



E TOE SASA'A LE FAFAO

r e t u r n t o p a r a d i s e



Carinnya Malelega Feaunati

A 120 point thesis submitted to the Victoria University of Wellington in partial fulfilment of the requirements for the degree of Master of Architecture (Professional)

Victoria University of Wellington

School of Architecture

2014

No material within this thesis may be used without
permission of the copyright owner



{

*They must not pretend
they can write from inside us.*

- Albert Wendt.

}

ACKNOWLEDGEMENTS



E muamua ona ou si'I le viiga ma le faafetai i le Atua ona o lana ta'ita'iga mo a'u mo lenei fa'amoemoe. O lenei fa'amoemoe ua mafai ona fa'atinoina ma fa'ataunuuina i le manuia ona lona alofa ma lona agalelei mo a'u.

This thesis would not have been at all possible without the kindness and support of those around me, for that I give thanks.

To my dear family near and far, I thank you for the support and words of encouragement during the time of this thesis. I am extremely blessed beyond words to have had your support along the way. To my supervisor Daniele, thank you for your support that has always been above and beyond the call of duty. To my friends and studio squad Corinne and Zaed- thank you for just being there in the best and worst times of this degree. Te Roopu Awhina and David Hakaraia, thank you for your encouragement and wisdom but most of all for instilling in me the passion for Maori and Pacific success, I can't thank you enough for your invaluable contribution to my success. Thank you to my church and Faifeau Limu and Ela Isaia for the prayers, gifts, support and encouragement through my studies. Thank you all for having the confidence in me to complete this thesis.

Finally, I want to acknowledge my Parents, Auola- Fesilafa'i and Suluama Feaunati, my siblings Ale, Cassandra, Lahleina, Moerah, Jess and nephew Myles. Along with your unconditional love and support, every sobbing phone call, lecture, bank transfer, food parcel or hug- I would not be where I am today without you all by my side. This thesis may not have your name on it, but I hope that the values you have instilled in me resonates through my words.

Fa'afetai, Fa'afetai Lava.



E TOE SASA'A LE FAFAO



This Samoan proverb speaks of the notion of returning to the past. Translated to the act of sculling water out of the canoe after capsizing in order to turn it upright to carry on rowing, the proverb is used in this thesis to capture the essence of an overturning or return to what is familiar or the traditional in respect to the built environment. It is in this overturning to what we know and acknowledging what was done by our ancestors that we are able to fully understand what is to become and how to move forward.

a b s t r a c t

Following the devastating tsunami of 2009 in Samoa many villages on the south coast of the main island Upolu were left in ruins, one such site is the heritage rich village of Sa'anapu. Five years on, the coastal front village is still in a state of ruin and the imminent risk of future tsunami have seen the relocation of families inland; away from the sea, the resourceful mangrove and their historically significant fale tele that once housed their ancestors. Many families who have rebuilt inland have inevitably abandoned their traditionally constructed homes on the beach front and opted for western influenced dwellings. This is due to high costs, traditional skill shortage and an underlying notion of the western influence that impedes small pacific island nations today. Although the increasing foreign aid being injected into the country for community development is a positive move to rebuilding villages they bring a western architectural typology. With this comes an alarming decline in the traditional Samoan craft of construction, spatial constructs and ultimately the desire of the youth to retain their built heritage.

This design research argues that the rebuild process in devastated villages after a natural disaster presents a design opportunity to retain cultural practices in particular for a community in a heritage rich village. It also argues that culturally adapted and environmentally considerate design is vital in re-invigorating a displaced community but also encourages future sustainable development- culturally, economically and environmentally. The research tests a multi-disciplinary framework of environmental science and anthropology to inform the architecture of a hybrid master-guild carpentry and tattooing school. The scientific approach seeks to mitigate the risks and vulnerability of the site in relation to the natural environment whereas the anthropologic approach has been the direct involvement of the Sa'anapu people through a sharing of knowledge, stories and aspirations for the future their village.





fig. 1.0 - Sa'anapu- tai, Virgin Cove.

chapter 1 introduction

From the first steps of colonization our neighbouring small pacific nations have been an idyllic destination for fervent explorers, missionaries and in the context of today, entrepreneurial minds and bikini clad tourists. Whether this has come in the form of political wars, culture, religion or tourism; the ideals these travellers shared was that the pacific islands is a Paradise, an ideal setting for a world away from which we currently live, in a biblical sense an abode for Adam and Eve, the perfect place. This ideology of the Pacific Island paradise or the Utopian island ironically serves as an antithesis of what many villages in the South Pacific are facing due to the inevitable effects of climate change.

After the devastating tsunami of 2009 in Samoa many villages on the south coast of Upolu were left in ruins such as the heritage rich village of Sa'anapu. For the Sa'anapu people, the image of the village changed spatially and spiritually as a mere reminder of what life used to be. Five years on, the ruins of the built environment remain scattered in their lifeless formations as if the last touch was the wave itself. The immediate response commonly seen in such a situation is to clean up the ruins and re-build but for Sa'anapu this is not easily achieved. The fale ruins do not only represent a house that used to stand, it is believed that it represents a household, a family name, built heritage that still encompasses that piece of land. It serves as an indicator of a family's history and hierarchal status through a traditional spatial construct known as the Vā. (Refiti A. L., 2009).

Due to the increasing risk of tsunami, cyclone and rising sea levels, these fale are unsafe and the stretch of coastal land has been left to rest alone with only few dwellers who walk the roads to access the beach front to fish. For community resilience and future village development, rebuilding on existing beach front is not a viable option. Although the recent 2009 tsunami brought to the forefront the issue of relocation, the effects of climate change for Sa'anapu village is embedded

in their history, effecting the urban development and spatial village orientation. Many families who have already rebuilt inland have inevitably abandoned their traditionally constructed houses on the beach front and in the process have opted for western influenced dwellings. Such a shift can be attributed to traditional craft skill shortage, an understanding that traditional construction is not viable against Mother Nature and an underlying notion of the western influence that impedes small pacific island nations today.

The spatial and physical relationship to the water for the village is becoming more and more disconnected. It is this narrative of a village's search for a 'paradise' that sets the premise for this thesis. In order to frame the discussion, this thesis looks to explore what the ideology of "paradise" and utopia means to Samoans and how they can remain embedded in the concept while living in a dystopian reality; that being the imminent risk of natural disasters.

The solutions being cast today include the immediate response by foreign aid organisations to rebuild the livelihoods of the devastated communities. Although positive in its aim, the effect of these western typologies that come with the construction of new dwellings begin to concede an alarming decline in the traditional built heritage that is integral to the culture of Samoa. For the village of Sa'anapu there is a great sense of displacement both physically and psychologically where a "return to paradise" in this sense a return to the old traditional construction as a means to retain the heritage but also a physical return to the beach front is desired but it is not necessarily the ideal solution for future disaster resilience and economic development.

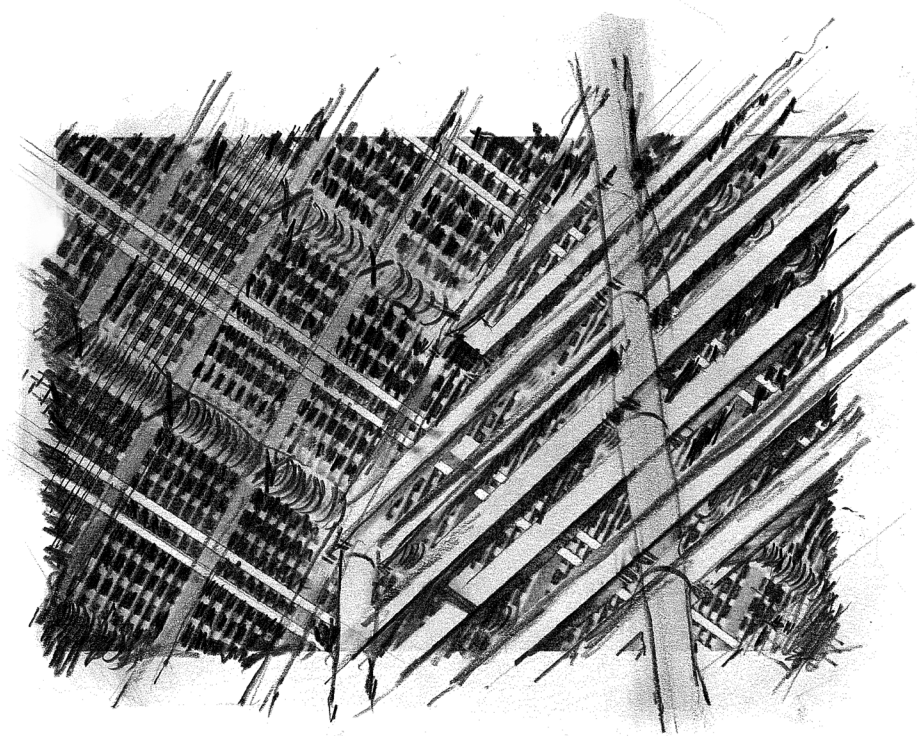


fig. 1.1 - Detail Sketch Ceiling. Sa'anapu, Samoa

The unique intertwine of spatial and cultural parameters for this village begs the design question

How do you re-build and design for a village after a devastating natural disaster, when the people remain spiritually and spatially connected to the heritage of the ruins and uninhabitable fale? Is the re-building of the village in a traditional sense truly an attempt to return to “paradise” if that is not the safest option for disaster proofing?

Whilst bringing to light the integral opportunity of a rebuild process to a village community but also the cultural and social responsibility it entails, the thesis will argue that culturally adapted and environmentally considerate design is vital in re-invigorating a displaced community. Essentially it aims to test design for Sa'anapu that encourages sustainable development-culturally, economically and environmentally. The implications set out by the project premise indicate that in order for these aims to be explored the project must address specific parameters that transcend architectural design.

The **objective** of this multidisciplinary project is to help mitigate the vulnerability of the Samoan community to natural disasters through characterisation of the hazard, quantification of the risk associated with tsunami and climatic disasters and proposing an adapted architectural solution in respecting the Samoa cultural identity and local economical specificities. The multi layered framework of science and anthropology will inform the architecture and design of a *Tufuga Tatau and Tufuga Fau fale Aoga*, a hybrid master-guild carpentry and tattooing school.



The design is a means to building a resilient community building that will find a consoling threshold between the dystopian reality of climate change and a desire to retain the life they knew. With the scientific data and architectural appraisal the anthropological approach has been the direct involvement of the Sa'anapu people through a sharing of knowledge, stories and aspirations for the future of their village.

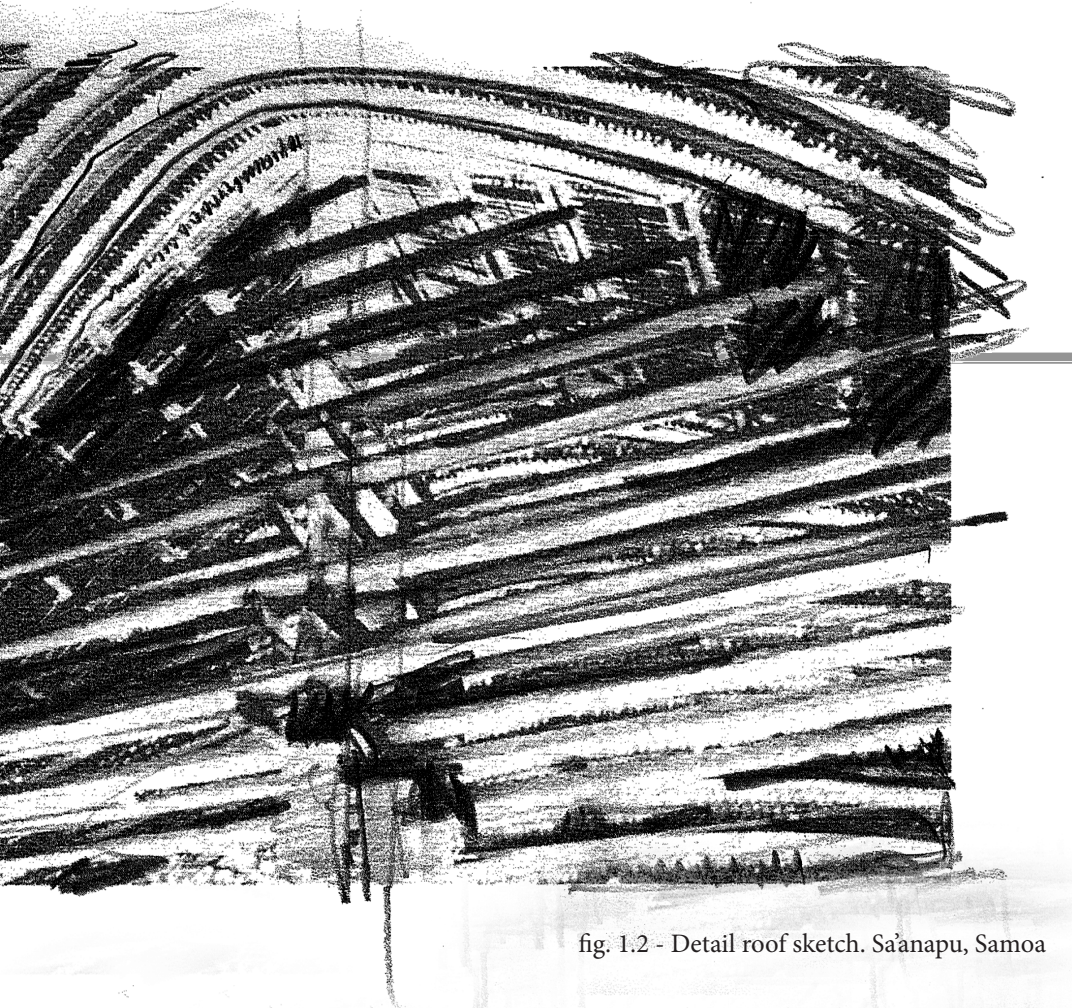


fig. 1.2 - Detail roof sketch. Sa'anapu, Samoa

methodology

This thesis engages with three major thematic concepts of Paradise in utopia, Architecture as Identity and Hybridity and analyses these through a series of case studies to form a theoretical grounding for the research.

Utopia and the notion of Paradise are also discussed and what these terms mean for the village of Sa'anapu in their current state of physical displacement and a search for the familiar. It will be explored in the context of the current site and the memory and sense of place. The discussion of the notion of paradise seeks to evaluate a way forward for the approach to new buildings in the village of Sa'anapu.

Architecture as identity is discussed more specifically in this thesis to understand the historical parameters of Samoan architecture. Research on the origins of the fale Samoa and its current status in modern society today frames the discussion of the importance of retaining traditions in the built environment of Samoa and its integral role on the overall cultural significance and identity of Samoa.

The theme of Hybridity speaks directly to the architectural intervention of this research. Hybridity in Architecture is widely discussed when varying cultural parameters are on the table. For this research the term is used to frame the western practices that are already evident in modern day Samoa in particular the built environment. The research will discuss the implications of hybrid design in the context of Samoan culture and the issues that arise such as authenticity. Understanding the role that hybrid architecture plays in the re-invigoration of a traditional community will connect the discussion in this thesis of cultural tradition, disaster proofing and community resilience

In order to thoroughly understand and evaluate the three themes stated a research structure was followed to the design phase. If I am to remember anything my late grandparents used to say when we were young it would be the saying "straight from the horse's mouth" that is to ensure the information you received was from the very person whom it is about. This is how this research has proceeded. One cannot do a study regarding Samoa without going to Samoa. With this, a site visit to Samoa and the village proved to be influential in creating a strong relationship with the people of Sa'anapu and sourcing accurate information. This participatory design methodology is imperative for working with communities where many views are to be considered. This methodology also engaged an important narrative in the research where the reality of their devastating situation forged a motivation for this thesis research to actively contribute to the development of a community and essentially many more in a similar predicament.

Integral to the research is the role of scientific data in forming the thesis argument. From the early stages, this research was conducted with the assistance of a group of environmental marine scientists from the National Institute of Water and Atmosphere (NIWA) through the project "Managing Risks for Adapted and Considerate Architecture". My involvement in this project was as the research assistant and assistant exhibition curator, not only did the project allow me to place my research and findings into a real world framework but the resources and opportunity to travel and present the findings in Samoa at the United Nations Small Island Developing States Conference gave the research a purpose to contribute to real world applications. The data sourced from the work of these scientists supports the discussion of the need for these future buildings in Sa'anapu to consider the immediate effects of climate change such as cyclones, tsunamis and the ever rising sea level.



fig. 1.3 - My Uncle, Leuga Nofailo making afa

ANTHROPOLOGIC

Participatory Design
Narrative

Investigation of the manifesto that is **memory of place** for a real community in a post-disaster scenario. Refining the spatial and psychological relationship between ruins and new builds.

SCIENTIFIC

Collaboration with
Dr Geoffroy Lamarche of NIWA and
PhD candidate of environmental
studies Shaun Williams University of
Canterbury, NZ.

Quantifying the Risks in order to
select the Site in a mitigated risk free
zone of the village. Understand the
need for sustainable development.

ARCHIT

The design in
pro

What is
New Te
Local
Local skills
New desi
Ic
Engages

This will
methodolo

Communi
Interview
Understanding
and what aspe
work or co

STRUCTURAL

Investigation and
positional.

Traditional?
technology
materials
and knowledge
direction
onic
discussion

come from a
gy that looks at:

ty Engagement
s with Tufuga
of the traditional
cts of vernacular
uld be adapted.

THEORY

Joseph Rykwert
Paradise + Dystopia

Albert Refiti + Kenneth Frampton
Architecture as Identity

Homi K. Bhabha + Dr Emma
Kruse Vaai
Hybridity

Question.
Does the design engage a
discussion.
What does it mean to Return
to Paradise for the people of
Sa'anapu?

APPLICATION

UN Small Island Developing Nations
Conference- Samoa
2014.

Project and Exhibition
“Managing Risk for Adapted and
Considerate Architecture in Samoa”

thesis structure

The thesis will be structured with the first section focussed on placing the research aims and objectives within a theoretical framework in relation to key theories and relevant case studies.

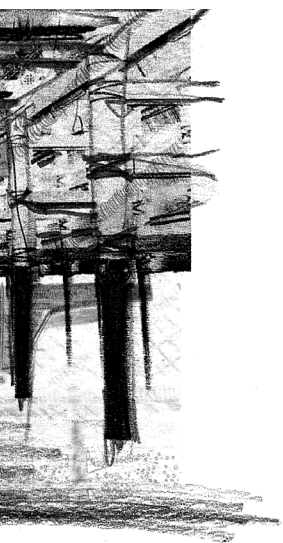
Following the theoretical grounding the thesis will explore the parameters of the site, the village of Sa'anapu both the past and present day in order to understand the historical narratives that affect the people of the village today.

The thesis will go on to discuss Samoan architecture and the spatial construct known as the va in particular the Fale Samoa and its status in the built environment, culture and society of Samoa today.

The design investigations will follow combining the findings and discussion of the theoretical framework in the context of the project site.



fig. 1.4 - Interior sketch. NU



US, Apia Samoa

chap. 2 theoretical grounding



fig. 1.5 - Film scene. "Return to Paradise".

paradise, a return to the womb

As its name sake suggests the notion of Paradise plays an integral role in this thesis discussion. For many years the Pacific islands have served as a “paridisal” location for fervent explorers, entrepreneurs and tourists alike. The writing and thoughts of renowned architectural theorist and historian, Joseph Rykwert poses an interesting discussion on Paradise within the context of architectural theory. In his text *On Adam’s House in Paradise: The Idea of the Primitive Hut in Architectural History* (1972) published some thirty years ago, Rykwert argued the idea of the primitive hut as an architectural construct of the constant desire to return to origins, “a paradigm of building and renewal by return to origins”. (Rykwert,1972. 191) It is this idea of returning to origins where Rykwert expresses that the desire is directed by a “memory of something which cannot be lost” a mere idea not something tangible hence the notion is referred to as paradise “a promise as well as a memory”.

This idea of the returning to origins plays an important role in understanding the spatial construct of Samoan architecture and its craft of construction in particular the response of villages in Samoa when posed with the task of rebuilding. For the Sa’anapu people the notion of paradise encompasses the familiar, what they know and are comfortable with-. Sa’anapu Tufuga fau fale or Traditional carpenter, Laufale Fa’anu emphasises the need to retain the traditional knowledge and method of construction, “...we follow what our ancestors build, they build like this because it’s the best way to live with what we have and what they can do”. In this sense the “ideal “of the people of Sa’anapu is the desire for familiarity in their lives, paradise is the known, it is aligned with the thinking of Rykwert in that it is a constant return to the original, perhaps as Rykwert suggests a “longing to return to the womb”. (191-2)

For the built environment of Sa’anapu, this ideal to return to the familiar or origins sets the foundation for their emphasis on retaining the built heritage. The traditional craft construction of the fale Samoa not only symbolises their culture but it represents their ancestors, the skill and knowledge that has been passed down. The physical embodiment of the structure is exposed, naked to be seen, to teach and to protect. The fale Samoa is typically a light weight structure, built with local coconut tree timber of varying scales. The roof structure takes the mass of the form and the timber members made up of intertwined timber rafters under layers of meticulously folded pandanus leaf with dried secure and effectively weatherproof the round ended interior. Although incredibly effective to produce natural ventilation, shelter from the rain and wind with the pola/ shades, these structures struggle against the harsh conditions of cyclones and the powerful surge of tsunami. It is here where the desire to retain the heritage within the built environment is at a threshold between what is best for cultural traditions and what is best for resilience against natural disasters. Is the constant rebuilding in an attempt to return to origins truly a return to paradise for the people of Sa’anapu?

With the increasing risk of natural disasters with the effects of climate change, such a discussion is important when addressing a rebuild situation. What is integral in this context is what this issue- of choosing between physically resilient design and design that is traditional means for the built heritage and also heritage authenticity. Architecture academic Albert Refiti speaks directly to the writing of Rykwert however transcends my stance of the human condition of the familiar and suggests the people of Samoa have a perpetual desire to rebuild in the traditional sense to “teu” or to make proper as a means to direct and space make towards the spiritual existence of the ancestors in the household.

While Rykwert’s text interprets humanity’s ability to “build or adopt enclosures [and]... take possession of enclosed volumes” as a will to ‘return’ to origins, this thesis proposition puts the theoretical inquisition of Rykwert into the context of questioning what is the “ideal” way forward for Sa’anapu in their rebuild process. The writing has assisted in understanding the significance of retaining the heritage in the fale Samoa, transcending the tangible structural elements to the embodiment of the ancestors and elders who are present in the spatial realm of everyday life.

Effectively the design intervention concurs the subsequent theoretical grounding and proposes the design framework to find a stable threshold where the design is adapted and considerate of the traditional craft of construction towards a cultural resilience and retain the heritage significance but integrate this with modern materiality and building systems to move towards a physical structural resilience against the imminent effects of natural disasters.



fig. 1.6 - Ruins photograph. Sa’anapu-tai.

The Fale Samoa is a structure that serves as a central point; both physically and symbolically for the Samoan culture. Transcending the typical functions of the house, the Fale orientates, performs memorialises and educates. In many aspects the iconic Samoan fale in all its glory serves as an architectural identity for the people and its culture.

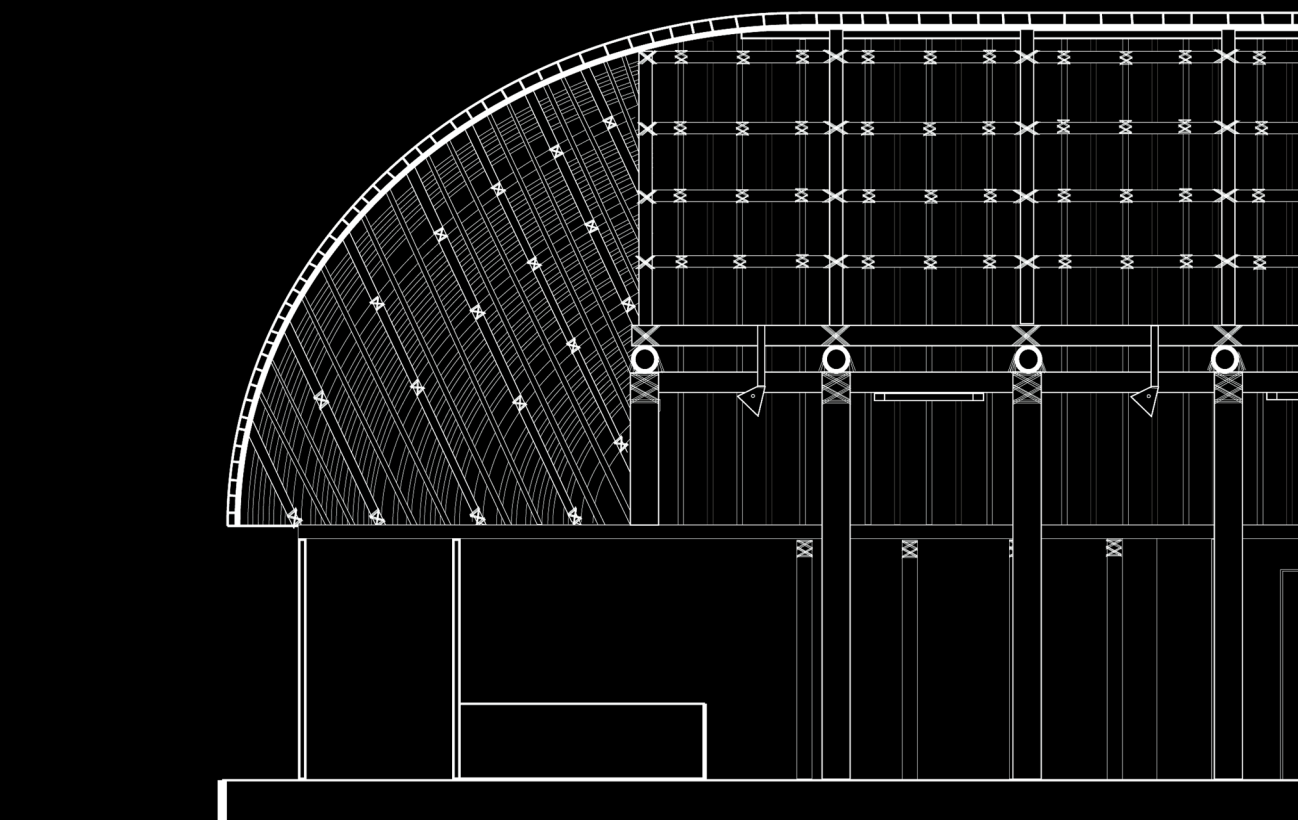
Architecture as identity is a theme with a wide discourse in particular under the theoretical umbrella of Critical Regionalism, an approach to Architecture discussed by architectural theorist Kenneth Frampton. In *Towards a Critical Regionalism: Six points for an architecture of resistance*, Frampton refers to the writing of Paul Ricoeur “how to become modern and to return to sources” to form his argument on critical regionalism in that architecture should adopt modern architecture, critically in order to progress with modern logistics however there should be an acknowledgement and value placed on the cultural and geographical context of the building. In the discussion of the six points Frampton highlights the value of topography, light, climate and tectonic form.

Frampton's work establishes key synergies with this research in the integral importance for the reinvigoration of the Sa'anapu community for the proposed design to be critically modern and adapted in order for it to be resilient against natural disasters but firstly be engaged in the traditional construction techniques and forms of the Fale Samoa. Critical Regionalism in terms of cultural identity is crucial for the rise of the assimilation to western customs evident in Samoa today. The impending influence of modern culture and western practices both in the built environment and in general societal life is inevitable however taking the stance of Frampton, there is

‘opportunity to be constructively critical in the balance of what is new and what is to be retained.’ (Frampton, 1983) In light of critical regionalism, this thesis research question seeks to investigate an architectural compromise. Frampton's position is encouraging for this research; to see a balance between critically adopting modern architecture and retaining the disposition of the very context the building sits in; the tangible and intangible, the constant and the ephemeral.

