

# Research

## Purpose:

A Wharenui is a traditional Maori meeting house or a communal place for the community. This Wharenui is intended to be used as a similar space but only with the additional utilization of this space as a classroom or Chapel.

## Wharenui Floor plans:

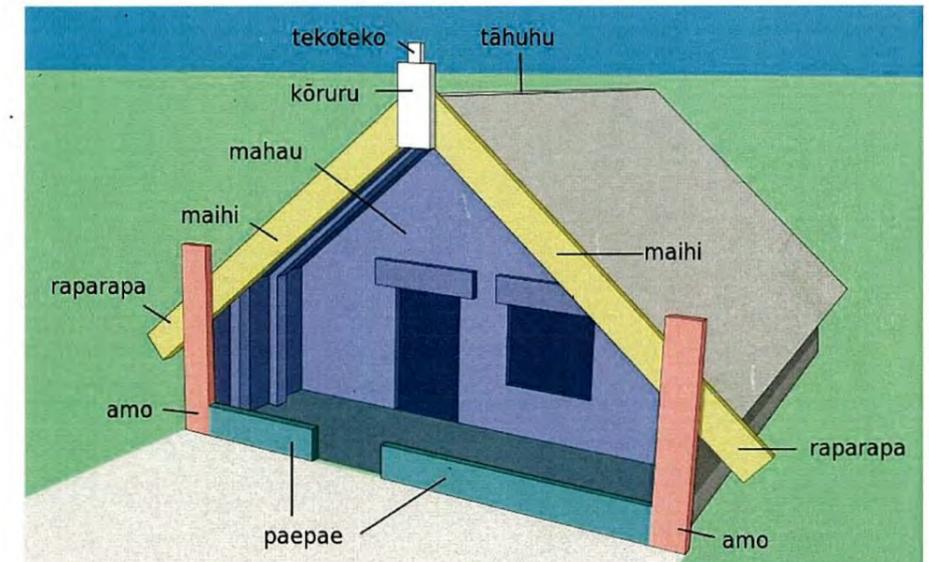
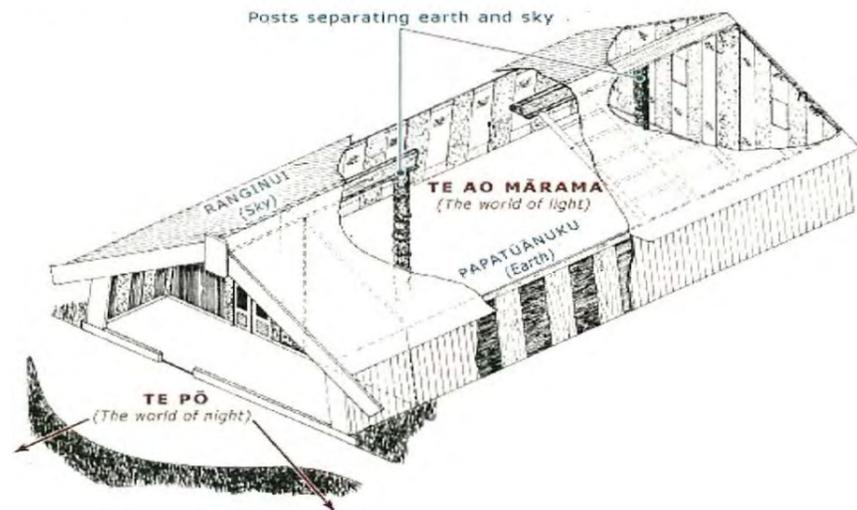
The Wharenui typically has an open floor plan area this room is used for many purposes such as a meeting room, sleeping area and storage. This Wharenui will have adjacent kitchen and bathroom facilities which are each separate buildings. The Wharenui itself is to be large enough to occupy up to 70 or more people, while also obtaining a large storage space in one building.

LIGHTING: Wharenui's tend to have soft lighting to create a calm atmosphere with natural light entering through skylights and small lights.

ACCESSIBILITY: This is a communal space which means all members of the community need to enter comfortably and each entrance must accommodate their needs.

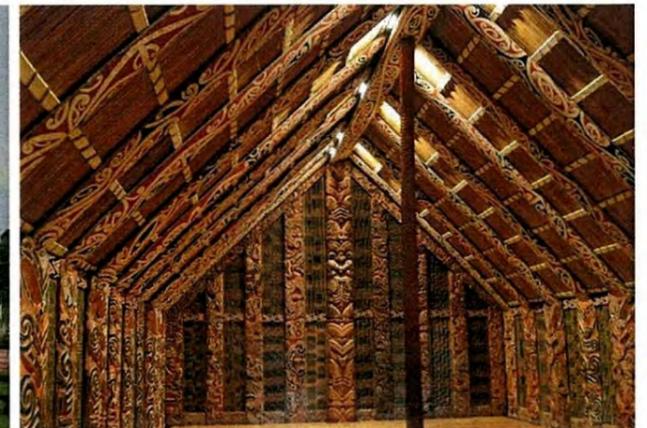
## Typical parts of a Wharenui:

The Wharenui building philosophy is for it to be built with the image of a body in mind which means components of the building represent the different parts of a human. The raparapa are the arms. The Kōruru represents the head and the Tāhuhu the backbone or spine. The front has a traditional sky reaching shape this is to connect the land to the sky as both have equal importance in the Maori culture.



## Materials:

The traditional building materials are timber and stone the timber is carved with patterns which represent many different aspects of the culture. Some Wharenui are elevated above the ground to prevent pests from entering.



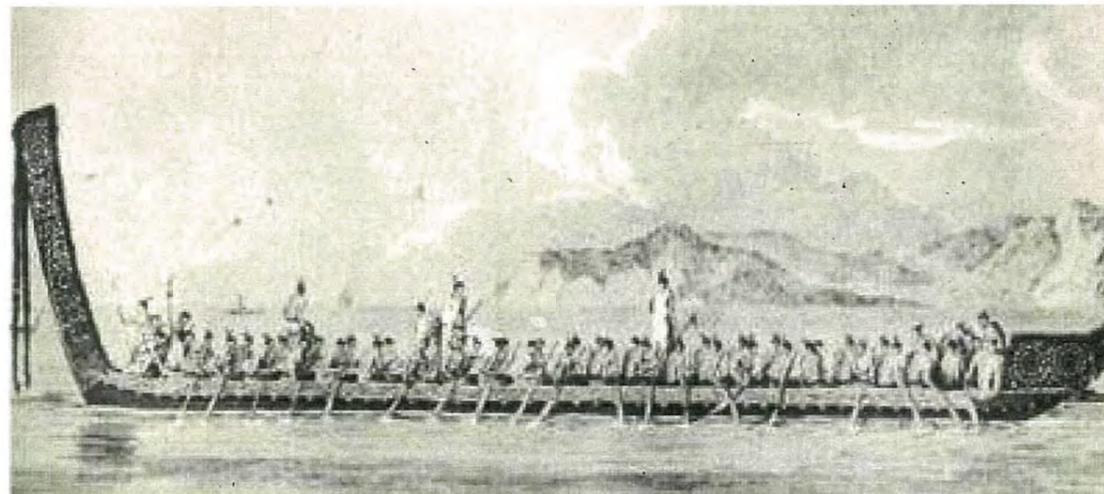
# Research

The Maori queen piki Mahuta (Te Atairangikaahu) who has a connection

is a symbol which could be used in the idealisation of the Wharenui. She is also the only Maori leader to be a female so as the since the Wharenui is supposed to represent a person someone who has such a connection to the school could influence widely.

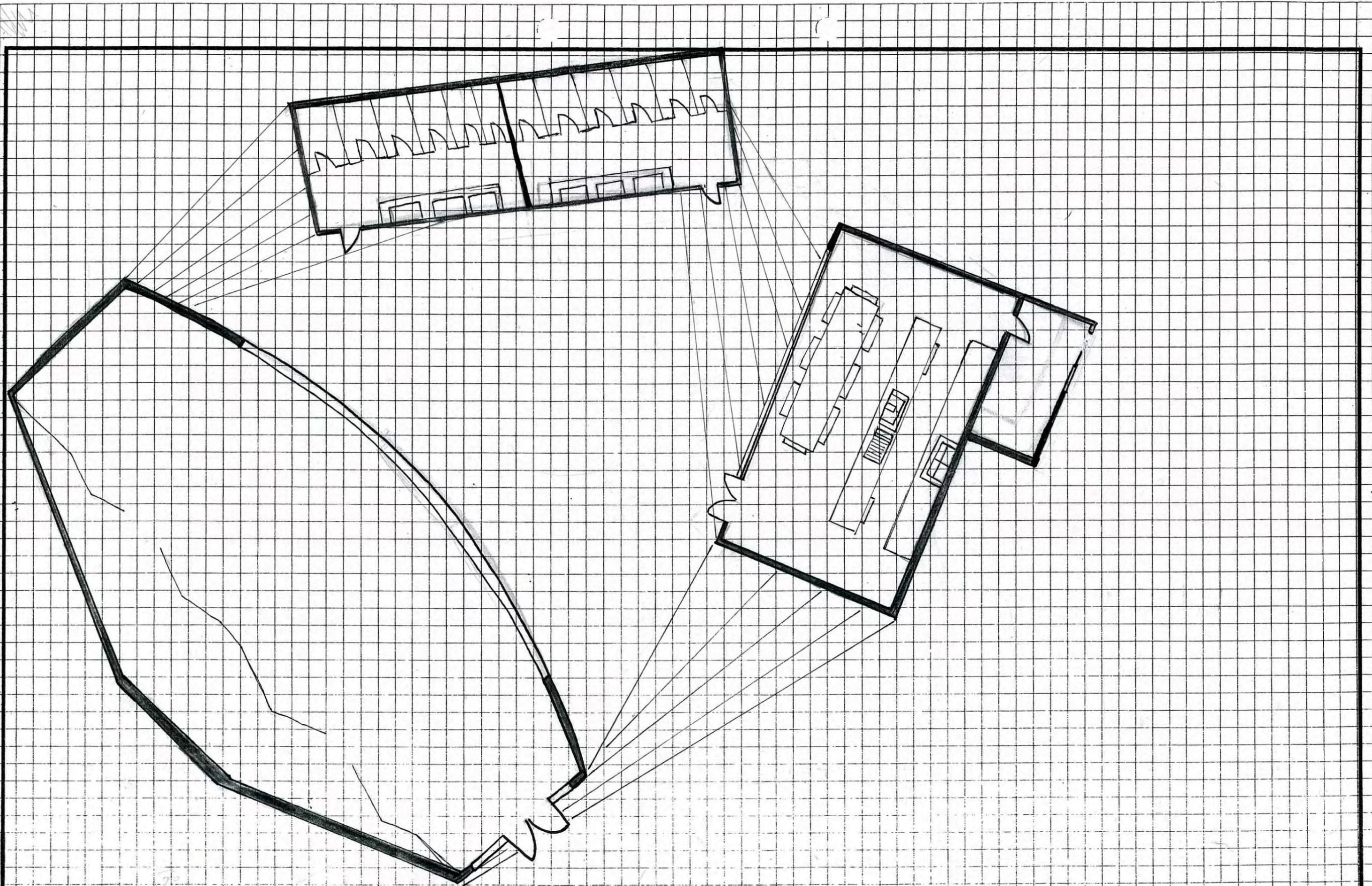


In a Mihimihi (Traditional Maori introduction) you introduce yourself by saying your name along with your river, mountain and canoe. This means everyone in Waikato has the same river, mountain and canoe which connects us. This idea could be used in the designs as a way to connect to the Waikato and the school.

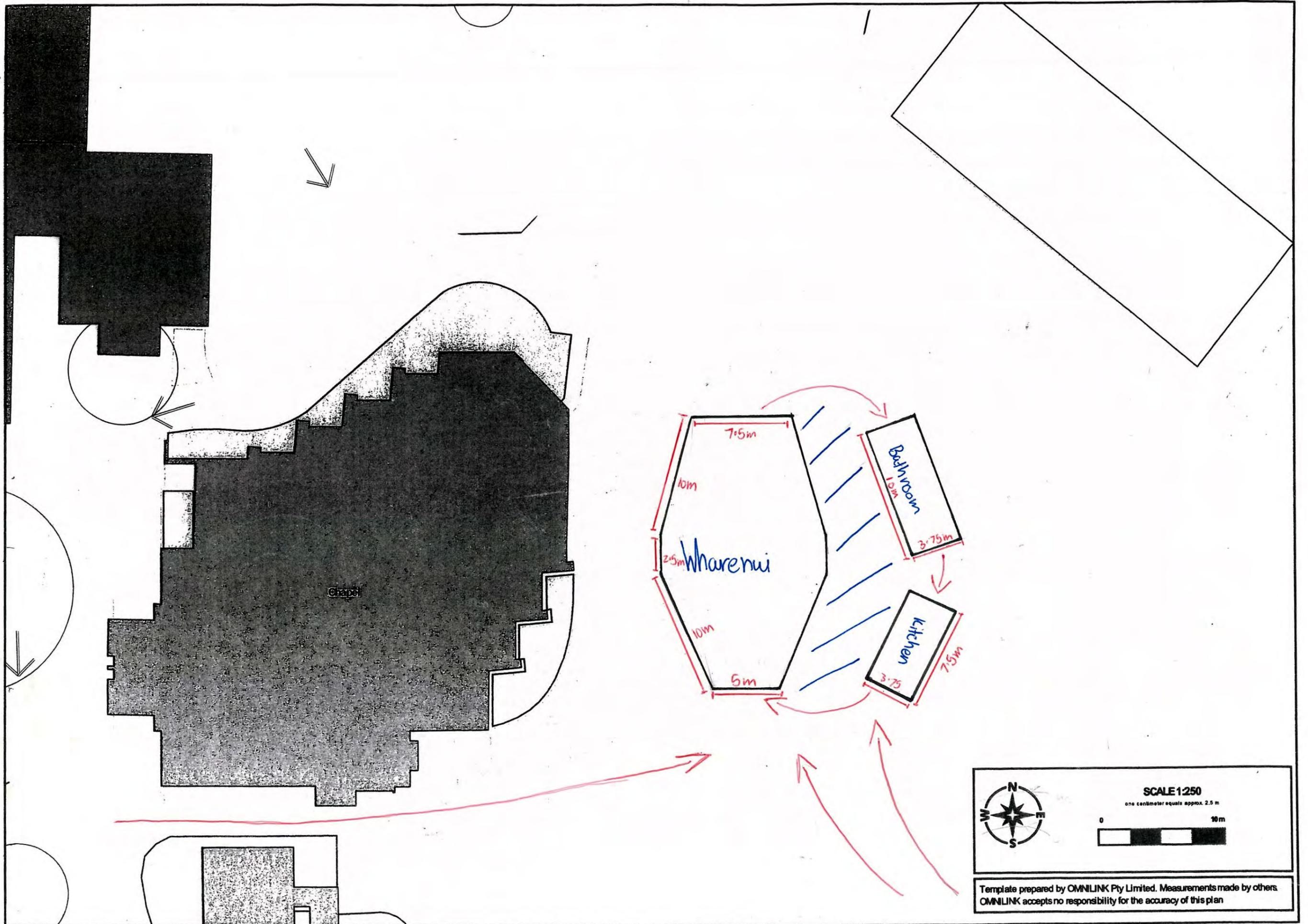


Symbols such as the Fern which is a widely known symbol, the Flax (Harakeke) weaving whose inwards reaching spiral communicates the message of unity. The Cloak which is traditionally worn by a Maori leader and the traditional piupiu skirt and its pattern will be developed into the ideation of the the wharenui. Also the Waikato river which is used in the traditional introduction while also being the defining symbol of the Tainui.





DRAWN BY	DRAWING No.	EXCEL	V.GOOD	GOOD	FAIR	POOR
DATE	SCALE	LINE QUALITY				
		INTERPRETATION				
		ACCURACY				
		LAYOUT				



 **SCALE 1:250**  
one centimeter equals approx. 2.5 m

0  10m

Template prepared by OMNLINK Pty Limited. Measurements made by others.  
OMNLINK accepts no responsibility for the accuracy of this plan

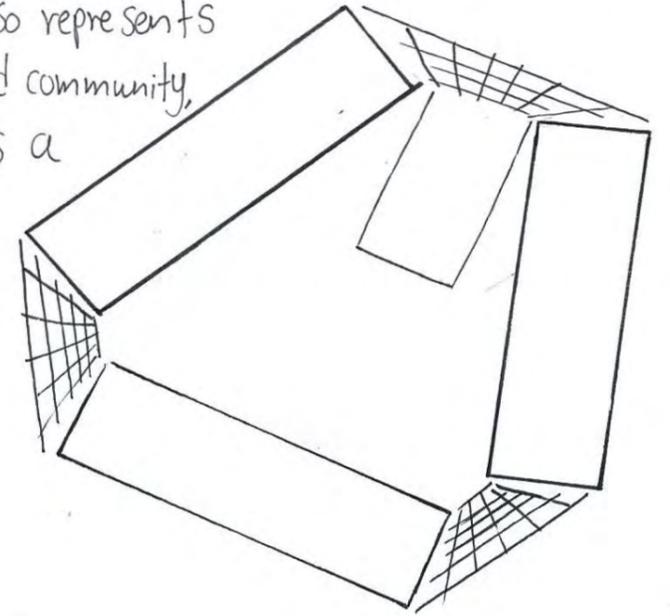
# Ideation

Flax (Harakeke) have a special connections to the Maori as it has been used for centuries for weaving and to create necessities for the Maori people. Now it is used in some of the same ways for crafts and also in everyday products. This shape which can be weaved to look like the shape below can be used in the buildings as way of connecting them. Also the inwards spiral can be used as the main shape of the building.



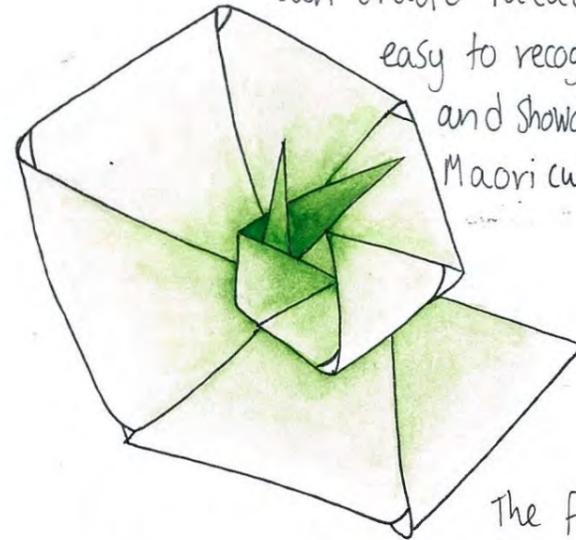
The Spiral shape can influence the shape of the floorplan with the separate buildings form this shape. This circular inwards moving shape also represents unity and community,

the same as a Wharenui

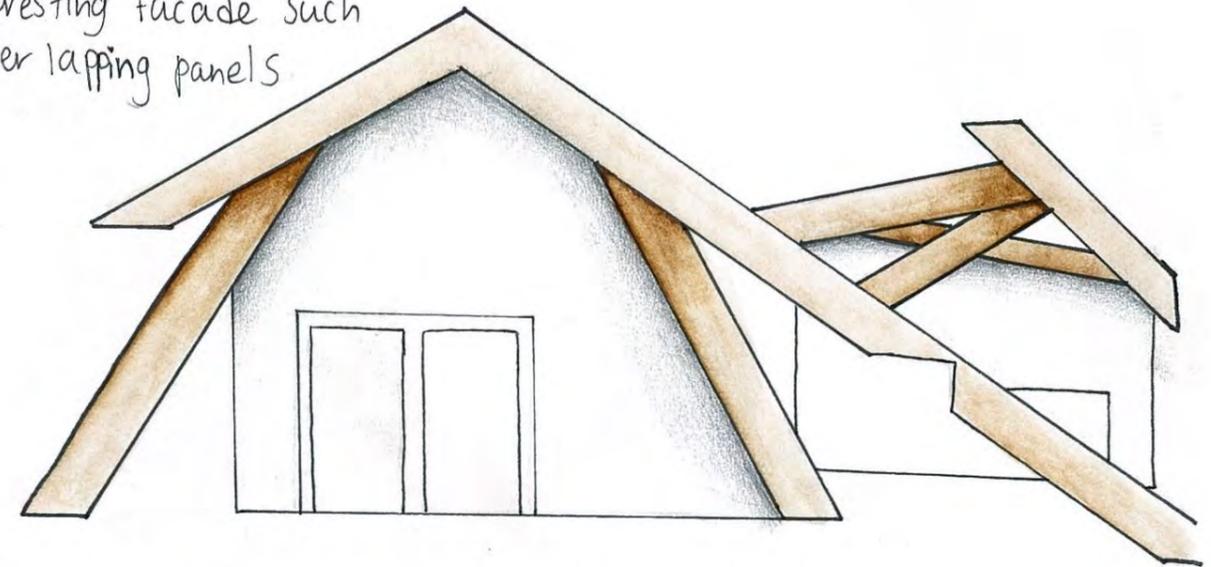
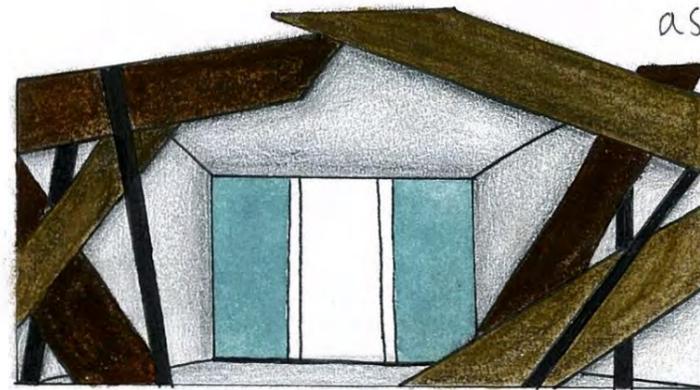


The Spiraling shape of the flax weaving can create facade which is

easy to recognize and showcases Maori culture



The folds of the flax could be used to create interesting facade such as overlapping panels

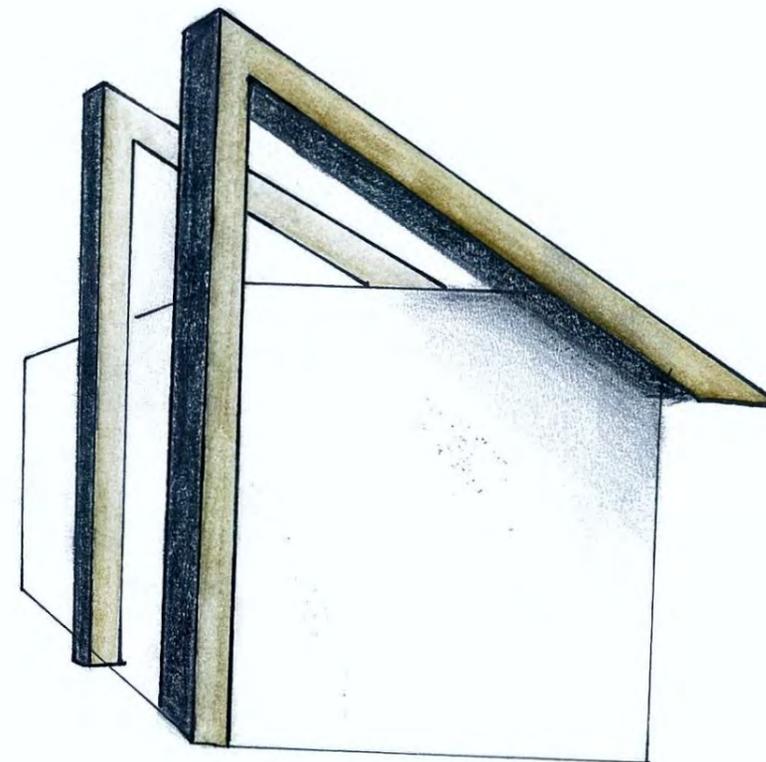
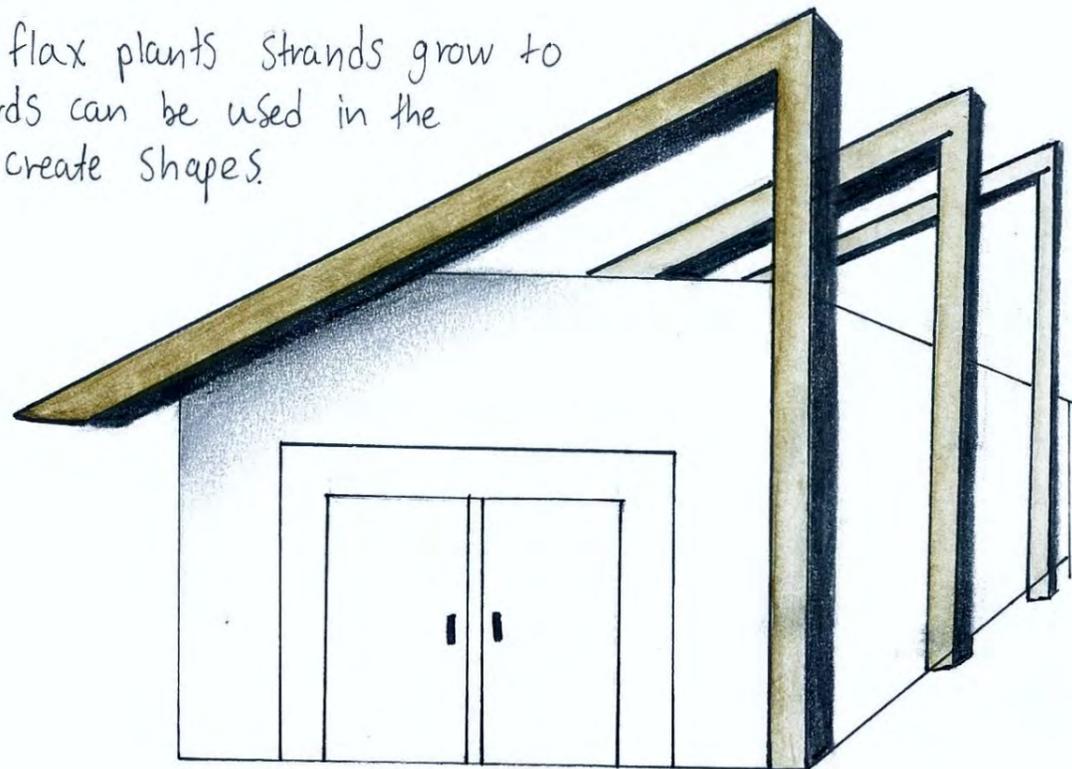


The overlapping of the flax can be used in the structure of the building where the maihi and ano of the building overlap and create a diverse pattern. Or the windows could simply create the overlapping along with panels of other materials.

