Kahn presented in 1968, the architect discusses how structure is the maker of light. Once the structure has been designed, the light has too. "Light, no light, light, no light…."[50] comes from the expression of the column and how through structure it allows the perceiver to see light and appreciate the mood that it lends to its space.[51]

In her investigation of architecture and light in the Pacific, the architect and scholar Lynda Simmons identifies how as a nation, since the 1950's we have become more and more about light filled architecture which favours large glazing panels, leaving behind bright shadowless interior spaces.[52] In New Zealand, the traditional Māori whare nui (meeting house) is an excellent example of heavy shadow and light shadows, contrasting with each other, resulting in an elevated multi-sensorial experience.
Simmons argues the importance of shadow in the whare nui, where the bright New Zealand sky contrasts with the apex of the porch space, casting a distinct shadow into the sheltered yet exposed entrance way.[53] This moment through shadow creates a three-dimensional threshold which lies between the whare's extensive cavernous interior (space of peace) and the vastness of its exterior space (space of debate).[54]

Once inside, the dark peaceful interior conflicts with the door and window apertures, leaving an intimate space full of formal richness that only reveals itself through light shadows on a sunny day.[55]

Pallasmaa too, reiterates the importance of dark and shadowy spaces and their impact on our lived experience. For Pallasmaa dark spaces stimulate reflective thinking and imagination. He says, "The imagination and daydreaming are stimulated by dim light and shadow. In order to think clearly, the sharpness of vision must be suppressed, for thoughts travel with an absent-minded and unfocused gaze". In contrast he notes that encompassing bright light "paralyses the imagination in the same way that homogenisation of space weakens the experience of being and wipes away the sense of

[48] Pallasmaa, 46.
[49] Tanizaki, *In Praise of Shadows*, 29.
[50] Kahn, *Louis Kahn - Essential Texts*, 250.
[51] Kahn, 249–50.
[52] Simmons, "Interior Darkness / Contained Shadow."
[53] Simmons, 2.
[54] Brown, *Māori Architecture: From Fale to Wharenui and Beyond*.
[55] Simmons, "Interior Darkness / Contained Shadow."

place". He goes on to note that physiologically the human eye is tuned for twilight rather than full daylight.[56]

Through this research of the visual realm, it is now clear the important role our eye plays in our experience and understanding of architectural spaces. Gauging a deeper understanding of this sense, helped me create a design for Wai Te Whau that predominantly focuses the visual sense on three aspects, structure, shadow and materiality.

The speculative design's interior spaces stimulate the user's mood as light penetrates through apertures in the structure, leaving dark spaces and light spaces. "The most wonderful aspects of the indoors are the moods that light gives to space".[57] Furthermore, the design focuses closely on materiality, brick and timber which are explored to register light, shadow, and texture, elevating the user's perception through every imperfection and detail these naturally derived materials offer.

For example, the structure around the kayak storage has been broken up to generate strong shadows, human movement and glistening colour reflections from the stored kayaks that cast onto textured walls, floors, and pathways beyond (see Figures 97 & 102).

Although it cannot work alone, a harmonious design capturing all five of the senses at once, creates an experience far superior to architecture that is tuned solely for the eye.

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[56] Pallasmaa, *The Eyes of the Skin*, 44.
[57] Kahn, *Louis Kahn - Essential Texts*, 231.



Fig. 37: Ear illustration.

SOUND

The eye allows us to gain an impression of form and material through reflective light, but the sound of architecture, too, reflects off the material to stimulate the auditory sense. "Most people would probably say that as architecture does not produce sound, it cannot be heard. But neither does it radiate light and yet it can be seen".[58]

According to Pallasmaa, sound can connect the perceiver on a spiritual level. The rustling of leaves, the sound of a nearby awa flowing or simply the sound of people tracing over a permeable surface are all qualities that can trigger the users unconscious mind[59].The sound qualities of a space are as important as the visual images. However, Pallasmaa says the acoustic perception largely remains as an "unconscious background experience".[60]

Every building has a unique sound and through different materials and textures the sound can be dampened or amplified. In quiet spaces, whispered prayers are captured gracefully upon arrival into a chapel. The sound of turning pages is amplified in a quiet library. In more noisy spaces, sound is often amplified by people talking and laughing. In a bar, music further helps set the atmosphere encouraging people to drink, dance and spend money.

Just like the shadow plays a vital role in a space's atmosphere, the sound, too, through materials and textures can help mould a space, by reflecting, modifying, absorbing, channelling, or amplifying sound to create a certain atmosphere and mood. Pallasmaa describes the properties of sound, this omnidirectional bodily phenomenon is not constrained, its fluid nature allows it to meander about unrestricted.[61]

We are attracted to our ability to make sound through the interaction between our bodies and the architectural spaces we inhabit. In 2009 Volkswagen ran an ad campaign that targeted foot traffic in an underground station in Sweden. The campaign used the sense of sound to interact with pedestrians by creating a 'piano' on the station stairs. This campaign resulted in more people using the stairs, since it was more interactive, it stimulated the users' auditory senses more fully than using the escalator. [62]

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[58] Rasmussen, *Experiencing Architecture*, 224.
[59] Pallasmaa, *The Thinking Hand: Existential and Embodied Wisdom in Architecture*.
[60] Pallasmaa, *The Eyes of the Skin*, 50.
[61] Pallasmaa, 49.
[62] Volkswagen, *The Fun Theory 1 – Piano Staircase Initiative | Volkswagen*.

"Sound creates an experience of interiority"[63] and plays an essential role in the cohesion of a well-designed multi-sensory building. The speculative design interlaces the natural sounds produced at the whenua/awa interface, such as the waves spun of the tidal awa flowing in and out, the mudflats that suck and burst while being exposed to the sunshine and Pohutukawa tree leaves that rustle in the wind. Using materials and forms to amplify the sites' natural environments will help create a stronger connection between the site, the user, and the building, although not always physically, a connection will be triggered through the unconscious mind mentally.

An example of natural sounds being captured, the eastern end of the building has large overhang roofs which protrude out towards the awa*,* reflecting the sound back into the pavilion pathway that weaves through the building (see Figure 84 & 114).
The building comprises many different spaces, it accommodates loudness and quietness and has certain absorbent materials on interior spaces, such as cloth and bamboo panelling. In this way, there can be a quiet language class going on inside while outside loud activities can continue uninterrupted.

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[58] Rasmussen, *Experiencing Architecture*, 224.
[59] Pallasmaa, *The Thinking Hand: Existential and Embodied Wisdom in Architecture*.
[60] Pallasmaa, *The Eyes of the Skin*, 50.
[61] Pallasmaa, 49.
[62] Volkswagen, *The Fun Theory 1 – Piano Staircase Initiative | Volkswagen*.



Fig. 38: Nose illustration.

OLFACTORY

"The nose makes the eyes remember,"[64] with a slight sniff, the past and present is activated through what is known to be as our most powerful generator of memory.

The science writer Allison Marin describes the physiology of how humans smell the world around us. The back of the nose holds a strip of tissue where millions of sensory neurons are located. The tips of these olfactory epithelium cells contain proteins that bind odour molecules, these receptors are activated once the odour molecules are breathed in through our nostrils.[65]

This capacity to smell not only tells us about the place we are in. It also connects us to places we have been before. Over a lifetime we imbed countless memories of places and spaces into our brains, but for these to be recalled they often require a trigger. The retinal memory can be triggered by a particular smell to revive these completely buried associations of the past. "The nostrils awaken a forgotten image, and we are enticed to enter a vivid daydream"[66] through a flood of visual images associated with a specific smell. Nothing is more memorable than a smell, nor as direct. As Ackerman notes, "unlike the other senses, smell needs no interpreter. The effect is immediate and undiluted by language, thought, or translation".[67]

Hotels are a great example of places that try and stimulate this olfactory sense to their advantage. Although not typically scents one would smell in a natural environment, a manager of a local hotel related to me that hotels often add a specific scent to their air conditioning units. Upon arrival, customers are greeted with a smell that they hopefully connect to a calming and relaxing memory, unconsciously impacting their experience of the hotel in ways that have positive associations.

There is evidence that shows the olfactory element of design can be used to positively affect behaviour, for example, if there are hints of citrus in the air, people tend to engage in more cleaning gestures.[68] Looking into the future, it has been suggested that scented flowers and blossoming trees, occupying public spaces, could be the answer to mitigating litter or perhaps even reducing vandalism.

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[64] Pallasmaa, 54.
[65] Marin (Curley), "Making Sense of Scents."
[66] Pallasmaa, *The Eyes of the Skin*, 54.
[67] Ackerman, *A Natural History of the Senses*, 5.
[68] "Smells Like Clean Spirit: Nonconscious Effects of Scent on Cognition and Behavior - Rob W. Holland, Merel Hendriks, Henk Aarts, 2005."

Bringing the natural smell of the proposed site at Archibald Park into the speculative design is another way of enhancing and connecting the user to their environment. The smell of salty water and mud is amplified in the warmer months due to the rise in the temperature and the northeast winds, while in the cooler months the southwest winds will pick up a rich, honey like fragrance[69] wafting through the air from the Pohutukawa tree seed. Other smells, such as kai and building materials weave through the architecture, engaging, and heightening the user's olfactory sense.

[69] "Pohutukawa-Flame of the North."

Pallasmaa appreciates the tactile realm for its admirable capability to preserve impressions of the past and strong connections to time and tradition. However, the tactile element of architecture is often ignored in today's world. Typically, either entering or exiting a building is generally the first point of physical contact, or as Pallasmaa describes "The door handle is the handshake of the building"[70] However, once inside, we tend to forget about the tactile connection we associate with such materials like flooring, furniture, elevator buttons, and the like. Witold Rybczynski, author of The Look of Architecture, acknowledges the absence of the tactile interest:[71]

> "Although architecture is often defined in terms of abstractions such as space, light and volume, buildings are above all physical artifacts. The experience of architecture is palpable: the grain of wood, the veined surface of marble, the cold precision of steel, the textured pattern of brick."[72]

See how Rybczynski mentions the two key attributes to the tactile sense, texture, and temperature. The haptic realm in architecture means to touch something, the word originates from the Greek word '*hapthai*', which means to lay hold of.[73] Researchers have discovered that effects from the haptic realm are psychological. Our emotions and behaviour tend to be activated through texture and temperature as well as the weight of materials.[74] If we think of concrete, we think of a functional and sometimes brutal material with a minimalist aesthetic, unlike timber, which induces feelings of warmth and comfort.

The careful selection and placement of material can evoke tactility, as the user imagines how it would feel to reach out and touch or caress an intriguing surface. Vision allows us to touch surfaces, edges, and shapes from afar while unconsciously our tactile sensation establishes the pleasantness or unpleasantness of the experience. [75]

Touch and materiality hold strong ties to architect Peter Zumthor, who is known for his sensuous multi-sensory buildings that ooze atmosphere. In a lecture at Tel Aviv University, Zumthor speaks about some of the steps he takes to ensure his buildings develop rich meaningful atmospheres. "Putting materials together starts a reaction, (aesthetic and or physical) they start to react to each other, you can change the quantity until it feels right".[76] If us designers succeed in doing so, materials in architecture can be made to "shine and vibrate".[77] Zumthor's Thermal Baths (1996, Vals, Switzerland) evokes an excellent outcome of this method where he formed his own physical connection to

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[70] Pallasmaa, *The Eyes of the Skin*, 56.
[71] Rybczynski, *The Look of Architecture*, 89.
[72] Rybczynski, 89.
[73] "Oxford English Dictionary."
[74] David Prytherch and Mairghread Mclundie, 'A Guide to Haptics Applications in the Digital Realm', 2002, 3. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.117.5177&rep=rep1&type=pdf
[75] Pallasmaa, *The Eyes of the Skin*, 42.
[76] 4757755, *Peter Zumthor Presence in Architecture, Seven Personal Observations*, 2013, n. 39:10-40:00.
[77] Zumthor, *Thinking Architecture*, 1999, 11.

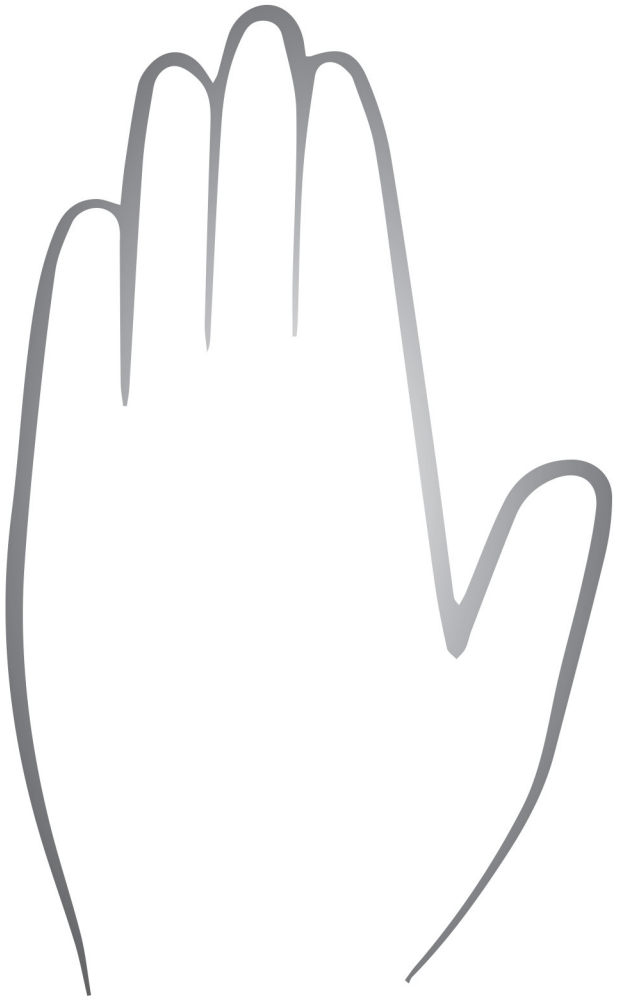

Fig. 39: Hand illustration.

these materials through the tactile sense. Through a process of working with samples, he explored the tactile properties of "lots of stone, lots of water and added a little bit of brass"[78] until the building's materiality felt balanced.

As described in chapter three, Weather, and Weathering, the way a building is perceived fundamentally relies on associations (touches) from the past. For example, once the construction process comes to completion, the building can be seen as the 'final product' however, through human touch and the impacts of daily weather, our architecture carries on evolving well after the architect and builder have finished. Over time, materials and surfaces are marked and "edges are polished by use".[79] This "patina of wear adds the enriching experience of time"[80] created by the haptic realm. Even so, although human touch creates a level of patina, the weather also creates material change by touching itself on buildings every second of every day, thus resulting in decay but also opportunity.[81]

In other words, whether materiality is touched directly or not (i.e., indirectly, merely seen, or imagined) architectural design relies heavily on this tactile sense. It is fundamental in achieving a total multi-sensorial experience.

The haptic realm has been heavily integrated into the speculative design. For example, the building's mere existence evokes tactility through its rough brick exterior which seeks to be touched, touched by humans and over time touched by the moss that will become part of its presence. The door handles are designed specifically with shape, texture, and smoothness, leaving an impression on the beholder as they enter and exit different parts of the building (see Figures 86-93). As it rains the building carefully displaces water in strategic places that allow for touch while it makes its way to its nearest rain garden (see Figures 106, 113 & 115).

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[78] 4757755, *Peter Zumthor Presence in Architecture, Seven Personal Observations*, 2013, n. 39:30-40:00.
[79] Zumthor, *Thinking Architecture*, 1999, 24.
[80] Pallasmaa, *The Eyes of the Skin*, 31.
[81] Hill, *Actions of Architecture: Architects and Creative Users*.

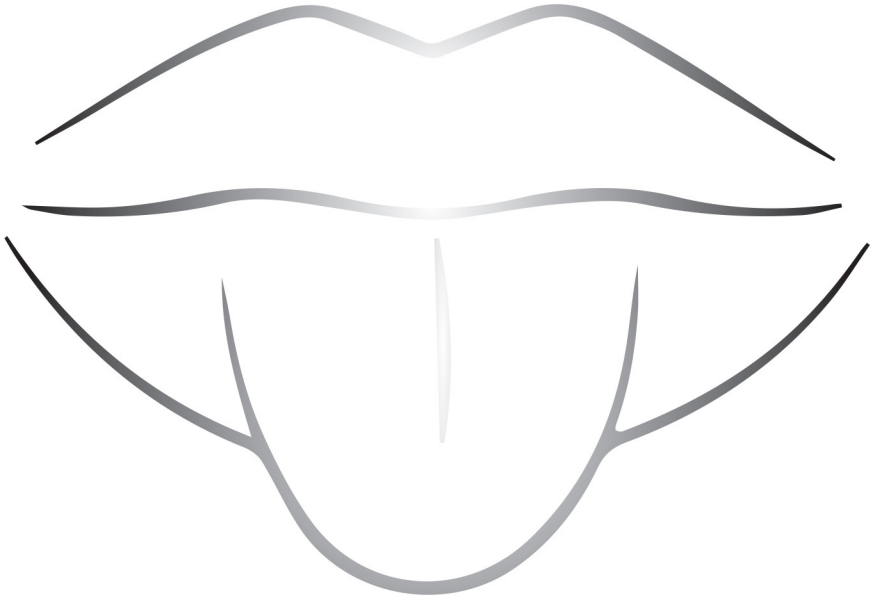

Fig. 40: Mouth illustration.

TASTE

Architecture can juxtapose the qualities of our designs through the feeling of palatal satisfaction. For example, the colour of a delicately textured zesty yellow wall may make your mouth sour while a blue coloured surface might remind you of a refreshing drink. "Certain colours and delicate details evoke oral sensations".[82]

English art and architecture critic John Ruskin, in a letter to his father, once wrote of the oral invitation Veronese marble gave him as he was critiquing St Mark's[83] and while stone has never given him the urge to lick it, Pallasmaa vividly recalls the time his tongue craved a piece of white shiny marble.[84] In his words:

> "Many years ago, when visiting the DL James Residence in Carmel, California, designed by Charles and Henry Greene, I felt compelled to kneel and touch the delicately shining white marble threshold of the front door with my tongue. The sensuous materials and skilfully crafted details of Carlo Scarpa's architecture as well as the sensuous colours of Luis Barragan's houses frequently evoke oral experiences. Deliciously coloured surfaces of stucco lustro, a highly polished colour or wood surfaces also present themselves to the appreciation of the tongue."[85]

Looking at this from a less literal point of view, John Eberhard, in his book Architecture and the Brain, talks about the sense of taste and how it relates to architecture, he suggests that:[86] "You may not literally taste the materials in a building, but the design of a restaurant can have an impact on your 'conditioned response' to the taste of the food"[87]. So, Eberhard is suggesting that through good design that is suited to time and place, a restaurant is filled with ambiance and atmosphere. This can have a positive effect on one's mood which consequently leads to a more memorable and enjoyable experience of space and taste.

Incorporating touches of "sensuous colours"[88] into the speculative design, such as the built-in seating that resembles the fallen deep red leaf from the Pohutukawa trees (see Figure 18) is pleasing to the senses. The bright yellow, green, and orange kayaks that have intentionally been placed at the front of the building act as a colourful façade (see Figures 81 & 85). These touches of colour throughout the building add to the depth of design. Furthermore, as the building incorporates a wide range of textures and materials, and smooth and rough surfaces, these aspects cohesively heighten one's overall experience of place and space.

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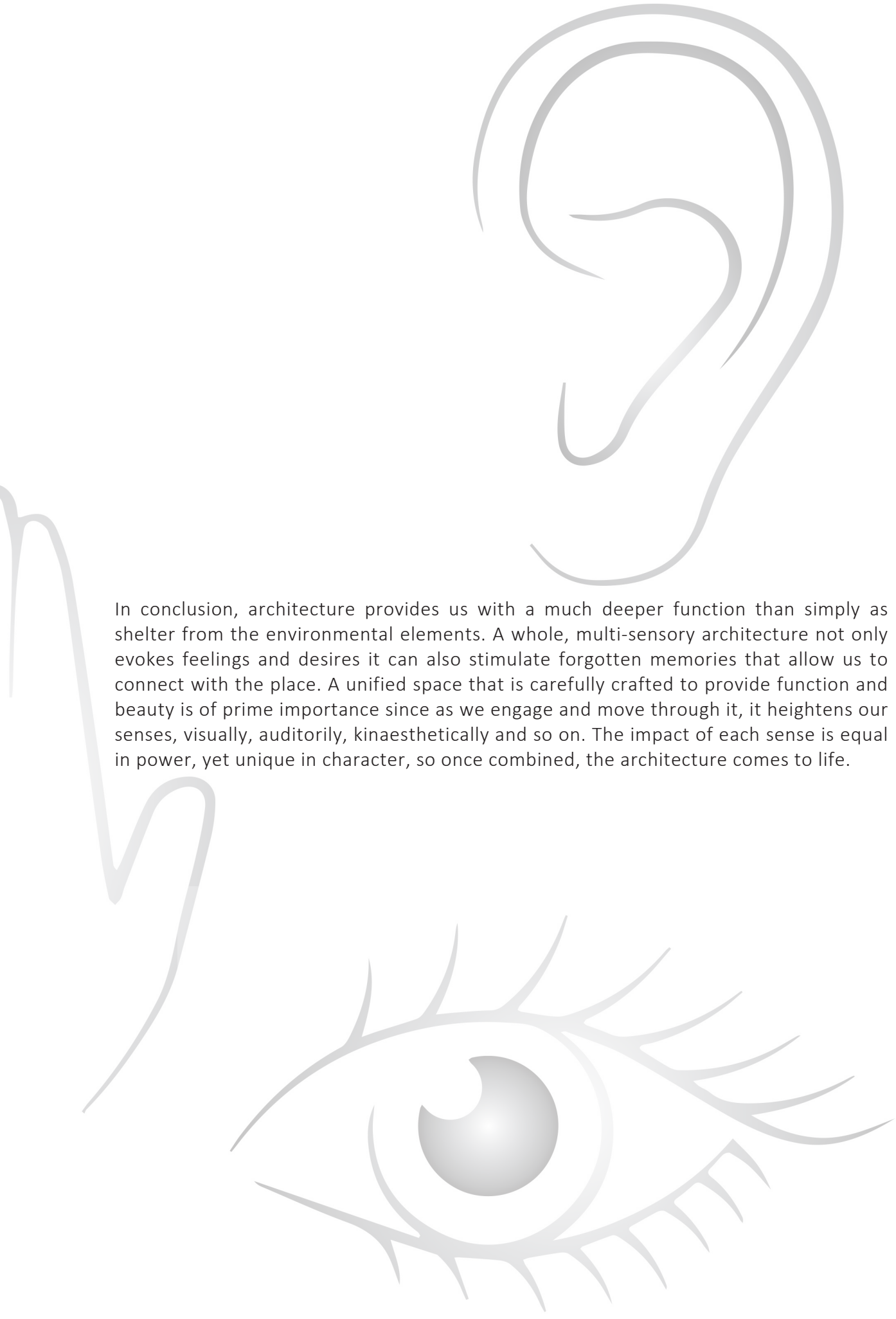
[82] Pallasmaa, *The Eyes of the Skin*, 59.
[83] "There Is the Strong Instinct in Me Which I Cannot Analyse to Draw and Describe the Thing I Love—not for Reputation, nor for the Good of Others, nor for My Own Advantage, but a Sort of Instinct like That for Eating or Drinking. I Should like to Draw All St Mark's and All This Verona Stone by Stone, to Eat It All up into My Mind, Touch by Touch'. Ruskin to His Father John James Ruskin, Verona, 2 June 1852, Quoted in Ruskin, 10.Xxvi," n.d.
[84] Pallasmaa, *The Eyes of the Skin*, 59.
[85] Pallasmaa, 59.
[86] Eberhard, *Architecture and the Brain: A New Knowledge Base from Neuroscience*.
[87] Eberhard, 47.
[88] Pallasmaa, *The Eyes of the Skin*, 59.





In conclusion, architecture provides us with a much deeper function than simply as shelter from the environmental elements. A whole, multi-sensory architecture not only evokes feelings and desires it can also stimulate forgotten memories that allow us to connect with the place. A unified space that is carefully crafted to provide function and beauty is of prime importance since as we engage and move through it, it heightens our senses, visually, auditorily, kinaesthetically and so on. The impact of each sense is equal in power, yet unique in character, so once combined, the architecture comes to life.

FIVE

Atmosphere and Materiality

ATMOSPHERE AND MATERIALITY

This chapter seeks to uncover and understand the link between atmosphere and materiality, and the influence it has over the connection of people and the built environment. Through a review of the academic literature, knowledge has been gained from the likes of Gernot Böhme, Martin Heidegger, Peter Zumthor and Juani Pallasmaa.

Atmosphere

"I suggest that the atmospheric sense could be named our sixth sense, and it is likely to be existentially our most important". [89]

In recent years, studies have revealed the fundamental importance an atmosphere has on our experience of the world. This experience is crucial for the identities and conceptualisations of architecture, landscapes and homes. [90] A human being's character always identifies with some form of mood, but as things 'stand out', this mood is influenced by the experience and sensation of the materialities and the person's ability to be co-creative of an atmosphere.[91]

Atmospheres are not simply an 'experience' but rather the harmonisation of our embodied experiences in the material world. In his book, The Fundamental Concepts of Metaphysics, Martin Heidegger speaks of atmosphere as a condition of transgressing boundaries, such as subject and object, which enables people, places and things to connect. [92]
The world of atmospheric sensory experiences offers textures, depths, and forms to places and spaces which bridges, obscures or confuses the boundaries of humans and things.

It has been discussed and argued whether an atmosphere can be staged and Gernot Böhme, a leading atmosphere philosopher, believes it can.[93] He suggests an atmosphere can be built and anticipated, meaning the material world (through architects and designers) and subjective dispositions are responsible for an atmosphere.

For example, if we visit an interesting building, we tend to admire many of the different architectural features; its size, structure, material and so on, but the feeling it gives us upon arrival is instant. It can make us feel a certain way and unconsciously determines whether we visit again. This negative or positive 'feeling', one could say, hinges on the architect's design ability to 'stage' a successful atmosphere. Pallasmaa states that, "We sense the overall mood, tuning, feeling, ambience and atmosphere of a setting before we have become conscious of it or have identified any of its constituent features"[94] and in this very moment, atmosphere, presence, and materiality become entirely interlaced with one another.[95]

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[89] Pallasmaa, "The Sixth Sense," 8.
[90] Bille, Bjerregaard, and Sørensen, "Staging Atmospheres."
[91] Ogawa, "The Horizon Character of Phenomena and the Shining-Forth of Things."
[92] Heidegger, *The Fundamental Concepts of Metaphysics: World, Finitude, Solitude*, 66–67.
[93] Böhme, "Atmosphere as the Fundamental Concept of a New Aesthetics," 119.
[94] Pallasmaa, "The Sixth Sense," 5.
[95] Böhme, "Atmosphere as the Fundamental Concept of a New Aesthetics," 121–22.