While Frampton's discussion of regionalism in architecture contributes to establishing a strong sense of place for developing countries, particularly significant to this research in Samoa is that the concept transcends the architectural subject. Frampton discusses how Regionalism in architecture can ‘help shape social structure, environmental awareness and future economic resilience’ (Frampton, 1983), all interdependent factors that hold strong congruence to the traditional built environment of Samoa.

Effectively, the programme of design being a hybrid (traditional and contemporary) tattoo and carpentry school connects the ability of an architectural intervention to not only provide a spatial and cultural reinvigoration for the displaced village of Sa'anapu but proposes an opportunity to encourage sustainable and economic development.



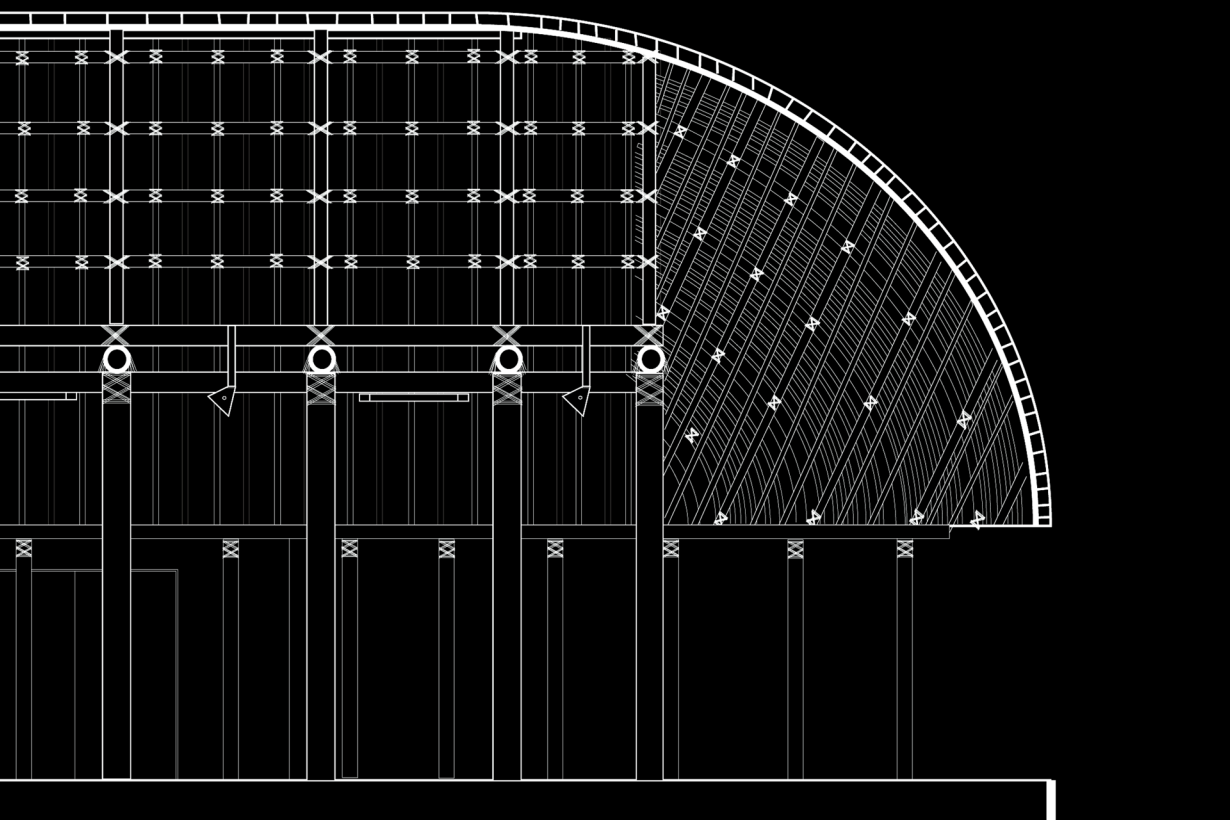


fig. 1.7 - Section drawing of NUS Fale Tele. Apia, Samoa.

hybridity

Ia o gatasi le futia ma le umele

One must balance the other to provide stability

- Dr. Emma Kruse Va'ai

On the island today, the traditional Samoan fale is hard to find in the burrows of corrugated iron roofing and the concrete block walls of the modern houses. In analysing the fale Samoa today, hybridity or hybrid architecture comes to the forefront of the discussion where the fundamental concerns for the shift seen in the design of the traditional fale is a shift in culture and economy. Synonymous with the notion 'to cross', Hybridity in this sense seeks to define the interconnected relationships of several cultural ideologies that will eventually create a new form. Theorist, Homi K. Bhabha is renowned for his observation of hybridity that he described as a "powerful sign of cultural productivity" strongly stating that the idea of "hierarchical purity of cultures is untenable" as cultural identity will always be influenced and therefore changed to form a new breed of culture. It only takes a brief walk along the busy streets of Apia to concede that the cultural makeup of Samoa is changing.

Samoan academic, Emma Kruse Va'ai delves into the heart of this matter as she re-iterates the Government's encouragement of foreign influence for economic growth is giving rise to increasing change in linguistics, cultural practices, religion and also the built environment "despite the frequent complaints about alien cultural influences, the social structure has remained resilient and free to appropriate and adapt to local needs".

Historically, the main colonial influences in (Western) Samoa were that of the Missionaries, the German Administration and the New Zealand Administration "with which Samoans interacted in complex ways in their attempt to adapt to new models of social discourse" (Va'ai, 2011, p. 47) Like many nations Samoan people faced the realities of change whether it was welcomed or

not. However, it became more an issue of how they could balance the forces of exterior cultures to ultimately counteract a loss of identity.

The built environment of Samoa has been greatly influenced by the western world. Although very few traditional fale remain to this day the role they play in daily life has become one of a mere reminder to how life used to be. Va'ai writes of how Fale Palagi, European style homes have become increasingly popular in Samoa as they "provide greater protection during cyclone seasons" (Va'ai, 2011, p. 48). As western materials have become more readily available and at affordable prices, construction of the "fale Palagi" or western house has more so over-shadowed the construction of the tradition fale Samoa by Tufuga fau fale.

This research acknowledges the inevitable shifts in societal behaviour and cultural norms as outlined by the writings of Bhabha and Va'ai and challenges a design proposition that is reflective of two elements integrating and weaving together, that being; the traditional and the modern.

Effectively the design seeks to engage with a younger generation of people and their desire for the new, modern and innovative but allows a sense of traditional retention in the craft of construction and detail that is integral to the Samoan culture and its identity. This will be explored in the design where traditional Samoan structural details with emphasis on crafting will be strengthened with modern materials and reinforcement systems. Understanding the role of hybridity and what it pertains for the research project is significant in not only understanding how to redesign for a devastated community but ensuring the proposed design is a way forward but embedded with strong value on retaining a sense of heritage in the built environment.

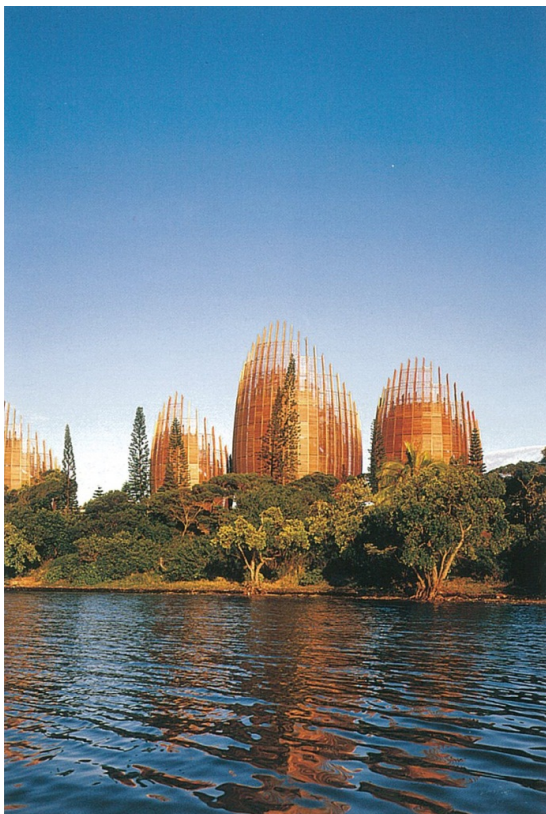


fig. 1.8 - Icon sketch.

chap. 3 case studies

Just as it is vital for the research framework to be discussed and studied within the context of relevant literature, the research must look to relevant precedent projects within the research scope to gain an understanding for design approaches and key strategies towards project execution from design to construction. The following precedents are located under three areas of discussion, designing for a specific cultural group, educational architecture and sustainable and resilient design. The projects uniquely display the innovative opportunities of design but also highlights the implications that come from working within cultural, environmental and governmental design parameters.

jean-marie tjibaou centre



The Jean-Marie Tjibaou Centre, a masterpiece of Renzo Piano is an intriguing rendition of hybrid architecture that embodies the identity of New Caledonia's Kanak culture in an unpredicted manner. This particular project was chosen as a case study for its complex design parameters where a cultural group and their history, tradition and customary way of life were integral to the design therefore pertaining key synergies with the objectives of this design research. The Tjibaou Centre used a deliberate design strategy and cultural approach that provides interesting discussion in analysing the design's integrity in its quest for preserving and celebrating Kanak heritage.

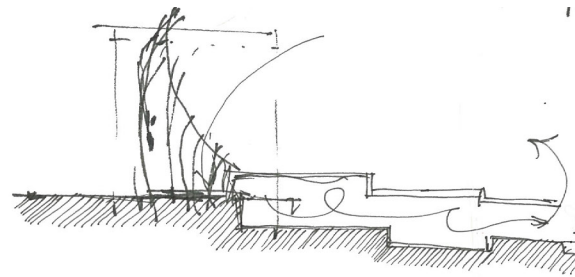
What is interesting in this research discussion is the that the cultural centre takes a modern approach in reflecting and appreciating the construction techniques and materials of the Kanak culture as well as an adapted version of integrated vernacular sustainability. The design strategy taken by Piano at a glance appears to run along the theoretical grounding of this thesis research in that an attempt has been made for balance between retaining cultural knowledge in the built form but adopting modern construction practices in order for the building to serve purposes of tourism, resilience in built form and general modern building capabilities. However while these qualities proved admirable in concept,



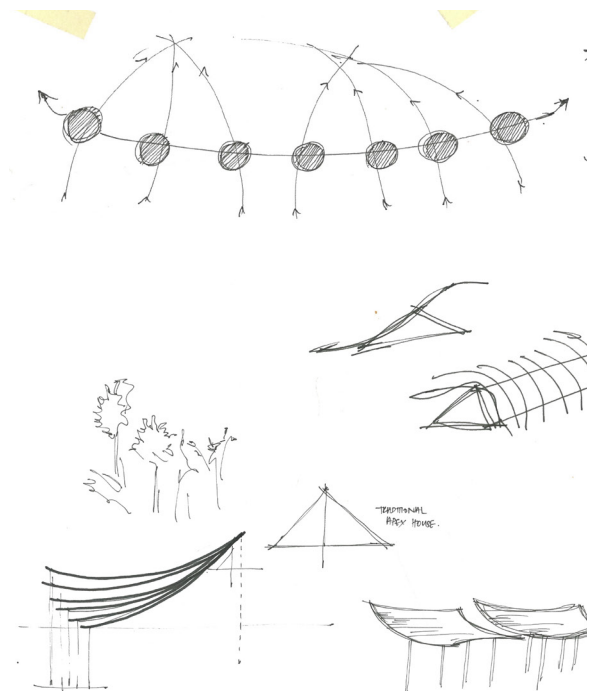
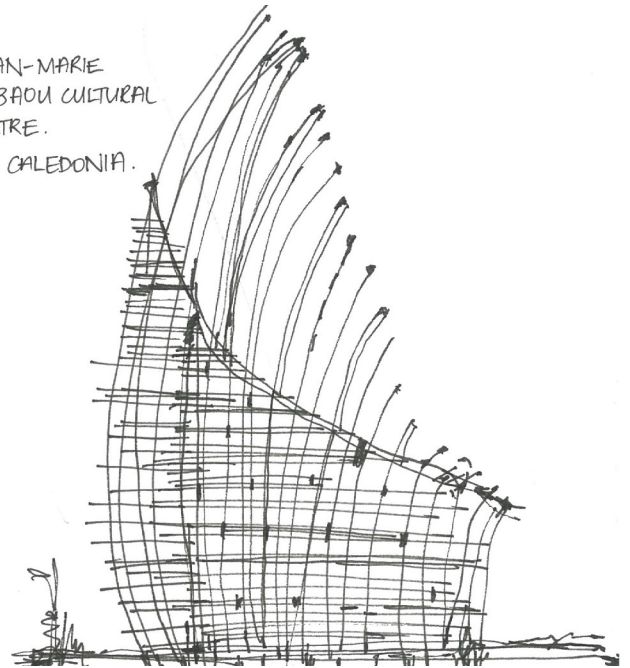
figs. 1.9 - Detail Photography. Tjabaou Centre.

some critics have outlined the several implications of this balancing act of sorts in the finished build. Such example is in the extensive study of the ventilation system (see fig.). Academic Carolynne Baker highlighted the original adaption of the form was subject to the consideration of the Kanak culture. However the computerized ventilation system did not work well with the form of the pods and they were eventually modified in order for effective airflow. With the allowance of the ventilation system to have an impact on the form of the building, the cases were no longer iconographic symbols of the Kanak culture and environment but technologically modified forms to best suit the human environmental qualities of the building.

This case study is valuable in that it positions a culturally engaging brief in the context of a programme that is not exclusively for the specified cultural group in question. Although Renzo Piano has been criticised to some extent for the execution of the cultural centre, what is admirable and relevant to this research is that this building is now an icon for New Caledonia. People are interested in the Kanak culture and captivated by the interesting forms and material palette of a cultural masterpiece. This research is seeking a similar pedestal in that it desires a perpetual effect of educating, performing and housing the Sa'anapu village community and the country but doing so in a positive and culturally sustaining way. Effectively, what this case study informs is that the design intention of this hybrid school in question must be assertive in its purpose. If it is to be a hybrid building, it must find and exemplify the balance between traditional and contemporary without completely disregarding who it is for and why it is being built.



JEAN-MARIE
TJIBAOU CULTURAL
CENTRE.
NEW CALEDONIA.



figs. 2.0 - Sketch Analysis Tjabaou Centre.

tiapapata faletalimalo

The Fale Samoa serves as a central point; both physically and symbolically for the Samoan culture. Transcending the typical functions of the house, the Fale orientates, performs memorialises and educates. This specific typology is integral to the research to discuss the importance of the design and craft of construction to the design proposal. A traditional Fale Samoa is difficult to find in the burrows of corrugated iron roofed, concrete block formed houses that run along the roads of the villages.

However a site visit to the Tiapapata Art Centre, 10mins drive from Apia town reveals a traditional faletalimalo- (a house to greet guests) exhibition fale that is a recent construction in the purest of traditional methods by the veteran Tufuga Fau Fale, Laufale Fa'anua of Sa'anapu. The very existence of this fale as an exhibition piece reinforces the shift of traditional Samoan fale steadily becoming a historic sculpture for a moment in time as opposed to a shelter for everyday habitation. The fale stands firm on its pae pae (rock foundation) spanning 7 metres in diameter. Twenty wooden posts bridge the space between the densely woven thatch roof and the stone grounding covered in weaved mats.

Entry into the fale is done so with a humbling bow to avoid head to pola (woven shades) contact. These pola are vital to the function of the fale. Just as the conventional venetian blind provides shade for our modern dwellings, the Samoan pola provides shade from the sun helps keep the wind and rain out.

The unique arrangement of posts that uphold the openness, the intricately woven timber members for the ceiling and the dominant three post central structure serve a physical and spiritual purpose. The three post poutu appears firmly planted in the centre of the fale. "The significance of raising the poutu (main posts) corresponds to the laying of a cornerstone in a European house and a feast is given to mark the event." (Beynon and Higginson).

Academic Albert Refiti also discusses the poutu as a mark of the ancestors who weave a spatial construct called the Vā, a co-openness located "at the centre of every gathering, every sociality and forms the structure for relationships between people (the living and the deceased) and space." The structure allows the "dwelling a sense of freedom- to prise open the Vā, and delay/ defer the ancestor-becoming in the present", present in the use of the fale; in the everyday habitation to the formal meetings of the council of Matai or Chiefs.

The intricately crafted timber ceiling holds significance in its embodiment of a spine. The weave and lashing of each individual structural member leave the markings of the Tufuga Fau Fale/ Master guild builder that are unique to the Sa'anapu Tufuga clan. In every sense of its original function to house and shelter, the fale resonates with the people, the body, the mind and the spiritual soul. It is this integrated design theme of the tangible and intangible, the seen and the unseen that is integral to the design research and proposal of a school and community centre. Just as the traditional Faletalimalo at Tiapapata protects, educates and entertains, the architecture of the Tufuga Tatau and Tufuga Fau Fale School must follow suit.

However this strategy is not something easily achieved. This case study presents an important issue of discussion for the design strategy. The typology of the Tiapapata faletalimalo presents the spatial and spiritual constructs of the traditional customs whereas what is being proposed in this research design is that of hybrid typology. The significance of the fale Samoa to the culture is highlighted by the integrity of this particular building type so what does it mean for this very integrity and authenticity of culture when then it is being merged/weaved and pulled apart. The design strategy to follow in later chapters will address this issue of the “middle ground” or balance that is desired for this project.



fig. 2.3 - Tiapapata Faletalimalo construction.



fig. 2.1 - Tiapapata Faletalimalo exterior.



fig. 2.2 - Tiapapata Faletalimalo interior.

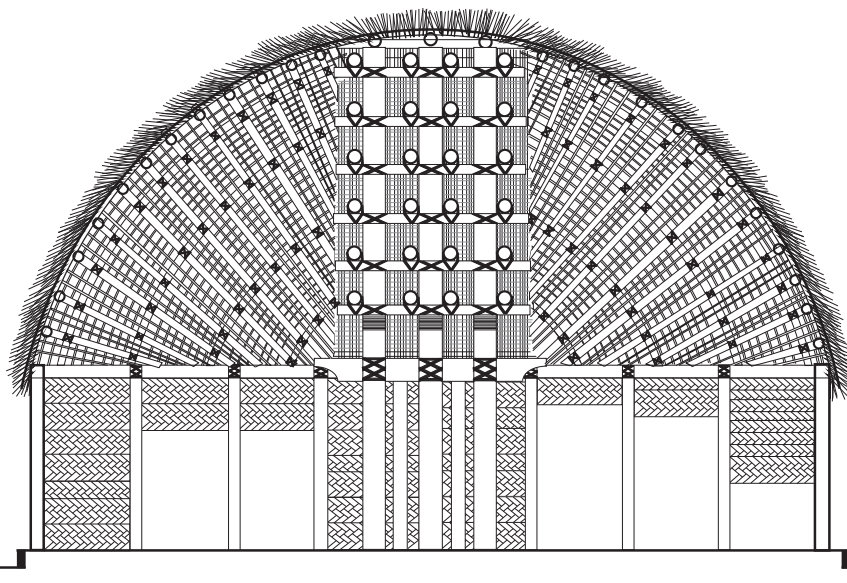


fig. 2.4 - Tiapapata Faletalimalo section drawing.

Käpäcläjui Indigenous Training Centre

The programme of this design research is primarily a collective of spaces for educational learning and teaching both on a private and community level. However the design programme also encompasses the integrated use of the site with an environmentally resilient intention in the form of designed access to a mangrove reserve in particular for difficult to access areas of usage by the village for resources such as food and everyday materials. This case study, the Käpäcläjui Indigenous Training Centre locates these key environmental design parameters in a real built project.

The project is described by its maker, Architecture firm Entre Nos Atelier as “a training centre and hostel that facilitates interaction between locals and visitors, and develops sustainable community projects in harmony with the environment.” The brief appears to present key synergies in its design parameters for the people both the community in site context but also tourists but also sets an environmental priority to the design. Built for \$400,000 US dollars in Costa Rica, the recently constructed project reflects a community project that is adapted for the climate, achieves spatial permeability and uses local materials. What is particularly interesting for this research is the direct involvement of the community in the design and construction phases.

“We investigated with the community about their qualitative perception of an ‘ideal’ space and the relationship with functional determinants. This information is drawn, diagrammed, interpreted and synthesised with the support of community leaders and translators of the local dialect to establish guidelines for the project and programmatic bases.”

The architects used a variety of methodological approaches as expressed not only did this allow for varied outcomes in the design process but the strategy appears to have been successful in the way the community were able to engage not only architecturally but environmentally, this project is in many ways an ideal approach to this thesis research. The participatory design influenced the strong connection the project pertained to the environment and this has been the case for this thesis research where the village of Sa'anapu expressed concern for their mangrove reserve and its future resilience, they described how resourceful it has been for them and more importantly how the Mangrove ultimately protected the low lying properties further inland from the impact of the tsunami. From there came the framework of the site analysis and understanding of the environmental context.

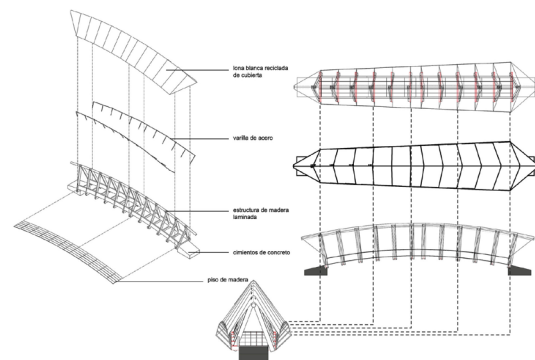


fig. 2.5- Käpäcläjui Indigenous Training Centre exploded construction drawing, roof.



fig. 2.6- Kăpăclăjui Indigenous Training Centre entrance.



fig. 2.7- Kăpăclăjui Indigenous Training Centre exterior.





fig. 2.8- extended family, Sa'anapu-tai photographed at home.

chap. 4 the site

the aftermath

After the devastating tsunami of 2009 the beach front area of the village, Sa'anapu-tai was left in ruins. For the people of Sa'anapu, the disaster changed their physical and emotional memory of their surroundings. Five years on, the ruins of the built environment remain scattered in their lifeless formations as if the last touch was the wave itself. Many of the families residing by the sea have relocated inland to higher ground due to the inability to re-build and the fear of a tsunami recurrence. However with this shift comes a perpetual shift in the arrangement of the village, issues in land ownership and a disconnection with the ocean that this fishing community on. Effectively for Sa'anapu, the history of their urban development tells the story of a community that for hundreds of years have seen and lived through the effects of climate change.

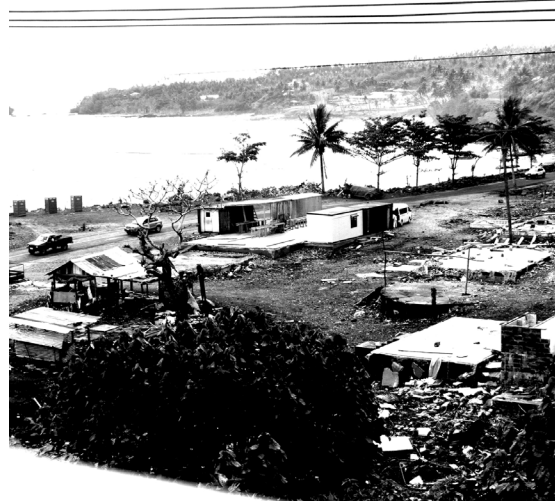


fig. 2.9- 3.2 Sa'anapu-tai ruins family houses.

historical urban development

Sa'anapu is part of the Safata District and is the largest village of the South Coast of Upolu. In following the traditional village organisation of land, Sa'anapu is divided into two zones, the original village, Sa'anapu-tai and the later developed area that is further inland called Sa'anapu-uta. Sa'anapu-tai is built on the foreshore embedded between a large mangrove reserve and the sea. Sa'anapu-uta was the village's later development along the main south coast road.

The later development started in the 1940's due to the increasing population and a shift in the mode of transportation from sea to land. It is here where the physical shift of the village occupation also became a shift in the sole reliance on fish as a resource and commodity. Substantial development of the land saw crops of coconut, taro and other produce become another major source of income for the village which still thrives today.

The boundary of the village to the sea is framed by a reef. This beneficial position between a bountiful mangrove and a protecting reef has served the village prosperity and economic resilience. Further to the village of Sa'anapu's reputation for healthy crops and livestock work, the village also holds great historical prestige in its status as one of the Tufuga Fau Fale Clans (Traditional Carpenters), with there being only a handful of Tufuga Fau Fale left many of them hail from Sa'anapu. The village's traditional carpenters are regularly employed for their skill and craft to build traditional fale for special functions i.e. International conferences, hotels, exhibitions etc.

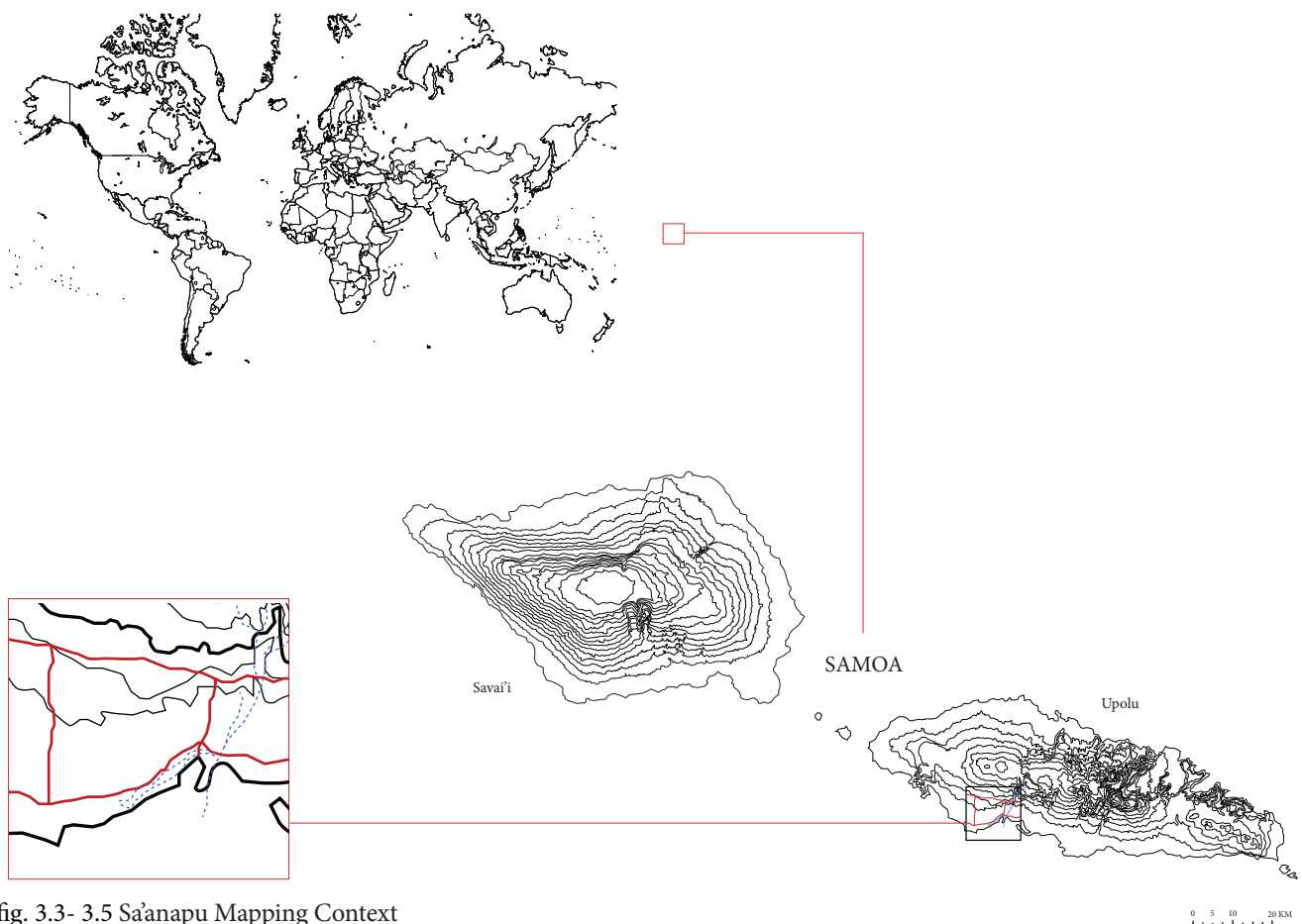


fig. 3.3- 3.5 Sa'anapu Mapping Context







fig. 3.6 Sa'anapu Mapping Context



This map was part of an analysis drawing exercise combining the existing map of Sa'anapu showing family land titles with the oral history from *Matai* Chief Popese Leaana from Sa'anapu. The lines convey the relocation of families in the village some experiencing great displacement.

