TIMELESSNESS TU'UNGA

A study in how indigenous architectural knowledge can be a timelessness process, by adopting the knowledge used by the Tufunga Langafale (Tongan architects), to construct a contemporary iteration of the Tongan Fale that inspires and empowers the Moananuiakiwa architects of tomorrow.

MASTER THESIS RESEARCH / SUPERVISIORS:DR FLEUR PALMER AND LEALI'IFANO DR ALBERT L. REFITI / BY: ANSGAR JAROUCH SATEKI PALE

!

Tongan Proverb:

"Oku 'hanga' a Falehanga
Kae 'manga' a Tokanga."

Translation:

"Finger yardage is for Falehanga
As pacing is for Tokanga."

Figure:1

Art Work by Joseph Lemercier, Louis Auguste de Sainson and Alexis Noel

Drawing of the village Pea, Tonga in 1833

sourced from: http://oldprintshop.com/product/140428?inventoryno=90474&itemno=

Acknowledgement

Dedicated to my dearest parents, especially my father Lou Pale who has been there since the very beginning. We were so very close to the end of this long journey in where you could witness the fruits of your hard labour, however God had other plans. Your many sacrifices and life lessons will never be forgotten, “fair winds and following seas” my dear captain. To my dear mother who is my rock, your strength and dedication is why I was able to persevere through this challenging year. God has truly blessed me with the best parents a kid could’ve ever prayed for. To my brother, thank you for your constant support and for helping me with my models.

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Mālō ‘aupito and ‘Ofa Lahi Atu kia moutolu kātoa.

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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 Acknowledgements), 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.

Signed _____ **Date** **15/11/2021**

Dedicated to my beloved father

Captain Robert Lou Pale

January 13th 1955 – July 4th 2021

CHAPTER 1

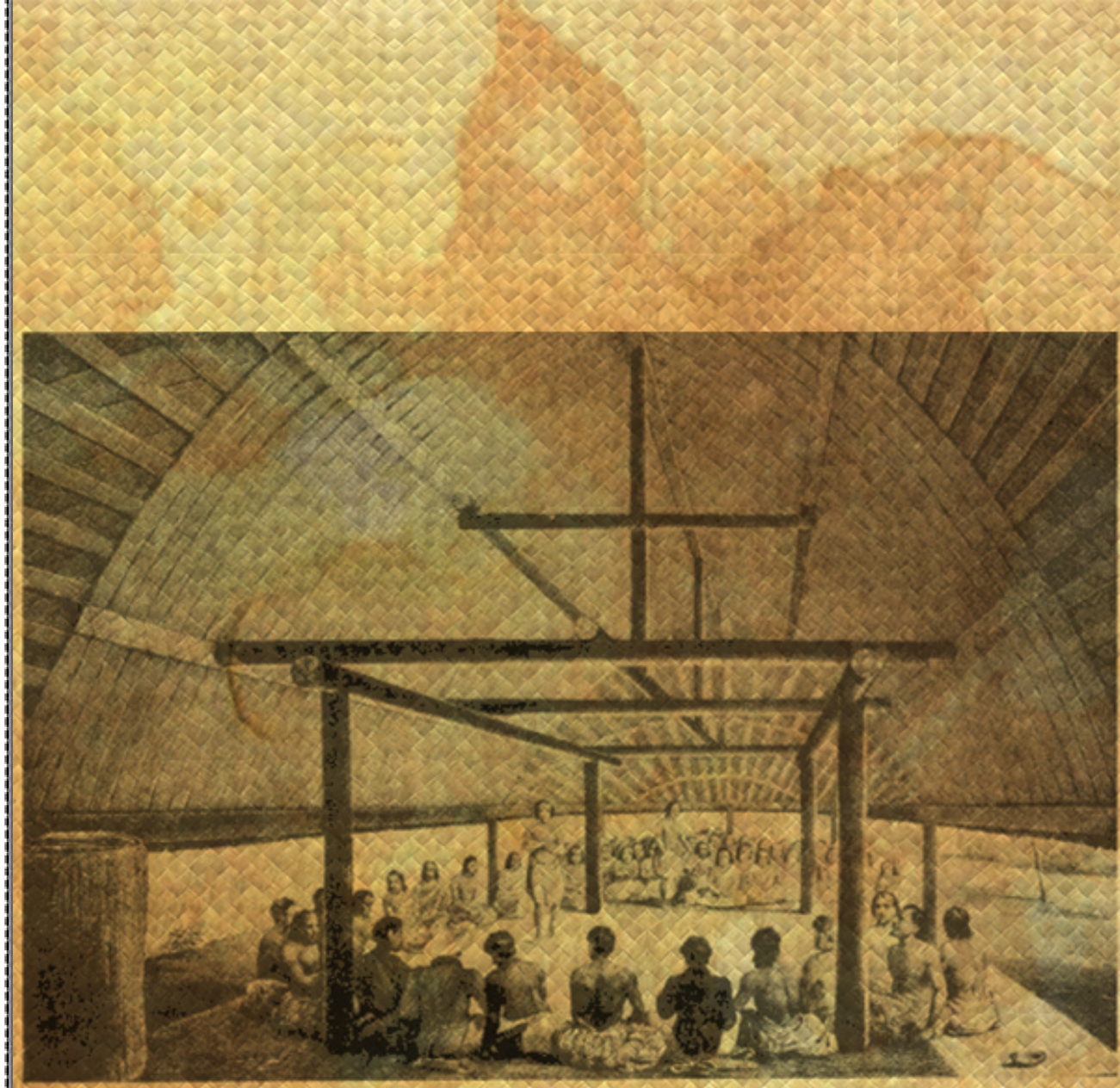
"Koloa hono Tolu"

"Ignorance is Bliss"

Abstract

The Moana-Nui people are often perceived of as different people made up of many cultures and identities. However, a vast array of their traditions and way of life do interlink and are parallel each other. In order to understand these similarities, it is important to understand their worldviews and realities as a whole, to fully grasp what Moana-Nui architecture is. The fale is one such example of this cultural knowledge that connects and binds all cultures within Moana Nui (the Pacific) together. From small and minute details such as the similarity of the pronunciation in names relating to a fale construction between Samoan, Māori and Tongan cultures, to the way a fale serves its purpose, to how it is constructed and the way it relates to the wider context on which it is situated upon. This interconnectedness and multiplicity are what lead to the fale being a topic of investigation for this thesis. It considers how the fale as an architectural construct is labelled with similar appellations, but serves a variety of functions to the extent where it sometimes deters from the original definition, and yet it still feels the same. This is what makes the fale special. This speculative research project investigates how indigenous architectural knowledge is relevant in contemporary contexts, portrayed through Tongan ideals, traditions, stories, and historical architectural worldviews. Drawing upon methods used in the profession of Tufunga Langafale (Tongan craftsman). This study considers the Tufunga methods used by Tongans in the past, and integrates this knowledge with 21st Century building methods, combining both indigenous and contemporary ideas to create a reimagining of the Tongan traditional fale for AUT (Auckland University of Technology). This fale will act as a structure capable of serving multiple functions, however its main programming will be to educate the students on Moana-Nui ideals, traditions, stories, and historical architectural worldviews tying it to the newly established Huri te ao school of architecture at the university. This will be experienced literally, physically, and spiritually in the proposed fale.

As this research is heavily focused on the Tongan culture, the notion of what a fale is will be investigated through the lens of Tongan worldviews and perspectives.



Vol I Plate 82. Kava ceremony, at Mu'a, 'Tongatapu
On this occasion, in May 1827, the chiefs were welcoming a party from Dumont d'Urville's expedition. From Jules Dumont d'Urville, *Voyage de la corvette L'Astrolabe. . . .*, atlas, plate 69 (Paris, 1833).

Figure:2
Kava Ceremony in a Fale
sourced from: https://www.pinterest.nz/pin/123919427222701645/

Preface

Architecture was never initially a passion of mine. Growing up in Tonga all I was ever engrossed in for a suitable career is to be a doctor, or a policeman. Two different occupations that came with their own merits. As a child I perceived doctors as great healers with an ability to save lives and Policeman as amazing crime fighting people that kept the peace and caught bad guys, similar to a superhero. Naturally as a young child I wanted to be like these people, so I strived and studied hard in school in the hope of becoming a doctor or policeman. However, most importantly being raised in a Christian household, I prayed for it.

Ever since the introduction of Western society to the small island kingdom of Tonga in the 1600s, their ideologies and influence quickly spread amongst the various kingdom islands. The most prominent of this was their religious beliefs such as Christianity and the Wesleyan church. These beliefs are now an essential part in Tongan society. Practices such as keeping the sabbath day holy are strictly followed. The 7th day of the week is a time of rest in honour of God. Tonga is one of the few islands in Moana Nui to practice this religiously. Those who break this sabbath face imprisonment or are fined. In my family, every Sunday we formally dress up in our traditional cultural attire to attend church, practice our beliefs and return home to rest for the remainder of the day.

As I reminisce on these moments, I realise they were very important because the churches in which I practiced my faith laid the seeds for why I found a passion for architecture, and by extension my love for indigenous architecture (specifically Tonga architecture). Many of the churches in Tonga are similar in design to Western churches built in a Gothic architectural style, with a Roman basilica layout. Traditional Tongan architecture was reduced to a decorative art form, unrecognisable from pre Western influences. This is the way most churches in Tonga were constructed. However, sometimes church design didn't always strictly follow Western models. Churches such as the Sia'atoutai Theological College Chapel, or the Free Wesleyan Church of Tonga at Pelehake and the Basilica of St Anthony of Padua located in central Nuku'alofa, are a few examples of churches that blended traditional concepts with Western ways of building. The Basilica of St Anthony of Padua (or Pasilika as local Tongans call it) exhibits these aspects very well. The planning and layout are inspired by a Roman Basilica design, but the roof's structural elements and interior of the church clearly follows traditional Tongan methods, such as Lalava. This Pasilika was the church I often attend every Sunday with my family to practice our faith.

As a young child attending church, I never really understood my faith as prominently as I do now. Naturally as a young mind still developing and learning, my attention never fully focused on the mass service. My eyes and thoughts wondered off thinking about other less important things. One thing I focused on was the architecture. I thought how faka'ofo'ofa (beautiful) the interior of the church was. The design was so complicated. I noticed howbeautifully connected everything was.

Figure:3
Digital Photography by Vena Latu
Interior of Basilica Sagato Anthony of Padua
Tonga 2019

The way the roof folded in on itself, then protruded upwards to connect at the peak. From the exterior the roof looks like a coconut hat situated over the building, or at least as a child that was how I perceived it to be. These are the aspects that make traditional Tongan designs unique, the exterior of these buildings don't convey much due to their simplicity, but this changes once inside, as the interior conveys a different language and style, making the inhabitants of the space feel a sense of awe and empowerment. A place where you feel at one with your creator within the church as a house of God, and where you can identify with your culture through the Lalava elements. Although no longer operating in a traditional way as a fully functioning structural element, Lalava is identifiable as an cultural aspect you can connect with. This sense of empowerment and wonder triggered by seeing Lalava in the church was the genesis of my fascination towards architecture. Although at the time I had no notion of how I could pursue it in terms of a career choice.

Figure:4
Digital Photography by Vena Latu
Interior of Basilica Sagato Anthony of Padua
Tonga 2019

Upon Migrating to New Zealand at the age of nine, those defining moments of empowerment similar to what I felt within the church, were the moments that really helped shape my cultural understanding of what it means to be Tongan, and what it means to be a person with indigenous roots. This was important, because being in an entirely new country with its own history and culture, and living in one of the biggest culturally diverse cities in the world, helped ensure I wouldn't lose myself. But as I grew up in this country and learnt about the different cultures in NZ, I was able to identify just how little I knew about my own culture. This was made more apparent to me when I entered architecture school.

As I journeyed through New Zealand's educational pathway and arrived at the end of my secondary school studies, I was at a crossroads in what I needed to do. My love for art and design, mixed with an interest in physics and problem solving from maths subjects aligned with architecture. I found my true passion for the practice in the third year of my undergraduate bachelor's studies when I enrolled into an elective called MAU studios. It was a Pacific based elective mainly focusing on Samoan culture but embracing all cultural ideals from Moana Nui as the framework for the course. Through MAU studios I was introduced to Pacific architectural concepts through Samoan culture, and learnt about the Samoan way of life and their approach towards architecture. As I studied architecture through a Samoan lens, the class would often take place within Unitec's fale tele. Sitting beneath the fale, doing presentations and discussing class briefs and using it as a learning space, a switch was turned in my head. I felt empowered by this approach, more than I had in previous moments over the years I had spent in architecture school and the NZ educational system. All my memories spent within the Pasilika church in Tonga came flooding back, as it conveyed the same sense of emotions my younger self experienced within the church. With that I knew I had to learn more about architecture from Moana Nui and more specifically Tongan architecture because, I wanted to investigate more fully how that moment of empowerment came from being under the fale.

With this realisation, I knew I had an opportunity in my thesis year to delve into this topic. From my experience in MAU studios studying Samoan architecture, I understood that all Moana Nui architecture stems the fale. In order to know more about Tongan architecture, I had to study traditional Tonga fale . I needed to know how it was conceived, how it was constructed from the ground up, what the relative names of the different components meant, what made it a Tongan fale and by extension Tongan architecture. With this endeavour, it would help me understand the young Ansgar felt so empowered and connected to this type of space, why it evidently laid the seeds for why I became interested in studying Architecture.

Figure:5

Mau Poutasi presentation to village, drawing by author

Figure 6

Photography: Jason Mann

Basilica of St Anthony of Padua (Catholic)
Retrieved From:
Words Bill McKay, and Bill McKay. "A Guide to the Architectureof the Pacific: Kingdom of Tonga." Architecture Now. Accessed November 12, 2021. https://architecturenow.co.nz/articles/a-guide-to-the-architecture-of-the-pacific-kingdom-of-tonga/.

Research Question

How can traditional building methods and techniques the Tongan Tufunga Langafale (Tongan house builder) uses to build traditional fale be revitalised in a contemporary 21st century setting, to construct a fale that combines indigenous and future thinking worldviews, to create an educational space that empowers future architects.

CHAPTER 2

"The first part of engaging with Moana Nui Architecture is to understand Moana Nui worldviews and realities."

Figure:7

Photography: Garth .A. Rogers

Exterior photo of a fale.

Retrieved from: https://www.facebook.com/pasivulangi.falehau/photos

Introduction

'Timelessness Tu'unga', the title of this thesis calls back to the two most essential components of which this research is based on. The word Tu'unga is Tongan, and it has many different meanings when translated into English. It could be used to describe a condition (as in the state of condition), deck (of a house), ladder, position (one's location specifically), standard and base (bottom) or foundation which is what this thesis infers to when using the word tu'unga. The tu'unga is the foundation of the fale and Pou (columns) that hold up the fale. It also refers to what the foundation sits on, the context or natural environment. This is where the timeless aspect associated with tu'unga comes in. The natural environment is a timelessness entity, no matter how much space architecture fills, the natural environment will always adapt and grow. This sense of timelessness is similar to indigenous knowledge and in this instance 'angafaka Tonga' (Tonganess).

"Timelessness Tu'unga" is a speculative research project that investigates how the influence of traditional architectural knowledge can be used to create a multifunctional space for worship, for celebrations, or for learning. The overall aim with this project is to create a place which will serve as an educational tool, that is a physical embodiment of Pacific ideals, traditions, stories, and historical architectural worldviews. Traditional Tongan perspectives have been overlooked in recent times, especially by educational institutions because they were deemed not worthy of any knowledge applicable to current times. Essentially, what this research focuses on, is an understanding of the importance and relevancy of indigenous knowledge (specifically indigenous architectural knowledge associated with Tongan practices) and revitalise it, so worldviews associated with Tufunga can be introduced within an educational system, to inspire and support future generations.

1. Helen Morton.1998. "Creating Their Own Culture: Diasporic Tongans." The Contemporary Pacific 10, no. 1. 11

Historical Context

Tonga's islands were first settled by Polynesians around 2,500 years ago by people arriving from southeast Asia, but the exact date and time is still debated as it's not very definitive. However, the consensus is 1500BCE[2] . From there, by the 12th Century Tonga's reputation had already spread across the central Moana Nui region, leading scholars, and historians to label this period as the 'Tongan empire' where its influence was known throughout Niue, Samoa, Eastern Fiji, Rotuma, New Caledonia and to Tikopia. This Tongan Empire was spearheaded by the Tui Tonga (or paramount chief) at the time.[3] The Tui Tonga was a highly sophisticated aristocratic chiefly system. Early Tongans viewed their existence as connected to divine beings.

They were a direct representation of the Gods themselves on earth.
Tonga's first introduction to the West came when Dutch navigators (Willem Schouten and Jacob Le Maire) arrived at Tonga's archipelago in 1616 to the outer island of Niuatoputapu (the Sacred island) which is directly north of the Tonga island groups. The main island of Tongatapu was later visited and first contacted by Dutch explorer Abel Tasman in 1643 who was impressed with the Tongan way of life stating,

> *"The land was cultivated everywhere, and there were no villages. Each man lived in his own garden; the allotments being separated by reed fences."*[4]

The most famous visit by a Westerner came by Captain James Cook. He arrived in Tongatapu in 1773 and called Tonga and its people 'The Friendly Islands' due to the warm hospitality he and his crew received from the people. What Captain Cook didn't realise was that this act of hospitality was a mirage, as the Tongans where planning to attack and kill the captain and his crew. However this plan did not come to fruition as the chiefs could not agree on whether to attack the captain head-on during the day, or kill him silently in the dead of night.

During this period of first contact, Tongan customs and traditions didn't alter much from the Western influence, however, change was inevitable as civil war occurred due to internal unrest and Tongan traditional customs were weakened because of an influx of European explores, merchants and most prominently missionaries. Wesleyan Methodist missionaries who arrived in the 1820s had the greatest influence in shifting on the traditional Tongan way of life. The missionary influence was further strengthened when a young chief named Taufa'ahau acquired the title of 'Tui Kanokupolu' and united all of Tonga as a kingdom, and was baptised by the church. The acceptance by the young chief of Christianity also prompted the acceptance of a western model of rulership, as after he unified Tonga as a kingdom, he declared the nation a constitutional monarchy that followed a British style of royalty. In 1831 he was given the name Jiaoji (George) and recognised as King George Tupou 1st, Tonga's first King.

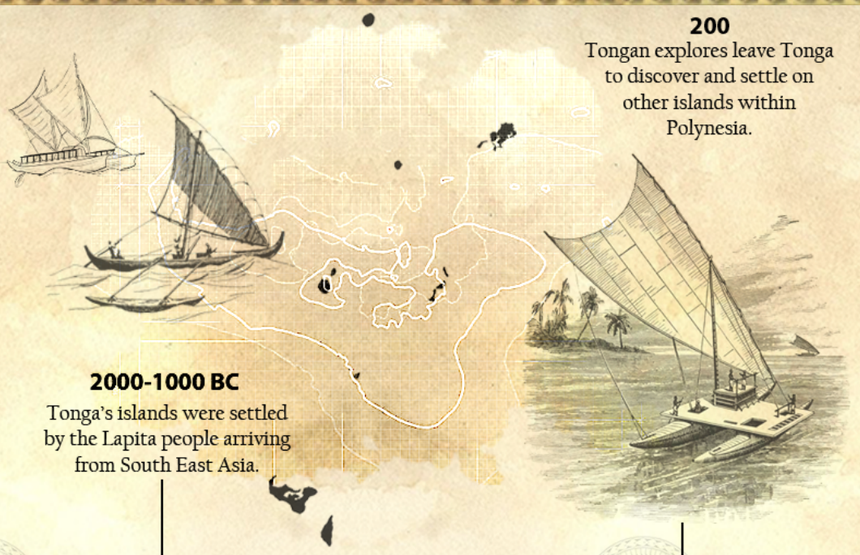
From this newly formed monarchy and the influence of missionaries from the church, a vast array of Tongan cultural practices and cultural traditions were changed or disregarded to fit the newly adopted beliefs. Evidence of two notable changes in this regard are the cultural practices of Tatatau (Tattoo), and the cultural use of Tongan architecture.

As Western religion became more practiced in the kingdom nation, several traditional cultural ways became outlawed with that transition. Tatatau is one such practice as laws and ways from the bible strictly prohibited such acts. In the third book of Moses from the Bible titled 'Leviticus' it states,

> *"Do not cut your bodies for the dead or put tattoo marks on yourselves. I am the LORD"*

This among many other scripters from the bible prohibited the practice of Tatatau within the Tongan culture as Christians believe, one's body is a temple for the Lord, so it must be treated as such by keeping it pure and maintained with the out most care.

2. "Tonga - A Brief History from 5 - Tonga." RNZ. Accessed April 10, 2021. https://www.rnz.co.nz/collections/u/new-flags-flying/nff-tonga/about-tonga.
3. Burley, David V. "Journal of World Prehistory." Tongan Archaeology and the Tongan Past, 2850-150 B.P. 12, no. 3 (1998): 337–339.
4. Wood, Alfred Harold.1932.A History and Geography of Tonga. Canberra: Kalia press, n.d.17
5. Leviticus 19:28



2000-1000 BC

Tonga's islands were settled by the Lapita people arriving from South East Asia.

200

Tongan explores leave Tonga to discover and settle on other islands within Polynesia.

1100

Through Tonga's exploration, one of the Tui Tonga (Tongan paramount chief) Tui Tonga Momo expanded Tonga's influence towards Samoa and Fiji, establishing the Tongan Empire

1250

Samoa rebels against the Tongan Empire and eventually casts off Tongan rule, which marks the beginning of the empire's decline.

1300

The stone trilition know as the Ha'amonga 'a Maui (the burden of Maui) was built, in honour of Tui Tonga Tuitatui's two sons.

1650

The Tu'i Kanokupolu Mataeleha'amea after a war against Tu'i Ha'atakalaua Vaea, establishes his supremacy and begins his dynasty.

1793

The first women to hold Tu'i Kanokupolu Tupoumoheofa was overthrown by her cousin Tuku'aho.

1806-1810

William Mariner, an English writer began a period of sojourn in Tonga that lasted four years. During this period, he learned a great amount about the culture and detailed it all in a memoir upon returning home.

1820-1826

Aleamotu'a became the first royal in Tonga's history to convert into a western religion by taking up Christianity. Amongst on going conflict, Aleamotu'a took the throne of Tui kanokupulo.

1831-1893

Taufa'ahau, a young ambitious warrior, strategist, orator and now Tu'i Kanokupolu is baptised into the church and is given the name George.
Taufa'ahau unites all of Tonga under one kingdom.
With the help of a missionary, Taufa'ahau declares Tonga a constitutional monarch that fromally adoptes the western royal style. With this he proclaims himself as King Geotge Tupou the 1st.
Taufa'ahau King George Tupou 1st died, and is then succeeded by his great grandson, King George Tupou the 2nd.

1918

King George Tupou the 2nd dies, and was succeeded by Queen Salote Tupou 3rd.

1965

Queen Salote Tupou the 3rd passes away, she was then succeeded by his son Taufa'ahau Tupou the 4th.

2000 BC | 1000 BC | 0 CE | 1075 | 1225 | 1375 | 1525 | 1675 | 1825 | 1975

2500 BC | 1500 BC | 500 BC | 1000 | 1150 | 1300 | 1450 | 1600 | 1750 | 1900 | 2050

1616

Duth navigator William Schouten and circumnavigator Jacob Le Maire are the first explores from the west to visit the Tonga as they landed in the Niua islands.

1643

Dutch seafarer, explorer and merchant Abel Tasman en route back to Batavia comes across the Tongan archipelago, and visits Tongatapu and Ha'apai..

1773

British explorer, navigator and cartographer Captain james Cook arrives in Tonga, in what would be his first visit to the kingdom, and names it the "Friendly Islands"

1777

On his third visit, Captain Cook meets Tu'ihalafatai, the Tu'ikanokupolu of the time.

1826

Missionaries of the Wesleyan church were now permitted to settled on Tongatapu as Aleamotu'a converted into Christianity.

1900

A treaty of friendship was signed with the British in which Tonga becomes a self-governing British protectorate, but it is not formally colonised.

1999

Tonga offically joins the United nations.

Figure: 8

Tongan History Timeline

image collaged by author

Research Methodology

In this research, I looked at traditional Tongan architecture using sources from libraries, the internet, as well as my own direct personal experience growing up in Tonga to gather as much information as possible. Additionally, I conducted interviews with knowledgeable individuals, master builders and carvers, Tongan elders, and South Pacific historians. This survey was useful and necessary in accessing deeper information. Additionally, other forms of writings, such as journals and articles, were helpful. Because of limited published resources, I also read other theses and writings regarding this topic, and used information collected from other South Pacific islands, such as Hawaii, Aotearoa (New Zealand), and Samoa. These islands have similar values that relate to Tongan way of life.
This research asks:

How can traditional building methods and techniques the Tongan Tufunga Langafale (Tongan house builder) uses to build traditional fale be revitalised in a contemporary 21st century setting, to construct a fale that combines indigenous and future thinking worldviews, to create an educational space that empowers future architects.

With my research question, to fully understand what it aimed to resolve, I broke it into four sub questions derived from my initial research question.

1. What is the Tongan artform related to Tufunga?
2. What is Tongan Tufunga (Tongan architecture).
3. What is a Fale?
4. What are the traditional building methods, values, and realities embedded within the Tongan Tufunga?
5. What can be learnt from this to develop a project with Pacific Indigenous knowledge for architecture to addresses both indigenous and future thinking worldviews to empower the context in which it is situated on.

Figure:9
Interior of Tongan fale Church
sourced from: https://historyarchive.org/works/images/journal-of-a-cruise-among-the-islands-of-the-western-pacific-1853/05-interior-of-tongan-church

CHAPTER 3

"Si'i Pe Kae Há."

"Though small we are still Great."

Breakdown question 1: is the Tongan artform related to Tufunga?

The Tongan term 'Tufunga' translates to many different meanings in Tongan, as the word itself can be used to for 'beating on a surface or to beat on a space', it could also mean 'to create a form or the creation of a form', by the results of marking on a space or surface. The term itself is a combination of words in that tū comes from a variation of the word tā meaning to beat or strike . The word funga translates to 'on-top' meaning on top of a space or form, so when the term is used in a context based on it's two meanings, it wereto beat or strike on to a surface or plain.

The term 'Tufunga' when used in practice is one of three major artforms in Tongan culture, those three artforms being "Nimamea'a, Faiva and Tufunga. These three artforms are based on traditional Tongan realities which are mainly that of the mind, society and nature. Nimamea'a relates to 'fine arts' and when reflected in society is a predominantly female occupied art practice, but Faiva which is 'performance arts' is mainly practiced by males similar to Tufunga which as an artform relates to 'material arts.

These three Tongan 'aati' (art) have their own branches of practice that are all related to the main practice of art. In the case of 'Tufunga' which is material arts, there are practices such as:

: Tufunga tāmaka: which is stone carving or stone carving.

: Tufunga tā-kupesi: is designing patterns or patternmaking.

: Tufunga lalava kafa: lashing or coconut sennit-lashing.

: Tufunga tāfale: house drawing or house planning layout

: Tufunga Langafale: house-building.

6. Moa, Bruce. "Langi royal tombs: The Beginning of Tu'i Tonga Architecture." Master of Architecture thesis, University of Auckland. 2011.
7. Bruce. "Langi royal tombs: The Beginning of Tu'i Tonga Architecture.
8. Bruce. "Langi royal tombs: The Beginning of Tu'i Tonga Architecture.96-95

Figure: 10
Queen Summer House Construction
sourced from: https://www.stampboards.com/viewtopic.php?f=17&t=52100

Figure: 11
Queen Summer House Construction
sourced from: https://www.stampboards.com/viewtopic.php?f=17&t=52100

Breakdown Question 2: What is Tongan Tufunga (Tongan architecture).

The English term 'architecture' has no real translation into the Tongan language, however within the Moananuia realm, the Tongan term Tufunga has been the adopted term used when referring to the practice. In everyday use, the Tongan term 'atiteki' can be viewed as a litral translation of the word architect, but as mentioned before, the Moananuia-Tongan perspective of the translation is Tufunga, which can be defined as the use of materials to create a structurally formed space erected to serve a multifunctional purpose, be that for humanity or for the God's.

The practice of Tufunga, has undergone many transformations and iterations over the years which is a natural process for any culture. With Tufunga, a majority of its metamorphosis came largely due to religious influences, both on Indigenous religious beliefs and Westernised religious faith. Religion is a major factor as to why the architecture has evolved over the years. This spawns the question, what is Tufunga (Tongan architecture)? And is there such a thing as Tongan Tufunga?

Figure: 12
Fale Tonga
sourced from: https://cocotap.com/fale-tonga/#lightbox[gallery-296]/1/

F á l e, *noun., A house or Dwelling*

Falea, *a. Plentiful, many, applied to a place where there are many houses.*

Faletohi, *s. A study.*

Faletalifonoga, *. A drawing room.

Architectural Development

Since its being conceived as an architectural identity, the origins of Tongan architecture cannot be directly traced to a single origin point, however it is through iteration and 'adaptation' that the architecture has evolved to be identified as Tongan[9]. Oral traditions, pictorials and existing building forms all influenced this development. The fale is an architectural construct that has evolved and developed through varies means of adaptation. At its core, the fale is Tongan architecture as in a way it's Tonga's only means of architectural identity.

Early oral stories tells a tale that the fale originated from the Vaka (the general name for all vessels that sail). When the first settlers of Tonga arrived on the island, they simply carried the vaka and turning it upside down used it as a shelter, then through varies means of adaptation developed it to its current form and identity.

In another description of the fale's origins, upon arriving on the vast archipelago of islands which later became the kingdom of Tonga, scholars described that people first lived in Anas (caves)[10] which provided them with the ideal shelter from the climate. After the anas some groups began to move more inland, and early inceptions of the fale were constructed known as the fale ***'Fa`ahi Ua'*** [11]. The main feature of this fale was that it consisted of two central Pou (posts holding the gabled roof construction of the structure, with a ridge beam of which the rafters would connect to the low walls. Although the fale fa`ahi Ua was not the first iteration of a fale, as the whole idea of a fale started with the concept of a central Pou, it would become the main structural blueprint which later iterations of the fale inherited.

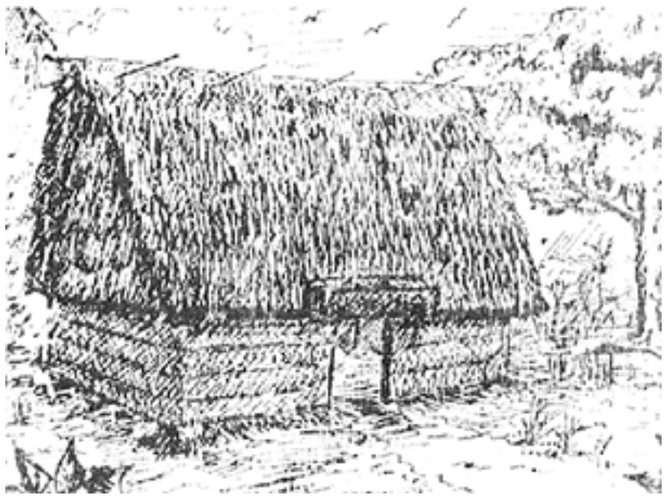


Figure: 13
Artist rendition of a Fale
sourced from 'Ilaiu, Charmaine. "Tauhi Va:
The First Space," 2009, 20–31.

9. Kaloni, Tomui. "Tonga: Architecture and Rationale," Bachelor of Architecture thesis, University of New South Wales.1990.18-19
10. Nonu, Paula Folau. "RECONNECTING WITH THE PAST: TRADITIONAL TONGAN ARCHITECTURE AS AN EDUCATIONAL DEVICE FOR THE TONGAN PEOPLE.,'. THE UNIVERSITY OF HAWAI 'I AT MĀNOA .2016.10.
11. Kaloni. "Tonga: Architecture and Rationale,"44-4

The ***'Falehunuki'***[12] proceeded the fale fa`ahi Ua as the next stage of its evolution. Resembling more of a modern tent, the falehunuki was a much more temporary structure that people lived in, as its form can be designed in either a rectangle or oval on the two cable ends. In more modern times, the falehunuki is used in funerals due to its relative ease to construct and low material requirement.