Materiality

Understanding material, its ageing phenomenon and existence, and its integration into its environment are all fundamental steps while 'staging' an atmosphere. As mentioned in chapter four, weather and weathering, Pallasmaa states the following:

> "The flatness of today's standard construction is strengthened by a weakened sense of materiality. Natural materials - stone, brick, and wood - allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use". [96]

In architecture, Peter Zumthor believes that atmospheres are created by materiality, not so much the form. [97] Creating atmospheric architecture through materiality is a concept he fully grasps, both in his built projects and his physical models. He believes that feeling and testing certain materials before a building is born through a computer software is essential towards achieving a certain mood or atmosphere[98] "Putting materials together starts a reaction, (aesthetic and or physical reaction) …"[99] which helps us form emotional connections to a space. In this way, we can iron out design flaws by understanding how different materials engage with each other and start to understand vast and confined spaces, dark and light shadows, large and small thresholds, and big and tiny apertures on a more in-depth personal level. Peter Zumthor says "I work like a sculptor. When I start, my first idea for a building is with the material. I believe architecture is about that. It's not about paper, it's not about forms. It's about space and material".[100]

Reiterating a point introduced in chapter 3 by Lynda Simmons about how modern-day architecture often loses its atmosphere because of materiality displacement and stark bright light, this affect is brought on by the modernist eye to replace the barrier between interior and exterior with copious amounts of glass, causing spaces to become shadowless and mood-less.[101] Materiality, structural placement and light can evoke a heightened atmosphere if designed right and the destructive effects of "Enormous plate windows" tend to deprive our buildings of intimacy, the effects of shadow and atmosphere.[102]

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[96] Pallasmaa, *The Eyes of the Skin*, 31.
[97] Pallasmaa, "The Sixth Sense."
[98] Zumthor, *Thinking Architecture*, 1999.
[99] 4757755, *Peter Zumthor Presence in Architecture, Seven Personal Observations*, 2013, n. 39:00-40:00.
[100] Pogrebin, "Pritzker Prize Goes to Peter Zumthor," n. as quoted.
https://www.nytimes.com/2009/04/13/arts/design/13pritzker.html
[101] Simmons, "Interior Darkness / Contained Shadow," 1.
[102] Pallasmaa, *The Eyes of the Skin*, 47.

This chapter helped to clarify the critical link between materiality and atmosphere while Zumthor's design values on the topic heavily influenced and shaped the outcome of the speculative building. Now, with a broader understanding I can strategically 'stage' atmospheres through multi-sensorial design elements that help trigger a heightened experience for the community centre user. For example, the atmosphere that has been designed (staged) at the front of the building where humans and more than humans gather is shown in Figures 119 & 121 This image shows feelings and connections between the awa, the visitor and the speculative design where atmospheric sensory experiences in the material world, such as textures, depths, and forms can be seen bridging and obscuring the boundaries of humans, more than humans and the speculative building.

Fig. 41: (right) Main indoor pool at the Thermal Baths at Vals.

S I X

Precedent Case Studies

PRECEDENT CASE STUDIES

The chosen precedent studies all relate to the speculative project through their fine-tuned attention to multi-sensorial design. Even though the careful placement and use of materiality is evident in all three projects, the focus of each study differs, to help gauge a better understanding of a whole multi-sensorial building that works on connecting people to the built environment.

PETER ZUMTHOR - THERMAL BATHS AT VALS

Switzerland
1996

The rich atmospheric and harmonious connection to materiality, light and environment wasn't by coincidence or mistake, it was through years of extensive testing and researching, understanding the topography and geology of the site and not just its immediate surroundings. Zumthor explains how he likes it "when buildings have many many many layers of justifications".[103] This is evident with the baths at Vals, where every design element has purpose, and each purpose helps connect the bather to the building and its environment on an almost primal level.

The architecture is comprised of 15 stone, steel, and concrete parallel units, each projecting a different large roof section[104]. The units are situated throughout the building to represent a rocky mountain that has been quarried, leaving behind a series of natural rock pools (the baths). In this way, the building can be perceived as if it grew out from the mountains like it has always been there. The 15 units enclose all four sides of the building and the projecting roofs or "tables" [105] as Zumthor calls them, are set apart by 8cm glass joints. These linear cracks of light break the stiff and heaviness of the concrete roof, allowing it to become 'light' and almost appear to be floating above the bather.

The 5m high units, create interior voids and cliffs that are out of scale with human size but contrast with the precise stacking of the 60,000 individual stone slabs. Each layer runs the entirety of the building at the same height, accumulating to 60 kilometres of Valser Quartite Stone.[106]

The building offers two kinds of spaces, continuous space, and confined intimate space. From one block (unit) to the next, a unique water experience can be found, and the users invent

[103] AA School of Architecture, *Peter Zumthor - The Thermal Bath at Vals*.
[104] Ni Co, *The Therme Vals / Peter Zumthor*, n. 9:35-9:55.
[105] Hauser, Zumthor, and Helene, *Peter Zumthor--Therme Vals*, 37.
[106] Ni Co, *The Therme Vals / Peter Zumthor*, n. 14:00-14:30.

their own itinerary, moving between different pool experiences, cold or hot, light or dim, quiet or with sound. [107]

> ” You undergo a change by removing your everyday clothes and this is a ritual setting where you strip and come into a new world of stone and skin, of water at different temperatures of light acoustic effects and different surfaces that you feel on your skin, an unbelievable richness on a formal level everything is simple and essential ”. [108]

After 25 years of use, the effects of weathering have started to show on the building's surfaces. While this can be seen as decay, it can also be seen as "exposing newer surfaces of the same material" [109] allowing the building to continually evolve through time and use. One is reminded of this by the colourful orange deposits that can be seen upon arrival, seeping from Zumthor's carefully selected brass water pipes (see Figure 45).

The speculative project for Archibald Park relates to the baths at Vals by connecting the materiality of the building through the history of the site. Daily users experience the space in many ways, inventing their own itinerary of the space and exploring its various layers of light, shadow, weather, and materiality. The architecture is designed to evolve through use and weather. It incorporates touches of brass and elements of water that over time will deposit their reaction to reveal new surfaces of the existing weathering skin (see Figures 116 & 118).

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[107] Hauser, Zumthor, and Helene, *Peter Zumthor--Therme Vals*, 55.
[108] Ni Co, *The Therme Vals / Peter Zumthor*, n. 18:10-19:00.
[109] Leatherbarrow and Mostafavi, *On Weathering: The Life of Buildings in Time*, 64.

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Fig. 42: The stone walls around the main pool contrast with the 16 blue roof lights, refined brass railing, water and the linear cracks of light.
Fig. 43: A quiet nook for relaxing and admiring the surrounding environment.
Fig. 44: The poolside of the change rooms where the brass railing and linear cracks of light break the heaviness of the layered stone.
Fig. 45: Drinking water from brass pipes has left orange deposits on the weathering oxidized concrete.
Fig. 46: Day beds for relaxing and enjoying the adjacent mountain views.
Fig. 47: The structure becomes one with the environment and traces of weathering on the stone exterior are apparent.
Fig. 48: Cracks in the ceiling let linear streaks of light into the interior.
Fig. 49: Main indoor pool
Fig. 50: The simple streamline stone structure blends into its environment and while touches of brass and the effects of weathering are visible.

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LOUIS KAHN - KIMBELL ART MUSEUM

Fort Worth, Texas
1968

The Kimbell Art Museum is predominantly constructed out of concrete, travertine (limestone) and white oak.[110] The main entrance into the monumental structure is hidden by a cluster of trees which rise above a permeable gravel courtyard creating a transitional sheet of light and dark. The gravel courtyard suggests a change in material, leading to a heightened multi-sensory experience while also slowing down one's pace upon arrival.

Glistening porticos line each side of the museum and correspond to the reflecting pools that drop sheets of water down to lower pools. The sound and reflection of the water give a sense of calm and separation, in Khan's words, "A building is a world within a world". [111]

One can almost feel the rich atmosphere while reading a letter from Kahn about the museum entry, "Two open porticos flank the entrance court terrace. In front of each portico is a reflecting pool which drops its water in a continuous sheet about 70 feet long in a basin two feet below. The sound would be gentle. The stepped entrance court passes between the porticos and their pools with a fountain around which one sits, on an axis designed to be the source of the portico pools" (Letter to Mrs Kimbell from Kahn on the 25th of June 1969).

The Museum's structure is comprised of sixteen cycloid vaults (30.5m x 7m),[112] all lit up with natural light diffusers. While most museums typically use artificial light to protect their collections, Kahn felt strongly about people seeing art in natural light and this was one of the core reasons he was commissioned to design the museum in the first instance.[113] "The whole plan of Kimbell is based on a room-like quality, and the natural light as being the only acceptable light".[114] After years of testing, failing, and developing ideas on natural light schemes, a long thin skylight in the middle of each vaulted ceiling proved effective. Each skylight is fitted below with an aluminum light diffuser that distributes the light downwards into the gallery spaces, creating shimmery shades of silver on the concrete vaulted ceilings while greatly enhancing one's experience of art.

The Kimbell Art Museum relates to the speculative design through its stark and bare approach to design and its atmospheric qualities that heighten the perceiver's experience. In particular, upon entering the museum, the journey one takes through multiple thresholds incorporates water, natural materials, and textures, light, and shadow. While the building's wider environment has qualities that connect people to the place. Gaining a deeper understanding of the way these elements work as one cohesive whole has helped with the use and placement of the materials in the speculative design.

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[110] Kahn, Bellinelli, and Patricia, *Louis I. Kahn: The Construction of the Kimbell Art Museum.*
[111] Sledge, "The Art of Ambiguity."
[112] "Kahn Building in Detail | Kimbell Art Museum."
[113] Sledge, "The Art of Ambiguity: Experiencing the Kimbell Art Museum."
[114] Cummings Loud and Kahn, *The Art Museums of Louis I. Kahn*, 156.

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Fig. 51: The right-side water glistened portico.

Fig. 52: The surrounding gardens

Fig. 53: The interior spaces of the museum are filled with natural light from the aluminum light diffusers, creating a gentle silver glow.

Fig. 54: Subtle exterior concrete detailing

Fig. 55: The nighttime view of the reflective water and the cluster of trees out the front of the main museum entrance.

Fig. 56: One of two inner courtyards

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HERBST ARCHITECTS - THE LANTERN HOUSE

Onetangi Bay in Waiheke Island,
2018

Perched 90 meters above the bay, this refined property showcases contemporary architecture through a rich multi-sensorial design. Earlier this year I spent time working on a photographic project at the Lantern House that allowed me to experience firsthand how the careful combination of materials, light and environment can create an extraordinary effect while inhabiting a space.

Herbst have carefully selected natural materials that harmonise and contrast with the unique surroundings. Dark wood, brick, tiny marble tiles, hints of brass, and water, evoke the senses and stimulate the response between light, shadow, materiality, and nature.

A certain darkness sets the mood as soon as one enters, dark wooden recessed floors and ceilings in the main living area instantly make you feel 'cosy' and are heavily contrasting with the vast greenness and blueness beyond. Owner, Jonathan says "All the drama is outside during the day but at night, the drama comes back into the house – there's a jewel box feel, and the darkness emphasises the way we've been able to control the lighting to create a mood". [115]

The feeling of warmth, and a sense of safety where one becomes entangled in timeless nature is how I felt when I stayed at the Lantern House. I remember the textured wallpaper registering the effects of shadow through the warm colours at sunrise. The combined richness of all the materials and textures started an aesthetical reaction facilitating, generating and stimulating my feelings and emotions, so I felt deeply connected to each space and the surrounding environment at any given time of the day.

This experience has had a significant influence over certain design elements in the speculative project. For example, experiencing the rich connection between the interior spaces and the surrounding context where materiality, light and nature harmonise and become one. This helped exponentially to connect the speculative building to its surrounding environment on a more intimate and powerful level.

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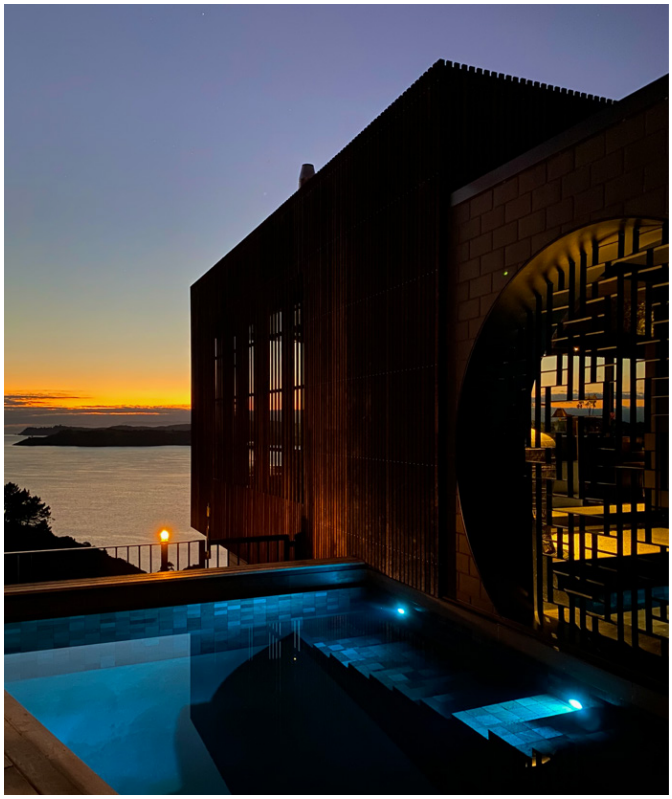
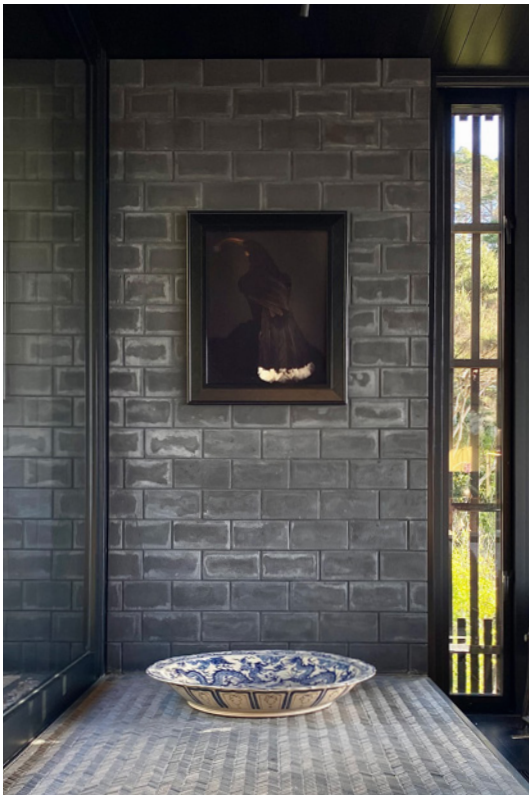
[115] Rutherford Best and Glenn, Waiheke Lantern House, n. Talk with the owner while at the property.

Fig. 57: Exterior view showcasing the many different textures and surfaces at sunrise.
Fig. 58: The exterior bricks come into the interior and contrast with the tiny marble floor tiles and the deep dark timber ceilings.
Fig. 59: The master bedroom is again full of textures and shadows.
Fig. 60: The kitchen's materials are brass, stone and timber. The large window at the end frames the site and acts like a painting.









SEVEN
The Design

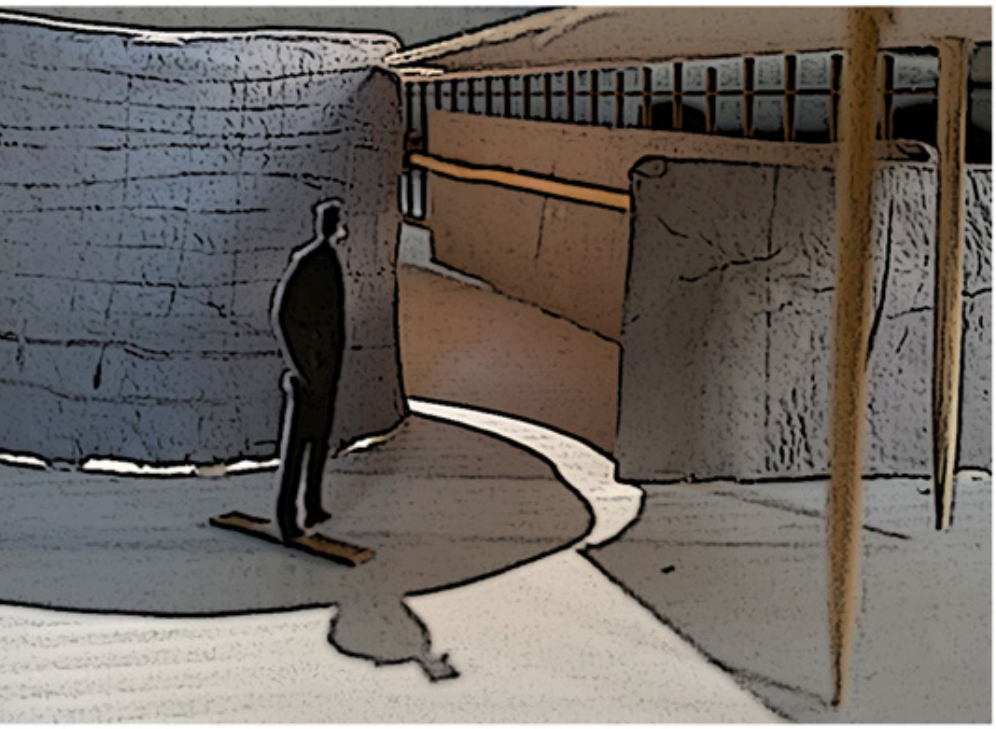
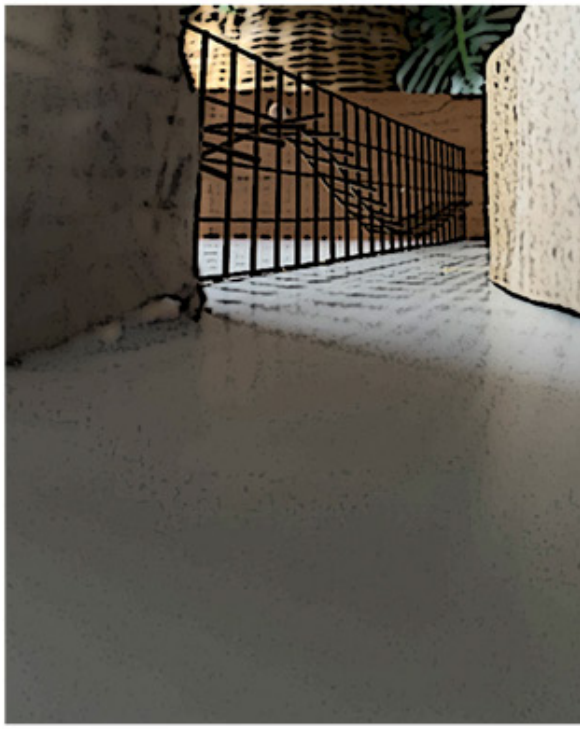
THE DESIGN

This next chapter explores the speculative design produced in the study. It provides an overview of the design process, from site research to conceptual stages in the preferred medium of modelling, photography, and sketching. Informed by research into the sensory realm, gained through a review of the academic literature, these elements have worked simultaneously to help generate a design outcome. The proposed scheme is a multi-sensory recreational hub on the banks of Te Whau Awa that responds to the research questions:

How can a multi-sensory building have a profound influence in connecting residents back to the awa?

And, how can the expression of naturally derived materials transform through weather and weathering?






DESIGN METHODOLOGY

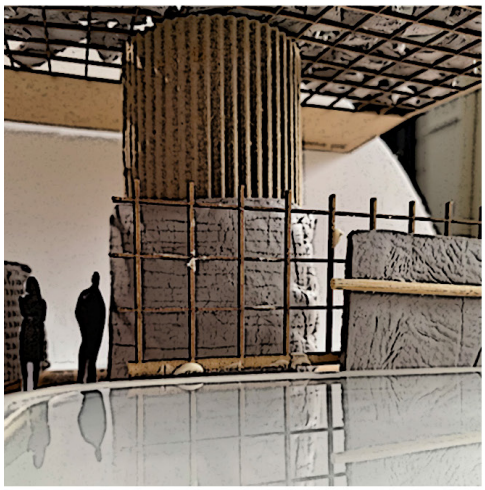
Light, shadow, water and materiality are explored through 'partial' exploratory model making in a range of materials. Photography is then used to manipulate the models and remove unwanted scale shifts. An understanding of the spatial arrangements from the photographs occurred through sketching in plan and section, then moving to digital modelling to refine the sizes and create intimate and atmospheric spaces.

Through this design method, I mediate between two systems, the wider environment (whenua, awa, rangi, hydrological systems and weather) and the building (plan, size of spaces, programme). This helped generate a greater awareness of the relationship between the awa and the building not as separate, rather as working together in-sync forming a cohesive system.

Fig. 61: (left) Model collage. A series of model iterations testing light, shadow, clay and timber.

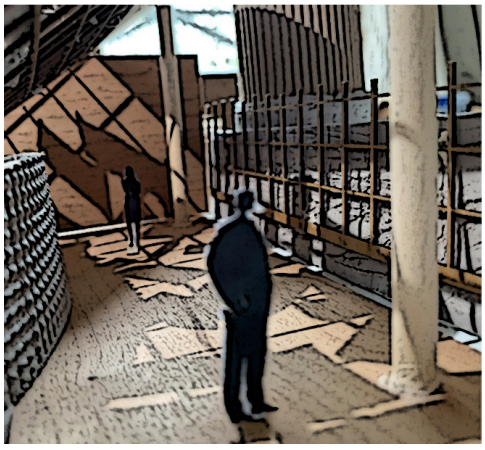
















MODELS AND TESTING

The different stages of model making show an iterative and explorative practice through textures, materials, light, and water. This process helped frame and engage multi-sensory design ideas which led to several key design features that were developed further into the speculative design.

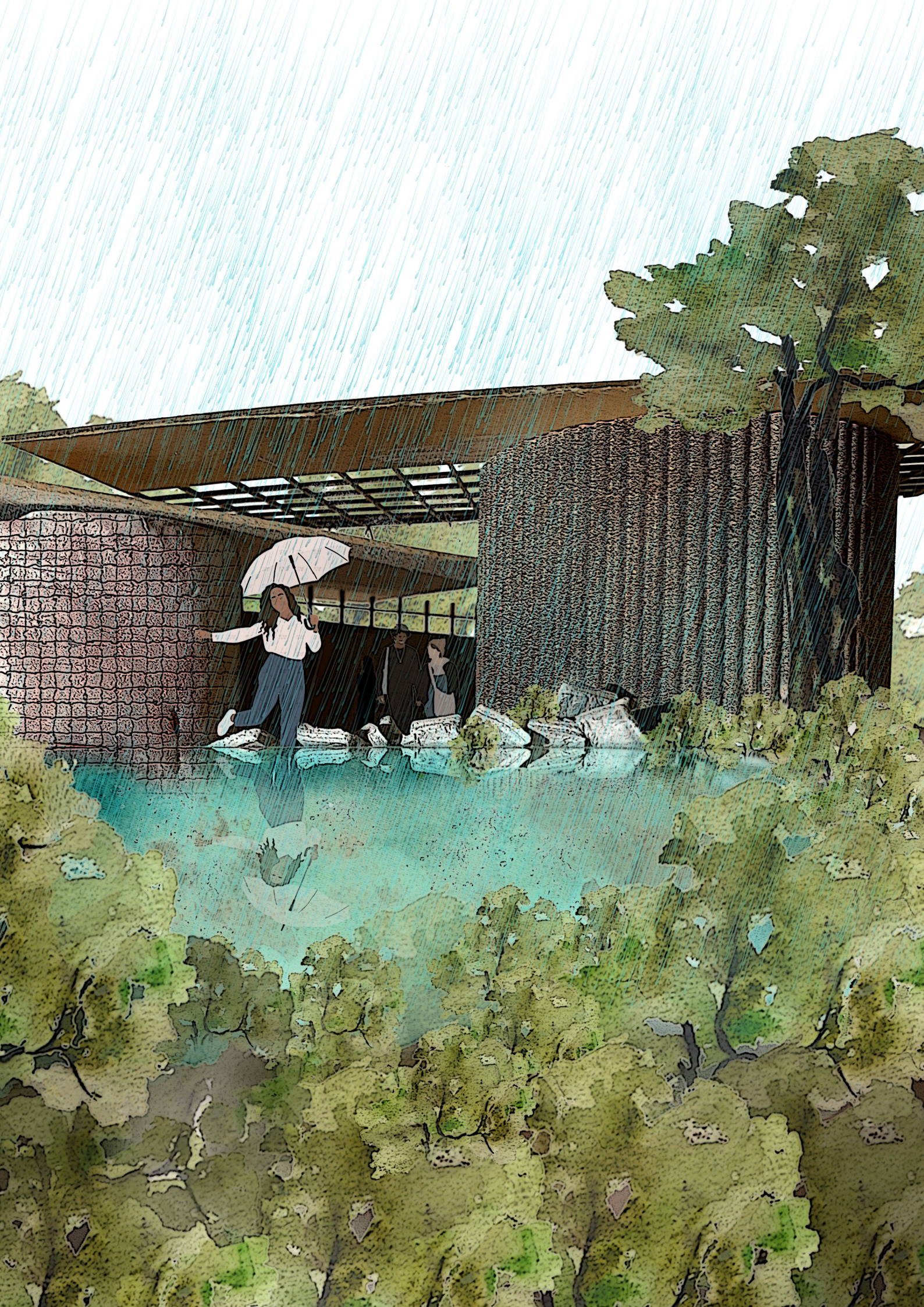
Wood, clay, and water were all explored and tested in many ways through numerous model iterations. This looked at the relationship between light and shadow while establishing a connection between mass and space. At the chosen site, one must first walk the whenua which is fringed by mature Pohutukawa trees before experiencing the vast openness of the awa, discovered beyond the pole like tree trunks. Thinking about the building's connection in relation to this experience, the building must employ heaviness and lightness, brick to wood, dark shadows to light shadows and closed structure to an open structure to evoke and effectively strengthen the relationship between the building and environment.

Fig. 62: (left) Model collage. These iterations added water and tested reflection, light and different scales.

MODEL - PHOTOGRAPHY - SKETCH - COMPUTER SKETCH

Fig. 63: (right) Model showcasing broken structure, textures, heavy and light materials and introduces the site vegetation through computer sketch.





MODEL - PHOTOGRAPHY - SKETCH - COMPUTER SKETCH

Fig. 64: (left) Model showcasing broken structure, textures, heavy and light materials and introduces rain and water.