The drawing also seeks to convey the shift in spatial arrangement for the village. The condensed area south of the drawing is Sa'anapu-tai. The layout of family land is radial, centralised by the main *malae* or central area where the church minister, high chief and one of two churches reside. As the lines ascend to the north of the drawing the village's spatial organisation shifts to being linear- along the main south coast road. This is the new development of the village, Sa'anapu-uta. This shift in the physical and mental image of the village is embedded in the history of their development.

What is particularly interesting for this research discussion is the historical precinct of the village structure and development. The spatial arrangement of the old Sa'anapu is characteristic of the coastal Samoan village as shown in the sketch from the 1940's by anthropologist Derek Freeman. It lies on flat land beside the sea and is connected by a coastal path. Clusters of sleeping houses, the associated cooking houses and structures for outhouses are arranged around a central malae or a central opening of land on which the church, the Pastor's house, meeting and guest houses also occupy prominent positions. The school stands on land that has been provided by the village.

From Freeman's map and also confirmed by the personal accounts of the village chiefs, the old Sa'anapu village displayed a unique arrangement of 7 traditional Fale Tele or meeting house built in a perfect alignment facing the sea. Over time these fale have been relocated, removed or demolished due to the rising sea levels that has brought extensive erosion and decay to that coastline. Today, only one of these traditional fale tele stands.

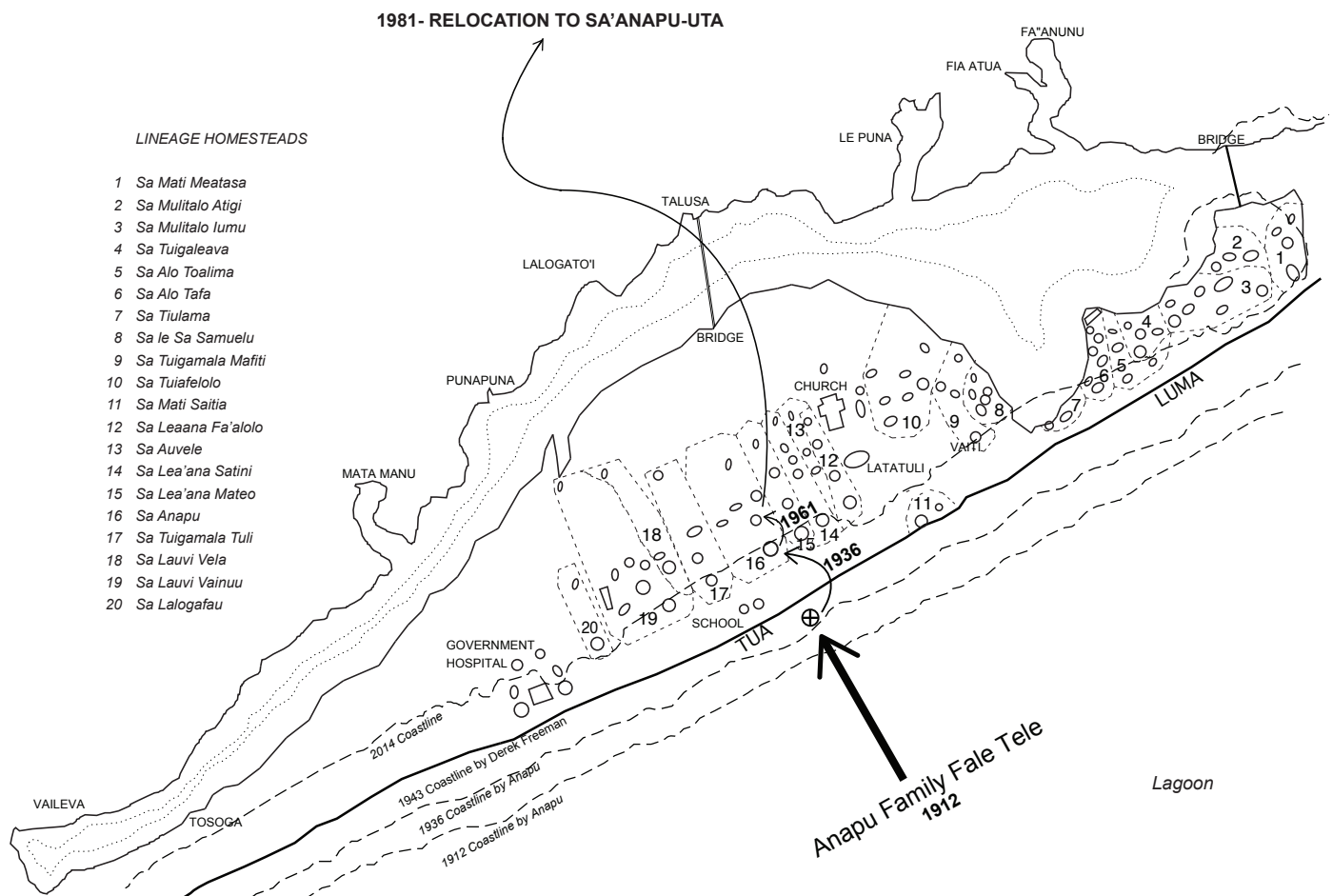


fig. 3.7 Derek Freeman Historical map.

Further on-site analysis developed by the research team for “Managing Risks for Adapted and Considerate Architecture for Samoa” included an extensive review of the existing typologies in the village. Considering Sa’anapu remains observed as a village of rich built heritage before and after the tsunami, the number of built fale Samoa still standing is concerning. The fale Palagi- the typical western house, has become increasing popular. Sa’anapu Tufuga Fau Fale, Laufale Fa’anu discusses the implications of an underlying western notion that impedes the society and culture of Samoa today.

“Building the fale Samoa is not an easy task, not only are the skilled men scarce but the processing of materials which is done manually is strenuous and time consuming. There are so many technology and new materials that we can use for the fale but I know it is not what we were taught. It is hard to keep building using what we know when there are easier ways to do it but our fathers and grandfathers and their fathers were able to do it so we must keep the tradition alive in staying true to what we know. What we do understand is that as long as the Falematai system is strong, the construction of traditional fale will remain. We are not saying it will flourish but we will never let it die.” (Fa’anu, 2013)

The mapping shows an increasing rise in the number of western housing. New technology, access to modern materials and also a desire for long term durable housing, the fale Samoa that is embedded in the culture of Samoa is in a concerning decline. This analysis is important in highlighting that the rise of the western house is inevitable and although it is against the issue of cultural assimilation, the resilience these houses have against natural disasters means is a positive move towards disaster proofing communities. However it is here where the thesis argument interjects and proposes that new buildings have the design potential to integrate both the materiality and technology of the western house for future durability but be aesthetically adapted to the cultural craft of the fale Samoa.

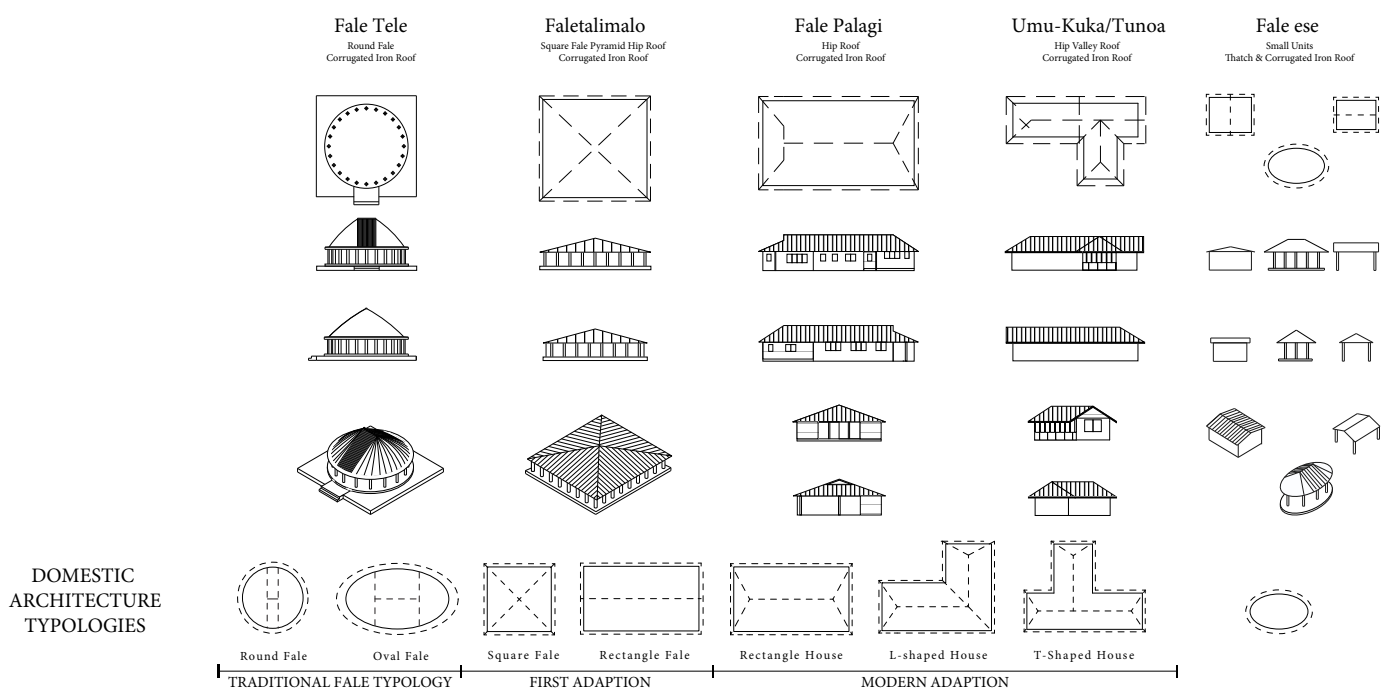
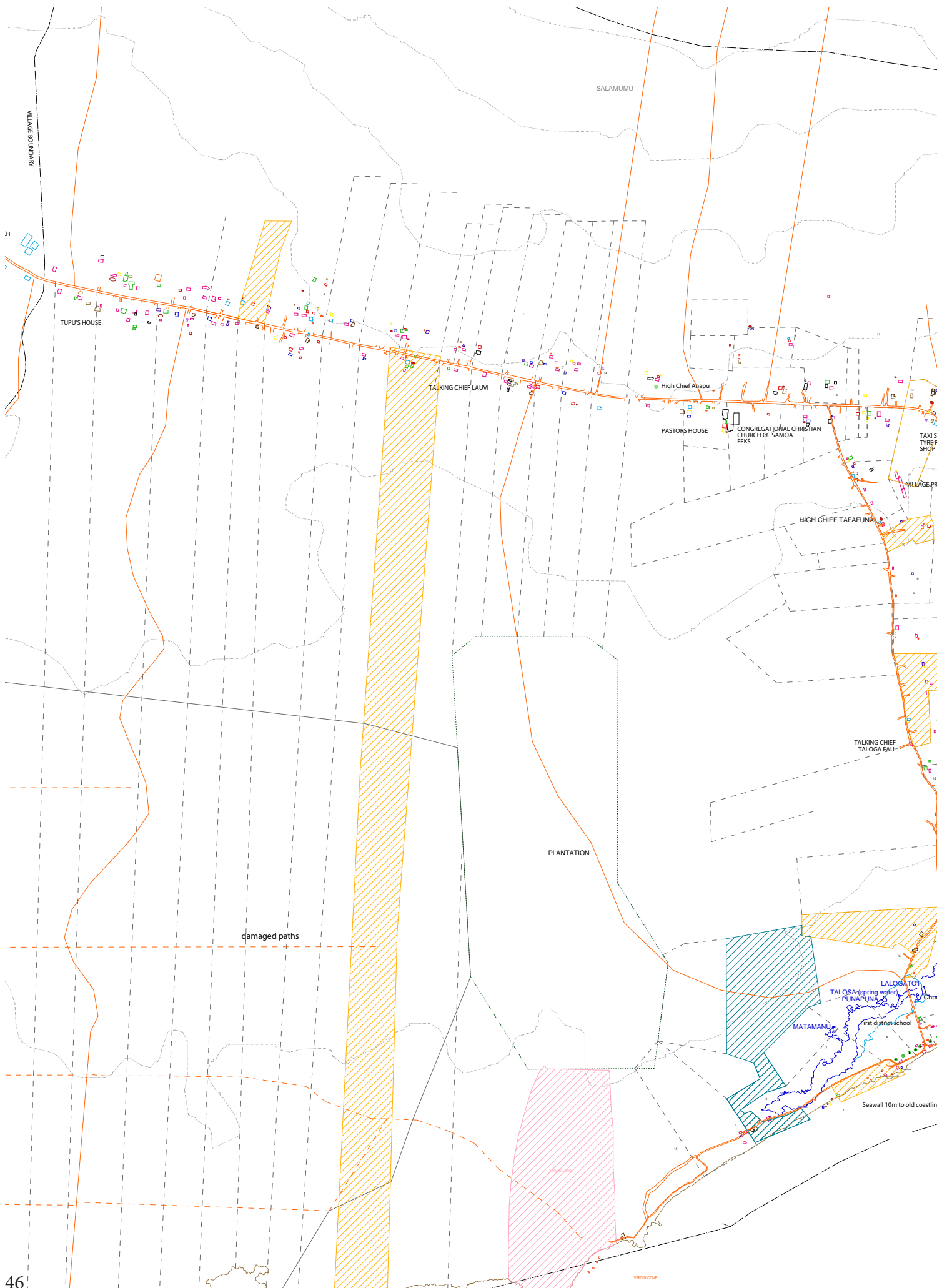


fig. 3.8 Typology Study Sa'anapu.



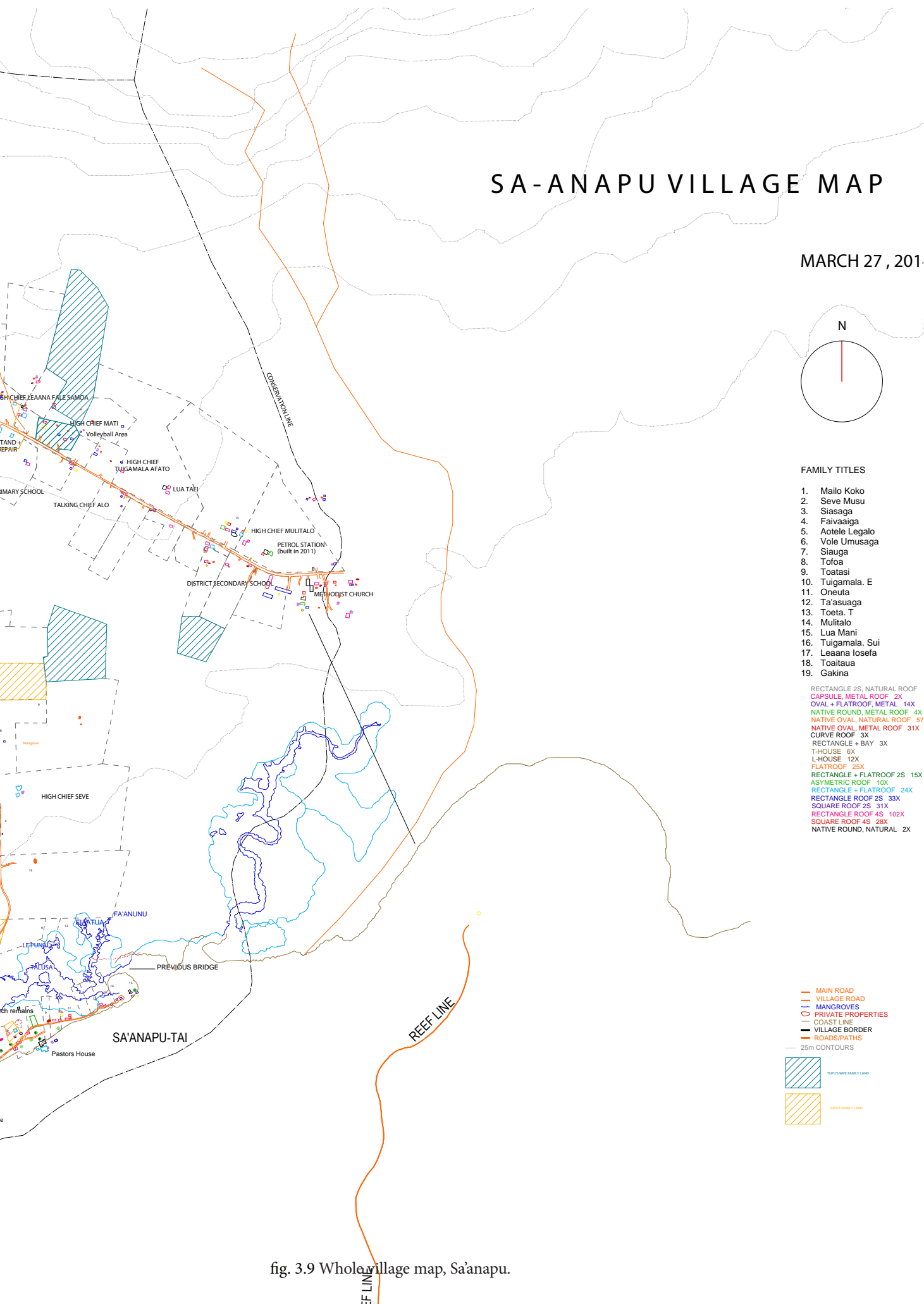
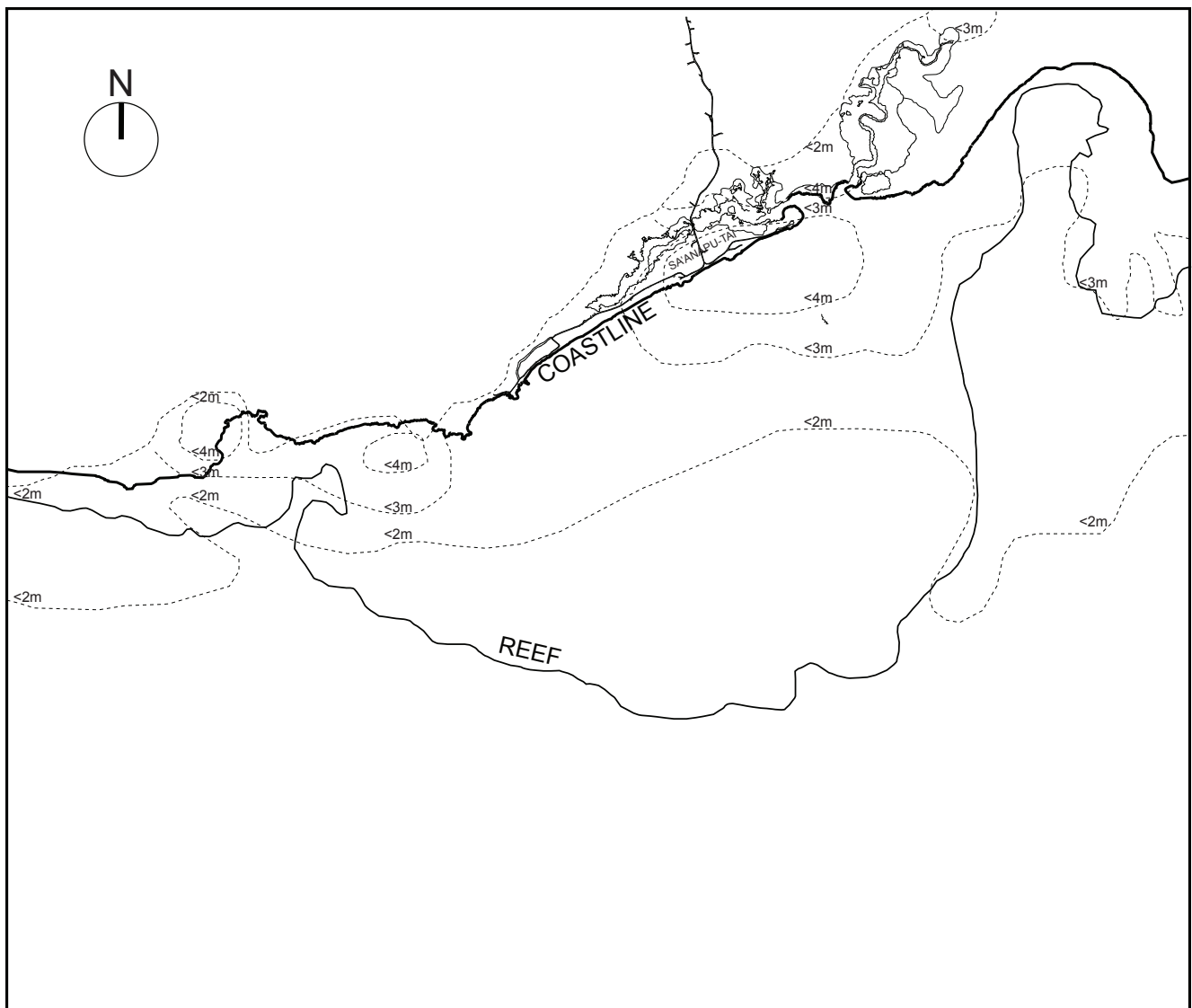


fig. 3.9 Whole village map, Sa'anapu.



fig. 4.0 -4.1 Mangrove Photos.



Computer-generated model of maximum wave height 30 minutes after a large tsunami generated along the Tongan Trench by a hypothetical M9.1 earthquake. By this time the first wave would have inundated the coastal fringe. Contours indicate calculated wave height above mean sea level. Model generated by Emily Lane, NIWA. Note that Sa'anapu-tai and the Mangrove Reserve are in the 3 to 4 metres maximum wave height zone.

fig. 4.2 NIWA Map. Inundation line.

The village of Sa'anapu is home to one of the largest mangrove reserves in Samoa. Mangroves serve an important role in the ecological reserve areas for many coastal villages such as Sa'anapu. For Sa'anapu the mangrove is a source of water, food- such as fish and crabs as well as building materials which can all be used as a source of income when sold at the town markets. Mangroves also assist in the conservation of marine species acting as good breeding, feeding and nursery grounds for many fish and shellfish.

After the 2009 tsunami the people of Sa'anapu found that their Mangrove Reserve played an essential role in the mitigation of damage caused by the force of the waves. Although the mangrove trees and shrubbery suffered damage the areas directly behind the mangrove suffered considerably less damage as if protected by the mangrove itself. Integral to this research thesis is the resourcefulness of such an ecological reserve and the design opportunity it presents as a project site. Further research into the Mangrove with the assistance of data provided by Hydrodynamics Scientist Dr Emily Lane and Principle Scientist Dr Geoffroy Lamarche from National Institute of Water and Atmosphere (NIWA) New Zealand shows the effects of the tsunami waves on the south coast region where Sa'anapu is located and the inundation lines as the waves move inland. (fig.)

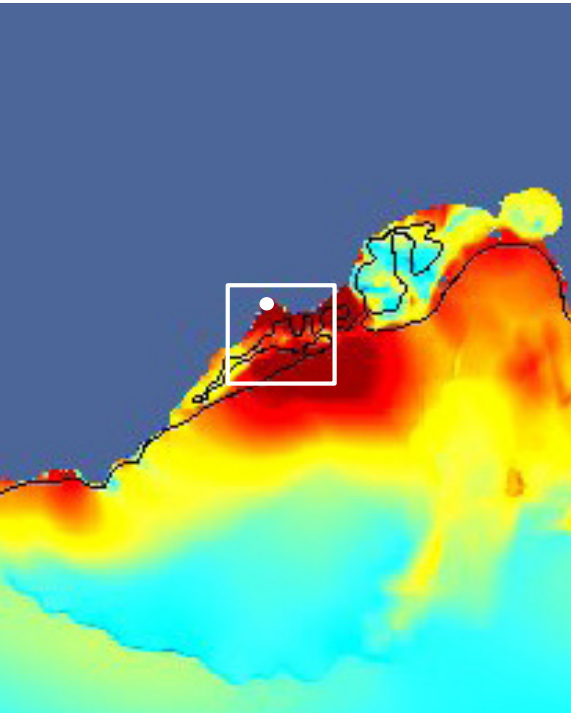


fig. 4.3 NIWA Map. Inundation line.

The entire land area of the coastal front zone of Sa'anapu-tai is entirely taken out by the wave continuing right up to the northern most boundary of the Mangrove reserve. This data although a digital animation is profoundly accurate when physically present at the site. The devastation of the housing, vegetation and landmarks leave a lasting image of what the waves would have been like for the community.

Significant to this thesis is the computer generation of the hypothetical wave by Dr Emily Lane that represents an extreme scenario of a 9.5 scale earthquake and the tsunami waves that it would generate. Figure x shows the zone line of where the waves would reach inland, that top of the mangrove. Along with the unique opportunity the mangrove presents both for the community and for the architecture of the proposal this data and scientific calculation has informed the chosen site of the design proposition. This is the closest site to the sea that allows for a new building to be viably safe and realistically encourage sustainability and resilience both structurally and physically for the people of Sa'anapu. This is in hope, the the physical “return to paradise”.

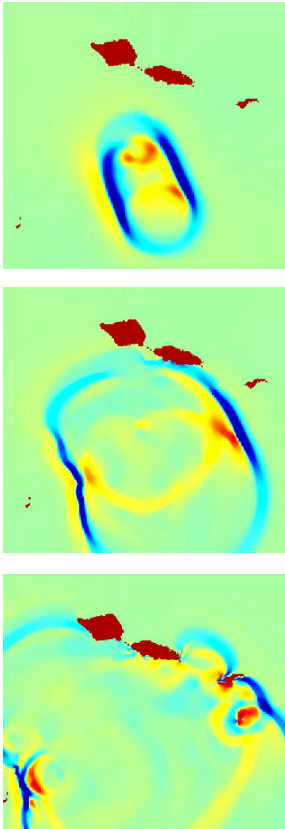


fig. 4.4 NIWA Map. Inundation line.





fig. 4.5 Mangrove Site Photo, Sa'anapu-tai. 2014

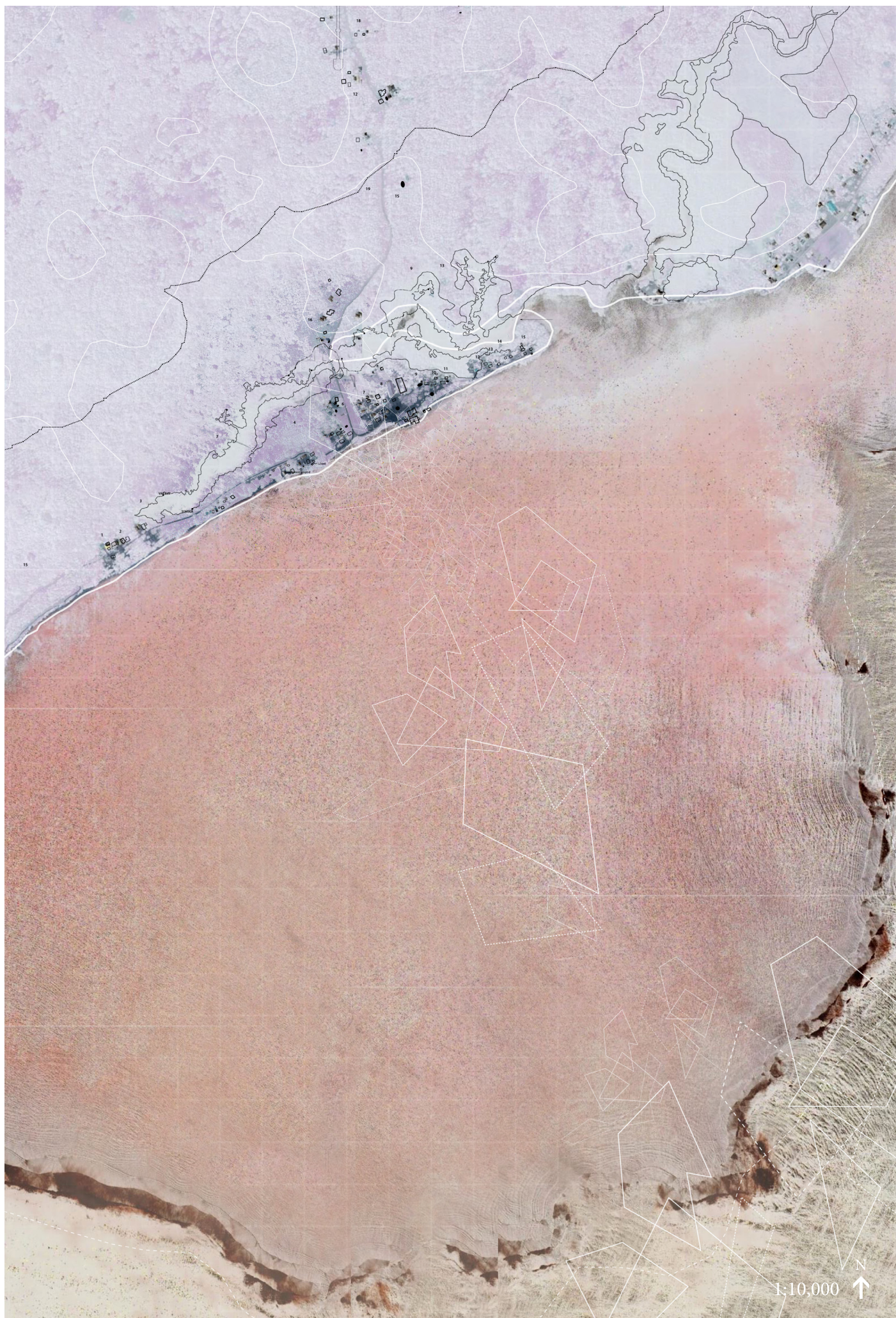


fig. 4.6 Reef to Coast Map.