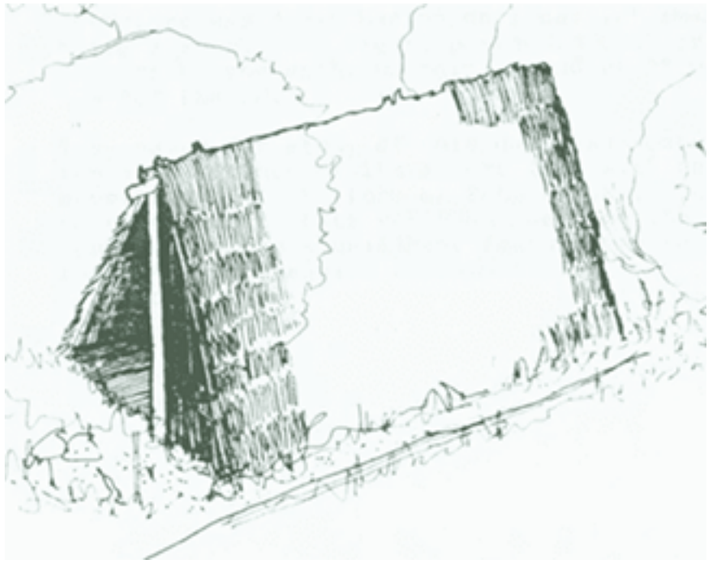


Figure: 14
Artist rendition of a Fale Hunuki
sourced from: https://www.semanticscholar.org/paper/Reconnecting-with-the-past%3A-Traditional-Tongan-as-Nonu/c982ccb515231194abdf51e216a3e1fb0cc0ad44/figure/1

The next iteration of the fale came by way of the ***'Falefaha'iua'*** which was a temporary iteration due to its close resemblance to the falehunuki, in fact both versions mainly functioned with the same purpose, however the Falefaha'iua was more adaptable to the elements such as the wind because of its low walls and main two vertical Pou in which everything was connected.

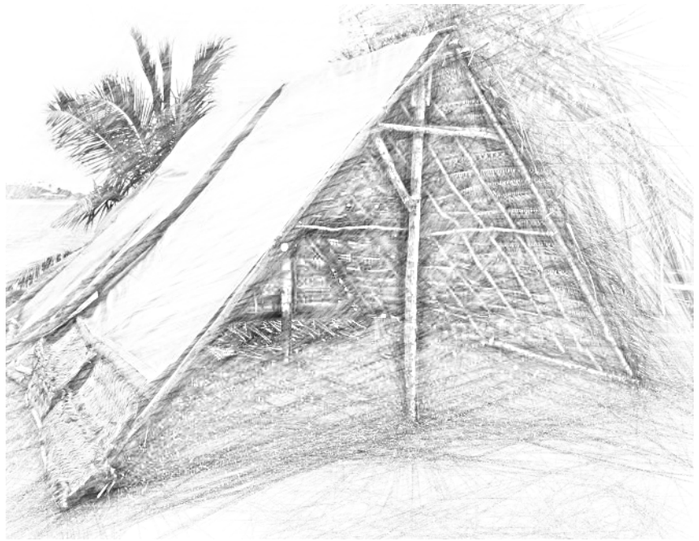


Figure: 15
Modern design for a Fale Hunuki
drawn by author.

12. Paula Folau. "RECONNECTING WITH THE PAST: TRADITIONAL TONGAN ARCHITECTURE AS AN EDUCATIONAL DEVICE FOR THE TONGAN PEOPLE.12.

The '***Falemanuka***' or the '***Fale-Tonga***.' proceeded the falehunuki and the Falefaha'iua[13]. This fale extended beyond the falefaha'iua's two central Pou design to four central Pou, and consisted of both vertical and horizontal poles, which enabled the fale to become bigger enabling the architecture to have additional spaces in which served different functions. The internal space allowed the curvilinear roof to be articulated more giving the fale a sense of openness which previous iterations were never able to achieve. Additional spaces capitalized on the openness and included and space above the utupoto which served as a storage space. The internal space also displayed the aesthetic beauty of what the fale can achieve with tensioned elements held together by the Lalava (lashings).

The ***'Falepouvalu'*** and the ***'Falepouono'*** were the next iteration from the Falemanuka. This fale was larger in scale as it was typically built using six to eight Pou. The purpose of this upscale was that this fale served the noble's of the village. . The Pou symbolised the nobles status within the community. They sat in front of the Pou representing the noble and connecting them to the foundation of the fale giving them the energy of holding up the architecture, and in extension of a connection of that person to the Earth and natural world (wider context/land).

Figure: 16
Image by Joseph Lemercier showing the interior of the fale and the fate space.
sourced from: https://www.semanticscholar.org/paper/Reconnecting-with-the-past%3A-Traditional-Tongan-as-Nonu/c982ccb515231194abdf51e216a3e1fb0cc0ad44/figure/2

Figure: 17

sourced from: https://www.semanticscholar.org/paper/Reconnecting-with-the-past%3A-Traditional-Tongan-as-Nonu/c982ccb515231194abdf51e216a3e1fb0cc0ad44/figure/2

13. . Kaloni. "Tonga: Architecture and Rationale,"44-45

To reflect on the evolution of the fale from a singular Pou, to its transformation into the Falemanuka or fale fale-Tonga is where the major development of the architecture mainly occurred. Further versions of the structure were blueprinted after the fale-Tonga. As the tui-Tonga's embarked on spreading their influence throughout Moana Nui, that led to the Tongan maritime empire , their architecture adopted influences they encountered from other cultures such Samoa and Fiji , to further evolve their Tufunga knowledge. In the case of the Fijian Vale (Fale in Fijian) or ***'Falefakafisi'*** [15] in high ceiling and roof was adopted allowing the possibility for the fale to be better ventilated. Similarly, the abundant materials Fijians used such as sugar canes was prominently adopted as the material because it was very durable unlike traditional material used prior.

Figure: 18

Artist rendition of a Fale faka-fisi

sourced from: 'Ilaiu, Charmaine. "Tauhi Va: The First Space," 2009, 20–31.

14. Aswani, Shankar, and Michael W Graves. "The Tongan Maritime Expansion: A Case in the Evolutionary Ecology of Social Complexity." ASIAN
PERSPECTIVES 37, no. 2 (n.d.).136
15. Talei, Charmaine Ilaiu. "Understanding the Diffusion of Coconut Architecture Through an Analysis of Thatching Applied on Traditional Tongan and Lauan (Fijian) Architectures." The Journal of Pacific Studies 33, no. 2 (2013).52

Figure: 19

Photography: Garth .A. Rogers

Structural Framing of a fale
Retrieved from: https://www.facebook.com/pasivulangi.falehau/photos
/a.109682251325871/172792715014824/

Breakdown Question 3: What are the traditional Tongan values and realities embedded within the fale.

Tomui Kaloni: Tongan architecture and Rationale (literature review)

To understand the complexities of relational realities between Tongan people and fale, Tomui Kaloni who is a Tufunga (architect) helped to establish and resolve the intricateness of these relationships in his thesis 'Tonga: Architecture and Rational'. This research is effective in breaking down the convoluted realties within a fale construction, as it dissects the physical, mental, and spiritual aspects of the fale to its simplest forms, resulting in a piece that perfectly introduces a novice to the realm of Tufunga.

This thesis dicusess a variety of influential factors that broadened my understanding of not just Tufunga, but of what a fale is in the context of Tongan culture. A following deep dive to analyse his text research is structured to demonstrate the correlation between Kaloni's research findings in 1990, and my own current research endeavours in 2021. This ultimately serves to aid in the revitalisation of our Tonga culture's architectural knowledge. The findings of what Kaloni detailed is summarised in what he titled *'Fata: Origin of Tongan Architecture.'* which revolves around 11 fundamental properties which are:

1. Tapu
2. Non-Physical; Ethnic Domain
3. Technology
4. Manava
5. Ranks
6. The Aoniu Principle (Instinctive Geometry)
7. Duality of Sacred and Profane
8. Climate
9. Symbolism
10. Social Control mechanisms ("Fakalekei")
11. Fata as sacred space.

All these different core properties of the fale are quite unique in their own right and all can work well individually when it comes to Tufunga, however when practiced holistically through a Tongan mental, physical, and spiritually understanding, is what makes Tufunga and the fale faka-Tonga uniquely Tongan.

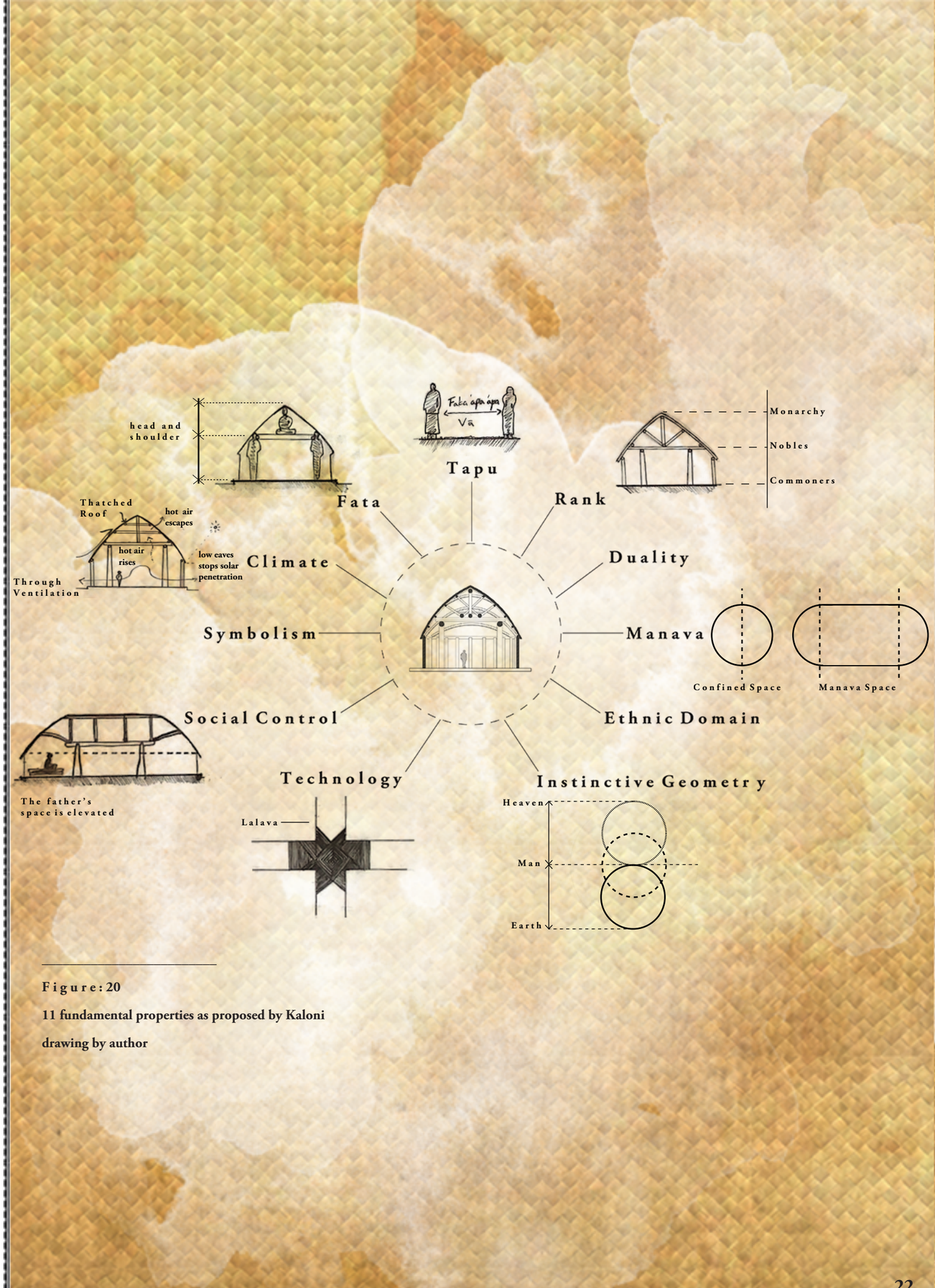


Figure: 20

11 fundamental properties as proposed by Kaloni

drawing by author

Figure: 21
Head of the fmily sphere of the father at home.

Figure: 22
Faka'apa'apa Tapu

Figure: 23
Elevated above to show importance.

Tapu

Tapu in Tongan translates to taboo, prohibited or unlawful in English. In the context of Tufunga and the fale, this act is especially towards the father who is 'The head of the family'. His position within the immediate family is that of great importance because within his own fale, he is the considered chief of that space so therefore he is considered 'Tapu'. Whilst the husband is considered the head, the wife however supersedes him in rank within the family. Kaloni references Edward Gifford in his text 'Tonga Society' claiming that,

> *"This is a result of the fact that rank within the Tongan family involves two fundamental factores, sex and age. Of the two, sex is unalterable and may transcend age. A child must respect his father…who are in many ways 'tapu' (taboo) to him; but to his father's sister (mehikitanga) he must pay even greater respect."*

What also arises from tapu practice is the brother and sister tapu called 'faka'apa'apa' which means "to respect and to honour". This tapu practice must be kept absolute in a tuonga'ane (brother) and tuofefine (sister) relationship because as aforementioned sex and age contributes an important aspect to the tapu practice. The older each sibling gets the more tapu that relationship becomes such as not being present amongst each other's company within the fale, or being prohibited from sitting next to each other, and once reaching the ages of ten, they are not permitted to live under the same fale together.

Kaloni's insightful analysis of the tapu practice within the fale reveals certain elements of the fale that was not originally considered in my previous analysis of the structure, and that is the horizontal and vertical definition of the architecture which stems from the va (the space in between two given objects, which can also refer to the spatial relationship between two people) between each family member. This va must be kept tapu as the father's leke (room) takes up majority of one side of the fale's spatial arrangement, similarly to when he is sitting or sleeping, that particular part must be elevated primarily with mats because as Kaloni explains,

> *"This same treatment is applied to the father in the family but to his bed. The father, in his leke (room) sleeps on a pile of mats (Langolango). (Fakalonga) A special treatment, equal to the sacred above the profane, denoting his 'eiki' (chiefly) status in the family."*

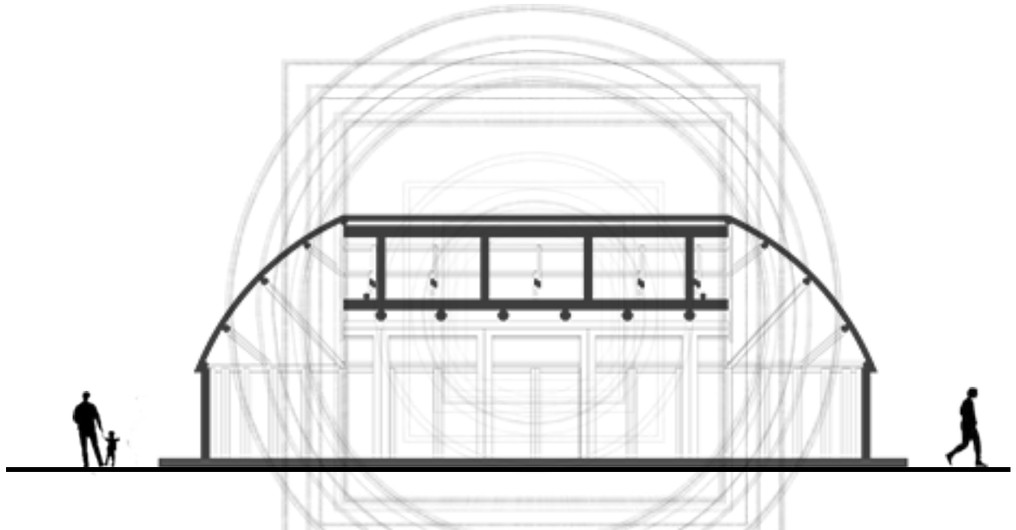
17. Gifford, Edward Winslow. Tongan Society. 61. Honolulu, Hawaii: The Museum, 1929.17
18. . Kaloni. "Tonga: Architecture and Rationale,".35-36.

Social Control Mechanisms ("Fakalekesi")

What the practice of Tapu essentially reveals is that the social control within the fale household ultimately serves as space in which faka'apa'apa (respect) amongst all laws is very important. Respecting your elders such as the head of the family by not trespassing his leke (room), or breaking that Va space between a tuonga'ane (brother) or tuofefine (sister), ultimately means the environment within the fale becomes an exemplar for the young to understand how Tongan way of life should be practiced. As Kaloni notes, this practice is identified as 'Fakalekesi' where the upbringing of the young from a child must be treated with the out most of care.

Figure: 24

'Fakalekesi'



Non-Physical 'Ethnic Domain'

The term 'Ethnic Domain' Kaloni uses in his thesis was adopted from Susan Langer's book 'Feeling and Form'. She explains it as,

> *"A scene is the basic abstraction of pictorial art, and kinetic volume of sculpture, that of architecture is an ethnic domain. Actually, of course, a domain is not a "thing" among other "things"; it is the sphere of influence of a function, or functions; it may have physical effects on some geographical locality, or it may not."* [19]

In a simpler explanation, the interpretation of what a Tongan 'Ethnic Domain' is, stems from what it represents in its core as the embodiment of the 'ideal environment' created within a spatial arrangement specific to the space. An example of this in the context of a fale is what it represents as a household home for a family. As a family is established and a child is raised, the parents are not only fostering the child in preparation for the world, but nurturing the child to become the ideal man/woman in the future, this is perceived as the concept of a home.

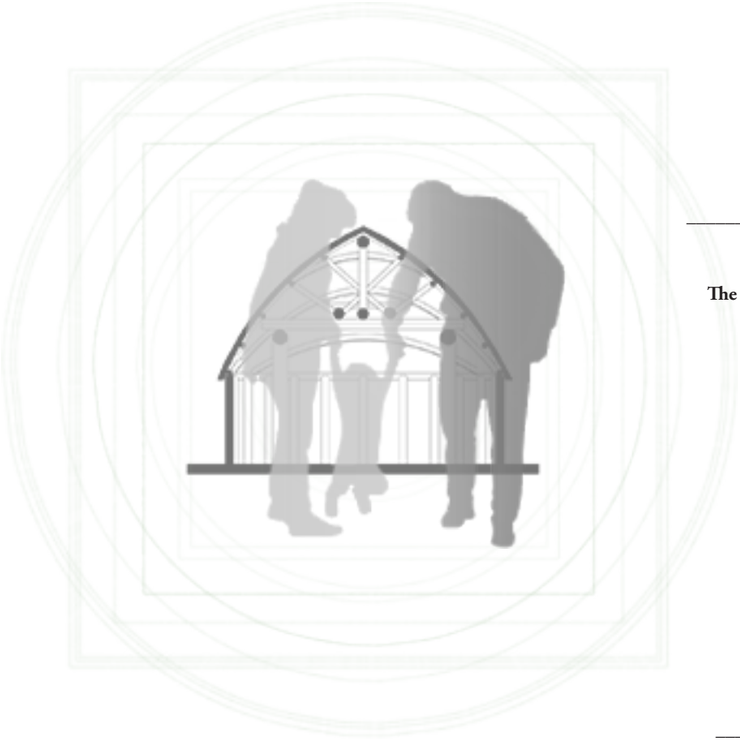


Figure: 25

The fale (home) as the ideal environment

19. Langer, Susanne K. FEELING AND FORM A THEORY OF ART. New York, New York: CHARLES SCRIBNER'S SONS , 1953.94-95.

Technology

As complex and intricate the traditional fale faka-Tonga is and what it represents, one component that is vital to its succession is the 'Lalava' that holds the architecture together. The term 'lalava' can be broken into two words in that to 'Lala' means to intersect two or more lines together and 'va' means space in between[20] . So, in this context the term 'lalava' means to bind or to lash two or more lines which are usually handcrafted out of kafa (coconut sennit) together within a space to form a geometrically complex pattern in which it binds one element to another. Sopolemalama Filipe Tohi who is a 'Tufunga Lalava Kafa' (Coconut sennit-lashing) master describes the practice as an artform representing a way of life,

> *"Tohi considers the movement of binding and lashing lalava as a means of appreciating a Pacific language that reflects a philosophy of life, as the patterns imply an insight into the equilibrium of our Tongan ancestors' daily lives through metaphorical and physical connections with cultural knowledge."* [21]

The technological aspects of lalava have been a staple in not only the Tongan culture, but all cultures throughout Moananuia as lalava was fist recorded to be utilised on the vaka (the general name for all vessels that sail) in which people used to sail and explore the Pacific . Then as the fale began to develop over the generations, that knowledge was then applied to the fale. As both a construction method and an artform, the artistic side of lalava as described by Filipe Tohi are modelled after the history and interaction in which the people have lived.[22] The kafa that's used to create these lalava elements are also in their own right an essential element to the construction of a fale. Pre-dating even hammer and nails, this tool is the basis for not only lalava, but for every other element in which the action of binding is required. Only utilised with the materials in which the islands provide, kafa is created from coconut husk after a step-by-step process of drying and soaking in the ocean or mud.[23] In most cases, certain coconut trees were grown specifically for the purposes to create the required coconut sennit for lalava. This process in combination with the Tufunga material arts skills required to bind the different elements is what is identified as 'Lalava.'

20. Latu, Vena. "Unraveling Lalava: Uncovering the Cultural Knowledge Embodied in Lalava." Thesis, Auckland University of Technology, 2020. 18
21. Stevenson, Karen, and Filipe Tohi. Journey to the Present: Makahoko Mei Lotokafa. Suva, Fiji: University of the South Pacific Press, 2015.
22. "Lalava Residency." Lalava Residency - The University of Auckland. Accessed October 11, 2021. https://www.auckland.ac.nz/en/on-campus/life-on-campus/pacific-life/fale-pasifika/lalava-residency.html.
23"Loading...: Collections Online - Museum of New Zealand Te Papa Tongarewa." Loading... | Collections Online - Museum of New Zealand Te Papa Tongarewa. Accessed October 11, 2021. https://collections.tepapa.govt.nz/topic/1116.

Figure: 26

Drawing of Fale Pasifika's Lalava element by author

Figure: 27

Drawing of Lalava element by author

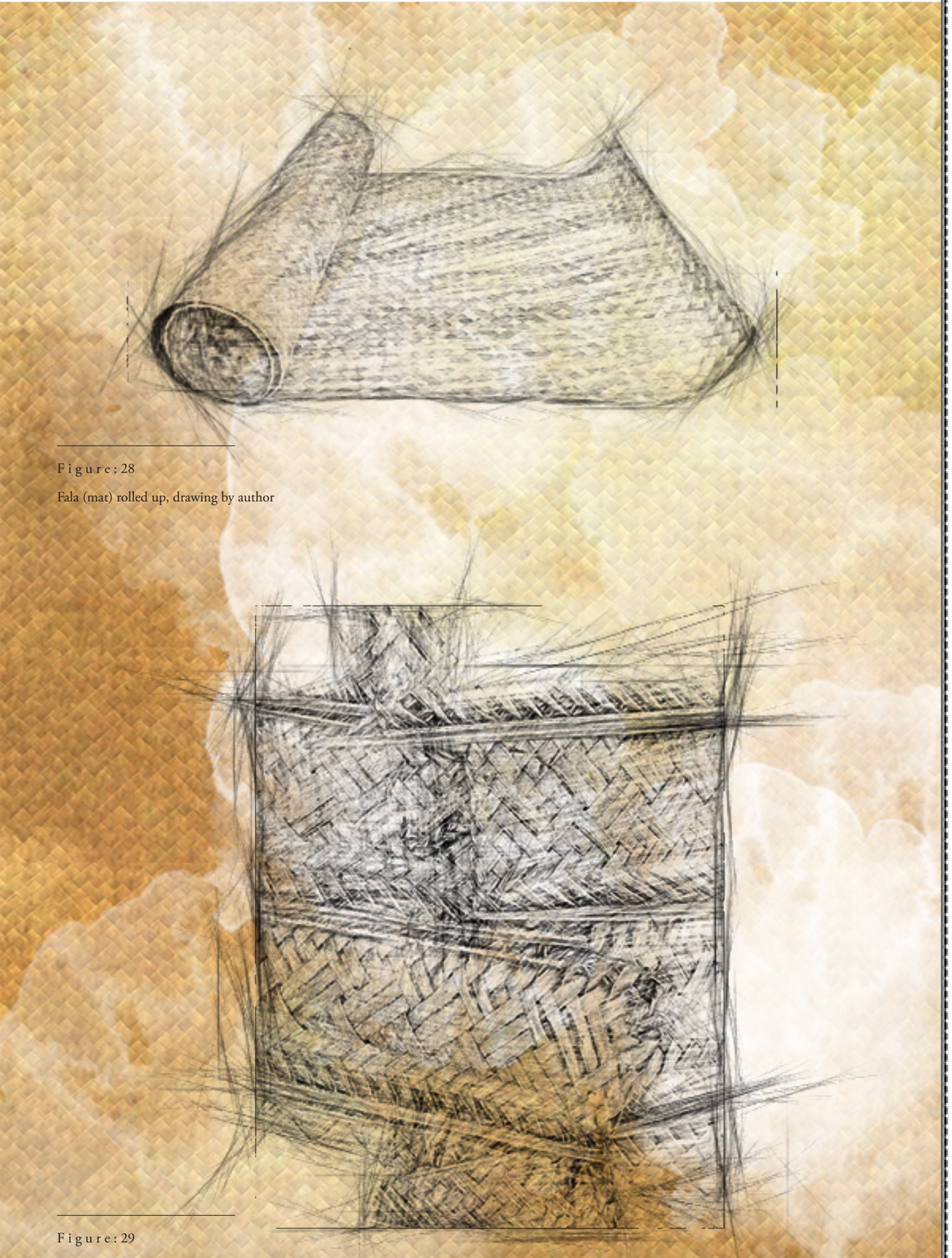


Figure: 28

Fala (mat) rolled up, drawing by author

Figure: 29

Tatau Screen, drawing by author

Similar in prominence to the practice of Tufunga Lalava deriving from the Tongan artform of Tufunga Material Arts, is the artform Nimamea`a-lālanga (Mat weaving) or lālanga. [24] Through the practice of this artform, mats became a very important aspect in the Tongan culture. This was achieved by intersecting and overlapping falahola fe'unu leaves (pandanus leaves) or coconut leaves together creating a patterning kupesi.[25] The mats in which were created from this process are then used in the daily compulsion of the fale (outside its normal purposes as a floor cover) such as for sleeping where they are laid in a single layer for a person to lay on, or stacked on top of each other, for the head of the family household because of Tapu. Mats also are important for traditional Tongan practices in what is known as Fatongia (obligation) and Kavenga (burden or duty), as when an important incident like a funeral or occasion like a marriage happens, mats become one of the main fatongia or kavenga to offer to the family..

For the practice of Nimamea`a-lālanga, other forms of mats are created, Kaloni identifies a new technology in the form or 'Tatau' (moveable screens/blinders).[26] These became a stable in every fale household to divide the space into leke (rooms) allowing an already multifunctional space to become flexible and flow between a public space, and what is private. I have found it interesting that these tatau screens are very similar in design to the eastern style of Japanese 'Shoji', as they are used as a multifunctional space divider functioning not only as a door, but also as a window or wall. They can also be entirely removed to create a greater open space to serve an entirely different functions.

Daily use of the tatau screens meant it can be moved around during the day depending on what the occupants of the fale desire or taken out entirely and placed outside to combat the elements. This gives the fale its trademark openness appearance. At night the tatau is arranged into a semi-circular manner[27] to form each leke specifically for the father as his sleeping space. Measuring at about half a meter to a meter, Kaloni notes that there are no records of the tatau's first inception, but from the early 1800's elongated tatau screens were substituted for mats ranging two to almost three meters long. Over time as the tatau evolved, they became a great way of dividing an open planned space into different areas to serve a specific function for a temporary time.

24. Bruce. "Langi royal tombs: The Beginning of Tu'i Tonga Architecture.82-82
25.Ilaiu. "Understanding the Diffusion of Coconut Architecture Through an Analysis of Thatching Applied on Traditional Tongan and Lauan (Fijian) Architectures."71.
26. Kaloni. "Tonga: Architecture and Rationale.39
27. Kaloni. "Tonga: Architecture and Rationale.39

Manava

'Manava' in Tongan translates to breath, to respire; to throb or to pulsate. When related to the fale, the purposes of manava described by Kaloni is an essential part in the Tongan way of life correlating it to the Aboriginals of Australia's method of 'Walkabout.'[28] This concept being proposed by Kaloni in my view would in a way perceive the fale to being an entity, which in most cases it is seeing as the manava concept allows it to breathe life into itself once being gashed by a strong breeze or by wind as it presses in on itself, then receding to its original shape once the wind dissipates.[29] Kaloni also relates this manava concept back to the aforementioned properties of Tapu, Tongan Ethnic Domain and the lalava technology stating that,

> *"As a result of this tapu, not being able to 'manava' within the circular plan form, the Tongans create their ideal environment by splitting the circular floor plan and extending the space lengthwise. Thus achieving the spatial segregation of the different domains and allowing the tapu to 'manava' comfortably. Furthermore, separate huts for boys enhance total freedom."* [30]

What these properties from Kaloni essential revels is that there's more than meets the eye when a particular operation is implemented into practices such as Tufunga where the reasoning for extending the fale beyond a circular floor plan for example, allows the architecture to not only increase in size, but also allows activities such as the social in house control of tapu to work more efferently, making it a more suitable and ideal environment (Tongan ethnic domain) for the Tongan people to pursue their cultural practices. The use of the Tatau (moveable screens/blinders) within the fale also contributes to the properties of manava as it plays a vital role in what makes the fale multifunctional and broadening the lines of what can be public and what can be private, as well as what can be defined as inside, and what is outside. The use of tatau at night to arrange the leke for the father as an example makes the fale more private and more restrictive in the manava concept, as the wide-open space is divided into smaller domains, however come daytime the tatau are then removed and the space opens up again allowing the fale to breath making the fale manava more freely and openly.

28. Kaloni. "Tonga: Architecture and Rationale.38.
29. Kaloni. "Tonga: Architecture and Rationale.38.
30. Kaloni. "Tonga: Architecture and Rationale.38-39.

Figure: 30
Manava depiction

Figure: 31
Floor plan for a fale displaying the manava aspect used to divide the spaces

Ranks and Symbolism

(As the raking of Tongan society can be reflected through symbolisms within the fale, they will be complied into one section).

In both traditional and contemporary times religion contributes and essential role in the Tongan culture, as their daily life is deeply rooted in the practice of faith, especially in the early traditional days of the culture's inception. So normal perceptions on beings that represent the Gods of that faith here on earth such as the Tui Tonga (paramount chief/king) are of a common belief. This belief was personified through the fale as the Tui Tonga's were symbolised within the structural make-up of the fale. This brings forth the idea of the fale being a direct reflection of the people and therefore Tongan society. As aforementioned the Tui Tonga was of the highest in importance, so their likeliness was then given to the most sacred and highest structural component of the fale being the 'Tau'olunga' [31] (translates to 'the eyes of a chief, but refers to ridge beam in the context of the fale) or the 'Taufatungamotu'.[32] The general consensus of this was since the Tui Tonga was symbolised trough the ridge beam that held the roof of the fale together, the rest of the Tongan society was symbolised within all other components moving down from the ridge beam.

To be more precise, the Tui Tonga who represented both the Gods and the people sits along the top of the roof as the ridge beam. Moving down through the structural components of the roof such as the 'To'oufufuloto (beams), 'Kahoki' (rafters) and 'Utupoto (joists), these parts symbolise the people right below the monarchs being the nobles and chiefs, providing the connection between the kings and the common people. Right below the nobility section you transition to the commoners ranging from the wealthy to the elites, to the everyday common villager. They in turn are symbolised through the Pou (structural post). As the pou connect to the ground (earth), structurally this is the strongest component as it holds the roof of the fale, putting a visualisation in one's mind of working-class holding this social pyramid on their shoulder symbolised through the roof which represents the nobles and kings. This social reflection of Tongan society through the fale shows just how intertwined the culture is with the architecture.