KEY DESIGN OUTCOMES

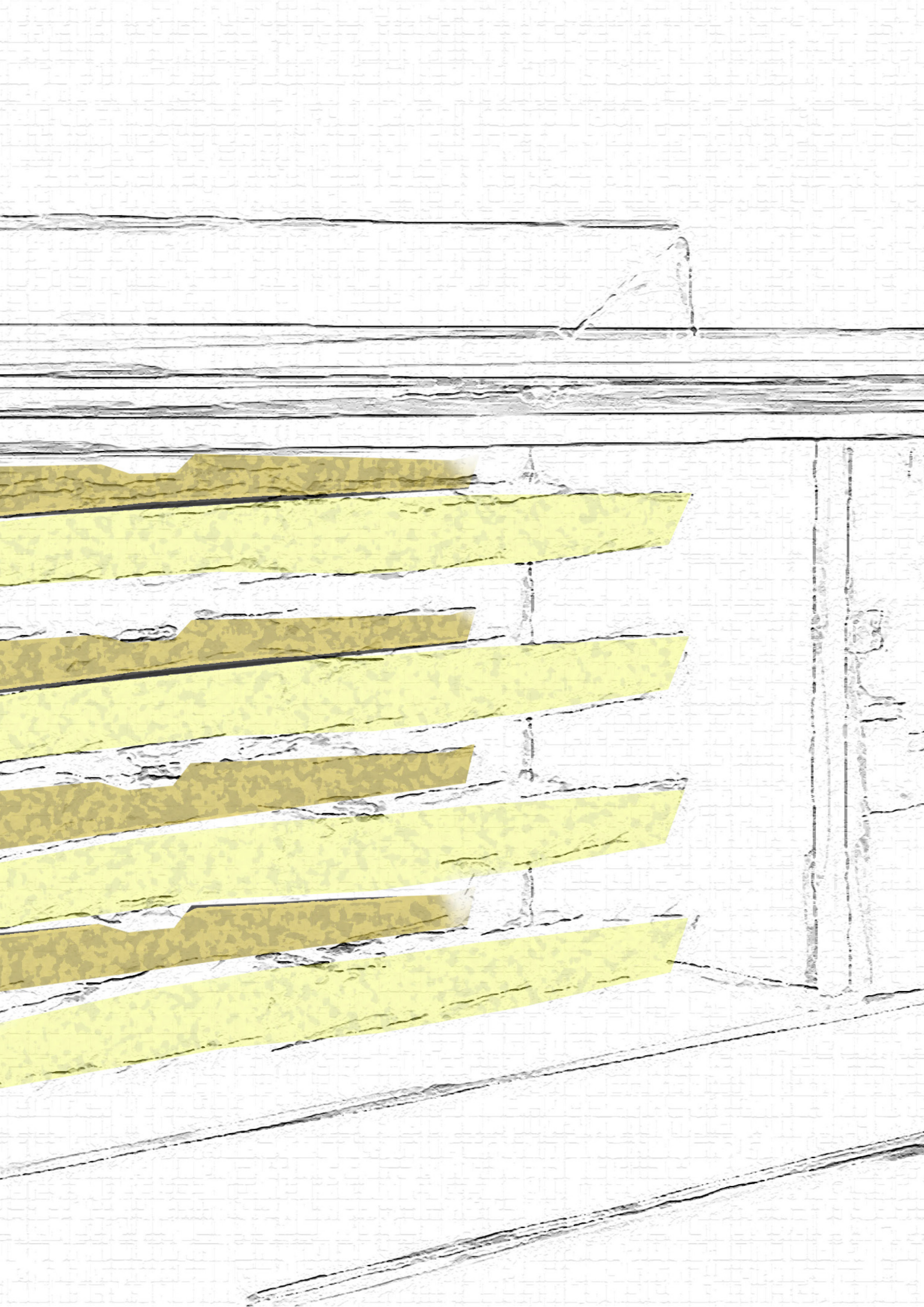
Fig. 65: (left) Model showcasing clay bricks laid with gaps to allow in the light and colour reflection from the kayaks.



Fig. 66: (above) Sketch showcasing the open exterior brick walls that allow light and shadow to enter the garden pavilion.
Fig. 67: (pages 110-111) Sketch showcasing how the kayaks are interlaced with the brick exterior of the building.

OPEN BRICK WALLS - KAYAK STORAGE

These clay models correspond to the design idea around kayak storage space. Instead of hiding these kayaks in a typical storage area, I want them to be used as part of the building's facade. This not only will create the boundaries to protect the kayaks it will allow the often-bright orange and yellow colours to reflect and intrude into interior spaces while inviting in the many sounds and smells that can be found at the site (see Figures 97 & 102).



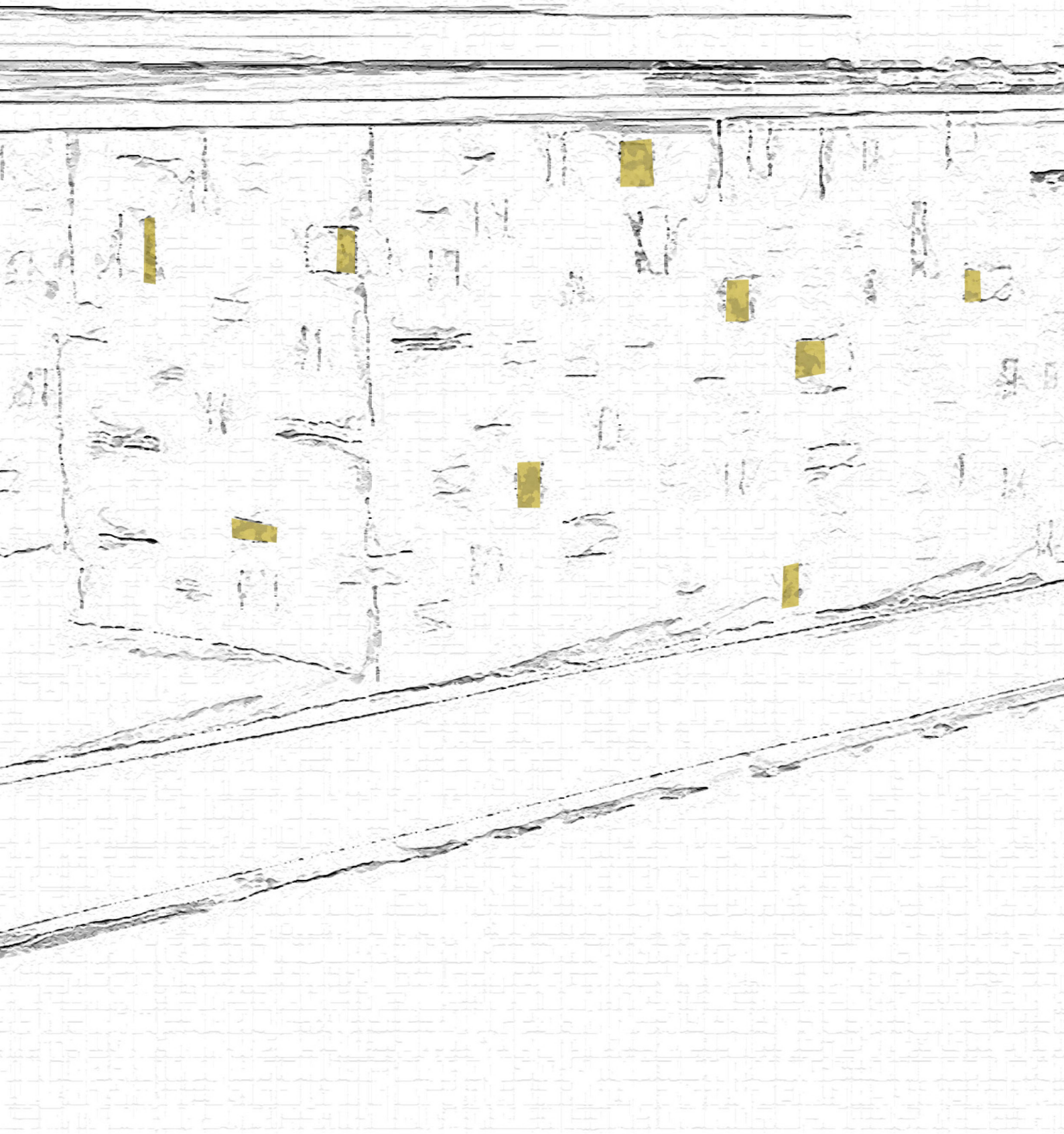


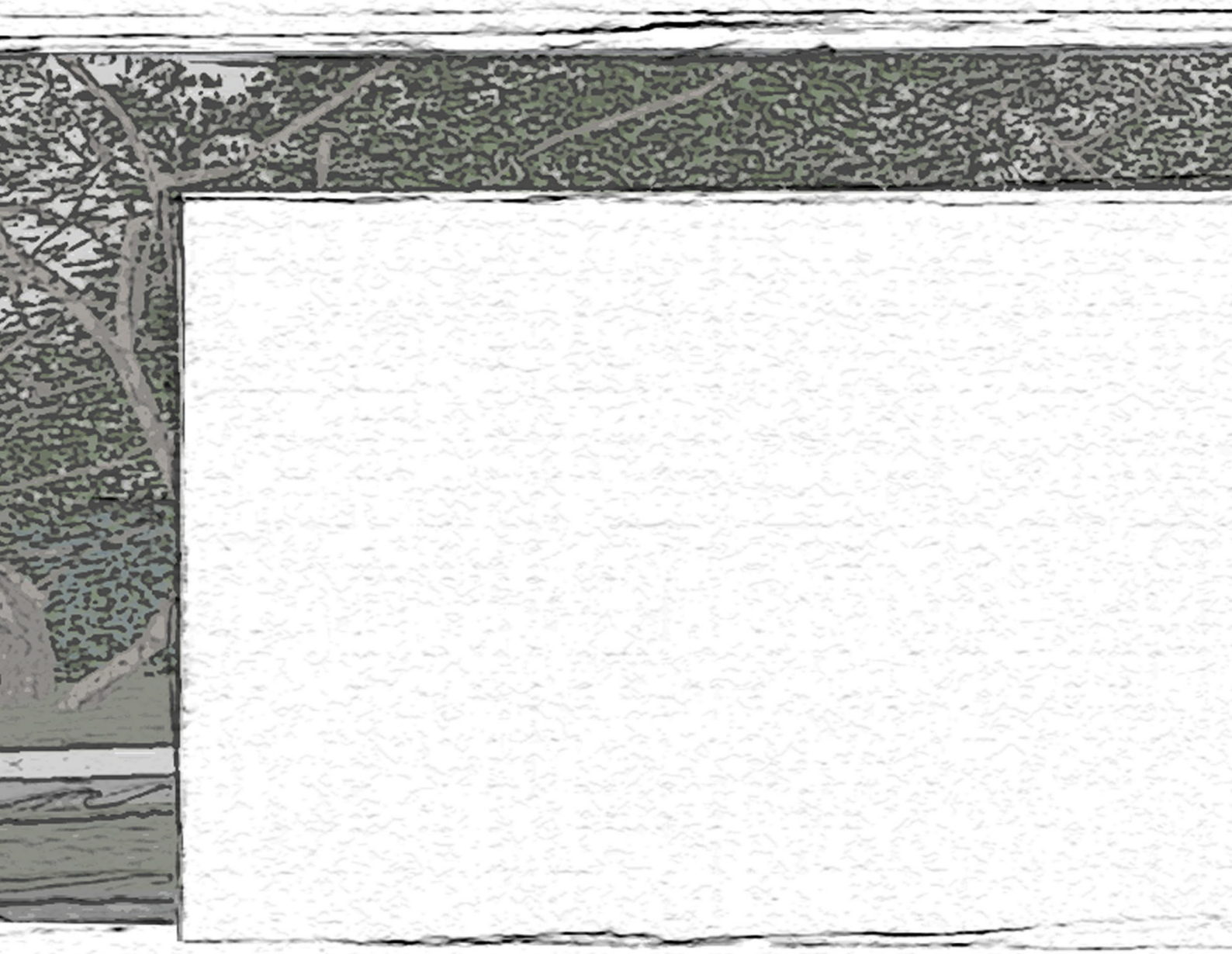


Fig. 68: Sketch showcasing how the clerestory window lets light and elements of the environment into the quiet interior space. But, through solid soundproof walls, louder more interactive activities can continue along the garden pavilion. This sketch also shows how certain roofs direct water into rain gardens, creating opportunities for people to interact with the water.

CLEARSTORY WINDOWS AND BROKEN UP STRUCTURE

An important design element that was generated through these models is the clerestory window. The clerestory, a high window, brings in elements of the environment to create atmosphere, providing intimate and private spaces within that fill the space with light and dark shadows. The design incorporates the elements in a way that focuses the room's attention out to the Pohutukawa trees, almost like the roof is floating above. Furthermore, the design uses the clerestory as a divider between the public recreational spaces and more private spaces (community rooms). While every day recreational activities take place around the building and the awa, those spending time in the interior spaces can also enjoy the same qualities of the site in a quieter and more intimate environment (see Figures 83, 129 & 130).

Fig. 69: (right) Computer sketch showcasing the clerestory window and how it directs the eye out to the Pahutukawa trees.



BATTEN SHADOW STRUCTURE

These battens create and cast dark bands of shadow. This broken up light timber façade resonates with the pole like tree trunks that line the site, only revealing glimpses of the awa beyond. From inside the double height community room, one sees glimpses of the wider environment through these shadowy battens, an almost duplication of looking through the tree trunks (see Figures 70, 71 129 & 130).

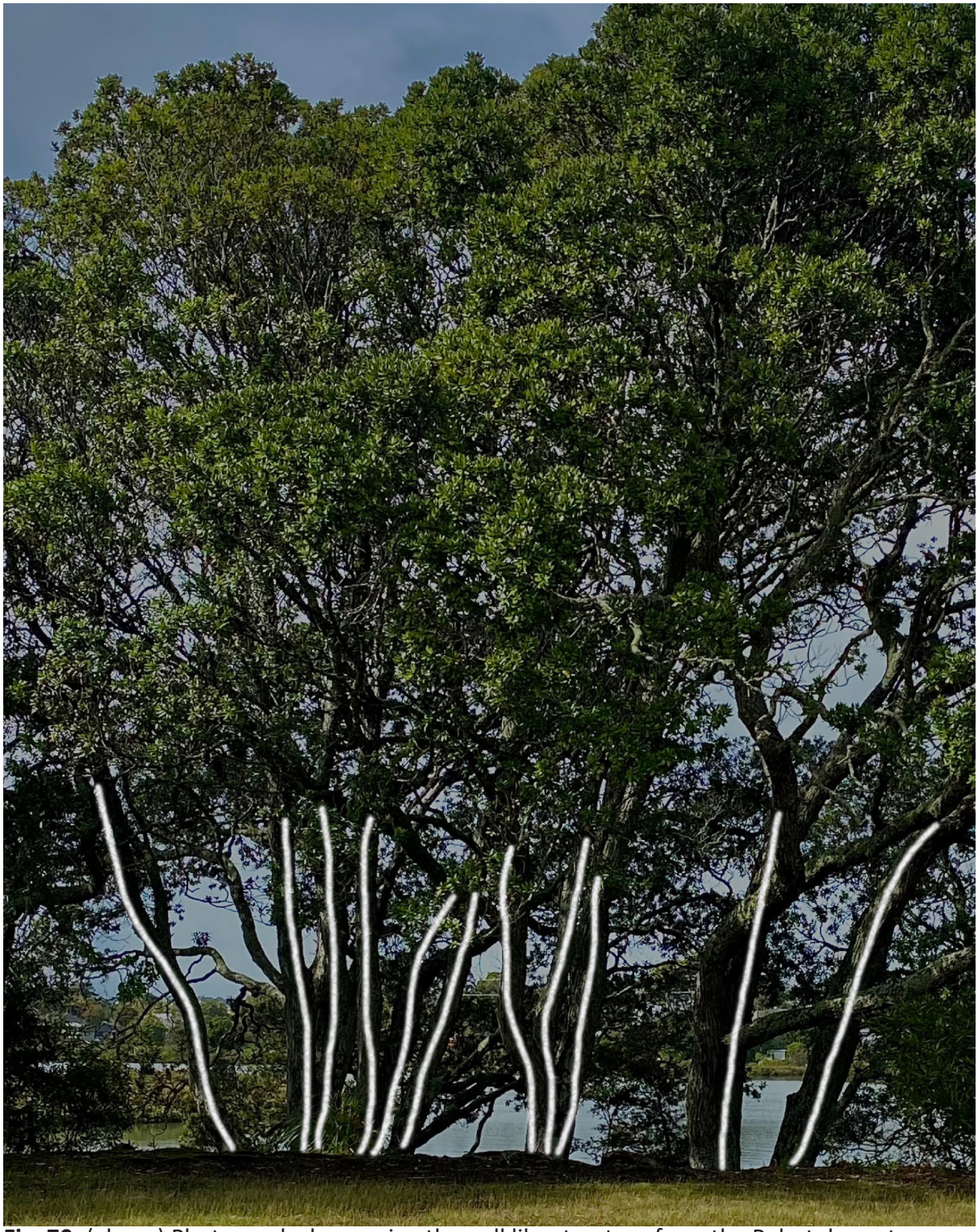


Fig. 70: (above) Photograph showcasing the poll like structure from the Pohutukawa trees.
Fig. 71: (page 119) Sketch showcasing one of the community spaces with a batten facade, mimicking the Pohutukawa tree trunks on the site.

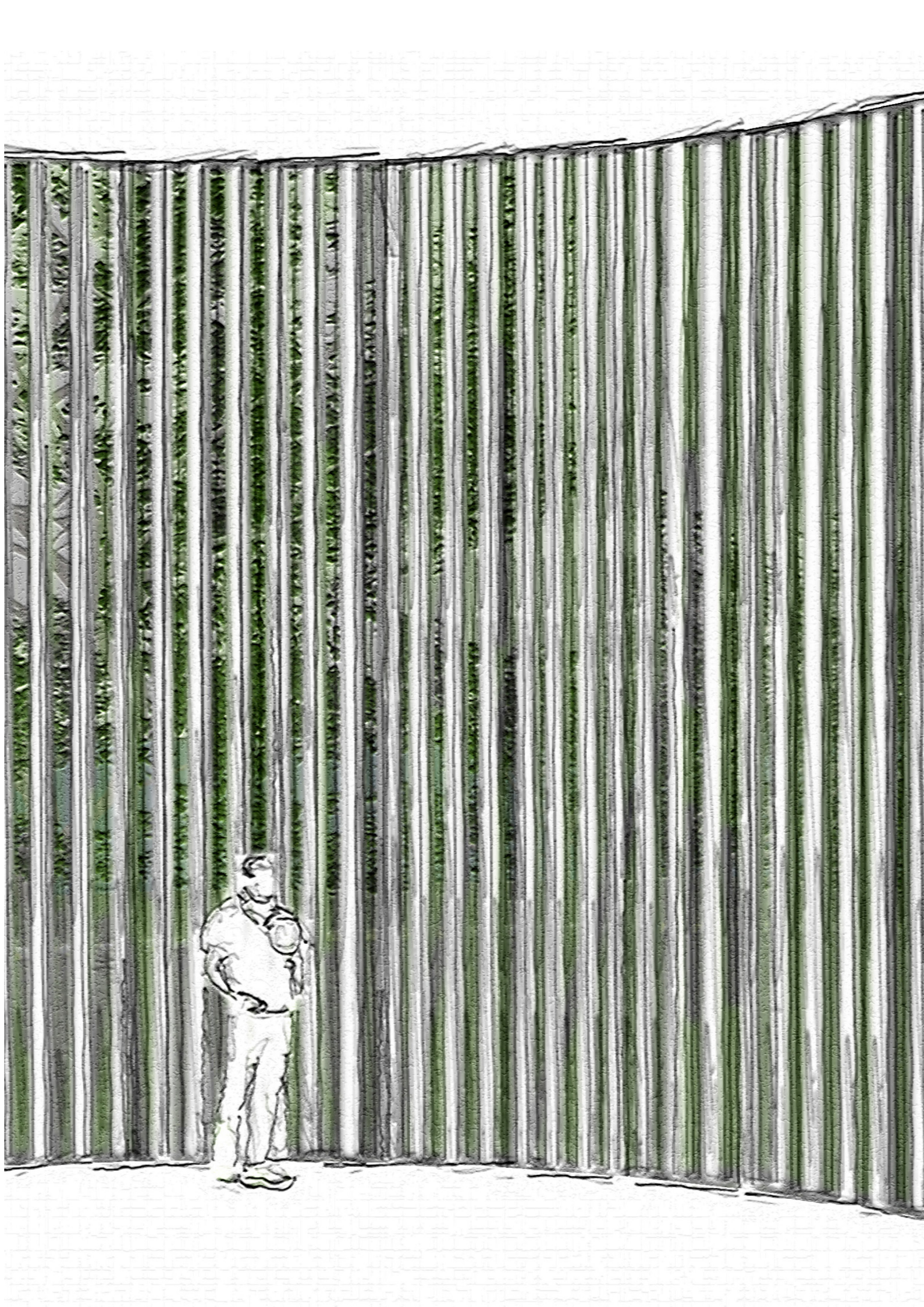




Fig. 72: Rain gardens that are built into the structure, evoking curiosity when it rains, while water troughs collect any water runoff and direct it to its nearest rain garden for filtering.

RAIN GARDENS AND WATER PATHS

The speculative scheme supports water sensitivity by incorporating rainwater gardens, rainwater collection tanks and permeable surfaces throughout the garden pavilion. In this way rainwater is either recycled for use in the toilets and basins or is filtered through plant beds before entering the ground and then awa. The rainwater gardens can be seen in Figures 106,

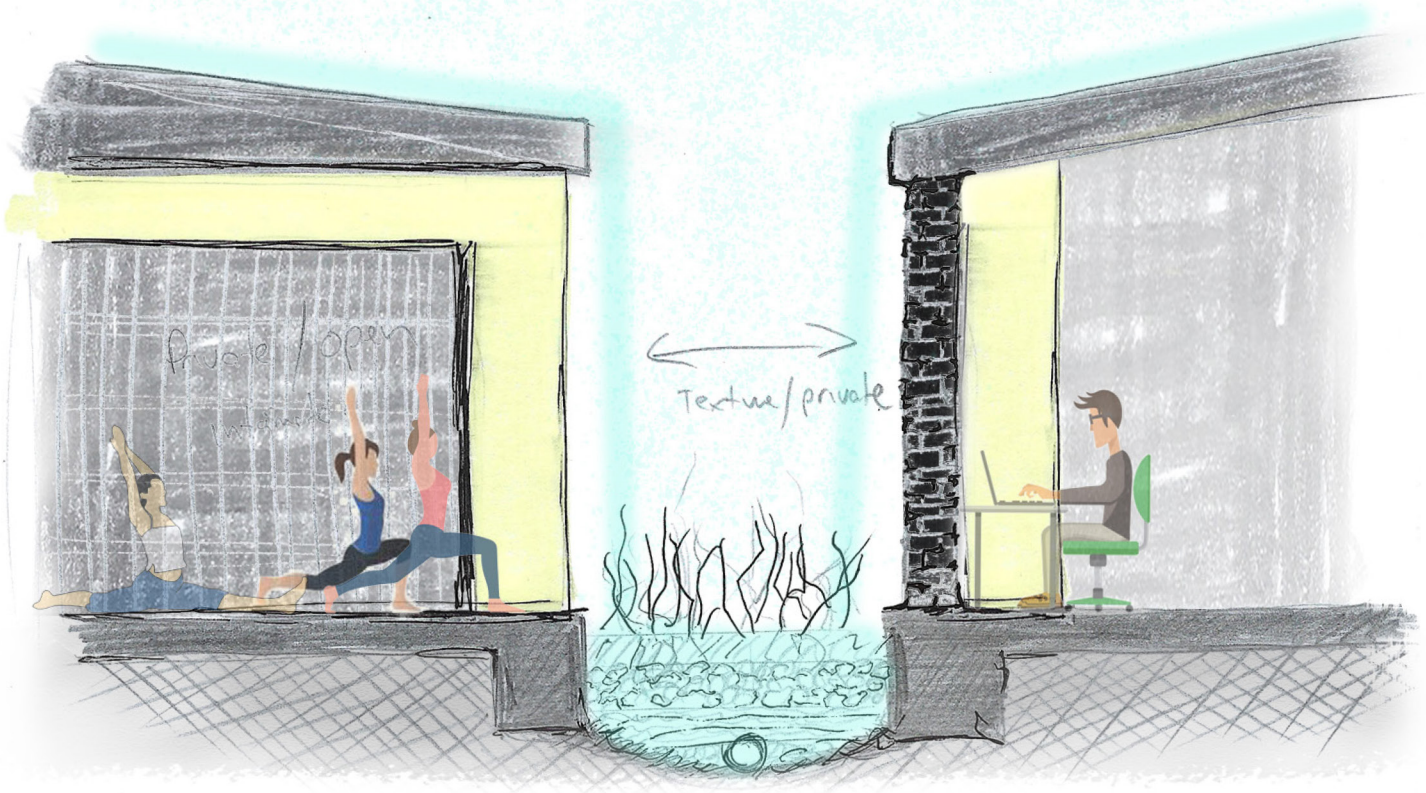


Fig. 73: Sketch showing one community room (with yoga) and the office on the other side. The community room has a large window that creates a feeling of the garden being in the room. The clerestory window that can be seen will look out to the mature Pohutukawa trees, this will ensure the room has plenty of natural light yet is kept private and heavily connected to the wider environment.

Fig. 74: (page 123) Photograph in the rain, of mud and traces of bricks at the proposed site when the tide is out





Fig. 75 & 76: Model, photograph, sketch and computer sketch of garden pavilion interacting with light and water.

GARDEN PAVILION

The garden pavilion, which is described next in the Design Proposal, cuts its path in between different parts of the building, see Figure 96. It creates opportunities for the visitor to establish a deeper connection to the activity on the site and the wider environmental elements, such as rain, wind, fog, and sun. Visual and mental connections are associated through our auditory sense that is amplified throughout the pavilion pathways. For example, you can hear the sounds of the awa emptying and filling up, the mud sucking and bursting in the sun, the birds singing among the rustling Pohutukawa trees leaves and the waka ama crew chanting and counting as they paddle up the awa, all captured by the design, so the visitor doesn't need to be in direct contact with the awa to appreciate these natural sounds.