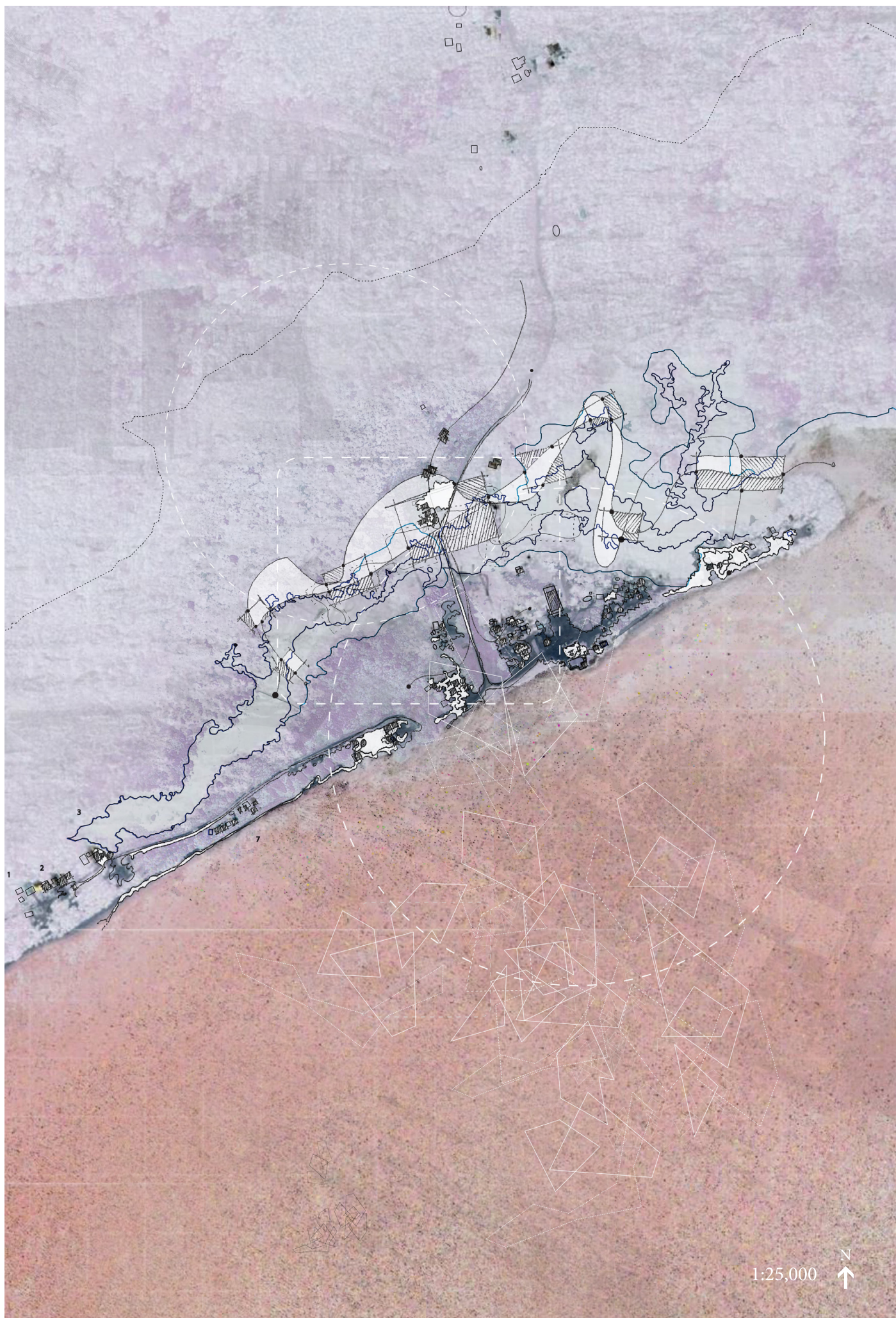
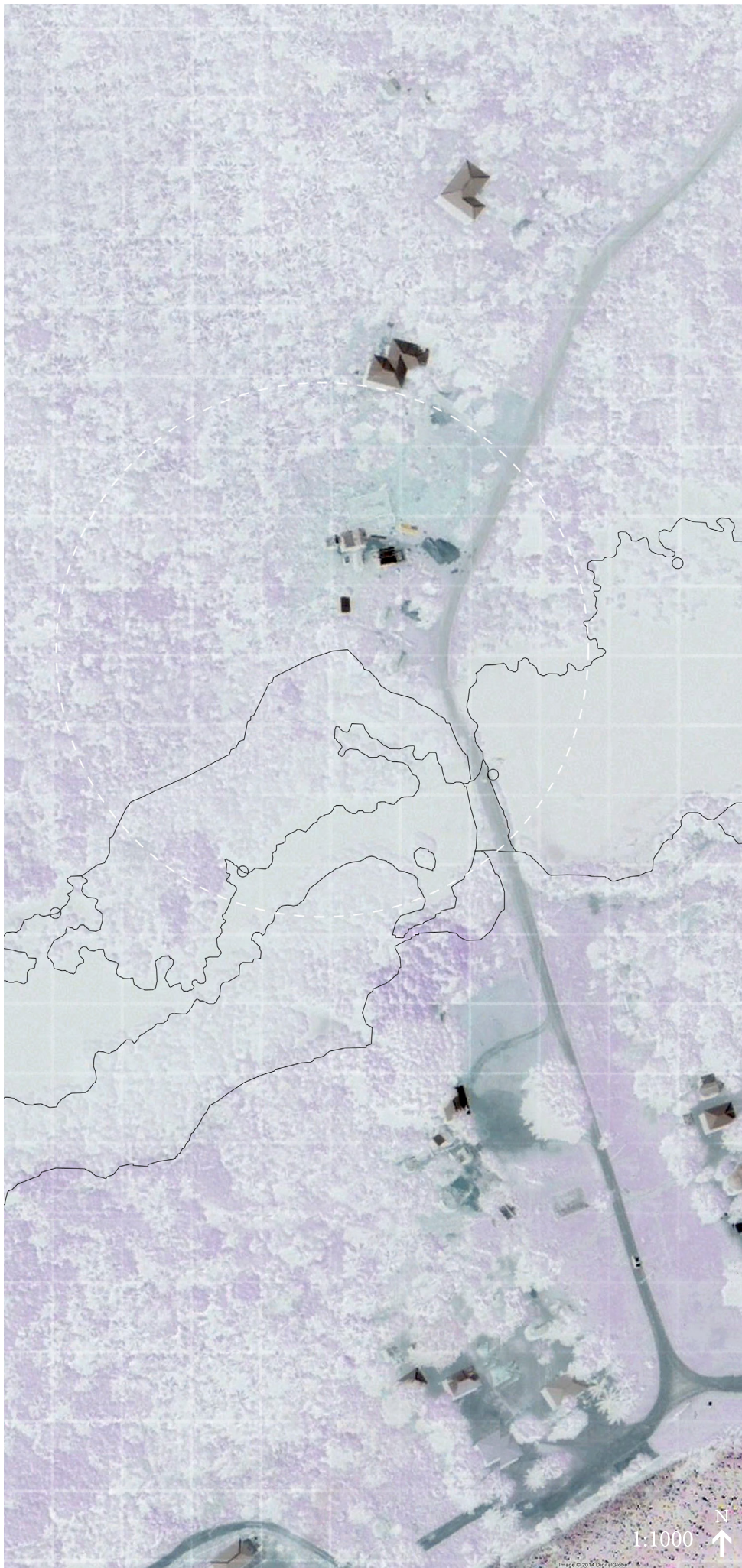


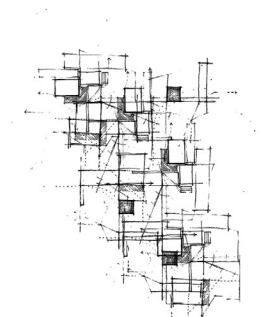
fig. 4.7 Coast to Mangrove Map



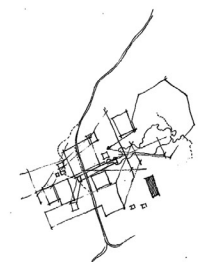
MANGROVE

After the 2009 tsunami that affected 80% of the south coast villages of Samoa, scientists at NIWA and the University of New South Wales conducted site research on the role of the mangrove reserve in Sa'anapu. Site observations and trench analysis found that the natural and built environment located in the areas directly behind the mangrove suffered minimal damage in relation to the area directly on the coast line. The research found that the extensive mangrove plantation had dramatically reduced the energy of the wave as it approached inland.

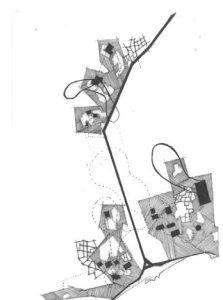
Risk Analysis Report. UNSW. Goff, James. 2011.



mangrove areas of use



access



mangrove service areas

fig. 4.9 Mangrove Map

The three mapping-out drawings are a montage series of analysis sketches, maps and photo textures of the site to communicate the scale of the site in relation to the reef and to the mangrove. Having a comprehensive understanding of the site and its conditions were integral to the research as the methodology included the use of extensive scientific mapping and graphs that assisted in informing the chosen site.

These drawings started out as a single layered water coloured sketch however more layers were added as information was sought and revealed about the site's history, the changing boundary of the mangrove and the extent of the ruins in Sa'anapu-tai. Important to this mapping exercise was acknowledging the cluster of houses in relation to the surrounding forrest and plantations. It is in this identifying of the houses in plan that the village organisation could be observed and compared to the historic maps and drawings of Derek Freeman.

chap . 5 the programme

The proposal for the site, Sa'anapu on the south coast of Upolu is a **Tufuga School**. It will be the design of a hybrid school/academic retreat that will house the teaching of the traditional and non-traditional **fau fale** (carpentry craft) and **ta tatau** (tattooing). The idea of the proposed programme is to encourage any persons men or woman to be accepted into the school, spend a certain amount of time in this academy to learn the skills of the au Tufuga.

Educational Spaces

Spaces are to be designed with the traditional spatial constructs in consideration- The Va, central *malae* or *physical openness*.

Interviews with Tufuga fau fale and Tufuga ta Tatau will inform the spaces necessary for such learning activity.

The design will explore a new direction for samoan architecture - The modern day Fale Samoa.



fig. 5.0-5.1 Tiapapata Construction Photos



{ “We are not saying it will flourish but we will never let it die.” (Fa’ānu, 2014) }

Community Centre
Environmental Focus

Develop infrastructure around mangrove to create an easy access catchment centre for the village to collect resources and for tourists to explore and learn about the village's natural environment.

The learning centre should encourage the community and visitors to gain an appreciation for the environment.

Community Centre
Economic Sustainability

The is to be designed with flexible spaces to cater for potential market space. The village community are able to access a local market to sell goods to surrounding south coast villages as opposed to travelling long north to Apia central market with their products. This design seeks to bring visitors and locals to the south through the visitor centre and also as proposed architectural landmark.

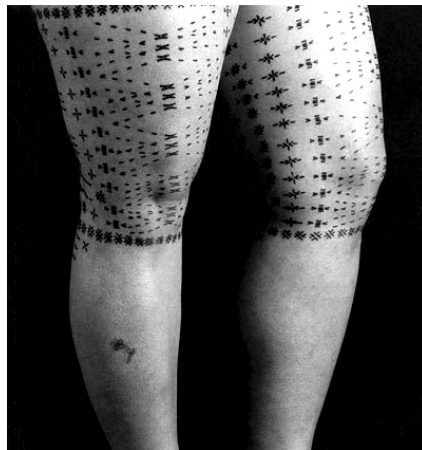


fig. 5.2-5.3. Samoan Tatau, Tattooing. 2013



chap. 6 designing for paradise

prelim.

This design research thesis sets out to test the design, cultural and environmental parameters and opportunities of a post-disaster scenario for a new community building in the village of Sa'anapu. Till this section the thesis has presented a range of issues that covers the premise of the design question, the site and the strategy to frame a proposed design. The preliminary design was conducted through a systematic drawing- out method working through site conditions, spatial planning and form. The prevailing parameter which directed this drawing process was the analysis and testing of the three components- site, spatial planning and form through both the western typology and that of the traditional fale Samoa.

status of the fale

In order to take an informed stance on the role of the traditional and non-traditional aspects of Samoan architecture for the design, it was integral to conduct a secondary study of the Fale Samoa and examples of hybrid architecture born from the structural framework of the traditional example.

The following drawings were drawn as part of a “drawing by the eye” process while in Samoa. It was in an effort to recreate the method used by traditional carpenters to build and construct “with the eye” in a sense, they were to understand the building as a skeleton of bones, that were unique and could not be pre-measured, drawn and planned prior. “Construction was from the ground up. Everything had a place, every timber member had its own meaning.” (Pula, 2013)

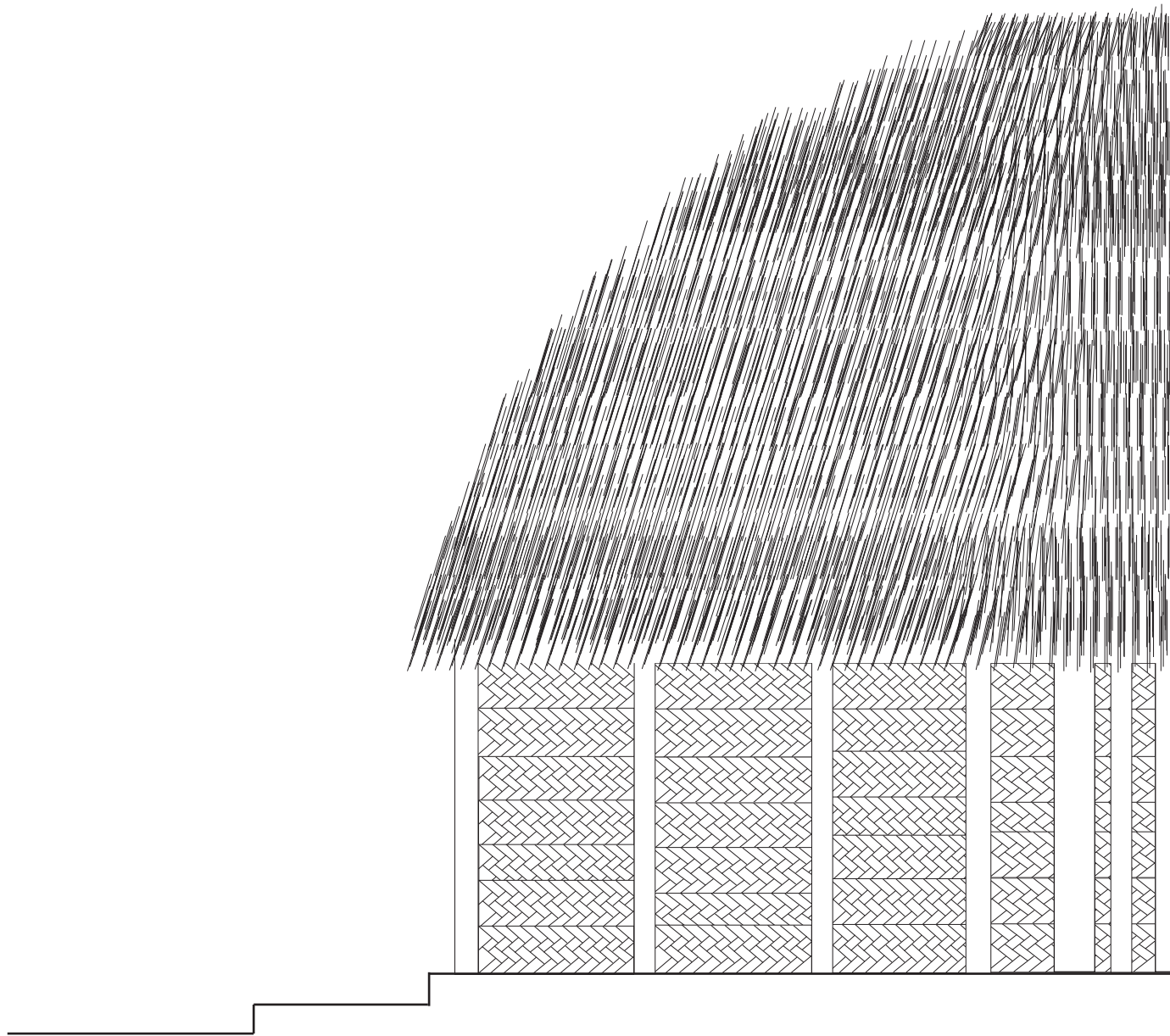
The drawings were completed firstly as sketches from numerous site visits and visual recording. The understanding of the building, its construction process and the intricacy of detailing became a thing of memory.



fig. 5.4 Tiapapata fale, Exterior

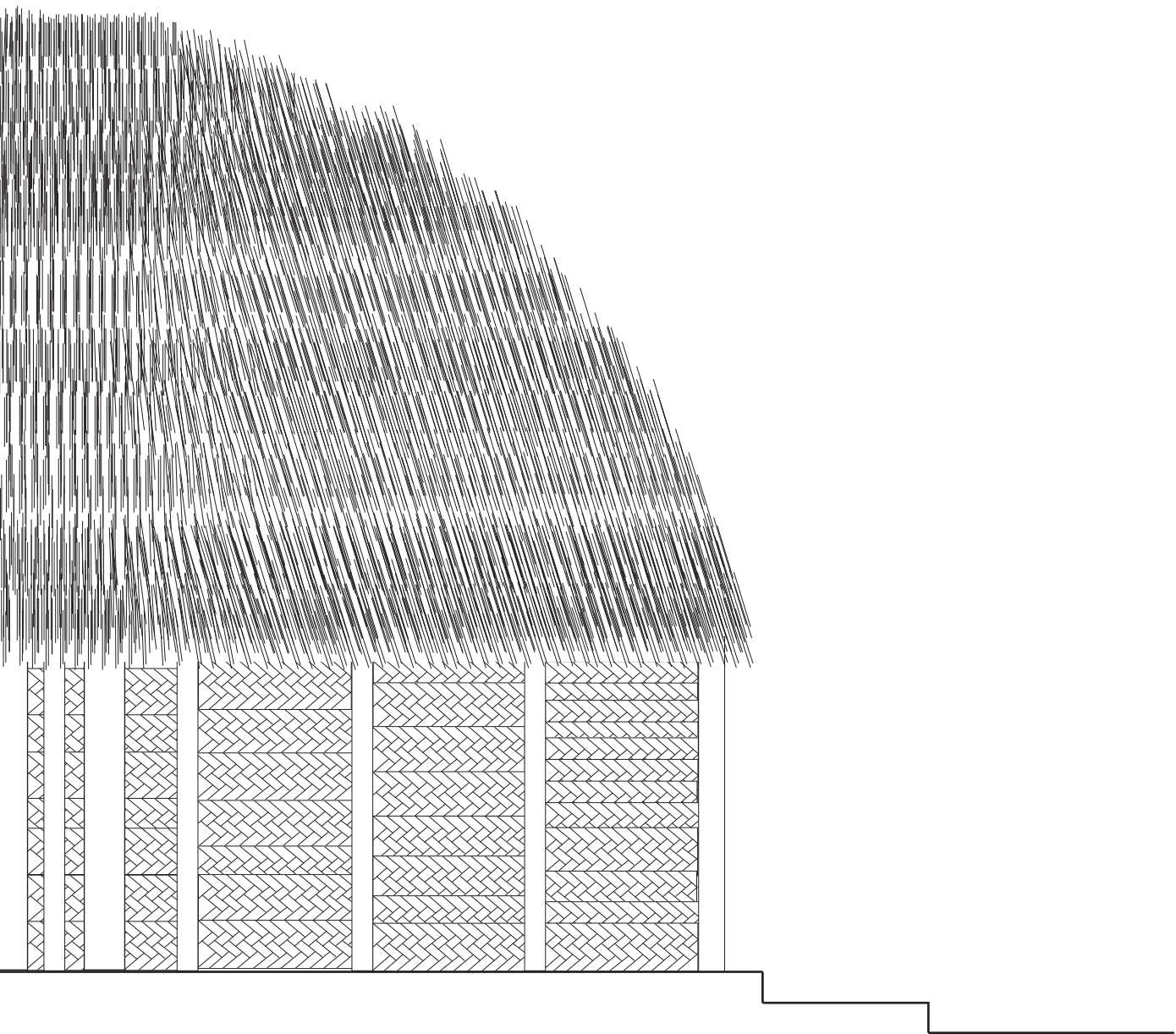


fig. 5.5 NUS fale, Exterior



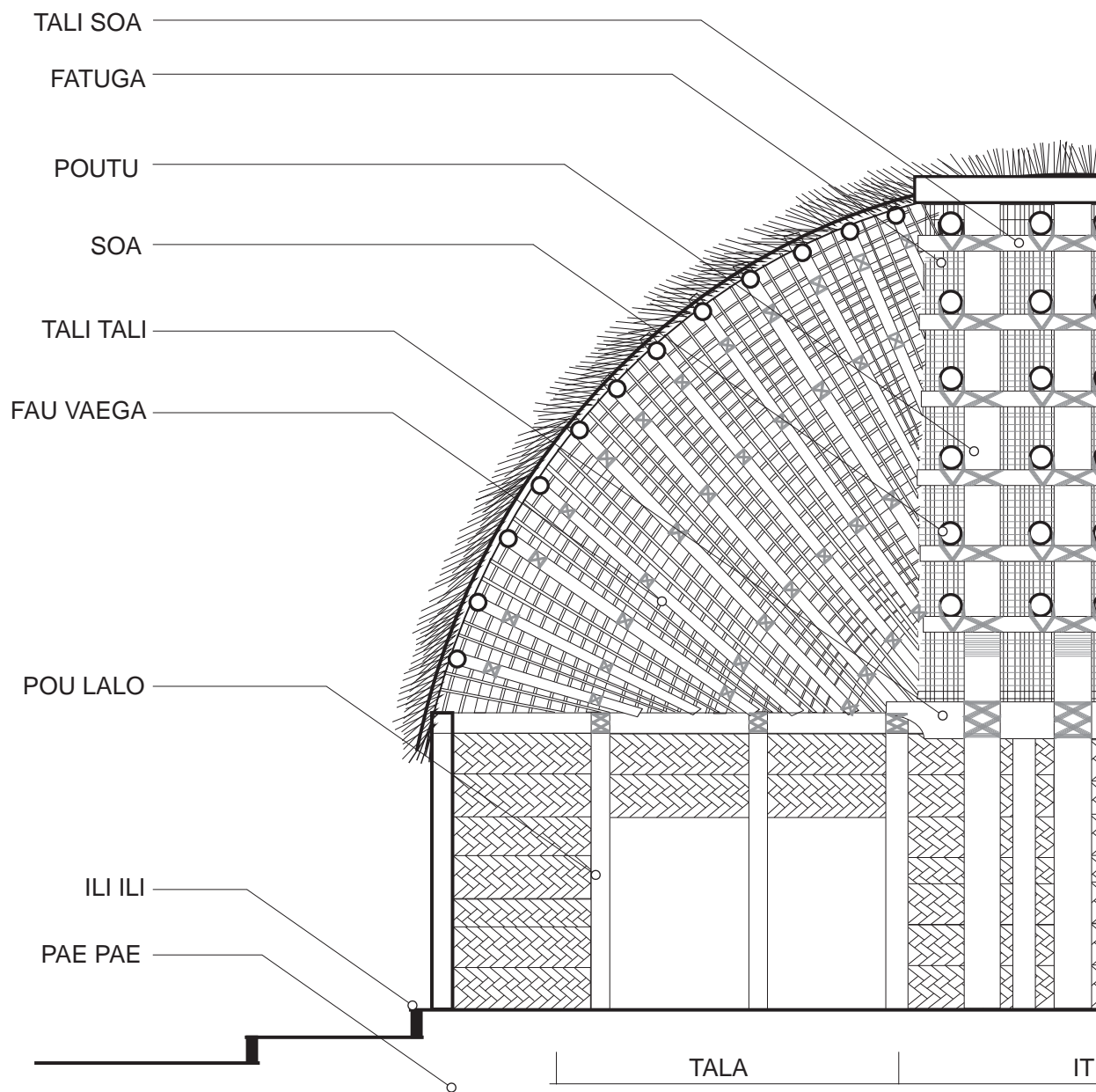
ELEVATION

fig. 5.6 Tiapapata Elevation Drawing.