31. Nonu. "RECONNECTING WITH THE PAST:
TRADITIONAL TONGAN ARCHITECTURE AS AN EDUCATIONAL DEVICE FOR THE TONGAN PEOPLE.,".26
32. Kaloni. "Tonga: Architecture and Rationale.28

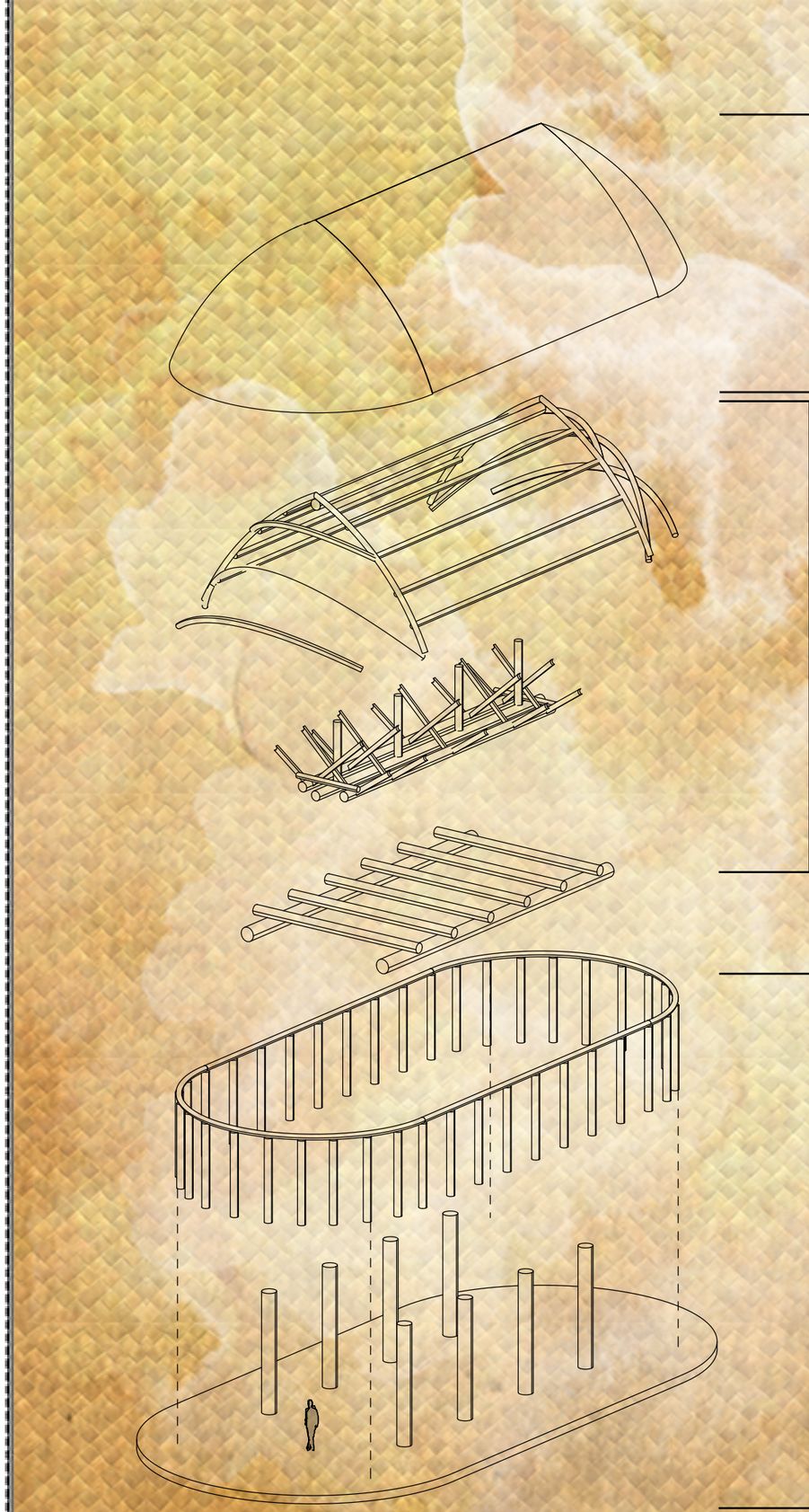


Figure: 32
Symbolisum of society being reflected through the fale

Instinctive Geometry

The "Instinctive Geometry" is a take on an already existing idea that's not just limited to Tonga, but apparent towards most cultures throughout the world. This idea is known as the 'Instinctive Geometry' as it defines the relationship between the earth, man and the cosmos or heavens in unison. Essentially this idea views the human body as a construct connected to everything around it, be that the earth, or the cosmos, therefore its ability to be used as a tool of measurement can be achieved because of said relationship. To Quote Kaloni, he details that in Tonga,

> *"This relationship between mankind (or Tongan specifically), as Anthropos, and the cosmos is manifest in schematic form as the determinant of proportions is, in my view, held to be true in Tonga but a 'Tongan version' of course. In early Tonga, this idea was a common language of the two main institutions, namely 'Falehanga' for women and 'Tokanga' for men."* [33]

The connection between this instinctive geometry can be also found in Leonardo da Vinci's work of the Vitruvian man which he depicts as the ideal human body inscribed within a circle and a square. This was done by da Vinci in order to show human's connection to nature believing that the works of the human body is the works of the cosmos/universe.[34] This understanding showed by da Vinci is just a small sample in what different cultures throughout the earth shared, in that humans and the heavens are connected.

To ground this understanding back in the realm of the Tongan realities, this practice was intensively used in the everyday life of every Tongan alluded to by Kaloni as he identifies 'Falehanga' and 'Tokanaga.' If we are to refer back to page two of this thesis, I have expressed a proverb which recities as,

"Oku 'hanga' a Falehanga
Kae 'manga' a Tokanga."

Translation:

"Finger yardage is for Falehanga
As pacing is for Tokanga."

33. Kaloni. "Tonga: Architecture and Rationale.23
34. "Anatomical Studies and Drawings of Leonardo Da Vinci." Encyclopædia Britannica. Encyclopædia Britannica, inc. Accessed October 11, 2021. https://www.britannica.com/biography/Leonardo-da-Vinci/Anatomical-studies-and-drawings.

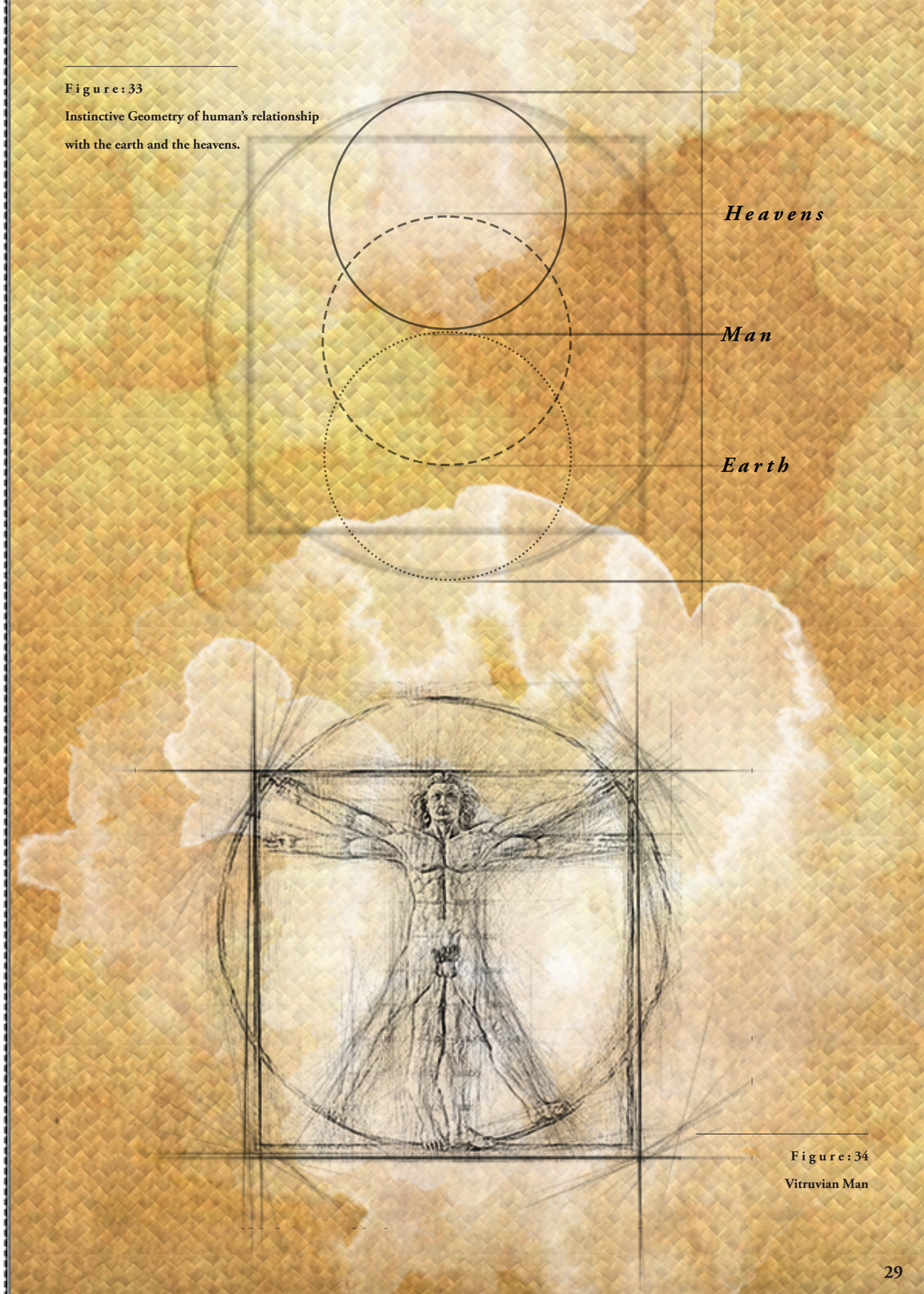


Figure: 33
Instinctive Geometry of human's relationship with the earth and the heavens.

Figure: 34
Vitruvian Man

This is the very same proverb in which Kaloni refers to as he describes Falehange and Tokanga. My purpose in using this proverb is because it is the very reason in which this thesis was inspired and conceptualised, it was used daily with not only by every Tongan but all cultures throughout the Moananuia such as using their hands to read the stars and therefore navigate Pacific Ocean, or taking one's feet and using it to measure the 'felenoa'[35] (rafter beam of the fale). This technique was very important to the Tongan culture and served as the many practices of cultural knowledge in which I aim to revitalise with this thesis endeavour.

Referring back to Kaloni and his intentions with the proverb, the instinctive geometry measurement in Falehanga is essentially the name given to a fale in which the practices of Nimamea'a (Fine arts) is undertaken. One is predominantly female occupied as it is a space where the creation of mats and nagatu (barked cloth) are worked. Tokanga pertains to a more male based side, specifically to a male's land which he is entitled to through family ties, or through royal gifts. The man is expected to therefore cultivate this land and 'tokanga' for it appropriately. I find it interesting in this description of the proverb that it is a very much practiced based expression identifying that there is action in it, whether that's through the male's 'manga' (pacing) in tokanga or through the female's work within the Falehanga, there is action being done to display instinctive geometry. The instinctive geometry is therefore a Tongan practice that supported a relationship between humans and nature, and the cosmos. This contrasts with da Vinci's ideas about geometry that were akin to his speciality of conceptualising his designs, and his polymath expertise causing him to formulate and calculate perceptions of how he viewed geometry and its relationship to the human body..

This refined practice of the Tongan instinctive geometry was ultimately shocking for Western explorers and colonisers as they arrived on the various islands of the kingdom dumbfounded by how progressive their knowledge in life truly was.

Figure: 35

Tufunga workers cutting a Pou

by: Author

35. Kaloni. "Tonga: Architecture and Rationale.26

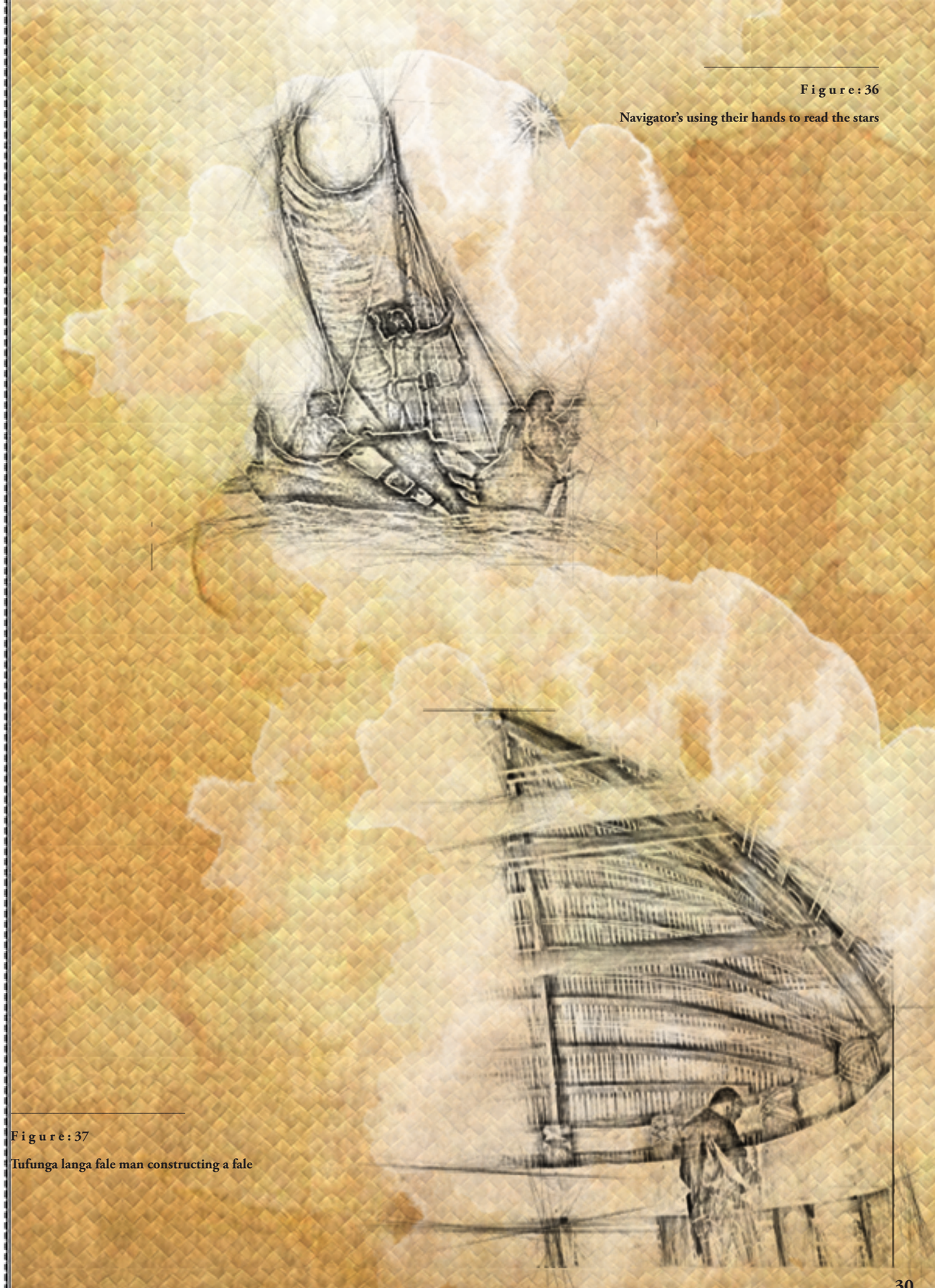


Figure: 36

Navigator's using their hands to read the stars

Figure: 37

Tufunga langa fale man constructing a fale

Duality of Sacred and Profane

With the fale being a multifunctional architectural space, its layout can be altered in a way that suits any Tongan function, with elements such as the tatau. However, it only achieves this horizontally within the space as the tatau screens only work according to said space, which makes sense as the occupants of a typical domestic fale faka-Tonga majorly use the horizontal singular floor space, as that is what is available for them to occupy physically. In spite of this, as mentioned previously, every aspect of the fale is used in fluidity to its utmost potential, whether that's horizontally or vertically, spawning idealistic limitations of a 'sacred space' or 'profane spaces.' [36]

As discussed previously with the eleven properties Kaloni has identified, all these aspects are connected to each other, and this is no different between the duality of the sacred and profane. This is evident if we consider the previous two properties of ranks and the instinctive geometry. Rankings reflect Tongan's social hierarchy through the fale by way of each component's arrangement vertically moving downwards. From the Tau'olunga being the highest ranking to the Pou being the lowest, or if we are to factor in the duality properties, the Tau'olunga is the sacred space as this is the eyes of the chief or the king's face. Whilst the Pou and other elements connected to the ground is the profane as this is where the commoners reside to essentially hold up the fale on their shoulders, and by extension all that is sacred above.

This vertical exploration segues perfectly with the instinctive geometry property as it explores humanity's relationship with the earth/nature, and the heavens/cosmos. The heavens are where the God's reside, hence the connection of the Tui Tonga being symbolised through the Tau'olunga as they are viewed as the Gods personified. This is the reasoning for that space being sacred.

With this understanding, I would like to point out an interesting observation I have realised through interviews with Sonny Natanielu [37]. He explained how the Moananuia people journeyed through Moana Nui using stars as a navigation tool. Sonny stated that the stars are a multidimensional tool which directed the navigators to each island, based on how our world revolves around the sun, meaning that as the night sky moved, the navigators where also moving following the path lead by the stars, navigating across a multidimensional map and making that instinctive geometry connection become more apparent. Now this practice wouldn't be as successful if they converted this knowledge onto a piece of paper and read it in a similar way to reading a contemporary map as this limits the knowledge onto a two-dimensional plain which is fix on a singular point in time, and location.

36. Kaloni. "Tonga: Architecture and Rationale.27-28
37. Unpublished interview with Dr. Sonny Natanielu

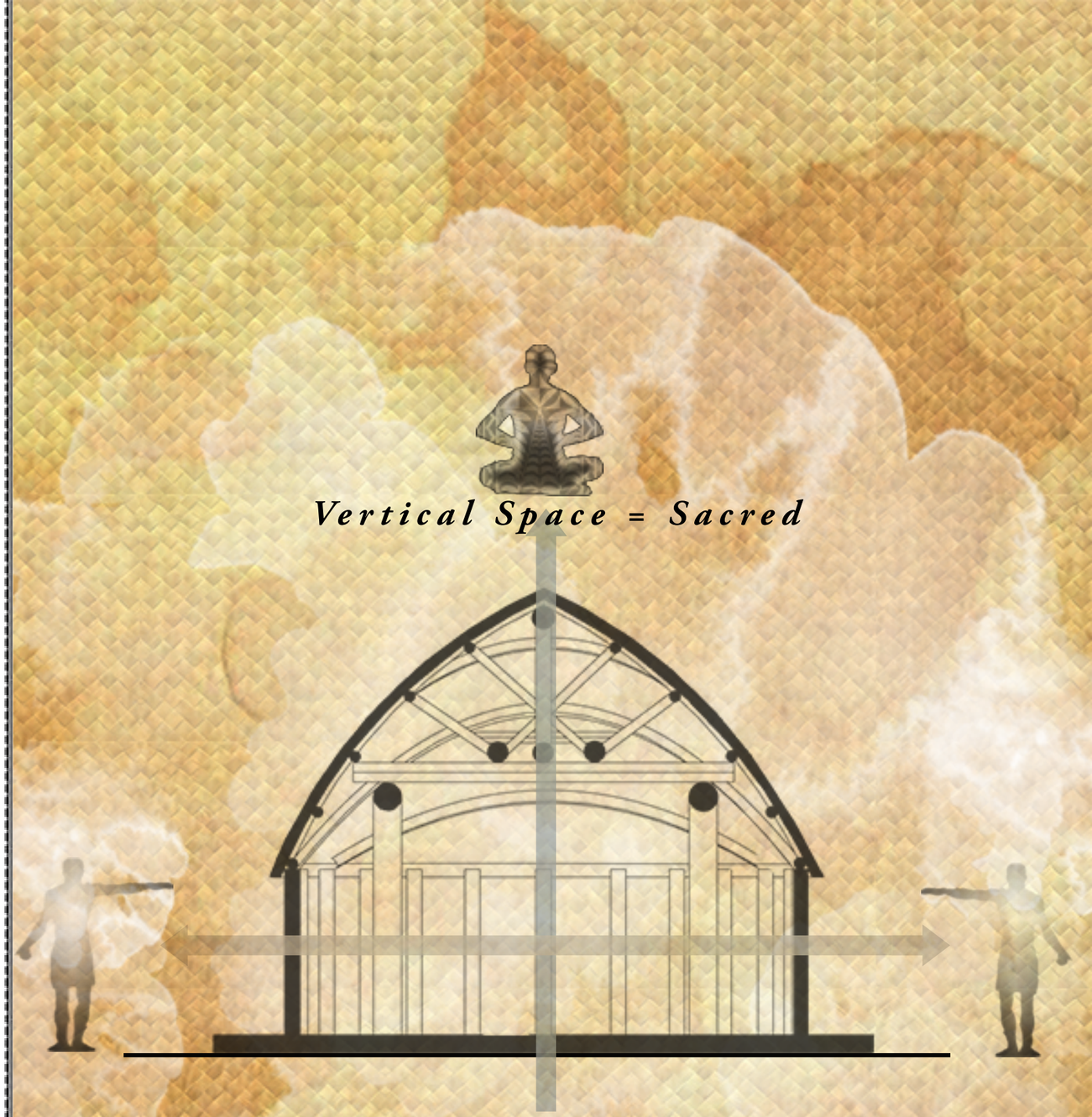


Figure: 38

Horizontal and Vertical relationship of the Space

"In this active sense, the function of mapping is less to mirror reality than to engender the re-shaping of the worlds in which people live in." [38]

Sonny explained that this difference in ways of navigating is most apparent in the voyages of Captain Cook. He recruited a Polynesian high priest and star navigator known as Tupaia, during his 4 months stay in Tahiti to make an expedition to Australia. Tupaia in his travels with Captain Cook may have still been a novice, however his skills of accurately depicting the motus (small islands) demonstrated how sophisticated his understanding of traditional Polynesian cartography was, a sophistication in which Captain Cook and his crew could not fathom at the time.

From Sonny's description, my presumption is that this directly correlates with fale identity, but in an almost opposite manner. What I mean by this is as Sonny establishes, traditional Polynesian navigators used the stars amongst other elements to journey through the various islands of Moana Nui, by using a Vaka or Kalia (traditional voyaging canoe), so upon arriving on the island and constructing the fale, the fale would in turn be transformed to be the vaka and hold that knowledge of the stars and by extension the Gods. This supports the fact that when people arrived on land, they would flip the vaka. But instead of the vaka being a vessel used to travel the moana(ocean) it also depicted the impression of sailing on the sky because of how the waters reflect the night sky. The fale was a more physical representation as the relationship to the sky and by in large the cosmos was symbolised through the roof of the fale.

To pivot these ideals back into Kaloni's description of sacred and profane, and to further expand on the duality in all this, is how a typical household fale can be transformed into an entirely sacred space such as a place of worship simply by removing the households privately stored items from the utupoto (a space above the Pou that serves as a storage space), as those items such as mats and ngatu are what ties the occupants of that space to the fale, therefore distinguishing a barrier which divides the sacred vertical space at the top, and the profane space at the bottom.

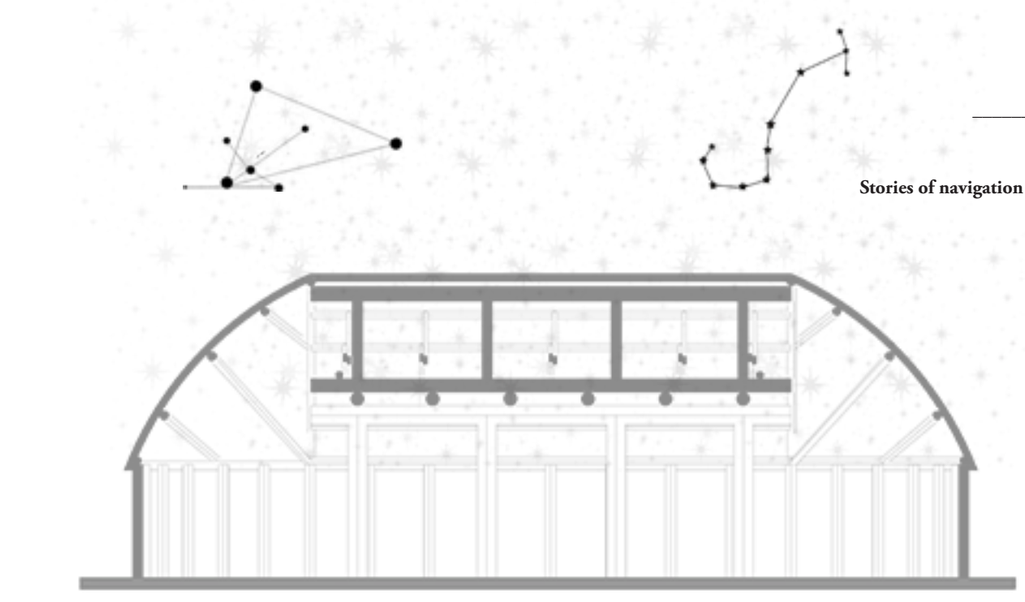


Figure: 39

Stories of navigation symbolised through the fale

38. Hirsch, Alison.Cornor,James. "The Agency of Mapping: Speculation, Critique and Invention." Essay. In The Landscape Imagination. The Collected Essays of James Corner. New York: Princeton Architectural Press, 2014.213-214

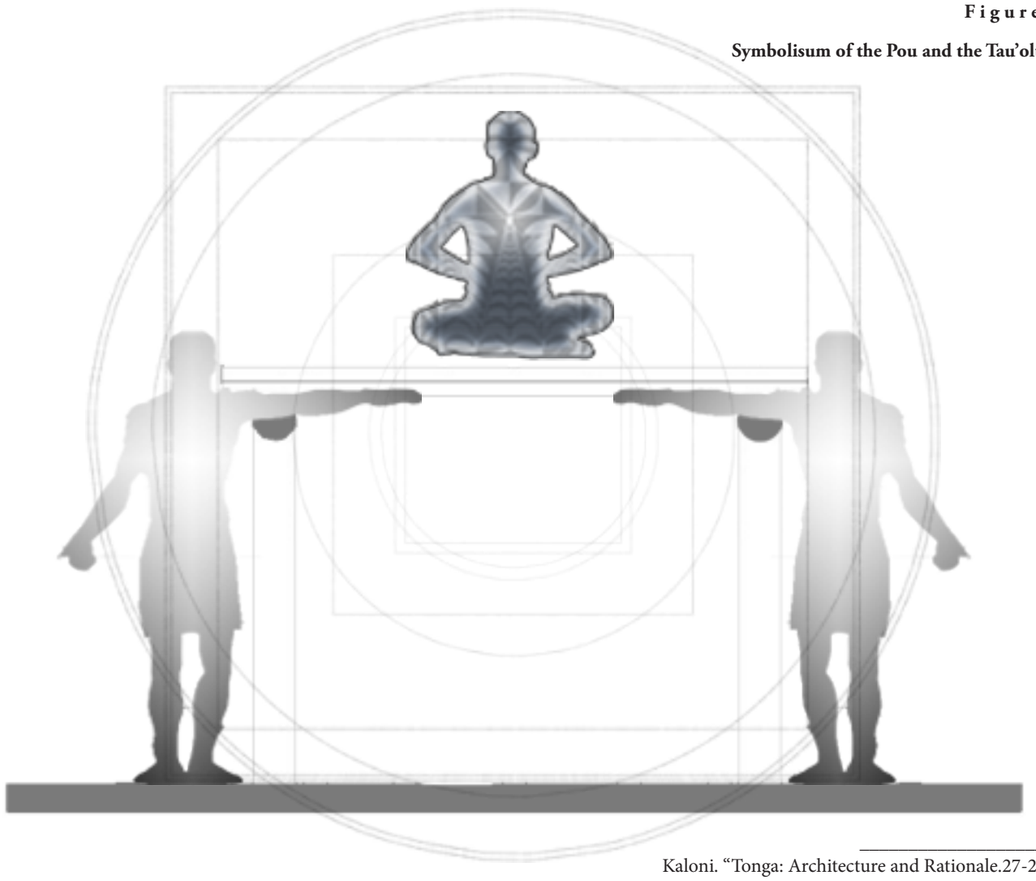
Fata as Sacred Space

The fata referred to in this section of the eleven properties pertains to the vertical space between the utupoto and the Tau'olunga, which as mentioned repeatedly is sacred in its symbolism of the heavens and its symbolism as the king's face. This relationship is then further amplified when that fata space continues downwards to the profane space, and the lower order of that space is holding up that upper space on their shoulders, as the Pou would symbolise, which suits the description of fata perfectly as fata in Tongan translates to carry or to hold.

"I referred to the 'Fata' as the 'sacred space' of the Tongan fale because it encapsulates the idea of the cosmos being reflected in a microcosm and articulated in this space thereby attributing to its 'sacredness'. Furthermore, the loaded symbols and their associations act as further reinforcement to this sacredness." [39]

Figure: 40

Symbolisum of the Pou and the Tau'olunga



Kaloni. "Tonga: Architecture and Rationale.27-28. 39

Climate

To re-establish the properties of the instinctive geometry momentarily, the importance of this in the daily life of every Tongan cannot be undermined. I have already defined the significance of the people's relation and connection to the heavens, and in accordance with the Tongan people's relationship with nature. The Tongan connection to a heavenly and earthly realm similar to every other indigenous culture around the world.

One property that displays the fale's capabilities of sustainability with the climate is that of the Manava concept. The main attribute of this concept is how it depicts the fale's capability to breath when being affected by wind. Every component that's lalava (lashed) and lālanga (weaved) contributes greatly to this as it allows every element to work with the wind as appose to against it, contrasting the notion of working with nature as appose to it. The roof of the fale for example is thatched using coconut leaves typically which is layered in a sloping manner with enough leaves to avoid heat build-up and also making it water-tight against the rain, as well as deflecting strong winds. The open planning of the fale allows it to be naturally ventilated allowing air flow to be more cohesive as it moves in and out of the structure. This not only keeps the structure sturdy, but ensures good ventilation for people occupying the space. It enables fresh air and cool breeze to circulate. This is important due to the tropical climate and humid conditions. Low eaves and the tatau screens or Pola (retractable blinders made out of coconut leaves) can be adjusted to alleviate humidity and overheating.

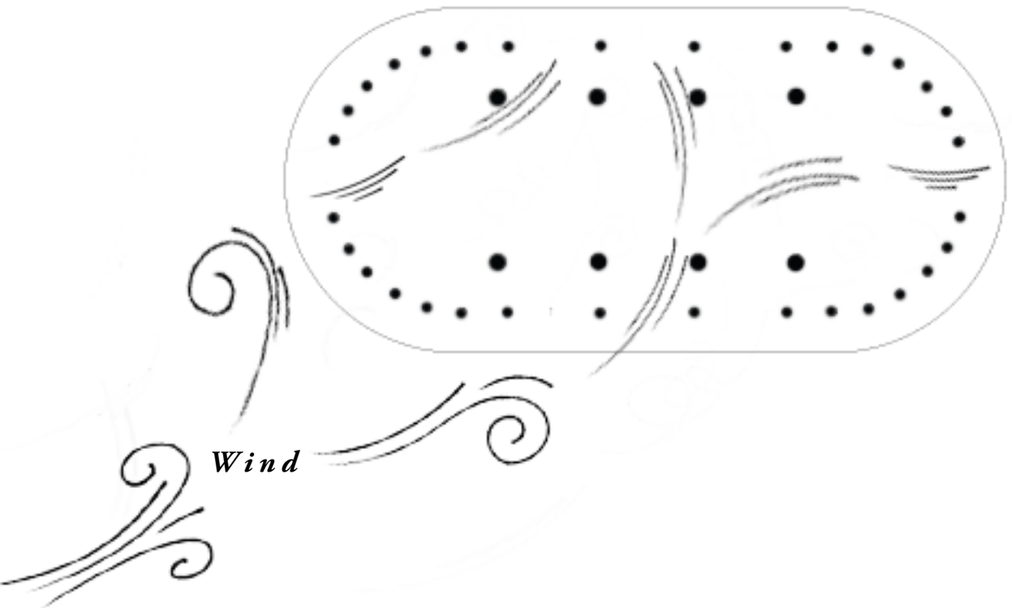


Figure: 41
The fale as an environmental filter.

Origins of Tongan Architecture (According to Tomui Kaloni)

To conclude this exploration on Tomui Kaloni's 11 essential properties examined within the fale from his thesis of 'Tonga: Architecture and Rational', it has revealed vital research especially relating to elements such as the instinctive geometry. Properties such as Tapu that have lasted the test of time, but altered through religious influences and modern thinking to fit the world we live in today is what now defines the fale, and by extension the Tongan culture.