BUILDING PROGRAM

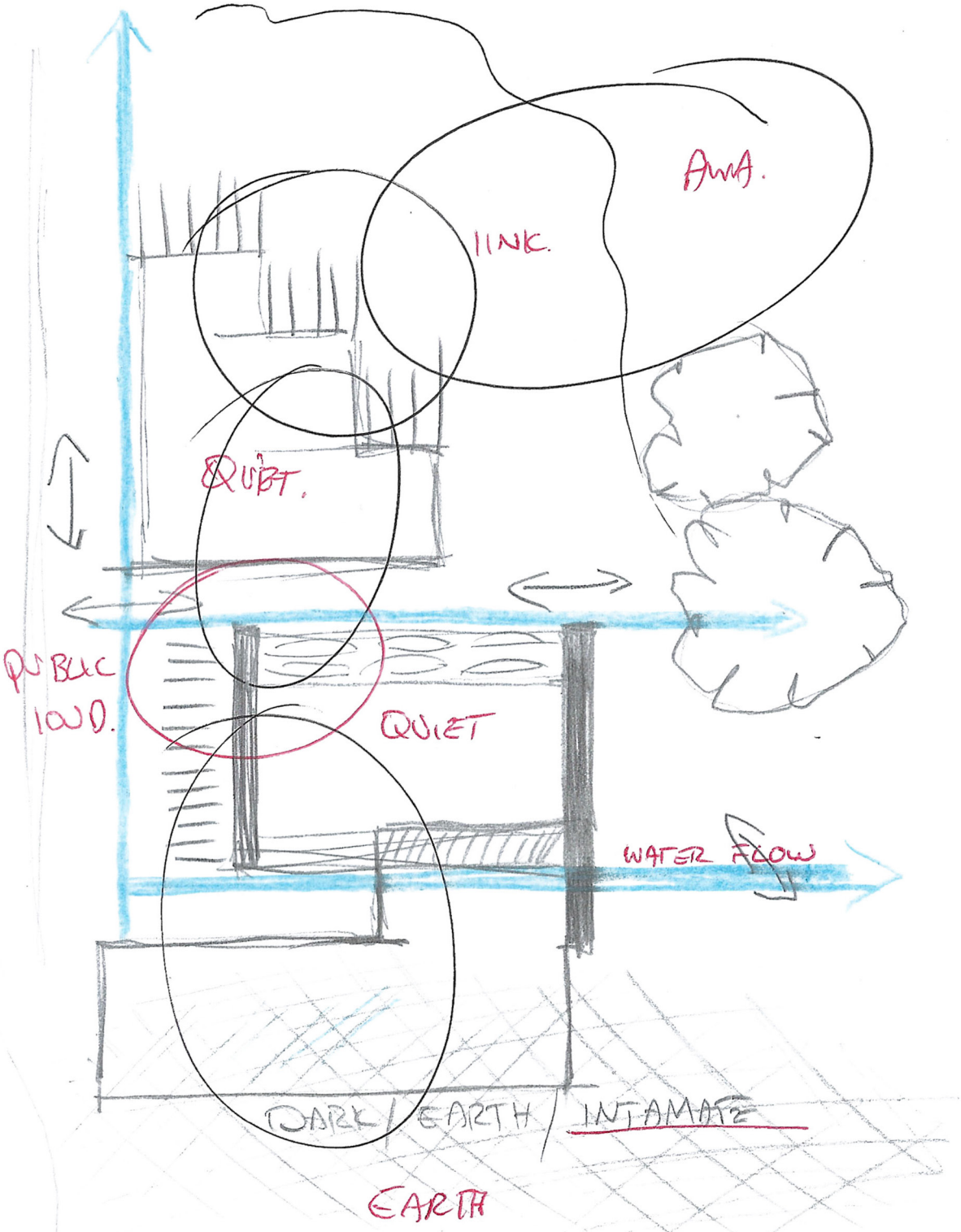


Fig. 77: Programmatic sketch testing quiet and loud spaces, water flow, building connection to the surrounding environment and flow.

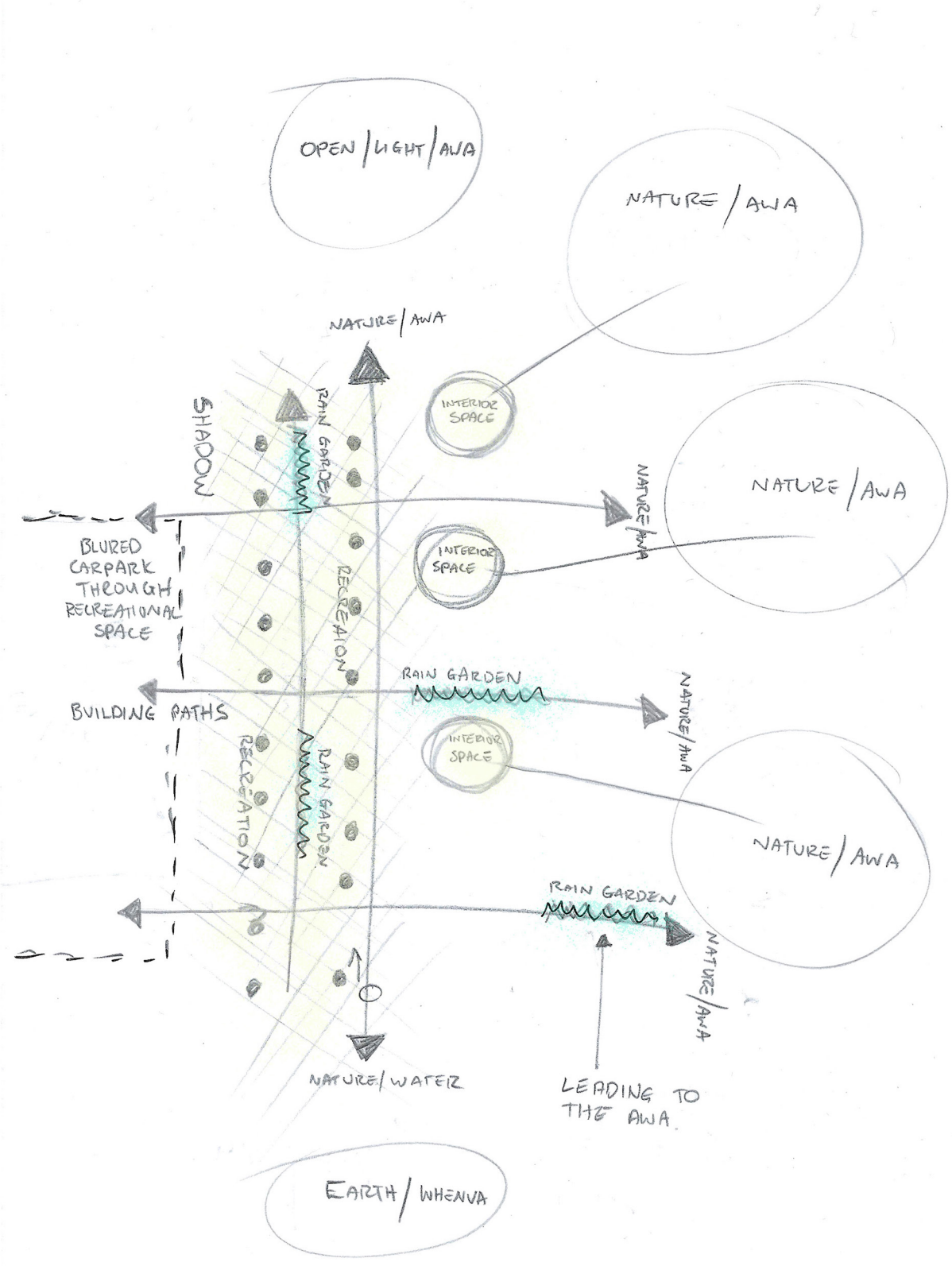
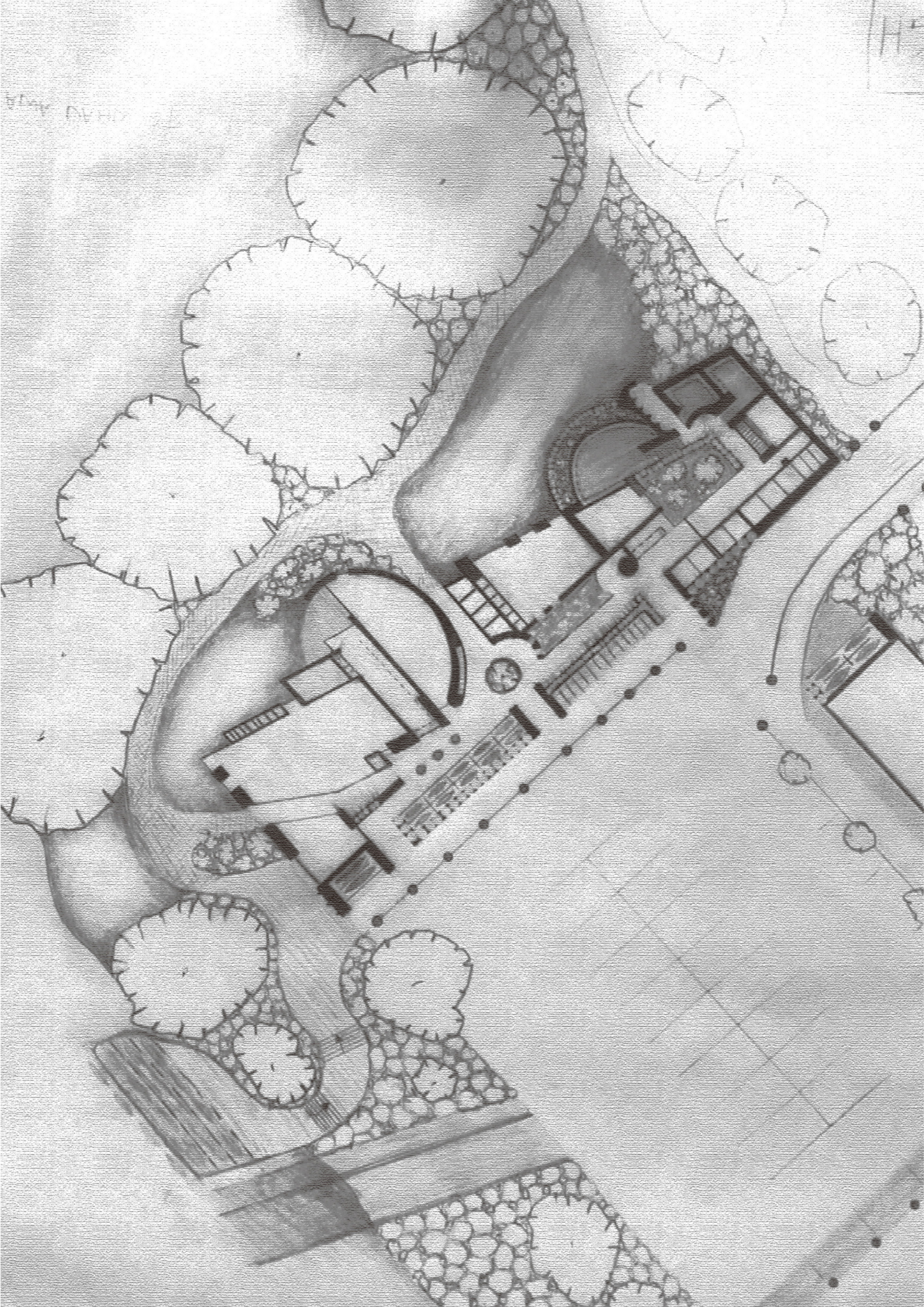


Fig. 78: A more in-depth sketch looking at further development on rain garden paths, open and closed spaces and building flow paths.



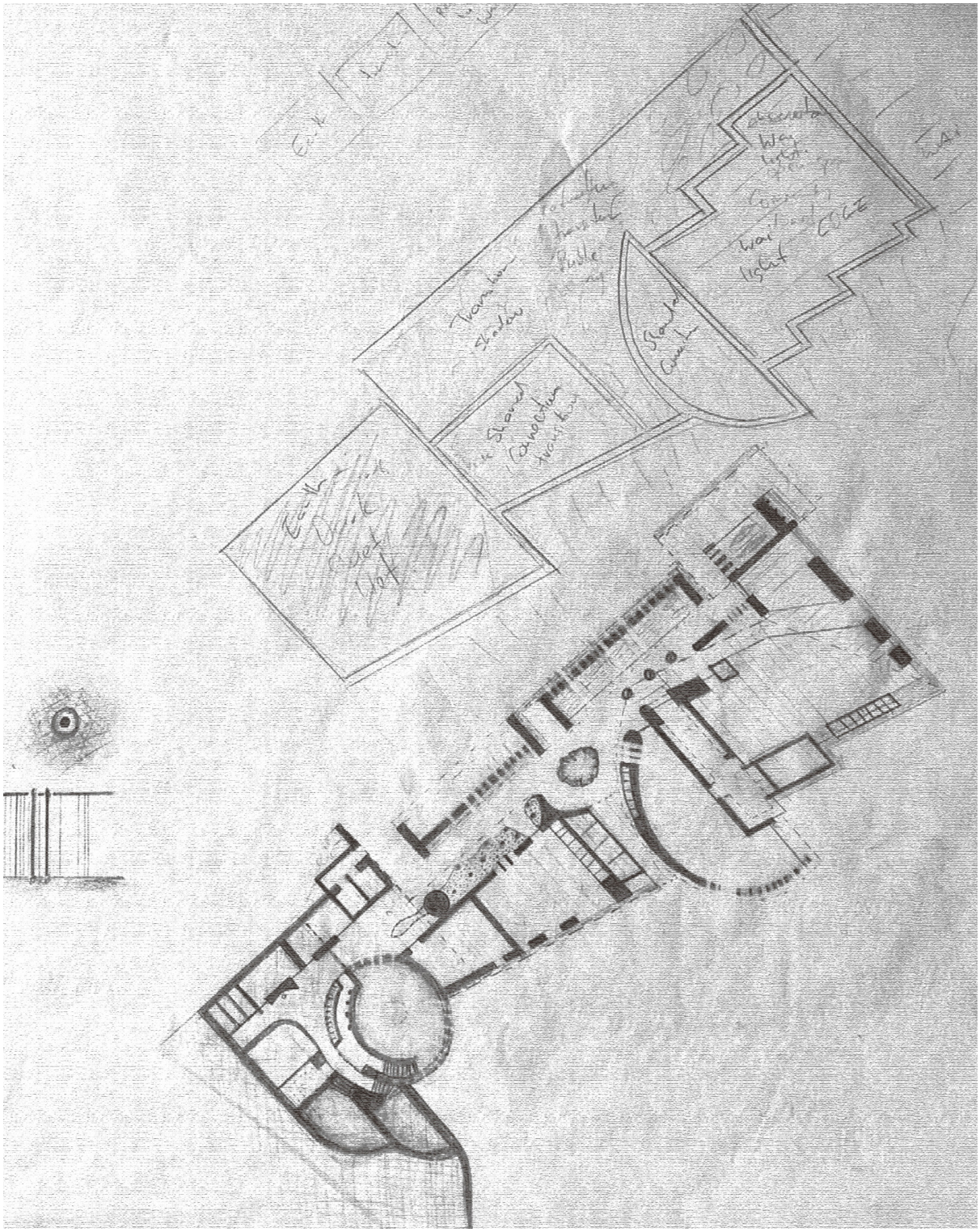


Fig. 79: (page 130) A developed sketch floor plan showing the wider context and how the building could sit within the site.
Fig. 80: (above) Floor plan developed further.

THE PAUSE: DESIGN PROPOSAL

"When I concentrate on a specific site or place for which I am going to design a building; I try to plumb its depths, its form, its history and its sensuous qualities".[116]

The Pause is a multi-sensory community building on the banks of the Whau awa. It takes its name from the Te Whau Pathway's designated 'pause point' which is to be located at Archibald Park. The brick and timber 617m^2 building (see Figure 81) doesn't aim to stand out, it aims to be used, to become a connecting driver between the awa and the visitor, where one's experience is heightened through the multi-sensorial design.

Programmatically, the building offers three main community rooms, each expressing a different feeling, atmosphere, and purpose. Each space has been carefully designed for useability, offering lockers and storage, kitchenettes, built-in seating and louvered windows. There are layers of textures, dark shadows and light shadows and large windows that turn into walls (see Figures 129-133). These rooms are filled with design elements, permitting total adaptability and comfort for any activity or event.

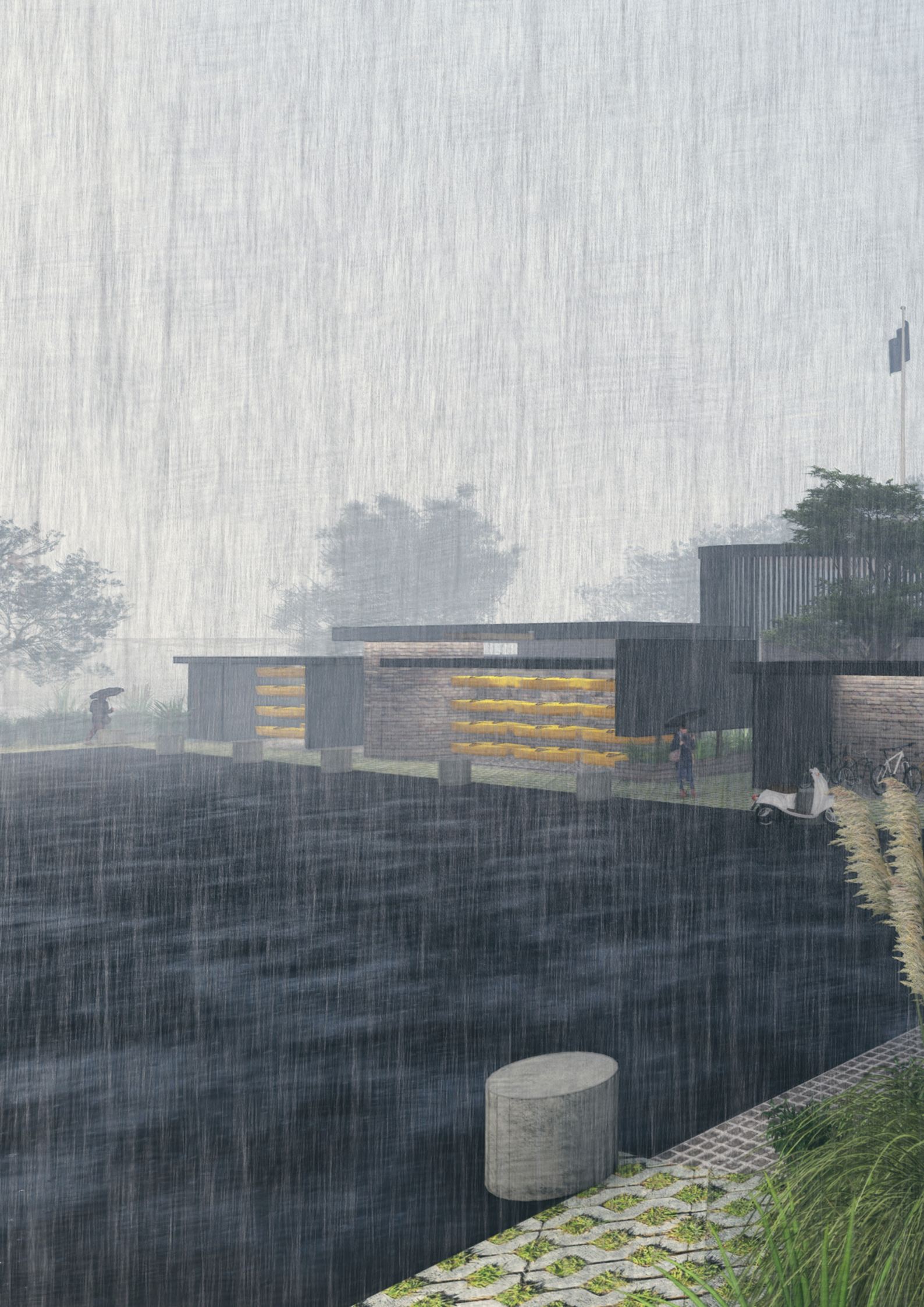
The far western end of the site locates the 'earth' part of the building where bathing happens. This cavernous space offers showers, change areas, two hot pools and a sauna, where up to 40 people can enjoy the amenities at one time. Archibald Park is known for its rugby games, kayaking, exercising, and swimming on top of the new activities that the speculative building will house such as, yoga, painting classes and child watch. This dark, wet, and moody space provides a place for swimmers, kayakers, and sports players to wash off and warm up after spending time on the fields and in or on the awa (see Figure 128).

The building is divided into four parts, each attached through a type of pavilion (see Figures 94-96) which acts as a creative stimulus for visitors. It cuts its way through the building, generating opportunities for people to interact with one another and invites people to invent their own itinerary. Bike, kayak, and paddle board hire are all intertwined into the design, allowing for easy interaction with the Te Whau Pathway and awa while refreshments and kai are readily available for enjoyment in the garden pavilion. The pavilion links all four parts of the building together, it has no specific function and lacks many of the familiar environmental characteristics such as lighting and heating. Nevertheless, unlike the enclosed intimate spaces beyond, the pavilion pathway can be occupied like a garden, where the seasons determine its function, and the weather is always apparent (see Figures 102-104).

[116] Zumthor, *Thinking Architecture*, 1999, 36.

Large overhanging perforated roofs protrude above to create closed areas for shelter and open areas that encourage the rain and fog to enter. Bringing something (rain and fog) that is often hidden in our buildings and putting it on display is important so people can start to appreciate their atmospheric qualities (see Figures 114 & 115). Small stone streams are incorporated into the scheme, they act like the veins of the building, where water can be seen flowing into natural filters, rainwater gardens. The montage of different changing weather conditions and materials, creates an everchanging space that enlivens, inspires, invigorates, and disturbs the often-habitual nature of architectural experience.

Fig. 81: (pages 134-135) Speculative Building from the north face.





THE PAUSE: FLOOR PLAN

1. Outdoor Showers
2. Large Kayak Storage
3. Lockers/Storage
4. Community Room 1
5. White Board and Projector Screen
6. Built-in Seating
7. Kitchenette
8. Storage
9. Kitchen
10. Community Room 2
11. Takeaway Coffee and Food
12. Water Catchment Tank
13. Kayak Storage
14. Bike Storage
15. Outdoor Lockers
16. Garden Pavilion
17. Toilets
18. Community Room 3
19. Water Fountains
20. Reception
21. Large Rain Garden
22. Art Instillation Box
23. Outdoor Change Rooms
24. Sauna
25. Office
26. Equipment Room and Workshop
27. Toilet
28. Pool
29. Showers
30. Change Rooms
31. Power Outlets for Food Trucks and Stalls
32. Existing Car Park
33. Existing Toilet and Storage Building
34. Road into Car park
35. Mature Pohutukawa Trees

Fig. 82: (pages 138-139) Speculative Building Floor Plan. 1:200

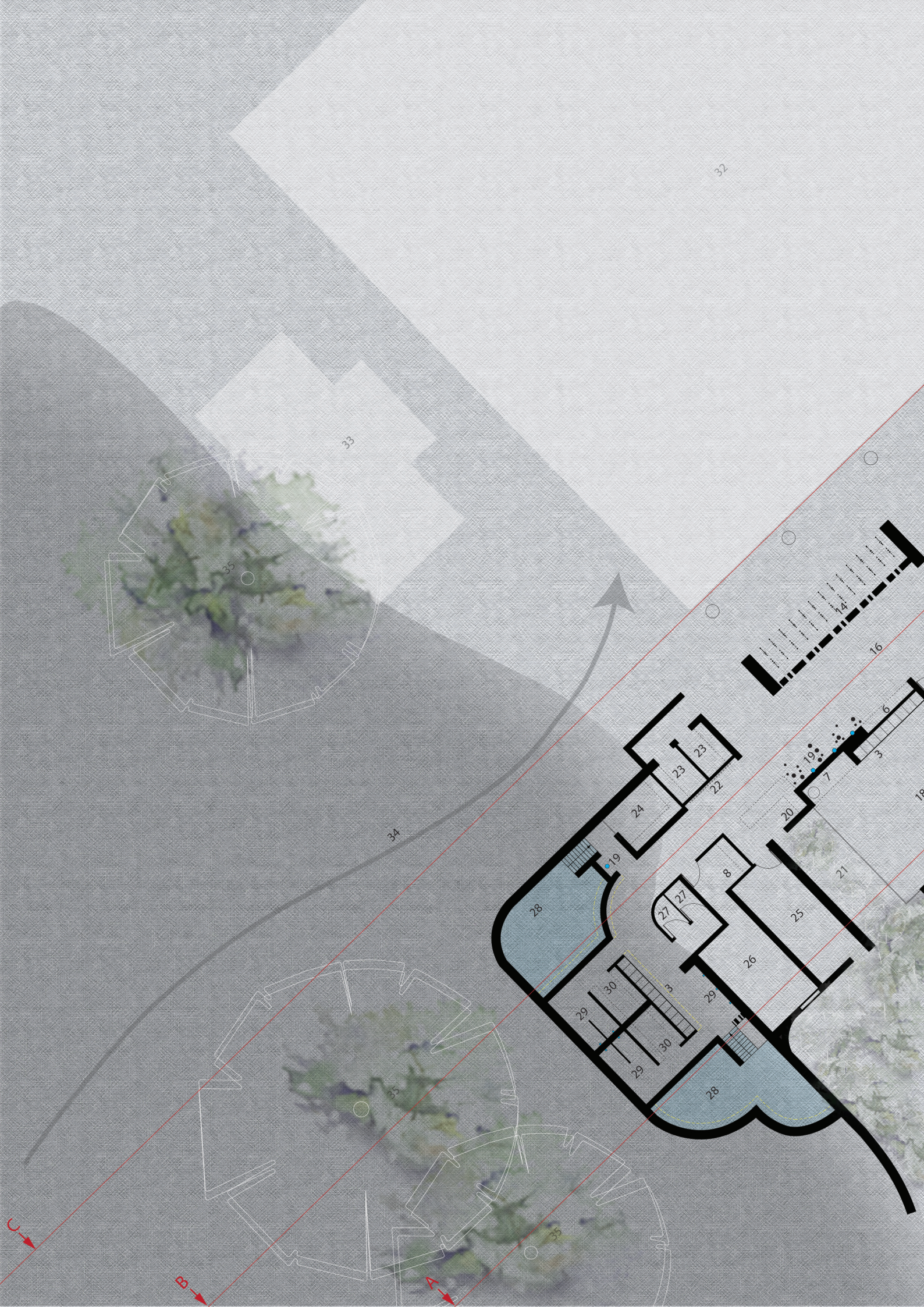

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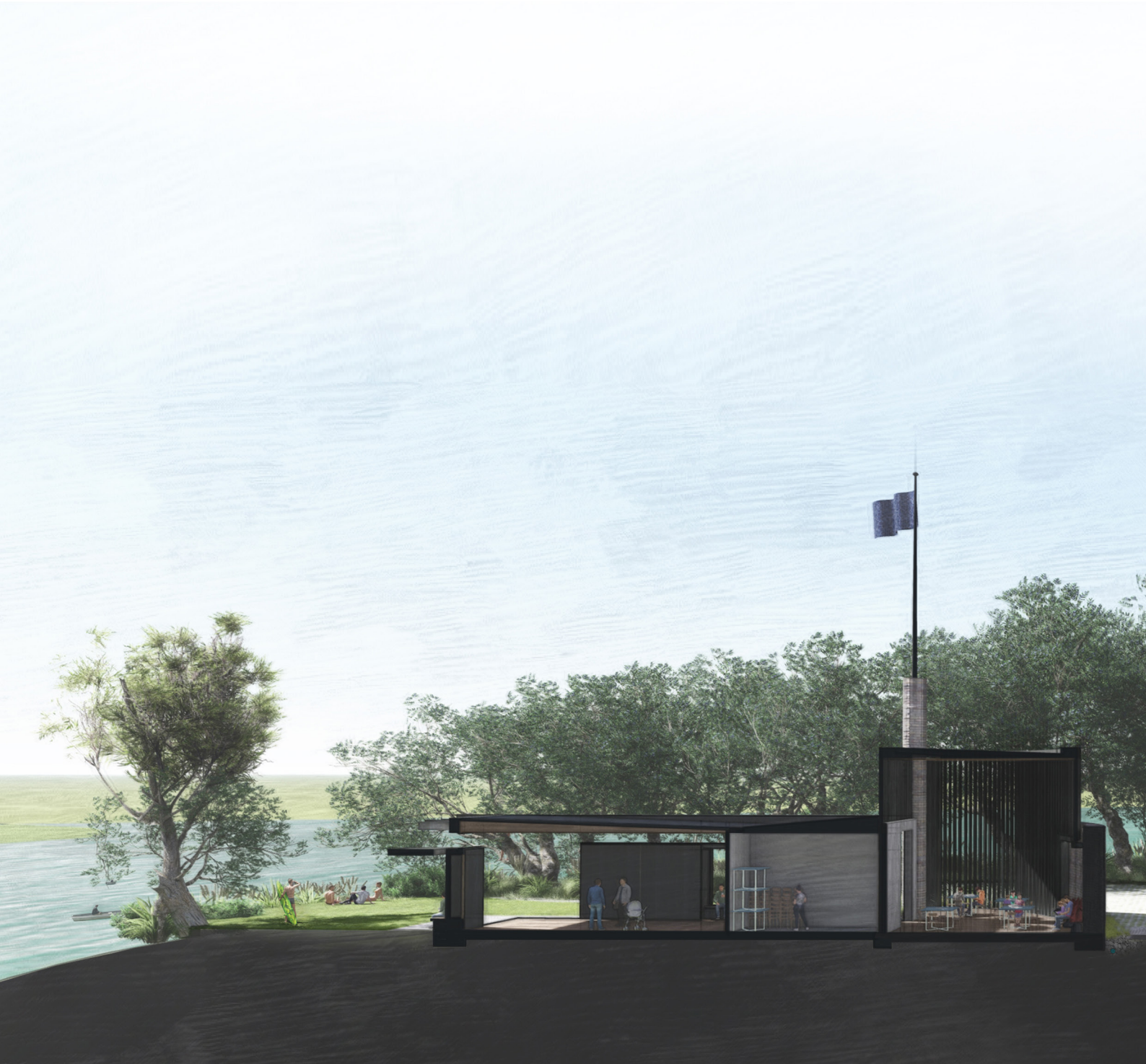
Fig. 83: Section A-A 1:200