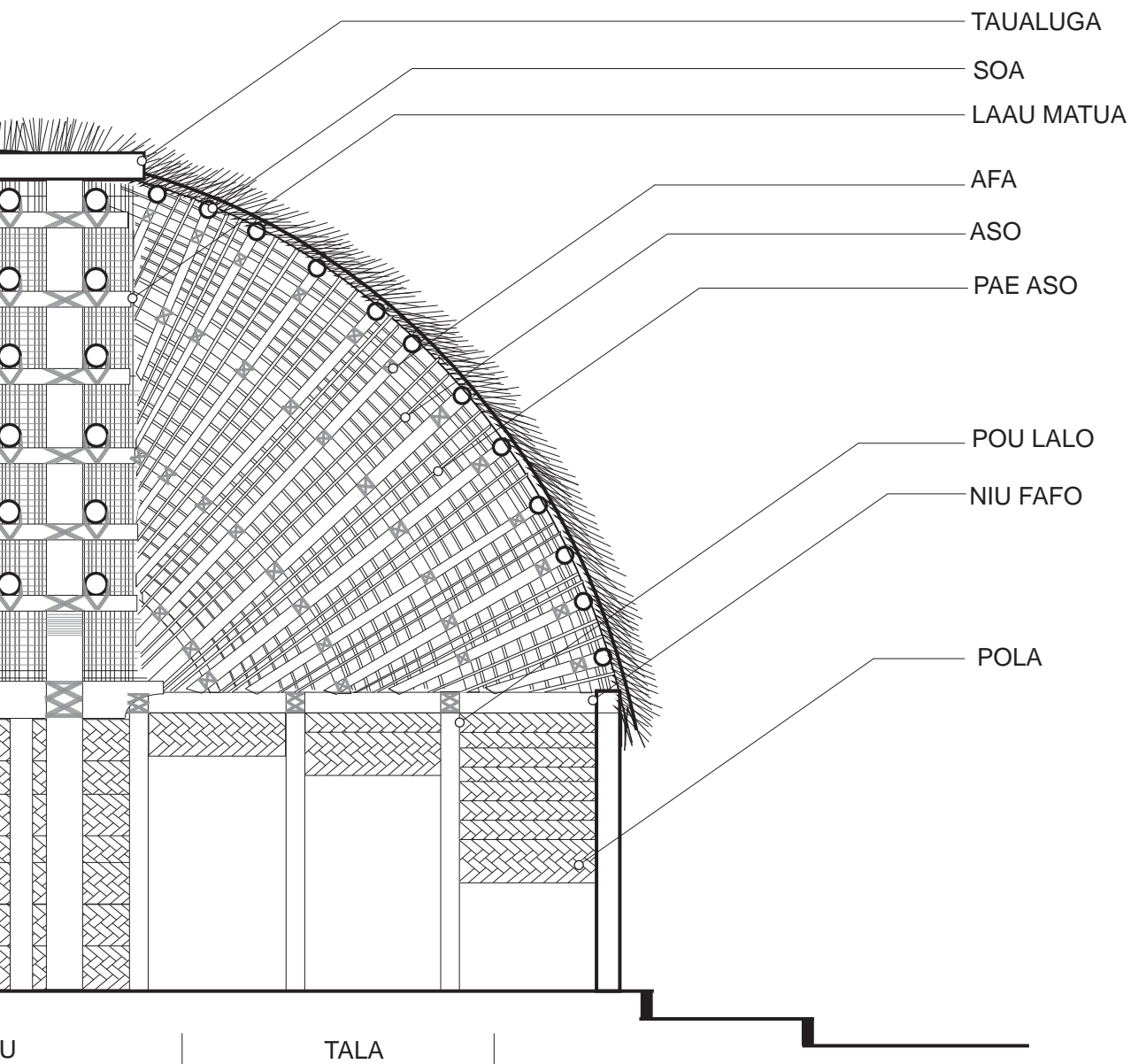
FALETALIMALO **TRADITIONAL**

TIAPAPATA ARTS CENTRE
TIAPAPATA, SAMOA



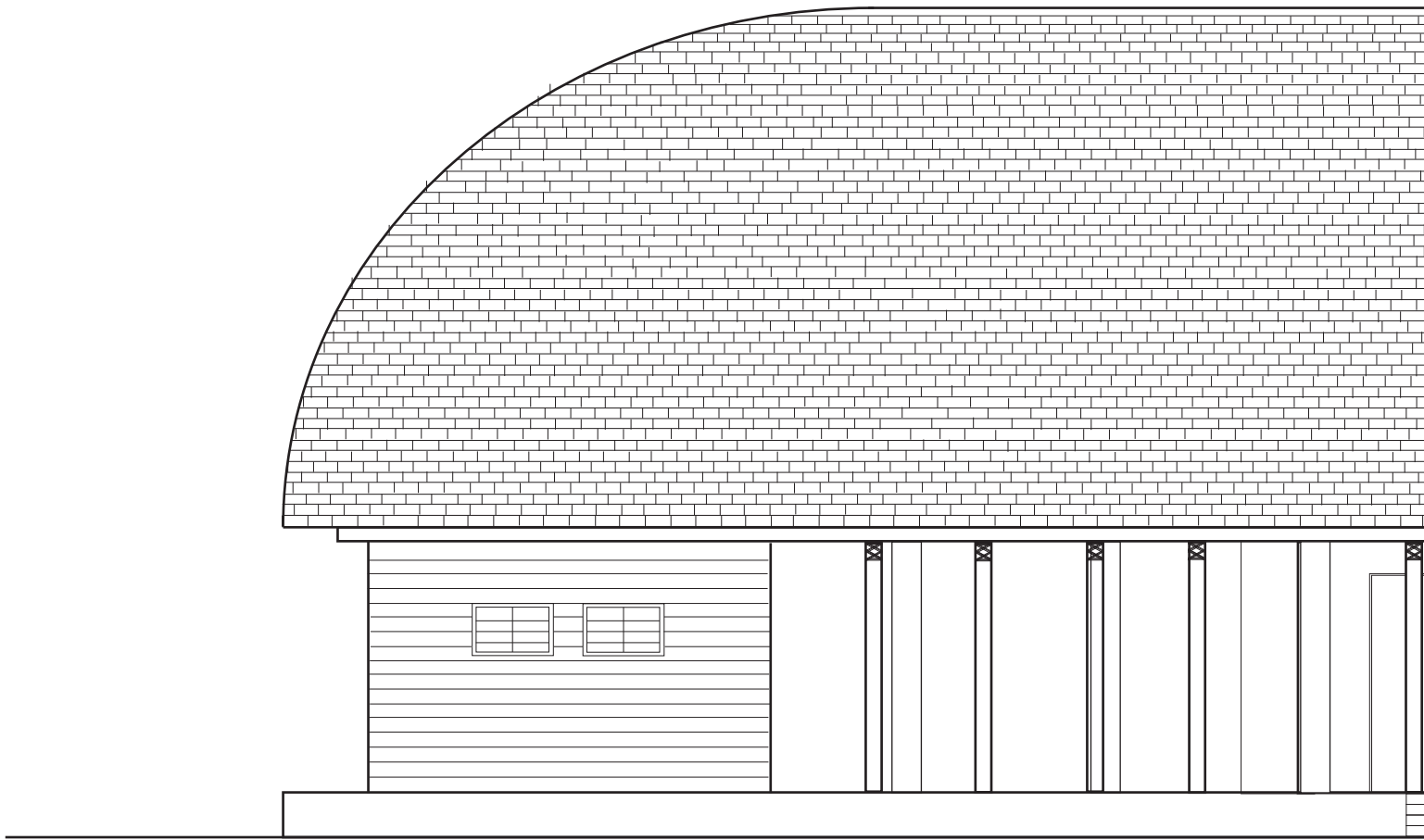
SECTION A-A

fig. 5.7 Tiapapata Section Drawing.



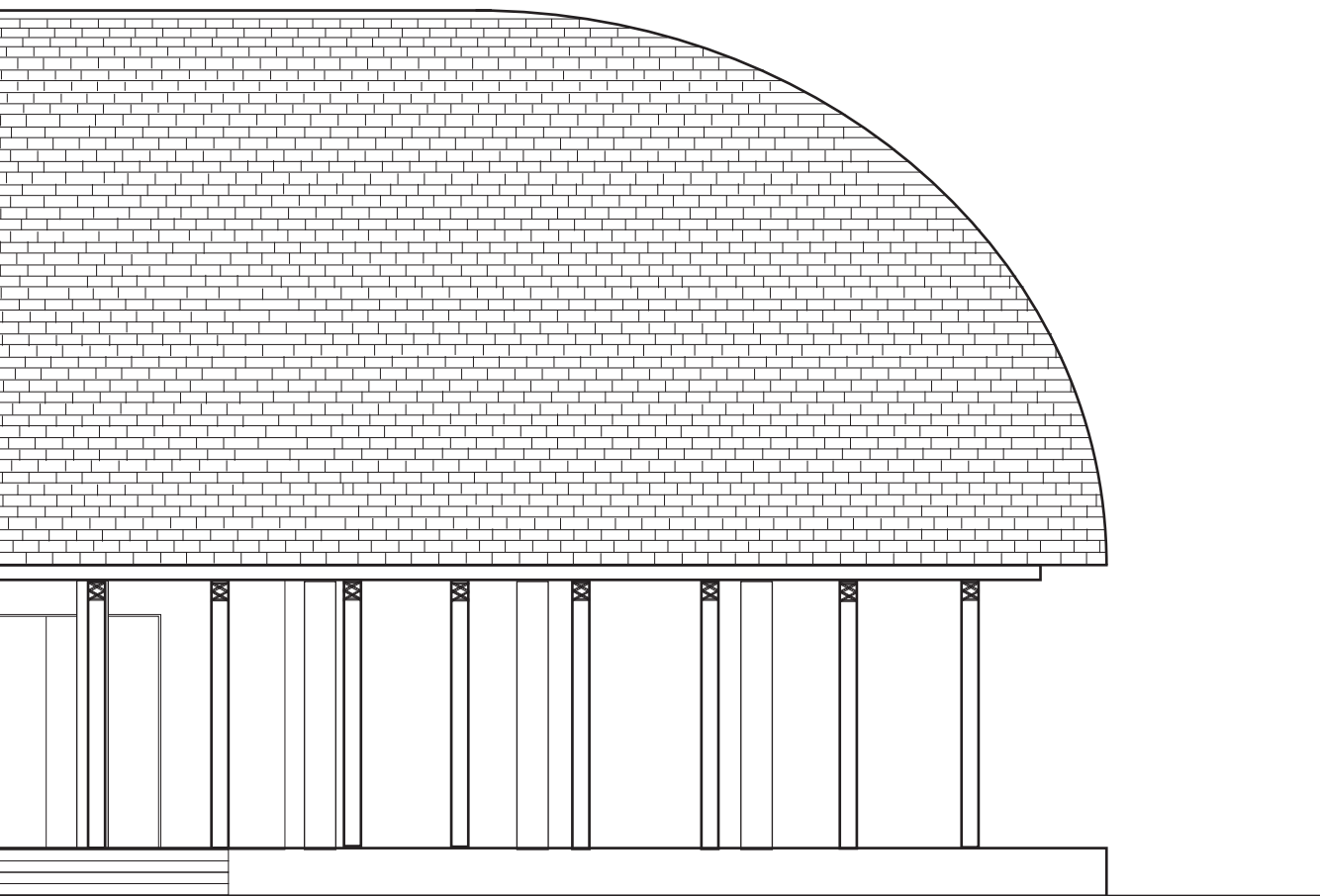
FALETALIMALO TRADITIONAL

TIAPAPATA ARTS CENTRE
TIAPAPATA, SAMOA



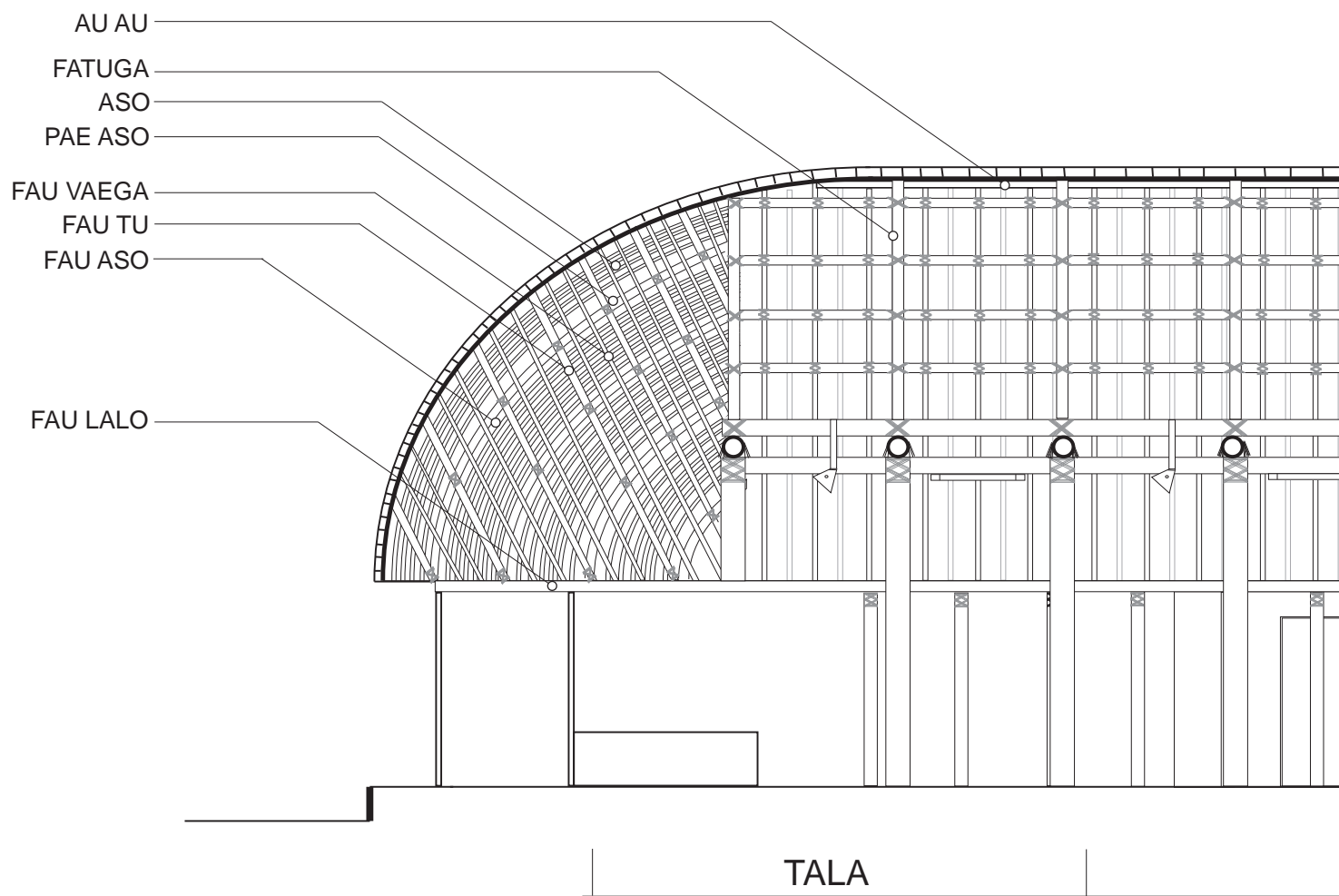
ELEVATION

fig. 5.8 NUS Fale Elevation Drawing.



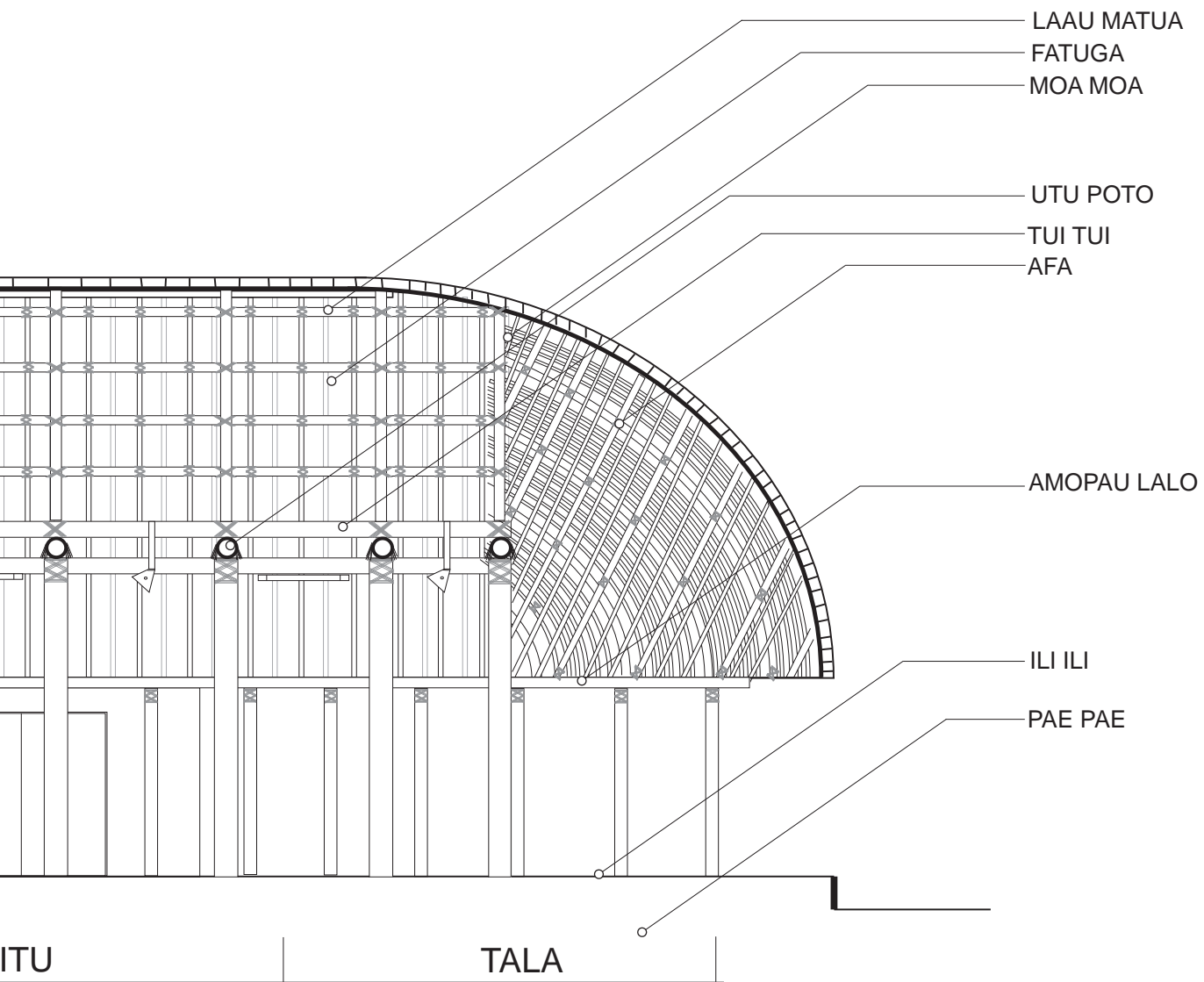
FALE TELE **NON TRADITIONAL**

NATIONAL UNIVERSITY OF SAMOA
MAAGIAGI, SAMOA



SECTION A-A

fig. 5.9 NUS Fale Section Drawing.



FALE TELE NON TRADITIONAL

NATIONAL UNIVERSITY OF SAMOA
MAAGIAGI, SAMOA

adoration of the detail

The analysis of the traditional and non-traditional typologies of the fale Samoa was an insightful resource moving into the preliminary design phase as it highlighted the importance of craft in detail for the fale construction. The intricate detailing of every weave, fold and lash of the timber members played their own unique roll in the form and structural integrity of the building. Discussed widely by Italian architect Carlo Scarpa the concept of the joint and connection of each structural member takes priority in the design phase.

This design exploration tests the idea of prioritising and highlighting the joint. For Samoan architecture, this is already how traditional carpenters worked. However as explained this was done in the instance of constructing whearas these sketches were an intial trial at brainstorming design ideas on an intimate scale. This method intentionally challenges the traditional perception of the plan section and elevation as the prevailing methods of communicating a built project. Fitting for this exploration as traditional carpenters did not draw, there were now drawings, only the visual image in their eye.

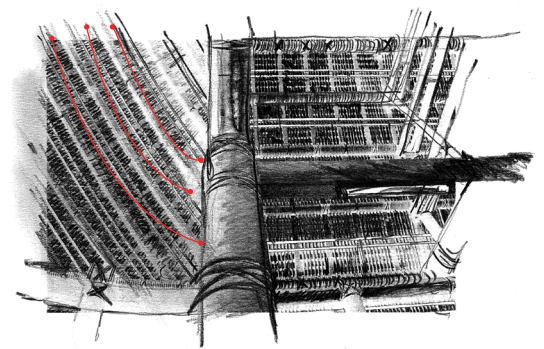
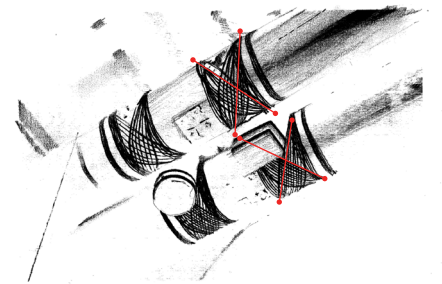
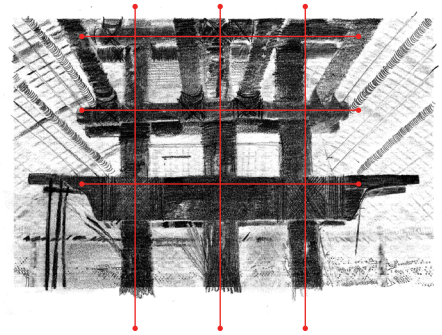
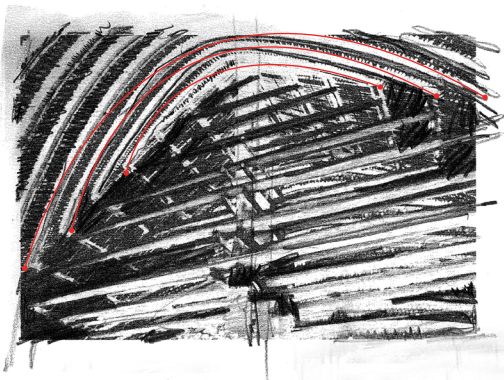
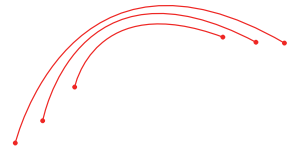
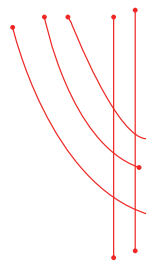
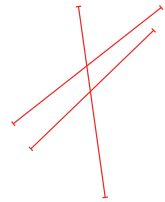
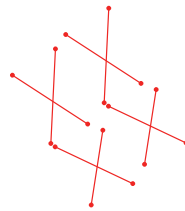
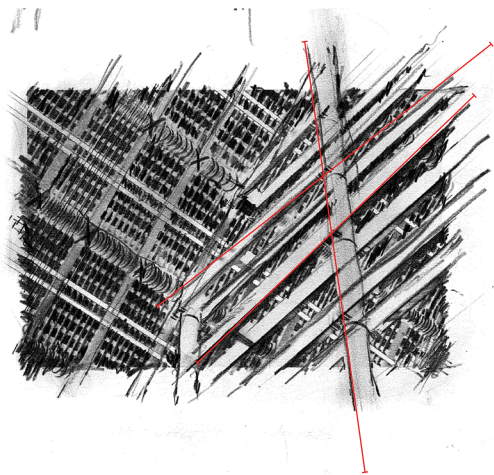
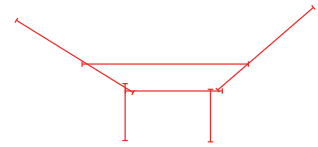
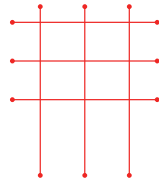
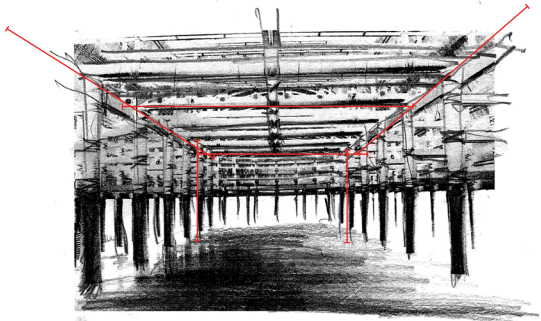


fig. 6.0-6.5 Detail Sketch, NUS Fale.



This drawing exploration observed key joints and details of the false tectonic. The detailing and form is a key design aesthetic that will be taken into the developed design. The skeletal structure is delicate yet is incredibly strong in tension and could be integrated together with various modern materials such as steel plating and reinforced columns.

The va is an important spatial construct used to describe tangible and intangible relationships between people- living and deceased, objects and in this particular case the built environment. What is integral to this research is how the spatial organisation of the Samoan village was used as a strategy to inform the spatial layout of the proposed design.

Using the principles of the Va, to centre the masses of the building around a central point started as initial sketches based around formal and informal living and learning spaces.

Figure 6.6 shows the spaces being ordered and positioned based on the appropriateness of the connectivity. Formal learning spaces are grouped together whilst the bathrooms, and small living quarters are disconnected from the arrangement.

Figure 6.7 is the spatial arrangement as a formal exploration taking form from the triangular connections made from identifying open spaces that weave in and out between the mangrove forest and bush (fig.6.8)

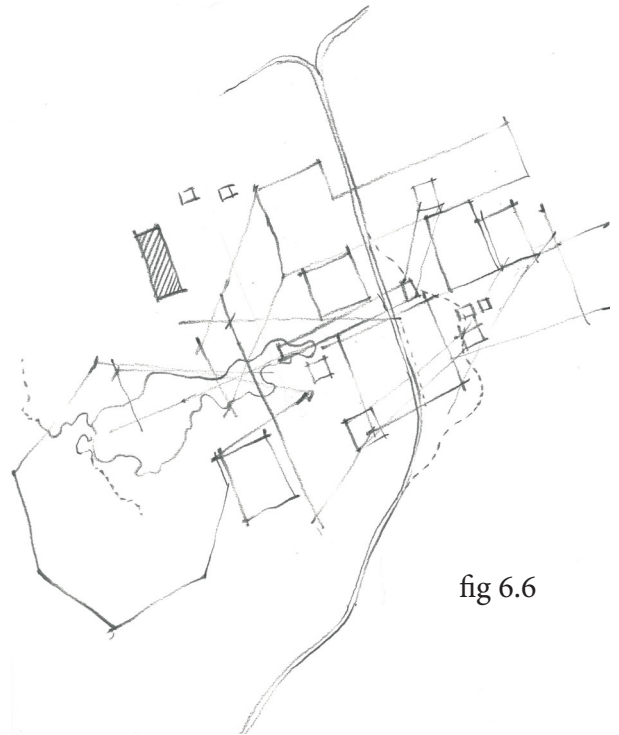


fig 6.6

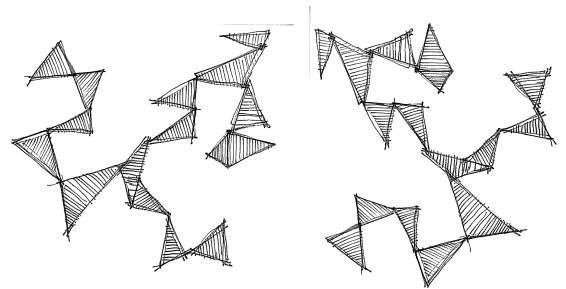


fig 6.7



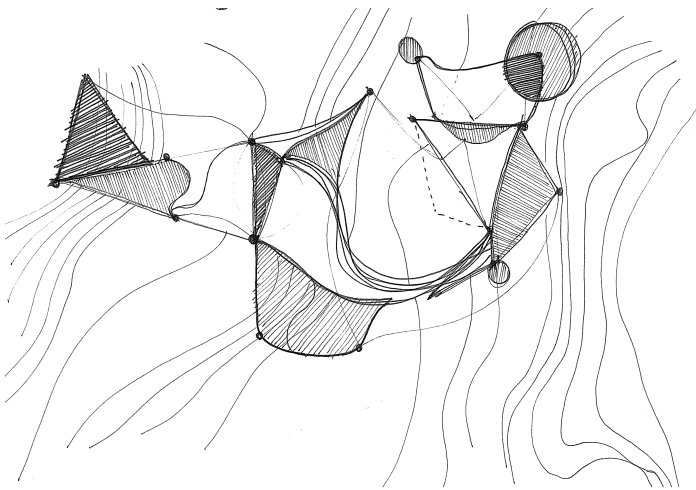


fig 6.8

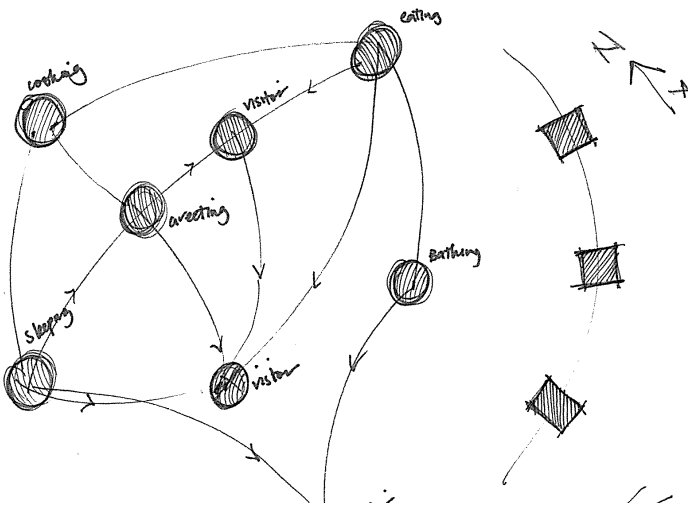


fig. 6.6-6.9 Spatial Diagramming sketches.

fig 6.9



fig. 7.0 Exterior render, preliminary design.