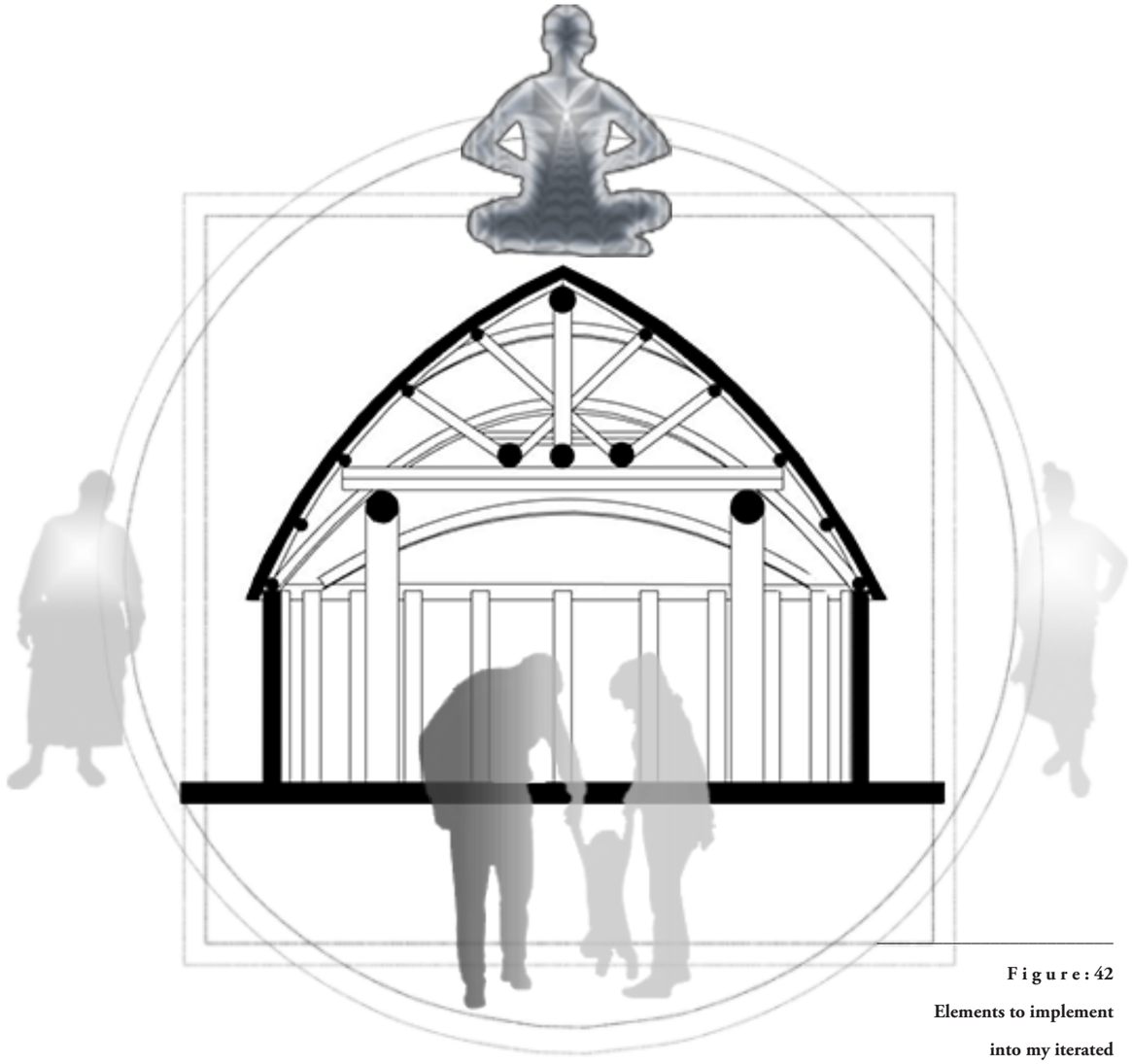


Figure: 42
Elements to implement into my iterated fale.

CHAPTER 4

Fai'akie 'ilo, 'oua 'e fai'aki e fanogo."

"Do it by knowing, not by hearing".

Figure: 43

Collage of Fale locations within Auckland, drawnby autor

Breakdown Question 4: What can be learnt from this to develop a project with Pacific Indigenous knowledge for architecture that addresses both indigenous and future thinking worldviews to empower the context in which it is situated on.

Thesis research proposal

As mentioned in chapter 1 of the abstract, the primary goal of this thesis is to utilize the body of research within this work and conceptualise an outcome in which the indigenous architectural knowledge of the Tongan culture is not only revitalised, to where its relevancy and importance is reputed, but also adapted within an educational system in where this knowledge can be manifested by the architects of tomorrow. So, it is my desire to propose a Fale faka-Tonga inspired structure for the newly established Huri te Ao school of architecture and future environments at AUT (Auckland University of Technology).

The fale will serve as a multifunctional space, however its main purpose is to be an educational space where it will educate the Moananuia architects of tomorrow about their cultural ideals, traditions, stories, and historical architectural worldviews. This means the fale will be directly linked to the newly established Huri te Ao school of architecture and future environments at AUT. The main purpose in having this connection is because it is my belief that in order for Moana -Nu ideals to be fully understood, one must understand its realities and worldviews, as proposed in chapter 2. It is only through that a person can truly grasps its purposes, however having that journey of learning within the fale which is the essence of Moana Nui architecture can make that understanding become more impactful, empowering, and inspiring (as I speak from experience explained in my abstract.).

Case Study 1: Fale Pasifika (Auckland University)

Centring itself along the heavily urbanised city landscape context of Auckland CBD, the 'Fale Pasifika' of Auckland University acts as a spiritual home for the Moana Nui community, and an important cultural events space capable of catering to different functions. With a title such as the 'Fale Pasifika', it helps identify the structure with not only one culture, but numerous cultures within Moana Nui.[40] The term 'Pasifika' does not limit its definition to a singular ethnicity or nationality, but rather the diverse range of cultures originating from Moana Nui. With that definition, the architectural structure of the fale very much represents that as different aspects of the fale hold different elements pertaining from the diverse cultures of Moana Nui.

The large fale was constructed between 2003-2004, and officially opened by the Prime Minister of the time, Rt. Honourable Helen Clark on Saturday October 2nd, 2004.[41] Embracing the values and beliefs the many cultures of Polynesia hold, the Fale Pasifika stands with its roots firmly planted on the idea of it being the centre of attraction similar to how a traditional central fale would act being located within a village, residing in the middle of a malae (sacred green space surrounding the fale) in which all communal activities are focused on. Although the fale finds itself thousands of miles distant from its location of origin, and the nearest Pacific village setting, the concept of the structure being surrounded by equally important buildings that contribute to its value is very much attained as it stands within the centre of Pacific studies. This identity of a cultural space rather then a singular cultural structure helps the Fale Pasifika identify more with not only the university, but with the community.

To begin this analysis, we start with the fale's overall shape and roof design. As aforementioned, this fale draws inspiration from a variety of cultures around Moana Nui, and perhaps the most striking feature each culture's fale bears is the roof. The Fale Pasifika's roof is inspired by the Samoans fale 'afolau' (long house)[42] which was mainly used for dwelling purposes or to be used by guest. This particular iteration of the fale was unique in Samoa as it was more elongated and more rectangular in its shape making it more oval, as appose to the fale tele (great house) with its more circular plan and rounded appearance. It consisted of three sections, the 'tala' which are the rounded ends of the fale, and the 'itu' which is the middle section.

40. "Role of the Fale Pasifika." Role of the Fale Pasifika - The University of Auckland. Accessed November 11, 2021. https://www.auckland.ac.nz/en/on-campus/life-on-campus/pacific-life/fale-pasifika/role-of-the-fale-pasifika.html.
41. "FALE PASIFIKA- UNIVERSITY OF AUCKLAND." NZ TIMBER DESIGN JOURNAL 14, no. 1 (2004): 16–18.
42. Fale Pasifika. Youtube, 2013. https://youtu.be/5Zh-ExTXoLI.

Figure: 44
Pale, Ansgar. Digital Photography. The Fale Pasifika, University of Auckland. 2021

This itu section is the greatest feature differentiating the fale afolau from the fale tele as the itu is much smaller in size,[43] and interestingly enough this feature contrasts the fale afolau's similarity in design and planning, to that of the fale faka-Manuka or the fale faka-Tonga. In terms of materiality, the roofing of the Fale Pasifika serves as a more heavily induced modern structure with its asphalt shingle roofing material, allowing the structure to fit the context more suitably, rather than a more traditional material. However, the traditional approach was not entirely disregarded as the interior of the structure manifested this design aspiration, perfectly moulding a beautiful contrast between the exterior of the fale being modern and interior being traditional.

As a person approaches the Fale Pasifika they first enter the space through the malae which traditionally serves as a sacred meeting ground surrounding the fale, and the work of numerous artists involved with its inception welcome their approach. The arch gateway by Tomui Kaloni and frigate birds by Jim Vivieaere serve almost as an enticing threshold to embrace those who visit the space.[44] The pavement pattern work on the malae by Tania Short depicts Moana Nui Ocean with the seven main islands incorporated within the art, leading the visitors closer to the structure. As all who desire to enter the fale are then greeted by the final artist work amongst the malae space which is a red warrior statue carving commissioned by Fatu Feu'u that acts as a spiritual guardian watching over the activities being enacted within the area. Once on the entrance to the fale, visitors are then enabled the choice to enter directly through the wide longitudinal sides which if directed back to the fale afolau is the itu middle section, or the one can choose to enter through the narrower ends where the tale is located. Once inside the fale, that traditional aspect of the space emits straight through to any and all who wish to occupy the space, as the verticality in volume displays the marrying of component such as the beams, crossbeams and Pou elegantly. [45]

Figure: 45

Pale, Ansgar. Digital Photography. The Fale Pasifika, University of Auckland. 2021

43. Greentree, Athol. "SAMOAN TECTONICS." Thesis, Auckland University, 2014.18
44. Schwarzpaul, Tina Engels. "Interstices Journal of Architecture and Related Arts." Binding and arresting: Surface and pattern in a contemporary traditional Pacific building, 2017.51
45. Schwarzpaul. "Interstices Journal of Architecture and Related Arts.".52

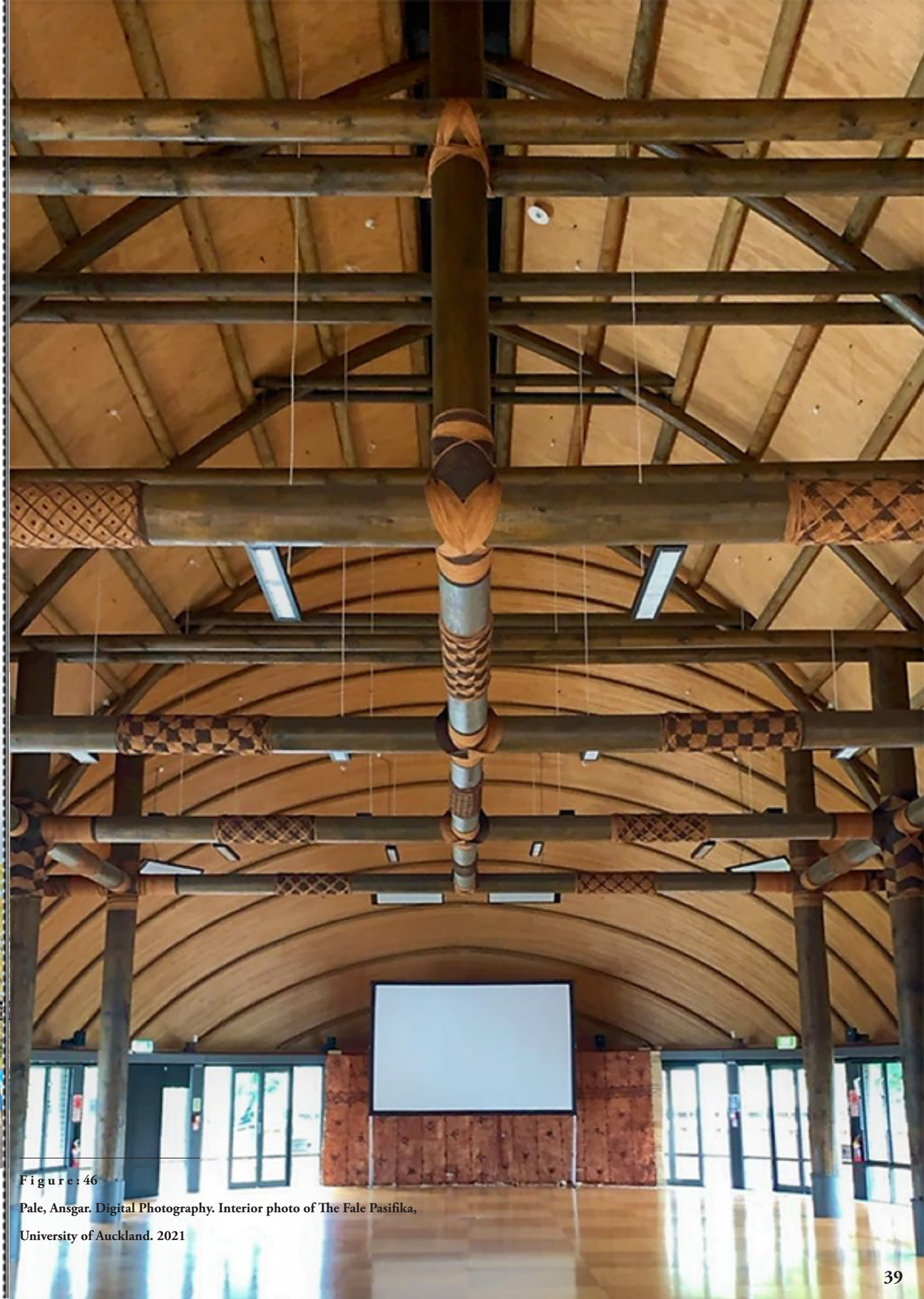


Figure: 46

Pale, Ansgar. Digital Photography. Interior photo of The Fale Pasifika, University of Auckland. 2021

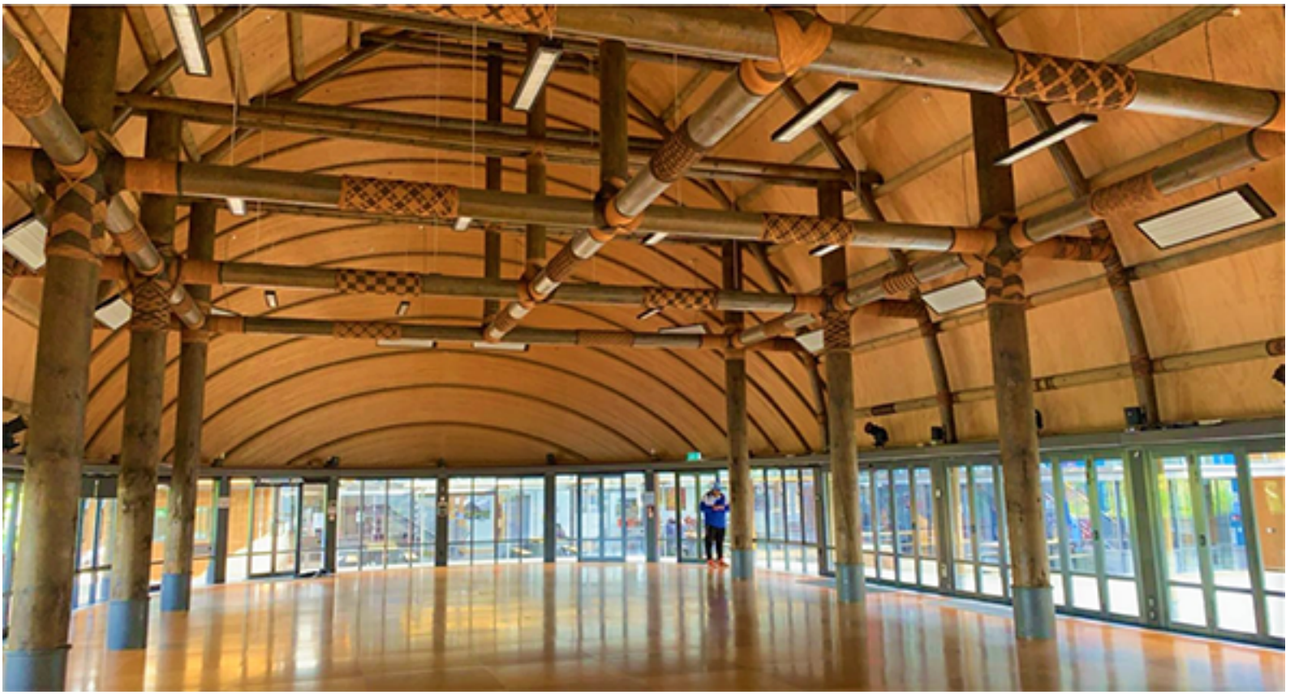


Figure: 47
Pale, Ansgar. Digital Photography. The Fale Pasifika, University of Auckland. 2021

As eye-catching each feature within the fale is, the lalava lashings and bindings by Filipe Tohi (sculptor and Tufunga lalava master) is what captures one's attention the most, and by in large this element is what has been the most enticing feature within the fale for generations. Acting as a binder and lashing each structural component together, this was the predecessor to hammers and nails, however in more modern times where the Fale Pasifika is grounded upon, this technique has become more of an artform rather than a structurally functioning element. This is very much the case with the lalava aspects within the Fale Pasifika as Tohi describes his work within the space to be unfinished[46] , but that initial Tongan meaning still holds true as the lalava aspects in which he uses transcends that of the English translation of lashing because its not just a binder, but a technique in which each individual piece contains its own personal identity and tells stories of the past and present, invoking a sense of 'mafana' (as some in Tonga would say meaning warmth) to those who gaze upon it. This mafana is what tohi wanted the visitors of the fale to discern, especially the students in that the lalava would identify with their sense of wonder and their sense of individual culture, as their perceptions are made to slow down in order to fully grasp the meaning behind the patterns reminding them of their pacific home beyond the horizon.

Albert Refiti describes Moana Nui architectural artefacts and styles of New Zealand to be "detached from the holistic context of its cultural history and meaning"[47] . With a landmark structure such as the fale pasifika, an argument can be formed as why this is a similar case for this structure, as vital and important elements such as the tau'olunga (ridge beam in Tongan) were disregarded. However, whilst this statement is true, in the context of both time and location the Fale Pasifika serves as a construct willing to establish itself between the everlasting argument of traditional practices mixing with modern practices, ultimately proving itself to not be an artefact of aesthetics but rather aiding the battle of revitalising cultural knowledge.

Figure: 48
Pale, Ansgar. Digital Photography. The Fale Pasifika, University of Auckland. 2021

46. "Art of the Fale Pasifika." Art of the Fale Pasifika - The University of Auckland. Accessed November 11, 2021. https://www.auckland.ac.nz/en/on-campus/life-on-campus/pacific-life/fale-pasifika/art-of-the-fale-pasifika.html.
47. Refiti, Albert. "Making Spaces." Essay. In Pacific Art in Niu Sila, 209–24. Wellington: Tepapa Press, 2002.

Case Study 2 Waitomo Glow worm Caves Visitor Centre

The Waitomo caves is one of the main attractions of the New Zealand tourism industry, located at the Waitomo district on the north island of New Zealand, it is part of the Waitomo streamway system which includes the Ruaturi caves and the Tumutumu caves.[48] With these interest in tourism in mind, a modern visitors centre was constructed to compile and direct the many tourists that visits the site. Although the current visitors centre stands as the second incarnation to this historic site due the previous iteration meeting its end by way of fire, the Roger Walter brick and shingle building was then replaced with a more modern interpretation embracing the surrounding context of not only the landscape as it incorporated wood, but that of Māori people. Architecture Workshop was recruited in as the main designers of this newly inspired visitors centre that also involved a joint venture with Tourism Holding Ltd, the department of Conservation and the local Ruapuha-Uekaha Hapu.[49]

The Caves receives more than 500,000 visitors a year, so with this the visitor's centre's scheme are designed to gently organise these flows of people offers dinning for 240 people, as well as a booking retail and exhibition amenities arranged along the circulation paths in and from the caves.[50] As the people flow from the centre of the caves, stepping down the steeped contour hillside, the visitors following that path will begin to encounter the walls which are made up of almost entirely LVL timber (Laminated Veneer Lumber) with oversized battens that wrap around the structure as a grid shell forming a lightweight canopy over the path. These grid shell which wraps around the entire path symbolises that of an eel net that is meant to evoke a sense of being in a hinaki which is set out by the curve of the Waitomo stream, that flows through the caves. In order for this highly technologically sophisticated and extravagant roof structure to work, the ribs of the structure all follow the same circular motion and are in direct repetition to each other, the prefabricated LVL ribs had to twist in an almost propeller like motion, which is than replicated on the roof. From this the translucent inflated ETFE pillows that are layered in strips, that then follow the geometry of the structure.

Construction of the structure required a lot of sophisticated and geometrical consideration such as the LVL timber grid shells, which globally are recognised as it is highly innovative, but ultimately these components ultimately receding in favour of its more lusciously green background in a way to favour its raw materials, complimenting it in a way which doesn't overwhelm its distinct individuality. This particular type of environment is very unforgiving when being amongst it, especially during this project's construction phase as important elements such as the overwhelming vegetation can be taxing to transport or remove. The silver lining in all of this is that the Waitomo visitors centre is a specific category of architecture that will increase with age, the timber and concrete walls used in its design will weather over time and be compounded into the landform, making certain elements of the building dissipate into the ever-growing context and eventually unifying with it.

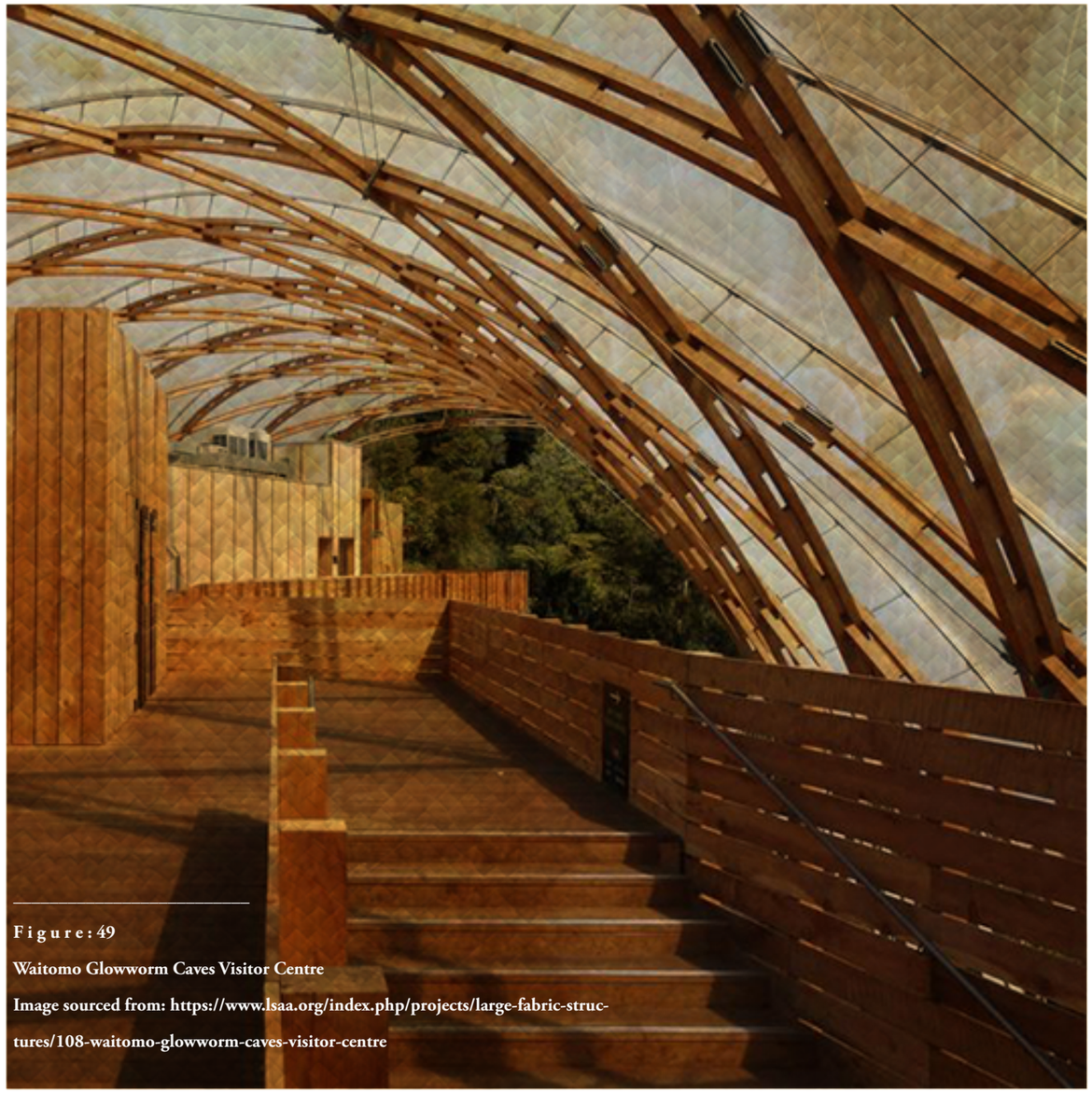


Figure: 49

Waitomo Glowworm Caves Visitor Centre

Image sourced from: https://www.lsaa.org/index.php/projects/large-fabric-structures/108-waitomo-glowworm-caves-visitor-centre

48. "Waitomo Glow Worm Caves Visitors Centre: Waitomo." Waitomo Caves Visitors Centre Commercial Architecture " Architecture Workshop. Accessed October 11, 2021. https://architectureworkshop.co.nz/projects/waitomo-caves-visitors-centre/.

49. Words Andrew Barrie, and Andrew Barrie. "Waitomo Visitor Centre." Architecture Now. Accessed October 11, 2021. https://architecturenow.co.nz/articles/waitomo-caves/.

50. Words Andrew Barrie, and Andrew Barrie. "Waitomo Visitor Centre." Architecture Now. Accessed October 11, 2021. https://architecturenow.co.nz/articles/waitomo-caves/.

It is no particular coincidence that this design approach was integrated as this very process connects superbly with the ideals of the indigenous culture that is not only enriching within the context the structure is situated on, but that of indigenous cultures around the world, making an interesting perception with how in modern times, the use of the LVL [51] timber material was a conscious choice because of how globally recognise it was through networking. However, in more traditional periods that unanimously perceived thought of working with nature rather then against it was more unconsciously decided when dealing with a context such as the Waitomo region reminding one of the 'Instinctive geometry' [52] connection. With New Zealand being home to Māori, this philosophical way of life with nature was very much practiced, and with the local Ruapuha-Uekaha Hapu being one of the main shareholders within the project, the Waitomo caves reflects that hapu identity with the culture and landscape beautifully by using sustainable and also durable materials.

This process highlights an aspect of the landscape that rarely gets used as the visitors of the building itself are presented with sheltered gathering areas, ticket booths which are neatly tucked into the hillside of the site held by the concrete retaining walls. Before entering the cave, the path leading into it glides up past a theatre, small café and a deck where visitors can flock towards to patiently wait, before being directed into the caves. Upon returning from the path to the caves, visitors are delivered to a lower level of the building to where they can gather at another café counter exhibition space, and dinning decks before being guided out through the shops. This arrangement was proposed and wanted by local hapu as it added a sense of mana to the typical commercial layout in which other visitors centres are more identified with, so the Waitomo caves visitors centre expands on this as it draws out a narrative invoked by the 'woven hinaki or narrow-necked eel trap'.

Hovering over this whole design arrangement are enclosed volumes of woven timber roofs that shelter the visitors via the ETFE inflated pillows, connecting them with a feeling of openness, directly contrasting with the enclosed spaces of the caves beneath. On the east side of the structure are the bathroom facilities that are discreetly dug into the slops near the entrance. This also provides easy access for all visiting the caves, as many of them would travel by bus for a long period of time in order to arrive at the site. With the roofs overall geometry, it is modelled to bend in order to follow the shape of the hillside, and also the curve of the Waitomo stream below it, and from this form the tube shape of the structure itself.

50. Kneen, Peter. "Waitomo Glowworm Caves Visitor Centre." LSAA. Accessed November 11, 2021. https://www.lsaa.org/index.php/projects/large-fabric-structures/108-waitomo-glowworm-caves-visitor-centre.
51. Kaloni. "Tonga: Architecture and Rationale.23

Figure: 50
Waitomo Glowworm Caves Visitor Centre main entrance
Image sourced from: https://www.vector-foiltec.com/projects/waitomo-caves-visitor-center/

Figure: 51
Waitomo Glowworm Caves Visitor Centre
Image sourced from: https://www.nzia.co.nz/awards/new-zealand-architecture-medal/2011-new-zealand-architecture-medal-waitomo-caves-visitor-centre#!

Figure: 52
Waitomo Glowworm Caves Visitor Centre
Image sourced from: https://www.nzia.co.nz/awards/new-zealand-architecture-medal/2011-new-zealand-architecture-medal-waitomo-caves-visitor-centre#!

Architectural Research Process

AUT City campus, Tāmaki Makaurau, Aotearoa

Formally known as Auckland Technical School established in 1895, this later changed in 2000 as the institution officially became a university know as Auckland University of Technology (AUT).

Stretching over the heart of the city from Symonds Street, down to Wellesley Street reaching an end on Mayoral Drive sits AUT's city campus, the main university campus out of three. The remaining two are that of the north campus located at North Shore, and the south campus situated at Manukau City. AUT's city campus contains the institutions central administration, and a majority of its academic faculties in which the 16 schools of the university are taught. These faculties include that of the art and design, business, Public Health and Interdisciplinary Studies, culture and society, Law, Creative Technology, and the newly established Huri te Ao school of Architecture and Future environments. This architecture school is located within the Sir Paul Reeves 12 story WG Building, situating the school at an advantageous position as it is within the relative heart of the campus, making important locations such as the library at WA building, or the cafes, restaurant, and student lounge space at WH within reasonable reach.

With over 29,000 students recorded in 2020, figures show that 12% (2,5330) of that are Māori and 17% (3,672) are Pasifika.[53] This highlights just how culturally diverse the university stands from a Moananuia perspective. So, spaces such as the 'Te Ara Poutama' (The Faculty of Māori and Indigenous Development that was the first of its kind in New Zealand)[54] established in 1991, and 'Office of Pasifika Advancement' formed in 2004, and Pasifika Student Support Service (which was the first of its kind in New Zealand) , help current as well as aspiring students commune more with the university. However, the most culturally notable space amongst the university is that of the Ngā Wai o Horotiu Marae located within the city campus.

52. Rep. ANNUAL REPORT 2020 Te Pūrongo ā-Tau. Auckland: Auckland University, 2020.
53. "History of Aut." AUT. Accessed October 13, 2021. https://www.aut.ac.nz/about/our-history.

Figure: 53

AUT University Sir Paul Reeves building, view from Mayoral drive

Image taken by author

AUT and Ngā Wai o Horotiu Marae

The establishment of the Ngā Wai o Horotiu marae marked an important period for the university in which it displayed its maturing views towards the Treaty of Waitangi by not only embracing its principles, but by acknowledging the special role the Māori people hold as treaty partners.[54]

In the early years of the 1980s, as AUT was still under the name of Auckland Technical Institute (ATI), thoughts of a marae within the institution were that of a farfetched dream, but that want later turned from a dream to a necessity. The discussion for the Marae began to conceptualise as hopeful students and staff being represented by the 'Te ara Poutama' (faculty of Māori development) submitted a case to the 'Executive management Board' for their desires to have a marae, however this was one of many endorsement of approvals they needed to finalise the project. Additional approvals such as university staff and student awareness, council approval, and the most important being that from the local iwi Ngāti Whātua, as the marae was to be established on their traditional territory[55], so elements such as 'kawa' needed to be agreed upon, which was later accepted.[56] The iwi also blessed the marae's spiritual focal point which is the wharenui (meeting house) with its title 'Te Pūrengi', translating to the ropes that hold the mast of a waka in place. The wharekai that is also situated within the Marae (dining room) called 'te Kaipara' was named after the Kaipara harbour.

Placing a culturally significant space such as this within the heart of the country's biggest commercial landmark, was definitely a most audacious venture, however as audacious this was, it also proves inspirational due to the space dispositioning itself amongst an ever-increasing urbanised landscape. This commits the marae to reflect the overall identity of what the university wishes to be attributed with, in that as an educational organisation, embracing one's identity is a key factor in a learning experience. This by extension helps the university enhance student life within its compounds as it recognises the diverse cultures its able to attract. The marae contrasts this perfectly as newly enrolled students first introduction to AUT life is through the Ngā Wai o Horotiu Marae space, so not only will they be heavily immersed with the traditional Māori culture, but that of cultures that are also represented within its scared space. Cultures such as that of Celtic culture and the Pasifika cultures depicted on the Kōwhaiwhai (rafter panels) through patterns.