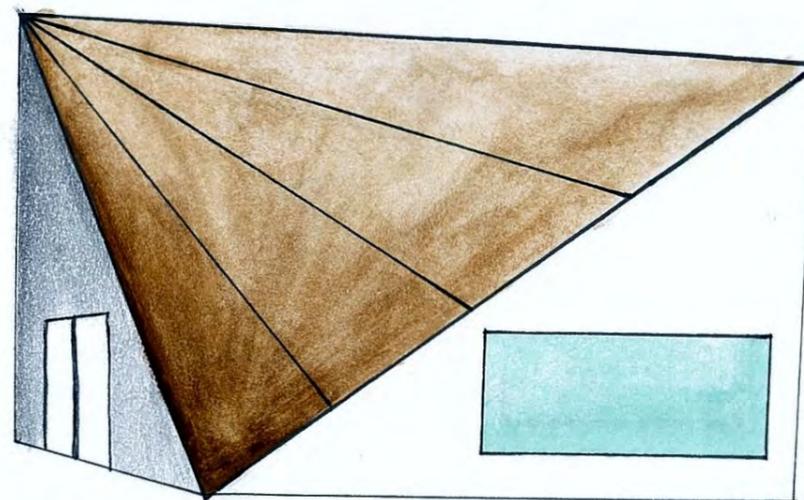
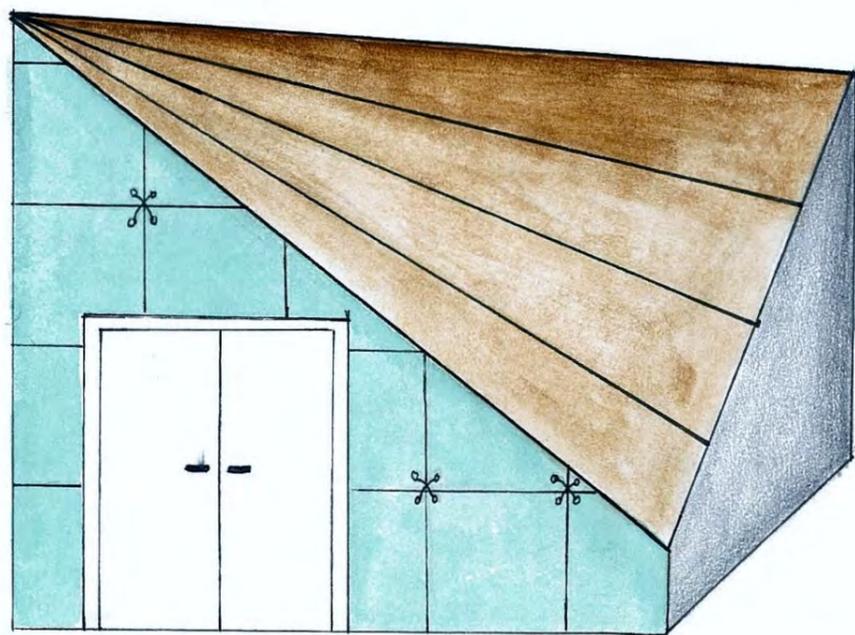


# Ideation

The way the flax plants strands grow to fold downwards can be used in the buildings to create shapes.



The folds can influence the outer structure by using the outside poles to make a downwards shape which adds to the facade of the building along with the flax ideation.



The roofline could start close to the ground then move to extend upwards replicating the foldings of the flax strands near the bottom of the plant to the top.

# Ideation

The silver fern (ponga) has a special connections to the Maori culture such as the silver fern being a symbol to represent the country or to show attachment to the homeland. It is also a common symbol known widely throughout New Zealand and overseas which makes it great to develop into the buildings. The shape of the fern which expands out at the bottom of the fern while the top has smaller ferns could be used in the structure of the Whareniui.



The fern has branches which lead to smaller ferns. They tend to create a pointed shape which can be used in aspects of the whareniui as influence

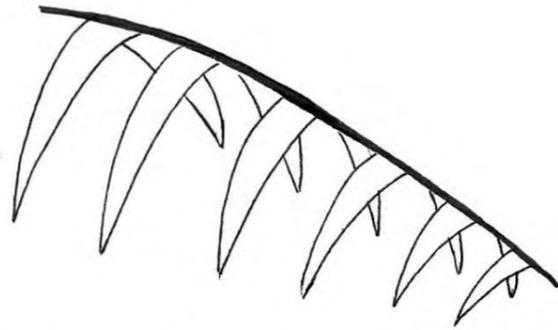
using the shape of the fern to create a pattern for the roof.

seperating the roof from the building could allow it to stretch over many buildings

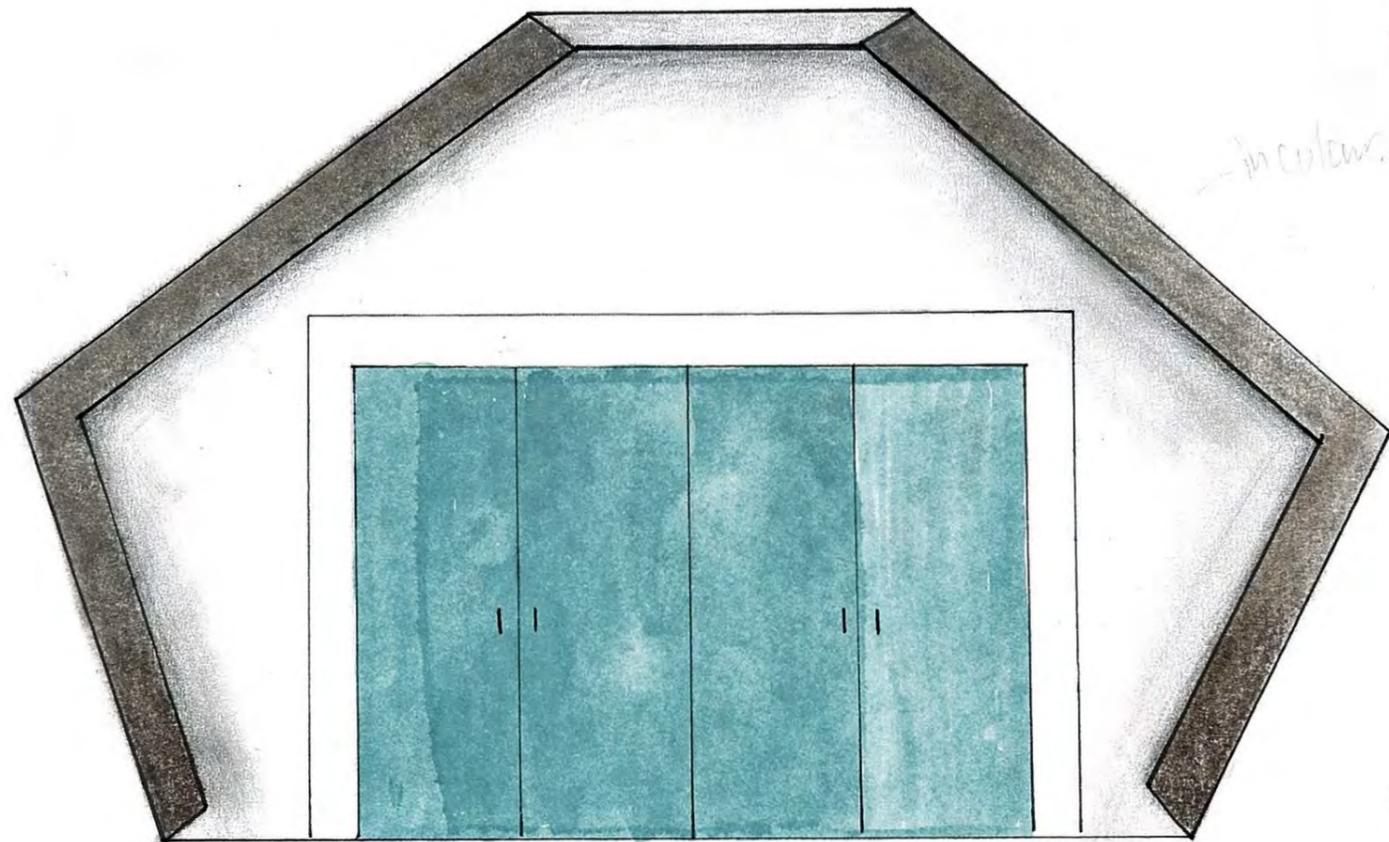
The maihi could extend to cover all buildings to show it's fern shape.

The Maihi can be extended and shaped to represent the folds of the ferns. These are apart from the building enough to walk through.

# Ideation

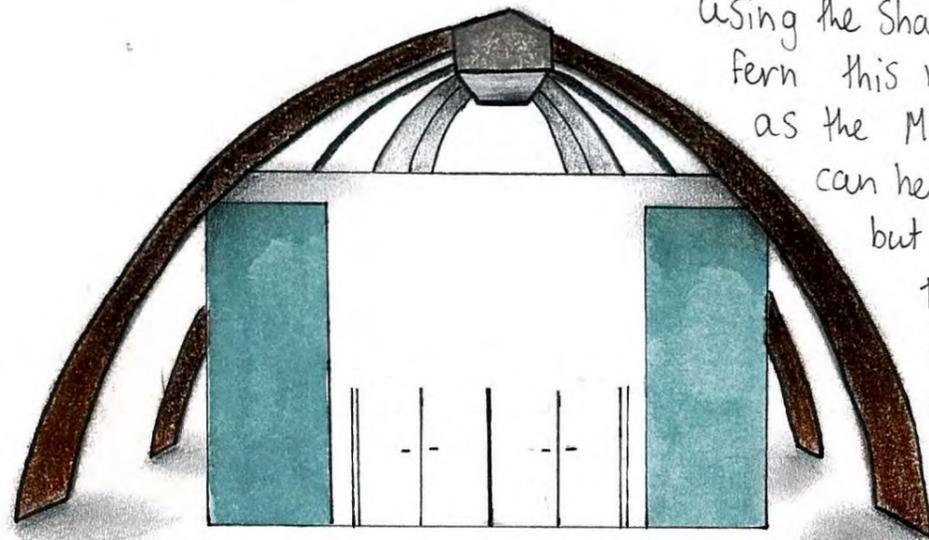


An overturned fern gives a unique shape which parts at the separations of the smaller ferns.

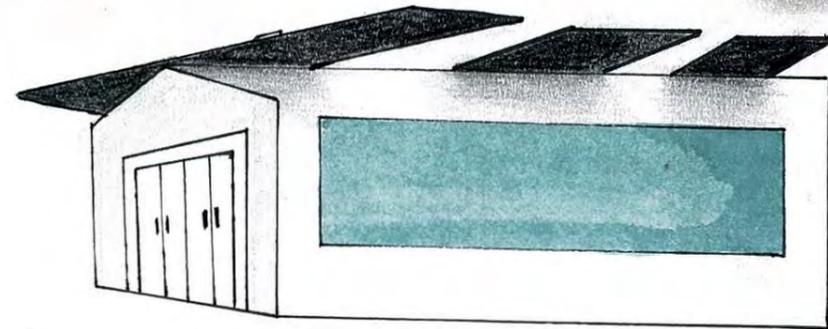


--in colour.

The building is shaped to create a shape of an overturned fern with the facade allowing it to show the separation into smaller fern through poles of the windows.



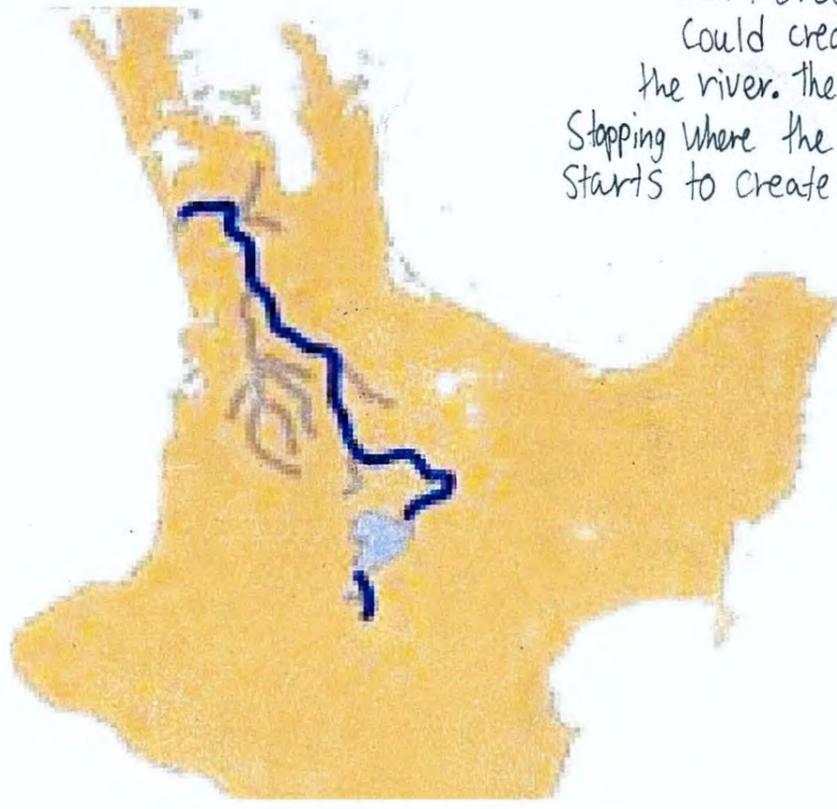
using the shape of an overturned fern this roof facade acting as the Maihi of the building can help create a traditional but simple building. The roof can split into pole like features which replicate the ferns. The stem connecting the parts of the ferns acts like the koruru.



# Ideation

## Waikato Tainui

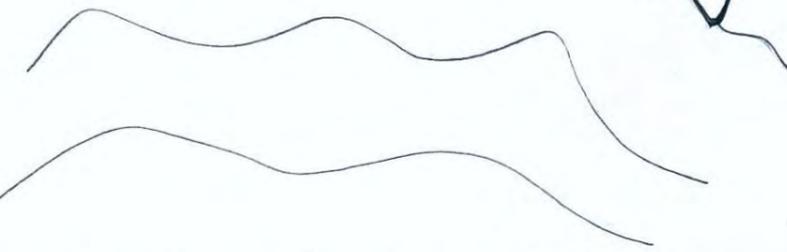
Waikato is the land where the Tainui waka settled and the land is important to Maori culture as is their mountain and river which is the Waikato river, for the people who belong there. The shape can be manipulated to be incorporated into the building to connect to the tribe and the land they value.



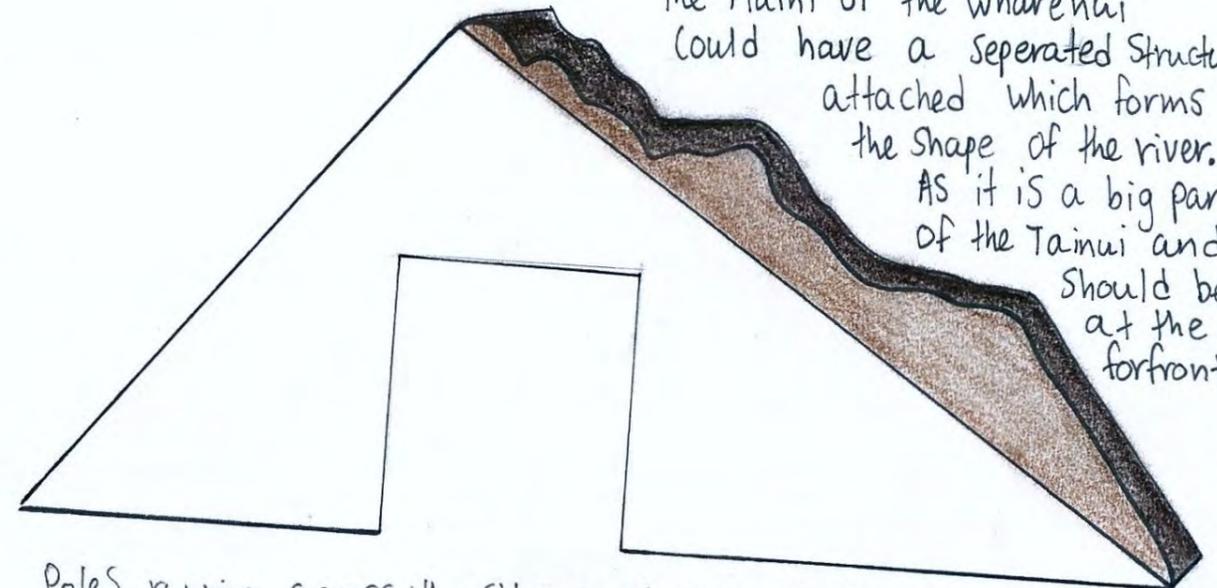
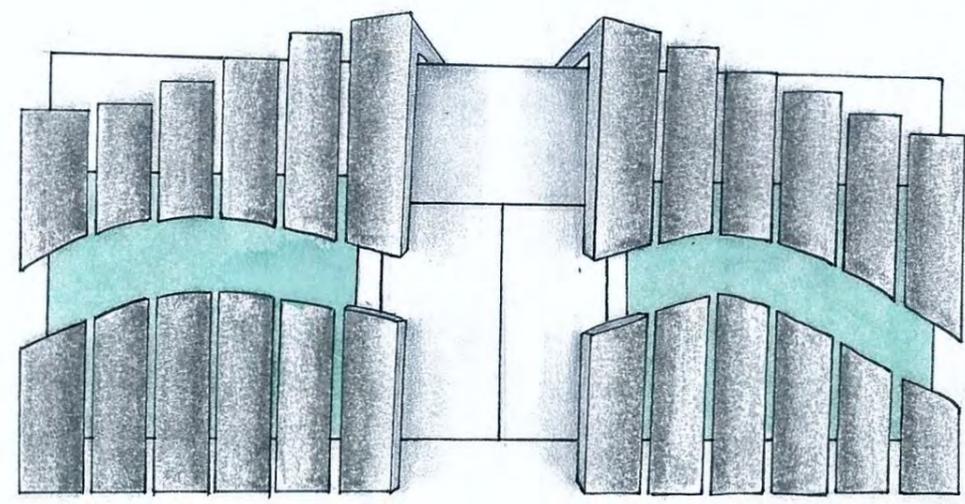
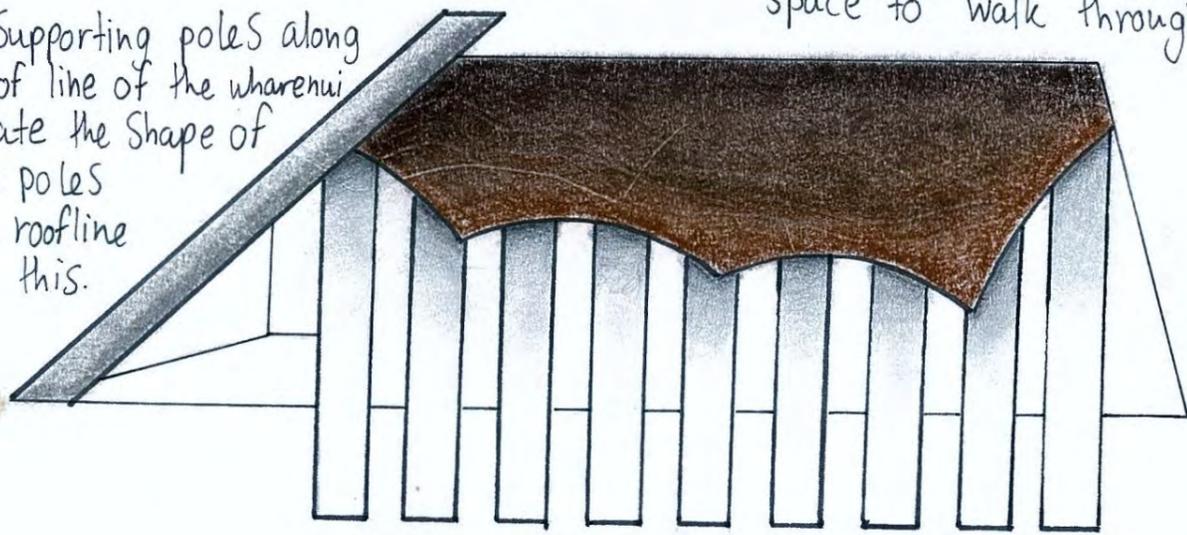
Original Shape of Waikato river



Simplified

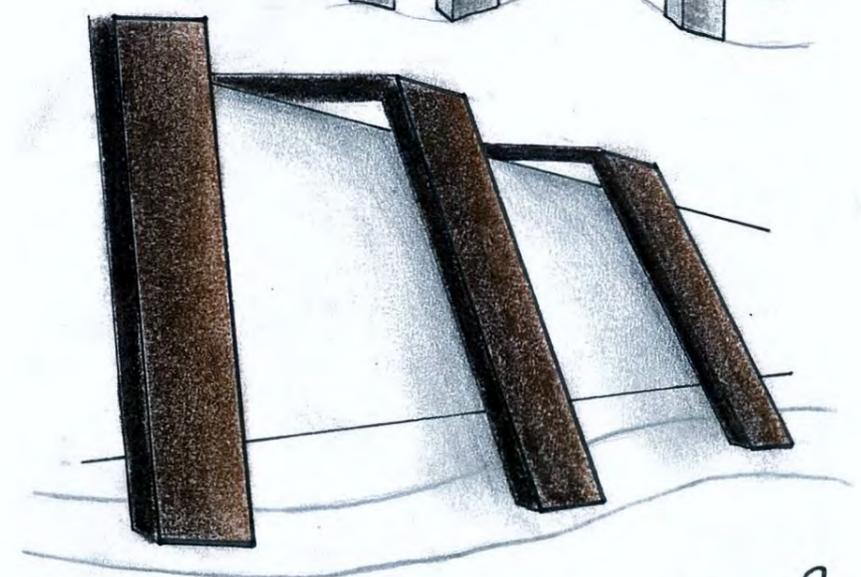
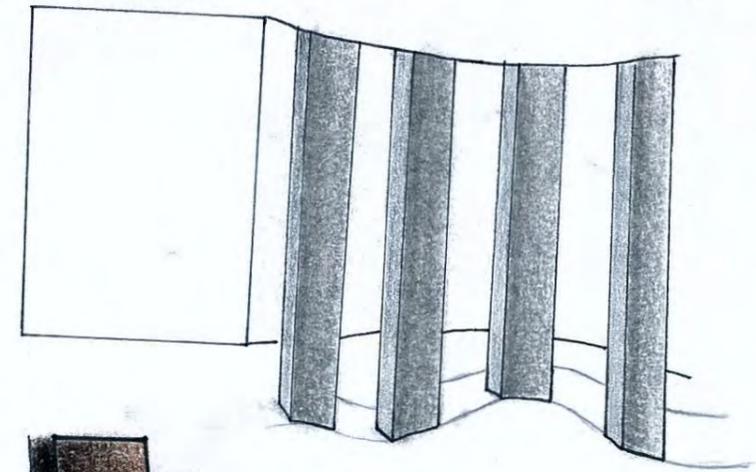


the Supporting poles along with the roof line of the wharenui could create the shape of the river. the poles stopping where the roofline starts to create this.



the Maihi of the wharenui could have a separated structure attached which forms the shape of the river. As it is a big part of the Tainui and should be at the forefront.

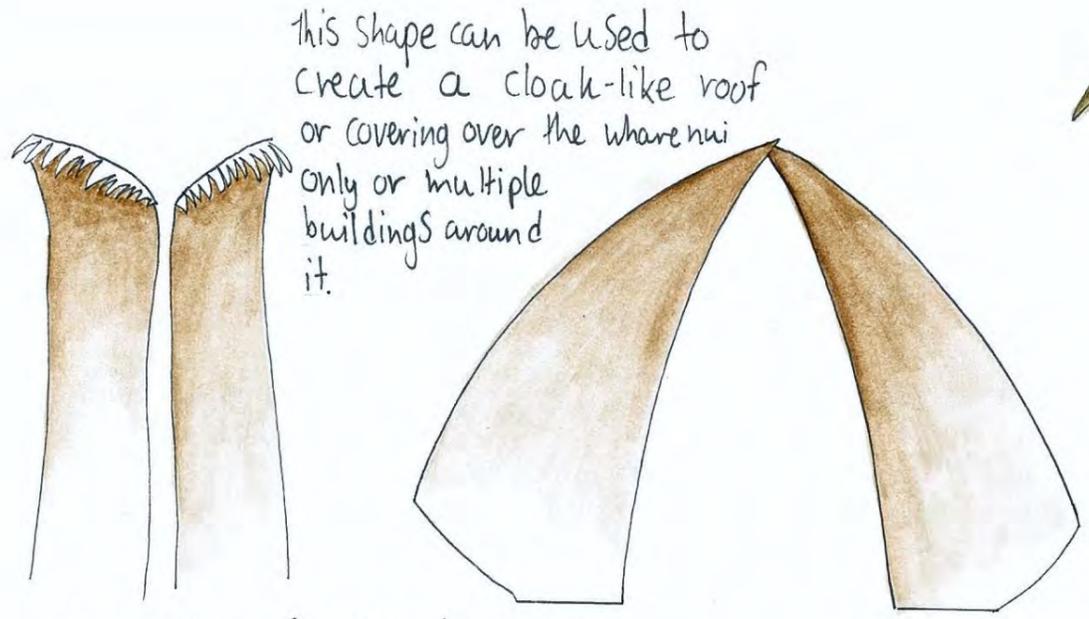
Poles running across the sides could possibly be aligned to create the shape of the river alongside the building while allowing space to walk through underneath.



# Ideation

## Waikato Tainui

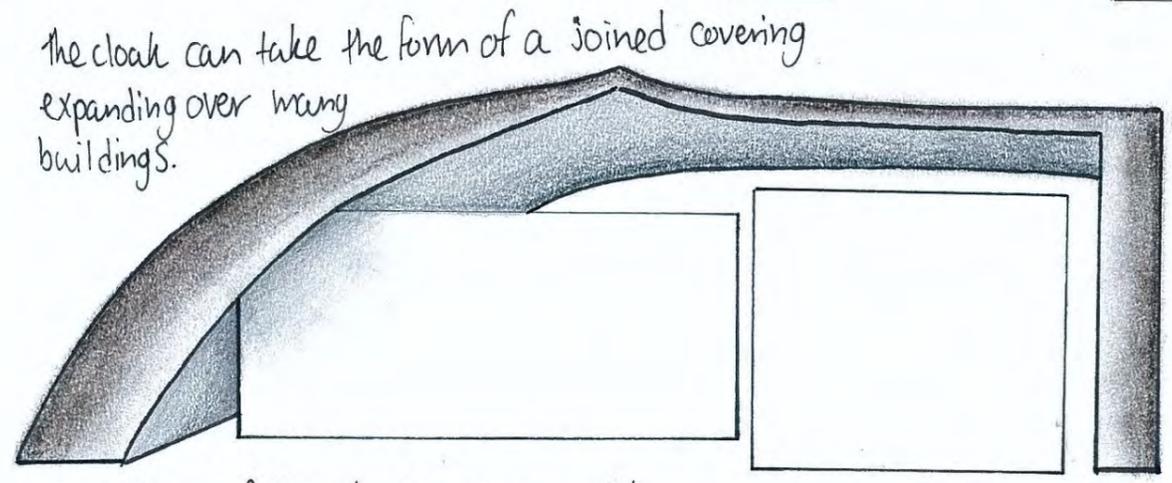
This cloak is worn by a Maori Monarch and since the first Maori queen Te Atairangikaahu attended Waikato diocesan school for Girls this connects her to the Waikato Tainui. Using this ideation to influence aspects of the Marae helping it to link to the Waikato Tainui.