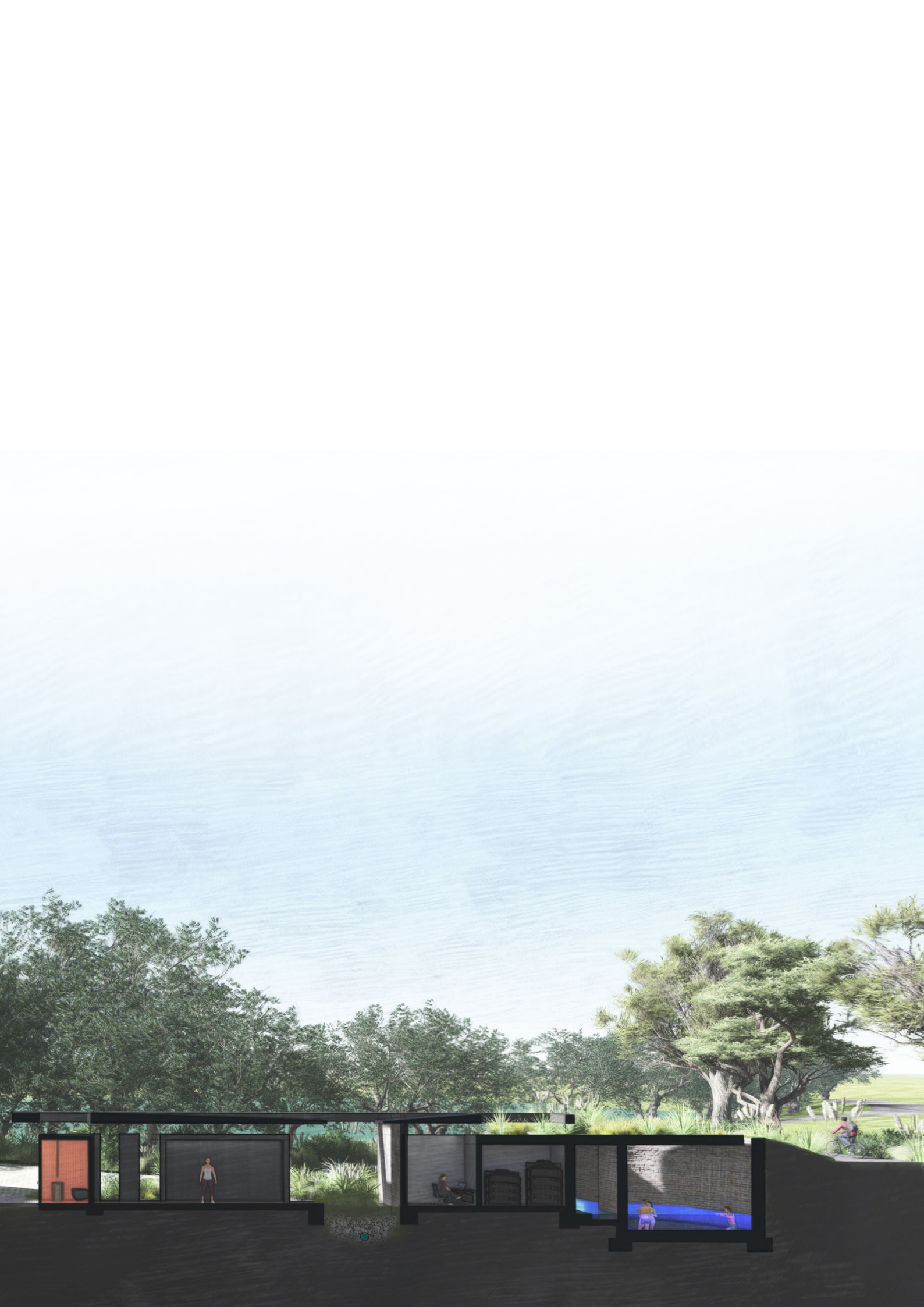


Fig. 84: Section B-B 1:200

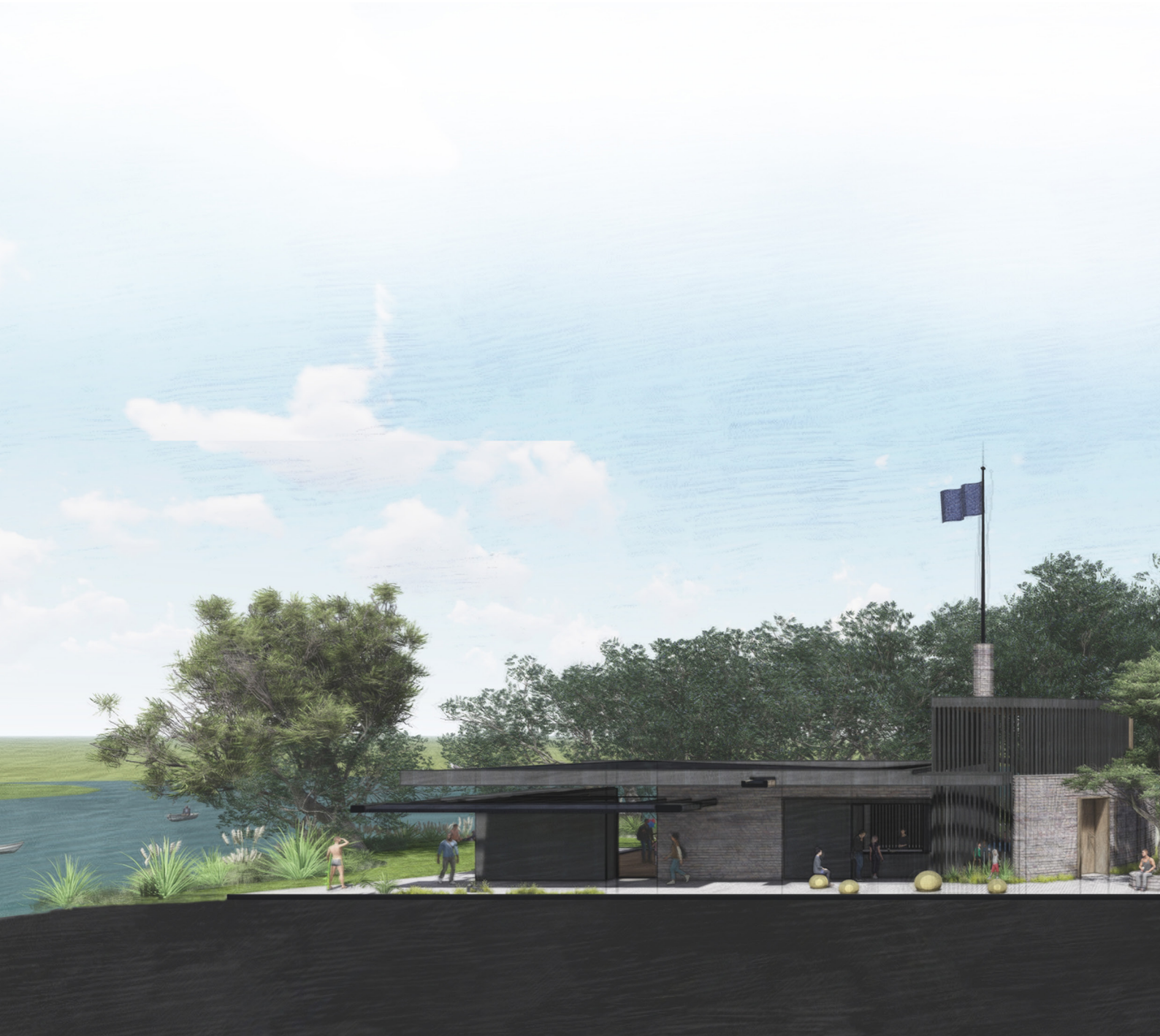




Fig. 85: Section C-C 1:200

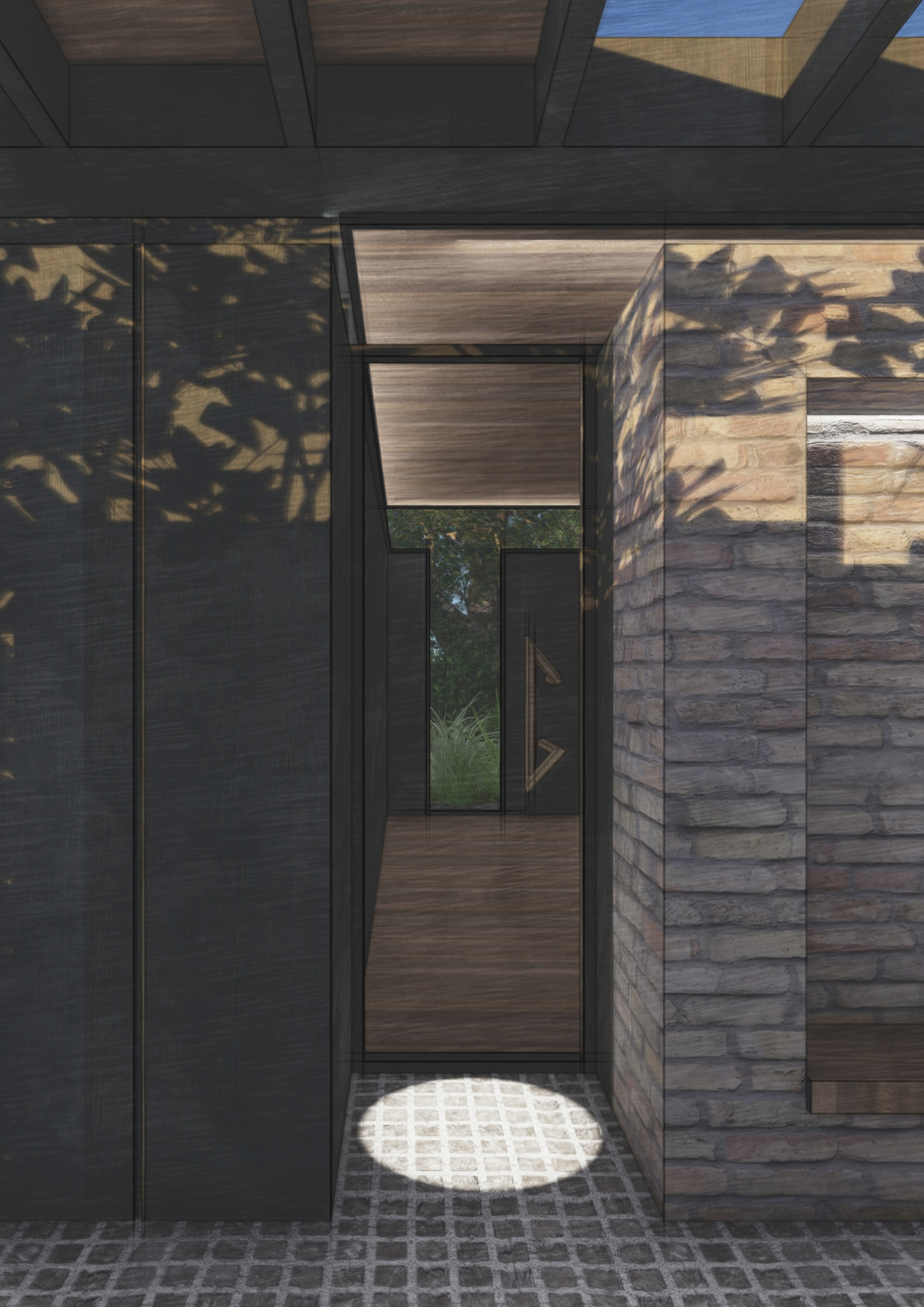




THE PAUSE: DOOR HANDLES

Custom door handles have been designed in a way that evoke touch and memory. The two different designs both allow for the user to grasp the handles in multiple ways. The brass handles will weather over time and use, unavailing smooth and polished edges from people interacting with the building while the unique design may leave an impression.

Fig. 86: (right) Door handle, type 1



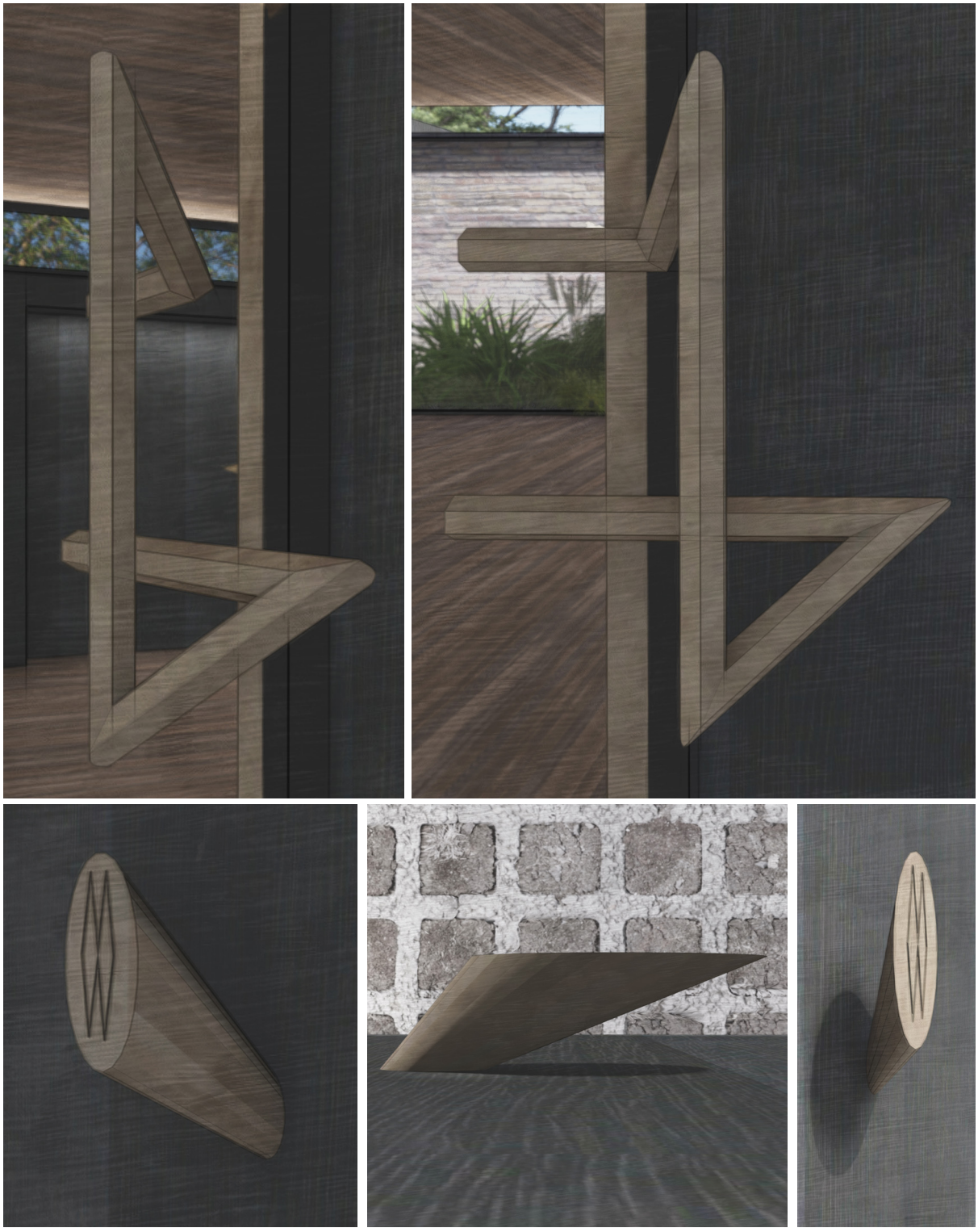


Fig. 87: (Clockwise from top left) Door Handle, type 1
Fig. 88 & 89: Door Handle, type 1
Fig. 90, 91 & 92: Door Handle, type 2

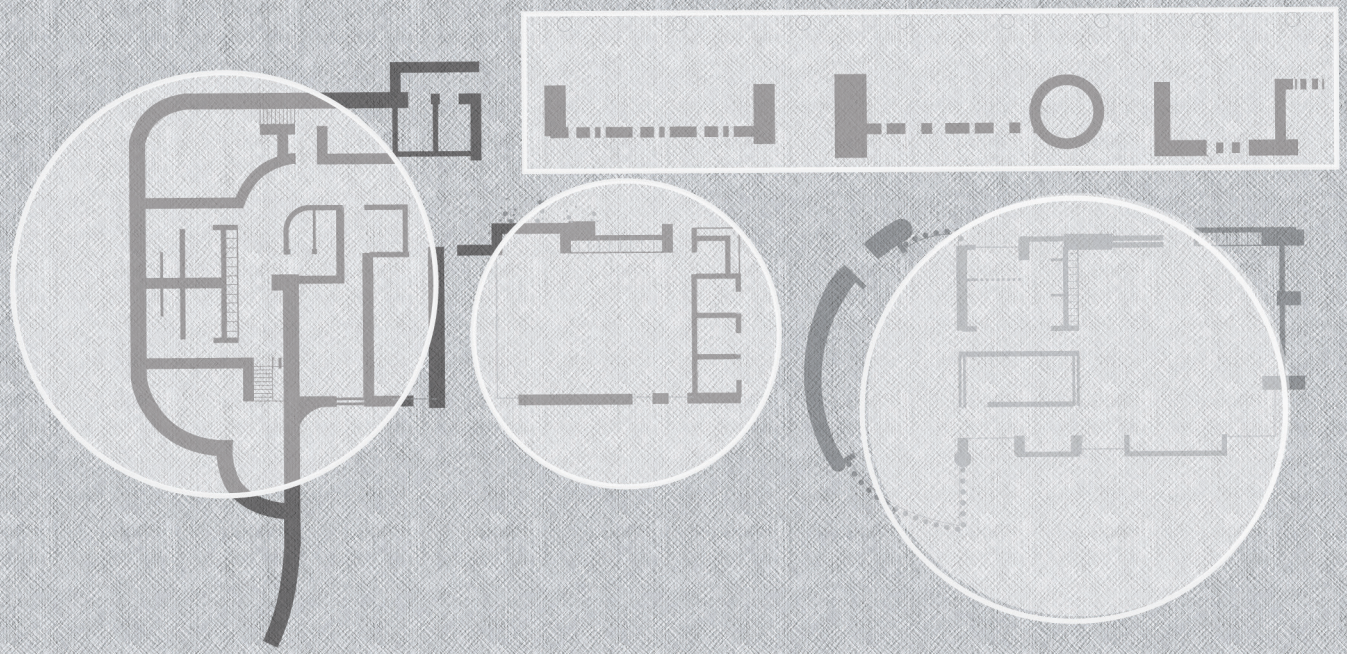


Fig. 93: Door Handle, type 2

THE PAUSE: BUILDING SEGMENTS

The speculative design is divided into 4 parts, each part allows the garden pavilion to interlace through the building, creating air movement, people flow and allowing natural light into every space.

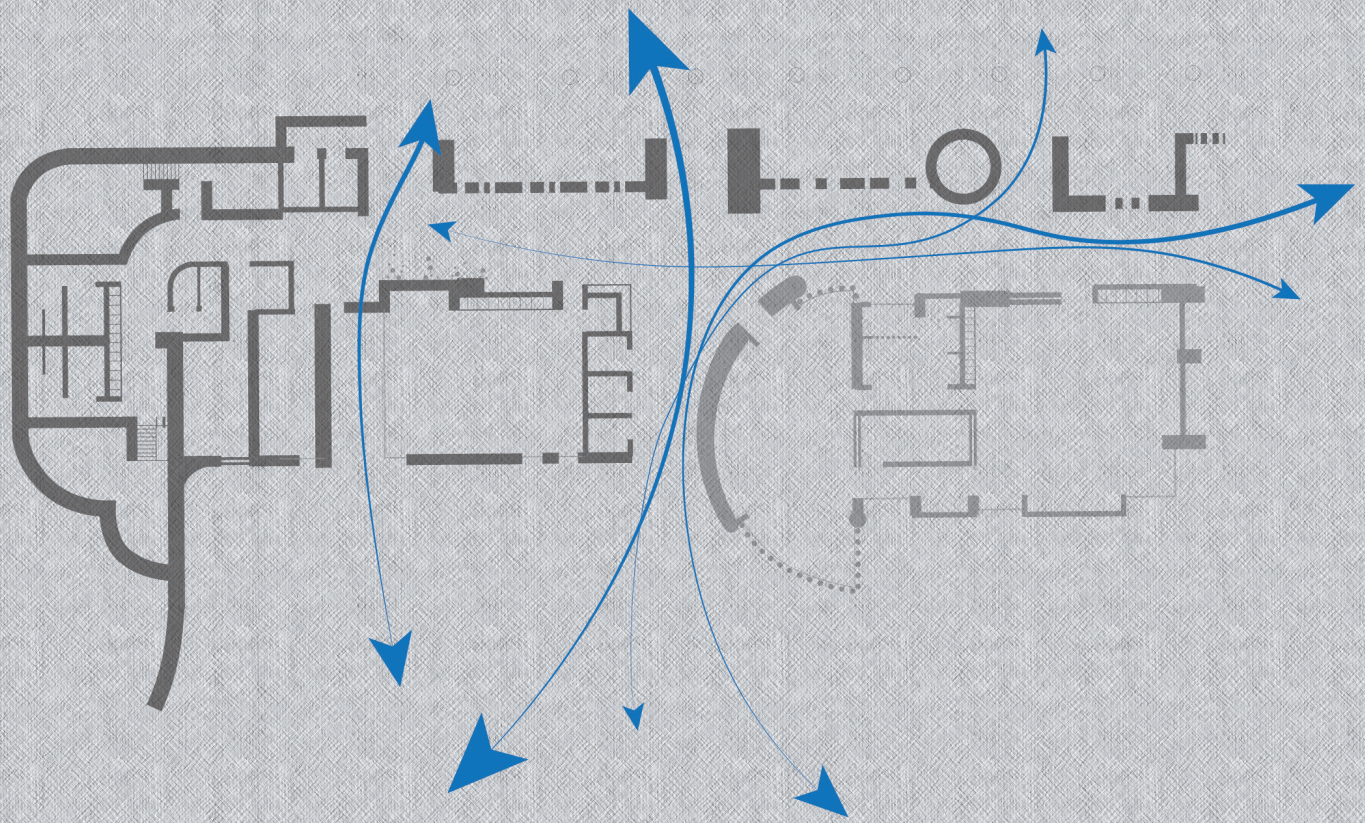
Fig. 94: (right) Building segment diagram

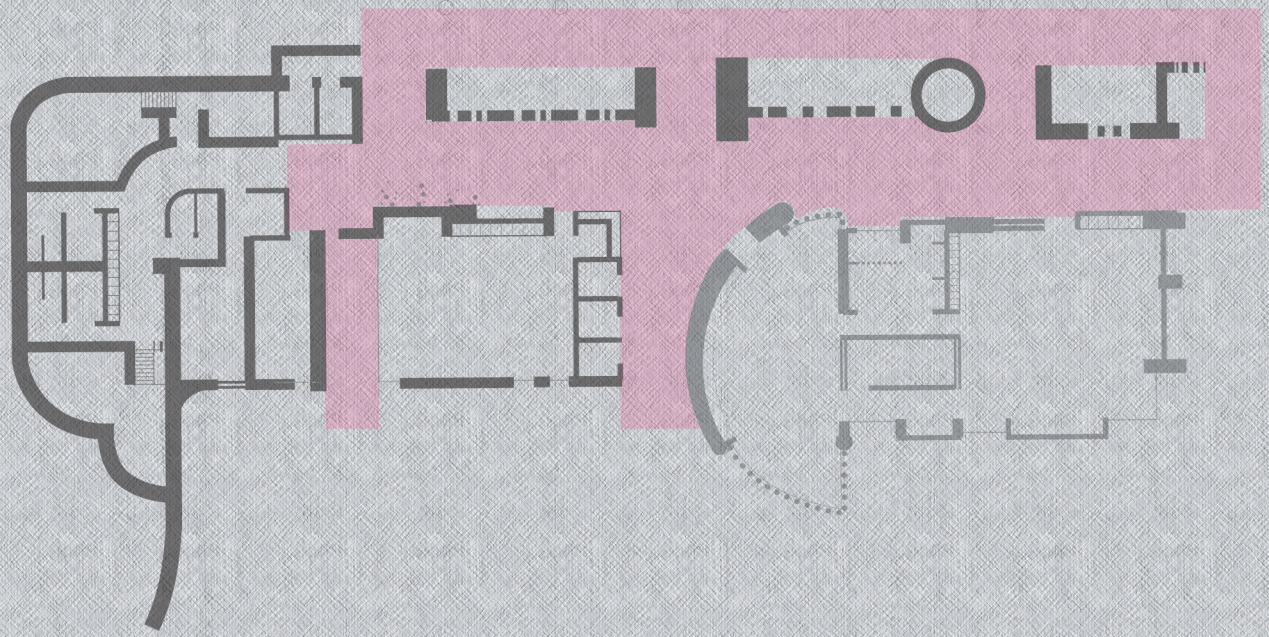


THE PAUSE: BUILDING AIRFLOW

The garden pavilion allows for air and smells (Pohutukawa seeds, salt water and mud) to flow freely throughout the building.