Ngā Wai o Horotiu is the University's pathway in not only connecting with the diverse cultures within the institution, but expressing the customs of the indigenous people on which it is situated upon to its fullest potential, therefore exuding a sense of mana and spiritual that amplifies people's educational experience.

54. "Our Marae: Ngā Wai o Horotiu." AUT. Accessed November 1, 2021. https://www.aut.ac.nz/about/maori/our-marae-nga-wai-o-horotiu.
55. "Aut." Accessed November 1, 2021. https://sprinz.aut.ac.nz/__data/assets/pdf_file/0011/150230/Nga-Wai-o-Horotiu-Marae-booklet.pdf.
56. "Aut." Accessed November 1, 2021. https://sprinz.aut.ac.nz/__data/assets/pdf_file/0011/150230/Nga-Wai-o-Horotiu-Marae-booklet.pdf.

Figure: 54
AUT and Ngā Wai o Horotiu Marae
sourced from: https://www.facebook.com/pages/Ng%C4%81%20Wai%20o%20Horotiu%20Marae/1322725147773443/

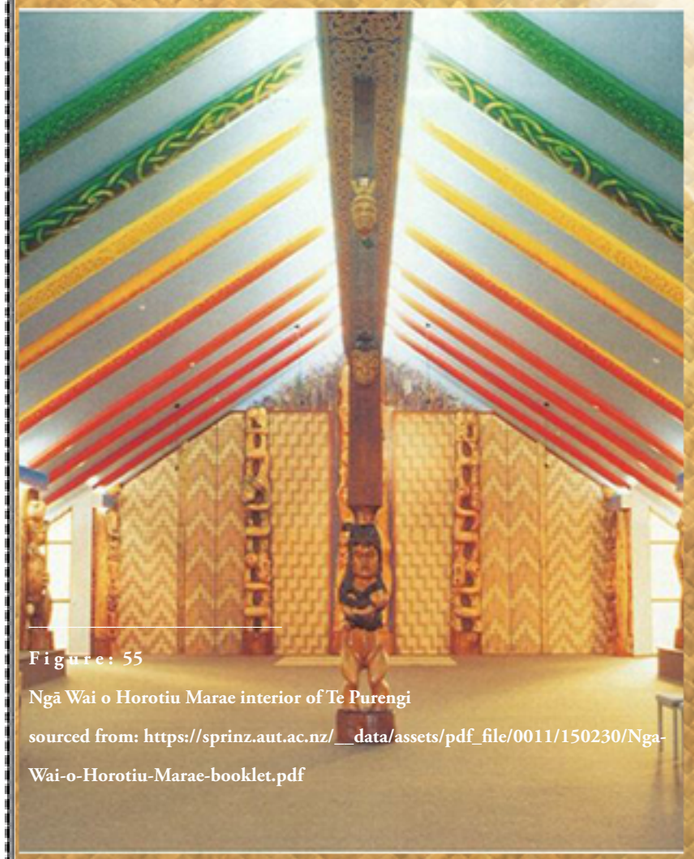


Figure: 55
Ngā Wai o Horotiu Marae interior of Te Purengi
sourced from: https://sprinz.aut.ac.nz/__data/assets/pdf_file/0011/150230/Nga-Wai-o-Horotiu-Marae-booklet.pdf

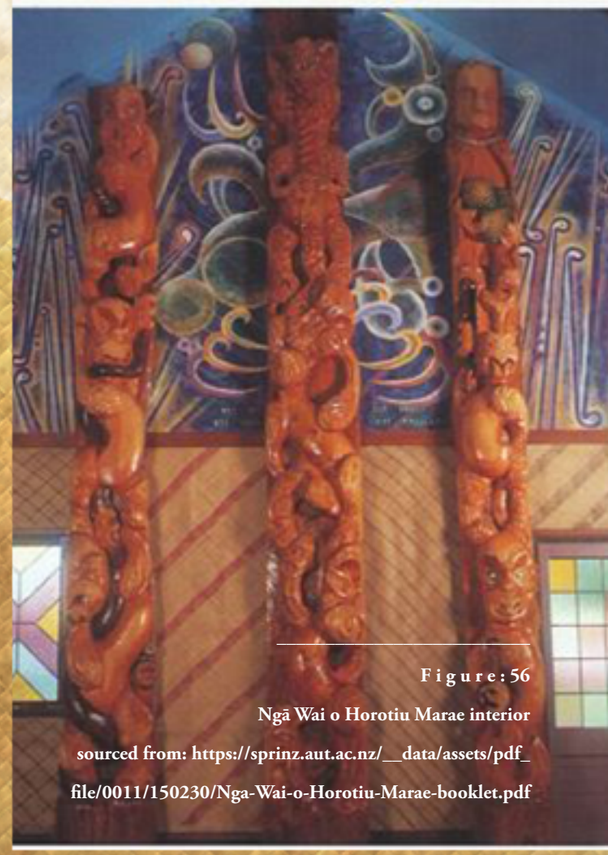


Figure: 56
Ngā Wai o Horotiu Marae interior
sourced from: https://sprinz.aut.ac.nz/__data/assets/pdf_file/0011/150230/Nga-Wai-o-Horotiu-Marae-booklet.pdf

Site Approach and Analysis

This speculative architectural project is manifested in the heart of Auckland CBD, within the compounds of the Auckland University of Technology city campus. The selection of the appropriate site for the project needed to be within relative distance of where the architecture school is located, also utilising the distinct advantageous amenities such as being in close proximity to the library. The site would also need to be within a space that is able to uphold the traditional values in which surrounds a fale, that being a Mala'e as this is one of the most important elements that contribute to a fale's identity.

With all these factors in mind, the site chosen is that of the communal green space facing the main entrance to the reserved carpark space heading in from Wellesley Street East. This communal green space sits in between the WA ng and WH building, with an entrance that leads both in and out of the Sir Paul Reeves WG Building. Positioning it well within close proximity of the architecture school at the upper levels of the WG Building. It is approximately 1,400 square meters with a perimeter of 133 meters. As fitting to the context around it, the overall contour layout of the site itself is that of many changing levels with a majority of grounds from the eastern side being moderately flat, however that flatness starts to dip as it moves westward in elevation.

Whilst its surroundings mainly a subject of the cityscape environment, this however continues onto the site as a concrete path that's four meters in width and 37 meters in length cuts straight through the site as it connects a path from WH to the WA building. Conveying a feeling of little brother essence to that of Albert Park, the site provides a great lines of sight towards the park's more magnanimous vegetation elements, as when looking at it directly causes one to be deceived into thinking they're in a field of trees, however when compared to the more imposing urbanised environment of the CBD, that deception is very much welcomed outlook.

There is a distinct openness to the site, especially when existing from the existing buildings like WG. Compared to other parts of the University from which one is to exit from, you are always encountered with a sense of compactness due to the scale and high-rise magnitude of the buildings, which is feeling that's to be expected within a cityscape. However, when existing through the path to where the site is located, the openness feel at first glance is what immediately captures one view, even if it only lasts momentarily as the distant view of Albert Park blocks out the foreground of the buildings. The influence of the sun allows ample sunlight to penetrate the site as. winter solstice in June allows an abundance of sunlight to keep the site warm especially from the north facing angle, whilst summer solstice in December offers just enough to keep the space at a reasonable level. These factors make the site a good communal space for the students, however it's not very much used to its fullest potential, only utilised when specific events arise such as orientation periods when students are introduced to the campus, they would often occupy the green area to take part in activities. Aside from instances such as that, the grounds aren't very much used.

One instance that boast as a major point for the space was in 2004 when a traditional kava ceremony was held to honour Sir Michael Jones, who was appointed a seat on AUT's executive, and later head of the newly formed Pacific Advancement Office. So, the site was chosen to honour this as the university at the time had no pasifika cultural space capable of hosting the occasion. This factor therefore assists further the choice of situating the fale on this proposed site as it already contained within it a spiritual pasifika 'mana' from hosting the event.

Figure:57
AUT University Proposed site for AUT Fale
Digital Photo by author

Figure: 58

AUT University Proposed site for AUT Fale

Digital Photo by author

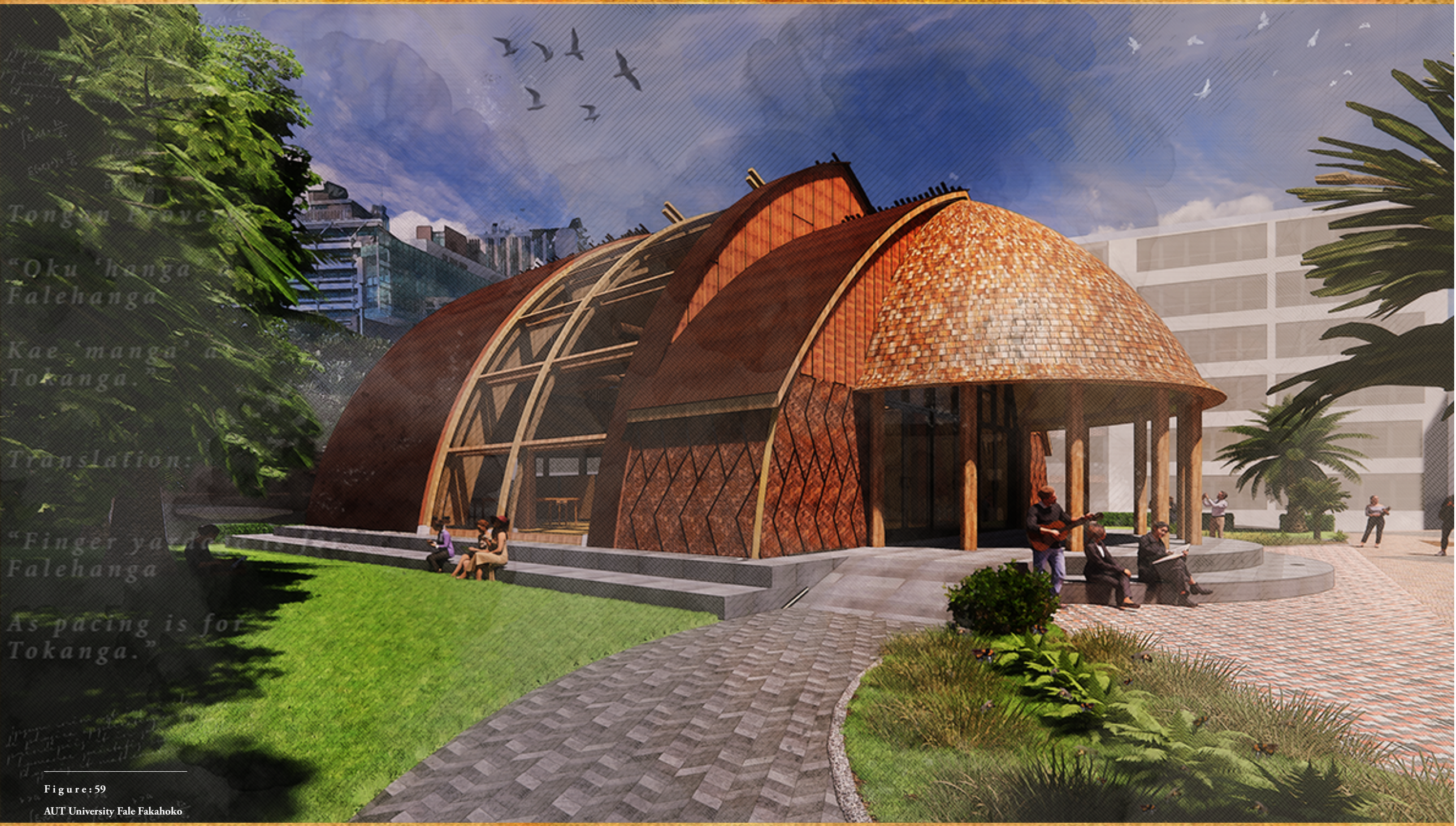


Figure: 59

AUT University Fale Fakahoko

The Mala'e Approach

Before the fale is to be situated on the site, an important property that must be established is the Mala'e space. This space is similar to that of the fale itself in that it is synonymous with every culture belonging to the Moananuia. The Mala'e serves as much importance to the fale, as the fale serves to the Mala'e, meaning that both can be often viewed as two separate construct, but are in fact harmoniously linked together. In the Tongan culture, depending on the context of the fale, it can both translate to a green space or a sacred space that a fale planted upon. The Fale's mala'e space will serve as both interpretations, providing a communal green space, but one unique or sacred to the fale, that contains elements of which helps expresses what the fale stands to represent. The journey towards the site begins from the east as this is the main approach leading the students or visitors on their experience with the space. However, there are two entry points that lead them to this approach and both with their own experiences.

The first can be through the south-east exist through the WB building, as this will most likely be the main approach taken by the Huri te ao architecture staff and students, descending from the upper levels of which their studios are located. The second entrance is that from the north, either through WH building or from the Wellesley Street sidewalks as one would ascend the steps to reach the mala'e. Once on final approach towards the mala'e, that same dichotomy of entry will still present itself, although purposefully as both approaches perceive the people venturing towards the site as a student and staff or visitor, so which ever approach they wish to take will eventually lead them on a connecting path meeting as one, at the entry of the fale. This reflects and symbolises the title of the fale, meaning those who enter it are then connected and identified as one (fakahoko).

A third entry can also be approached by way of stairs from directly in front of the fale, however this step way entry also acts as a communal sitting space for people to sit and interact, or admire the patterned art on the pavement. This pattern pavement symbolises the indigenous Māori people of the land, especially the local iwi Ngāti Whātua as this is their traditional territory, so if one is to approach through the front, they must first encounter that mana of the Ngāti Whātua people. This work is not only limited to that area of the mala'e as the pattern also continues beyond its borders to the walkway in front. The once asphalt pavement is now transformed into a multicoloured brick pavement layered out in a fala weaved (traditional Tongan mat) pattern arrangement similar to that of the herringbone pattern. The significance of this artwork depicts the multicoloured bricks to symbolise all the different cultures and ethnicities which attend the university, and the fala weaved arrangement represents the Moananuia people's views of the ocean being a mat . So, this artwork depicts all the different cultures and ethnicities traveling from beyond the horizon of the vast oceans, to arrive at the shores of Tāmaki Makaurau Aotearoa, and be welcomed to its shores by the Ngāti Whātua Māori people. From there, the people will approach the fale and fakahoko (connect) within its space to become one.

Figure: 60
AUT University, City Campus
Fale Fakahoko Site Location

Garnering back to its namesake, the mala'e will predominantly comprise of a green space which surrounds it from the north and southern ends. With the fale facing east serving as the divider between the two. Both sections will contrast each other and serve different functions. The south section will be more open as to allow activities to flow easily within its space. One of its many proposed functions can be that of a construction area for the architecture students who are assigned work in which they are required to build large scale projects, so the space allows ample room for such functions.

The Northern section is in a way serves as the direct opposite to this in that it doesn't provide that enact openness sensation, however this is due to the fact this space will be dominated by local vegetation. This was done to allow viewers from within the fale to be immersed by the trees rather than a view of the carpark, garnering an outlook of being in a forest amongst nature, as the background of Albert Park assists immensely with this by hampering the cityscape foreground. The introduction of the trees also allows a great shading element from the northern sun, enhancing the possibilities of communal activities within the mala'e. This also opens the opportunity for local creatures to reinhabit the space through the mala'e such as bugs and birds. Allowing not just plant life to be reintroduced, but also other forms of life.

One aspect which connects the two section in terms of function is the raised platform on which the fale rests upon. Comprising of Basalt stone laid upon a concrete foundation step, the platform functions differently from the traditional fale platforms as this is raised up a meter off the ground, requiring one to use the steps in order to be on the same elevation as the fale. These steps similar to the ones in front of the fale is a continuation of that, as it wraps around the perimeter of the fale providing enough space for people to sit and interact upon.

The Mala'e property is one of sacredness and of uniqueness, acting as a direct reflection and extension of what a fale represents. These lines of sacredness are blurred when it comes to this proposed mala'e space as the site is one of connection and unity, encouraging people to gather within its communal spaces to interact with each other, and learn together.

Figure: 61
AUT University, City Campus
Fale Fakahoko Site Map

Figure: 62
AUT University, City Campus
Fale Fakahoko East Elevation

Figure: 63
AUT University, City Campus
Fale Fakahoko Studio Plan arrangement

The Fale Fakahoko

The term 'Fakahoko' in Tongan translates to join, to apply, or to connect. This was used to name the fale because it perfectly encapsulates the core intentions of the structure and this thesis, in that it serves to 'connect' or 'join' people together. Connecting people from different cultures together by way of its Tongan inspired design. Connecting all who enter it with the past, and most importantly connecting the students with the indigenous knowledge which is revitalised through their educational studies. Every design intension was made in accordance with that perception of 'connection'. With the mala'e acting as the journey point to connecting visitors, staffs, and students through gathering as one underneath the fale entrance, the overall planning and design of the structure reflects this journey and expands on it further. This journey begins as they all meet under the 'Ta'ai Fale' (the rounded end of the fale roof dome), or the 'Tala' (Samoan). The purpose of this space incorporated into the fale Fakahoko garners back to the fale's roots from the vaka/Kalia (Canoe/sea vessel). As they all gather under the Ta'ai fale, it represents all the different cultures of people arriving by vaka from which they journeyed from. Then as they enter the fale, they leave that vessel and undertake a new journey within the fale.

Firstly, as one enters the structure, the storage spaces on the left and right is what people immediately encounter. Depending on the program of the fale during the time, all who enters are required to remove their shoes and place it within the storage spaces. There are two meanings behind this act, the first is out of tradition, as it shows one's respect for the space and respect for the other people who enter the fale with you. The second reason is that along with the other people who enter, it commences the journey of which one is able to experience inside. The only instance in which there is an exception for this is during the studio times of the students where they are given the choice if they desire to take it off, or keep it on.

Continuing along the journey to the 'loto' fale (internal middle space), the most striking element that one is able to be encapsulated by is the roof, which splits into two components. This split represents an opposite approach to that of the instinctive geometry proposed in chapter three, where this is a relative take of human's relationship with time. The present is represented through this opening section of the roof as this space is inspired by more modern designs and what modern technologies can offer, such as translucent inflated ETFE pillows applied as the primary material to help open this space up, allowing natural light to enter through the day, and the beauty of the stars to be visible at night.

Following that linear path of the instinctive geometry journey through time, the openness present day or contemporary time path would then transition to that of the past, as the enclosed section of the roof would represent this idea. Constructed in a way to fit more modern guideline standards, but depicted in a manner to show traditional building techniques from the past, such as the bamboo material layered individually and connecting through lalava. This roof section serves as a symbolisum for the past.

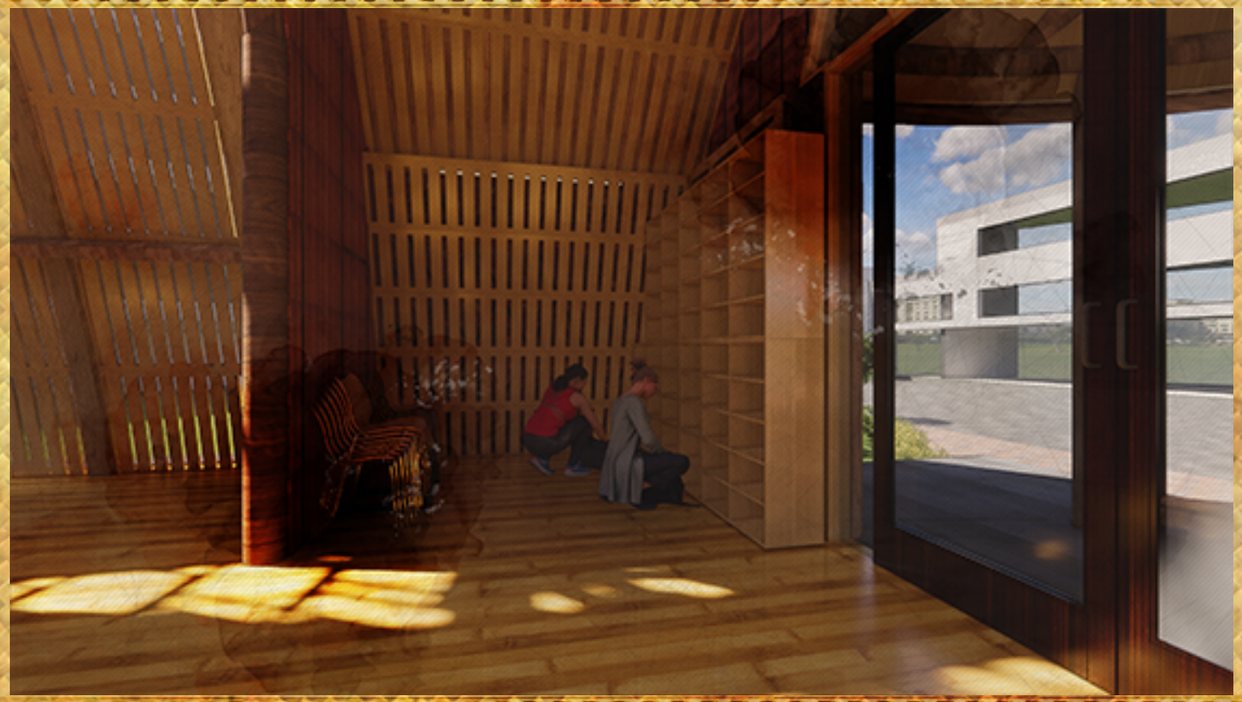


Figure: 64

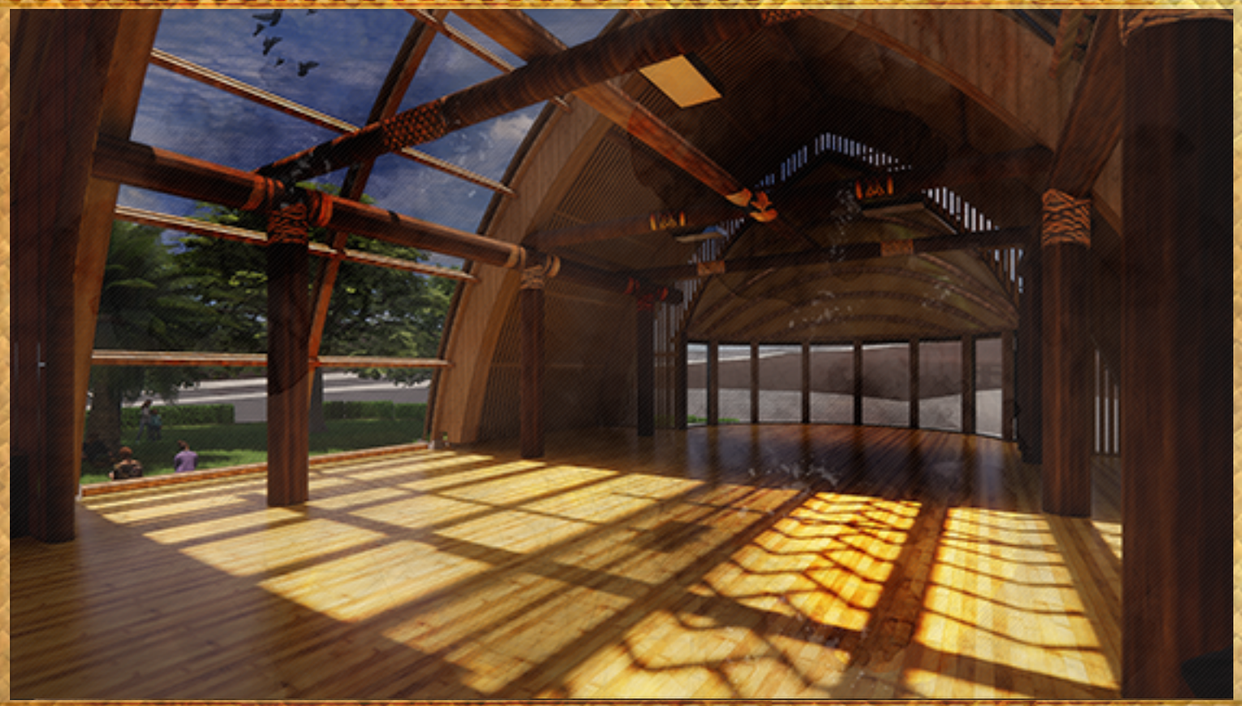
Fale Fakahoko

Storage space for the fale

Figure: 65

Fale Fakahoko

Render of the loto fale (interior middle space)



From the vertical space, to the internal loto fale area, this space symbolises the future because the students are the main inhibitors who occupy this space to learn, in wānanga for the architectural students. They represent the future, as these aspiring architecture students would take the indigenous knowledge learnt within the fale, and implement it into their future endeavours.

The design choice as to why the roof and internal space is structured in that manner takes inspiration from the fale langavaka (sea vessel/ boat building house) design. This particular type of fale was very large in scale in order to fit the size of the different vakas constructed and crafted within the space, and the roof continued straight to the ground. As appose to a fale-manuka for example as the roof was held up by the Pou and Poufehihi. The fale fakahoko inherits these ideas and transforms that planning and construction ideals for the vaka, to redefine it instead for planning and construction of Tufunga (architecture). However, it still upholds that initial meaning to an extend by way of 'langa' which means to build or to construct.

To finish the journey back in time, people will then transition from the loto fale to the end of the fale, which in this case is another 'Ta'ai Fale' space. This will serve as mainly a presentational space or lecture space for the staff to use in the educational programs with the students. Contrasting the threshold ta'ai fale space, this area will instead symbolically represent people getting back on a vaka that is not their own, but of the person utilising the space to present, therefore continuing that journey of learning through time by way of the presenter.

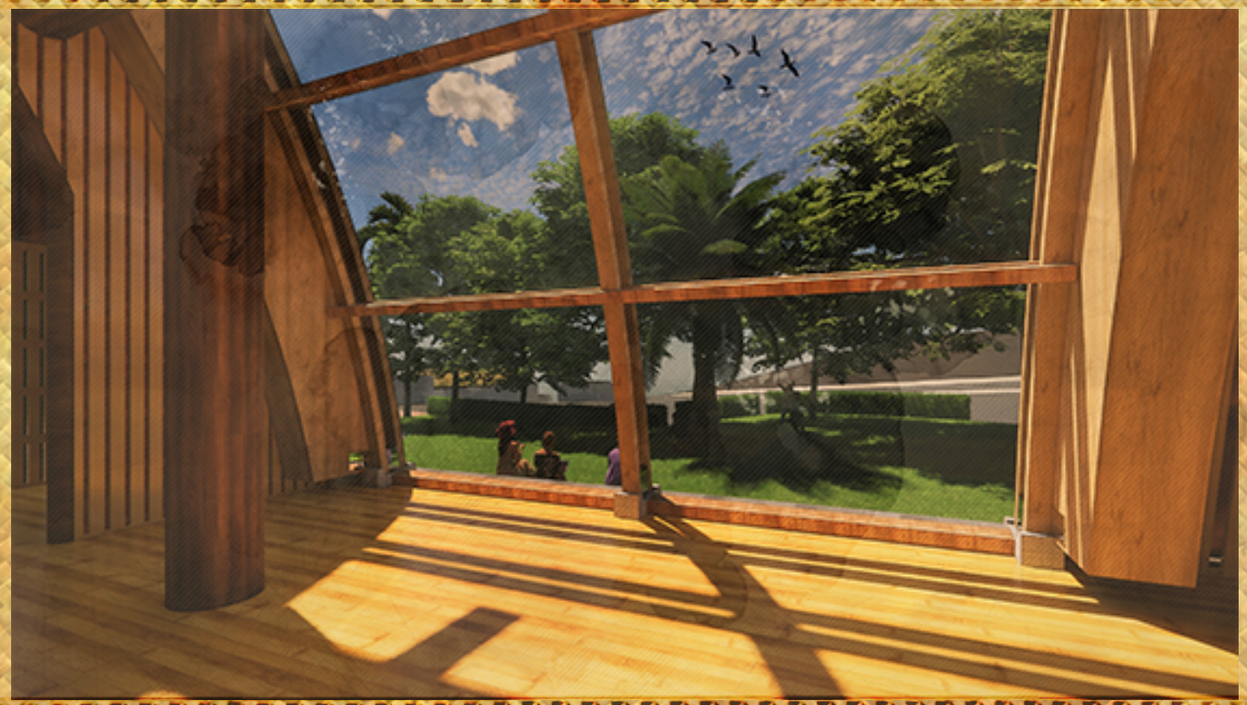


Figure: 66

Fale Fakahoko

Loto Fale split Open wall

Figure: 67

Fale Fakahoko

Past Section

Figure: 68

Fale Fakahoko

East Entry from WG journey.

Figure: 69

Fale Fakahoko

Loto Fale ceiling view

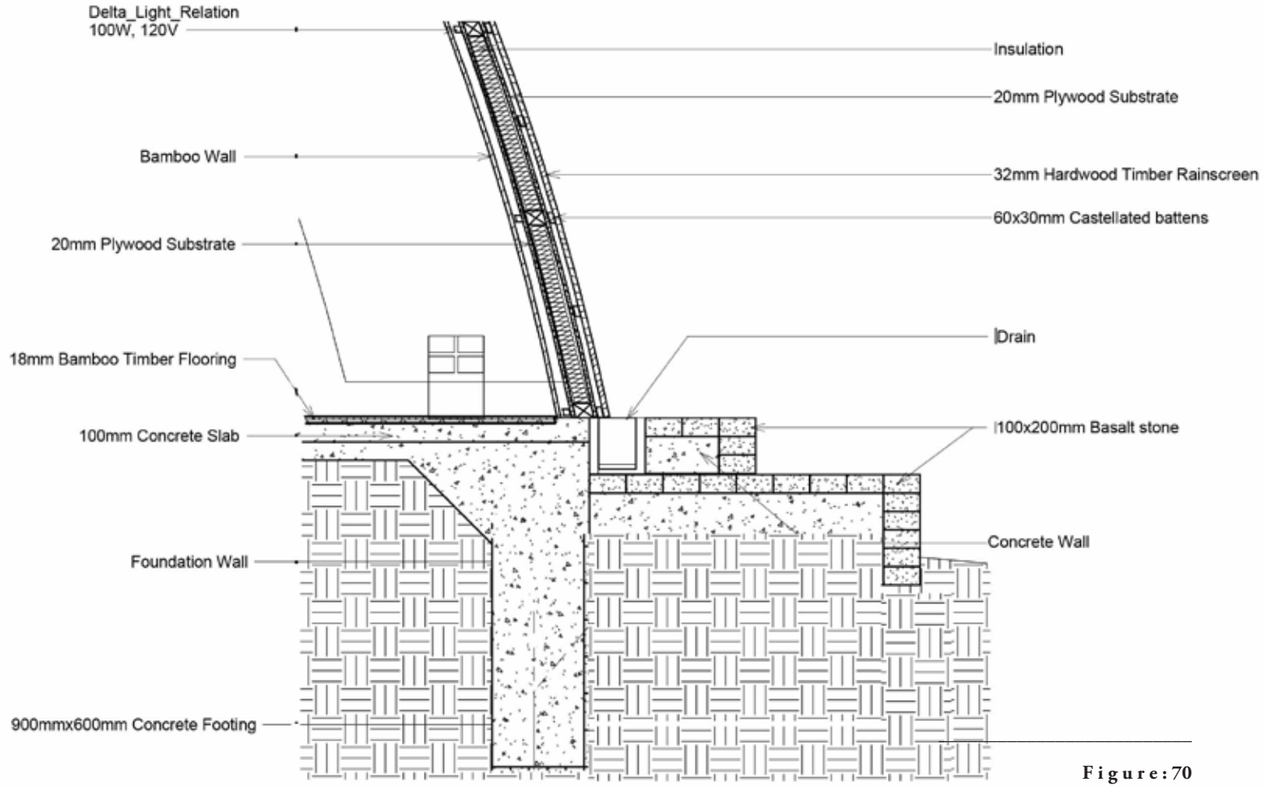


Figure: 70

Fale Fakahoko

Roof to edge detail

Scale 1:20

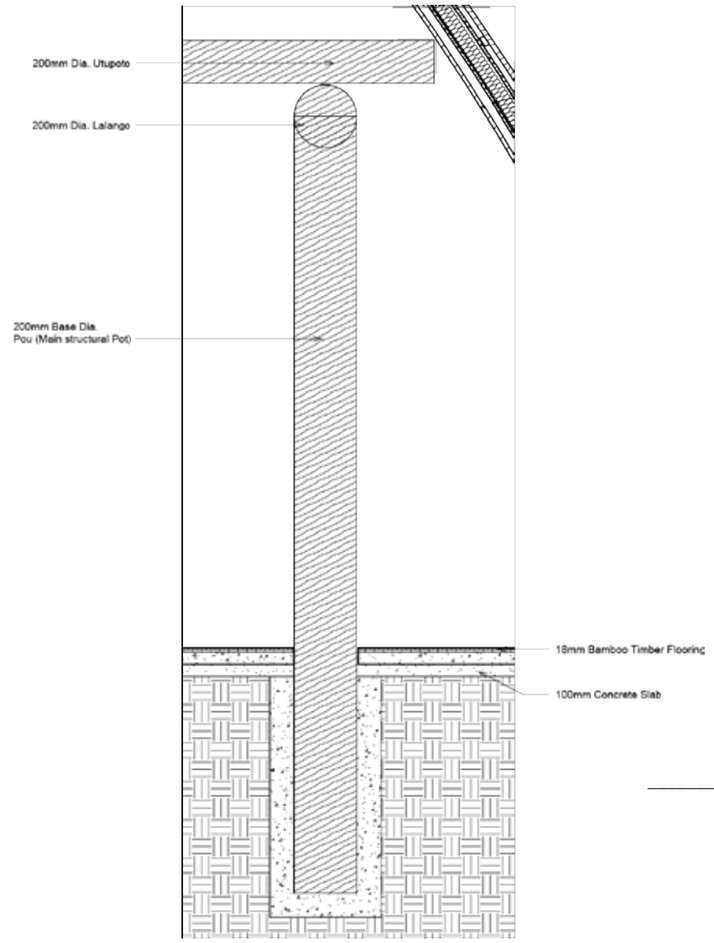


Figure: 71

Fale Fakahoko

Pou to footing detail.