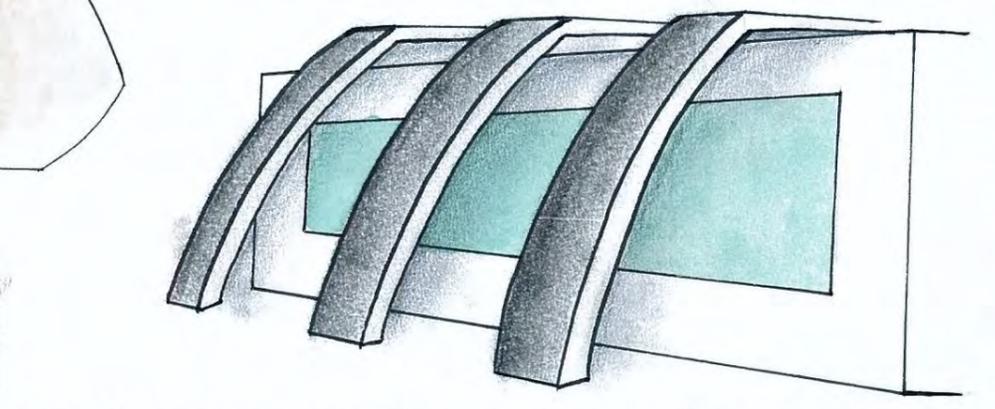
This shape can be used to create a cloak-like roof or covering over the whare nui only or multiple buildings around it.



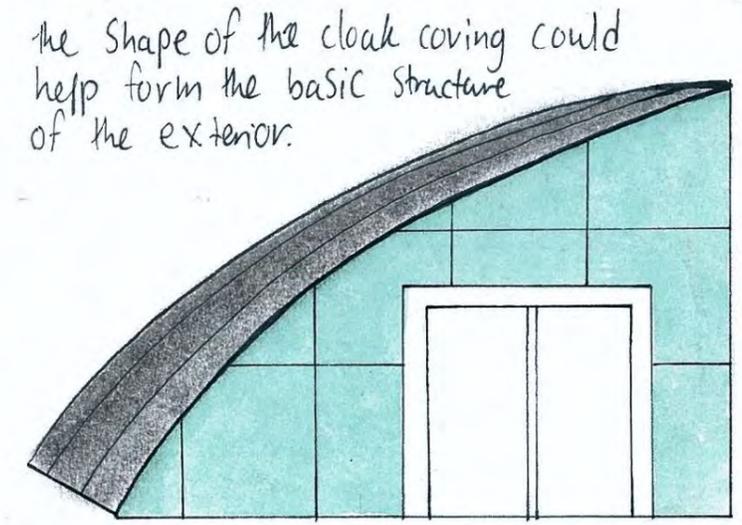
The cloak also features details such as feathers these can be changed to poles which curve around the building as the feathers do around the top of the cloak.



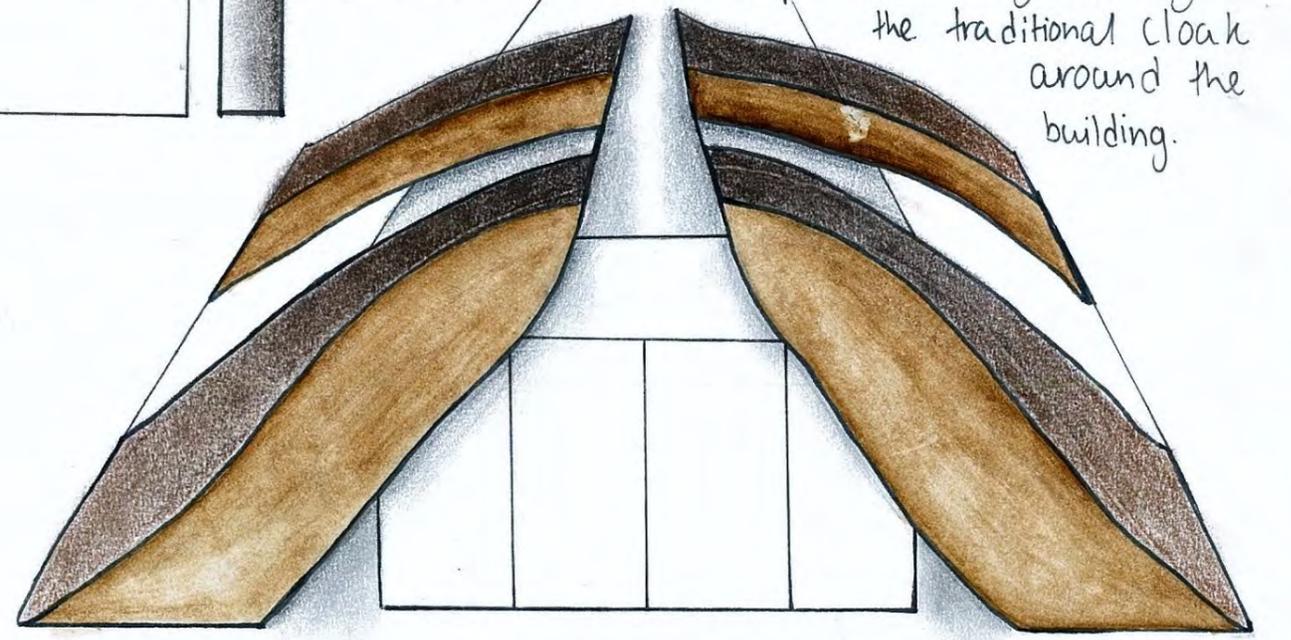
The cloak can take the form of a joined covering expanding over many buildings.



The shape can also become the facade in the front to create a covered draped effect symbolizing the traditional cloak around the building.

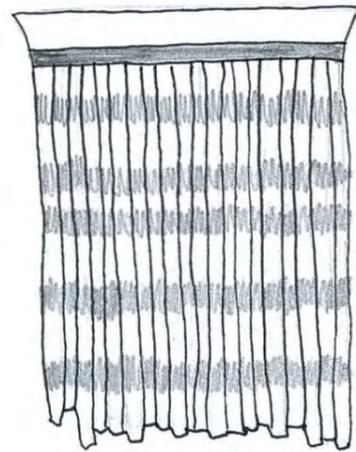
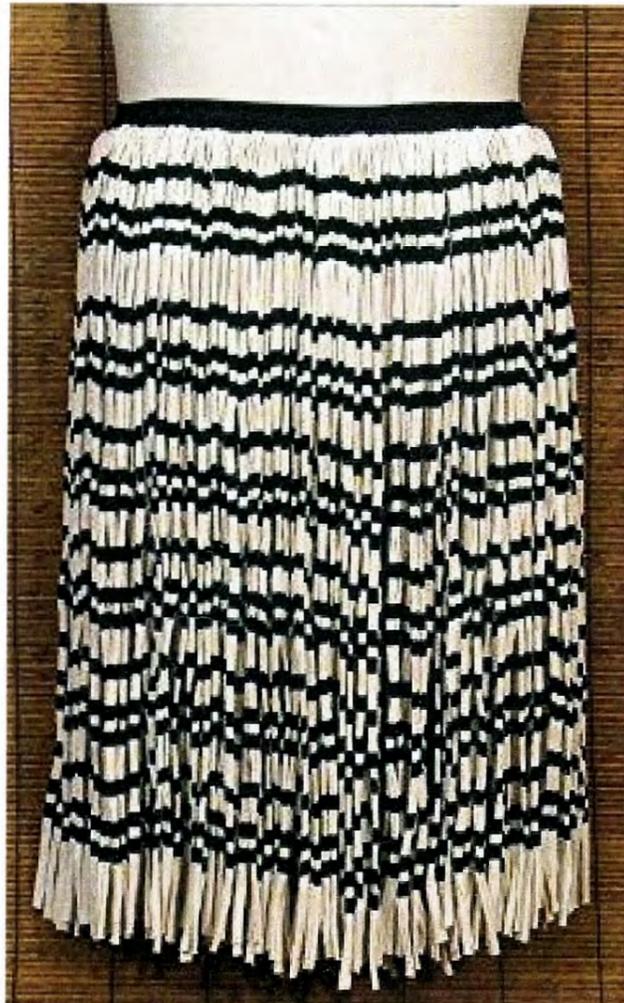


The shape of the cloak covering could help form the basic structure of the exterior.

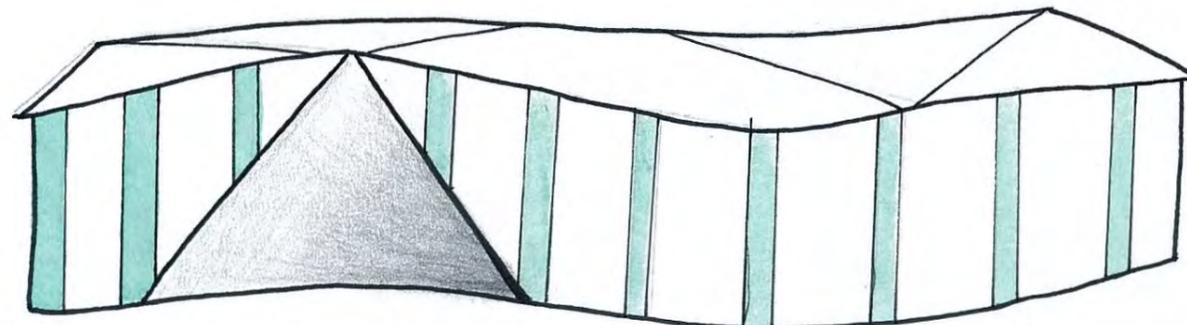
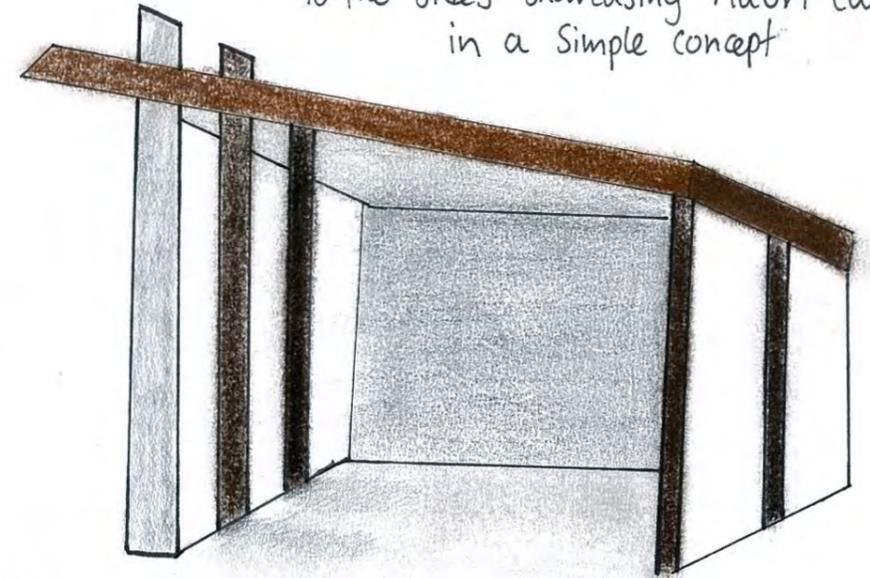


# Ideation

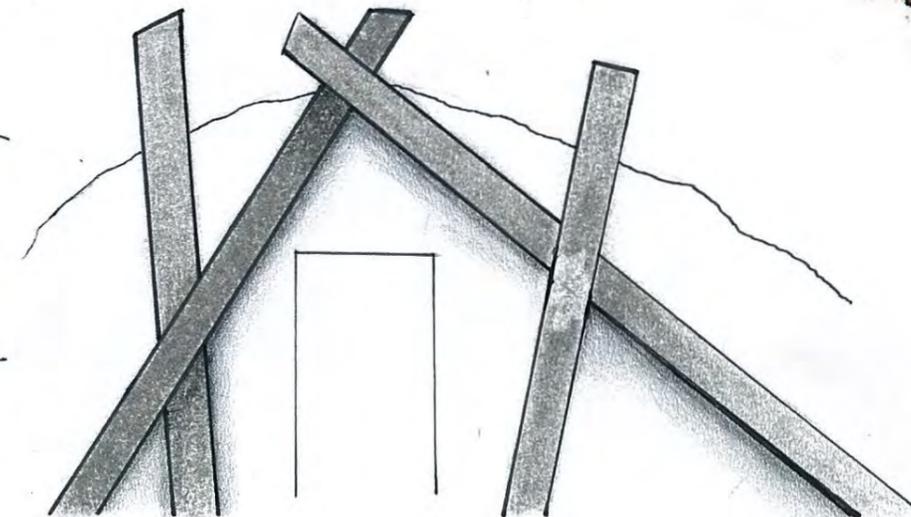
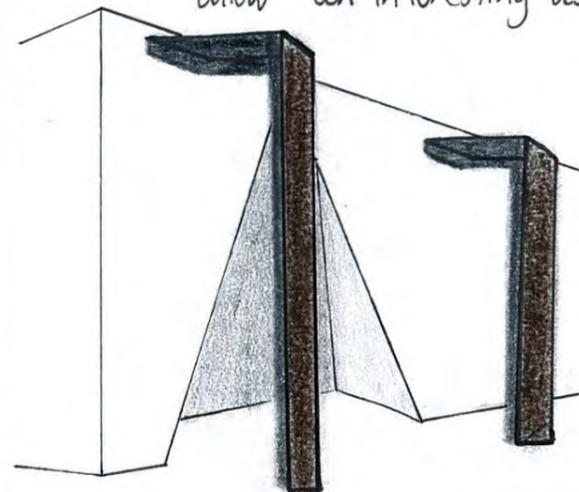
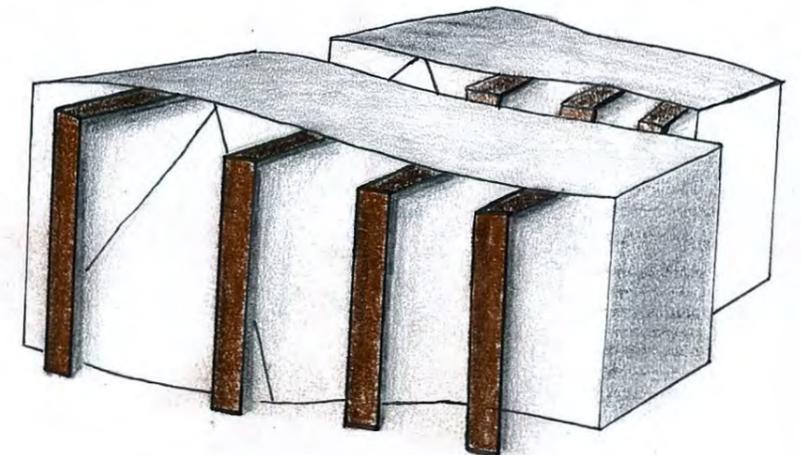
The traditional clothing in the Maori culture includes a skirt which is called a piupiu skirt. This is made of flax or other native grasses and is used by males and females. It has unique patterns (like the one shown below) which could be used as influence for poles and outer structure for the whareniui.



The Skirts Strands could be used throughout the building to create a pattern from the Maori to the Sides Showcasing Maori Culture in a Simple concept

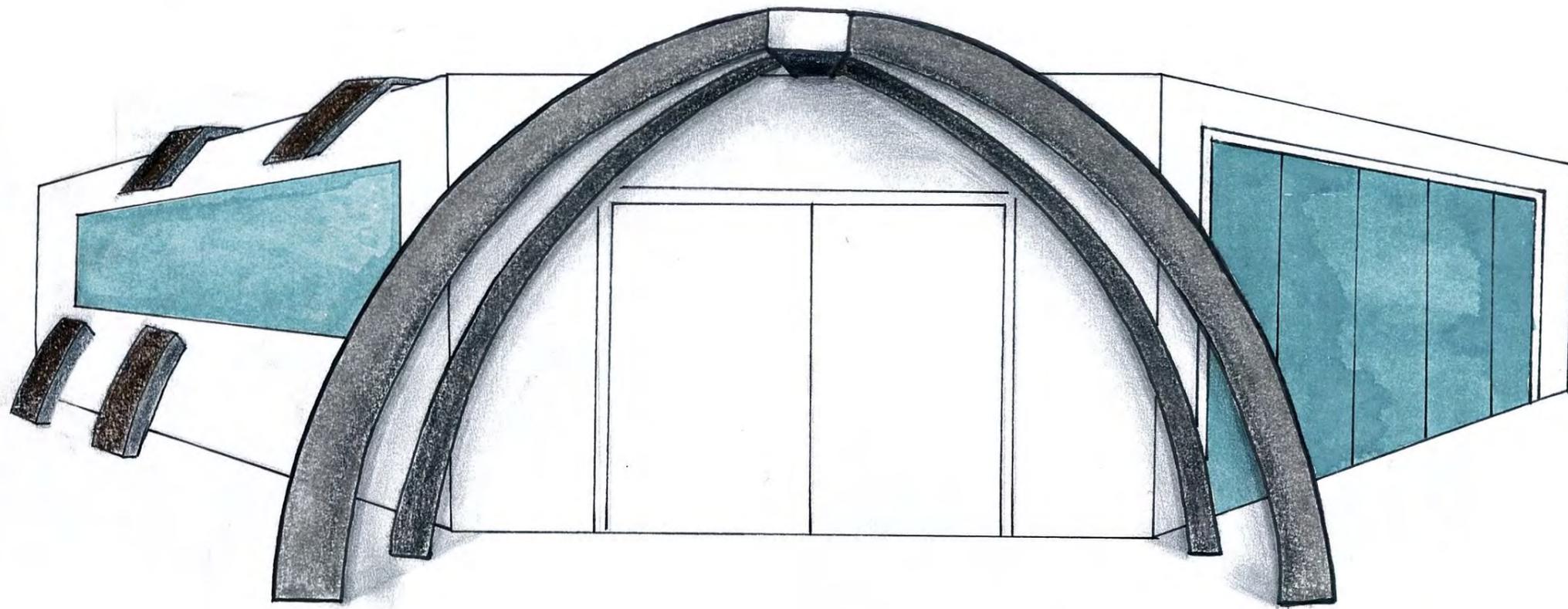


The pattern could take the shape of windows in the facade to allow an interesting usage of the traditional Skirt pattern.

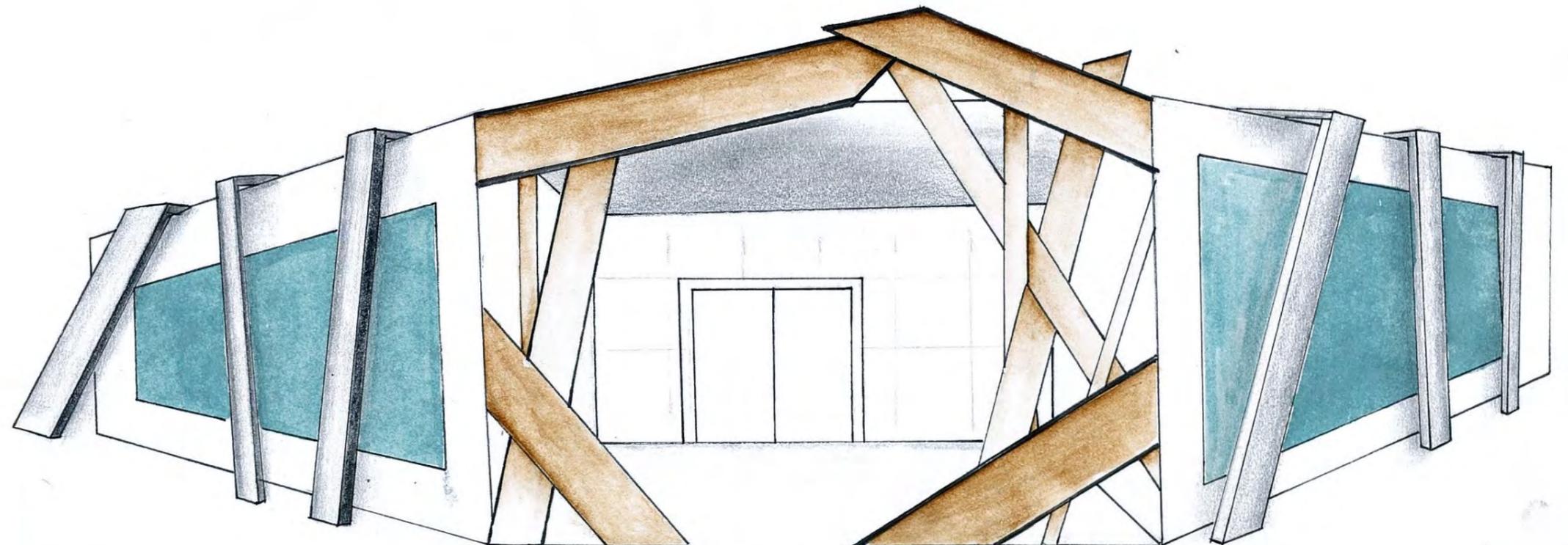


The Skirts Strands overlap and this could be used as for the Maori to create a traditional upwards reaching shape with the Skirts Strands to influence the poles and overlapping.

# Development - Front

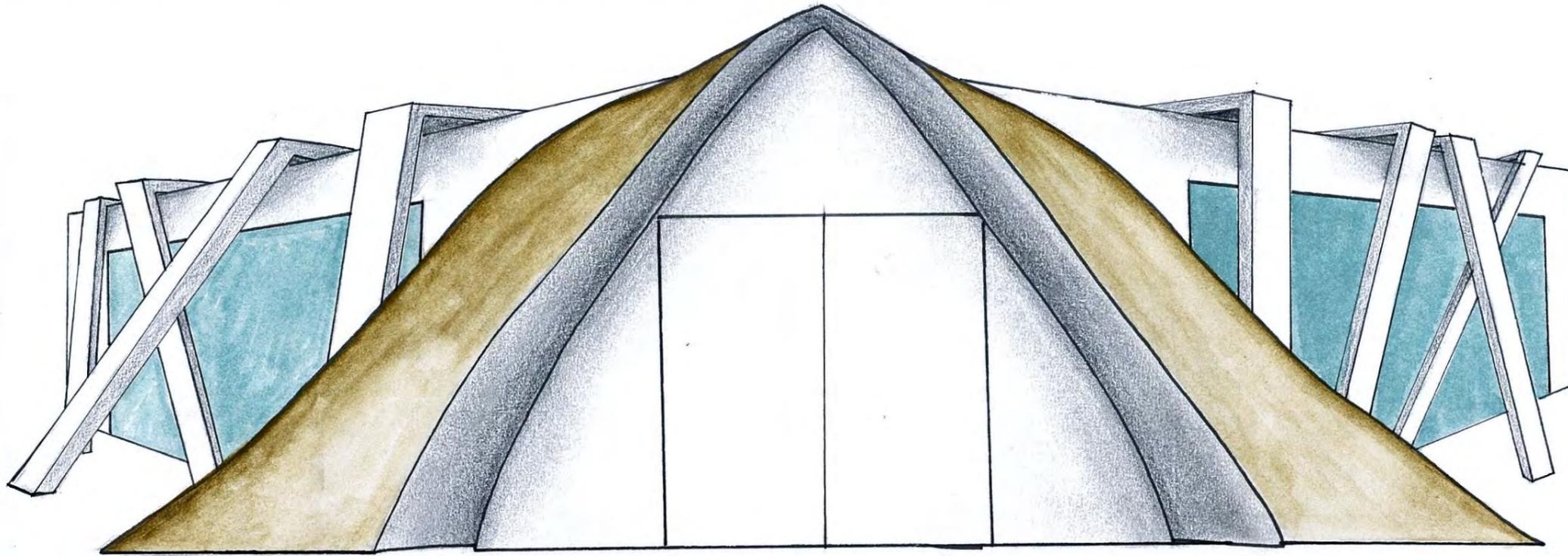


The wooden facade of this front creates the same shape as a traditional Maihi but this shape also resembles that of an overturned fern, which is a symbol close to New Zealand and therefore the Waikato Tainui.



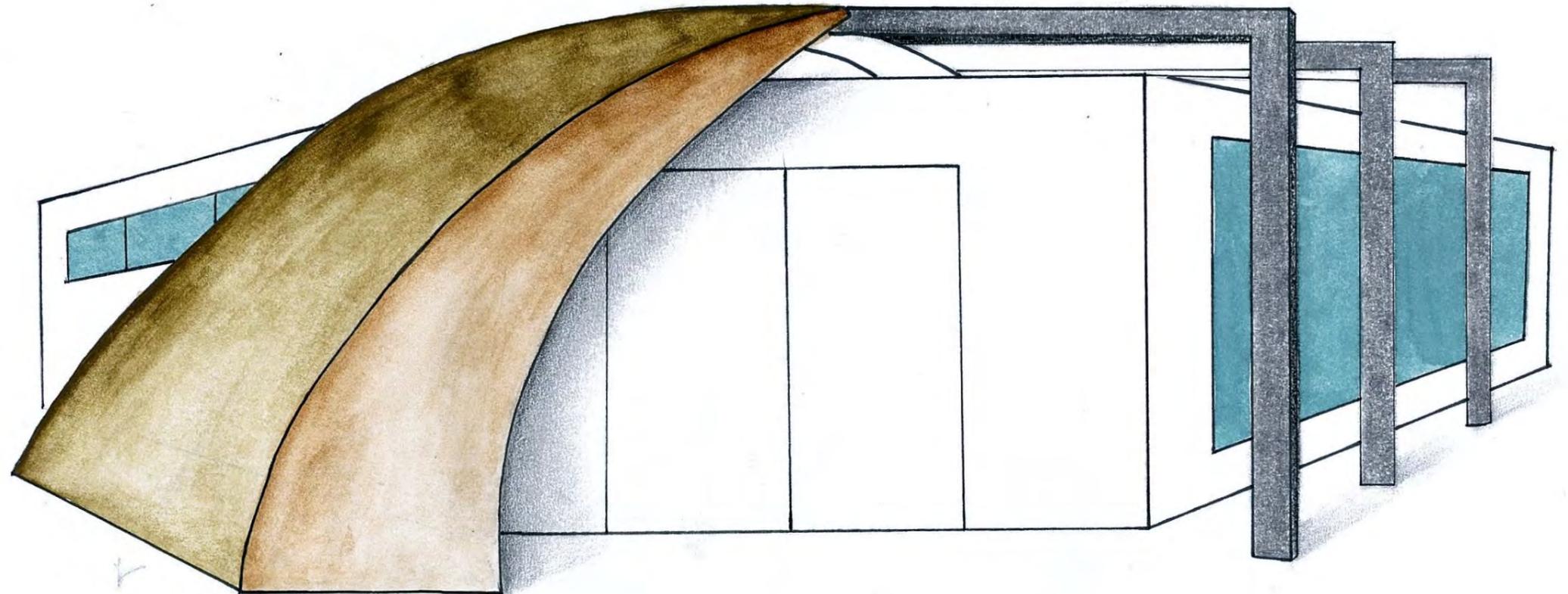
Flax (Harakeke) have overlapping and interweaving strands which are showcased in this design to create a front which overlaps and interweaves columns of wood to create the facade. The wharenui is a place of connection and belonging which is what the inwards spiral of the flax weaving represents.