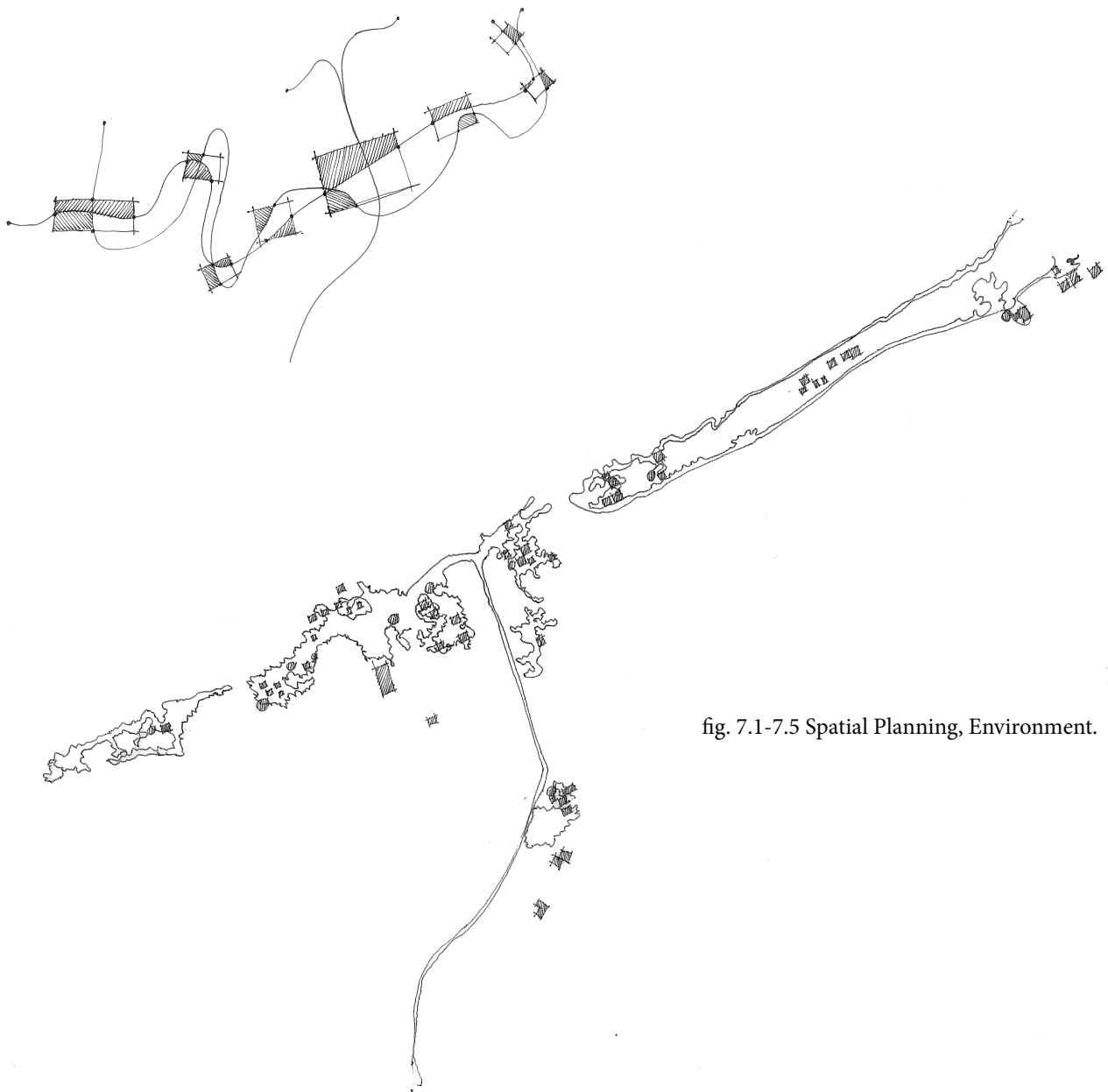
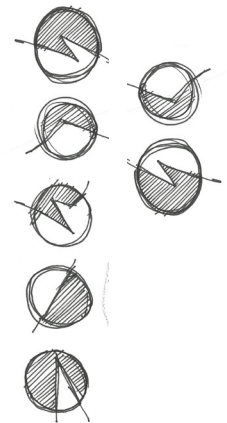
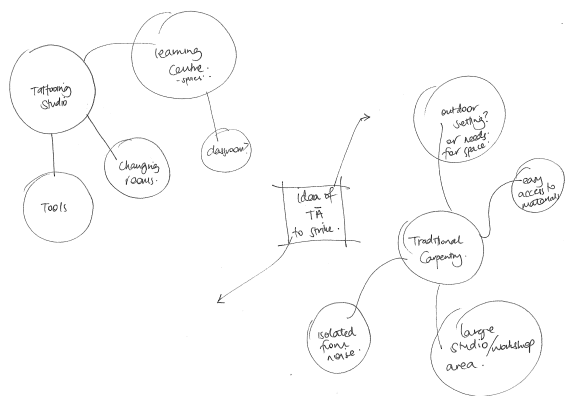
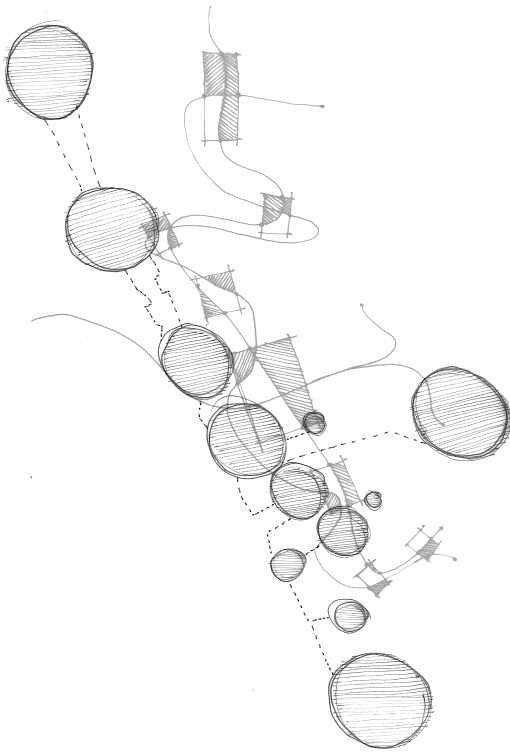


fig. 7.1-7.5 Spatial Planning, Environment.



This exploration of spatial planning was a sketch analysis whilst on site at the village, in and around the mangrove reserve. The focus of the analysis was on the existing site conditions and how the natural environment could be used a strategy to informing the organisation of spaces.

The sketches each represent an analytical feature of the water, trees and the wind direction. Each of these were analysed by their motion on the site. The aim of this analysis was to understand the natural environment that the proposed design would be built into so that it would be designed and built to sync ie. the procession spaces/ corridors connecting each space would be orientated to the flow of the mangrove current out to sea. Not only is an emotional va being created between the person, the building and the environment but a physical relationship is occuring because of the intentional considerate design.

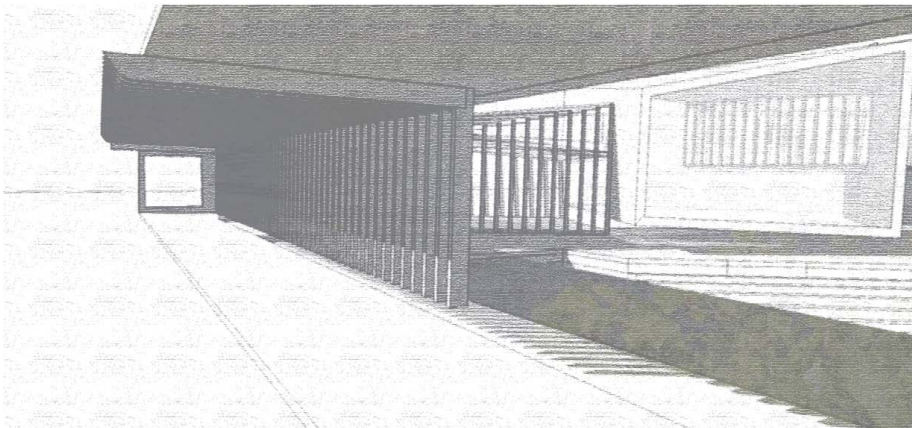


fig. 7.6 Interior form render

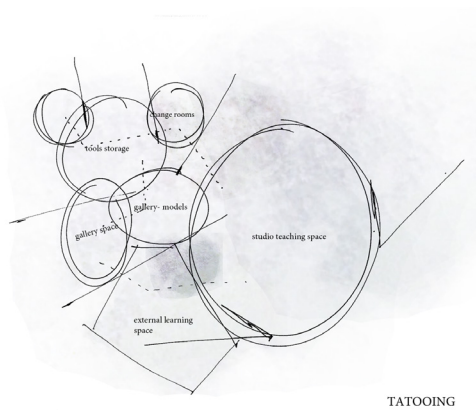
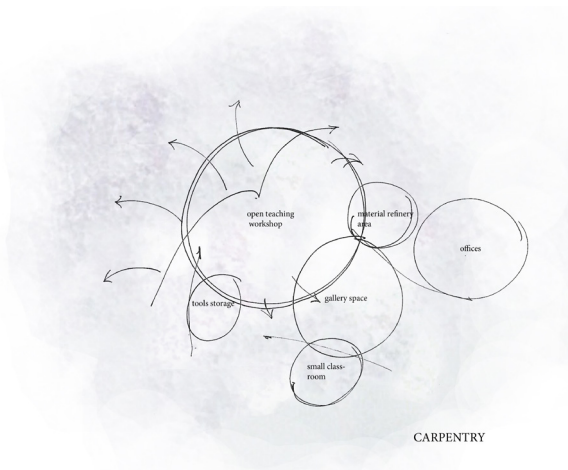


fig. 7.7-7.8 Carpentry and Tattooing Spatial Planning

The arrangement of spaces to the left were initially drafted with the assistance of both traditional tattooists and traditional carpenters.

They based the spatial bubbles based on the appropriate connections between spaces and also the relative size of the specified space. What was interesting was the relationship of both the larger tattooing space and carpentry workshop to the outdoors.

The suggestion was that these spaces had a directional view towards the sea. A means of regaining a relationship with the coastal front site and allowing for effective air flow through the tattooing space, which is traditionally conducted in an open fale.

The next stage was to then develop the parameters set out by the three spatial planning explorations into a formal context. With consideration for climate, materiality and site within the mangrove the plans to the right were developed with focus on the traditional spatial directionality, designed access to the water and a radial circulation of the building.

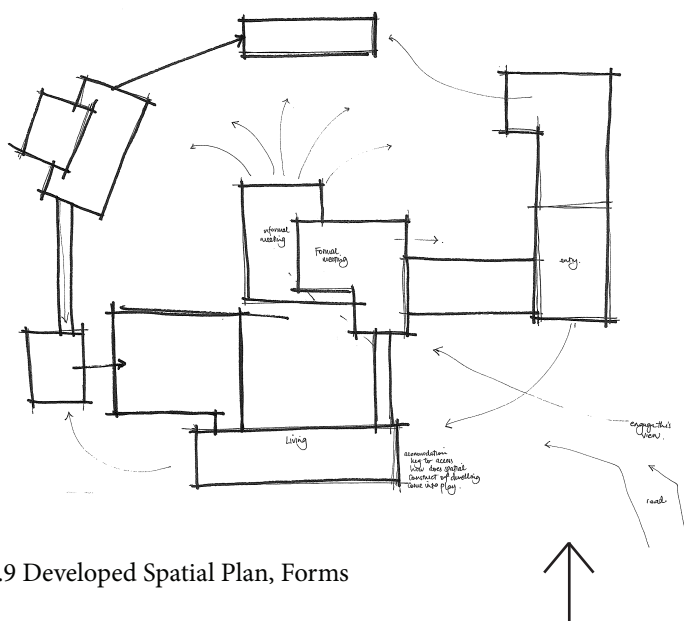
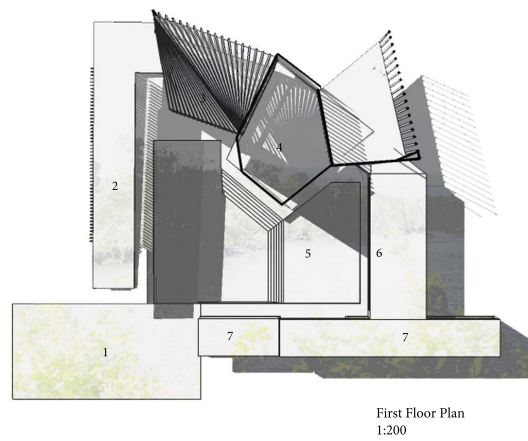


fig. 7.9 Developed Spatial Plan, Forms



- 1 Main Hall/Fale
- 2 Procession to Educational Spaces
- 3 Carving Space
- 4 Tattooing Space
- 5 Outdoor Carving
- 6 Accomodation units
- 7 Market and Community Spaces

fig. 8.0 Prelim Design Floor plan, First floor



- 1 Main Hall/Fale
- 2 Procession to Educational Spaces
- 3 Carving Space
- 4 Tattooing Space
- 5 Outdoor Carving
- 6 Accomodation units
- 7 Market and Community Spaces

fig. 8.1 Prelim Design Floor plan, Ground floor

spatial planning iterations

The previous developed floor plan presented interesting connections to the spaces and followed a systematic strategy from the analysis of the Samoan construct of the Va. However the spatial planning of the interior could be refined more.

The iterations on the right were developed using an added layer of ordering the spaces based on spatial hierarchy in comparison to the seating plans of Chief or matai in the meeting house.

This drawing out method was effective in producing a high number of iterative variations. Another layer added to the planning drawings was the cropping cutting of existing fale plans, retaining the curve, oval and tectonic member forms of the fale design. This proved useful in providing interesting interior forms to refine as spaces for the needed activities.

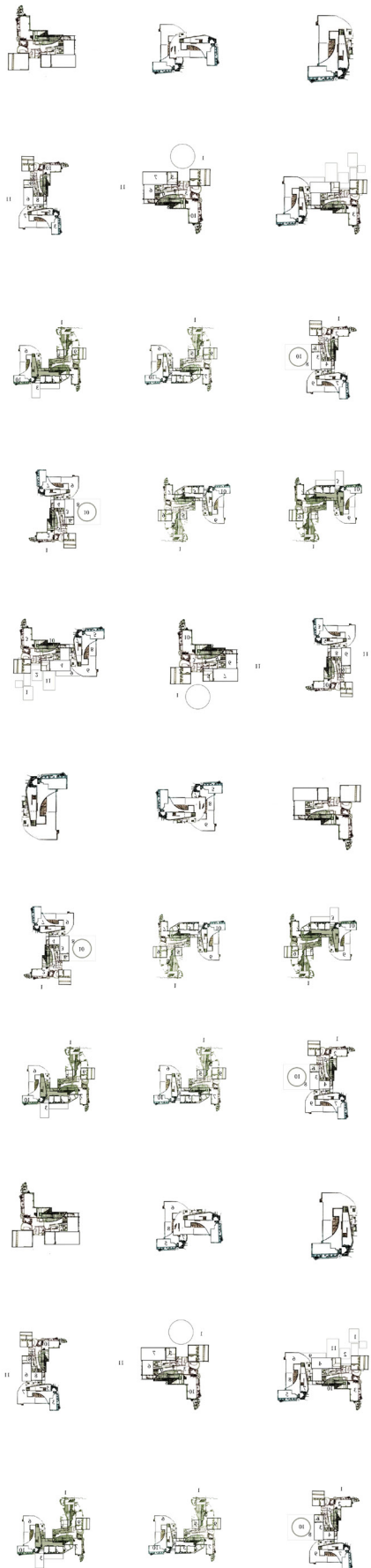


fig. 8.2 Spatial Planning Iterations.

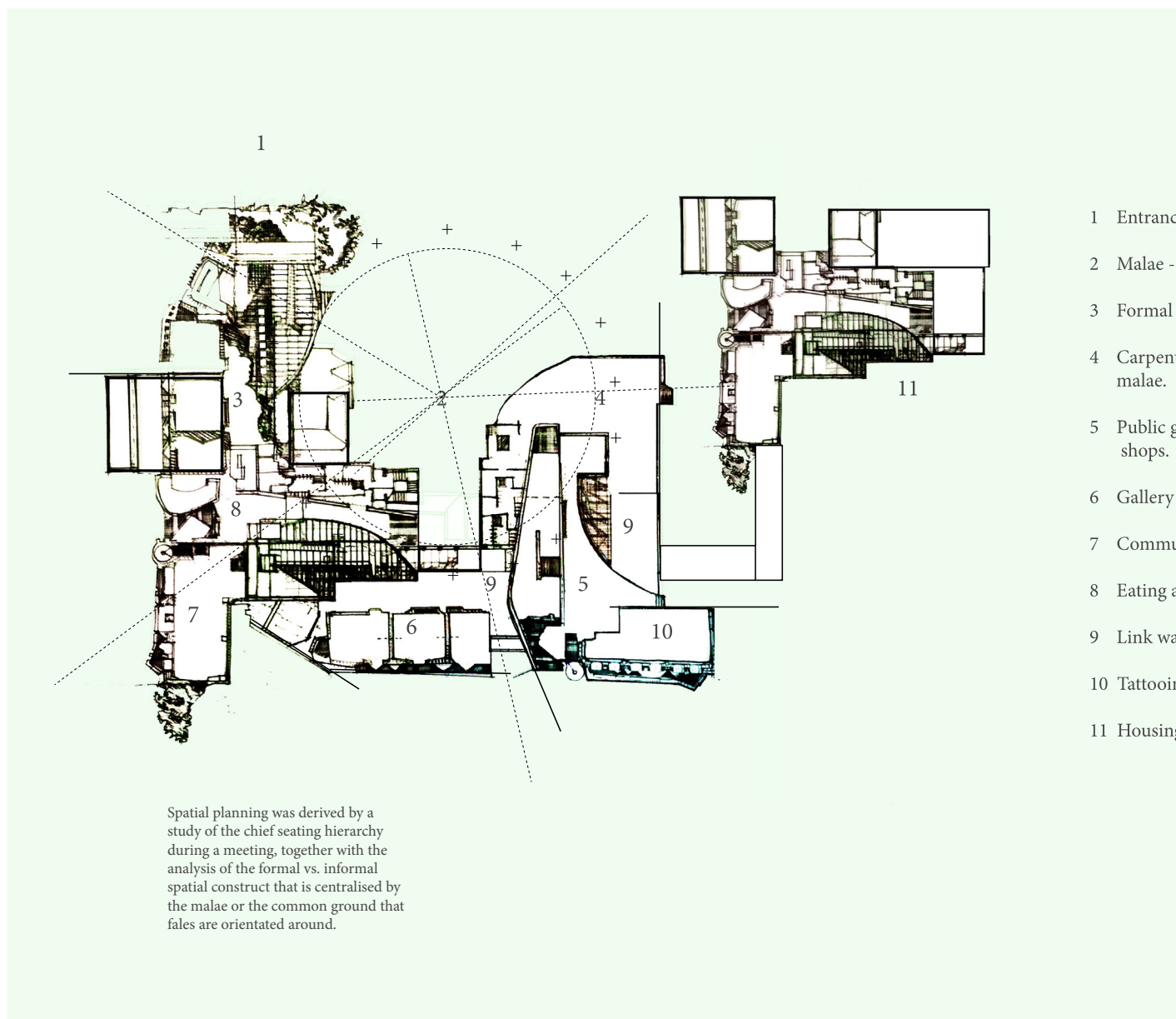


fig. 8.3 Spatial Planning Final Iteration.

spatial planning

This was the final and developed iteration of the planning exercise and clearly identifies the merge of both the traditional and western typologies of the built environment.

The plan goes into great interior detailing but this was lead by collaging of both typology fale even if they did not fit spatially. The next step of this development was to refine each individual space using this layout and ensure that every line accounted for a boundary or could be re-designed to inform the tectonic.

ce - Formal Procession

Central space the Va

teaching space

try Workshop - to open out to

gallery space to view both work

Space for exhibition

unity space

area- cafe

y viewing room

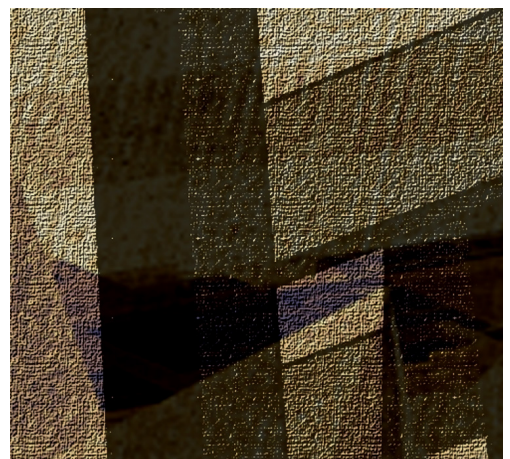
ng workshop

g/Accommodation

These form and space investigations were intended to test the spatial quality of each major space from the planning stage. The analysis of directional spatial layout proved interesting in the 3d modelling and rendering of the space and informed the change of the pavilions in the direction that they face.

Materiality was also tested in this exploration mixing traditional timbers with the strength and durability of concrete structural systems. This is the hybrid architecture integration that is informing the design as it develops.

Attempts have been made to continue the design of these spaces in the conventional plan method but also designing through intimate detailing and using it as a means to inform the tectonic, just as the timber members of the fale Samoa does.



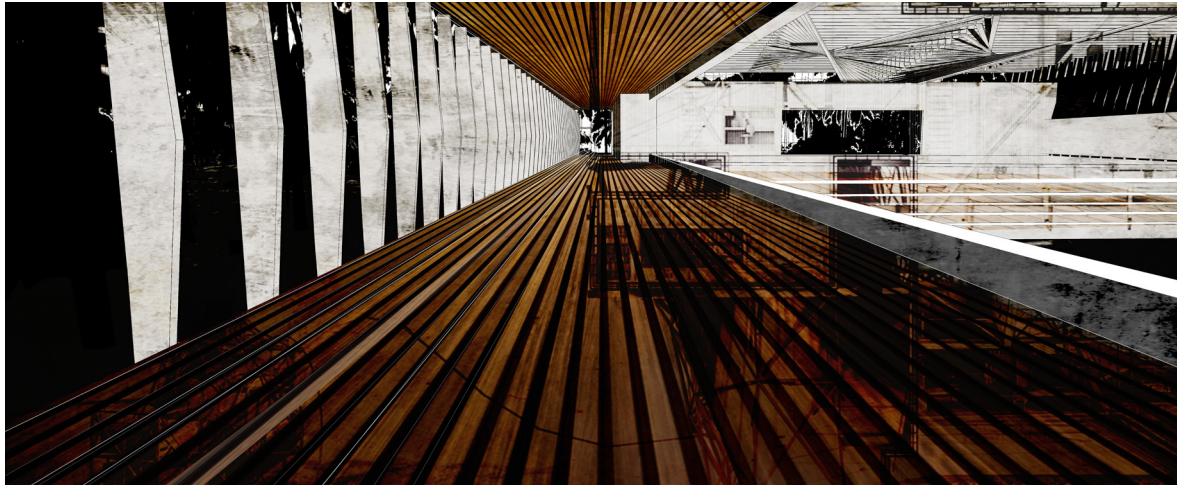
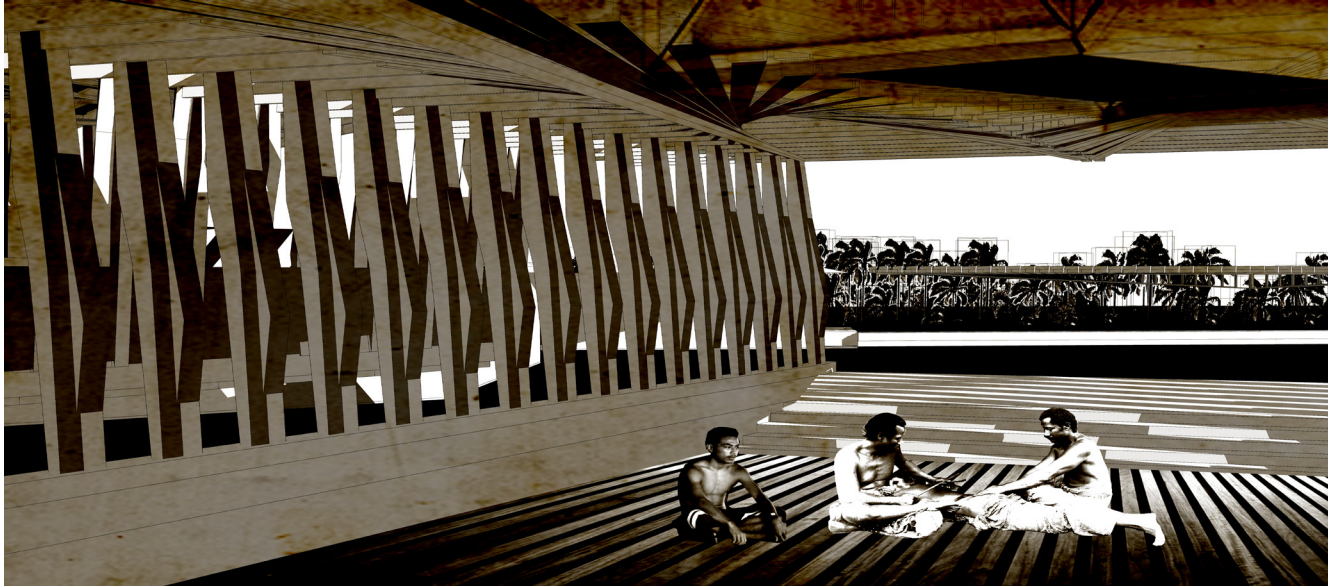


fig. 8.4-8.8 Spatial Quality Renders for Materiality.

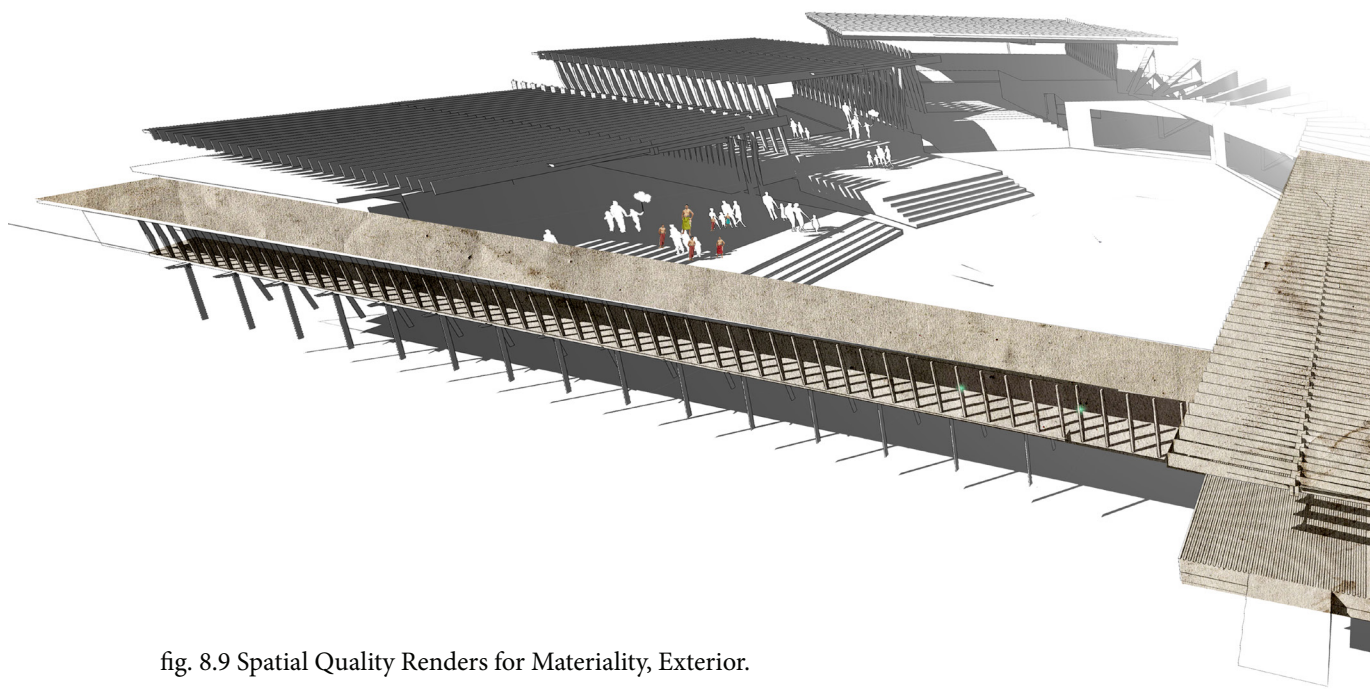


fig. 8.9 Spatial Quality Renders for Materiality, Exterior.