Scale 1: 20

The Pou and the Tau'olunga

Within the confinements of the loto fale stands the Pou, which along with the Tau'olunga identifies as the most significant structural component of the fale. Standing at 10 meters in width and running 5.5 meters in length from one another, these 6 Pou made of Ironwood symbolises the 6 major islands within Moana Nui where the fale structure was most prominent. Following the path laid by the journey back in time aspect the fale represents, the first two Pou is the 'Uvea and the Futuna' Pou on the right, and the Niue Pou on the left, both these islands were the amongst the last to have been introduced the concept of the fale. The next two which are the Pou's within the mid-section is the Lau Islands and Rotuma that resides from Fiji. The last two Pou nearing the rear of the fale is that of Tonga and Samoa, which these two islands can be traced to having the earliest iteration of the fale structure, and where all the aforementioned islands received the fale influence from.

Moving vertically upwards, the next significant component within this fale is the 'To'oufufuloto' which is the centre beam that rest on the 'Utupoto', that is then held up by the 'Lalango' and the Pou. This 'To'oufufuloto' symbolises the Māori people as these are their lands in which the various cultures gather to study at the university, and which the fale is situated upon. So, their significance is reflected as the Pou holds the Māori on this elevated position.

The Tau'olunga, which in the traditional fale is regarded as the most important component in terms of symbolisum within the social hierarchy of Tongan society that translates to the king's face. The Tau'olunga within the fale fakahoko will not represent such social hierarchy, but rather celebrates the rich cultural mythology of not just Tonga, but that of the Moananuia so it will symbolise Māui. Known as the trickster God and cultural hero of Polynesian mythology, Māui is especially significant for both Tonga and Aotearoa as myths credit him for fishing up both islands.

As the journey through the 'Fale Fakahoko' closes to an end, the experience of travelling back through time is what stands out as unique in its planning and structural components, which as aforementioned with its title, helps those who enter the space connect with the Moananuia history expressed through its architectural programming, and through its structural components. However, there are other significant components within the space that don't really reflect these ideas of time entirely, but rather celebrate the structural identity it possesses, as well as the rich history it contains. Components such as the Pou elements and the Tau'olunga.

Figure: 72
Fale Fakahoko
Kava Ceremony

Figure: 73
Fale Fakahoko
Architecture Studio setup.

Figure: 74

Fale Fakahoko

Proposed Studio-Set up Setting

CHAPTER 5

"The toloa bird that flies far,
but will always return to the water"

Conclusion

Since the start of my architectural journey, I knew that the thesis topic I chose to undertake had to revolve around my cultural heritage, and giving back to my culture. Proceeding towards conceptualising this thesis, I decided my specific topic had to be about the fale as this was in a sense the embodiment of Tongan Architecture and its architectural identity. So, with that goal in mind, I dived into the its complexities.
Architectural endeavours and strategies I had once aspired to undertake soon gave way to reality. I initially planned to use my thesis to undertake an architectural proposal connected to my homeland and situated it on its shores, however upon much consideration and due to current circumstances, that aspiration shifted, but my desire to revitalise this relevant and important knowledge still remained. Early iterations failed due to overwhelming thoughts of what needed to be revitalised, and how this was to be done. At some stage I realised that the university contained no fale, I can then propose that idea and possibly aid in its eventual possibility. One constant theme through this ongoing pursuit of 'revitalisation of traditional knowledge' is how would that be achieved architecturally and honour other indigenous cultures from Moana Nui, within the timeframe of a year. I opted to pursue that idea through a Tongan lens, but keep the door open for future students to either cover it with their own cultural identity, or do what I could not and incorporate all Moananuia cultures to its fullest extent.

The research structured around the fale helped ground this thesis to its roots. This is what the architectural identity of the culture embodies. Theories and investigations explored through the work of Tomui Kaloni in chapter 3 were useful, as the investigations of his thesis moulded my understanding of what a fale truly represents, and influenced my design approach such as the 'Instinctive geometry'. Elements such as 'Lalava' contained within the structure causes one to think twice about what is represented. This question of representation is perfectly summarised by le Corbusier's words of *"forms with which our minds can see, and our minds can measure."* This in a sense is what the fale truly embodies.

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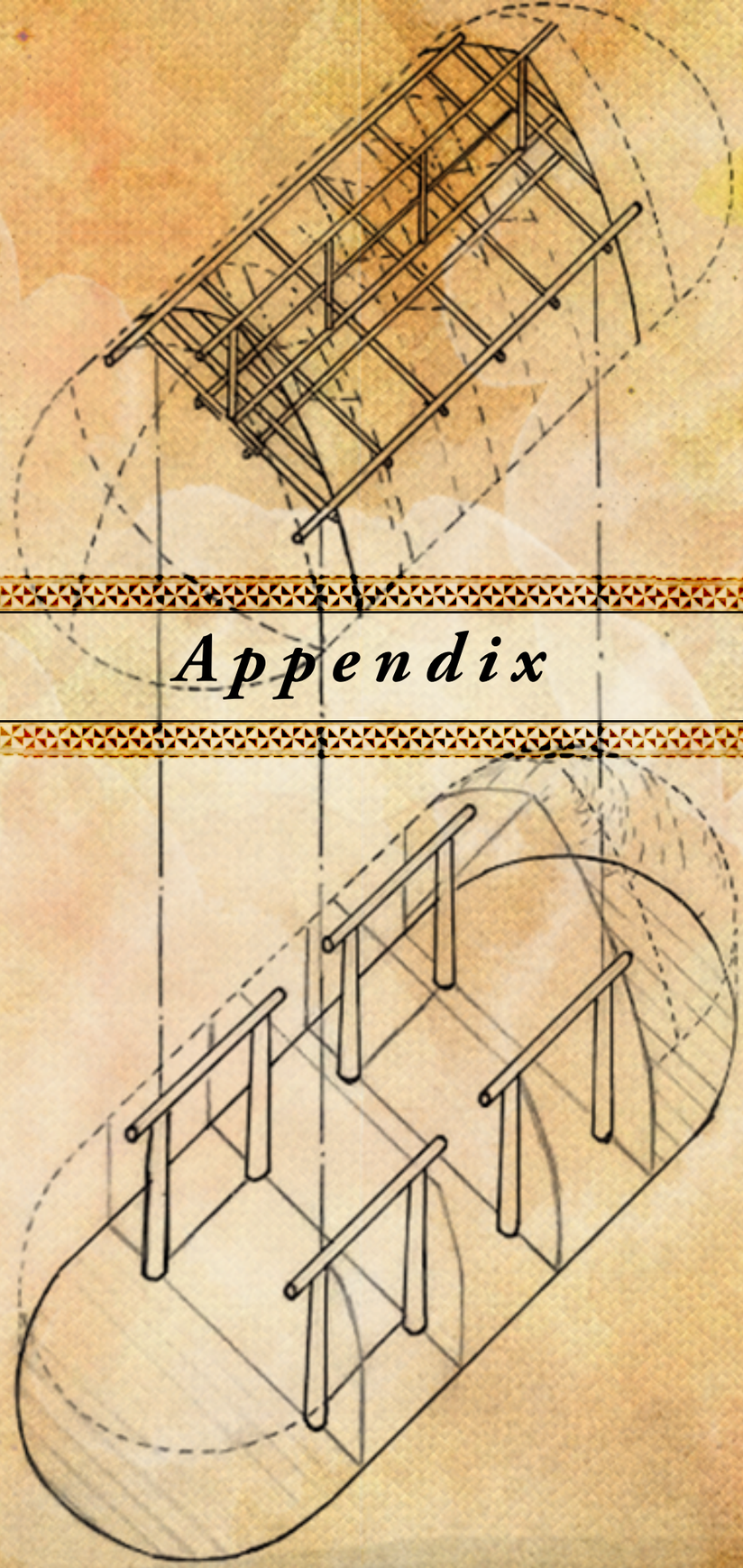
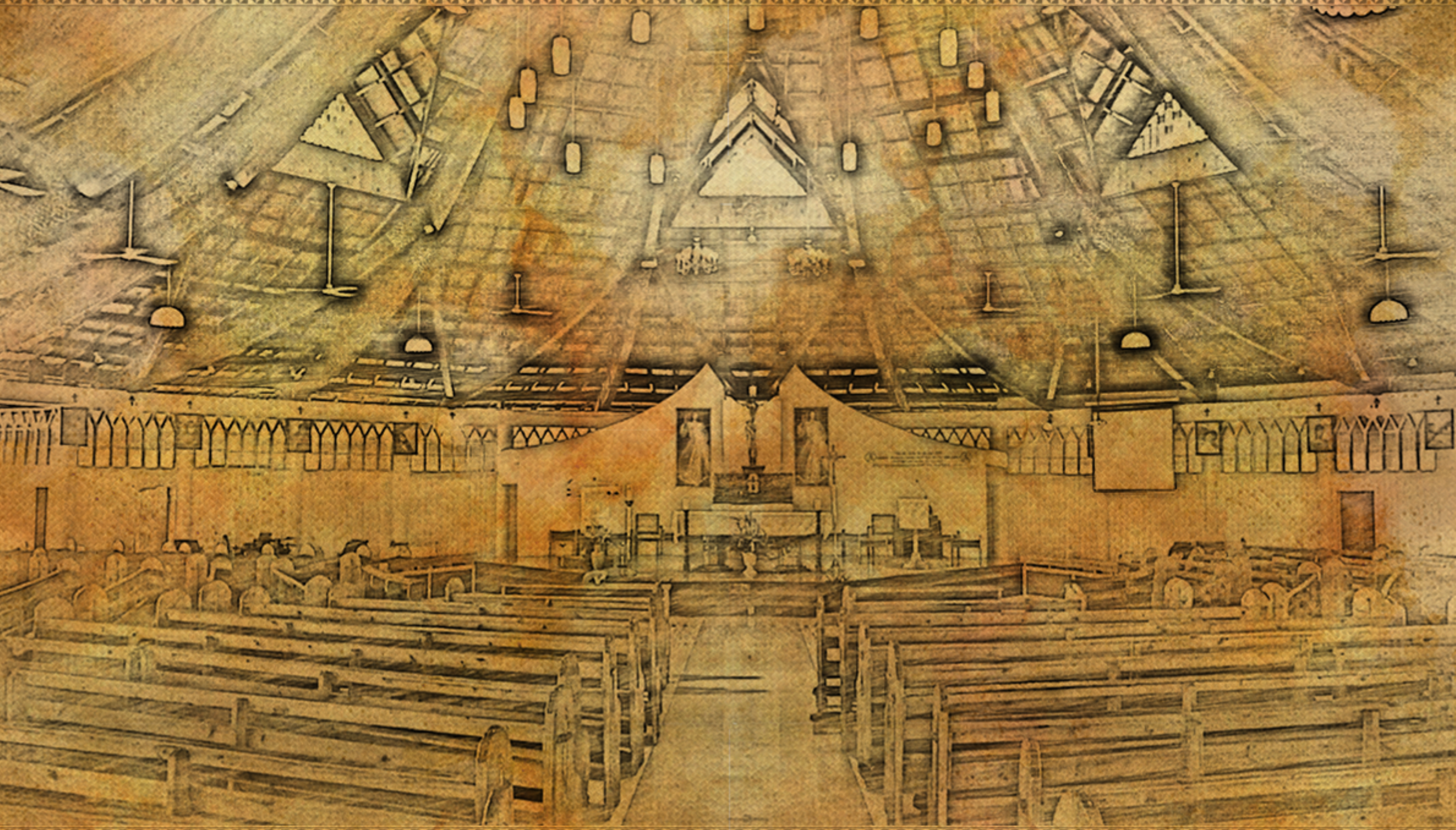
Figure: 75

Fale Fakahoko Night render from northen entry.



Appendix



Basilica of St Anthony of Padua (Catholic)
Nuku'alofa, Tonga

Tongan Proverb:

"Oku 'hanga' a Falehanga

Kae 'manga' a Tokanga."

Translation:

"Finger yardage is for Falehanga

As pacing is for Tokanga."

Research Question

How can traditional building methods and techniques the Tongan Tufunga Langafale (Tongan house builder) uses to build traditional fale be revitalised in a contemporary 21st century setting, to construct a fale that combines indigenous and future thinking worldviews, to create an educational space that empowers future architects.

Project Goals

This thesis research document aims to achieve 4 main goals:

1) Explore the depth and signifcance of the traditional Tongan fale.

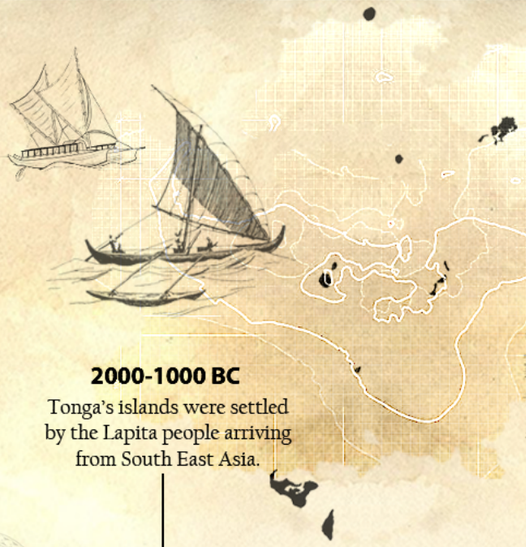
2)What are the traditional building methods, values, and realities embedded within the Tongan fale?

3) Provide an iteration of how the fale could be designed in contemporary times when combined with past, present and future ideals, and technologies.

4) Conceptualise a programable framework that connects the proposed iteration of the AUT Tongan fale fakahoko with the AUT Huri te Ao school of architecture and future environments.

Project Goal 1

1) Explore the depth and signifcance of the traditional Tongan fale.



2000-1000 BC

Tonga's islands were settled by the Lapita people arriving from South East Asia.

200

Tongan explores leave Tonga to discover and settle on other islands within Polynesia.

1100

Through Tonga's exploration, one of the Tui Tonga (Tongan paramount chief) Tui Tonga Momo expanded Tonga's influence towards Samoa and Fiji, establishing the Tongan Empire

1250

Samoa rebels against the Tongan Empire and eventually casts off Tongan rule, which marks the beginning of the empire's decline.

1300

The stone trilition know as the Ha'amonga 'a Maui (the burden of Maui) was built, in honour of Tui Tonga Tuitatui's two sons.

1650

The Tu'i Kanokupolu Mataeleha'amea after a war against Tu'i Ha'atakalaua Vaea, establishes his supremacy and begins his dynasty.

1793

The first women to hold Tu'i Kanokupolu Tupoumoheofa was overthrown by her cousin Tuku'aho.

1806-1810

William Mariner, an English writer began a period of sojourn in Tonga that lasted four years. During this period, he learned a great amount about the culture and detailed it all in a memoir upon returning home.

1820-1826

Aleamotu'a became the first royal in Tonga's history to convert into a western religion by taking up Christianity. Amongst on going conflict, Aleamotu'a took the throne of Tui kanokupulo.

1831-1893

Taufa'ahau, a young ambitious warrior, strategist, orator and now Tu'i Kanokupolu is baptised into the church and is given the name George.
Taufa'ahau unites all of Tonga under one kingdom.
With the help of a missionary, Taufa'ahau declares Tonga a constitutional monarch that fromally adoptes the western royal style. With this he proclaims himself as King Geotge Tupou the 1st.
Taufa'ahau King George Tupou 1st died, and is then succeeded by his great grandson, King George Tupou the 2nd.

1918

King George Tupou the 2nd dies, and was succeeded by Queen Salote Tupou 3rd.

1965

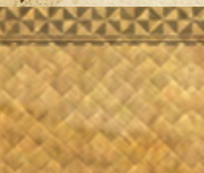
Queen Salote Tupou the 3rd passes away, she was then succeeded by his son Taufa'ahau Tupou the 4th.

2000 BC | 1000 BC | 0 CE | 1075 | 1225 | 1375 | 1525 | 1675 | 1825 | 1975

2500 BC | 1500 BC | 500 BC | 1000 | 1150 | 1300 | 1450 | 1600 | 1750 | 1900 | 2050

1616

Duth navigator William Schouten and circumnavigator Jacob Le Maire are the first explores from the west to visit the Tonga as they landed in the Niua islands.



1643

Dutch seafarer, explorer and merchant Abel Tasman en route back to Batavia comes across the Tongan archipelago, and visits Tongatapu and Ha'apai..

1773

British explorer, navigator and cartographer Captain james Cook arrives in Tonga in what would be his first visit to the kingdom, and names it the "Friendly Islands"

1777

On his third visit, Captain Cook meets Tu'ihalafatai, the Tu'ikanokupolu of the time.

1826

Missionaries of the Wesleyan church were now permitted to settled on Tongatapu as Aleamotu'a converted into Christianity.

1900

A treaty of friendship was signed with the British in which Tonga becomes a self-governing British protectorate, but it is not formally colonised.

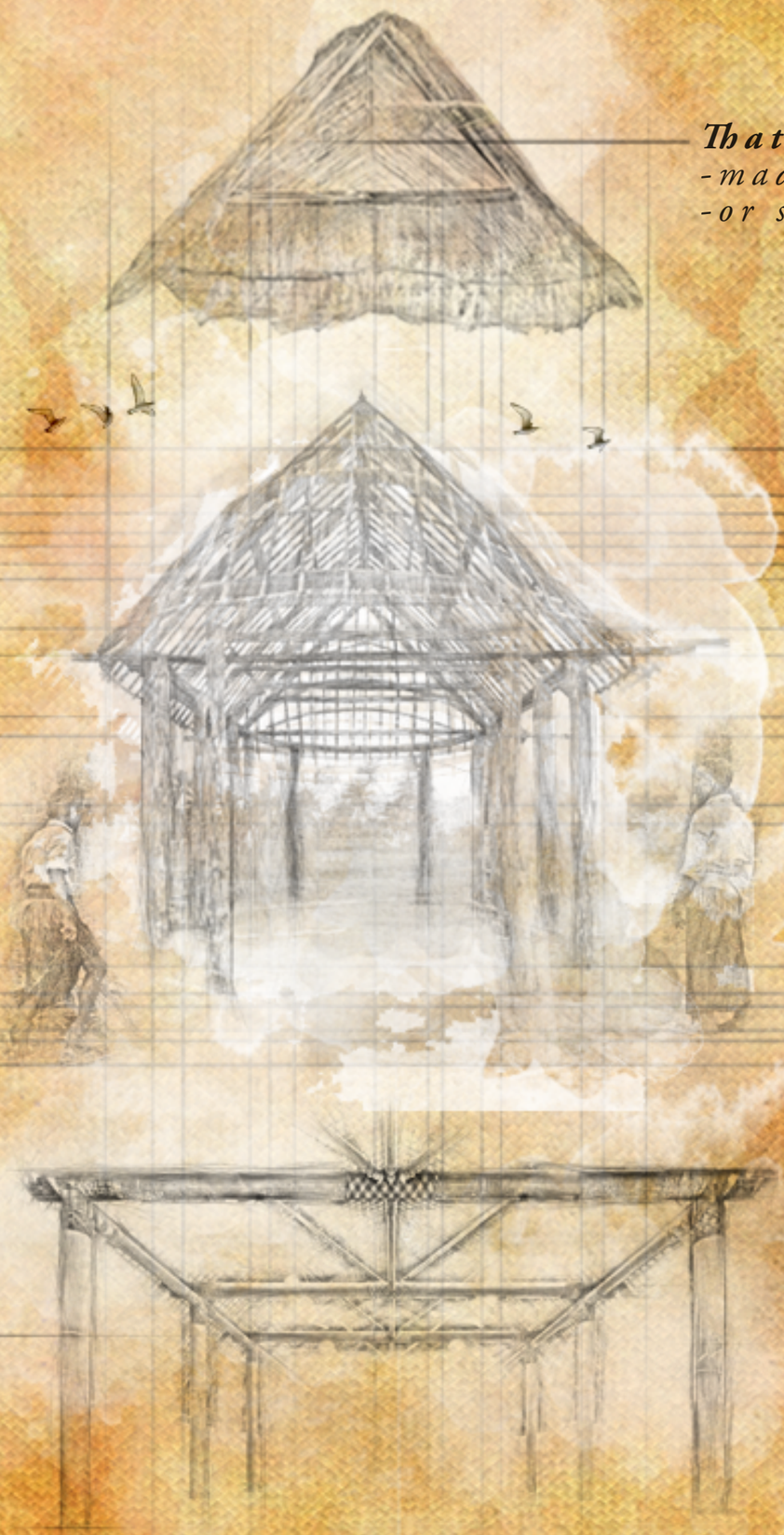
1999

Tonga offically joins the United nations.

Exploded Fále Faka-Tonga

Thatched Roof
-made from coconut leaves
-or sugar cane leaves.

Pola
-plaited coconut leaves used for the walls.



Fala
-coconut weaved mat for the flooring.

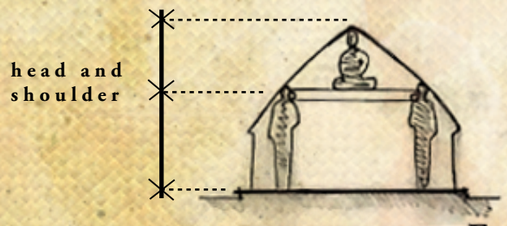
Pou and Lalava
-Pou as the structural post
-lashed together using coconut

Project Goal 2

What are the traditional building methods, values, and realities embedded within the Tongan Tufunga?

Tomui Kaloni:

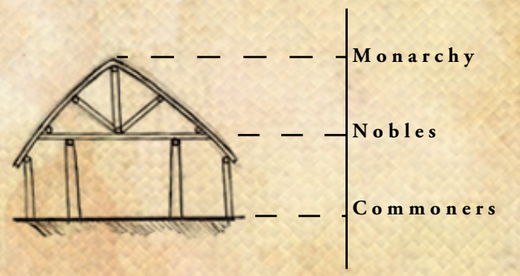
Tongan Architecture and Rationale 11 principles.

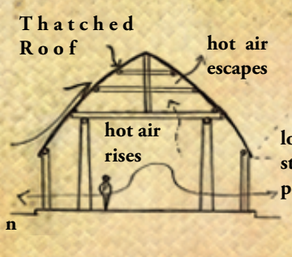


Tapu

Fata

Rank



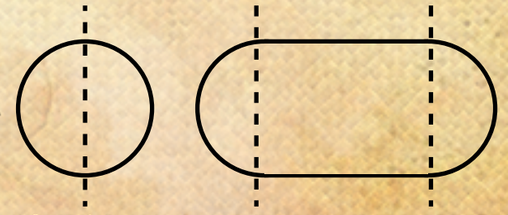


Climate

Duality

Symbolism

Manava

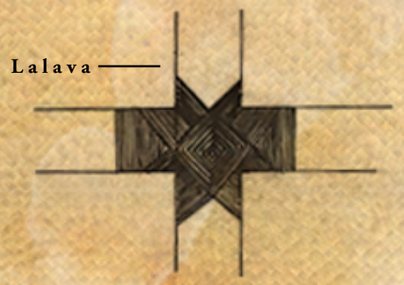


The father's
space is elevated

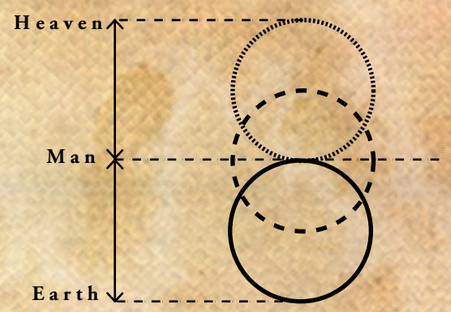
Social Control

Ethnic Domain

Technology



Instinctive Geometry



Instinctive Geometry

Tongan Specific relationship between mankind as anthropos, and the cosmos.

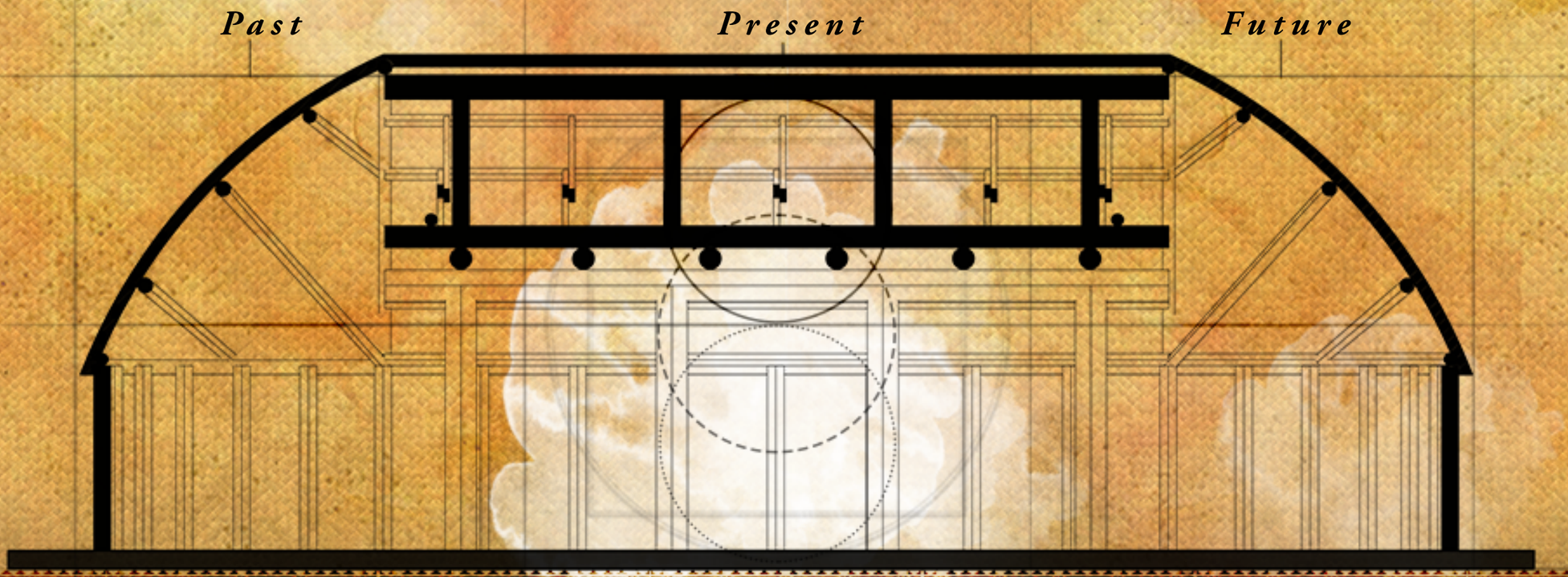
Heavens

Man

Earth

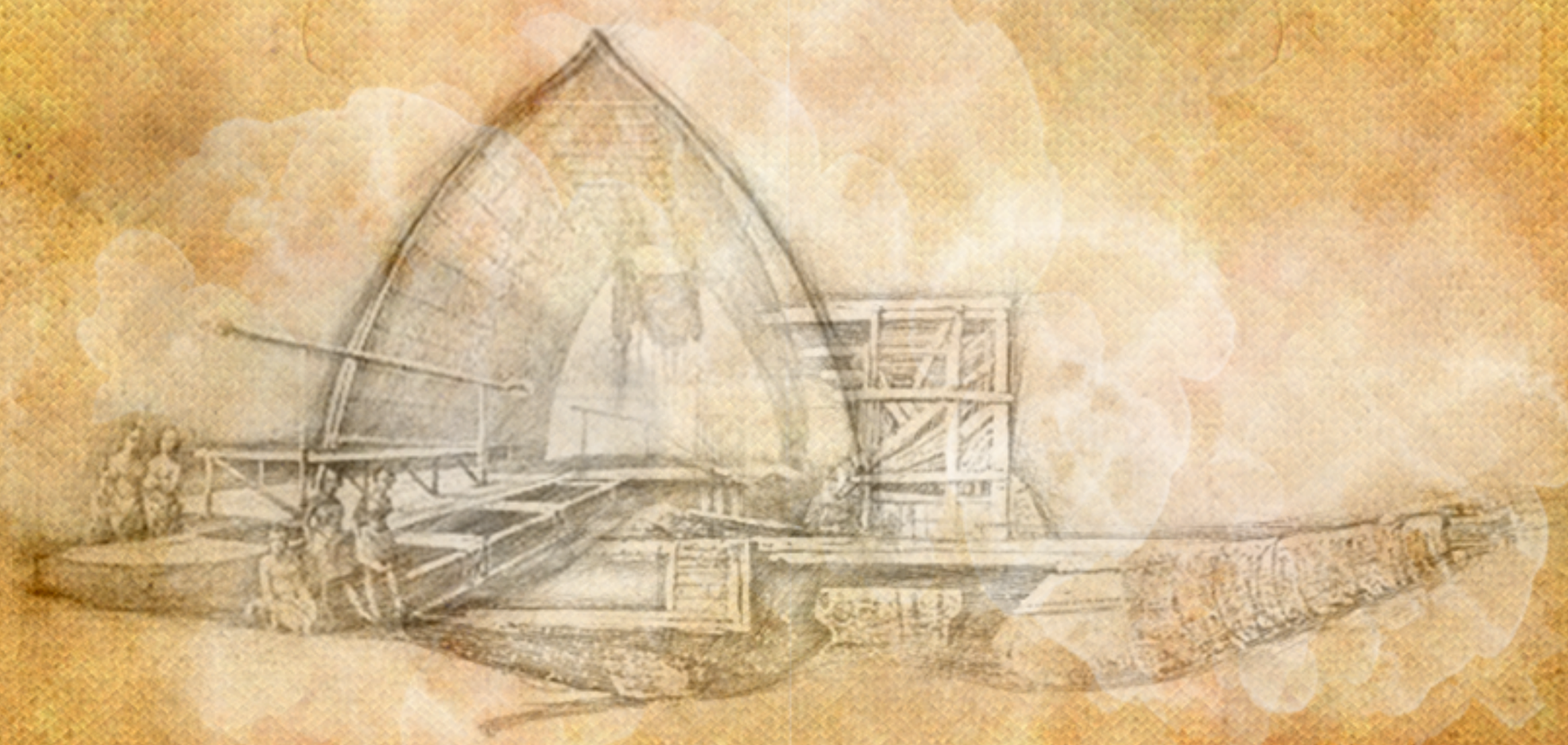
Instinctive Geometry

Interpreted concept of mankind's relationship with time.



Project Goal 3

3) Provide an iteration of how the fale could be designed in contemporary times when combined with past, present and future technologies, and principles.