# Development - Front



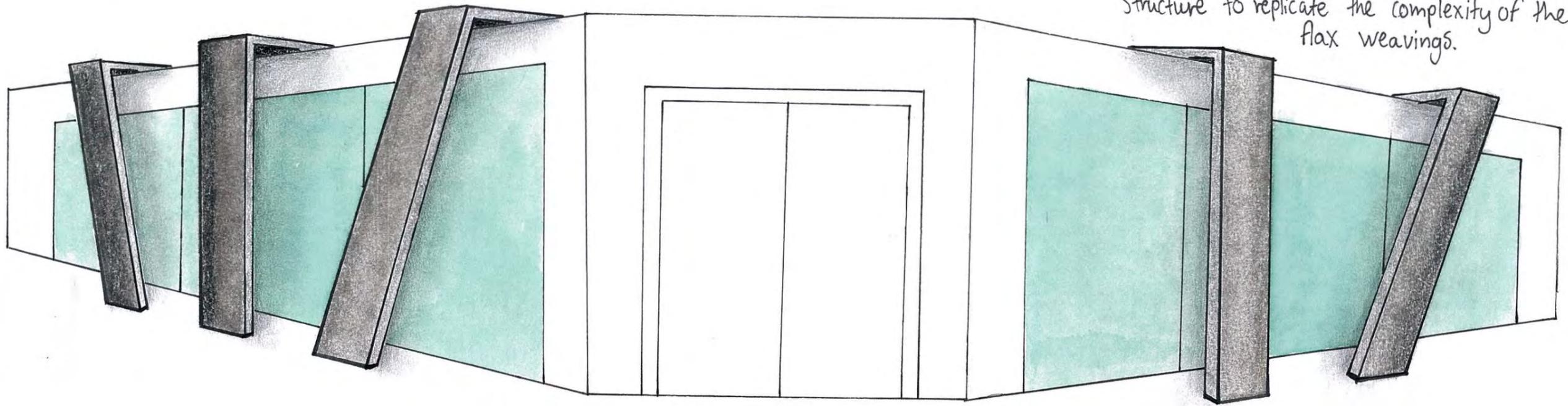
Taking the Shape of a cloak and creating the same covering effect the cloak gives to the front of this building. The traditional connections to the sky are kept through the upwards reaching facade. The connection to the ground is kept through the surrounding poles which reach into the ground and are weaved together to represent flax weavings and also the community the wharenui holds.

The Shape of the cloak is used on one side of the front to showcase the traditional pointed shape of the Maihi reaching to the sky. The other side is a more stronger shape and structure in contrast to the curved shape to the left, this is to represent the strong, grounded connections the community has to the land, school and Waikato Tainui.

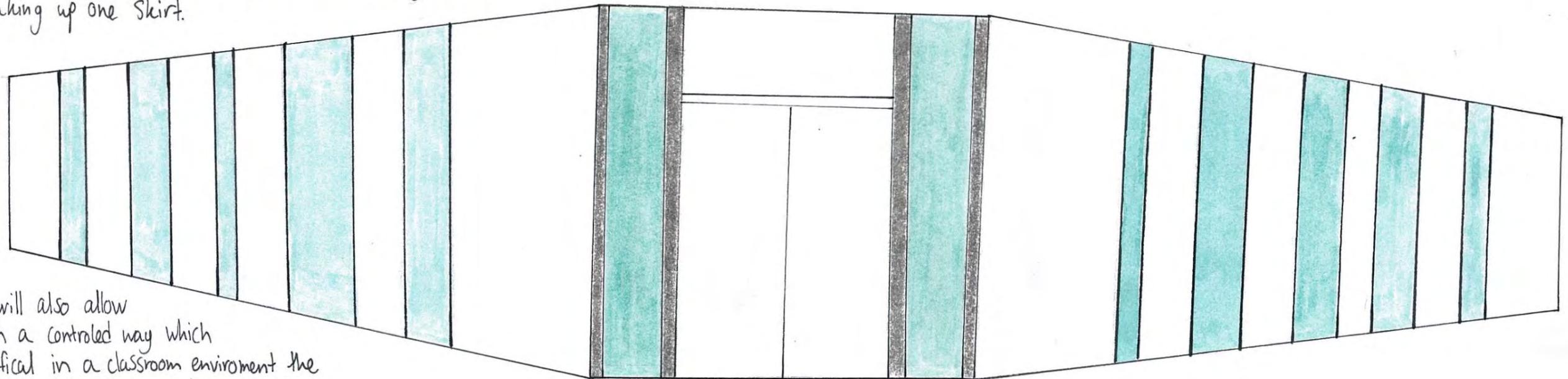


# Development - Right

The poles which are seen below reflect the Strands of the Flax as they naturally folds over each other to create a patten in which they are placed in different directions. The poles reach the ground in a diagonal structure to replicate the complexity of the flax weavings.



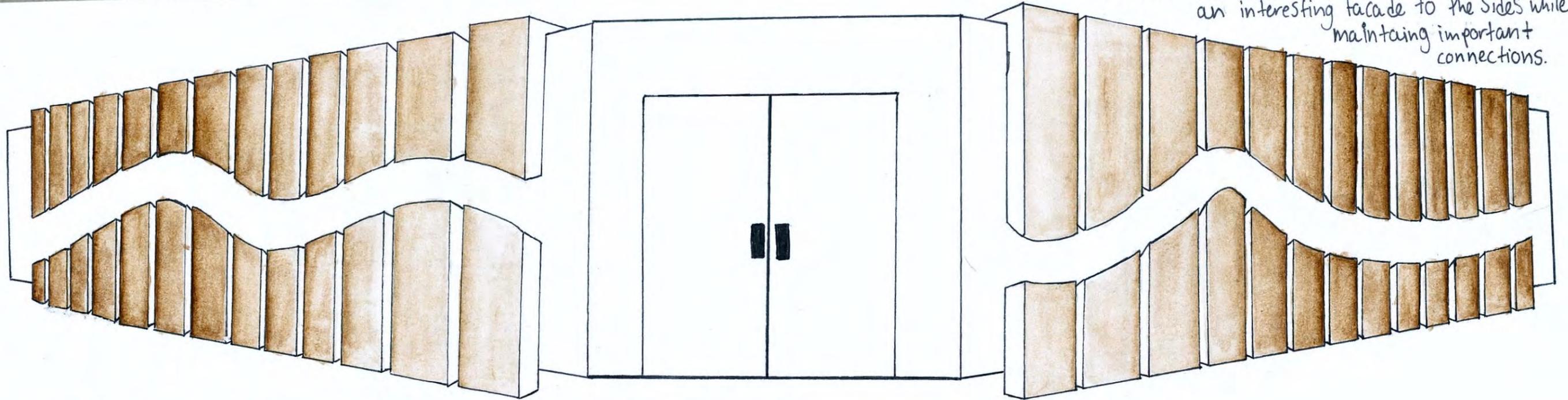
The windows are varied shapes throughout the length of the sides they are reflecting the shape of the traditional piupiu skirt which has strands which have many different strands making up one skirt.



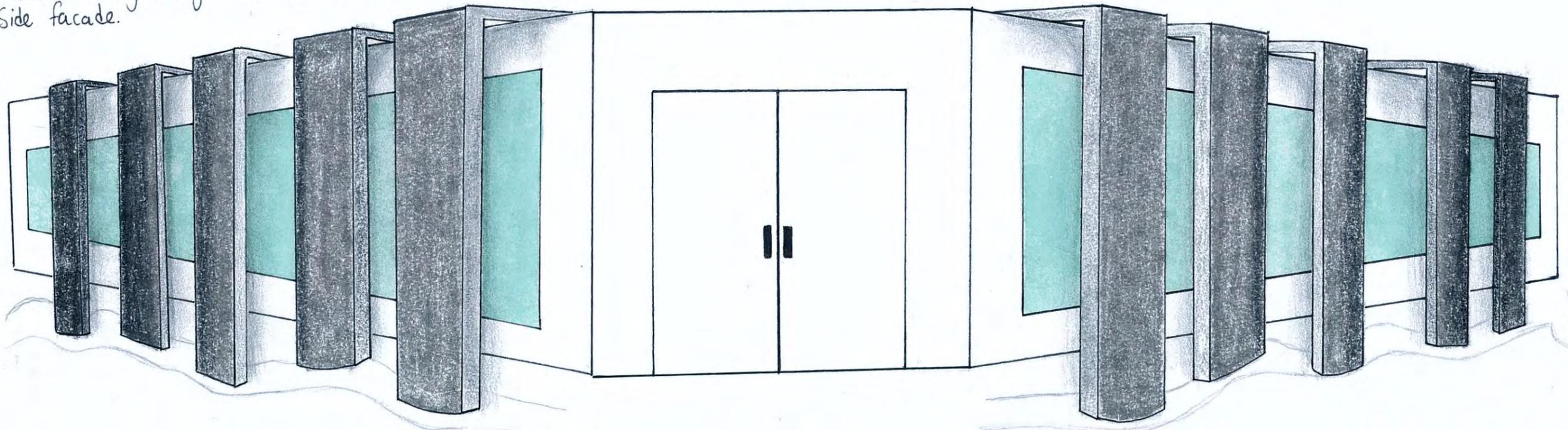
The windows will also allow more light in a controlled way which will be beneficial in a classroom environment the Wharehau can also be utilized as.

# Development - Right

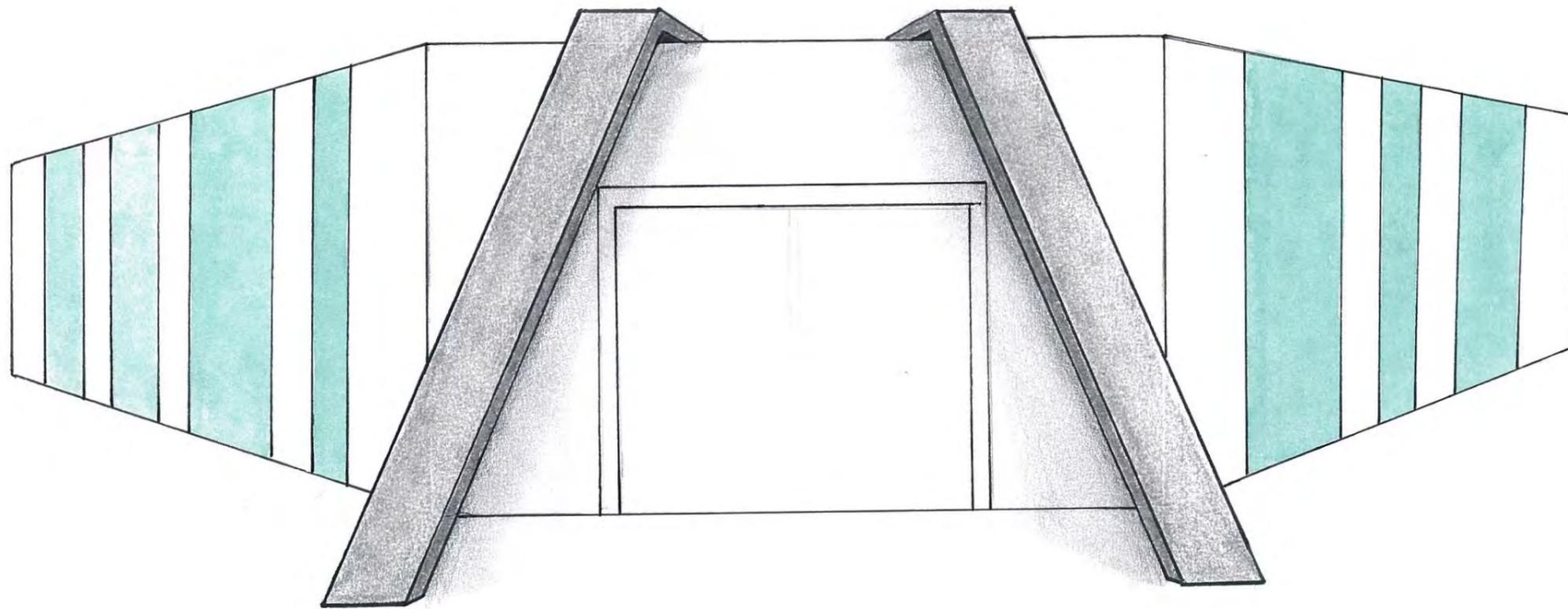
The separate wooden poles are attached to the wharehau and are placed above the cohesive pole which both of which are separated by a gap which creates the shape of the Waikato river as seen on maps. This creates an interesting facade to the sides while maintaining important connections.



The poles are made of wood and they are placed in a pattern which reflects that of the Waikato river. Along the ground of their bases this allows there to be a connection to the Tainui background of the school in a minimal way through the use of this side facade.

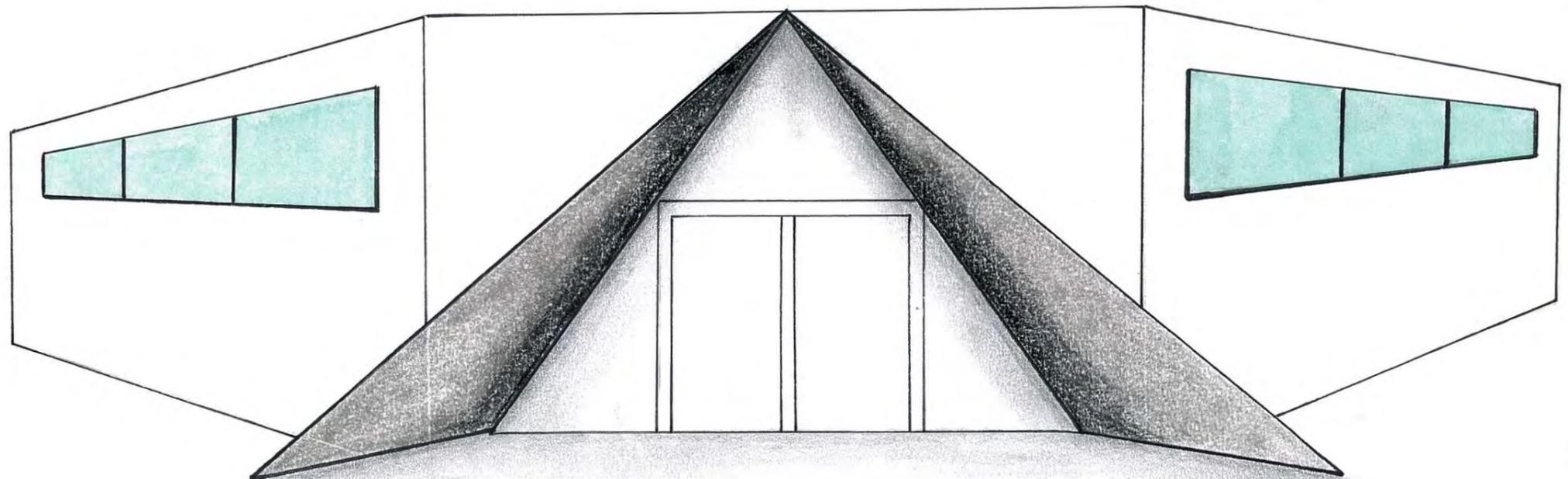


# Development - Back

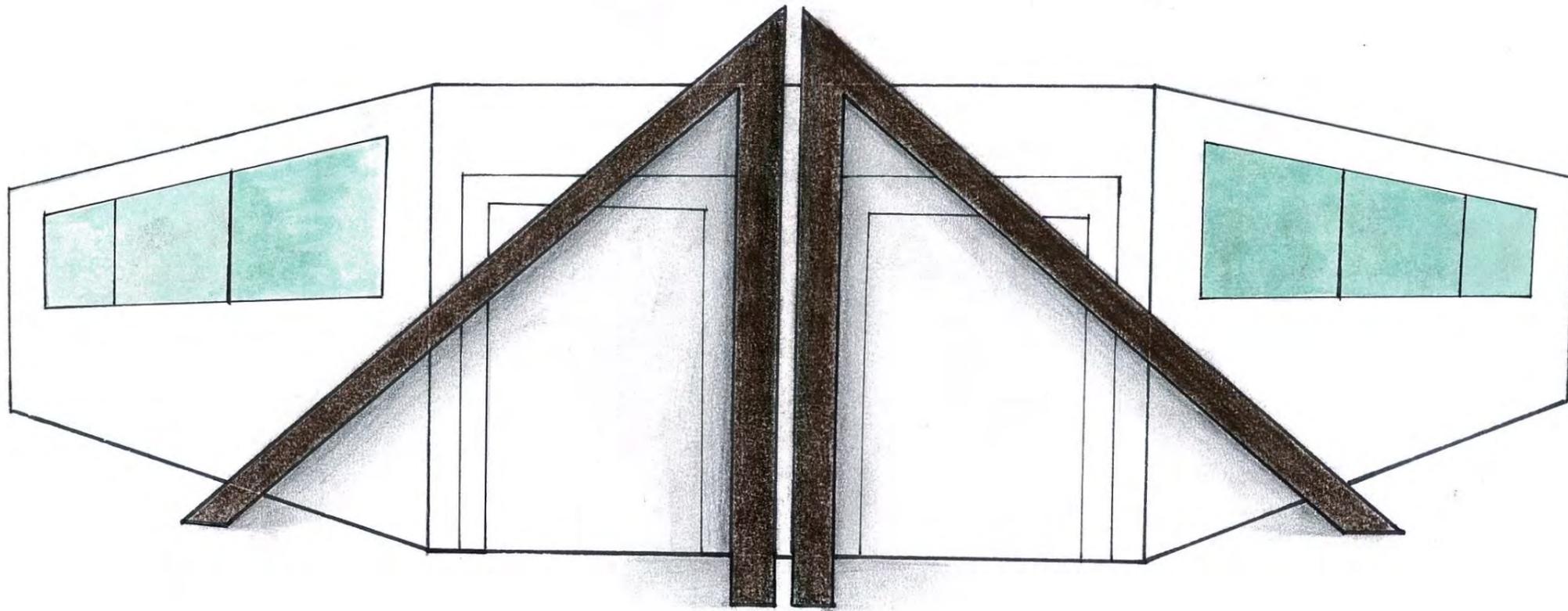


The back takes ideation from the Skirt to create twin poles which reach down from the top they arch over the back entrance to create some shelter and some interesting facade. These could be metal poles or be made of wood. As a more traditional looking material. The windows also reflect the strands of the piupiu skirt through different varied shapes.

this back creates a sheltered area at the back which is shaped to form the traditional Maihi. The windows on the side are smaller and are near the top of the exterior wall to provide small amounts of light from the back of the building.

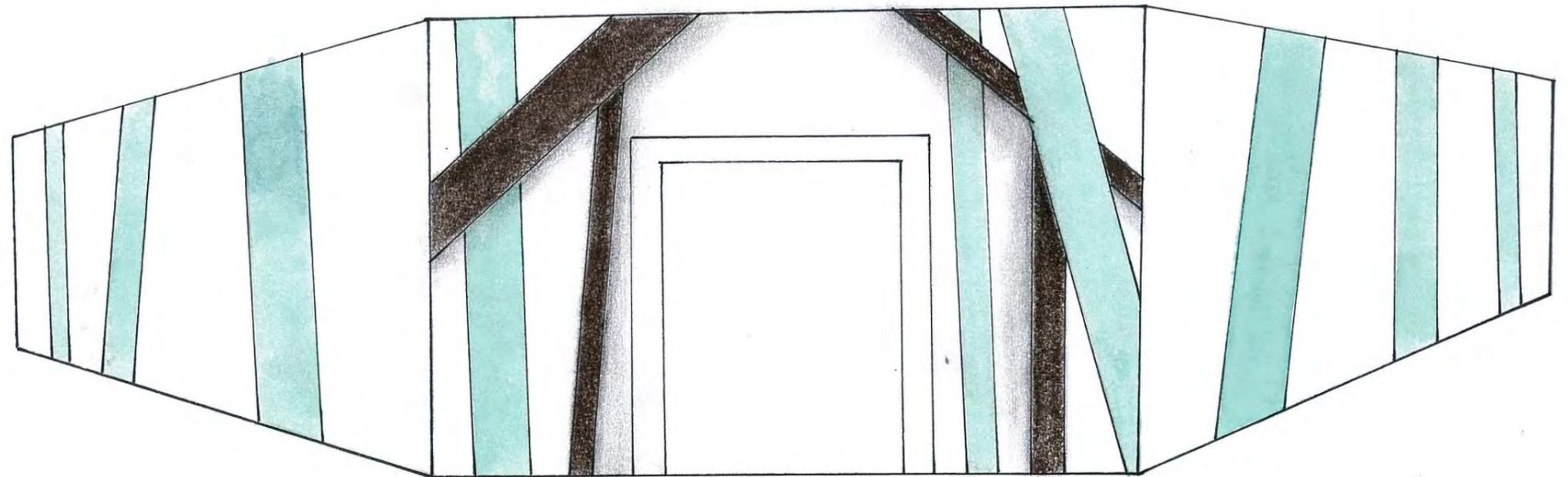


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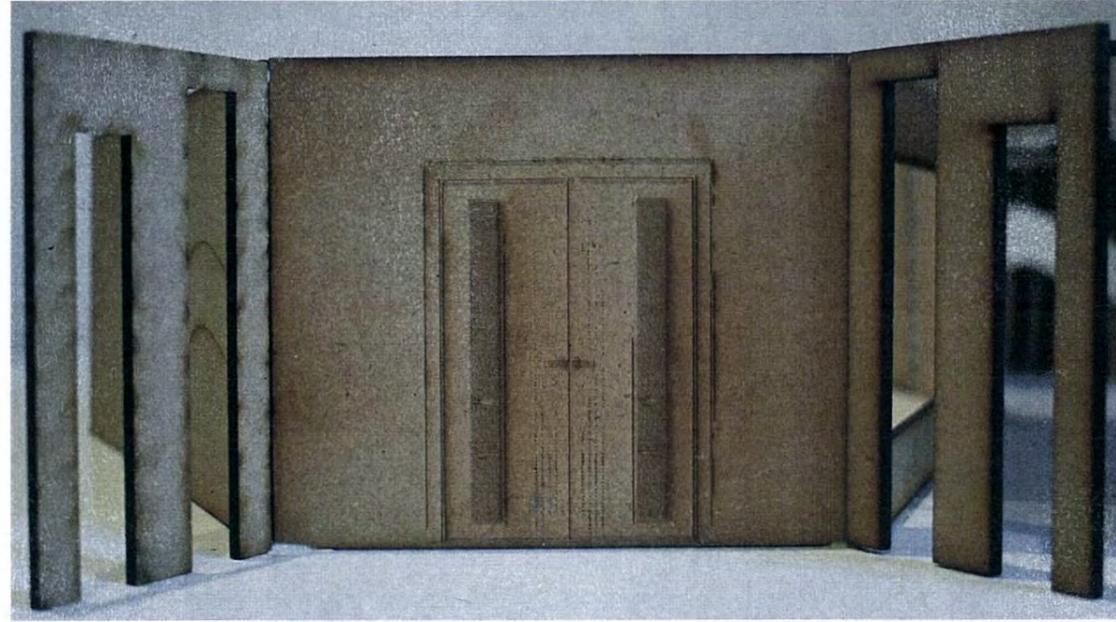
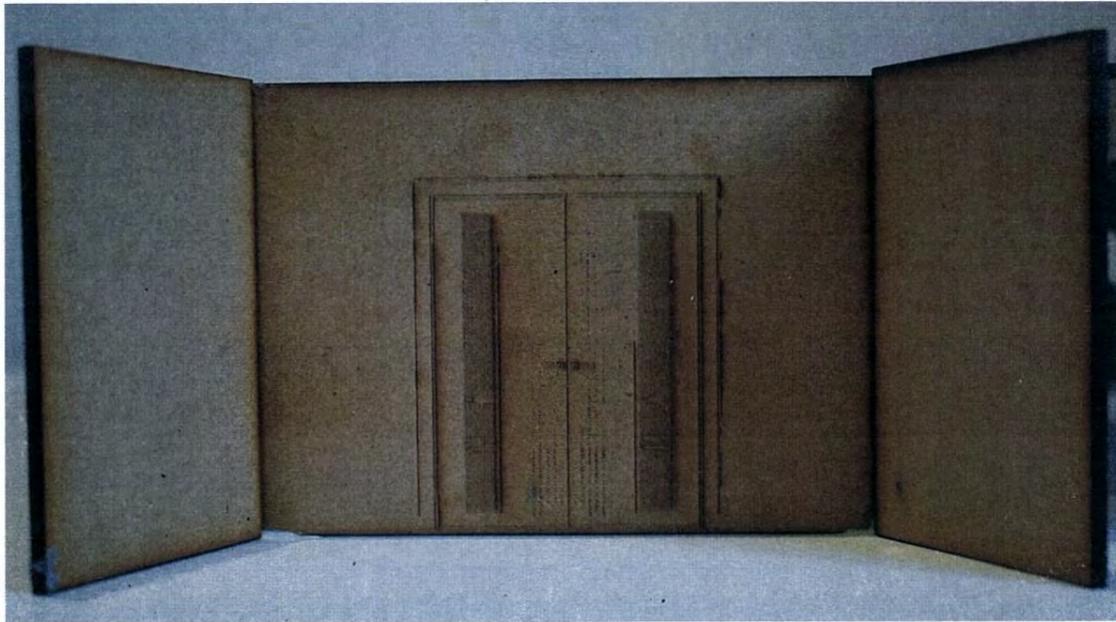


The two beams are shaped to represent a traditional Maori with the upwards pointing structure. It has two separate which are apart from the building slightly to create a sheltered area in front of the doors. The idea is taken from the flax strands which grow to fold over in this way. Timber could be a possible material to reflect what has past been used in wharehau construction.