The exterior form development of the building as it progresses has been driven by the need to have designed access to the body of water in the mangrove. This would allow canoes to dock in the central area of the school and function as a multi-use community area but keeping the education and learning spaces semi-private.

The procession is developed into an integral part of the design. It is in many ways reflecting the procession of people as they approach the fale Samoa. Just like the traditional procession, the main body of buildings will be able to view who enters the pavilions, again reflecting on the passive surveillance of the fale Samoa having no physical boundaries.



The use of varying levels throughout the design allows the design to have double storied use. Development of the plan sees the two functions of the school- the modern and the traditional functioning on two separate levels. The traditional learning spaces are open and are directed/angled to the sea whereas the conventional learning spaces and rooms are designed underneath at half levels to but will be connected through a series of exterior stairs and circulation.

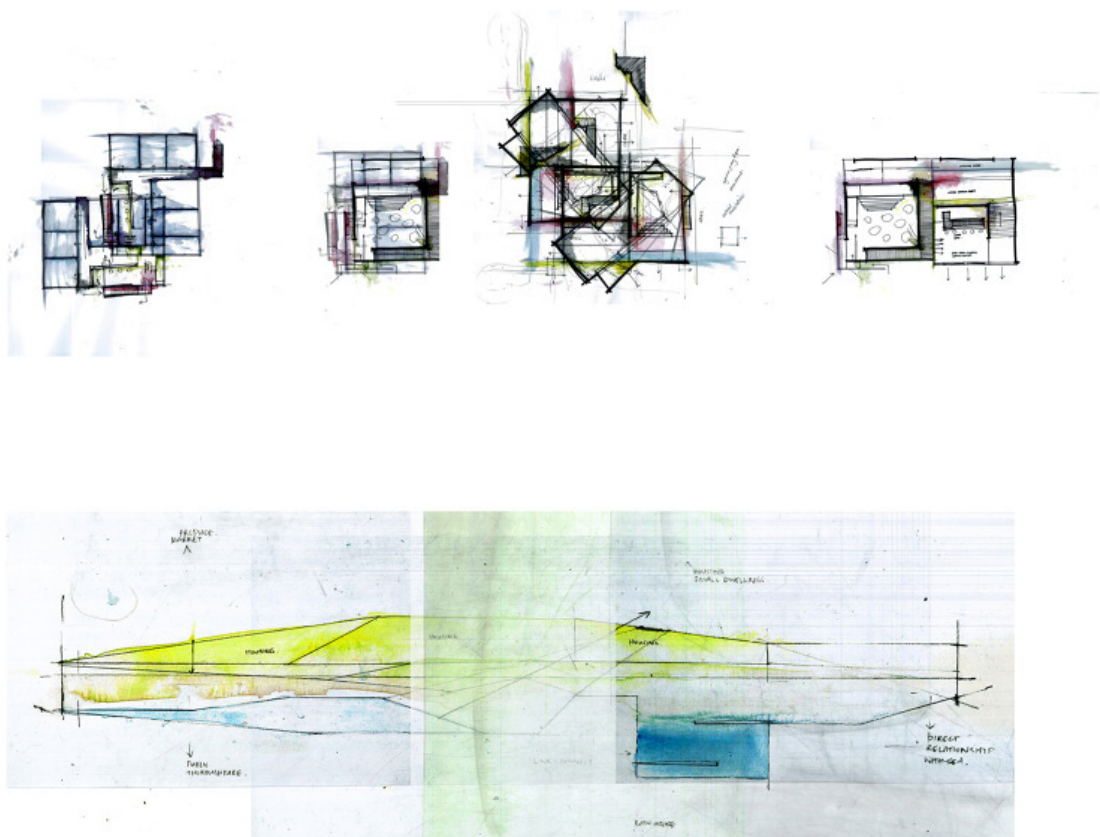


fig. 9.0-9.1 Development of levels and circulation

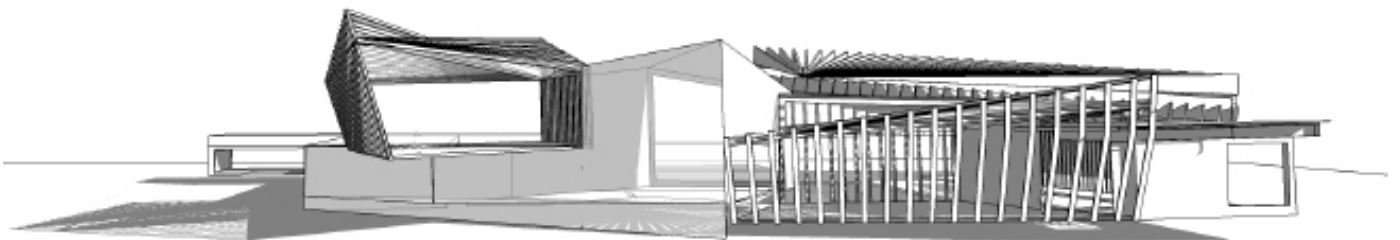


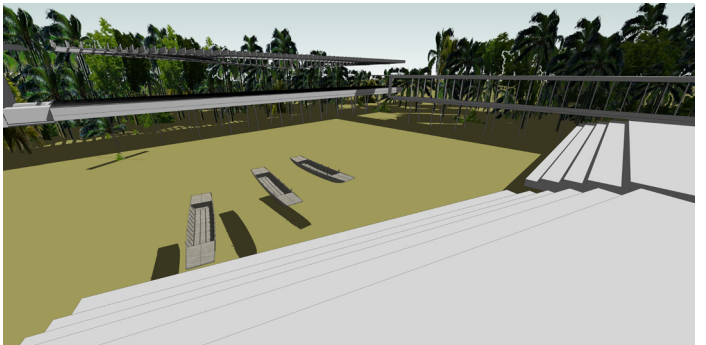
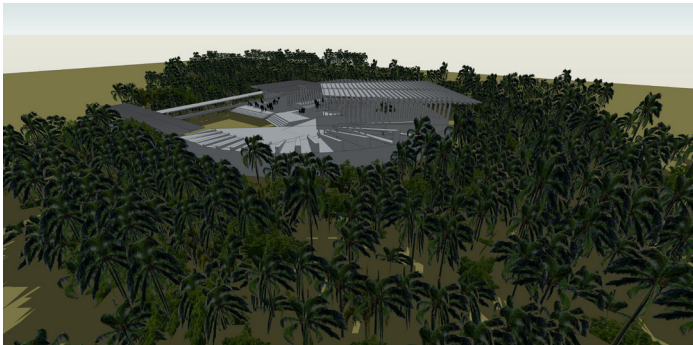
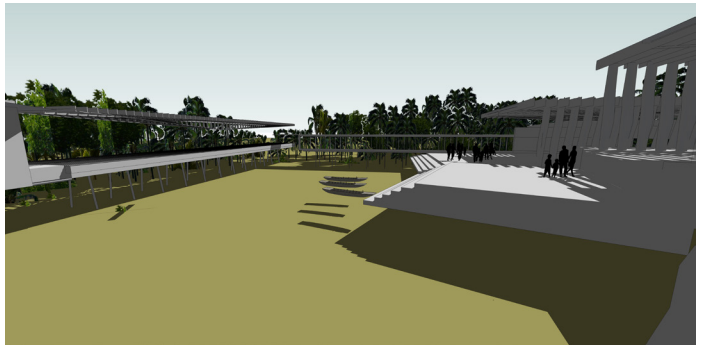
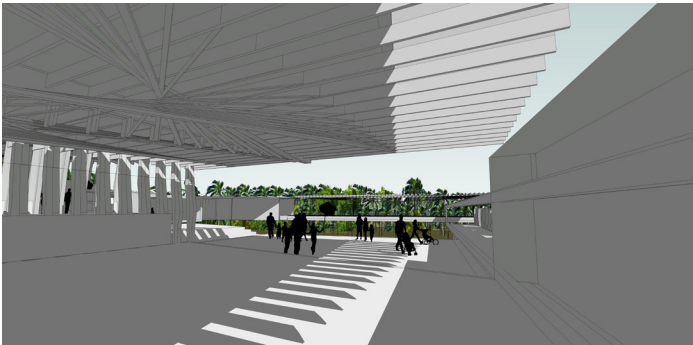
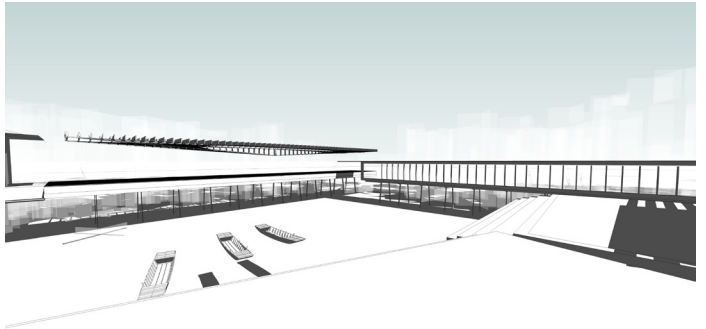
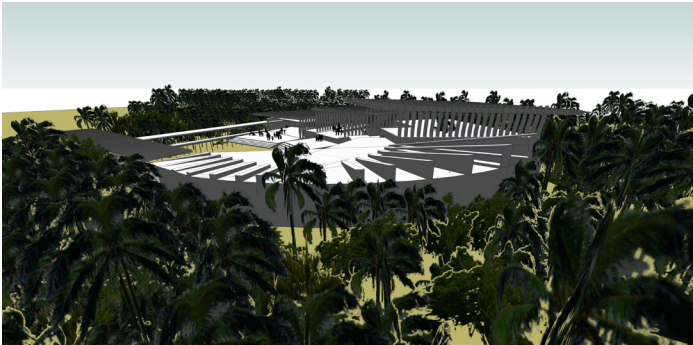
fig. 9.2 Model of levels and circulation.

Meetings with the Council of Chief of Sa'anapu
during the United Nations Small Island
Developing States Conference 2014.





fig. 9.3 Meeting with Council of Chief, Sa'anapu.



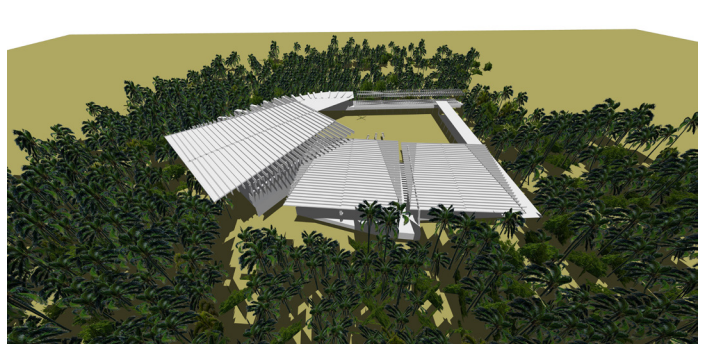
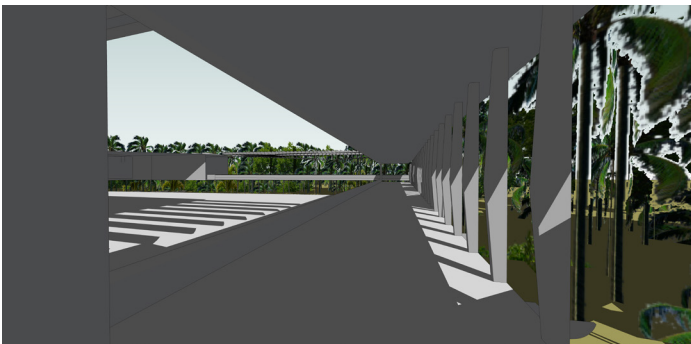
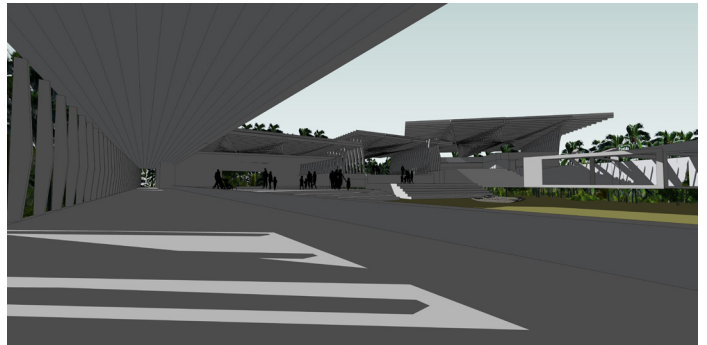
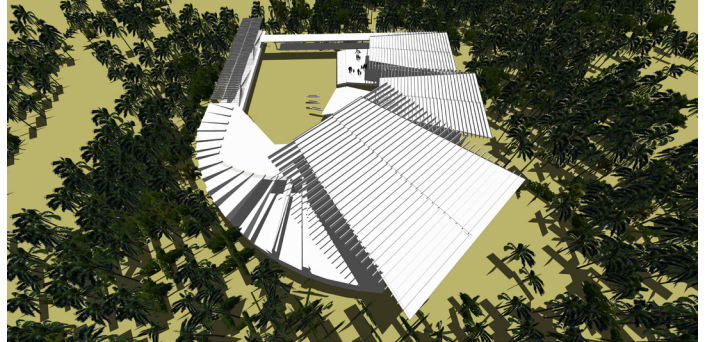
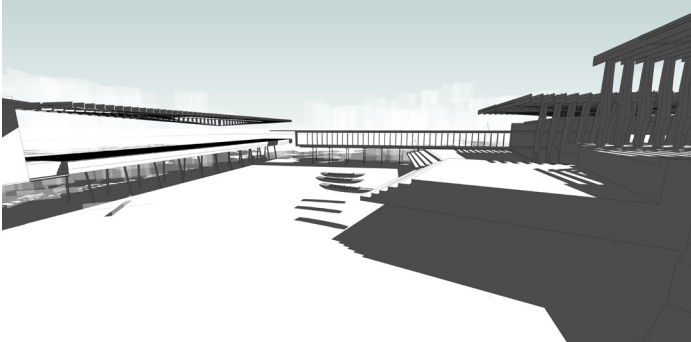


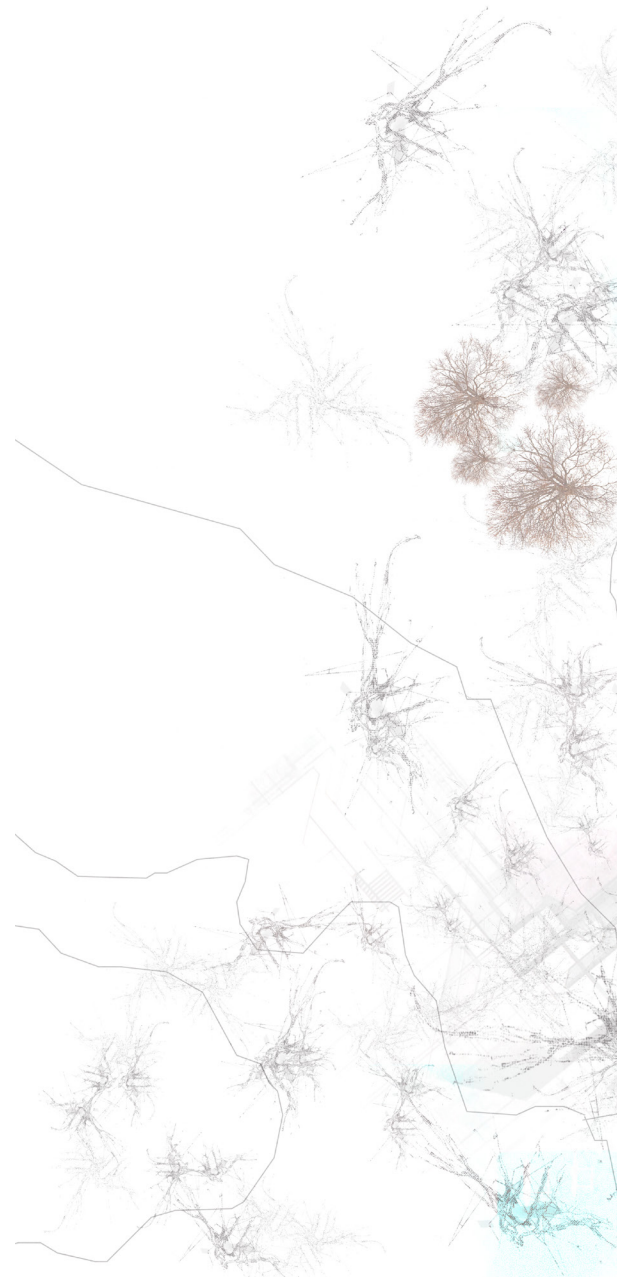
fig. 9.31 Development Model Images

chap . 7 final design

The final design has been a collation of analysis for the proposal of a hybrid tattooing and carpentry school for the village of Sa'anapu. The project aimed at addressing the issue of the rebuild scenario where new buildings were being constructed in pure western style typologies prompting a rapid decline in the traditional fale typology. Discussion with traditional carpenters also confirmed the knowledge and skill is in decline due to a lack of desire by the youth to learn skills that have more benefit in its prestige than monetary gain or lack of support as a career choice.

The developed design proposal has attempted to address the issue of how the people of Sa'anapu can retain their cultural and built heritage that is the delicately timber constructed houses but remain resilient against the forces of natural disasters. It has been in the integration and hybrid development of the architecture proposing materials such as reinforced concrete and steel where applicable.

This final design has primarily been about the working with various strategies to effectively give the best solution to the balance of retaining culture and being physically resilient. The development of the school design into an accessible dock area for canoes has been to encourage the integration and communal use of the school by the community . The design of flexible market spaces seeks to also propose a means for economic development. The people of Sa'anapu are incredibly resourceful and have created ways to make a living off their crops, fish and baked goods. The design incorporates an area that is easily accessible and flexible for the use of a Marketplace, which currently does not exist on the south coast of Upolu, Samoa.



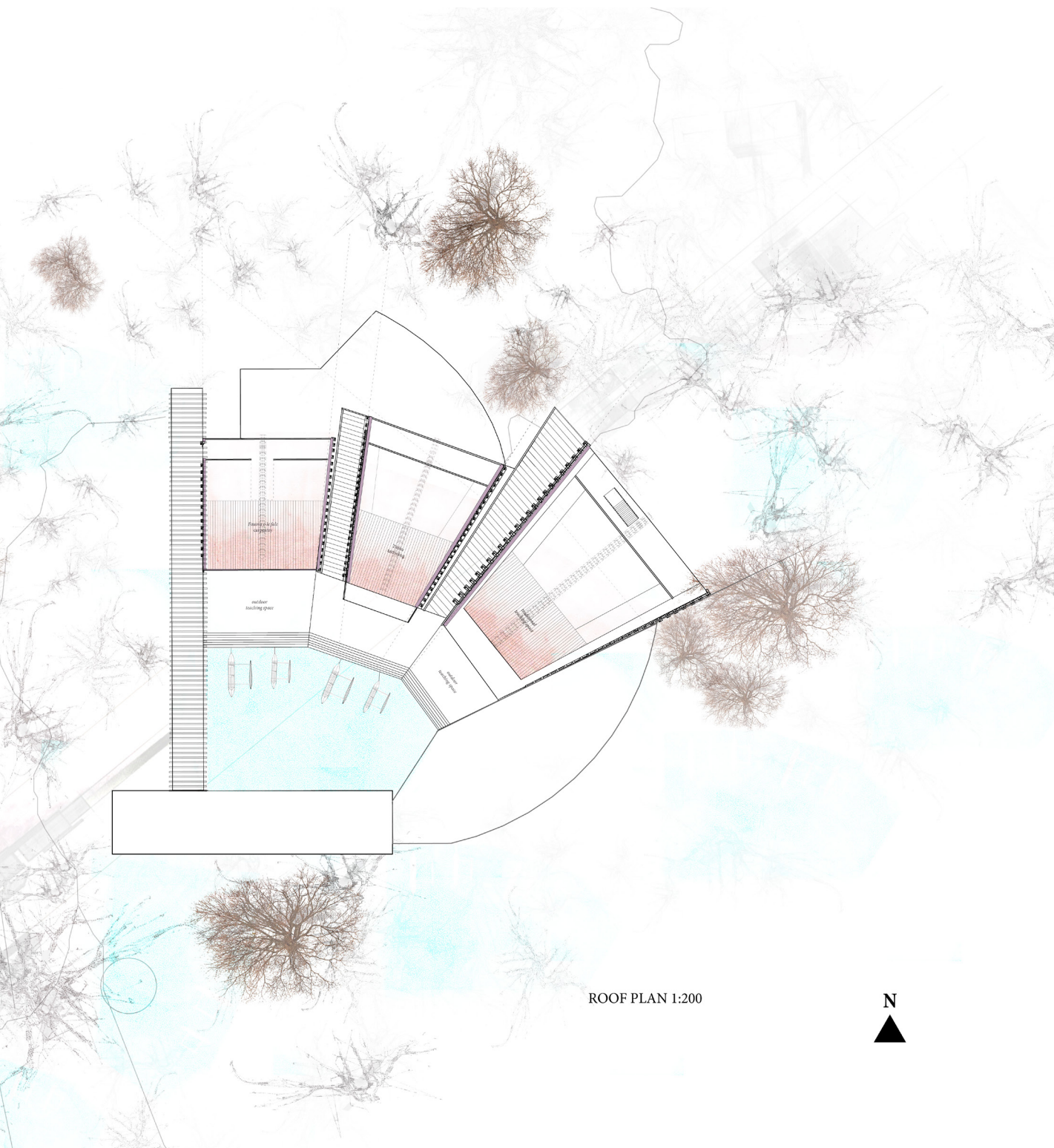


fig. 9.4 Floor plan, Developed design.

The developed plans show the clear intention of orientating the pavilions to a central *malae* or central openness. This not only strengthens the proposition in its intention to take precedence of the spatial construct of the Va but it also works physically as the view points into each pavillion mean the learning becomes a performance, it is honoured as if it were a stage. This is important to the fale intentions as it transcends the conventional everyday living and continues to educate, house and perform.

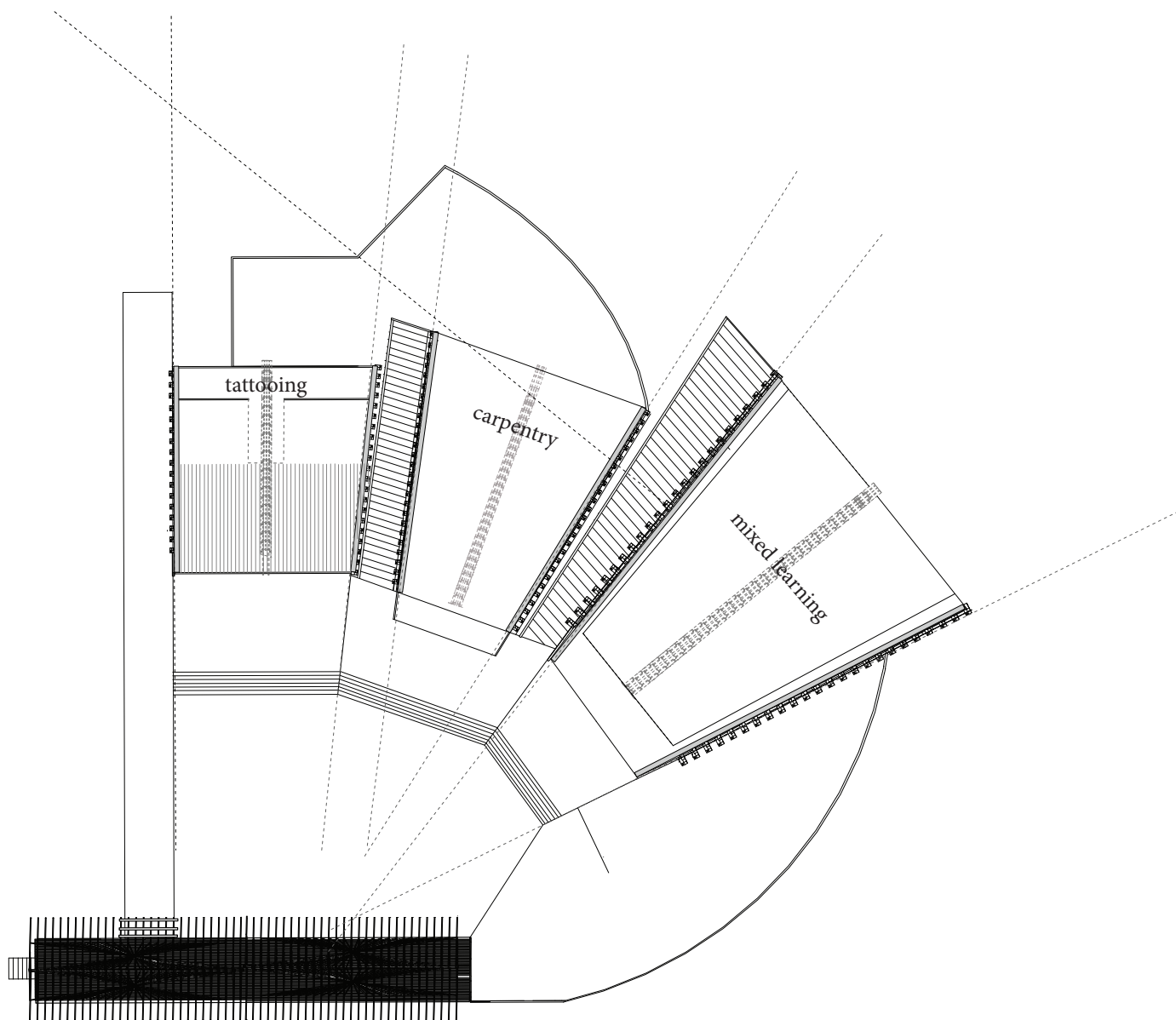
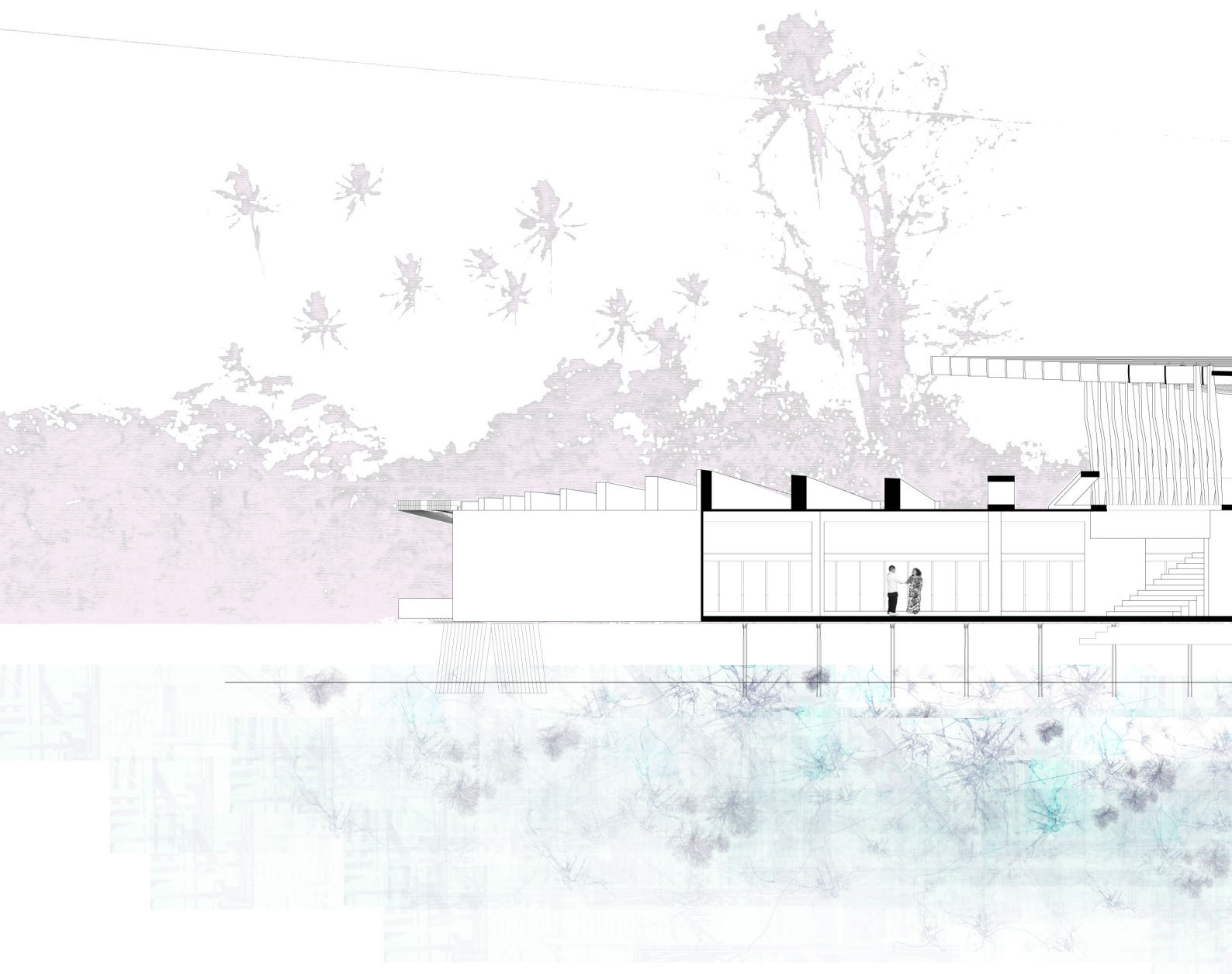


fig. 9.5 Floor plan 2, Developed design.