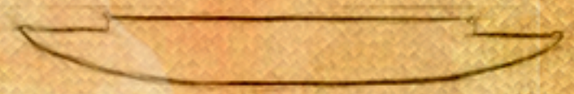


N
Albert Park
Fale Pasifika
Proposed Site
AUT City Campus
Ngā Wai o Horotiu Marae

Architectural Concepts

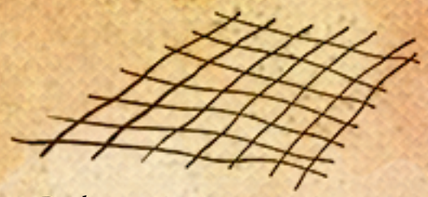
Vaka/ Kalia

Tongan sea vessel

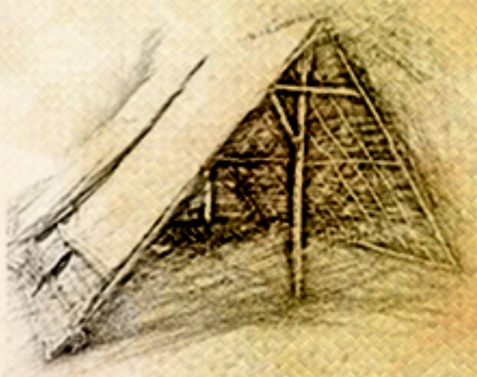


Vaka form

Waihorotiu Stream



Polynesian weaving



Fale Hunuki

Early fale iteration

Fale hunuki form

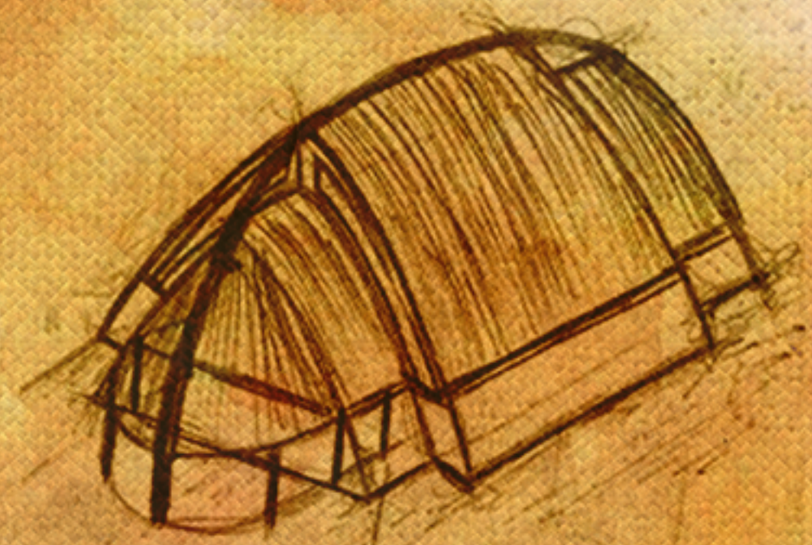
Albert Park Volcano

Lalava

Fale Tuku'anga vaka

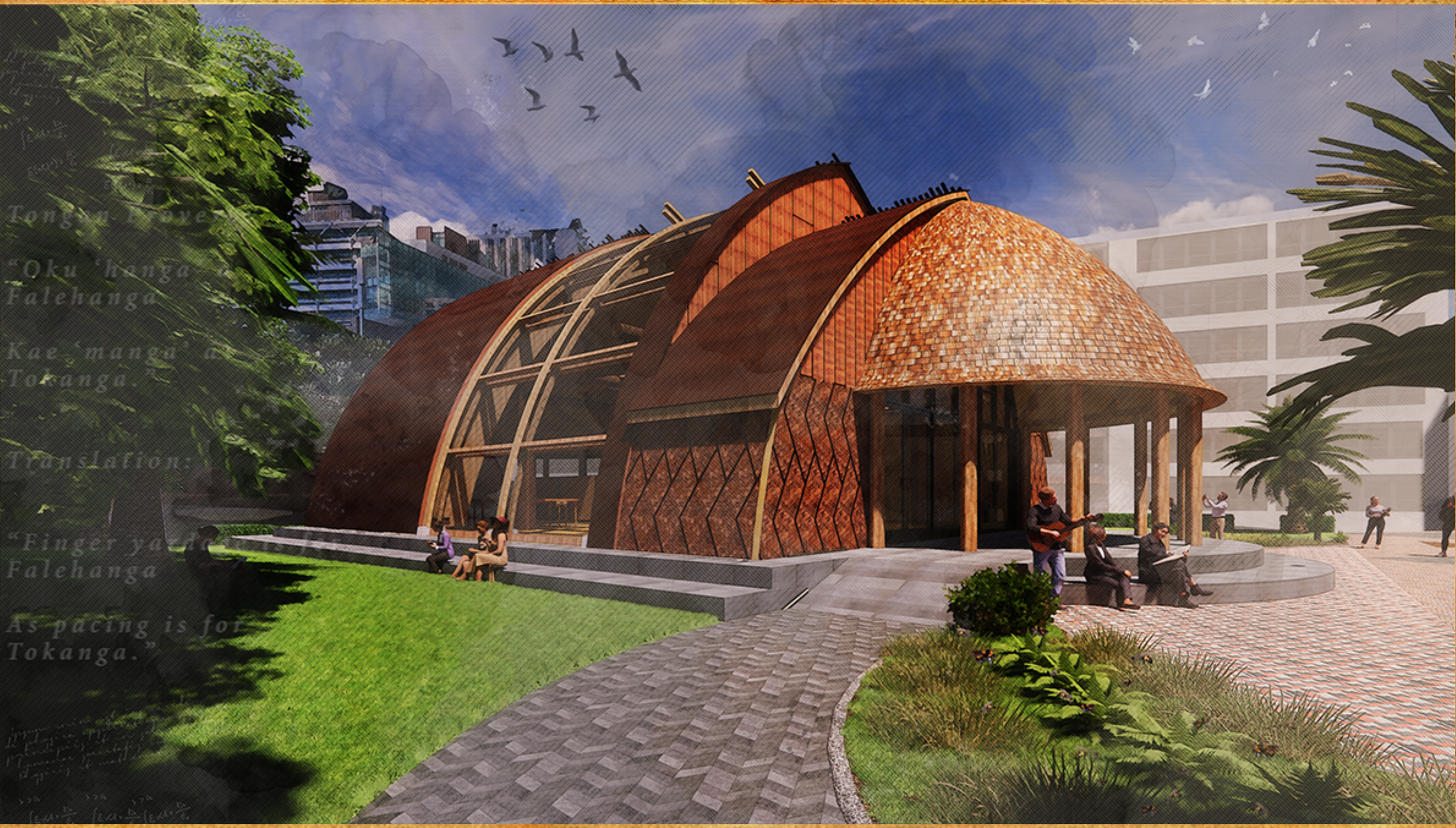
Vake storage

Fale Tuku'anga vaka form



Final Iteration

Structural form



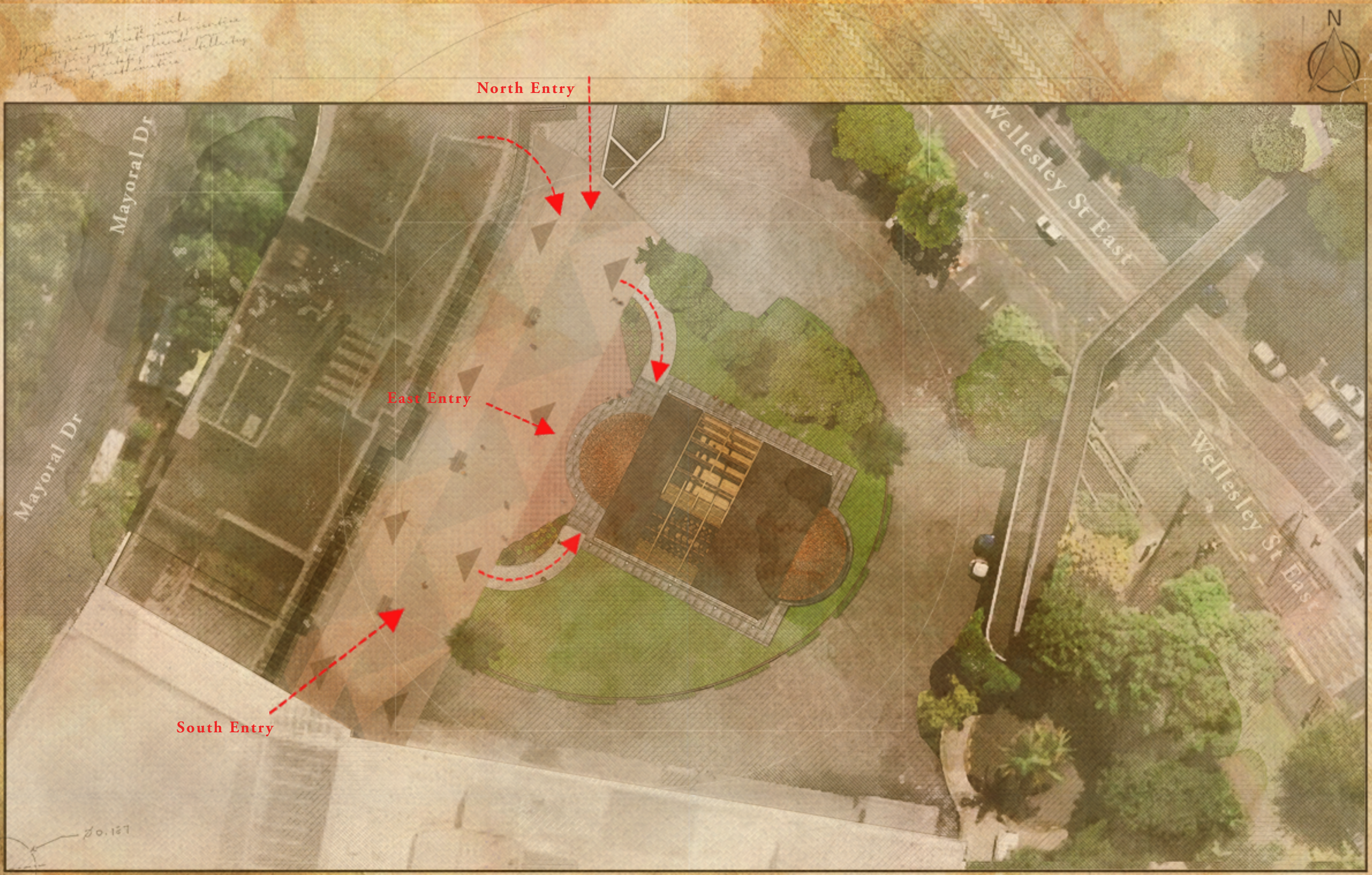
FALE FAKAHOKO
NORTH ENTRY

FALE FAKAHOKO
SITE LOCATION

FALE FAKAHOKO
SITE LOCATION

FALE FAKAHOKO
SITE Study

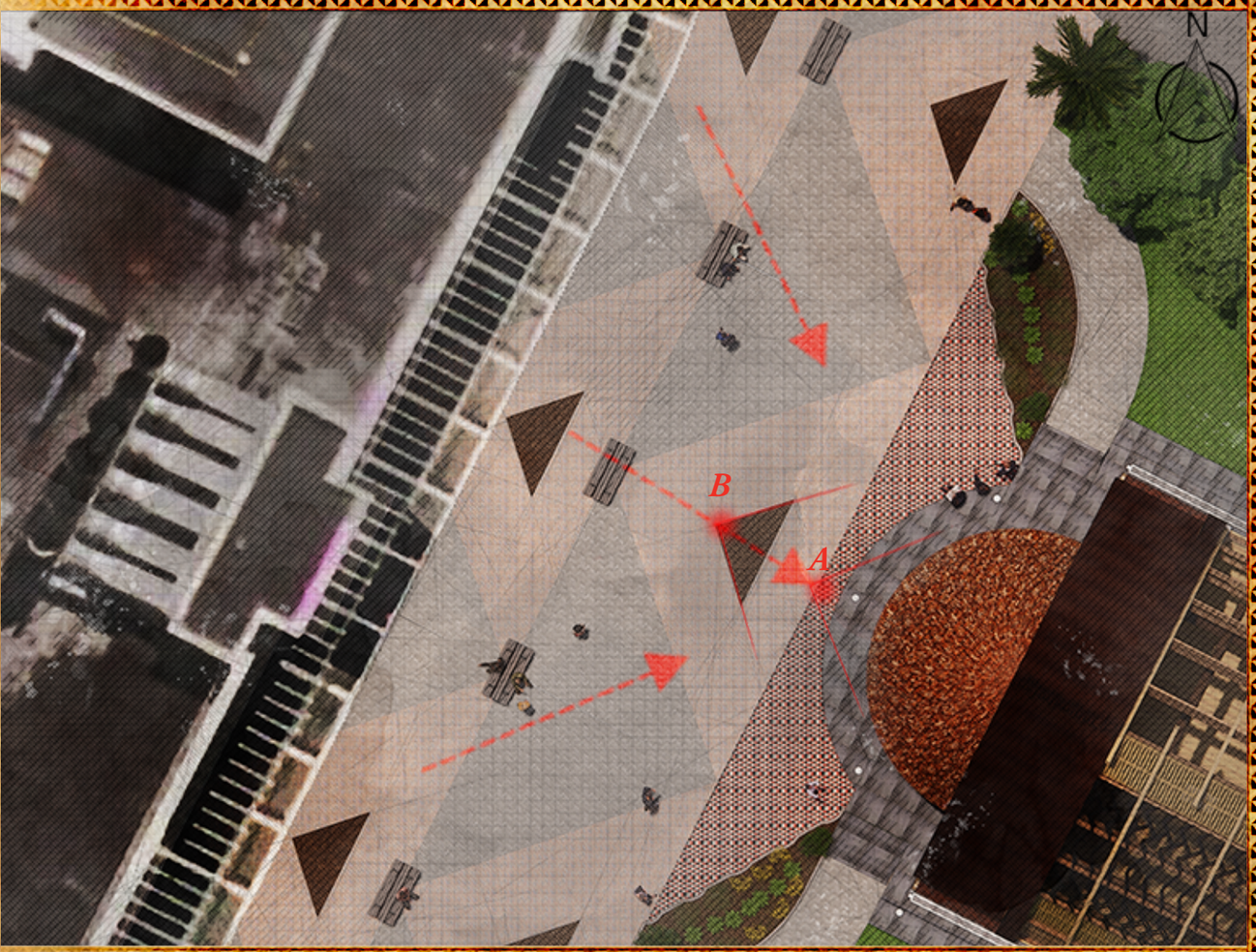
FALE FAKAHOKO
Site Plan



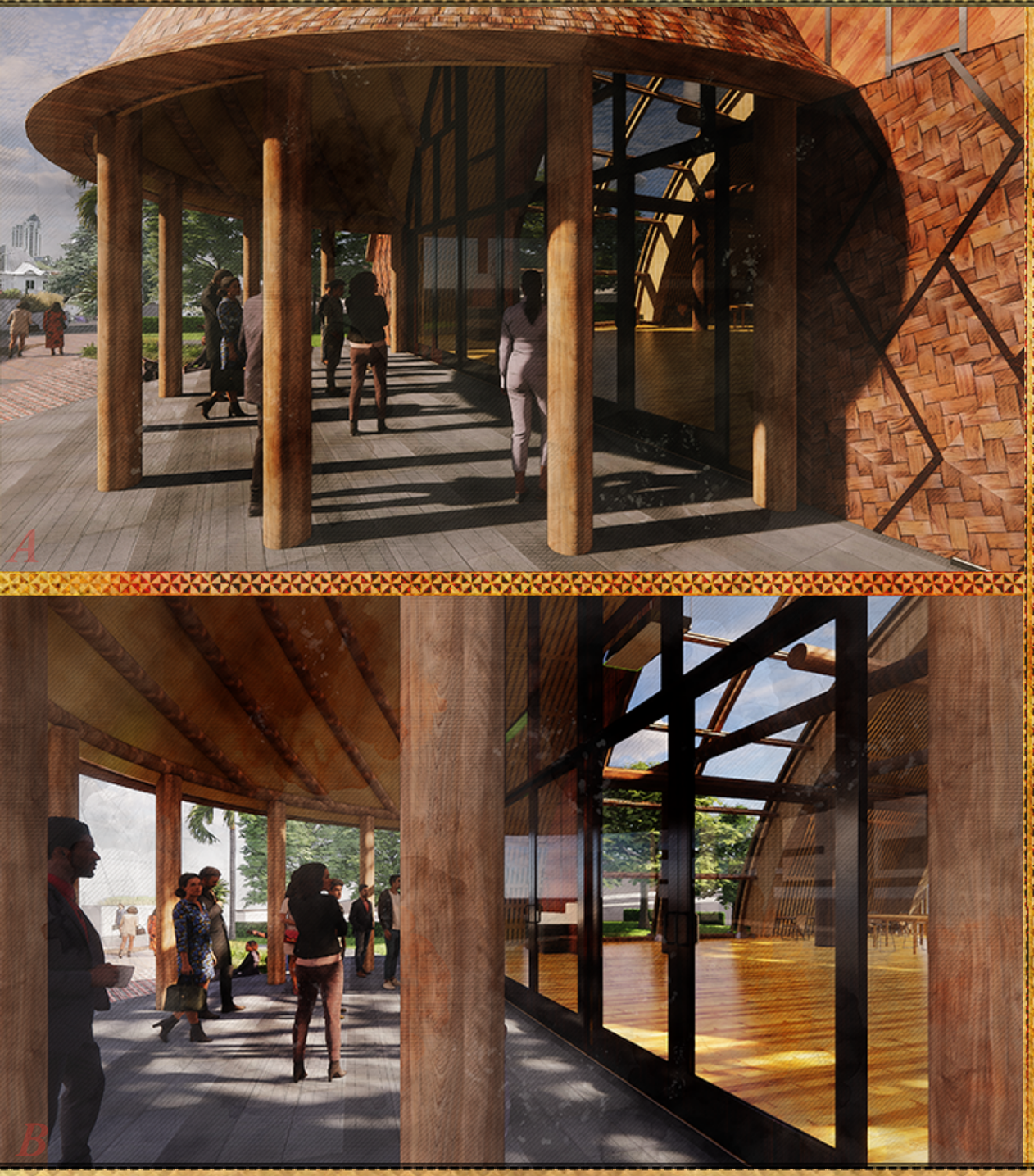
FALE FAKAHOKO
Site Access

FALE FAKAHOKO
South entry brekdown

FALE FAKAHOKO
North entry brekdown

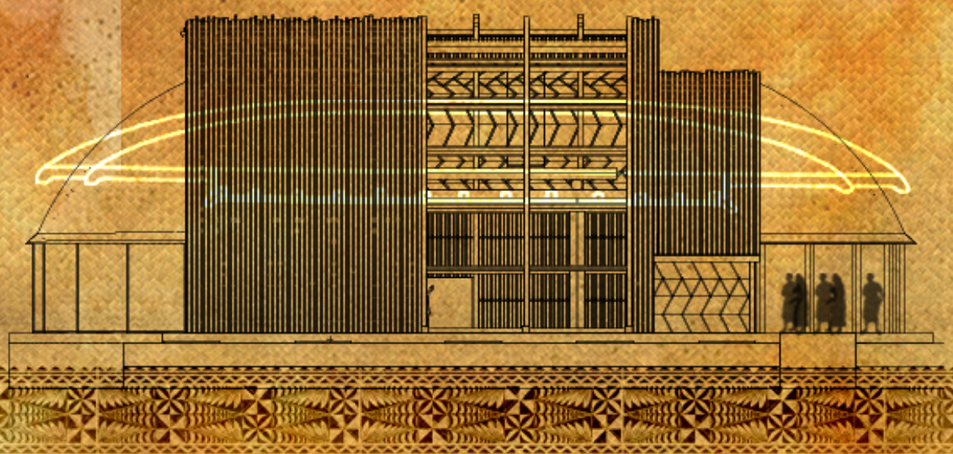


FALE FAKAHOKO
West entry breakdown



FALE FAKAHOKO
Entrance Breakdown

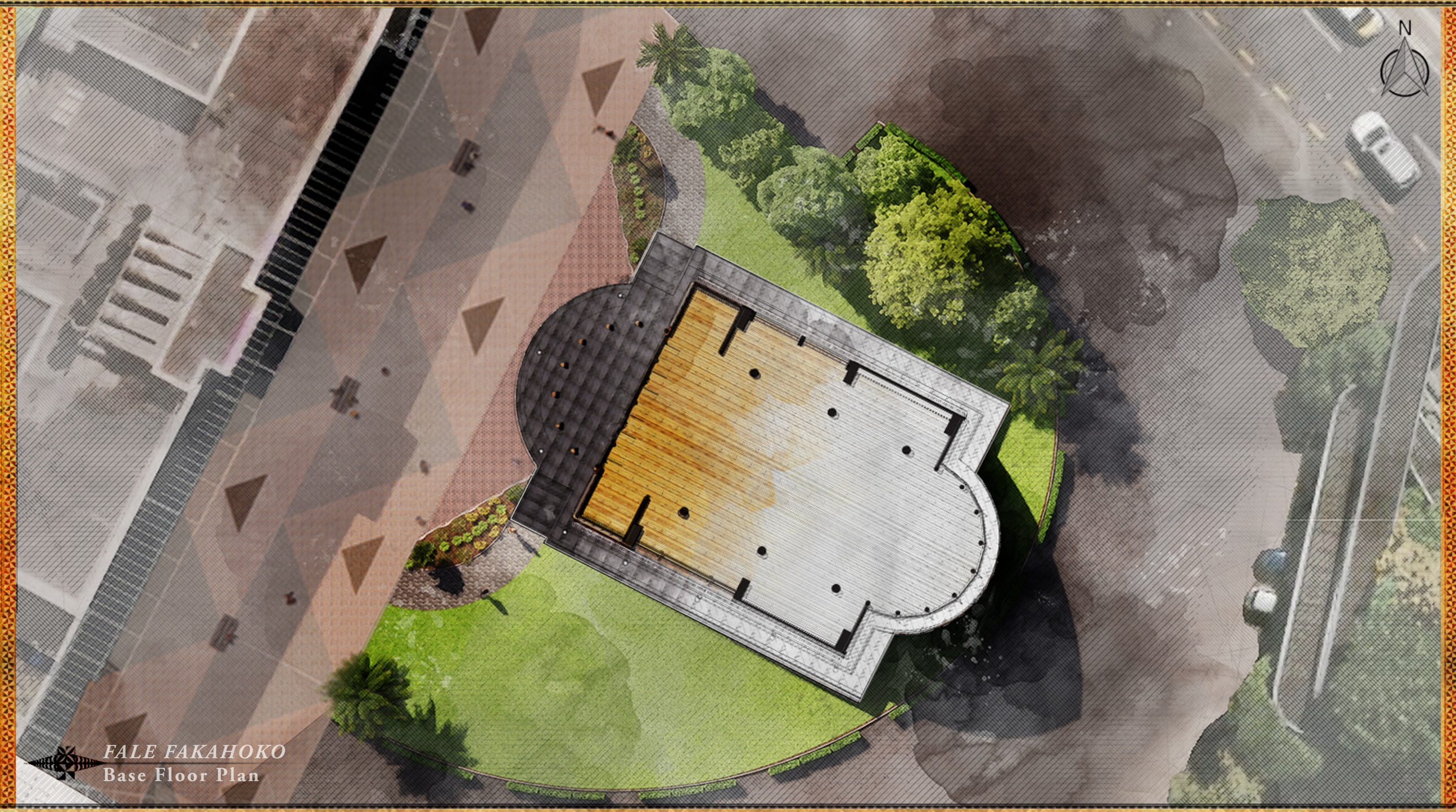
Journey as one within the vaka



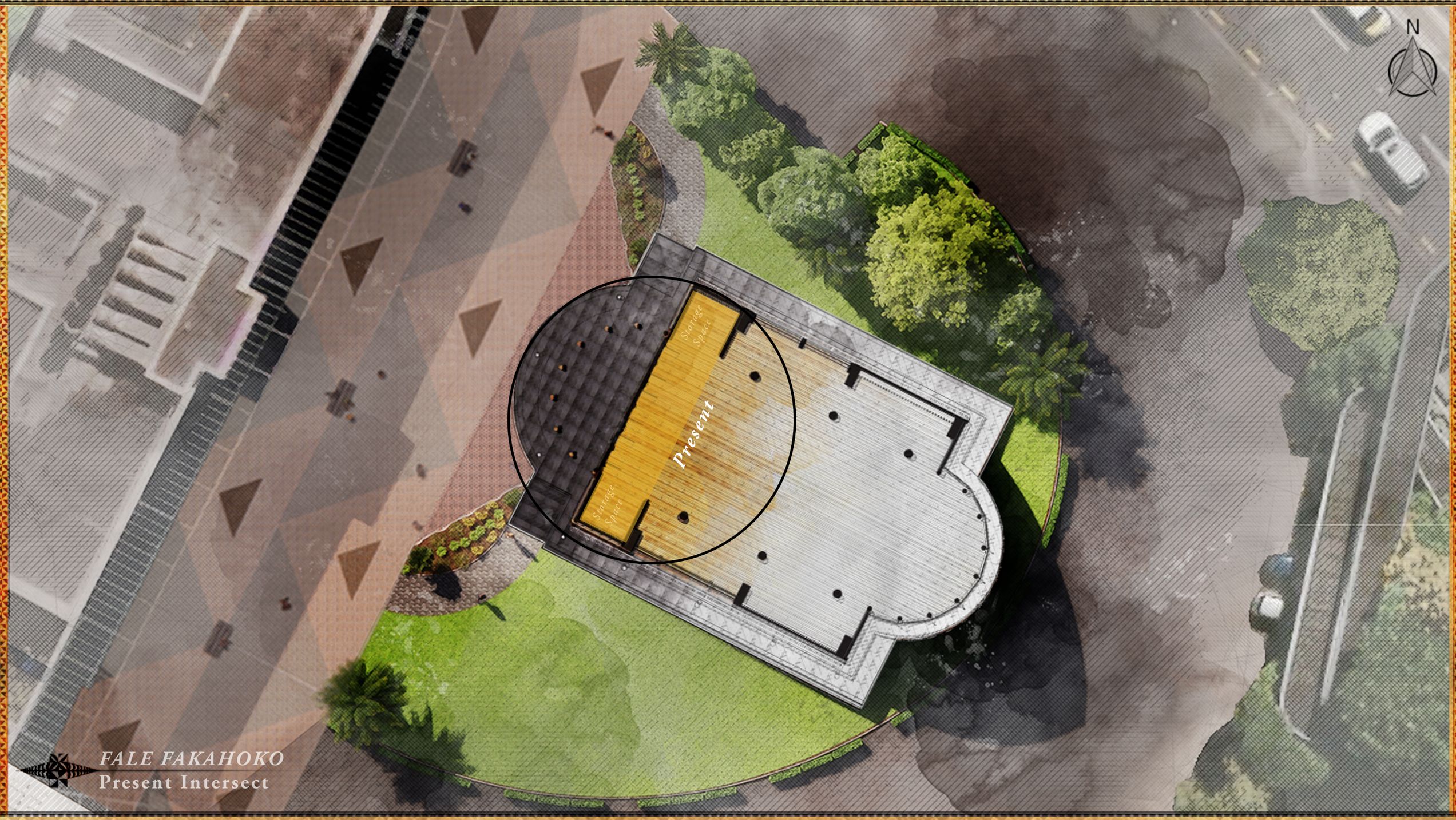
FALE FAKAHOKO
Threshold Breakdown

FALE FAKAHOKO

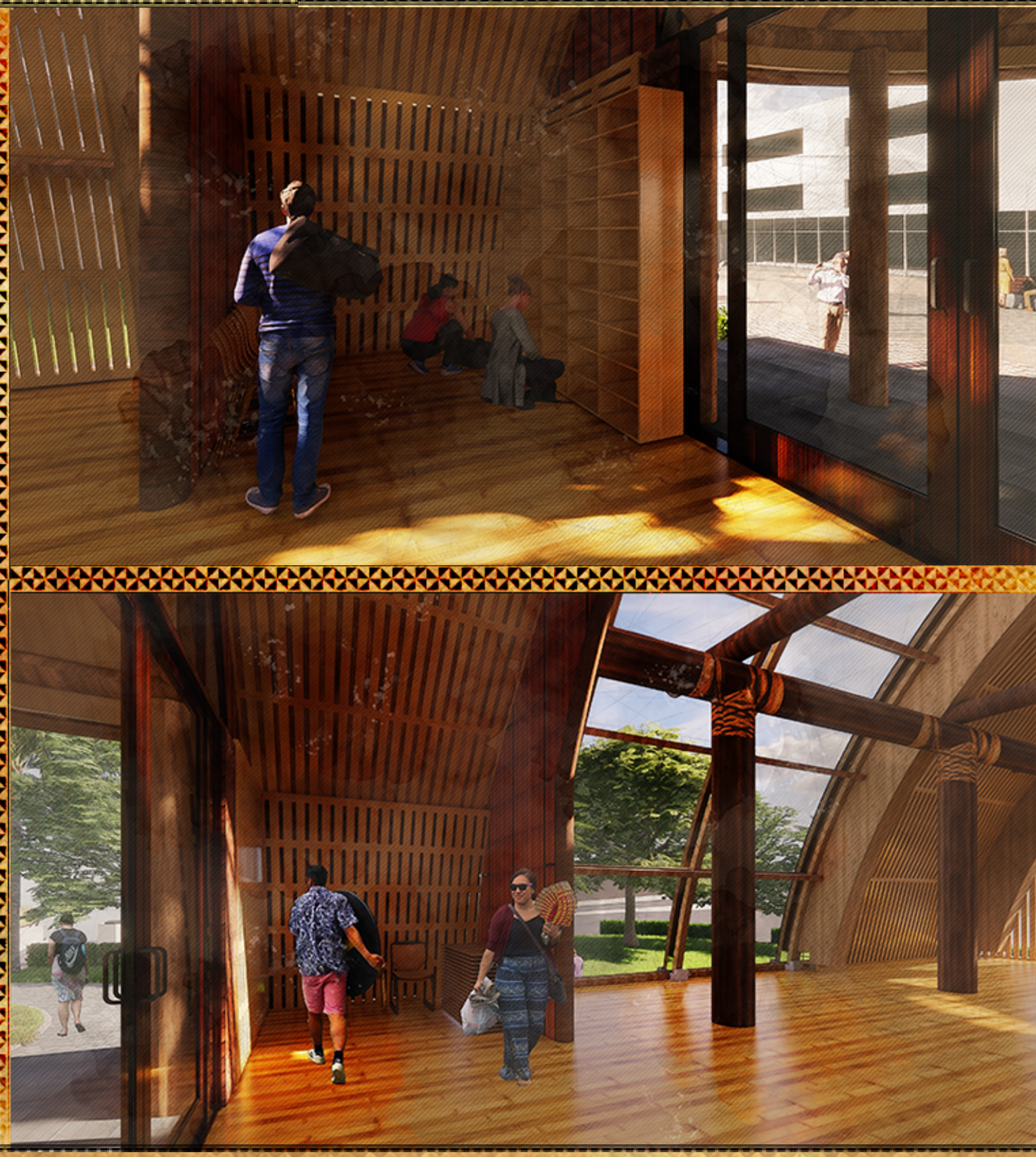
Preparing to journey into the fale



FALE FAKAHOKO
Base Floor Plan



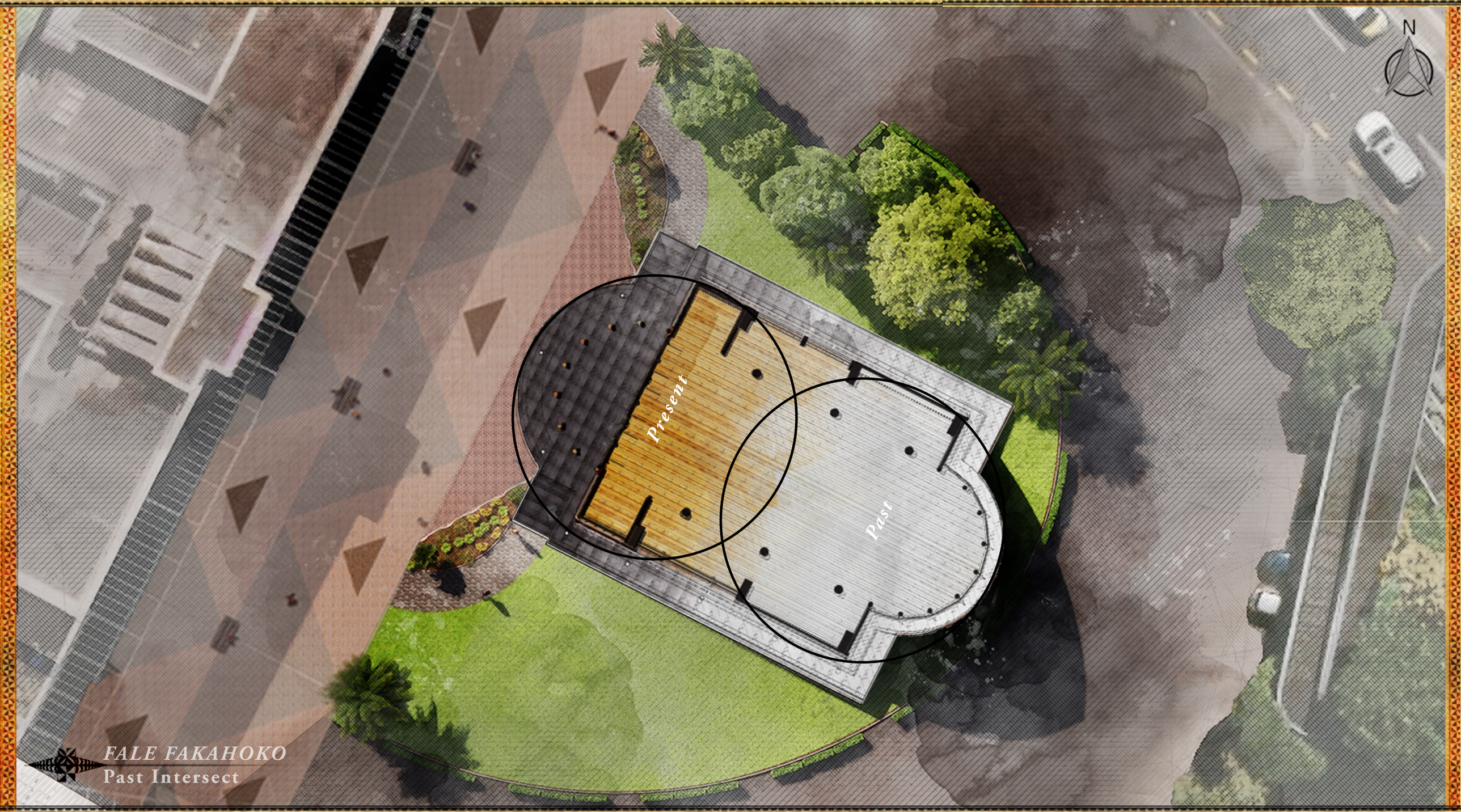
FALE FAKAHOKO
Present Intersect



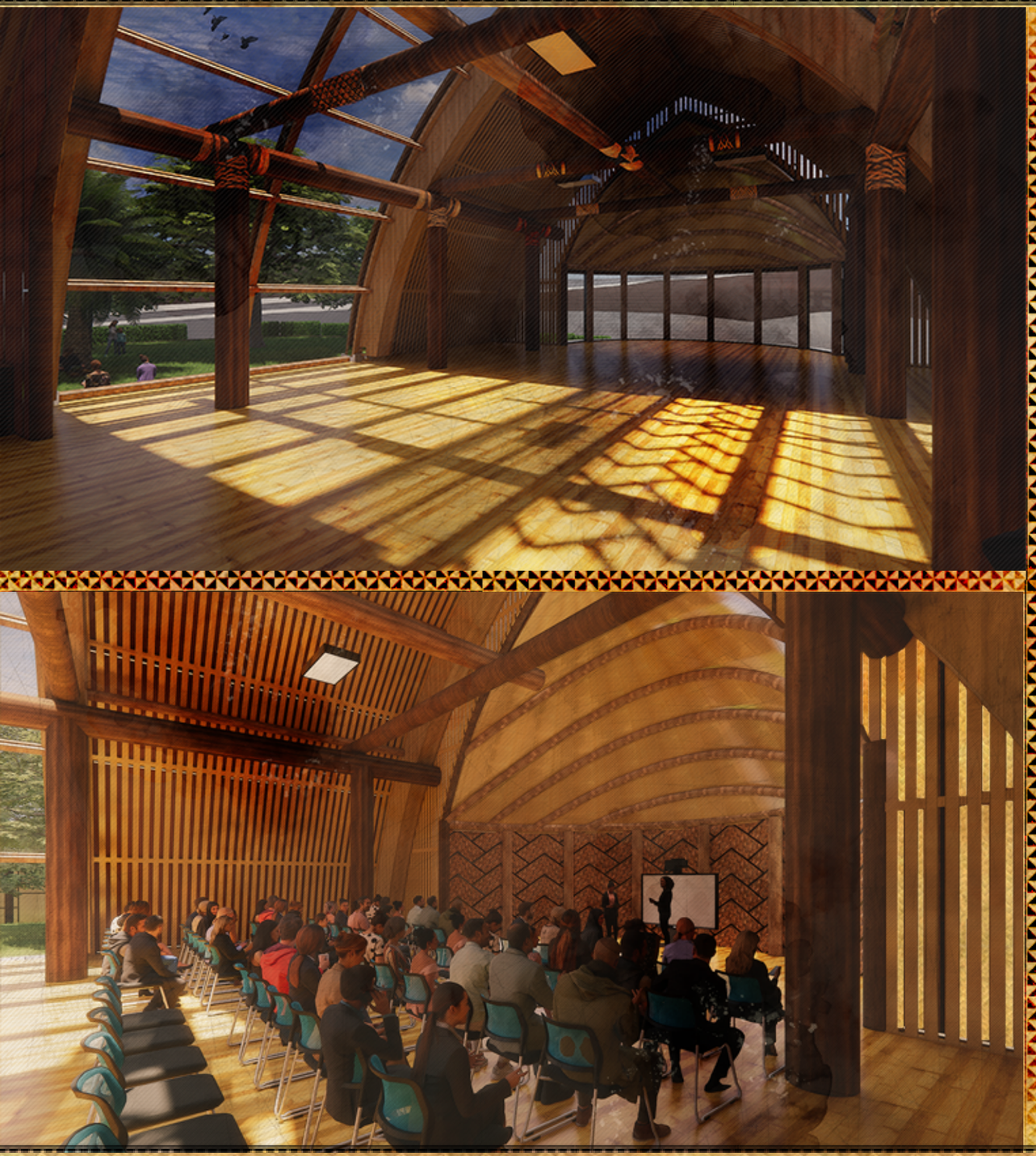
FALE FAKAHOKO

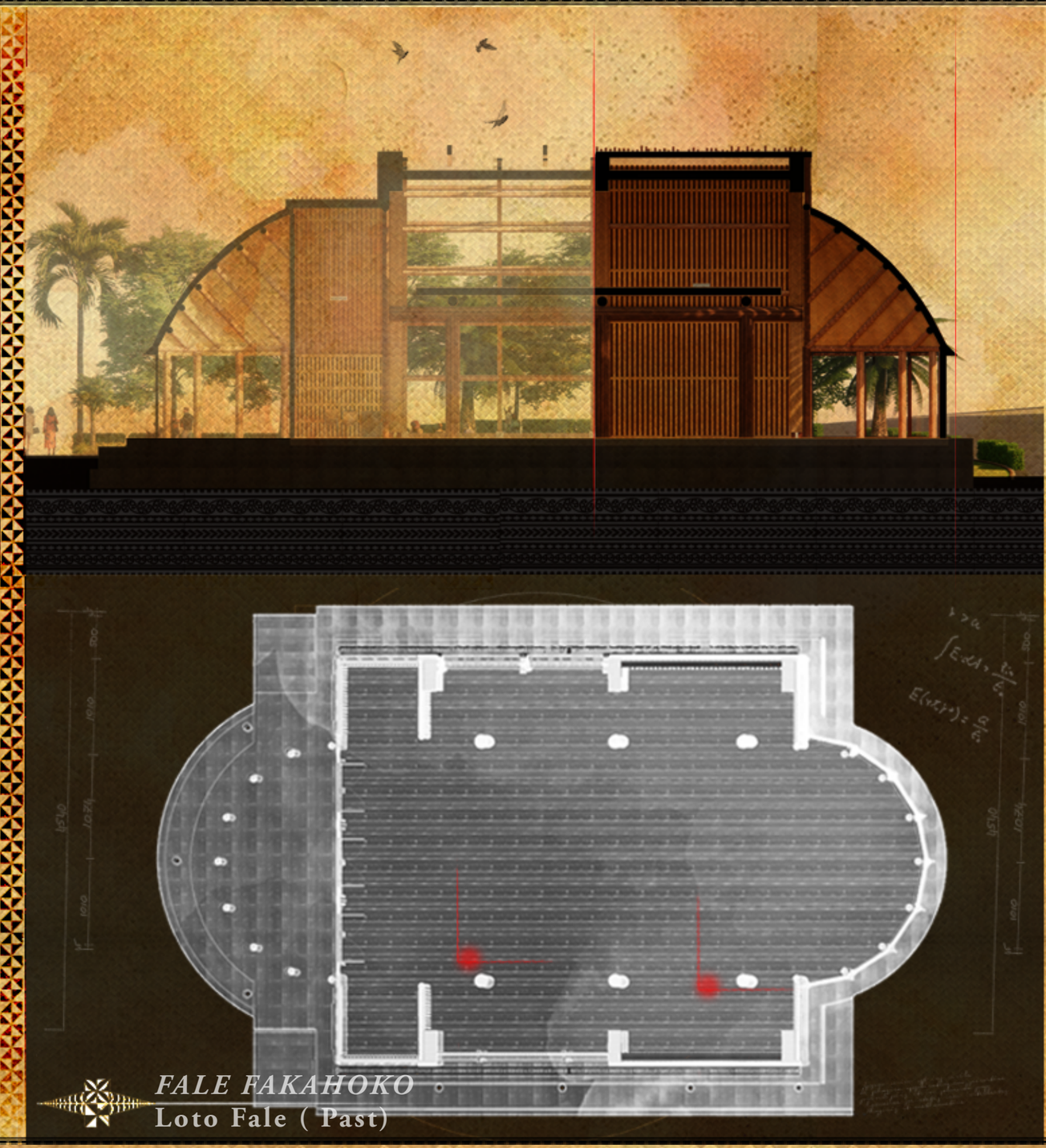
Entry and Storage Space (Present)

FALE FAKAHOKO
Loto Fale Present Space



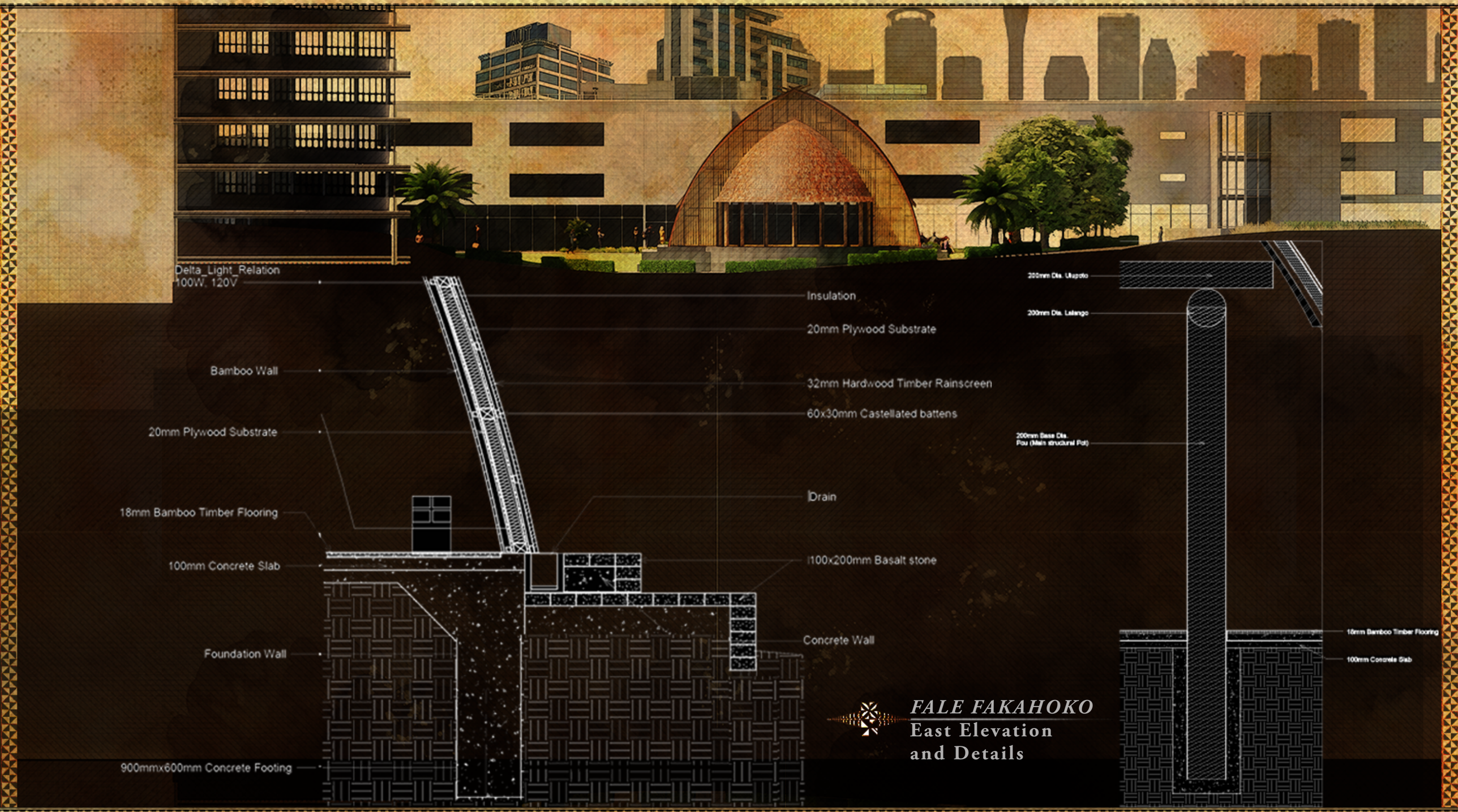
FALE FAKAHOKO
Past Intersect



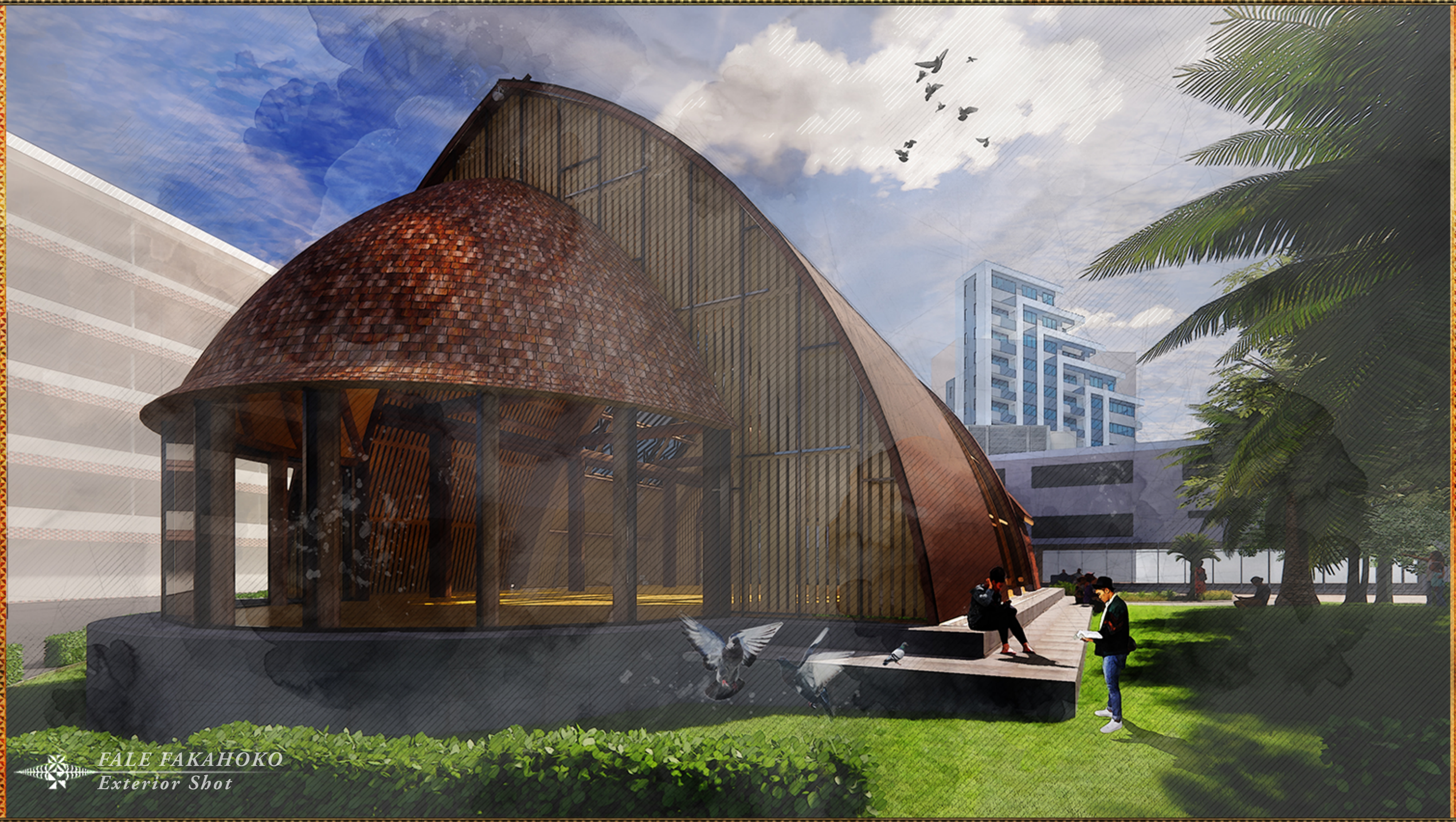


FALE FAKAHOKO
Loto Fale (Past)

FALE FAKAHOKO
Kava Ceremony



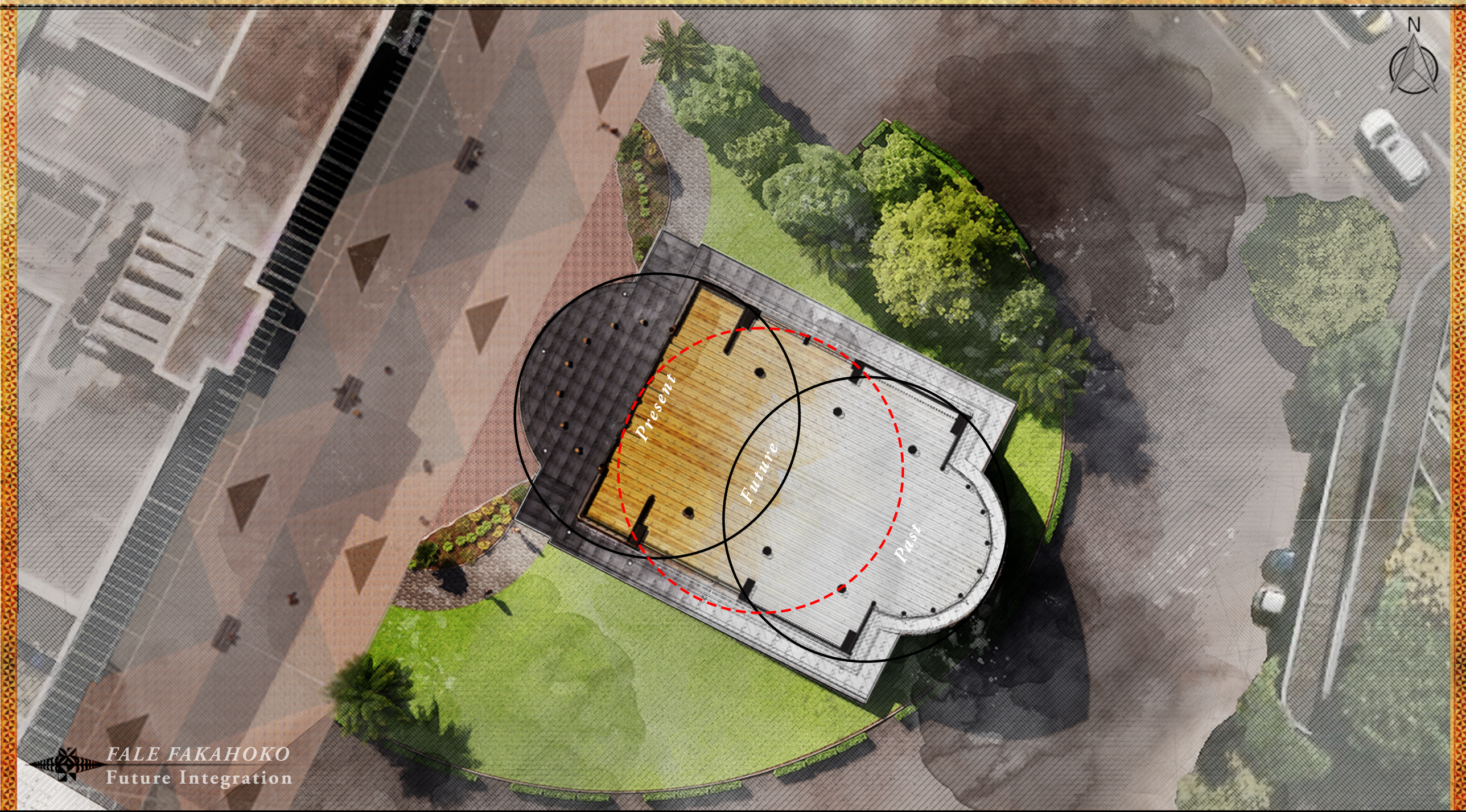
FALE FAKAHOKO
East Elevation
and Details



FALE FAKAHOKO
Exterior Shot

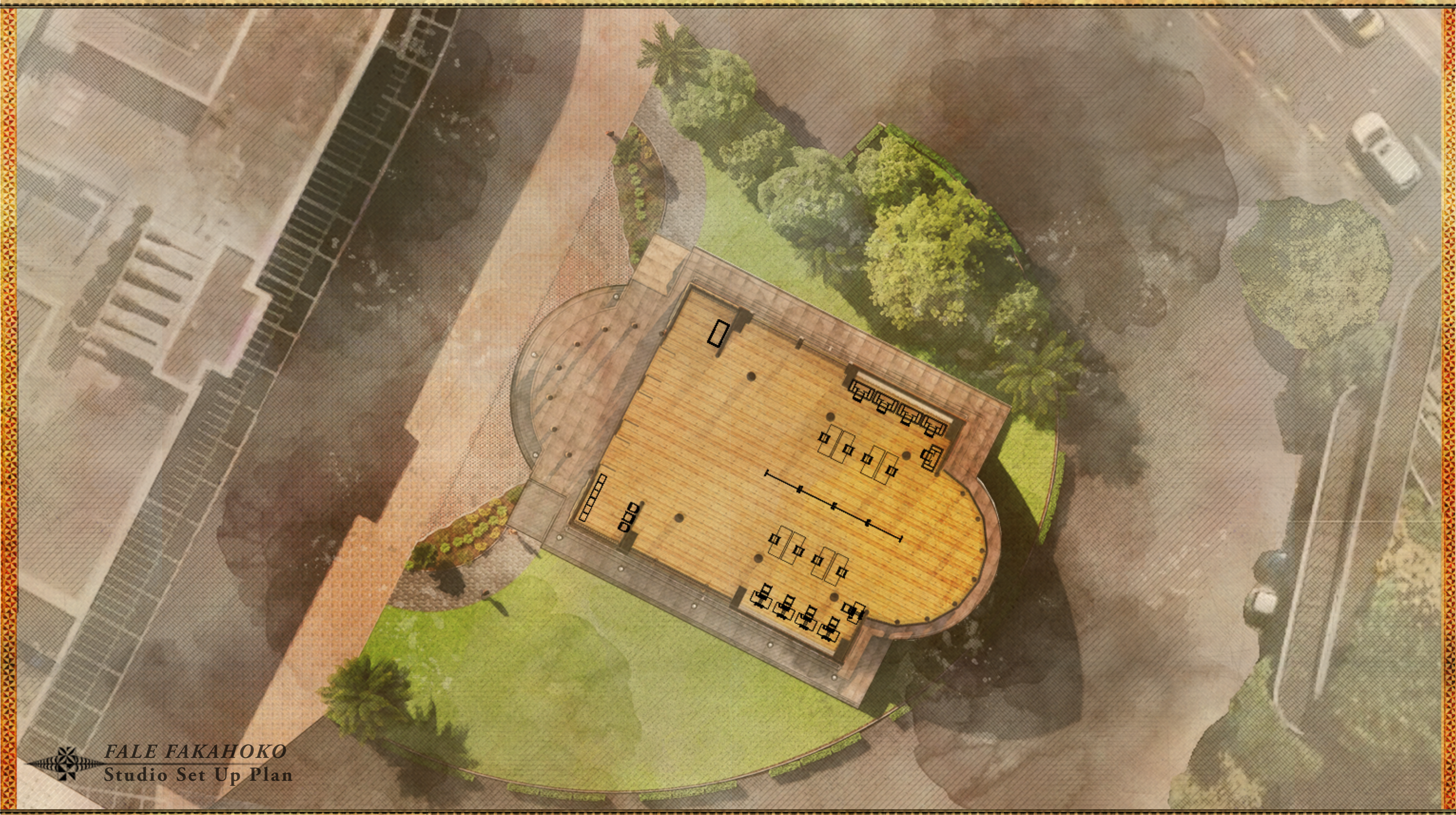
Project Goal 4

4) Conceptualise a programable framework that connects the proposed iteration of the AUT Tongan fale fakahoko with the AUT Huri te Ao school of architecture and future environments.