The windows are in varied sizes and widths with other materials overlapping them to create this effect which imitates that of a piupiu skirt which has many intricate overlapping strands. The many windows allowing there to be more natural light entering through the back entrance of the wharehau.

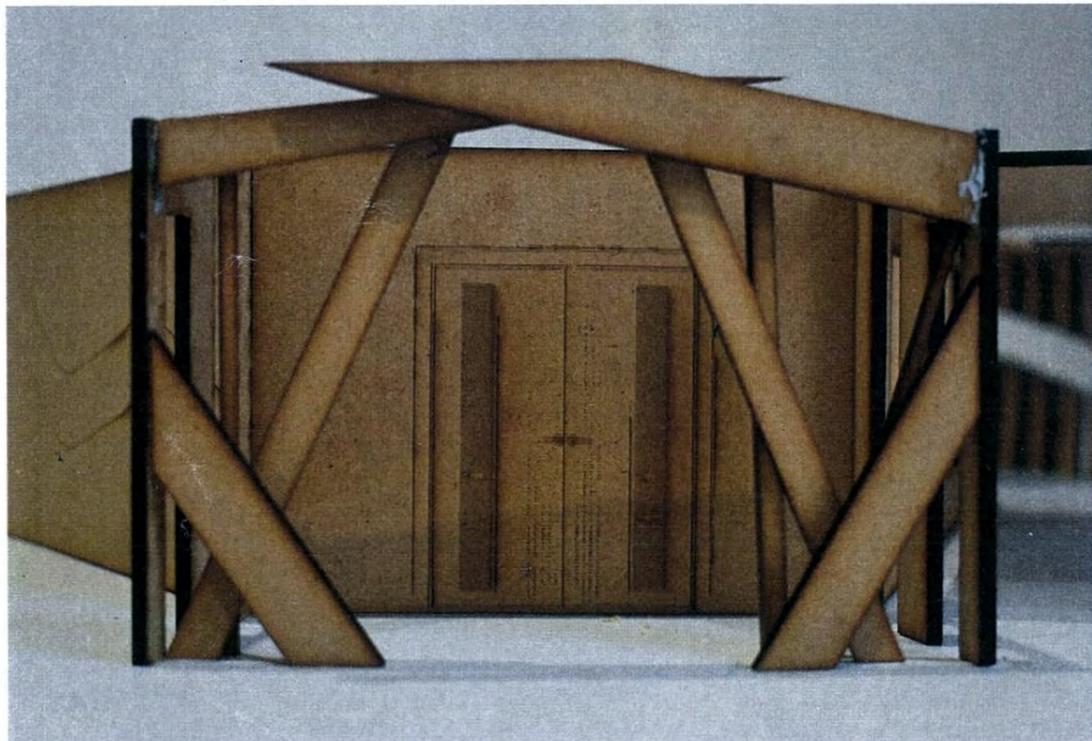


# Development - Front



This development adds two open gaps in the side walls. These represent the strong lines of the traditional wharehau Amo, which connects the sky to the ground. This also allows more light to enter the front of the wharehau as the two walls without this development will prevent the necessary natural light from entering to create a clearer front.

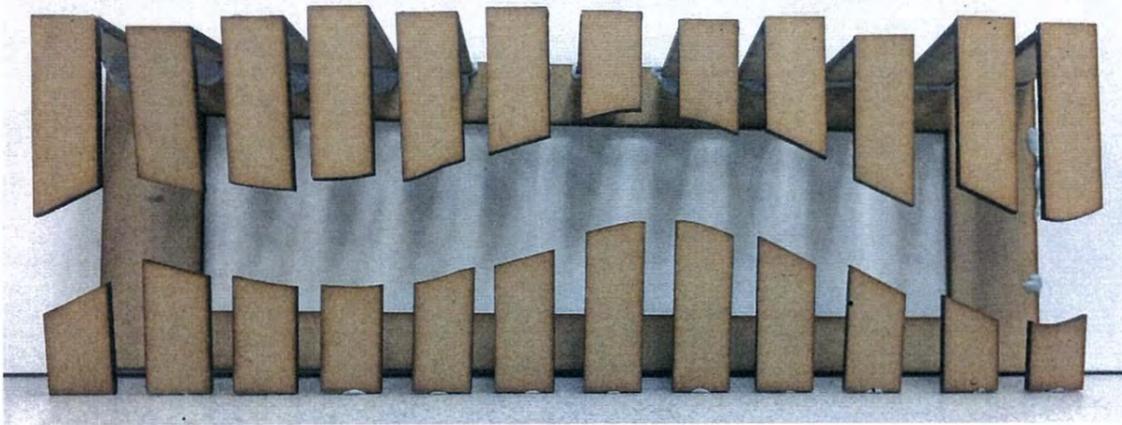
The front is extended out with two walls angled away from the center wall at the main entrance. This is to create a more expansive front to the wharehau.



The final front facade takes the spiralling shape of the flax weaving. This is by overlapping the wooden beams over each other as seen in the harakeke spiral. This front creates a symbol of unity as the flax weaving is a form created by many strands just as this wharehau also brings together the community. The Maihi's traditional pointed sky reaching shape is created by two wooden beams crossing over. While the two diagonal beams connecting the Maihi to the ground act as the amo. This facade keeps the traditional aspects of a wharehau close while maintaining a modern and organic perspective.



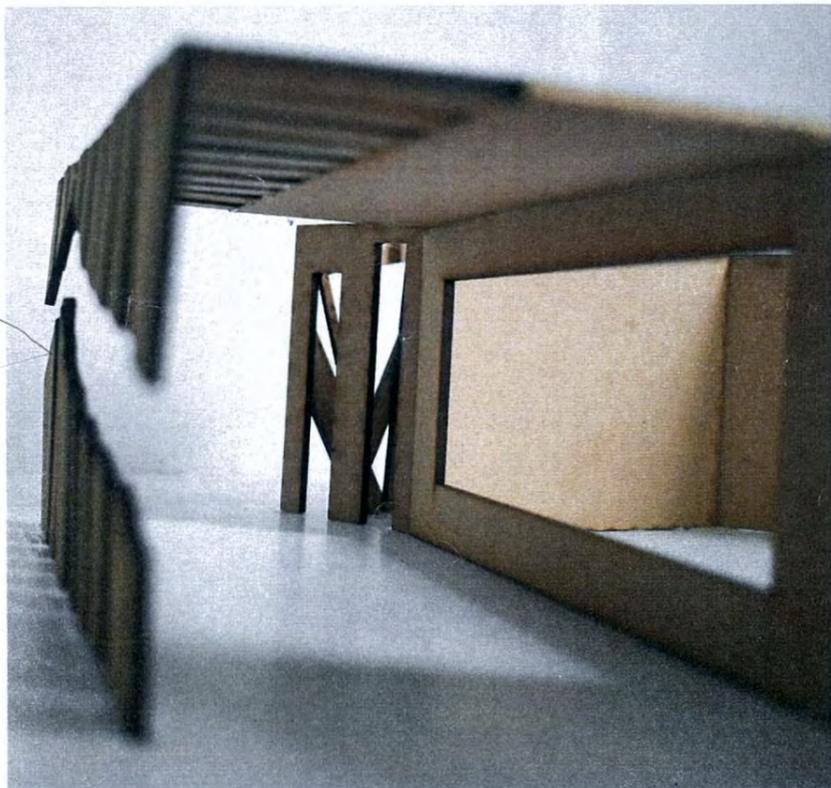
# Development - Right



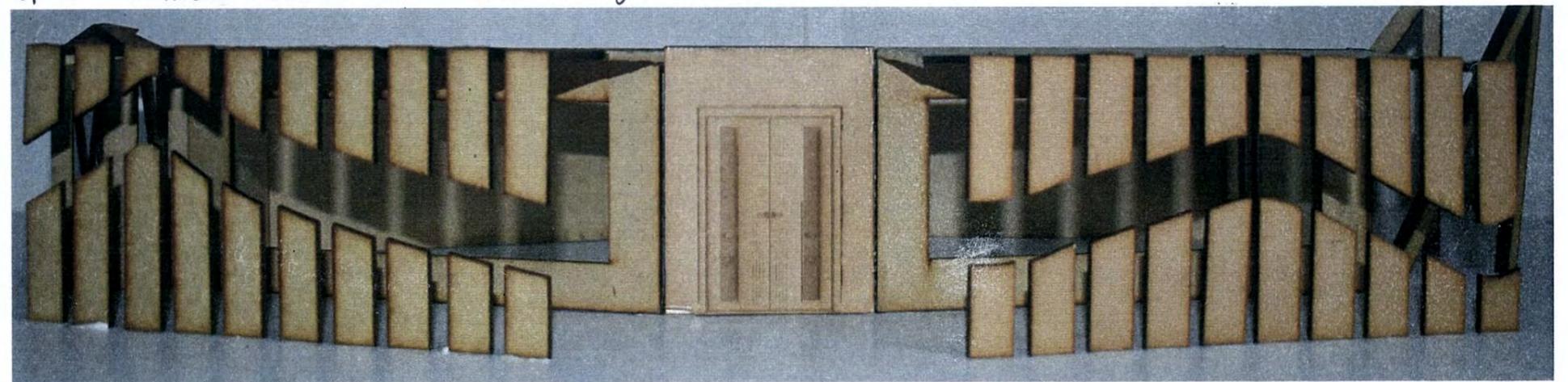
The right side of the wharenui has this facade of wooden beams which overhang off the exterior side, then have a coordinating beam placed on the ground. This creates the shape of the well known symbol of the Waikato Tainui, the Waikato river in the space between.



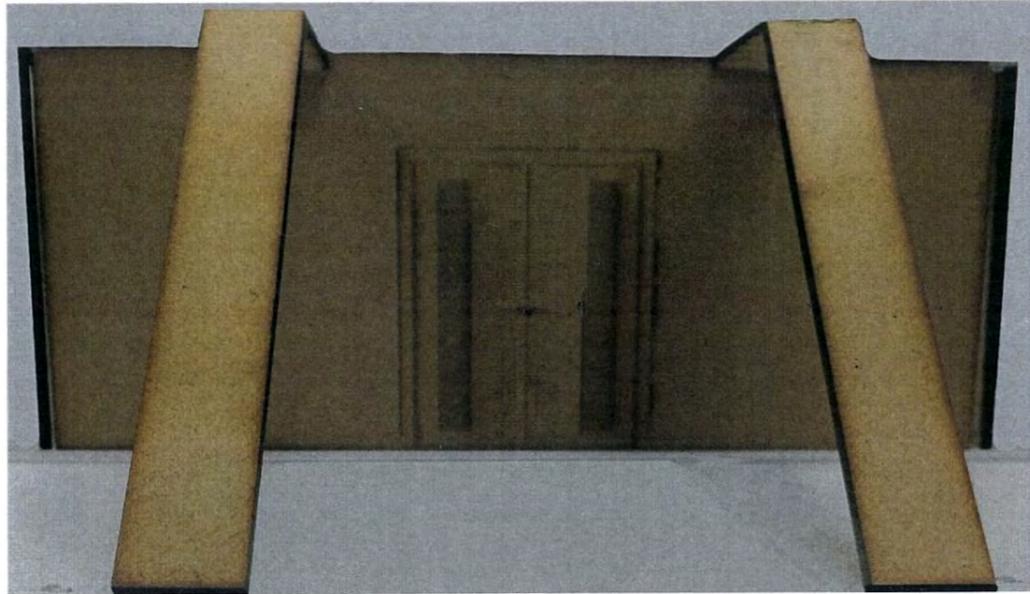
This development has added two extended roofs. This creates a walkway along the length of the facade, giving it a greater purpose of being a sheltered walkway. The larger distance between the beams of the facade and the window brings more natural lighting to the interiors. This also limits the expanse of light entering through large windows such as these.



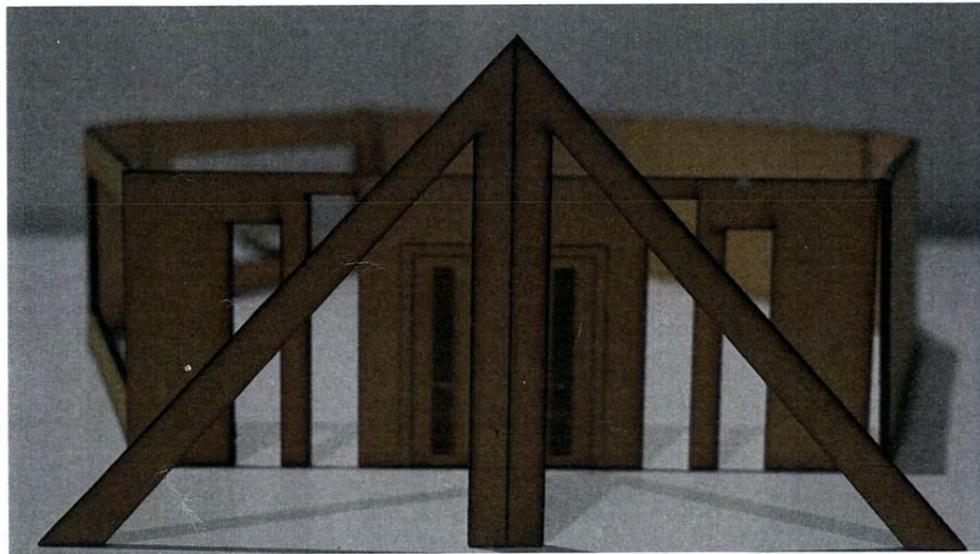
The number of wooden beams used for this facade has been reduced from thirteen to ten, to allow the shape of the river to be more defined. Therefore this allows also for there to be an increased space between them for more natural light to enter.



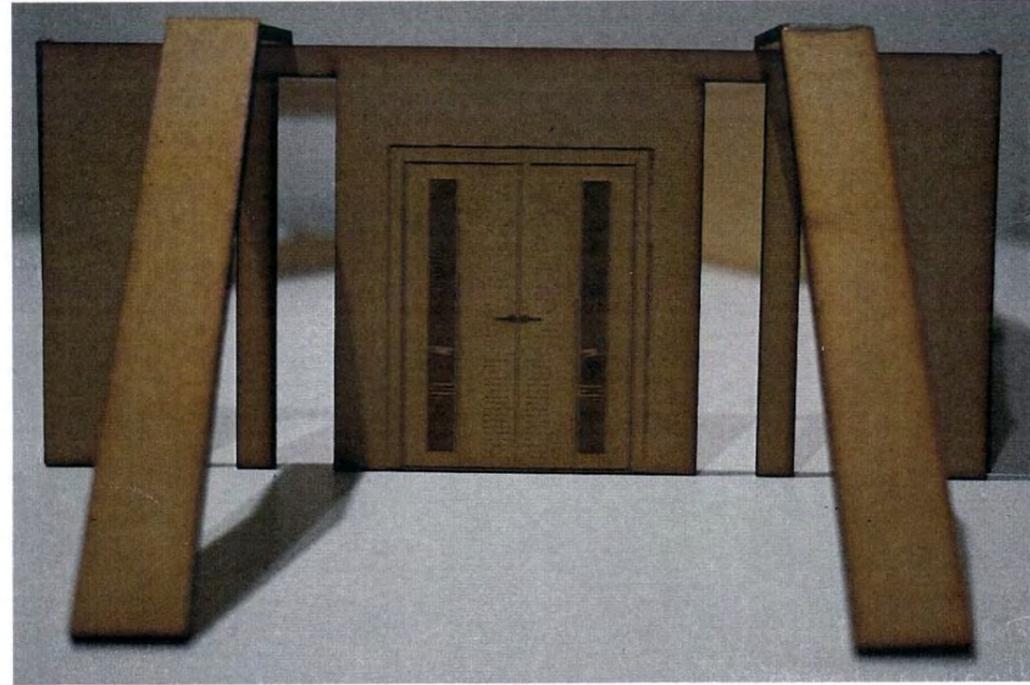
# Development - Back



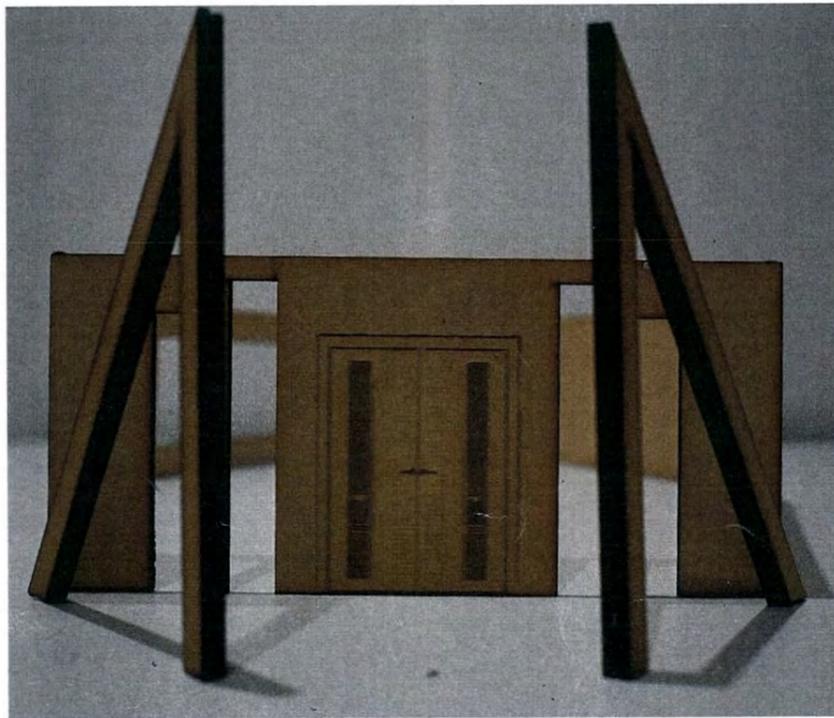
These two poles positioned at the rear of the wharenuui create a strong shape taking ideation from the flax plants foldings. This creates a connection to the ground and the land valued by the community.



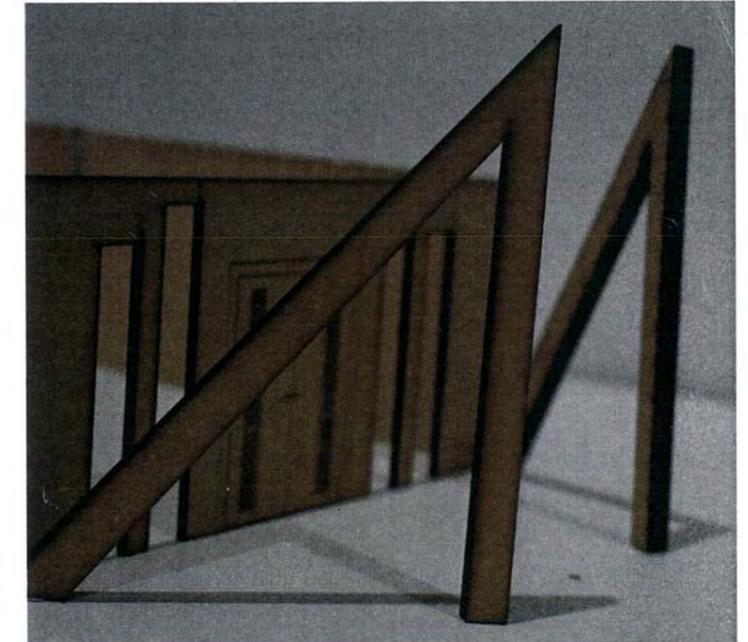
This back uses the strong strands of a flax (Harakeke) plant's folds growing to fold over as an influence to create two strong shapes with the wooden beams. The shape created by them is a reflection of the traditional upwards reaching outer shape of a traditional wharenuui.



Two narrow windows are added to the rear wall which mirror the front with the same pattern. These represent the straight strands of the pūpū skirt as the strands are narrow weavings of flax. These two windows allow there to be an entering of light from the back entrance to balance the light from the front and right.

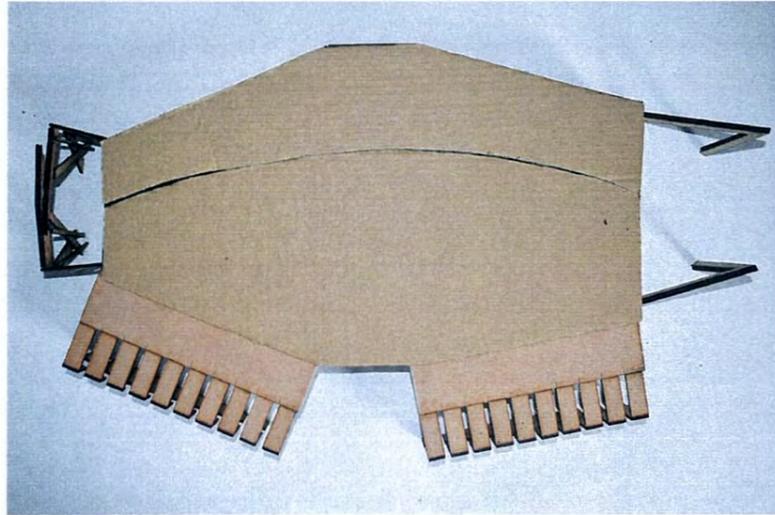


This is the final back facade for the wharenuui using simplistic structures to create an interesting back.

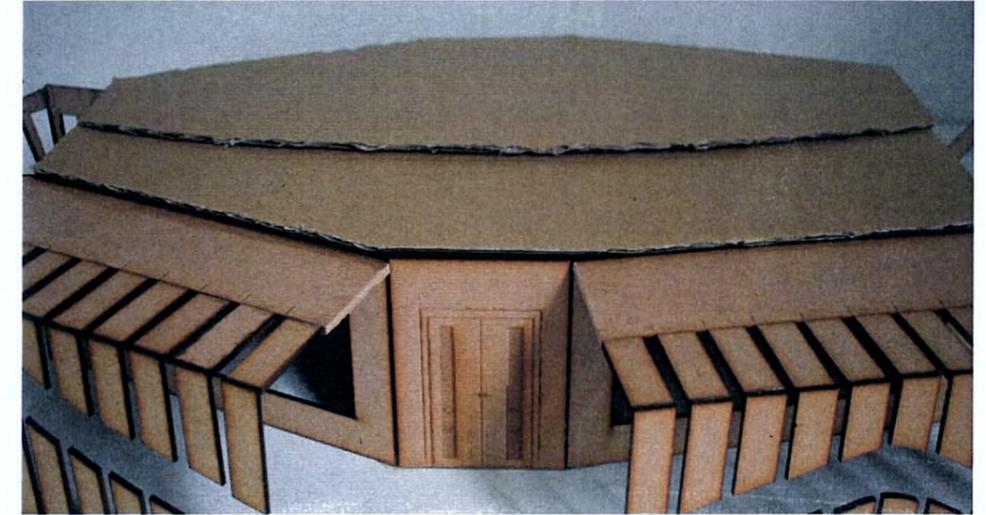
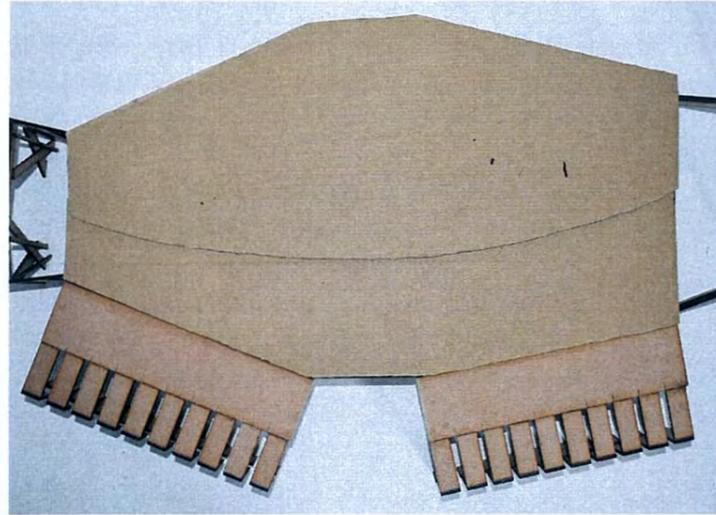


These two wooden poles have formed from the same ideation but are parted to create a more efficient walkway out the back entrance to a space which can be utilized as a courtyard.

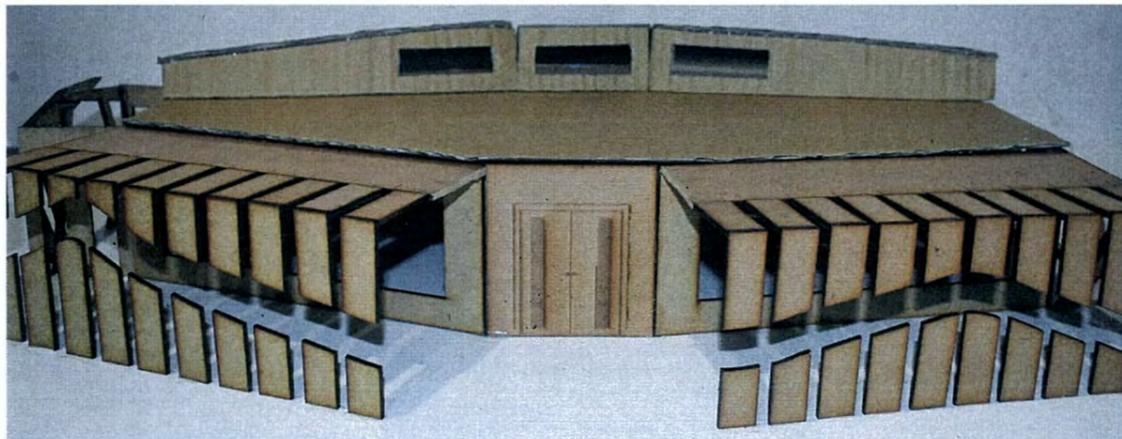
# Development - Roof



This roof consists of two separate panes meeting where they intersect. One is slightly larger than the other to replicate the uneven folds of the cloak as it drapes over the wearer.