Fig. 95: (right) Building airflow diagram





THE PAUSE: GARDEN PAVILION

Fig. 96: (left) This diagram shows the garden pavilion in pink.

Page 156 from clockwise

Fig. 97: Takeaway coffee and food window looking out towards the garden pavilion.

Fig. 98: East side of the garden pavilion in the morning sun.

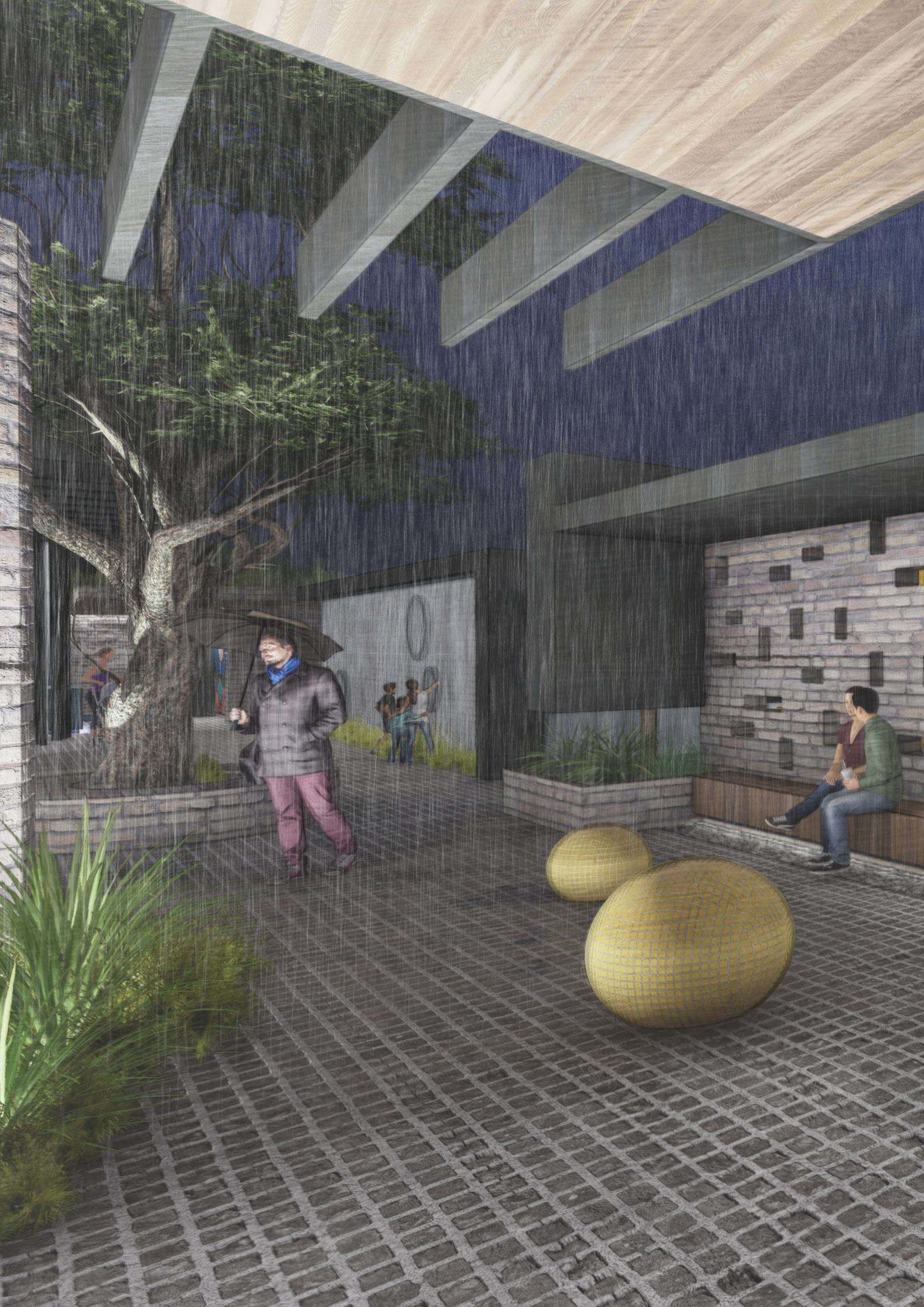
Fig. 99: North side of the building with the kayak storage 'facade' in view.

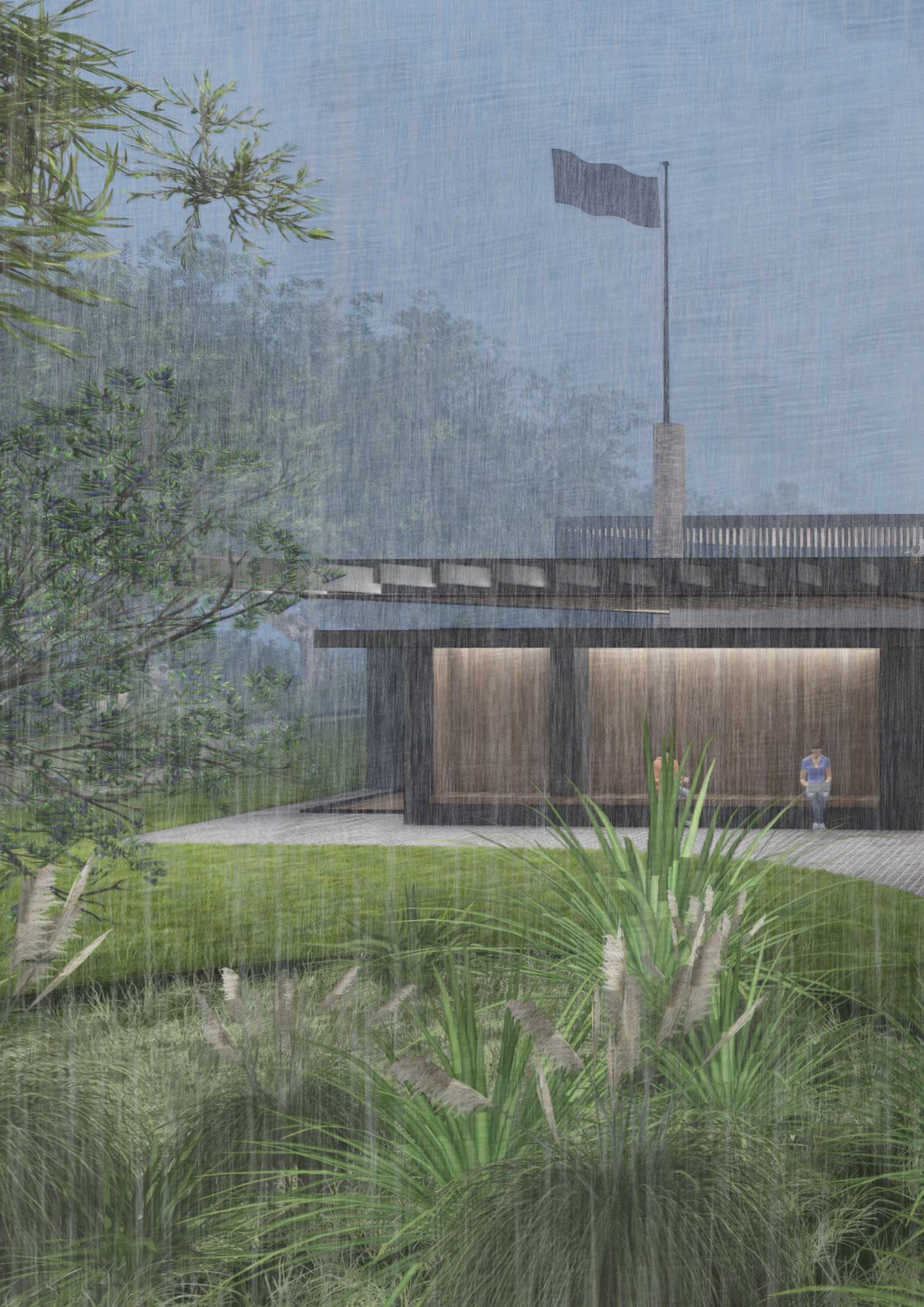
Fig. 100: Western end of the garden pavilion and entry to the pools with art box, raining.

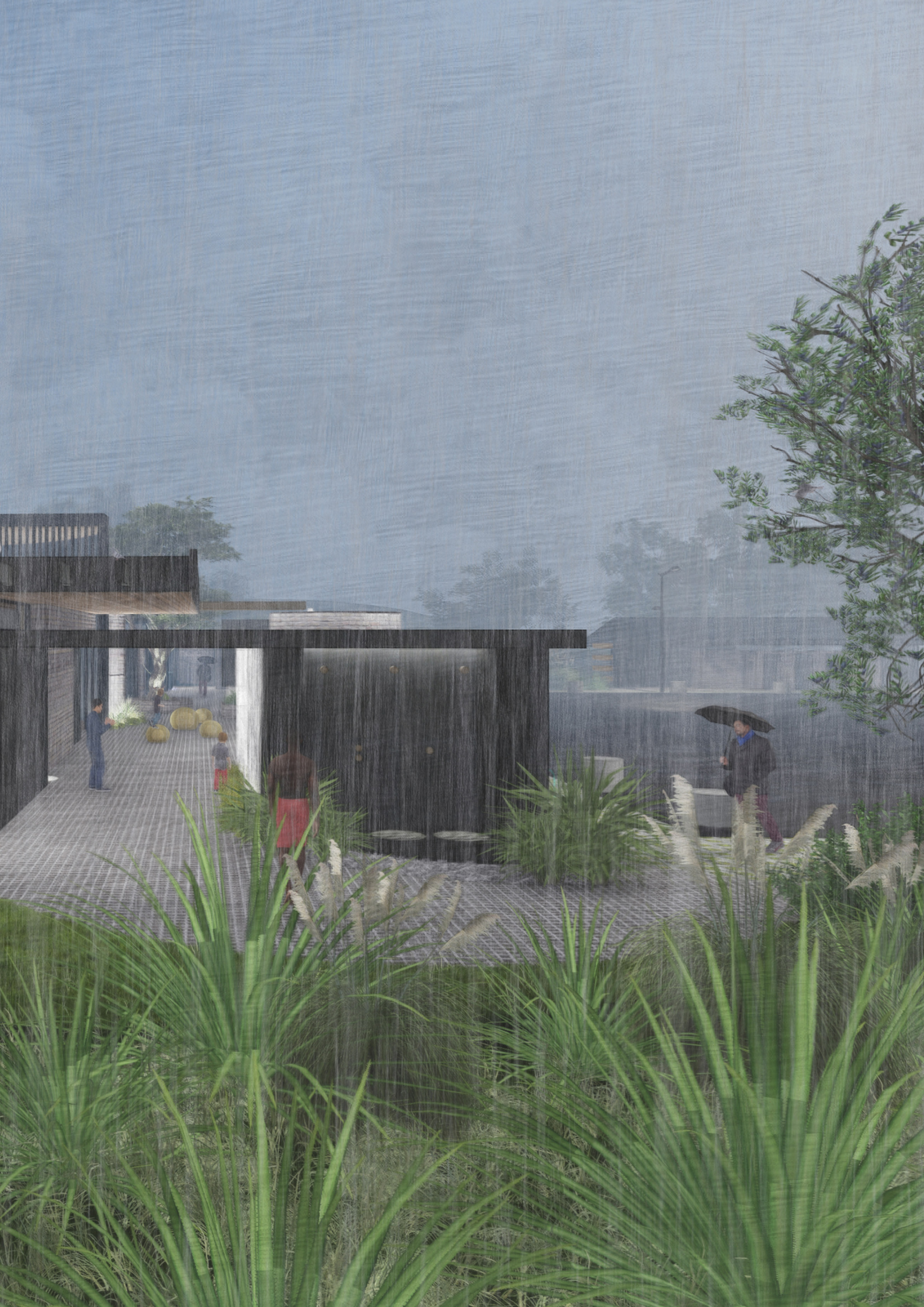
Fig. 101: People enjoying a bit to eat while looking over to the takeaway window. Kids playing on the ball seating.

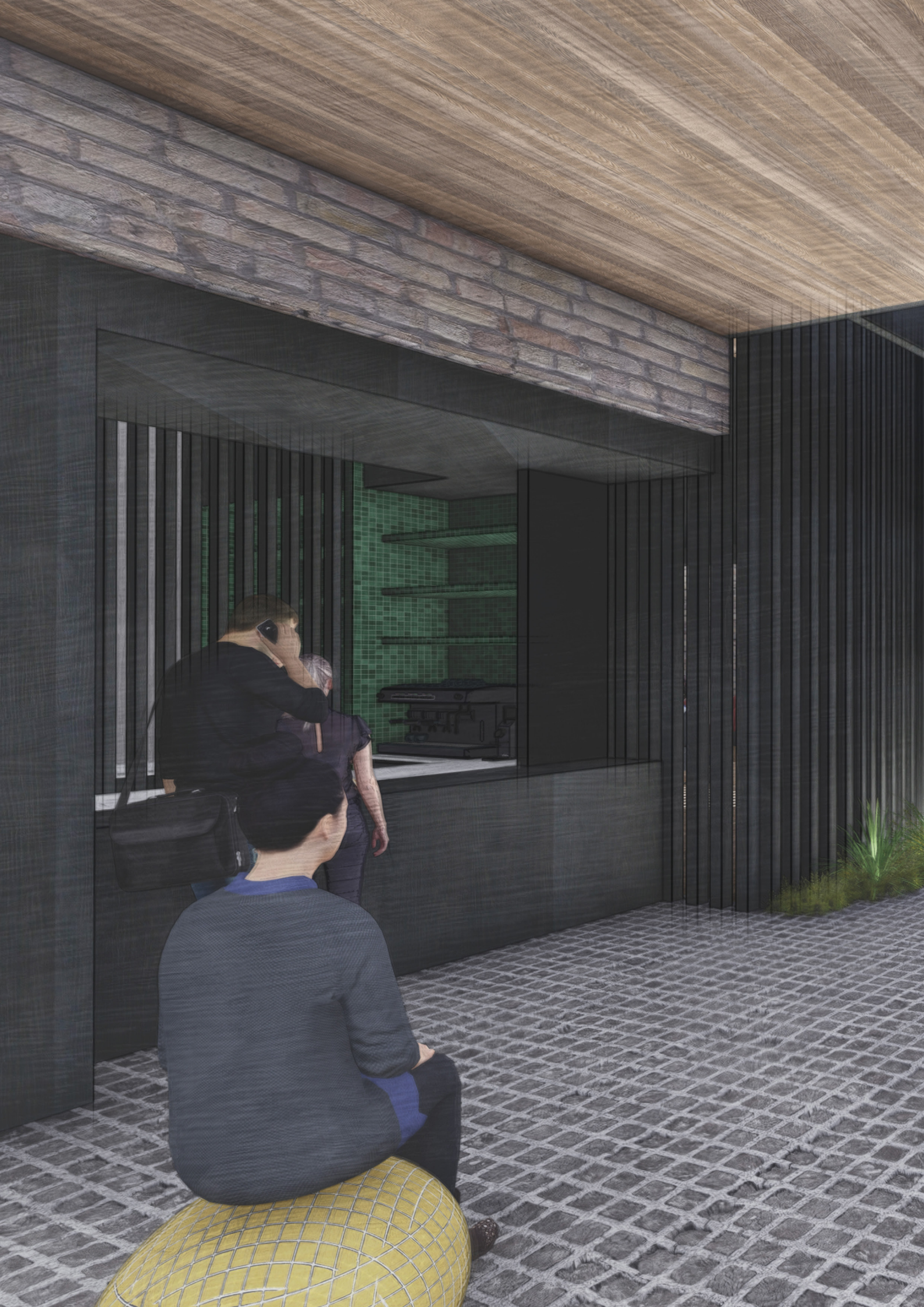


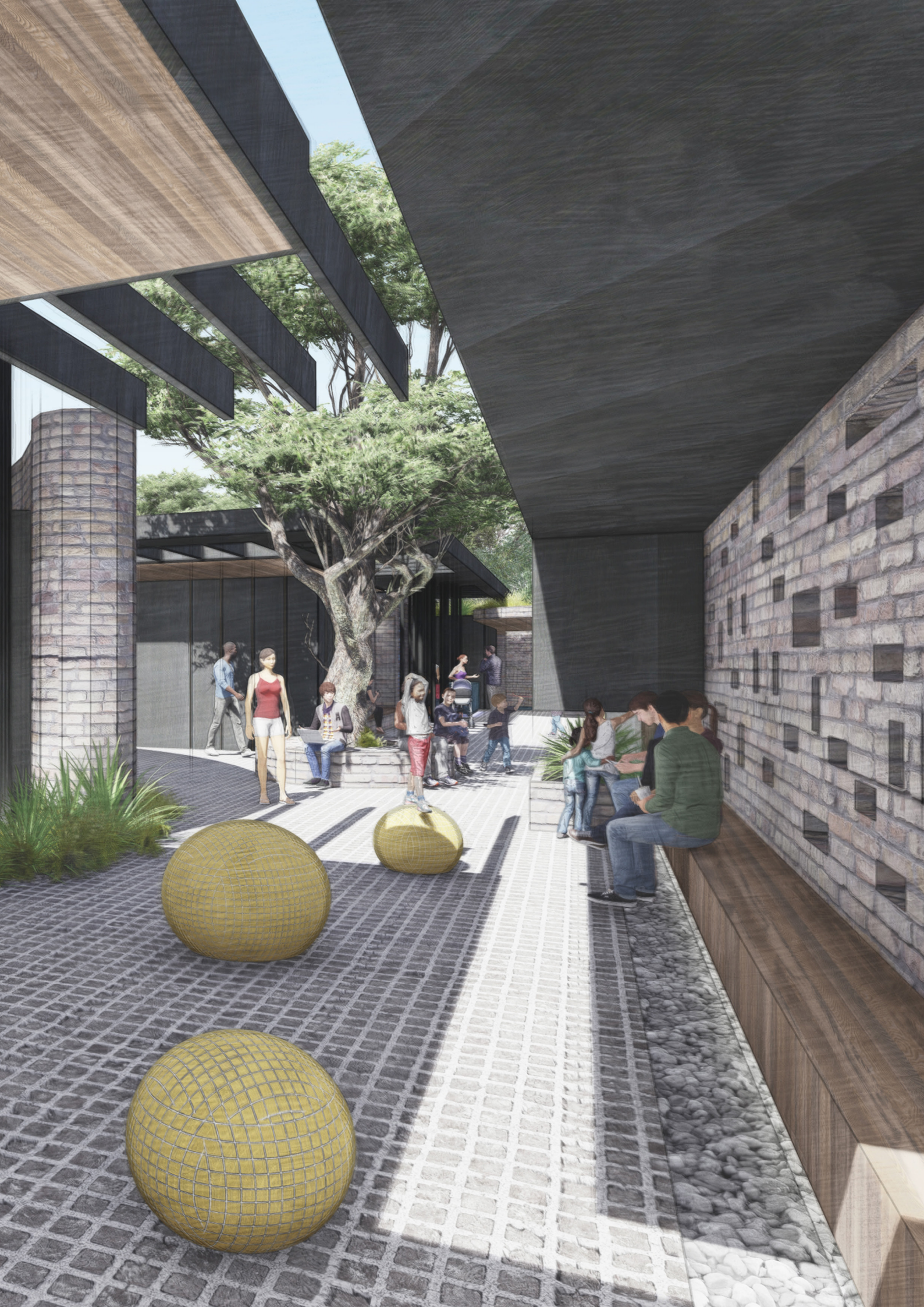
Fig. 102: (right) Garden pavilion out the front of the takeaway window, built in seating with shelter from the rain.
Fig. 103: (pages 158-159) East side of building looking down into the garden pavilion.