FALE FAKAHOKO
Future Integration

FALE FAKAHOKO
Studio set up



FALE FAKAHOKO
Studio Set Up Plan

Fale Program and Function

The fale will serve as a multifunctional space, however its main purpose is to be an educational space where it will educate the Moananuia architects of tomorrow about their cultural ideals, traditions, stories, and historical architectural worldviews. This means the fale will be directly linked to the newly established school of architecture and future environments at AUT. The main purpose in having this connection is because it is my belief that in order for Moananuiakiwa ideals to be fully understood, one must first understand its realities and worldviews. It is only through that a person can truly grasps it's understand, however having that journey of learning within the fale which is the essence of pacific architecture can make that understanding be more impactful, as I speak from experience. This can be through an elective they have or a minor.

Year 1

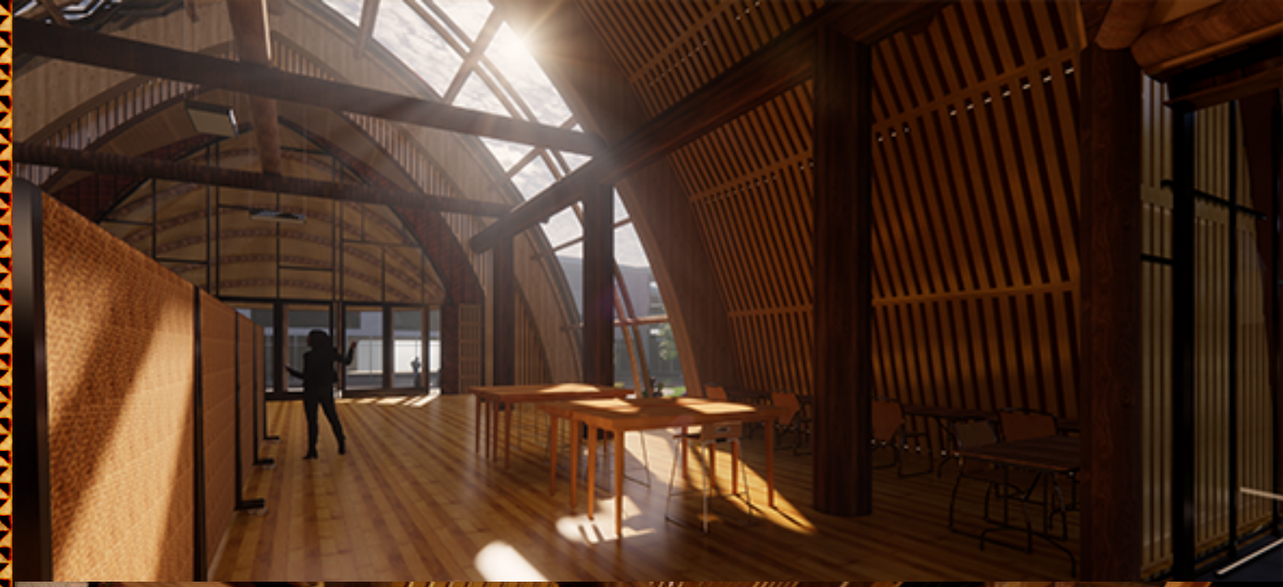
The first year introduces the students to the course and what Moananuiakiwa architecture is from a literacy perspective. Taking that literacy and forming different methodologies that may help better their understanding, whether that's through model making, drawing, mapping or diagramming etc.

Year 2

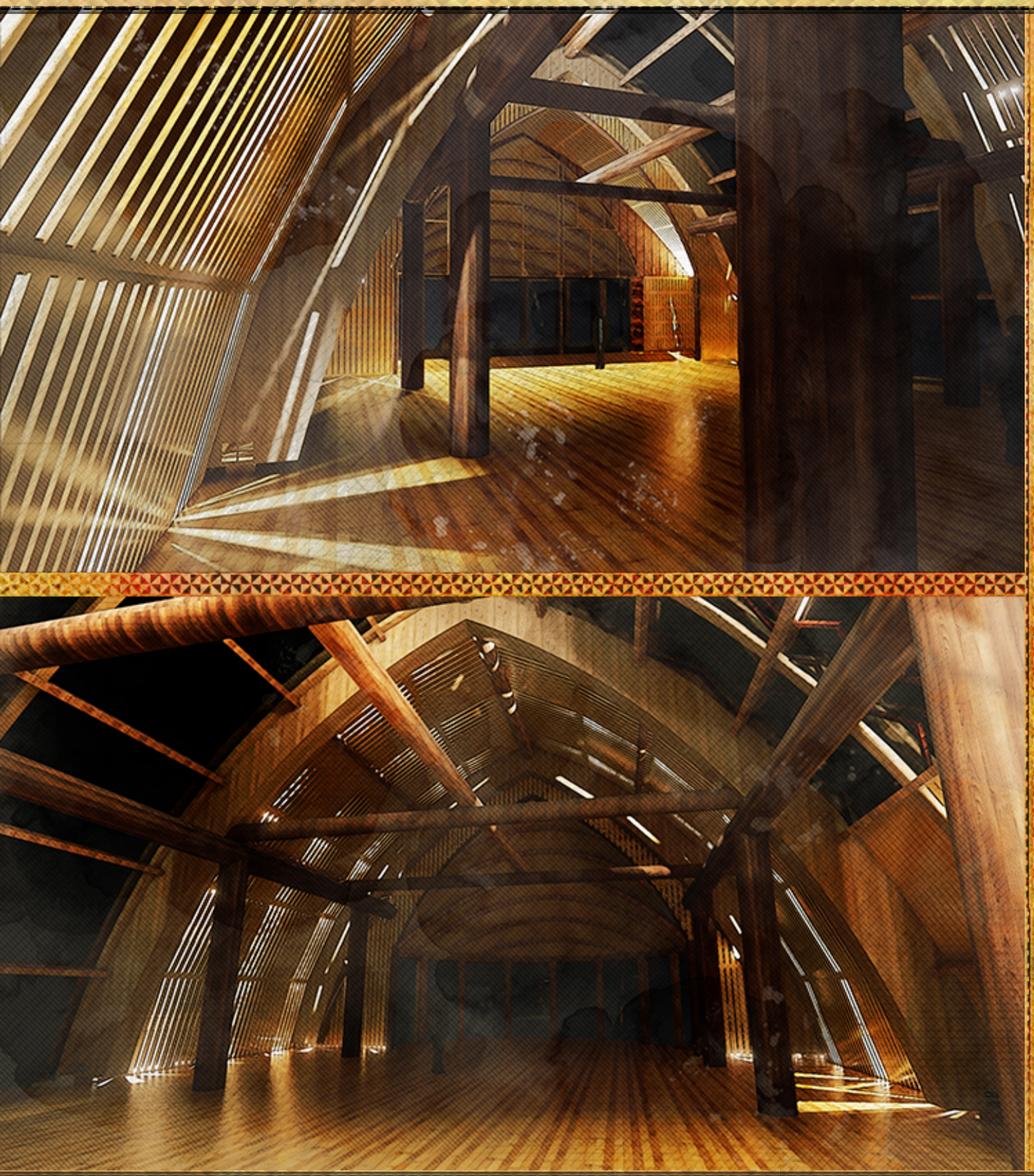
The second year takes the initial plans of the architectural course from studio, that focuses on the social context of architecture, and designing for individuals and communities in future environments, but implying with that the knowledge attained from year 1 Moananuiakiwa ideals.

Year 3

Year three aims to take all the knowledge attained from the previous years, and focusing on the students being able to design and propose one to one design of a fale collaboratively towards a certain project or community function.



FALE FAKAHOKO
Proposed Studio Set Up



FALE FAKAHOKO
Studio Night Renders