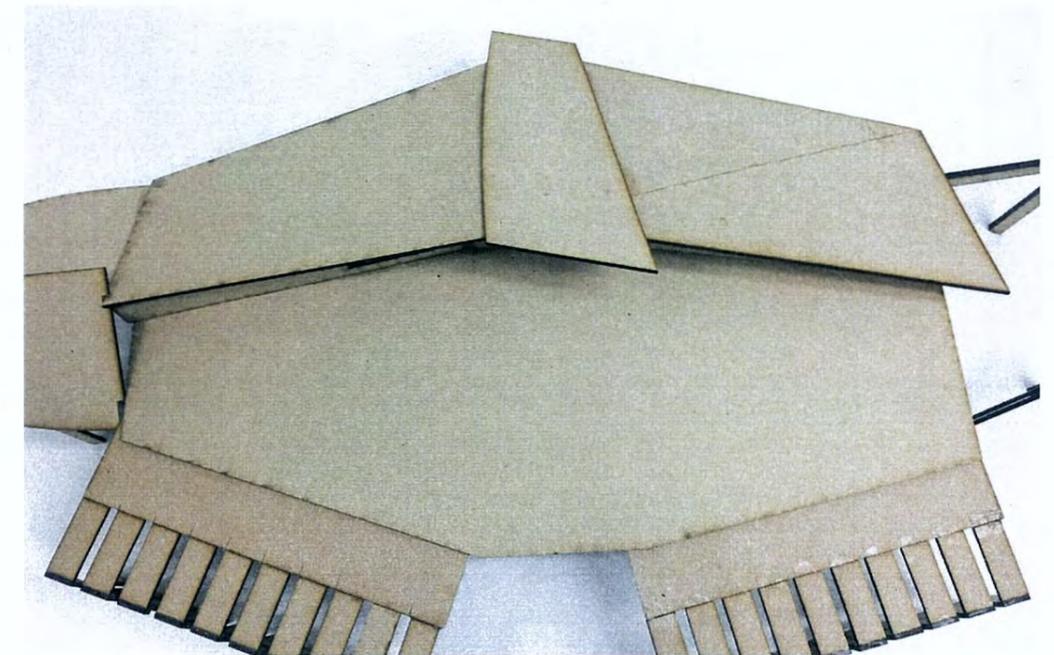


This development overlaps two panes of the roof over one another this makes for a more dimensional roof. The panes crossing represent the foldings of the flax weaving which is used in the front facade. This links two components of the building together.



This development has an angled roofline on the left side of the wharewani while the right remains flat. There have been three windows added to the side of the angled roof which allows natural light to enter the left side where there are no windows. This development will allow natural light into the storage space.

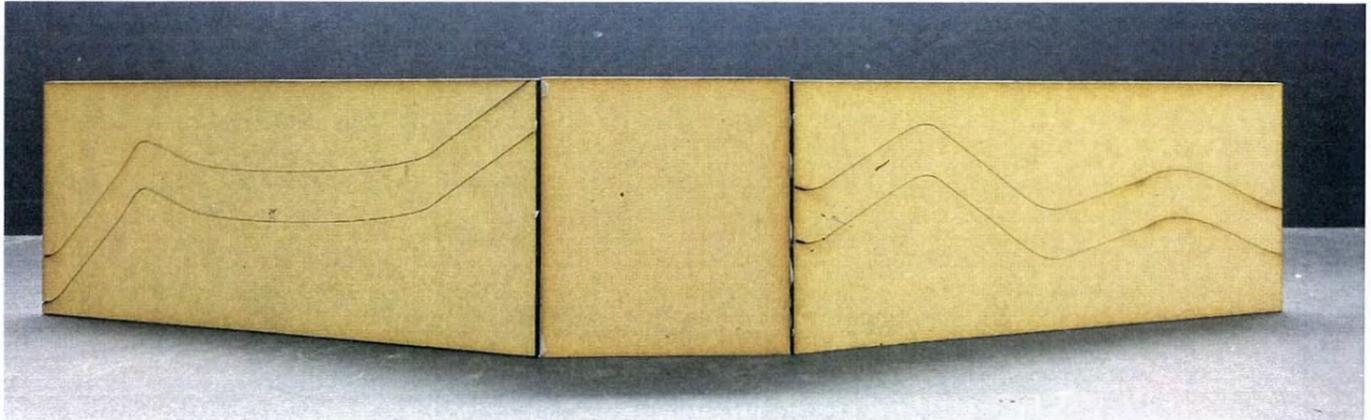
This is the final roof design. The center window has a slightly extended shape which gives the roof more dimension and creates an organic shape reflecting the front facade with its flax weaving idea. There are still windows allowing light into the storage area.



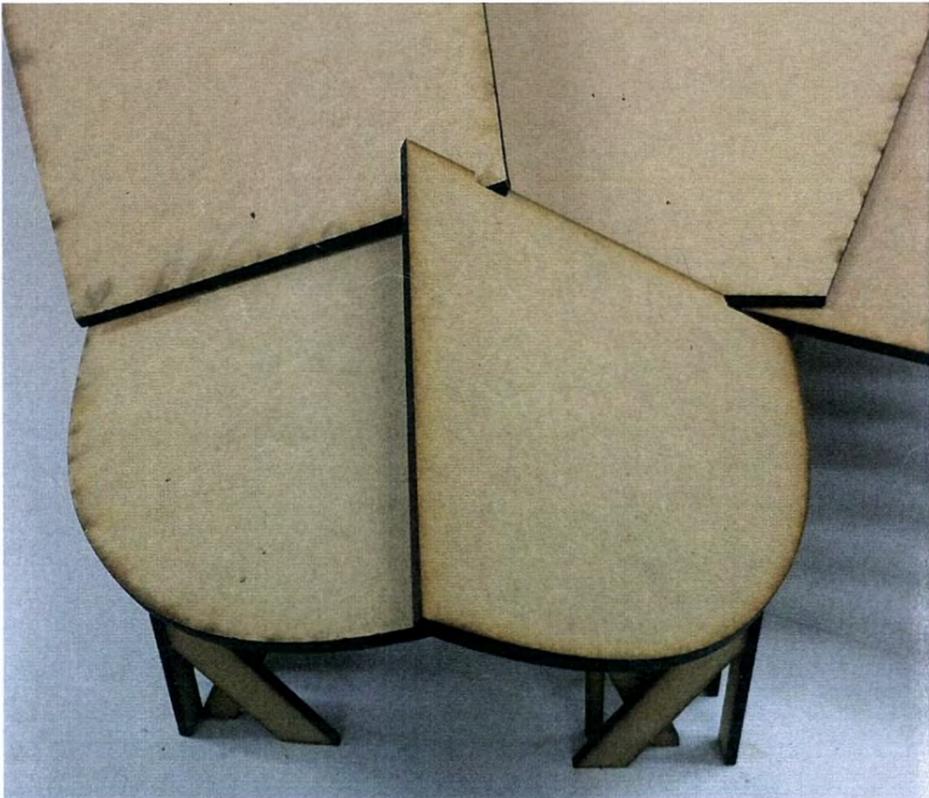
# Development - Left and Roof



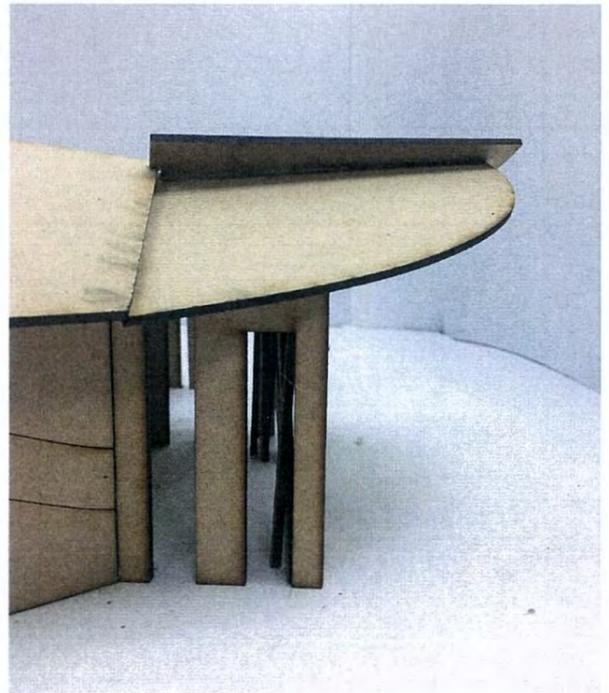
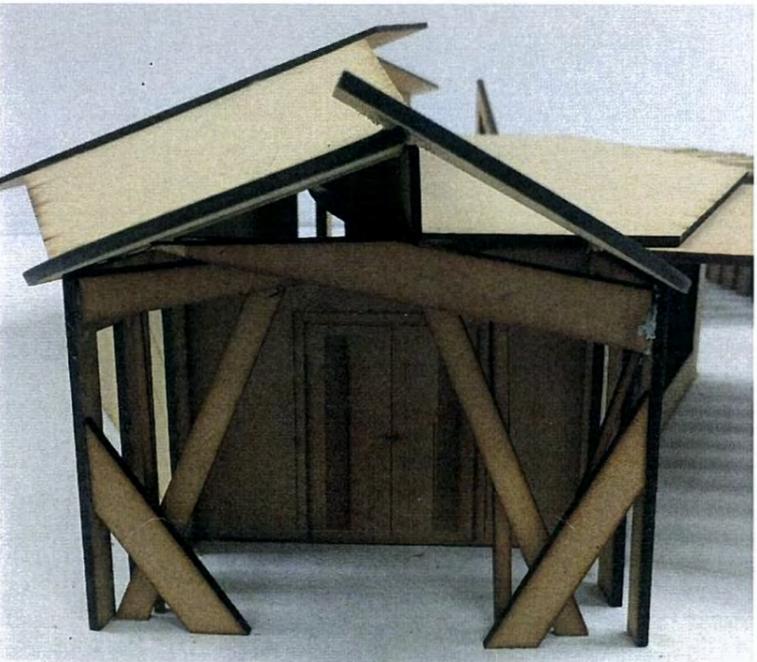
This left side has two large windows which mirror the right but this side does not have any facade. This can allow light into the storage area which needs to be well lit to allow good usage.



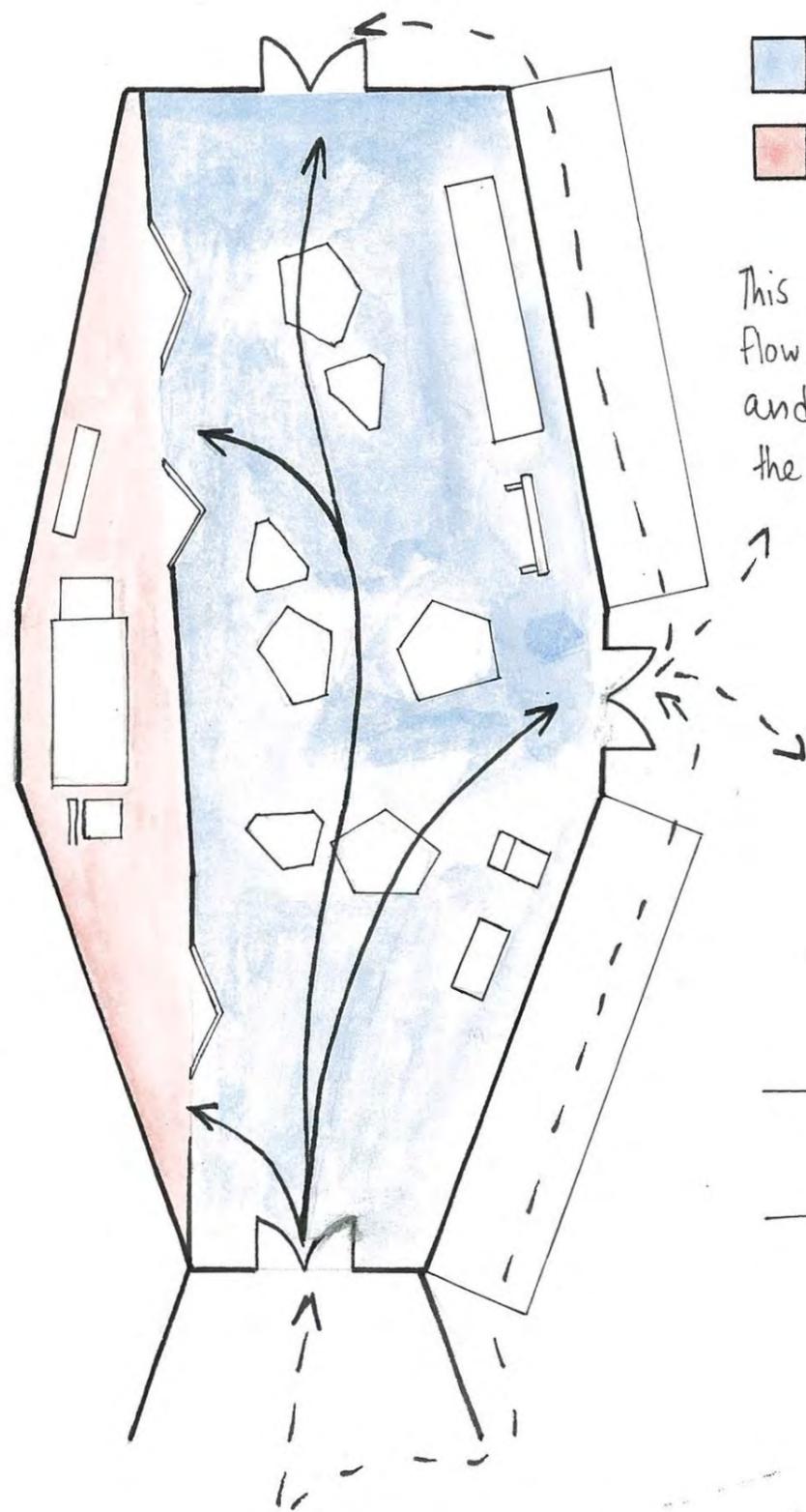
This development does not have the two windows this is to control the amount of light which enters, with large windows the natural light received from both sides will be a distraction. This pattern of the Waikato river is added, this is the same as the right facade but the pattern is changed to look as it would be seen from a different angle on the same map.



The front of a Whareniui traditionally includes a pointed sky reaching shape which is created by two crossing wooden planks this is called the Maihi. This covering of the front of the Whareniui design represents connections to the sky. The two intersecting planes create the familiar shape to represent the purpose and name of the sacred meeting place. These planes also represent the two sides of the traditional Maori cloak as they close around the wearer. Which links to the famous Maori queen with strong connections to this location.



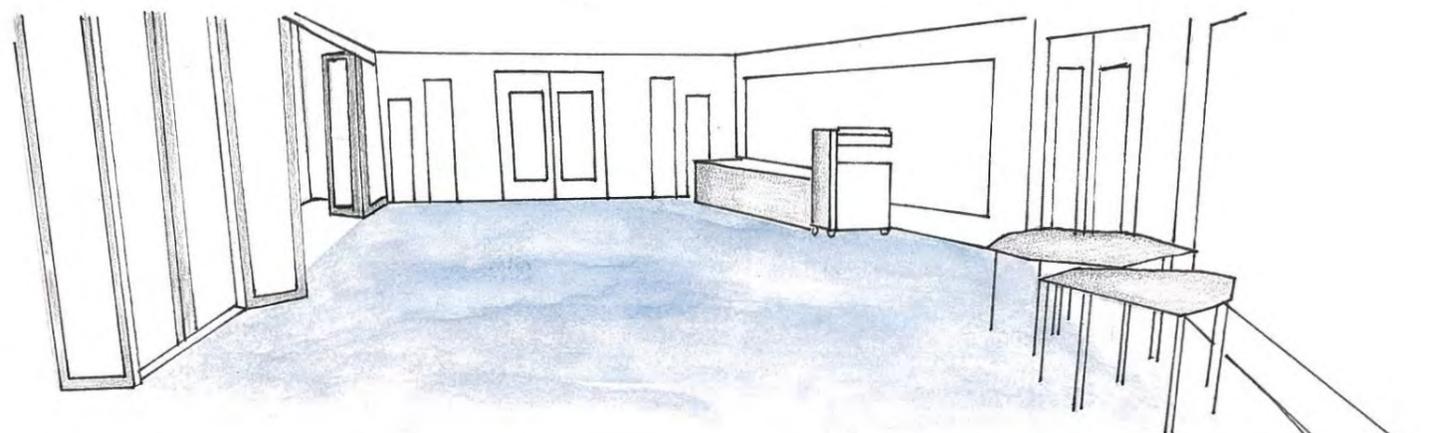
# Development - Spatial flow



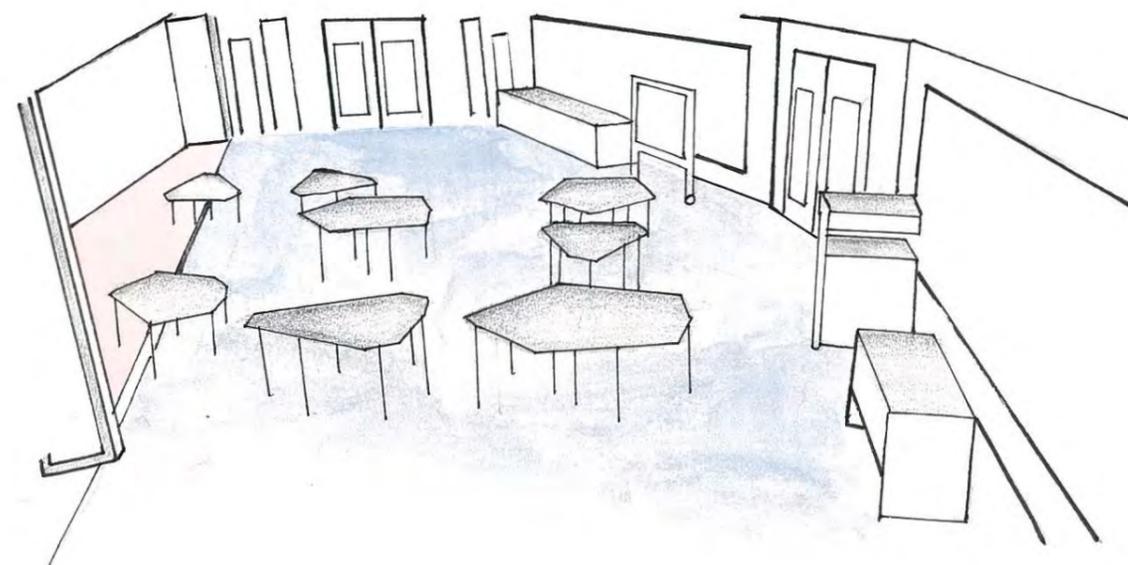
- = Main Area
- = Storage

This Shows the Spatial Flow of both the interior and exterior Space of the Wharenui.

The Storage can be entered through the folding doors which close to conceal this space.



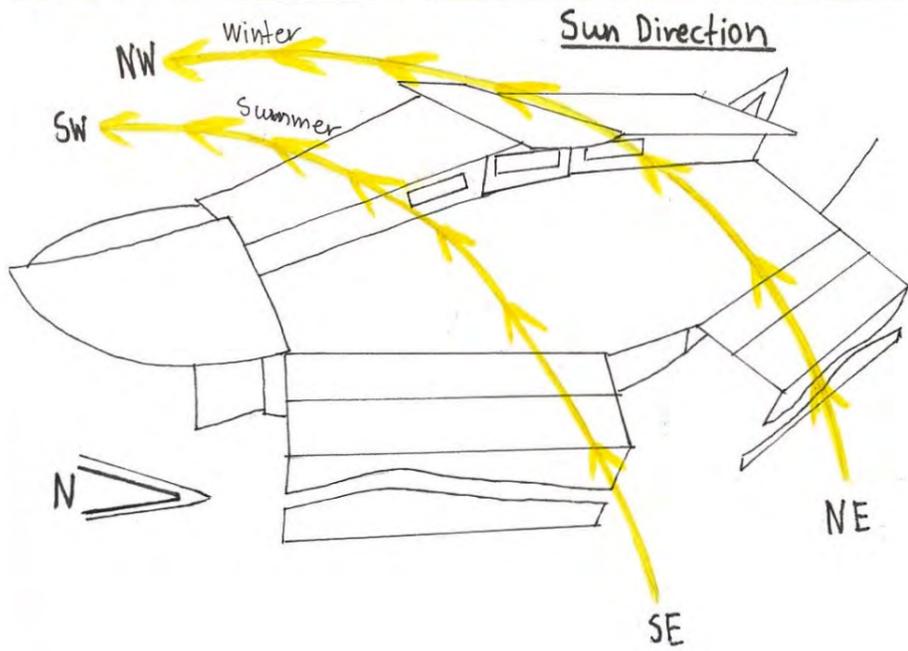
This is the main area of the Wharenui building, it is a large open plan area as most Wharenuis tend to be. This allows maximum amounts of Space for the Wharenuis many uses.



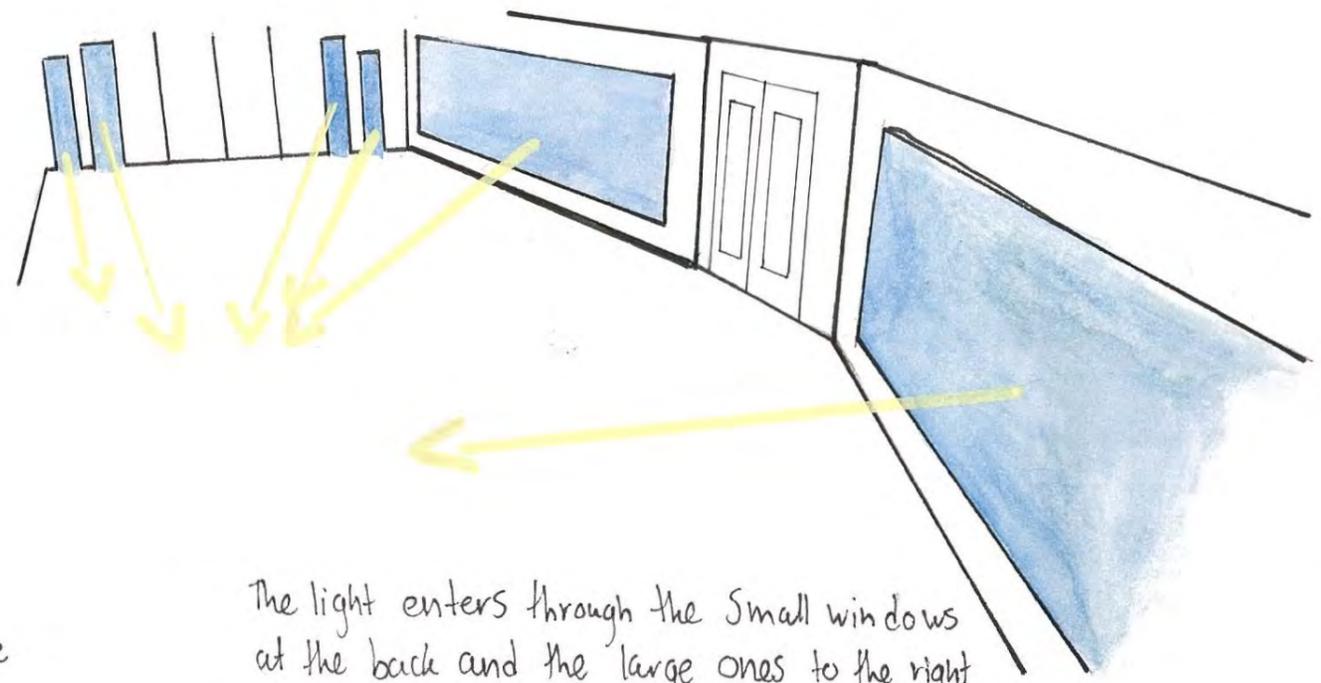
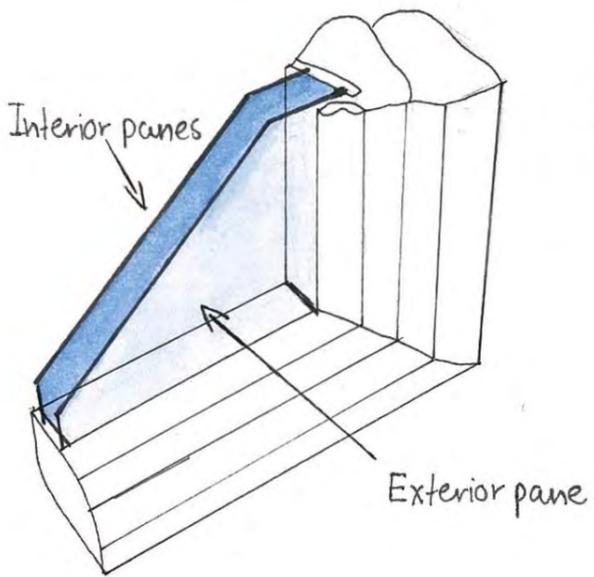
The folding doors separating the main area from the Storage space have been folded to opposite sides allowing the main area to extend into one large space which is seen here being used as a classroom.