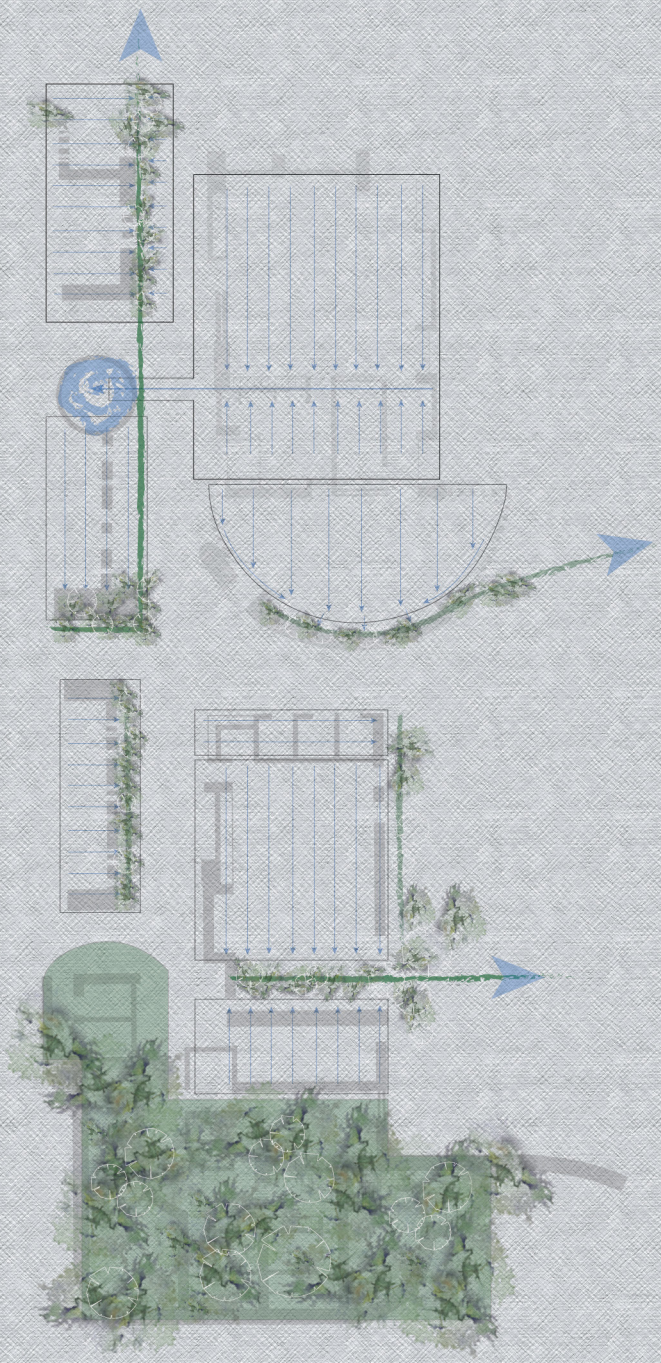








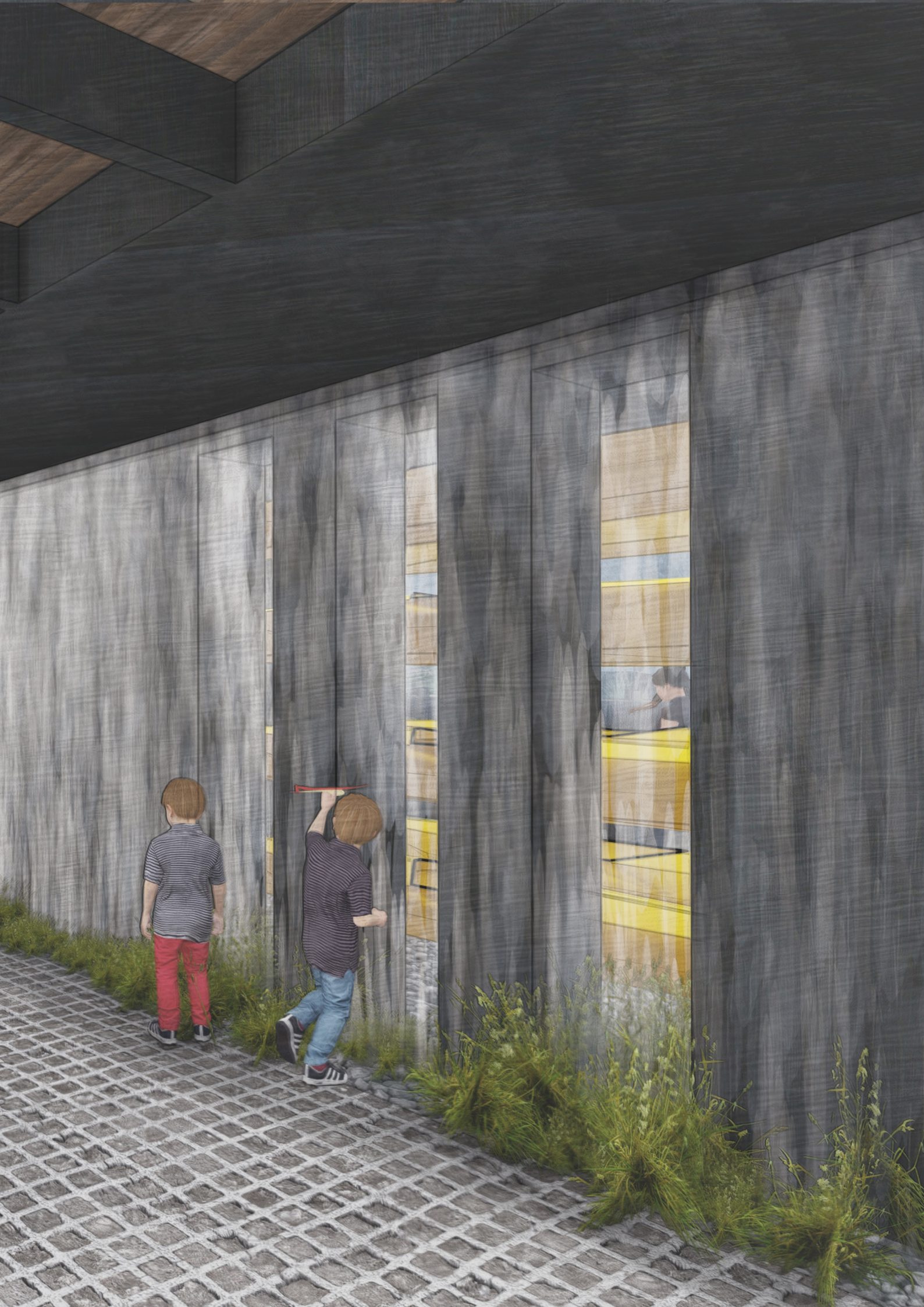


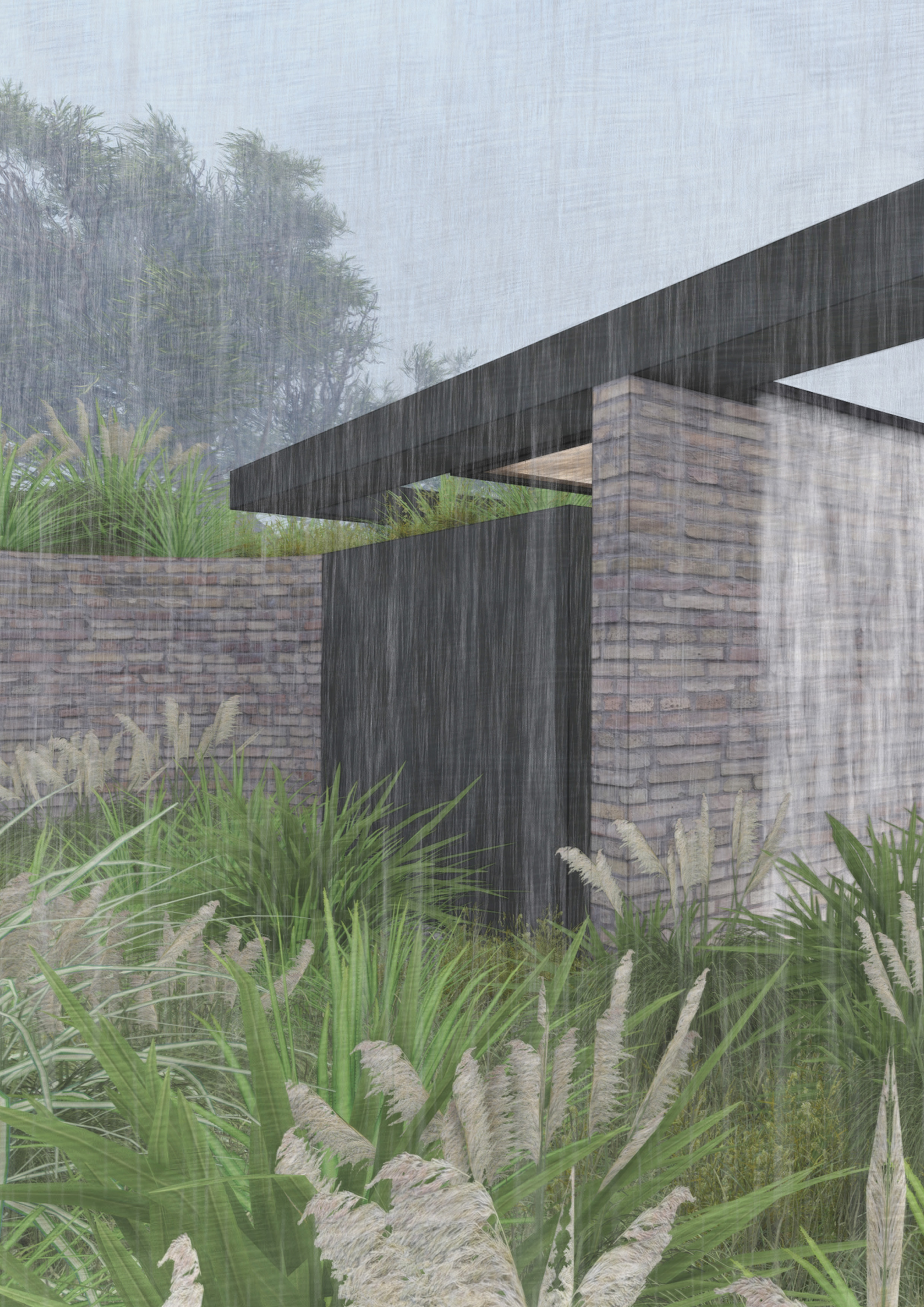


THE PAUSE: RAIN GARDEN DIAGRAM

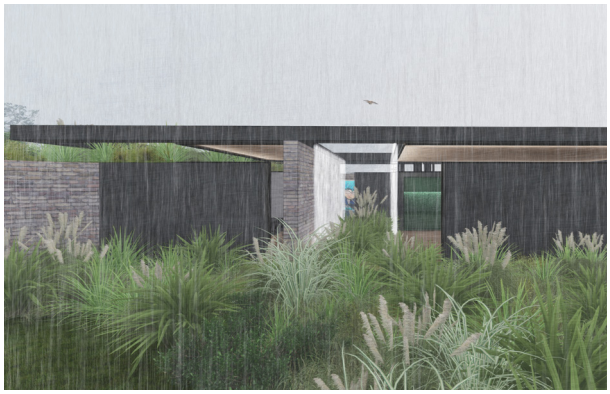
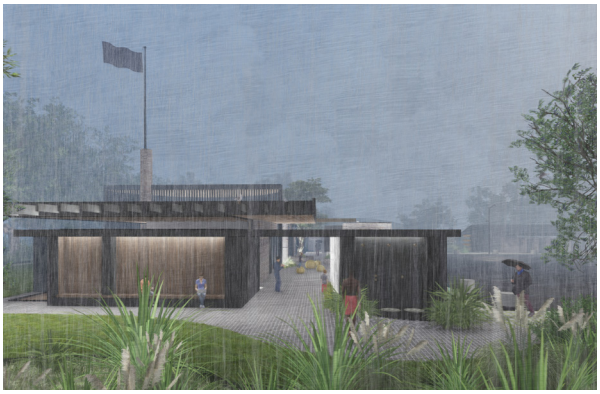
Fig. 104: (previous pages 160 - 161) Garden pavilion
Fig. 105: (left) Rain garden diagram

Fig. 106: (right) Small rain gardens collect sheets of falling water from small roofs over kayak storage.
Fig. 107: (pages 166-167) The speculative buildings' largest rain garden with sheets of water falling from the office and community room roofs.



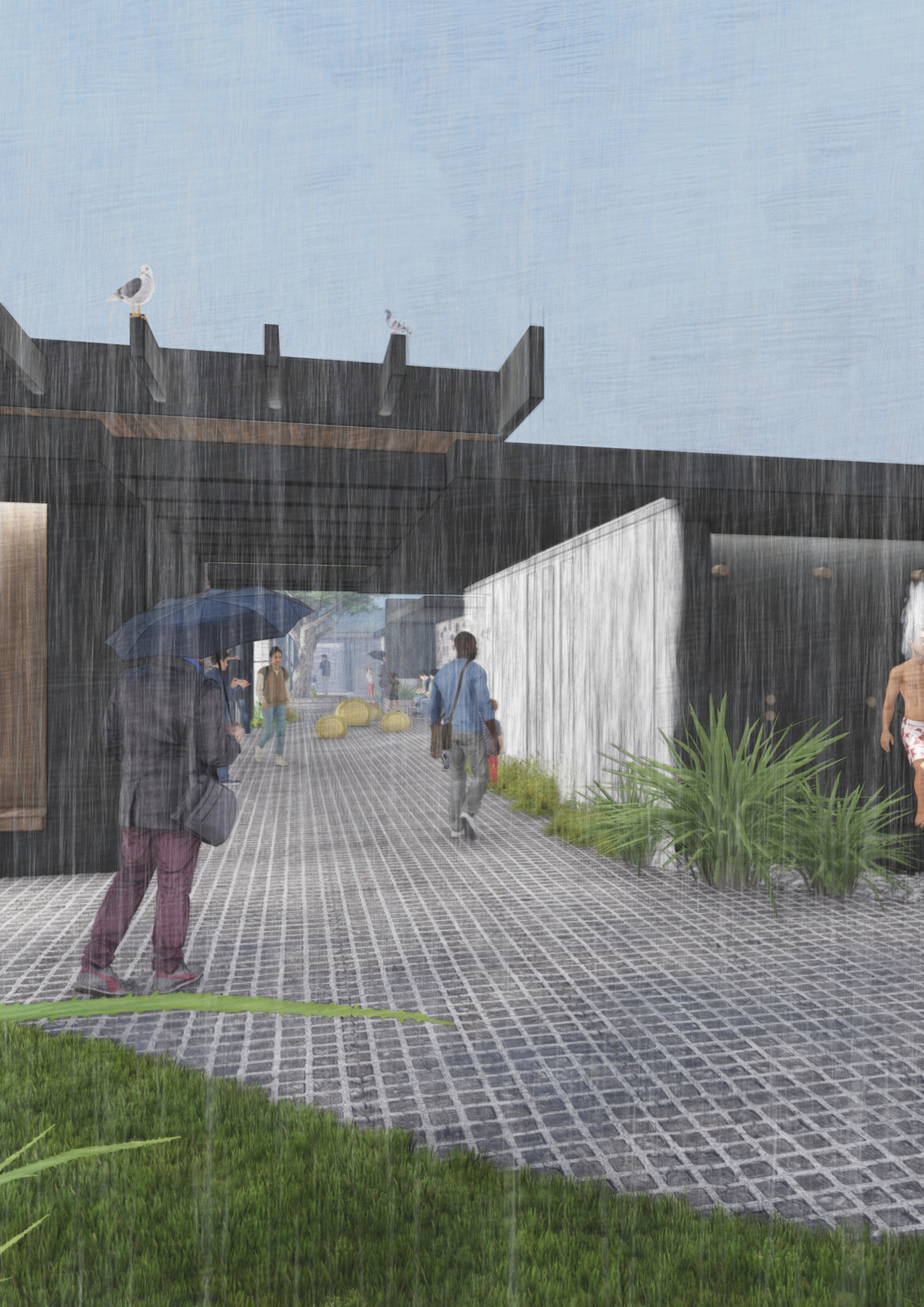


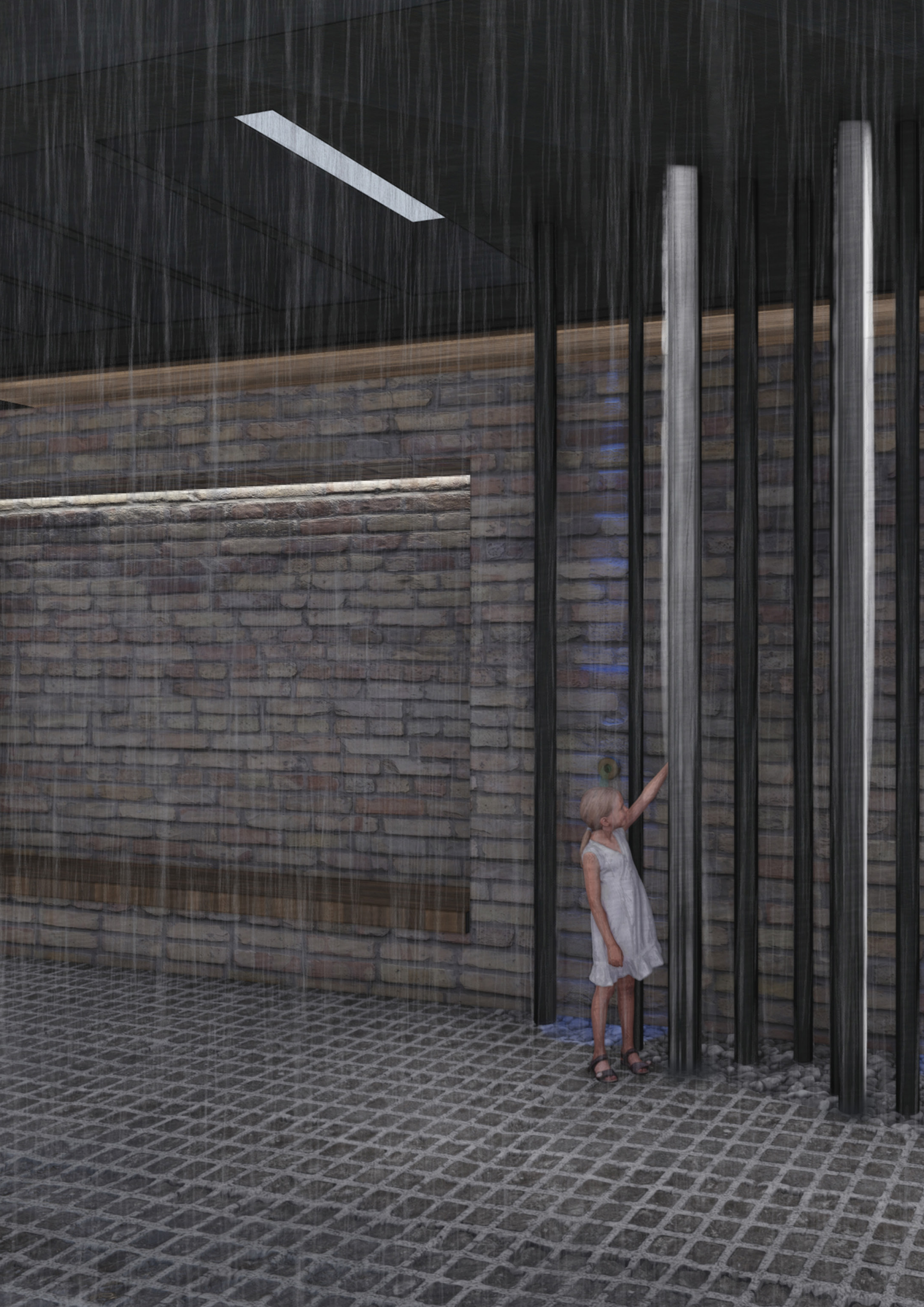












Page 168 clockwise

Fig. 108: Largest rain garden outside of community room 3.
Fig. 109: East view of the speculative building in the rain.
Fig. 110: Largest rain garden on a sunny day with a view into community room 3.
Fig. 111: Largest rain garden on a sunny day with a view into community room 3.
Fig. 112: Northeast side of the speculative building in the rain.
Fig. 113: Smallest rain garden that allows kids to be interactive with the falling water and creates a bit of mystery and fun in the building.

Fig. 114: (page 169) East entry into the garden pavilion.

Fig. 115: (pages 170-171) Exposed downpipes enable visitors to touch and interact with the building.

THE PAUSE: WEATHERING

Fig. 116: (pages 174-175) This render shows the effects of weathering over time and use. The moss growing over the top of materials and the weeds coming through the cracks makes the building feel more connected and grounded to its site.







Fig. 117: (above) The small rain garden is thriving and the moss is evident on the surfaces.
Fig. 118: (right) The small rain garden is thriving and the moss is evident on all of the surfaces.



THE PAUSE: CAR PARK INTEGRATION

Fig. 119: (pages 180-181) The speculative scheme showcasing how the building, car park and awa mediate between each other to create atmospheric events such as markets and school fairs.


SKEWERS

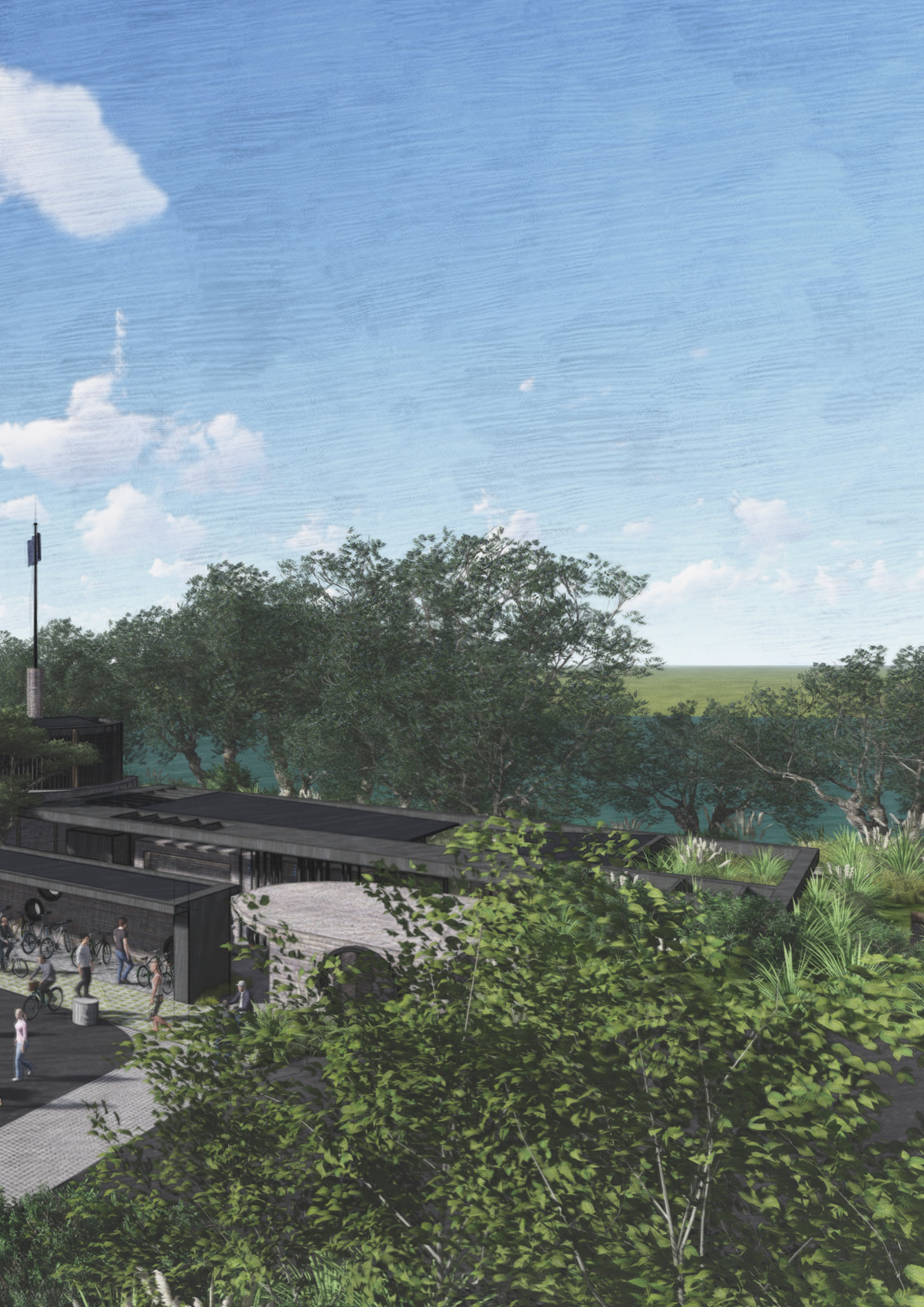




Fig. 120: (above) The view across the car park to the proposed site as it sits today.
Fig. 121: (right) Car park activities integrated into the speculative scheme to create a rich riverside atmosphere where people come into contact with the site and the awa.

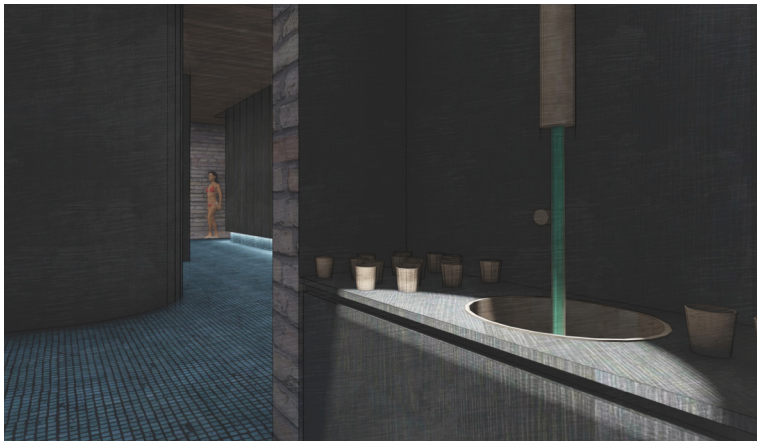


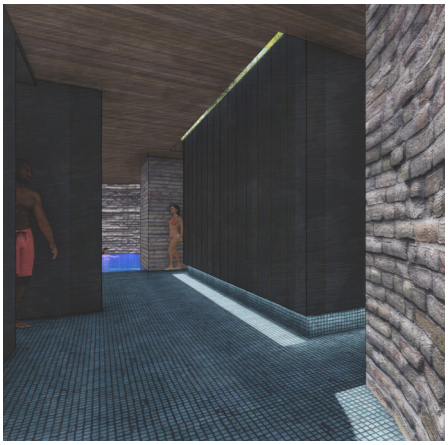
Page 186 clockwise

Fig. 122: Drinking fountain in the pool area.
Fig. 123: Cracks of light shine onto the lockers from the small openings above.
Fig. 124: The pool entry with art box.
Fig. 125: Pool with window out to rain garden.
Fig. 126: Drinking fountain.
Fig. 127: Showers and pool lockers.

Fig. 128: (page 187) Pool lit from below with showers and lockers in the distance.

THE PAUSE: POOL

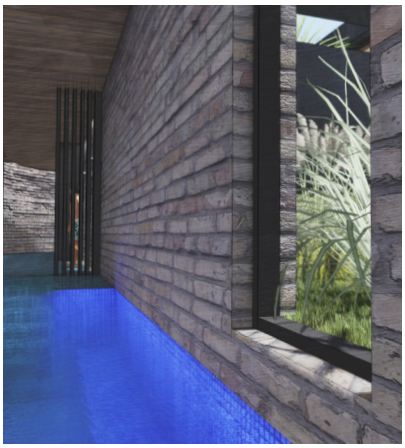


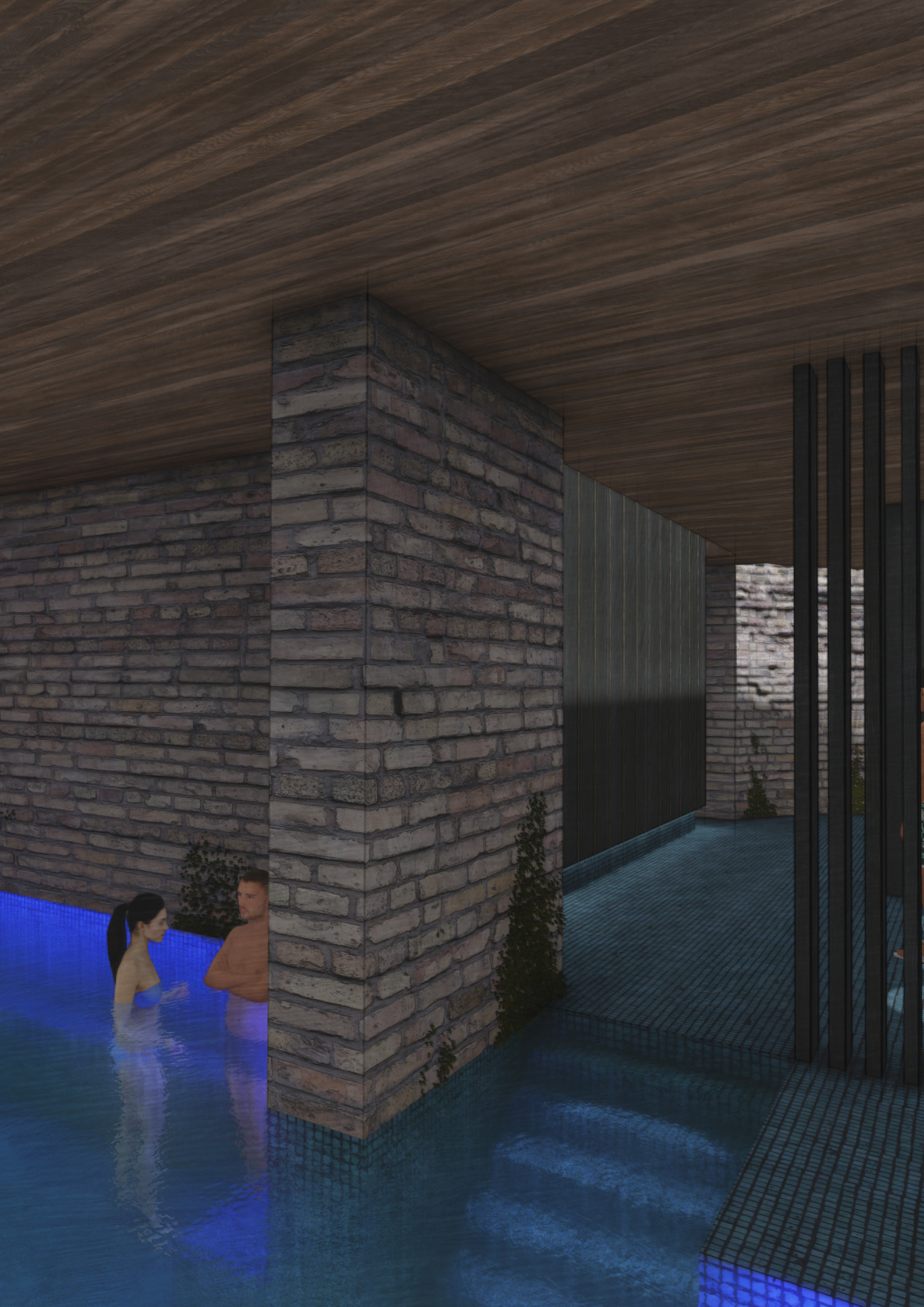












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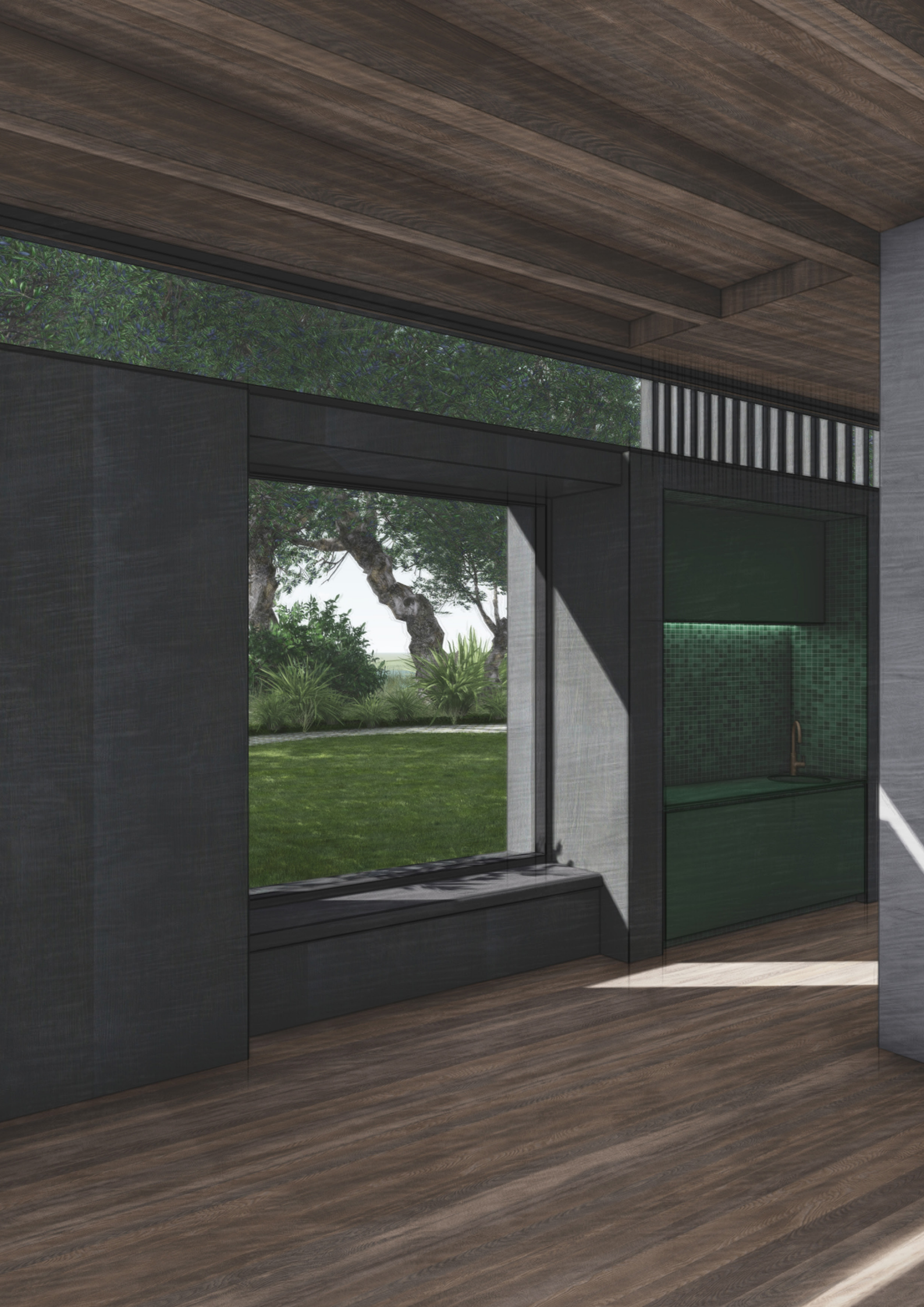