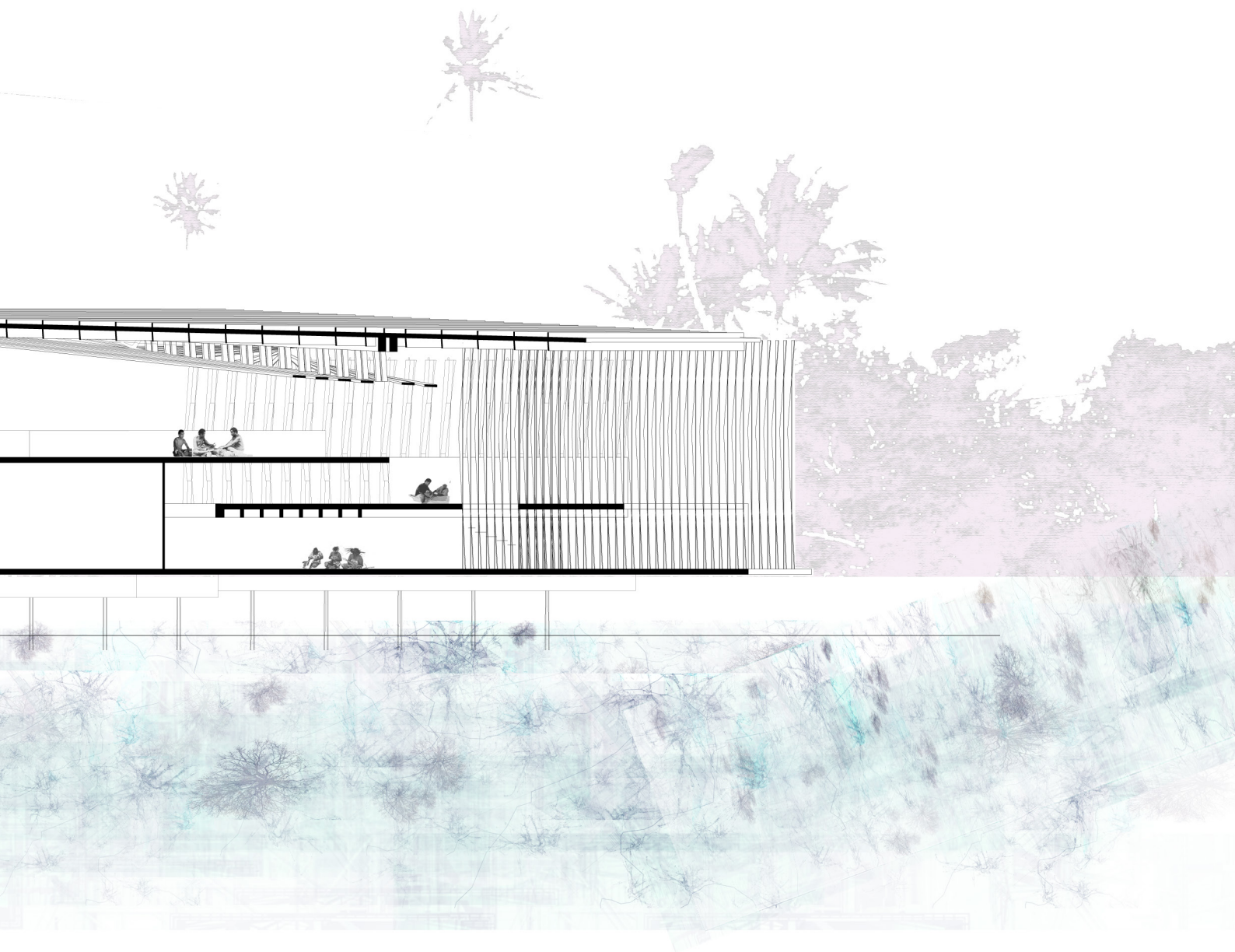


fig.9.6 Longitudinal Section, Developed design.

The flexible shared community space at the rear of the learning spaces showing the lower level rooms . These lower levels are the conventional teaching spaces and shows the circulation to the traditional open space learning pavilions.

This area can be used for a market place and is provides safe and easy access to the mangrove via canoe.





fig.9.7 Shared Community Space, Exterior Render



The main procession bridge to access the main learning spaces and to connect to the marketplace. A developed roof design for the procession areas takes influence from the tectonic of the fale Samoa. The materiality remains in its traditional state however the form has been redesigned to match the movement of the water underneath the bridge analysed in the earlier chapter.



fig.9.8 Main Procession, Exterior Render

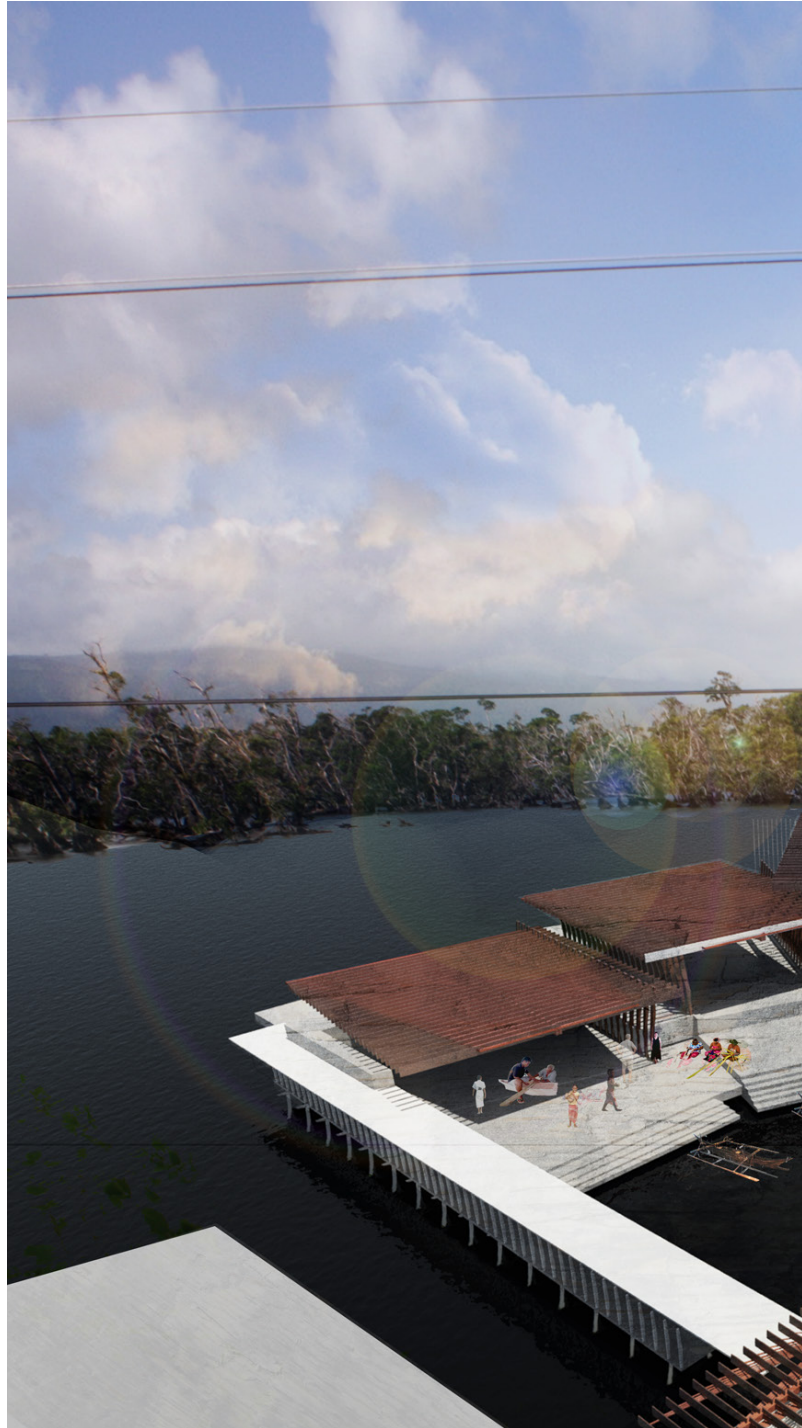


fig. 9.9 Exterior view of the final design.



chap. 8 applications

Meetings with the Council of Chief of Sa'anapu
during the United Nations Small Island
Developing States Conference 2014.



fig.10.0 UN SIDS Conference 2014



fig. 10.1 UN SIDS Conference Exhibition 2014

The final project being exhibited as a top 12 candidate for the NZIA Graphisoft Student Awards in 2014.

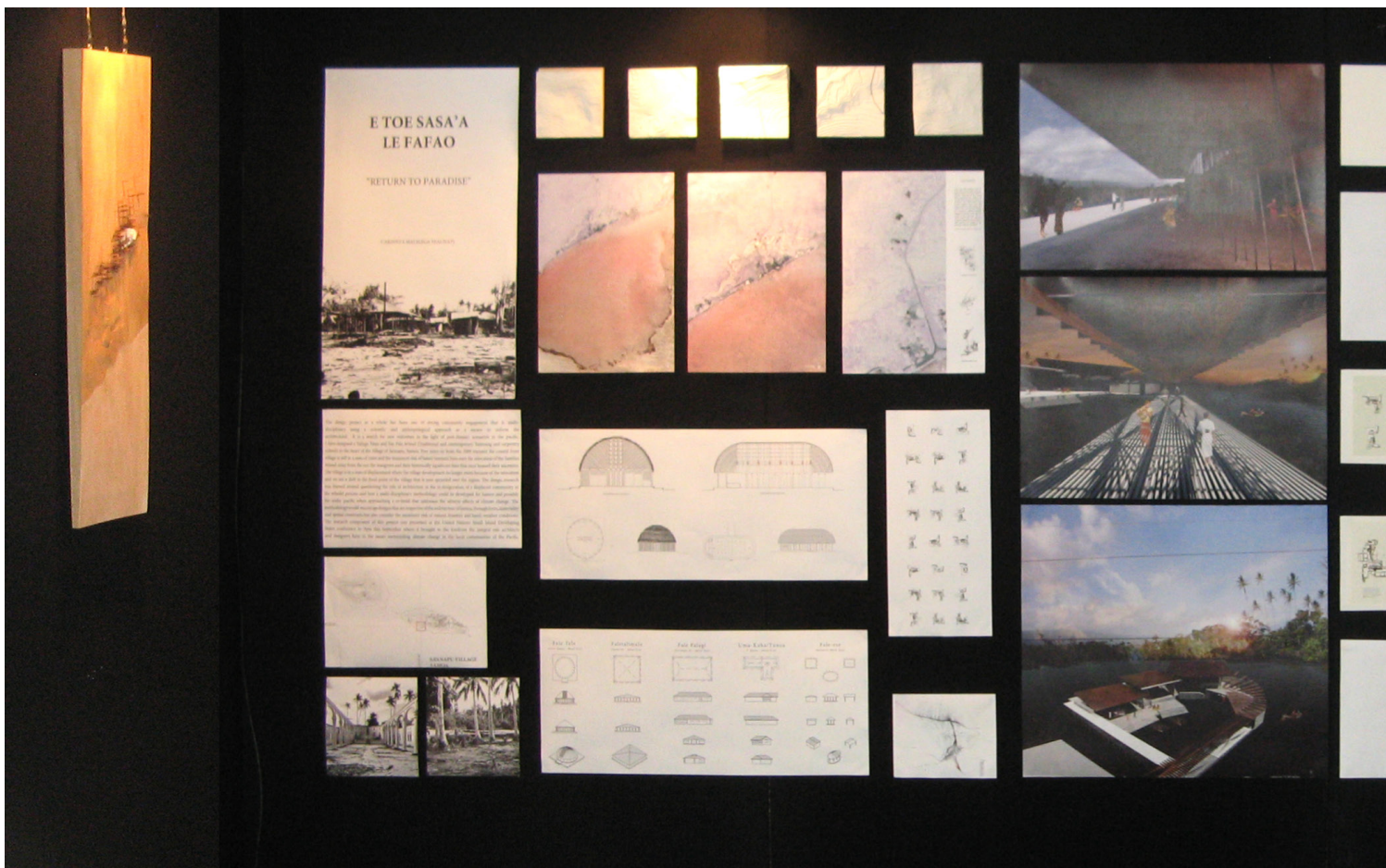


fig. 10.2 NZIA Graphisoft Student Awards Finalist.



sources of figures

NB: All figures not attributed are author's own.

Fig. 1.0. Sa'anapu-tai, virgin cove. 2014

Fig.1.1. Detail Sketch Ceiling, Sa'anapu, Samoa 2014

Fig.1.2. Detail roof sketch, Sa'anapu, Samoa 2014

Fig.1.3. Leuga Nofailo making afa, Fasitootu, Samoa 2013

Fig.1.4. Interior sketch. NUS, Apia Samoa. 2014

Fig.1.5. Film Scene. "Return to Paradise". 1953 Film. Robson, Mark, 1953. Samoa. 10 March 2015.

Web. www.toutlecine.challenges.fr/star/0002/00021561-gary-cooper.html

Fig.1.6. Ruins photograph. Sa'anapu-tai. 2014

Fig.1.7. Section drawing of NUS Fale Tele. Apia, Samoa. 2014

Fig.1.8. Icon Sketch. 2014

Fig.1.9. Detail Photography. Tjabaou Centre. Phaidon. "1991/1998 Jean-Marie Tjibaou Cultural Center". On Tour with Renzo Piano. New York: Phaidon Press Limited 2004, p186-203.

Fig. 2.0. Sketch analysis Tjabaou Centre. 2015

Fig.2.1. Tiapapata Fale. Exterior. 2014

Fig.2.2. Tiapapata Fale. Interior. 2014

Fig. 2.3. Tiapapata Fale. Construction. 2014

Fig. 2.4. Tiapapata Fale. Section drawing. 2014

Fig.2.5. Kapaclajui Indigenous Training Centre exploded construction drawing, roof. Costa Rica, 2014. 19 March 2015. Web. http://www.archdaily.com/580439/kapaclajui-indigenous-training-center-entre-nos-atelier/54780dc4e58ecebd840000e9_k-p-cl-jui-indigenous-training-center-entre-nos-atelier_kapa_elevacion_norte_ingles_copy-png/

Fig.2.6. Kapaclajui Indigenous Training Centre entrance. Costa Rica, 2014. 19 March 2015. Web. http://www.archdaily.com/580439/kapaclajui-indigenous-training-center-entre-nos-atelier/54780dc4e58ecebd840000e9_k-p-cl-jui-indigenous-training-center-entre-nos-atelier_kapa_elevacion_norte_ingles_copy-png/

Fig. 2.7. Kapaclajui Indigenous Training Centre exterior. Costa Rica, 2014. 19 March 2015. Web. http://www.archdaily.com/580439/kapaclajui-indigenous-training-center-entre-nos-atelier/54780dc4e58ecebd840000e9_k-p-cl-jui-indigenous-training-center-entre-nos-atelier_kapa_elevacion_norte_ingles_copy-png/

sources of figures

Fig. 2.8. Extended family, Sa'anapu-tai, photographed at home. 2014

Fig. 2.9-3.2. Sa'anapu-tai, ruins family homes. 2014

Fig.3.3-3.5. Sa'anapu-tai, mapping context authors maps. 2014

Fig.3.6. Sa'anapu-tai, mapping context. 2014

Fig.3.7. Derek Freeman Historical map. Project team. "Managing risk for adapted and considerate architecture in Samoa."

Fig.3.8. Typology Study Sa'anapu. Project team. "Managing risk for adapted and considerate architecture in Samoa."

Fig. 3.9. Whole village map, Sa'anapu. Project team. "Managing risk for adapted and considerate architecture in Samoa."

Fig. 4.0-4.1. Mangrove photos

Fig.4.2. NIWA map. Inundation line. Dr. Emily Lane. 2014. Project team. "Managing risk for adapted and considerate architecture in Samoa."

Fig.4.3. NIWA map. Inundation line. Dr. Emily Lane. 2014. Project team. "Managing risk for adapted and considerate architecture in Samoa."

Fig.4.4. NIWA map. Inundation line. Dr. Emily Lane. 2014. Project team. "Managing risk for adapted and considerate architecture in Samoa."

Fig.4.5. Mangrove site photo, Sa'anapu-tai. 2014

Fig.4.6. Reef to coast map. 2014

Fig. 4.7. Coast to mangrove map. 2014

Fig.4.8. Mangrove mapping. 2014

Fig. 4.9. Mangrove mapping. 2014

Fig.5.0-5.1. Tiapapata Fale construction photos. 2014

Fig.5.2-5.3. Samoan Tatau tattoo photo, Taupou Tatau Studio. 2014

Fig.5.4. Tiapapata Fale, Exterior. 2014

Fig. 5.5. NUS Fale, Exterior. 2014

Fig.5.6. Tiapapata, elevation drawing. 2014

Fig.5.7. Tiapapata, section drawing. 2014

sources of figures

Fig.5.8. NUS Fale, elevation. 2014

Fig.5.9. NUS Fale, section. 2014

Fig.6.0-6.5. Detail sketch, NUS Fale. 2014

Fig.6.6–6.9. Spatial Diagramming sketches. 2014

Fig.7.0. Exterior render, preliminary design. 2014

Fig.7.1-7.5.Spatial Planning, environment. 2014

Fig.7.6. Interior form render. 2014

Fig. 7.7-7.8. Carpentry and Tattooing Spatial Planning. 2014

Fig.7.9. Developed Spatial Plan, Forms. 2014

Fig.8.0. Preliminary Design Floor Plan, First floor. 2014

Fig 8.1. Prelim Design Floor Plan, Ground Floor. 2014

Fig 8.2. Spatial Planning Iterations. 2014

Fig.8.3. Spatial Planning Final iteration. 2014

Fig. 8.4-8.8. Spatial Quality Renders for materiality. 2014

Fig. 8.9. Spatial Quality Renders for materiality, Exterior. 2014

Fig.9.0-9.1. Development of levels and circulation. 2014

Fig. 9.2. Model of levels and circulation. 2014

Fig. 9.3. Meeting with Council of Chiefs, Sa'anapu. 2014

Fig.9.4. Floor plan, Developed design. 2014

Fig.9.5. Floor plan 2, developed design. 2014

Fig.9.6. Longitudinal Section, Developed design. 2014

Fig. 9.7. Shared community space, Exterior Render. 2014

Fig. 9.8. Main Procession, exterior render. 2014

sources of figures

Fig. 9.9. Exterior view of Final design. 2014

Fig.10.0. UN SIDS Conference 2014

Fig.10.1. UN SIDS Conference, Exhibition. 2014

Fig. 10.2. NZIA Graphisoft Student Awards Finalist. Photo by Daniel Brown. November 2014

chapter 9 bibliography

- Allen, A. (1993). *Space as a social construct: The Vernacular of rural Samoa*. New York City: Columbia University.
- Allen, J. (2006). Ambient Power: Berlin's Potsdamer Platz and the Seductive Logic of Public spaces. *Urban Studies*, 441-455.
- Amour, S. (2012). *Body Sense Experience: An Architecture of Atmosphere and Light*. Wellington: Victoria University of Wellington.
- Anderson, R. (2001, October 12). Call for Karori Invigoration . *Dominion Post*, p. 10.
- Baha'i House of Worship. (n.d.). *History*. Retrieved September 20, 2012, from Apia Temple Baha'i House of Worship: <http://bahaisamoa.ws/History.htm>
- Baha'i International Community. (2012). *The Baha'i Community of Samoa*. Retrieved September 12, 2012, from The Baha'i Faith: <http://www.bahai.org/worldwide-community/national-communities/samoa>
- Bartlett, J. (2013). *Toi Raranga*. Wellington: Victoria University of Wellington.
- Beynon, J., & Higginson, P. (1992). *The Samoan Fale*. Apia: UNESCO Printers.
- Bloomfield, P. (n.d.). *Paul Bloomfield consulting*. Retrieved August 13, 2011, from <http://www.paulblomfield.com/tag/brookfield-multiplex/>
- Bourgeois, L. J. (1921). *The Baha'i Temple Press Comments; Symbolism*. Chicago: Bourgeois.
- Buck, P. (. (1930). *Samoa Material Culture*. Honolulu: The Musuem.
- Building, L. T. (2011). Passive Design. *Level*, 2.
- Clayton, L. (2007). *Patterns and Motifs in the Va: A Samoan Concept of the Space In-between*. Auckland: Auckland University of Technology.
- Dahl, T. (2010). *Climate and Architecture*. New York City: Routledge.
- Fa'anu, L. (2014, January 12th). Mr. (C. Feaunati, Interviewer)
- Faumuina and Associates; New Zealand Housing Corporation. (2002). *Pacific Housing Design Guide*. Wellington: NZ Housing Corporation.

- Feaunati, S. (2012, October 2). Mrs. (C. Feaunati, Interviewer)
- Frampton, K. (1983). Towards a Critical Regionalism: Six Points for an Architecture of Resistance. *Postmodern Culture*, 16-30.
- Garcia, M. (2006). Architextiles. *Architectural Design*, 45-63.
- Government, N. L. (2007). *Quality of Life report 2007*. Qualitive Report, Auckland.
- Graham, T. (2013, March 21). Project Manager, Fletcher Construction. (C. Feaunati, Interviewer)
- Griffin, C. (2006). *Weaving as an Analogy for Architectural Design*. Retrieved August 10, 2013, from Philadelphia University.
- Hernández, F. (2010). *Bhabha for Architects*. London: Routledge.
- Holmer, R., Jennings, J. D., & Jackmond, G. (1982). Samoan Village Patterns: Four Examples. *The Journal of the Polynesian Society*, 81-102.
- Holmes Consulting Group . (2012). *Project Maunga Structural Systems Report*. Wellington: HCG.
- Martin, R. (2005). Critical of What? Toward a Utopian Realism. *Harvard Design Magazine*, 72-77.
- Mckay, B., & Walmsley, A. (2005). Pacific Space: The Pacific Conception of Building. *IDEA Interior design/Interior Architecture Educators Association*, 61-71.
- McLennan, J. F. (2004). *The philosophy of sustainable design: the future of architecture*. Kansas City: Ecotone.
- Milbank, A. (2009). *O le nu'u o le vao: Polynesian domestics archetypes in Auckland*. Auckland: Unpublished.
- New Zealand Department of Building and Housing. (2006). *Airbourne and Impact Sound*. Wellington: Department of Building and Housing.
- New Zealand Institute of Architects Incorporated. (2013). *Submission to the Canterbury Earthquakes Royal Commission*. NZIA.
- Pallasmaa, J. (1985). The geometry of feeling the Phenomenology of Architecture. *The Architectural Reader: Essential Writings From Vitruvius to the Present*, 241-245.
- Pula, T. (2013, January 15). High Chief. (C. Feaunati, Interviewer)

- Refiti, A. (2002). Uneven boundaries that do not flatten easily. *SAHANZ* (pp. 1-10). Brisbane: Additions.
- Refiti, A. L. (2009). *Whiteness, Smoothing and the origin of Samoan Architecture*. Auckland: University of Auckland.
- Riley, M. (2005). *Know your Maori Weaving, Plaiting, Weaving, Tokotoko, Whakatauki*. Paraparaumu: Viking Sevensseas NZ Ltd.
- Ryan, R. (1997). Primal Therapy: Baths at Vals. *Architectural Review*, 42-48.
- Shaw, K. (1995). Museum and Gallery lighting. 2.
- Shouse, E. (2005, December). Feeling, Emotion, Affect. *MC Journal*.
- Somol, R., & Whiting, S. (2002). Notes are the Doppler Effect and Other Moods of Modernism. *Perspecta*, 72-77.
- spaces, P. f. (2011). *Project for Public spaces*. Retrieved April 24, 2012, from From Place to Place- The paradigm shift: <http://www.pps.org/transportation/from-place-to-place-shifting-the-transportation-paradigm-with-placemaking/>
- Stevenson, F. (2006). Re-Scrutinising the immaterial Highland challenges. *Architectural Research Quarterly*, 93-96.
- Stokes, K. (2008). Fale Pasifika- University of Auckland. *NZ Timber Design Journal*, 16-18.
- Tamasese, T. (Director). (2009). *Va Tupuia: Sacred Spaces* [Motion Picture].
- Taylor, J. (1997). *The Tufuga's Fale Tele: Constructing Social Relations in the Samoan Built Environment*. Columbia University.
- Treadwell, S. (1998). Dazzling reflections: Images of Architecture in Missionary Polynesia. *SAHANZ*, 397-403.
- Va'ai, S. (2005). Pacific Utopias and National Identities in the Twenty-first Century. *Portal Journal of Multidisciplinary International Studies*.
- Va'ai, E. K. (2011). *Producing the Text of Culture; The appropriation of english in the contemporary Samoa*. Apia: National University of Samoa.
- Weather Online Ltd. (2011, Feb). *Samoa Climate*. Retrieved August 10, 2012, from <http://www.weatheronline.co.nz/reports/climate/Samoa.htm>

- Webb-Binder, B. (2000). Pacific Identity through space and time. pp. 25-34.
- Wendt, A. (1996). Tatauing the Post-Colonial Body. *SPAN*, 15-29.
- World Bank. (2012, October 10). *Samoa*. Retrieved from World Development:
<http://data.worldbank.org/country/samoa>
- Zumthor, P. (1998). *Thinking Architecture*. Baden: Lars Müller Publishers.
- Zumthor, P. (2006). Atmospheres. 4-36.