# Development - Windows



Double glazed Windows

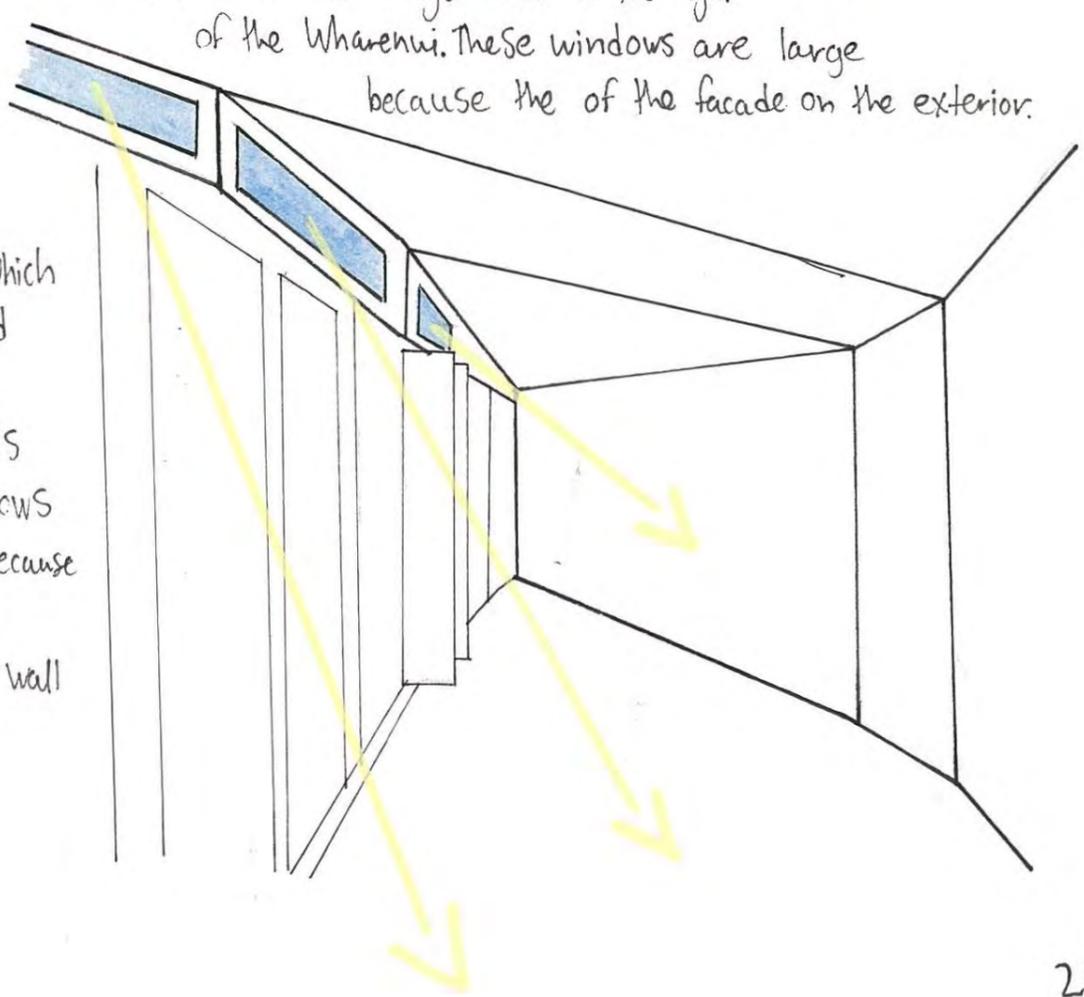
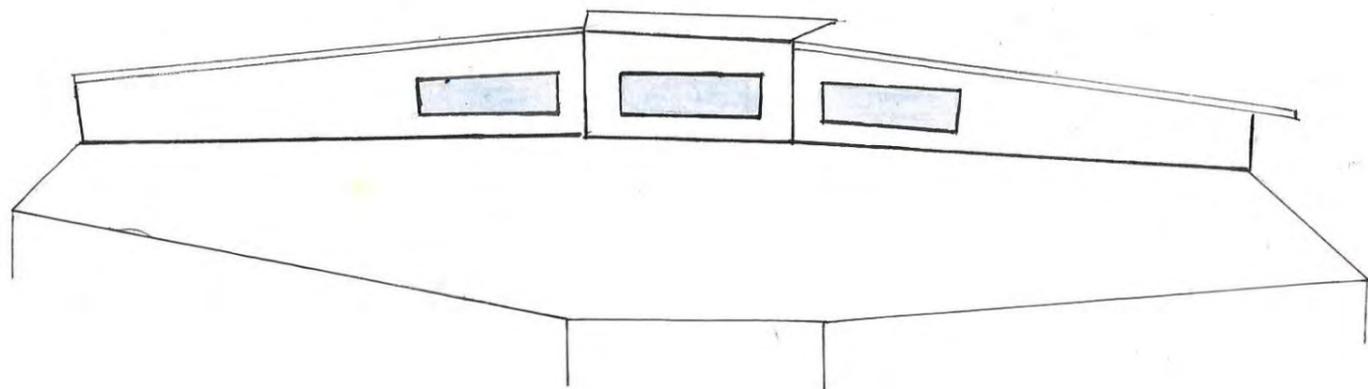


The light enters through the large windows on the right in both Summer and winter this provides light throughout the main working hours of the day and provides the much needed heat in the cooler months as natural light tends to heat the interiors when received at such angle.

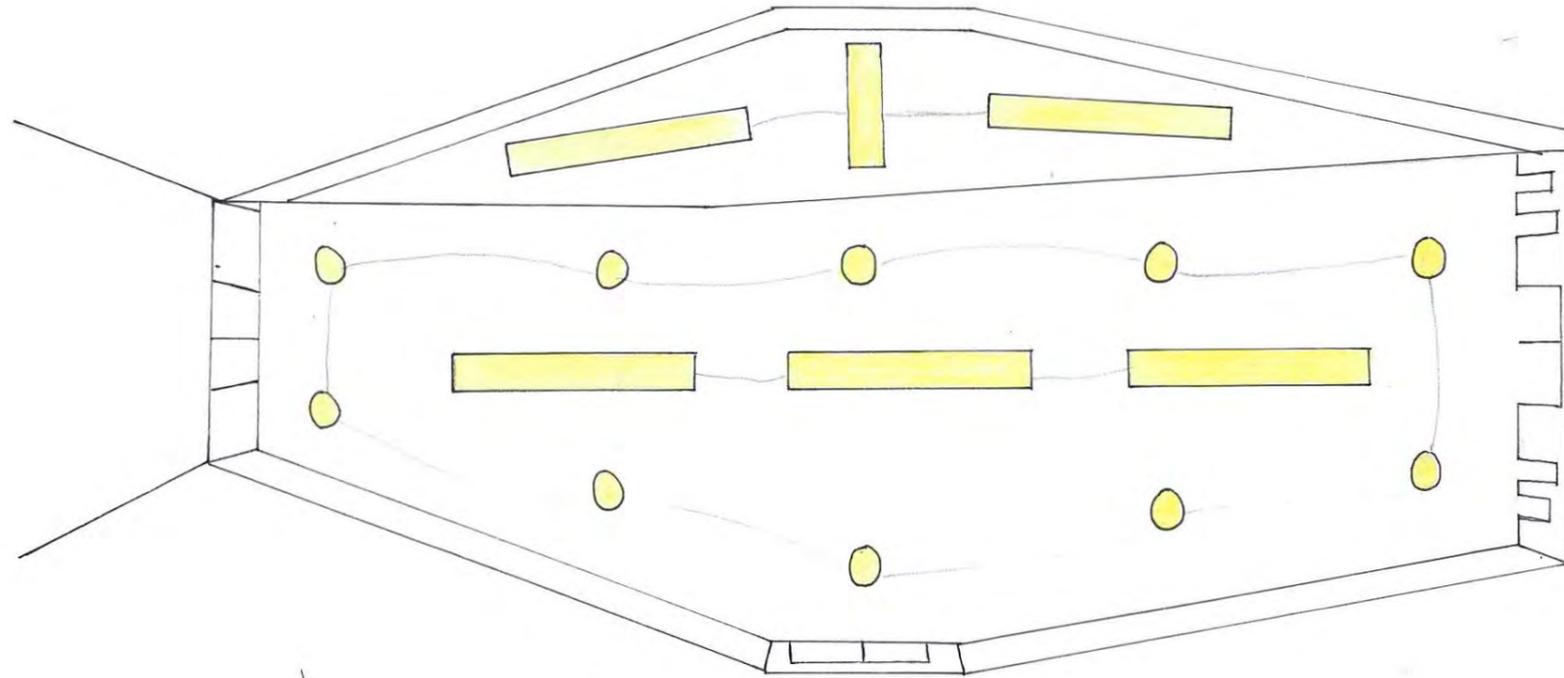
Since 25% of heat in a building escapes through the windows double glazing these will prevent the much needed heat from escaping.

The light enters through the Small windows at the back and the large ones to the right of the Wharenui. These windows are large because the of the facade on the exterior.

The three windows which join up to the angled roof of the storage provide light to this area naturally. Windows are important here because there are no large windows on the left wall of the Wharenui



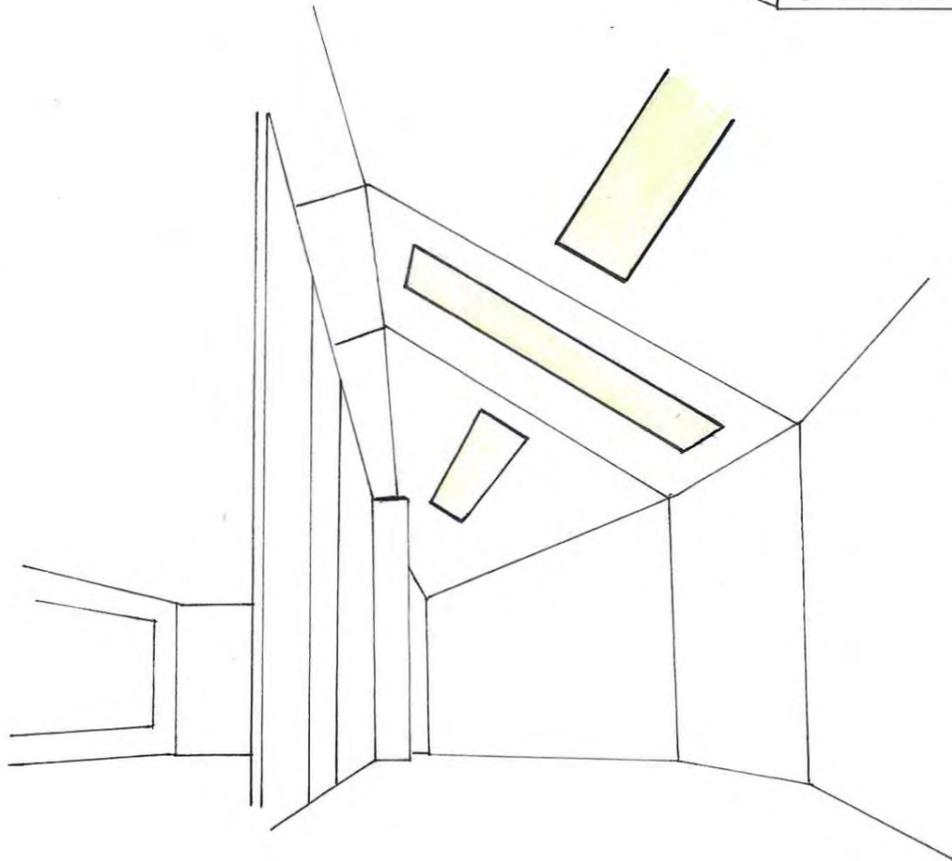
# Development - Lighting Layout



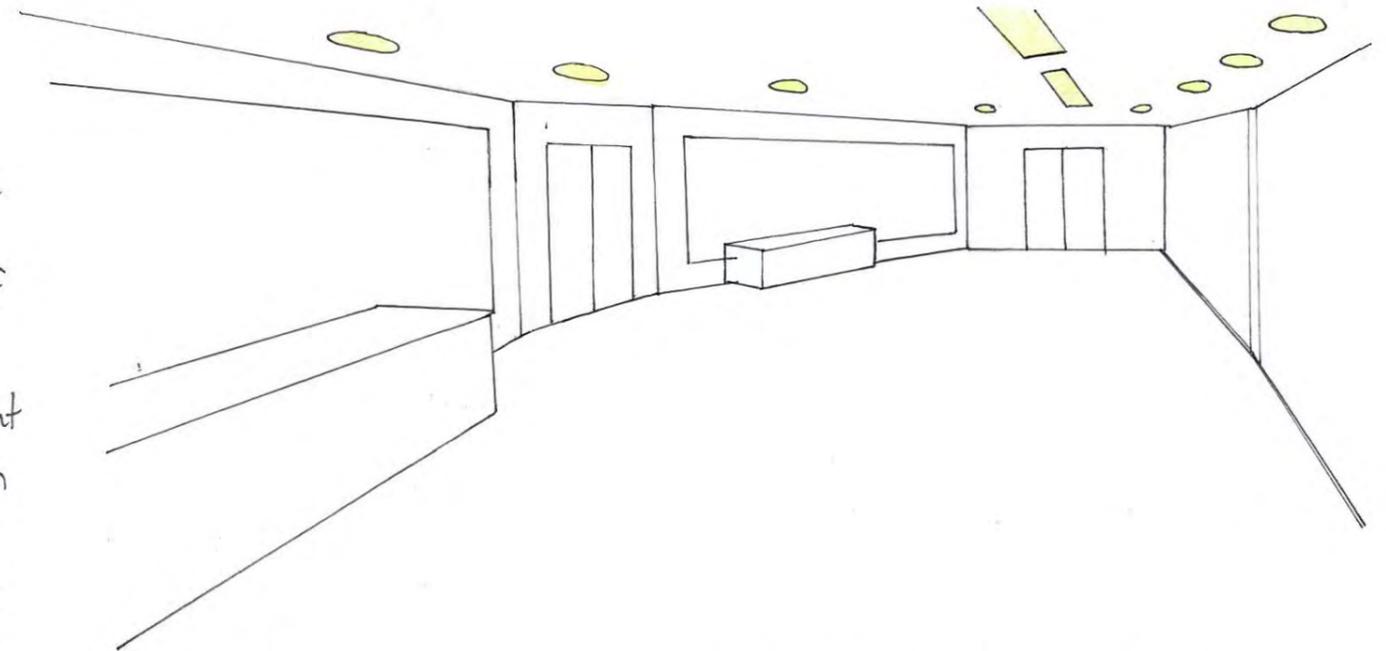
○ = large round LED

▭ = Long LED Panels

Wharenui buildings along with Chapel tend to have subtle lighting for a calm environment. The large round LED's provide this light. In a classroom environment there must be adequate amounts of light for learning, this is provided by the long LED panels. The right amount of light needed can be adjusted depending on what use this space is serving.

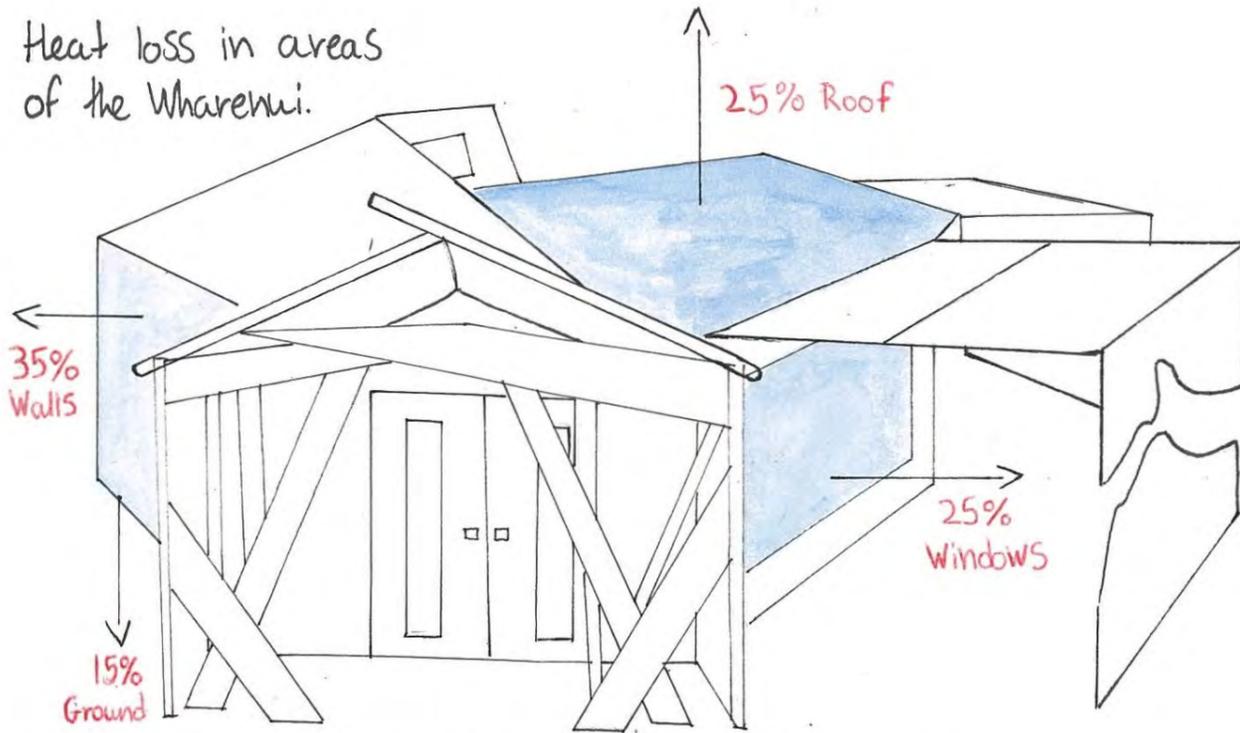


The lighting in the storage area of the Wharenui consists of an angled roof and the best way to distribute the light throughout the area would be through long LED panels. These also produce a large amount of light which is useful for a storage space where objects are constantly moved.



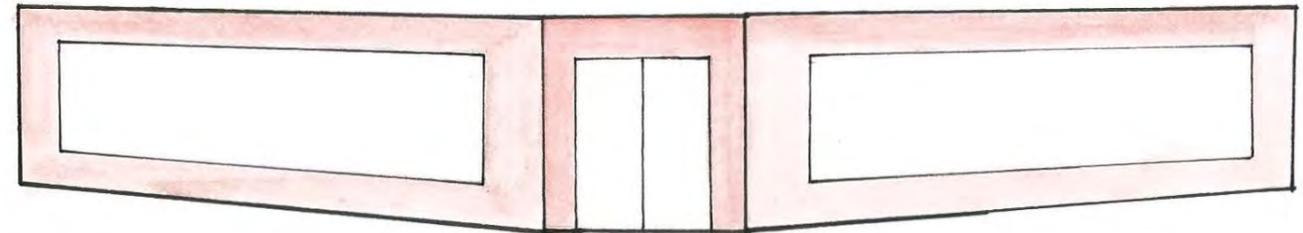
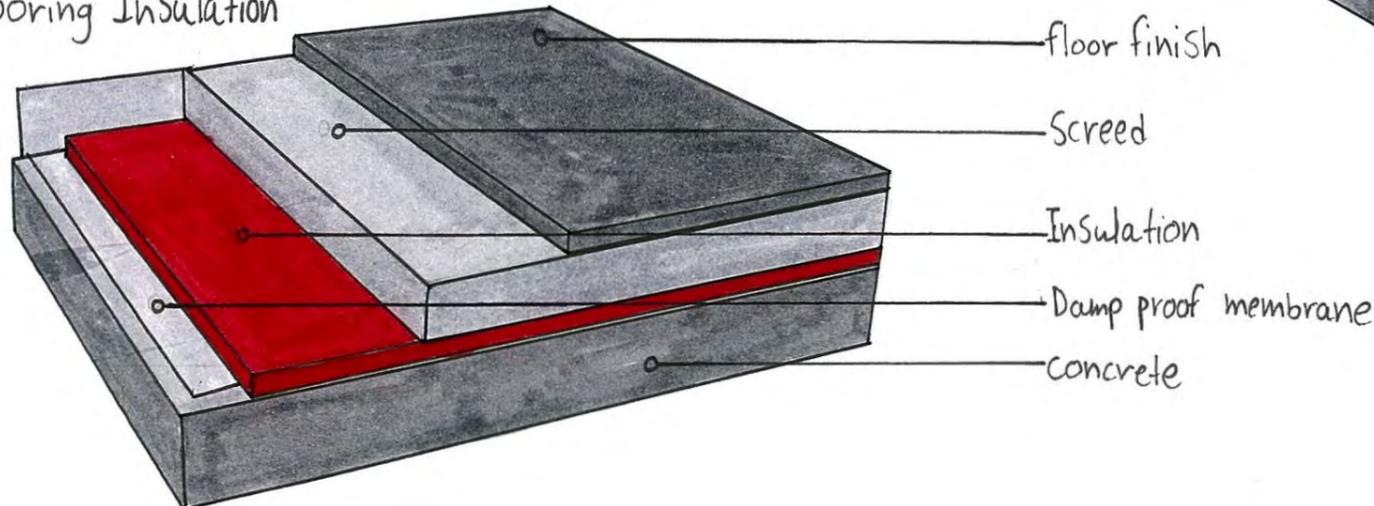
The lights are evenly distributed throughout the area with the long LED panels in the center while the round lights are placed along the edges.

# Development - Insulation



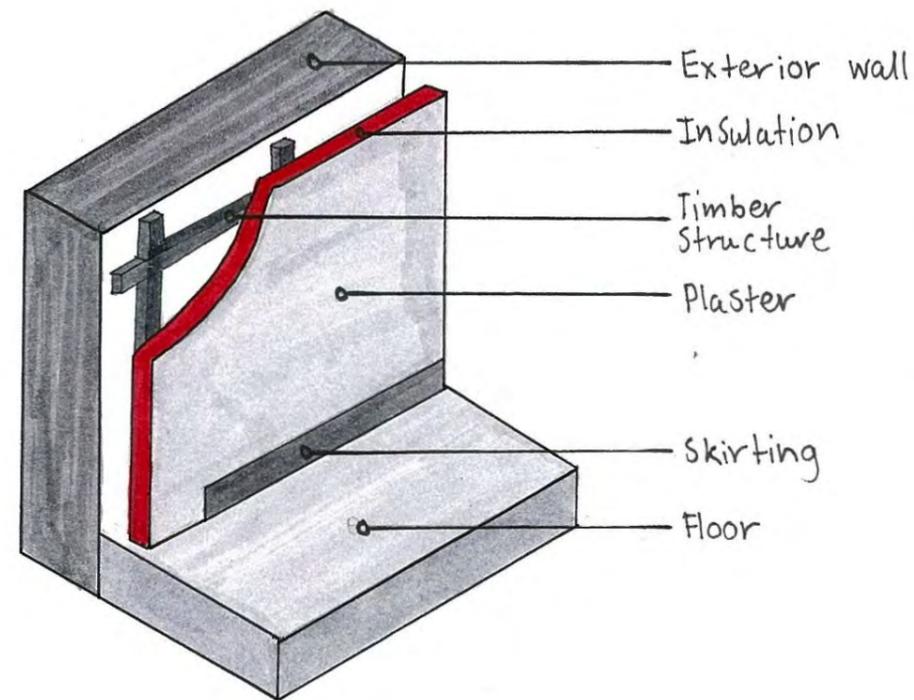
Insulation is an important aspect to a well equipt building. Since this Wharehenui is intended to be used all seasons of the year minimize the heat loss through insulation is important.

## Flooring Insulation



= insulation. The insulation usage is shown on one wall of the Wharehenui. This is where the heat will be blocked from escaping.

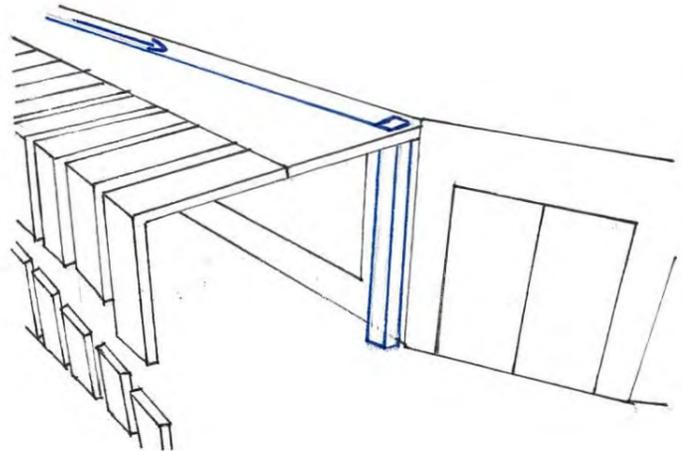
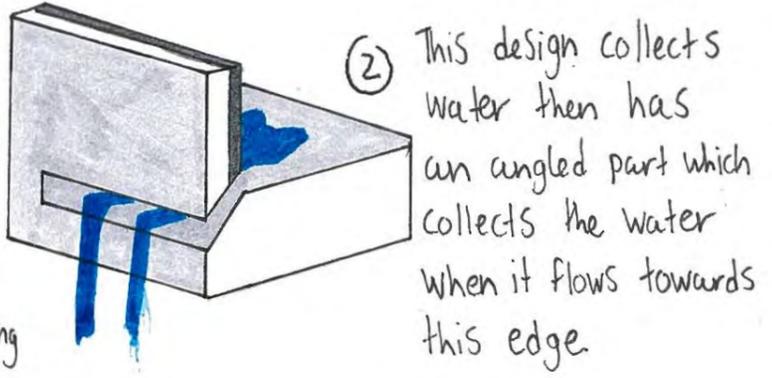
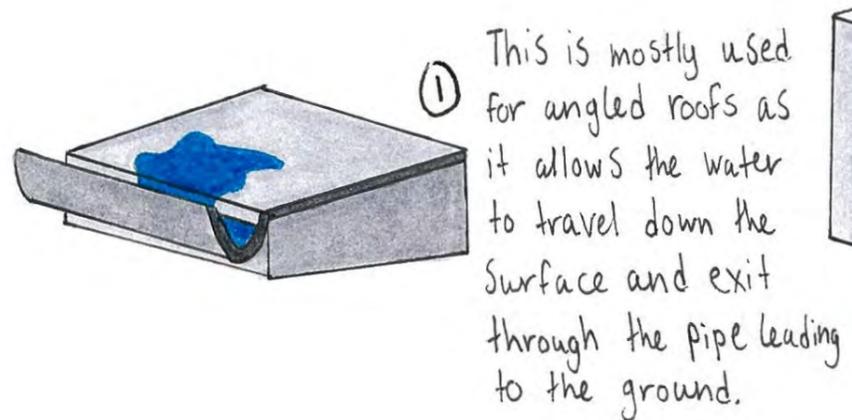
## Wall Insulation



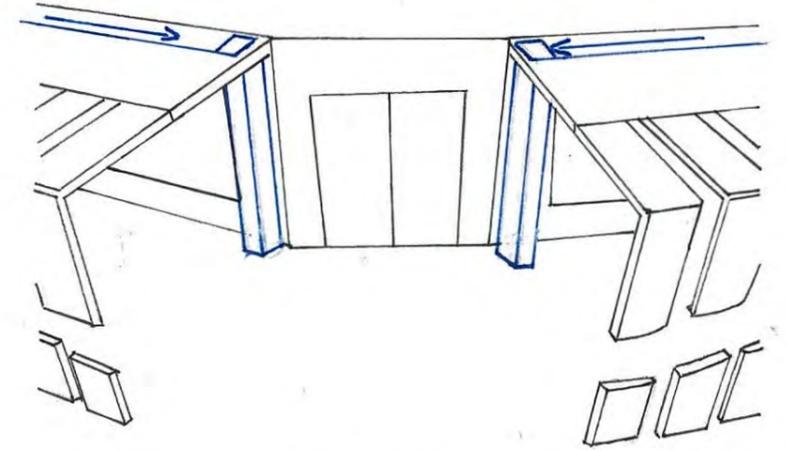
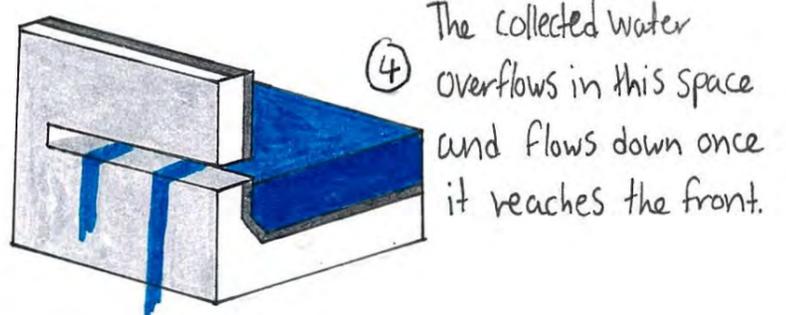
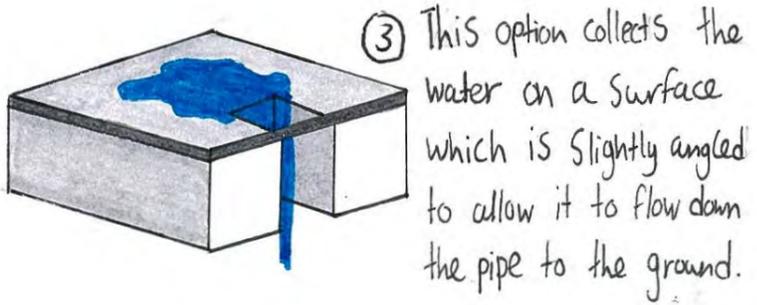
The walls are where the largest amount of heat escapes. Insulation here will contain this heat which is useful for colder seasons.