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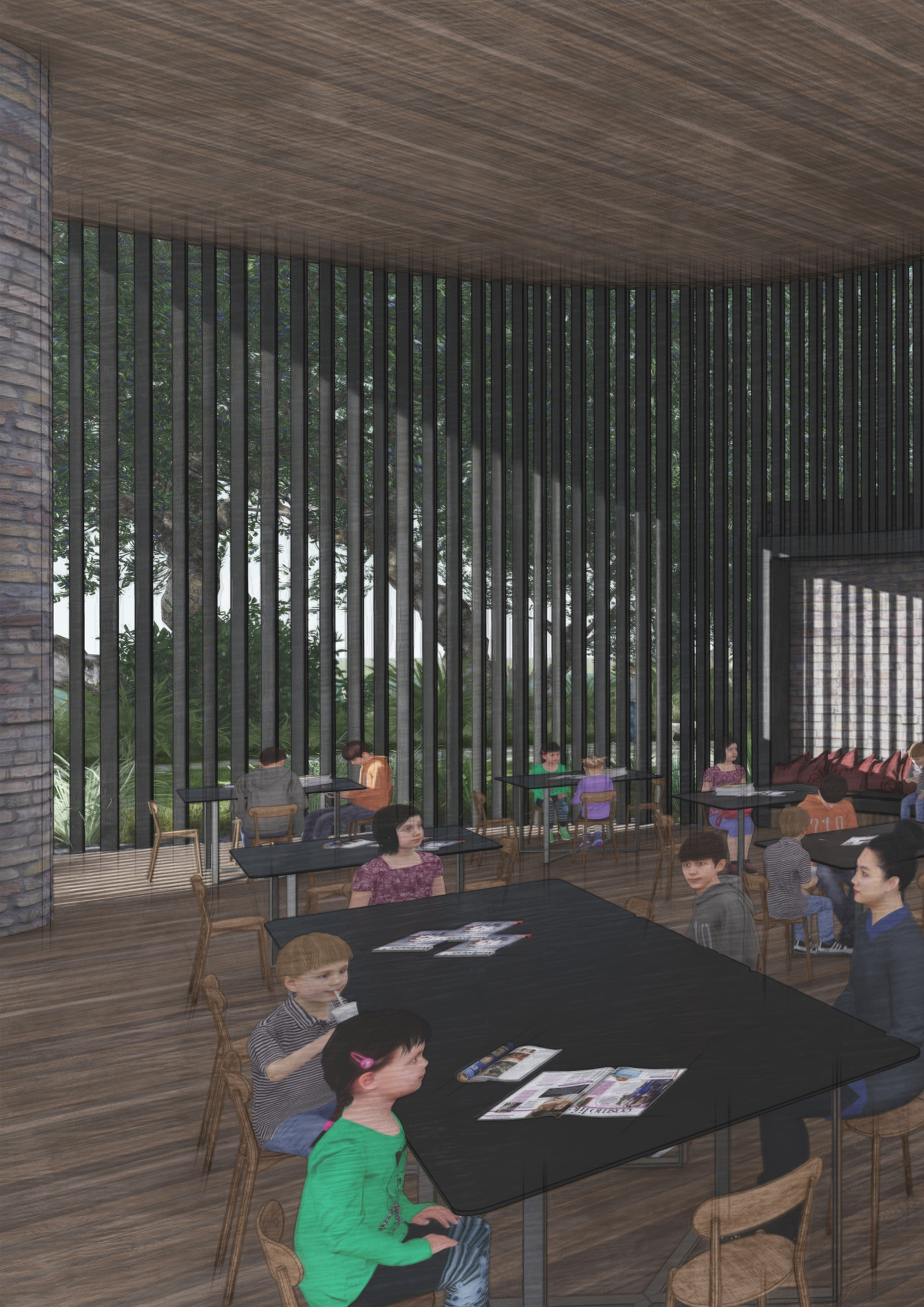

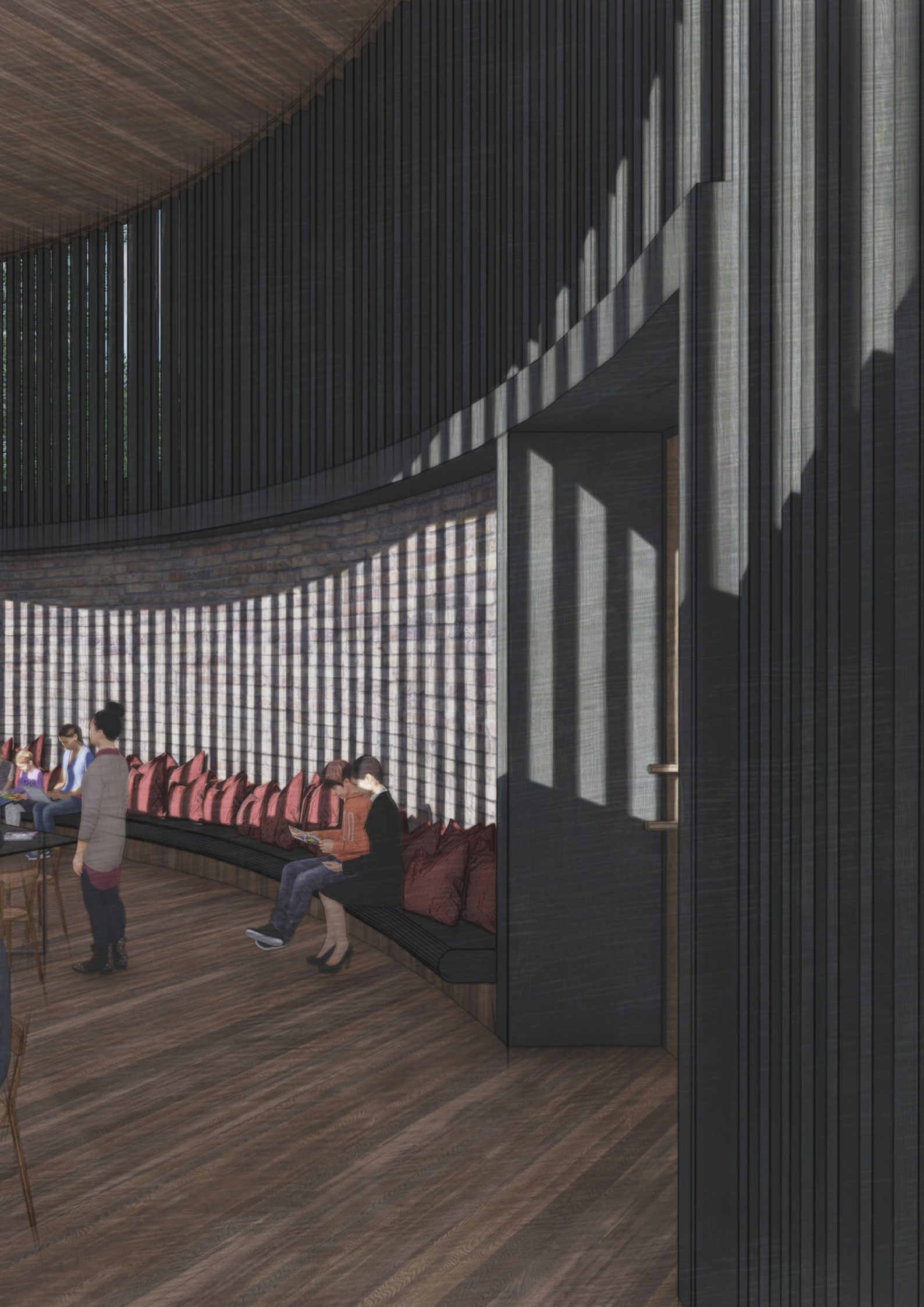

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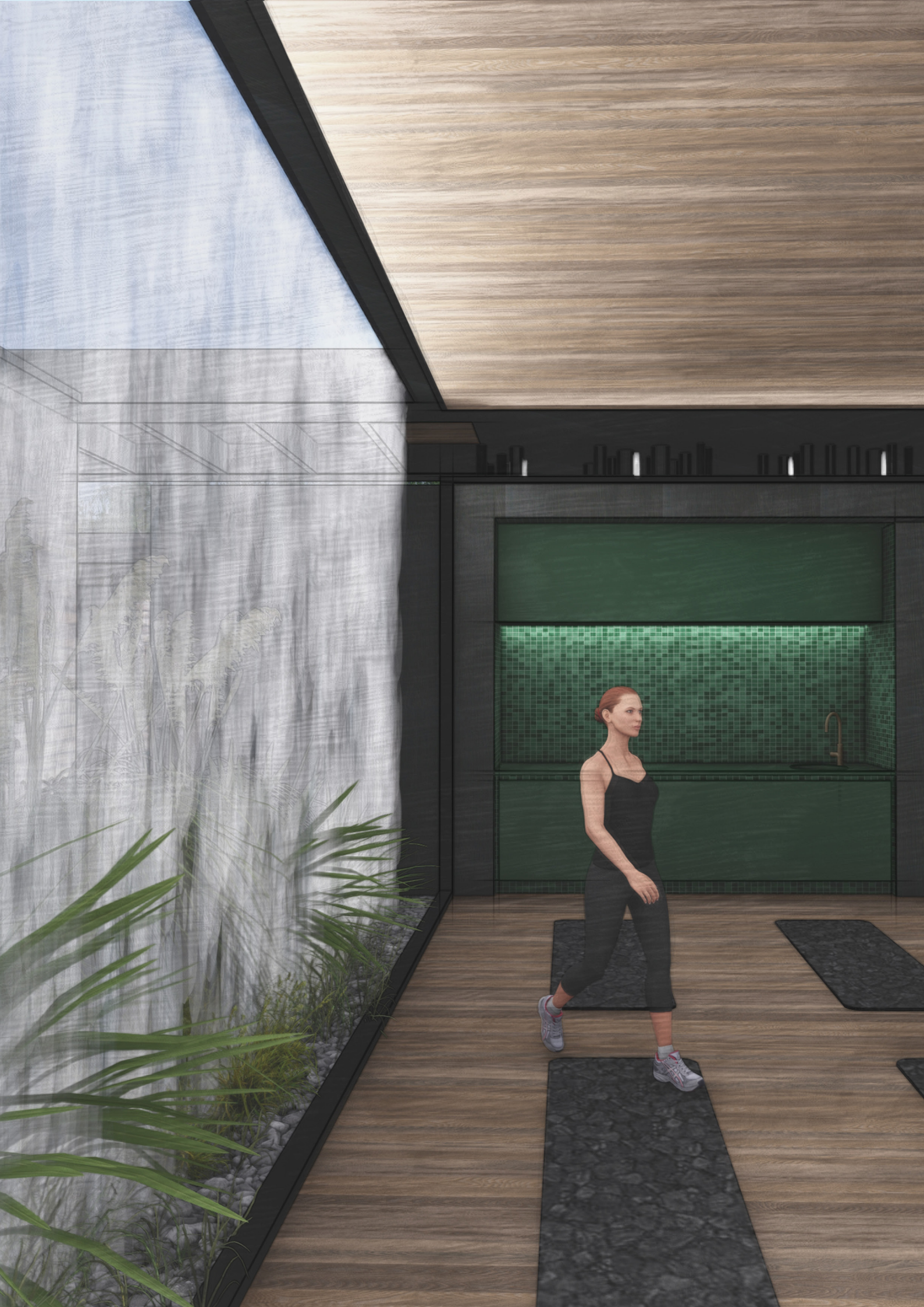



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EIGHT
FINDINGS

This design research project, through a review of the academic literature, precedent case studies and design making, as well as testing, guided and informed many of the design decisions that resulted in the final project outcome. The connection with the site along with the intensive research that has been carried out has demonstrated greater knowledge and insight towards the growth and significance of Te Whau Awa. Altogether this has given me, as the researcher, a new appreciation of this historical urban waterway.

Through scaled model making I explored different types of textures and materials to understand the distinctive types of atmospheres that can be created in the process of incorporating natural materials, water, light, and shadow. Spaces are enhanced, and the feeling is heightened as these elements are combined.

Through the process, I have gained a greater understanding of the way the speculative architecture and the whenua/awa/rangi – the hydrological systems and the weather - mediate to create a greater awareness of the fundamental relationship between them.

Looking at re-connecting residents to Te Whau Awa through a multi-sensory building has been challenging and rewarding as well. This investigation into the disconnect between resident and awa has led to a particular architecture that mediates between the people, the awa and the speculative building. One that offers a place where natural materials dominate the buildings' presence, broken up by structure, in a way that reveals just enough of the site, leaving the visitors intrigued and wanting more as they invent their own itinerary through light, shadow, and weather.

Separating the buildings' footprint into four segments, allowed for the integration of the garden pavilion, which acts as a creative stimulus for visitors. The pavilion changes with the seasons, the weather is always present, and the pathways visually and physically connect visitors with the awa. The project explores the use of raingardens, pavilions, and permeability to slow down and address surface water in an approach that is more visual, harmonising, and strategic. In this way, those who visit can enjoy the space as they are naturally connected to the awa through the various elements of weather and design. Thus, this helps foster a deeper connection and sense of pride towards the once thriving Whau Awa.

NINE
CONCLUSION

This thesis has revealed and brought to light valuable insights on the importance of multi-sensory design and the influence hydrological movement has on a building's atmospheric qualities. Valuable critical mapping has been undertaken to analyse the historical waterway in detail and a thorough site analysis has helped establish a certain design thinking.

After analysing the precedent work by Peter Zumthor, Louis Kahn and Herbst Architects, while I was undertaking this speculative multi-sensory project, I gained a strong understanding, based on simple yet critical design elements, and I explored this further. I conducted a further examination of the literature by Pallasmaa, Zumthor, Kahn, Hill, Leatherbarrow and others to expand my knowledge to understand how weather, materiality and atmosphere, and multi-sensory design affects people both physically and mentally.

Along with these elements, model making, sketching and computer modelling was undertaken to explore and test significant design moves that mediate between people, awa, rangi, whenua and the speculative building. These ideas have been tested through the design of an awa side recreational community centre (a pause destination), that aims to draw people in through the interlacing of Te Whau Pathway. The intention was to facilitate a positive association with Te Whau Awa by engaging visitors and encouraging them to reconnect to this urban waterway, to help restore, maintain, and improve its quality.

APPENDIX



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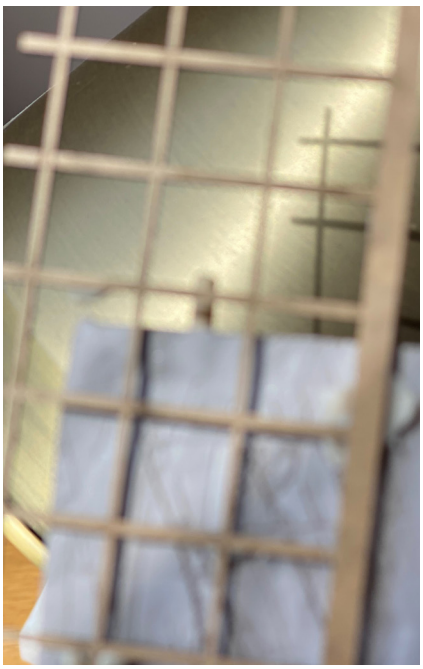


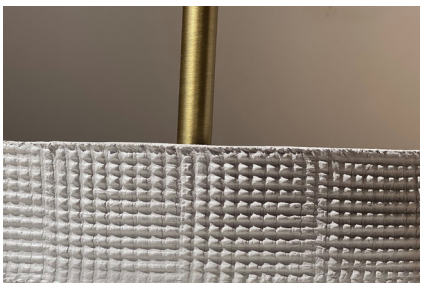




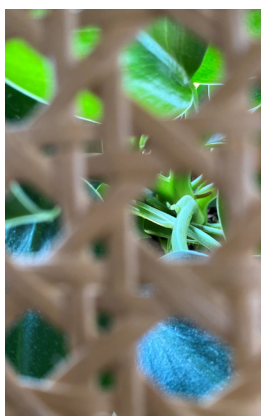






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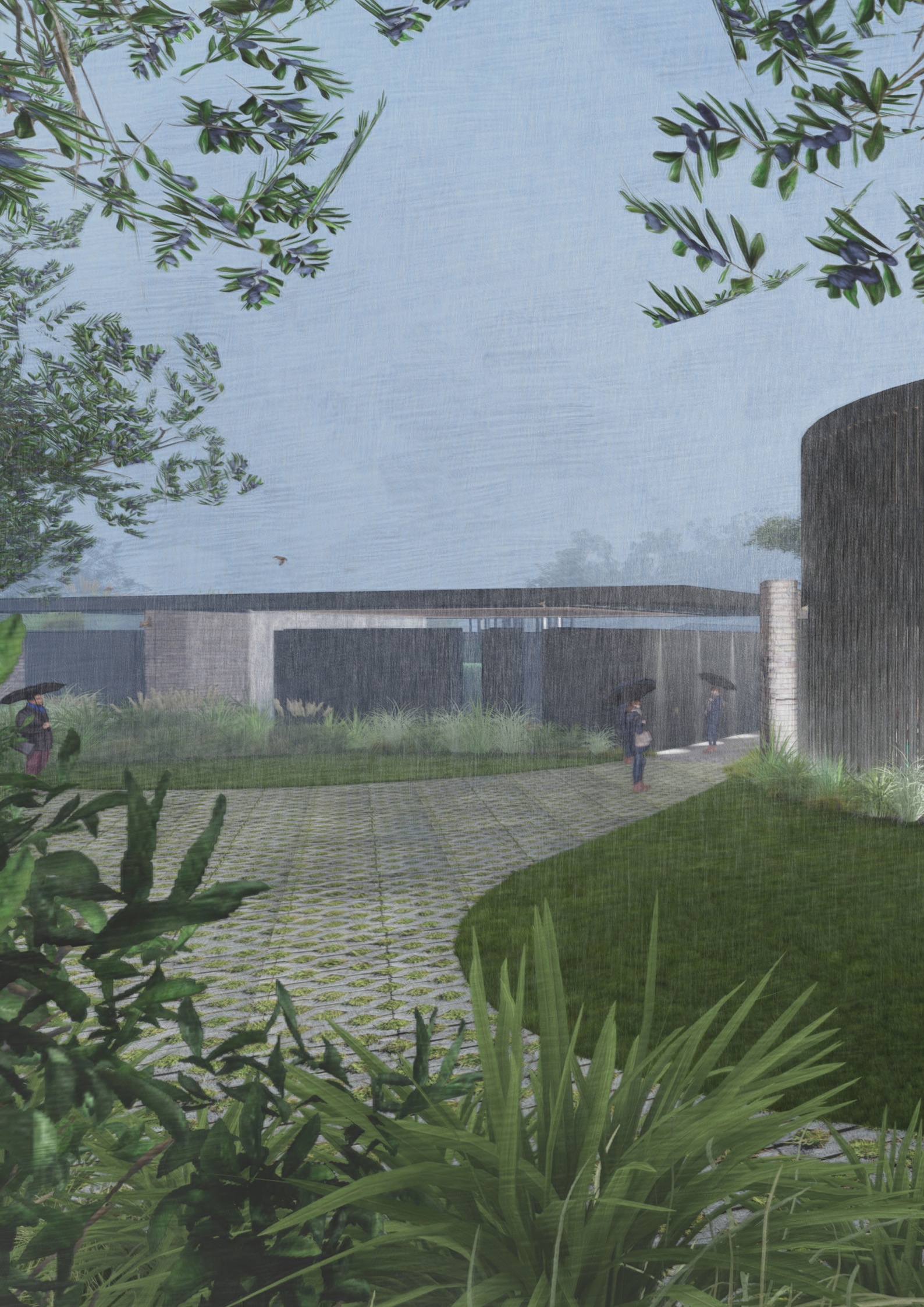

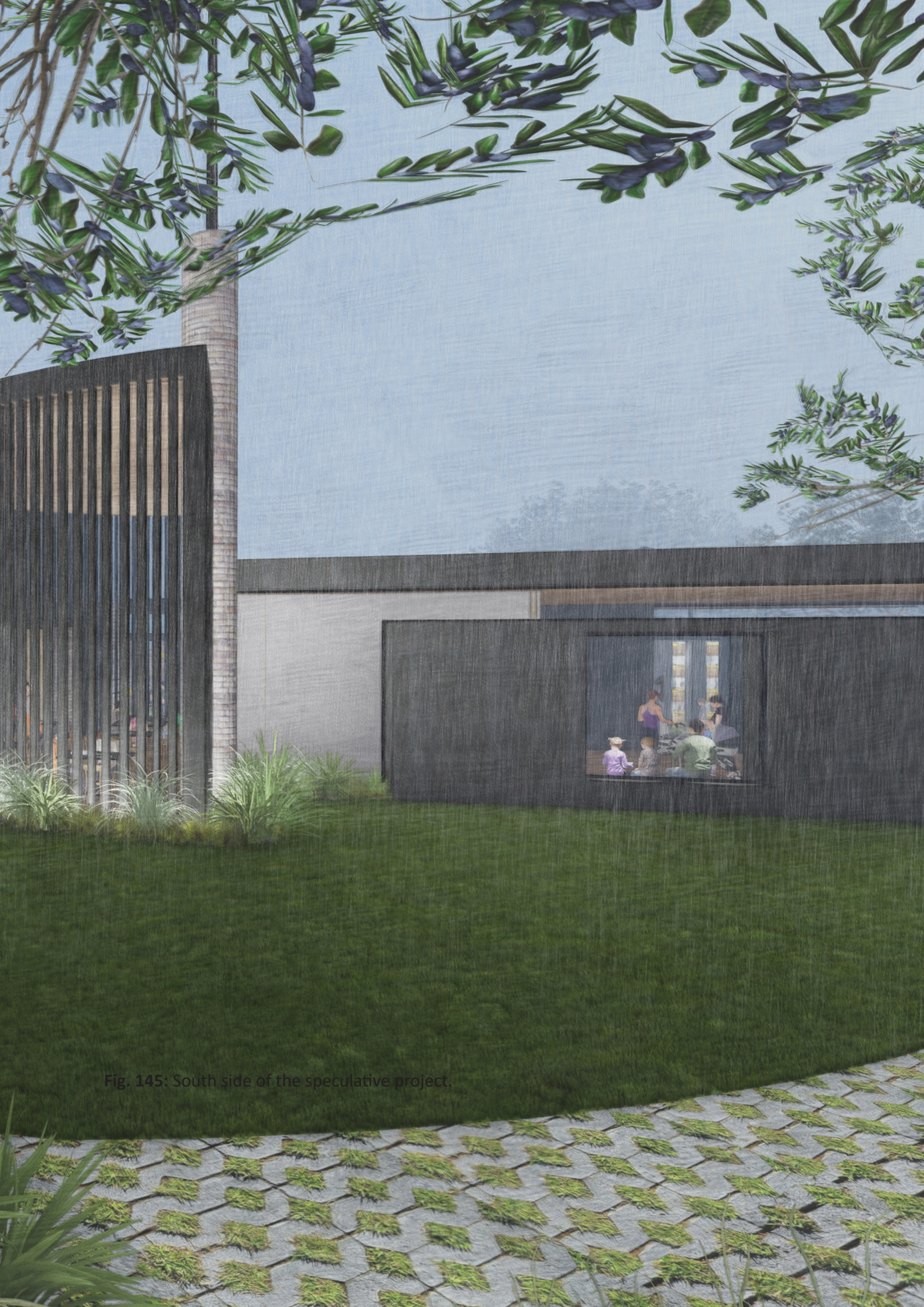

Fig. **145**: South side of the speculative project.

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