Though only 15% of the heat escapes through the floor flooring insulation is important in a Wharehenui where one rule involves removing footwear, therefore heat conserved in this area will be beneficial.

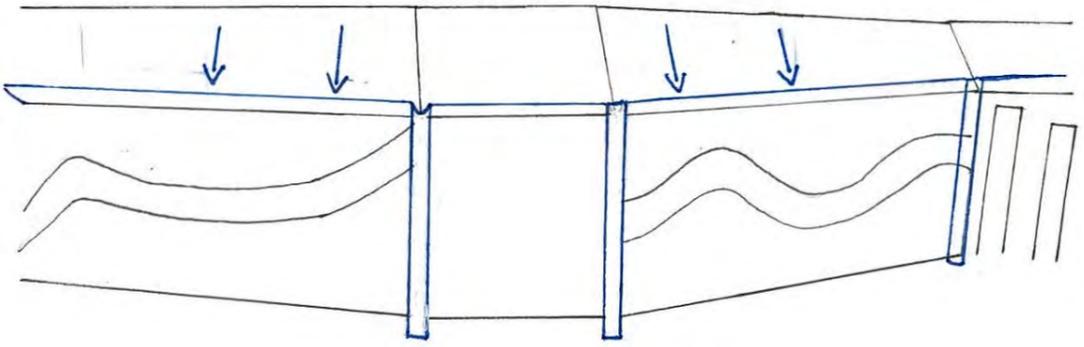
# Development - Guttering



The right side of the whareni uses option ③ for guttering. The main roof (grey) is slightly higher and therefore the water flows into the pipe easily. The pipes are hidden behind the facade near the door so they are not noticable.

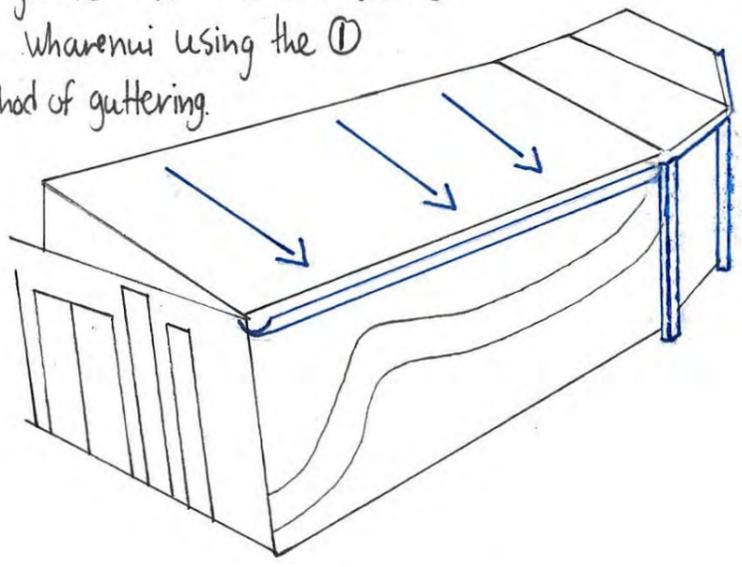


There are three pipes using this method these two are closest to the right entrance another is situated at the back of the whareni.



The left side of the whareni will use the ① method because of it's angled design. This will allow the water to systematically flow from the roof into the collecting pipes on the edge.

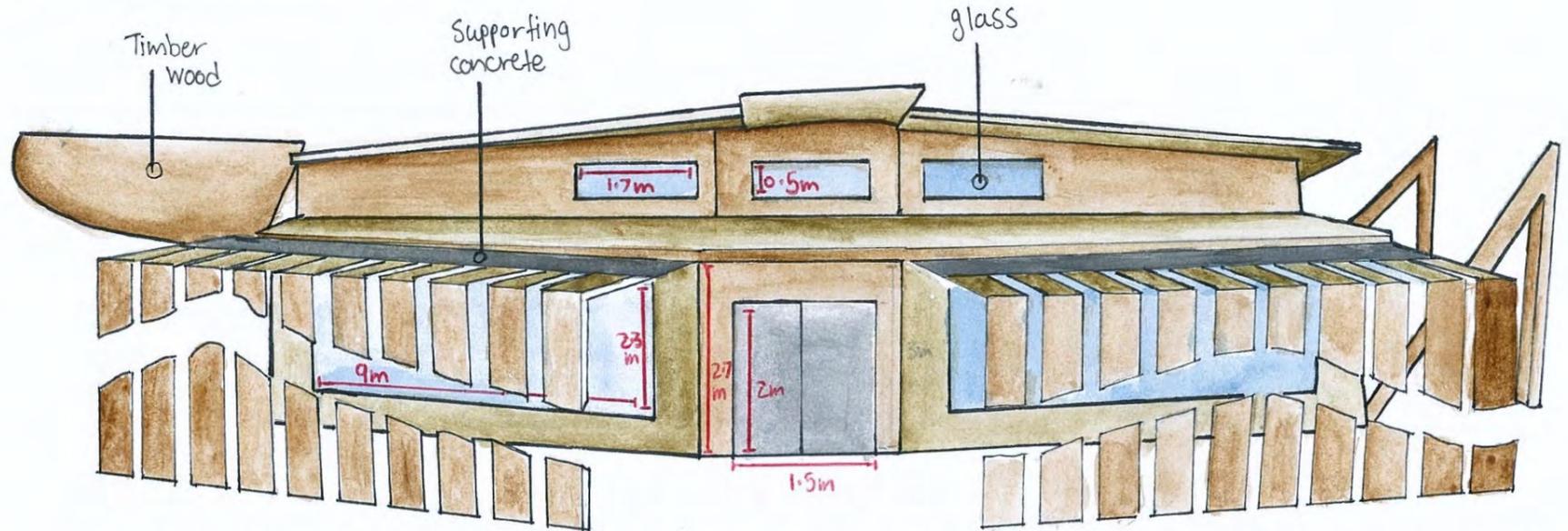
There are three pipes leading to the ground on the left side of the whareni using the ① method of guttering.



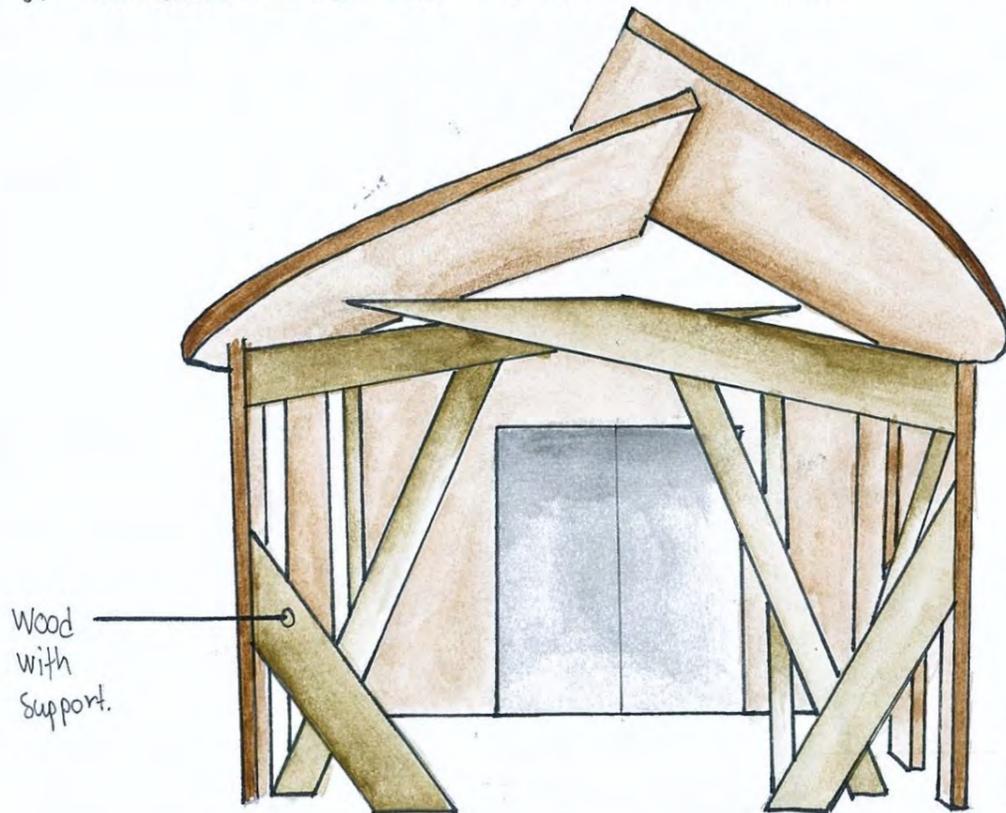
# Development - Materials



The materials of wood mostly timber along with stone are what create a typical wharenui building as these were used in the earliest of wharenui's and have carried on the same.

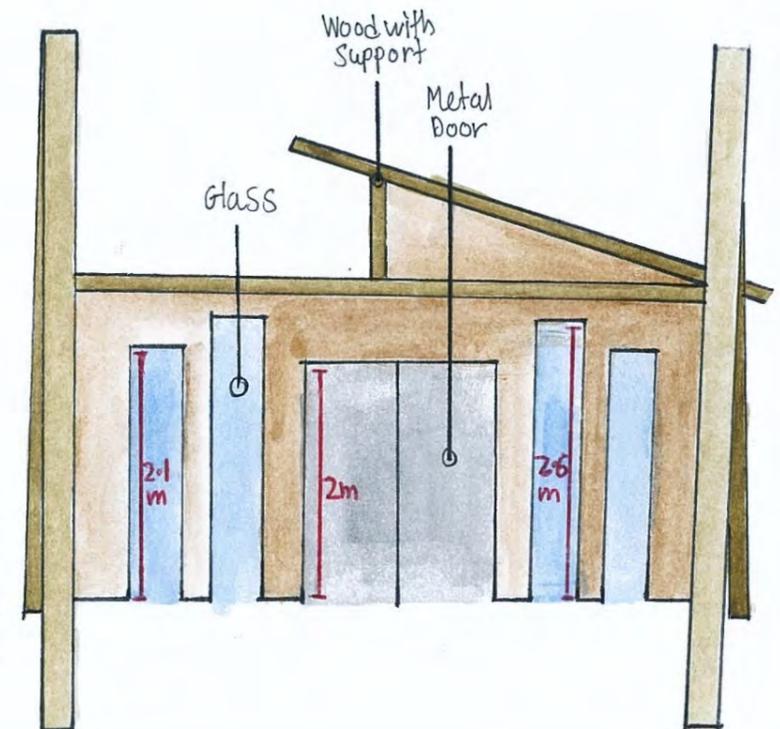


The Mauihi at the front is made of timber wood along with most of the wharenui exterior to keep the traditional aspects. The five windows of varied sizes are the glass material. On this side of the wharenui the facade is connected to two walkways which are held by supporting concrete.

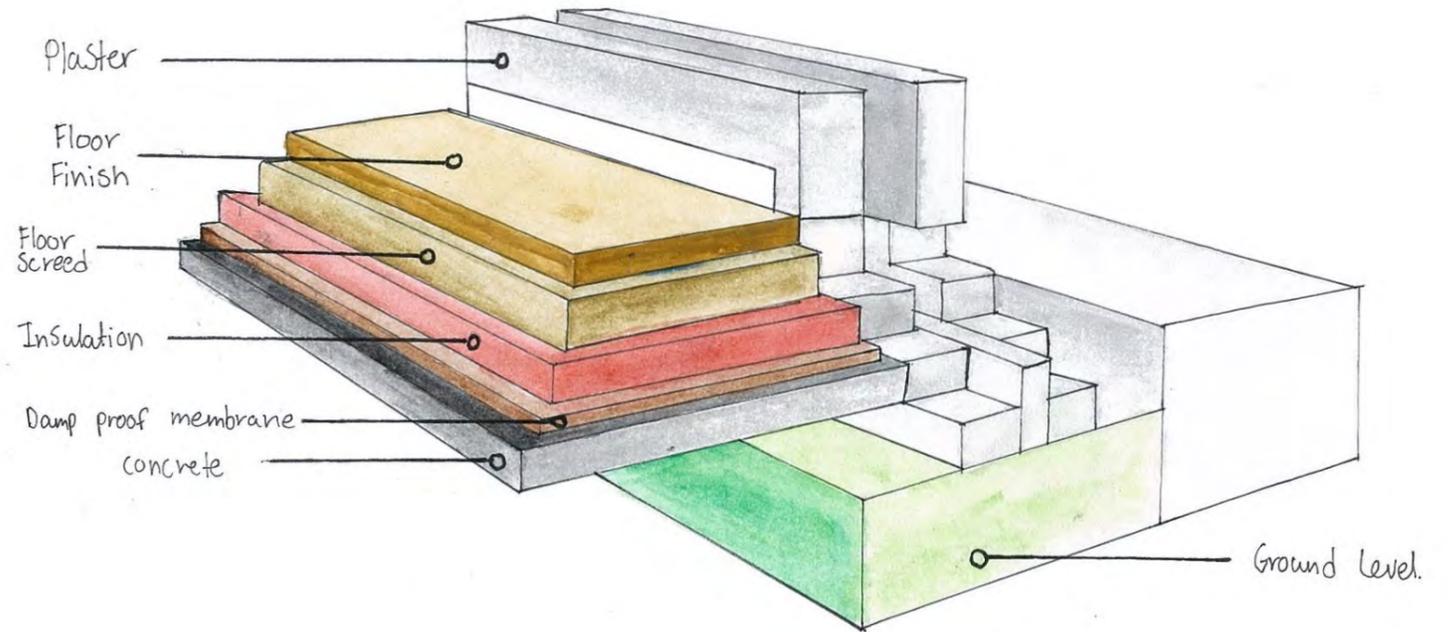
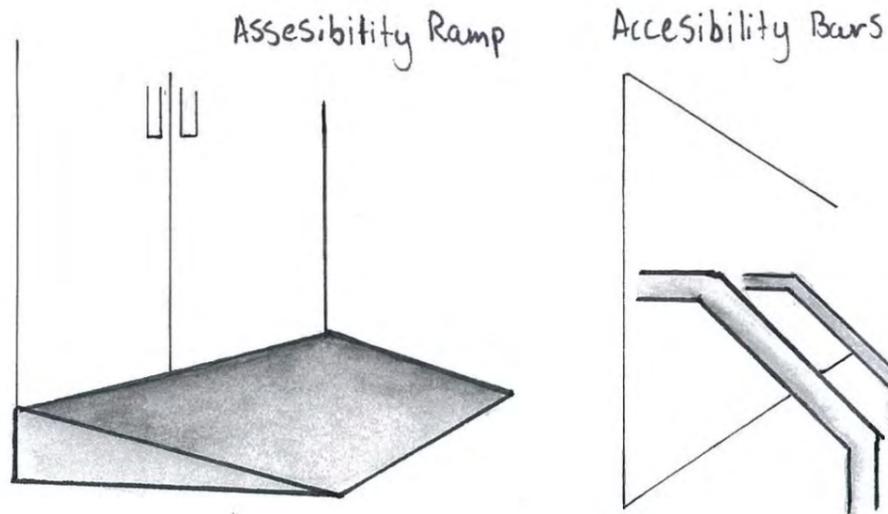


The front facade consists of wooden parts which hold each other along with the extended covering up which means they are supported by another material (metal) from behind.

The door is made of the regular metal, the windows which are two different sizes surrounding this door are made of glass.

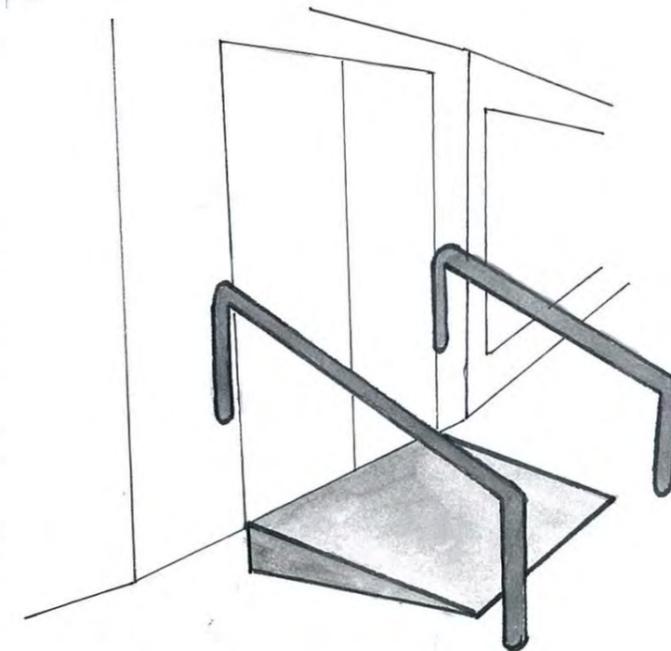
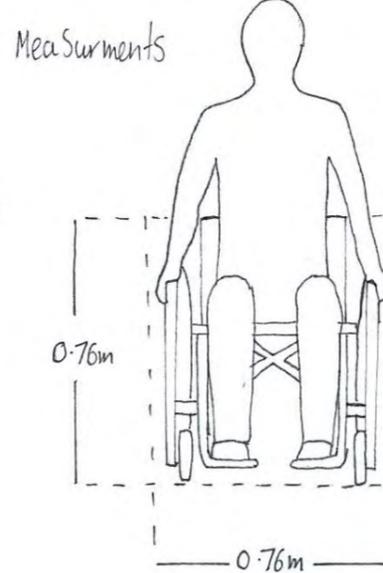
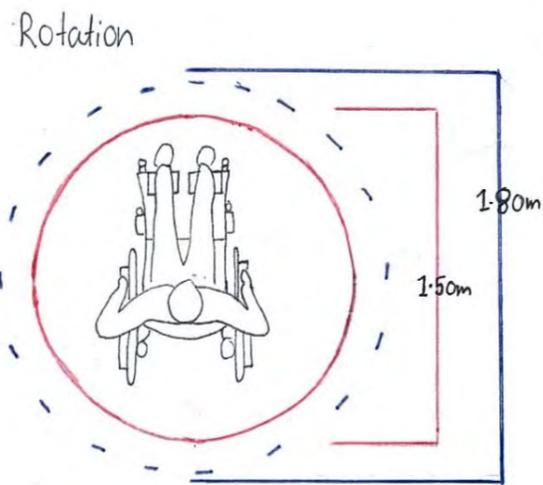
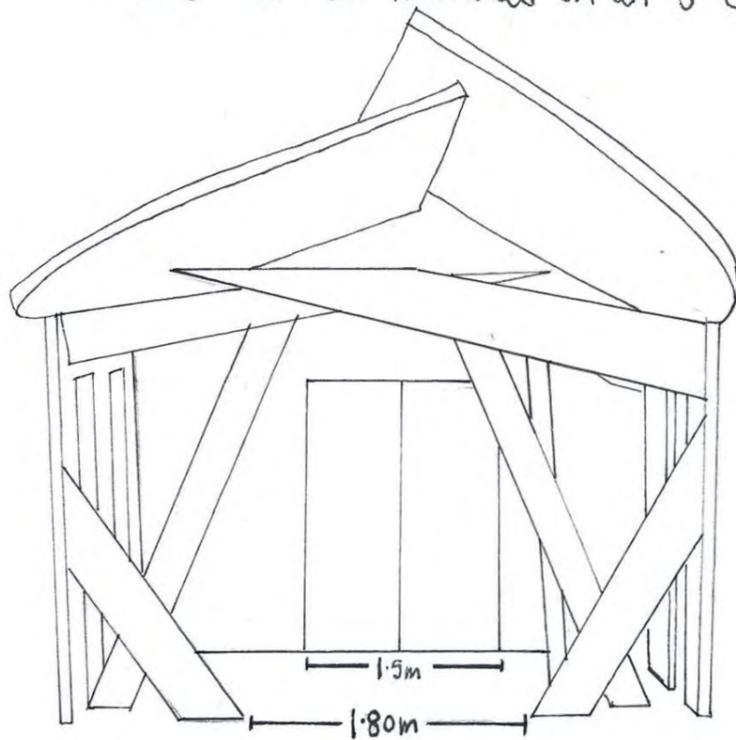


# Development - Flooring



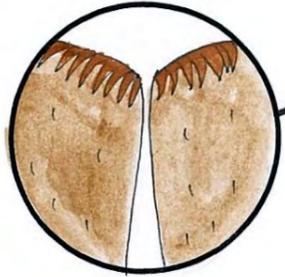
This Wharenui is a communal place which means people of all capabilities must have accessible methods of entering and exiting. Therefore these ramp and accessibility Bars will be installed on all 3 entrances.

Traditional Wharenui buildings are elevated above the ground for pest control. This Wharenui is also elevated using this idea which means it can prove difficult for those of the community who may have a disability. This is why the ramp and bars are important.



This is the view of the right entrance with the ramp and the bars installed. This will be the same for the other two entrances.

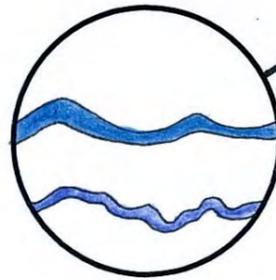
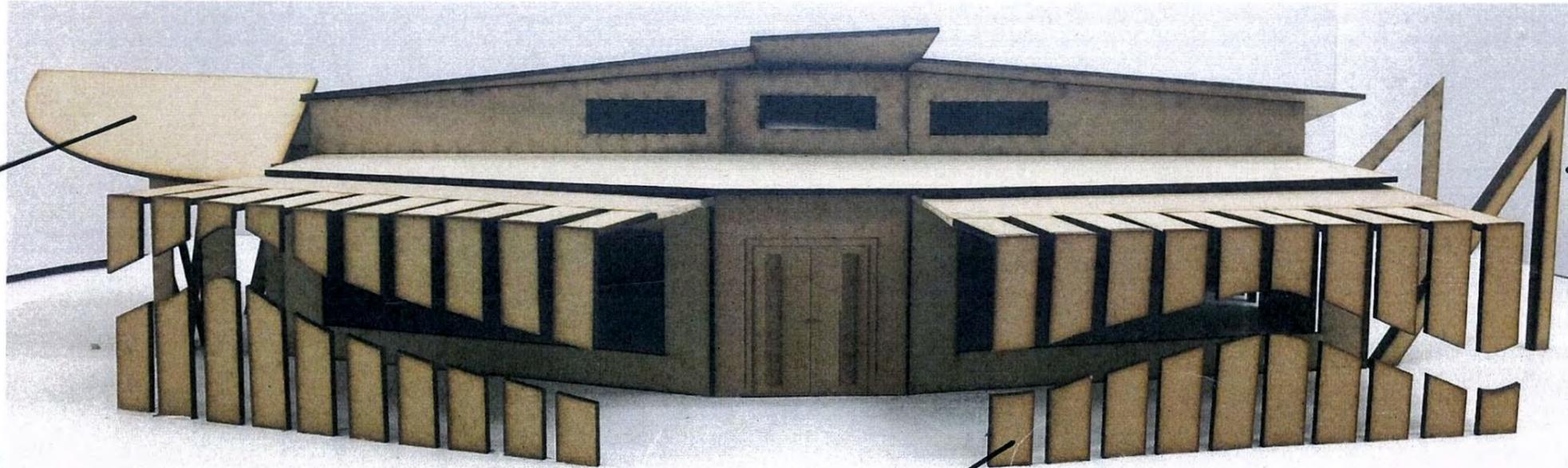
# Final



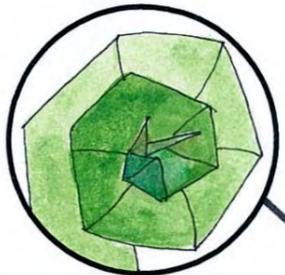
Two separate folds connecting together to cover an important entrance which is no different from two sides of the cloak draping over the wearer from which this idea was taken from.



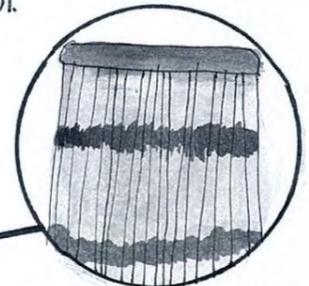
The flax (Harakeke) which symbolize growth and community is used in the ideation to represent the different stems of society who came together in this place.



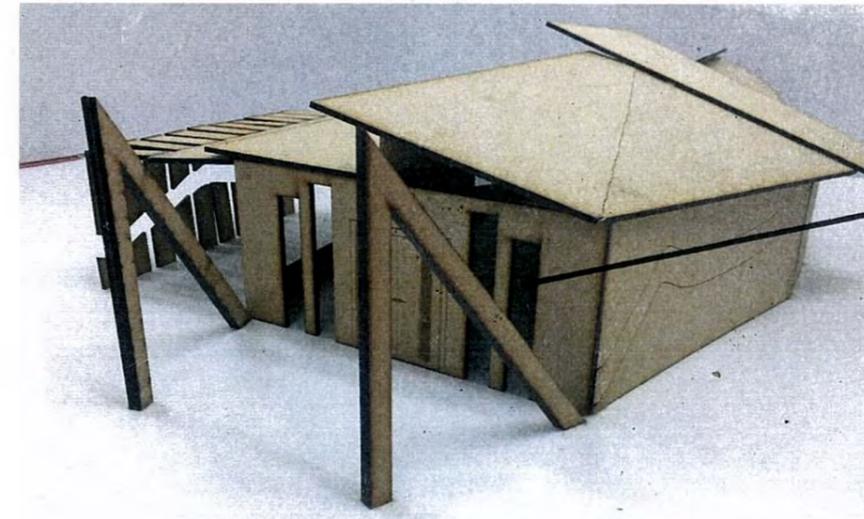
The river which is the most widely known symbol of the Waikato Tanui shows connections to the land and to generation of community here. This is a symbol which is even used in the traditional greeting the Mihimihī elevating its importance as a symbol.



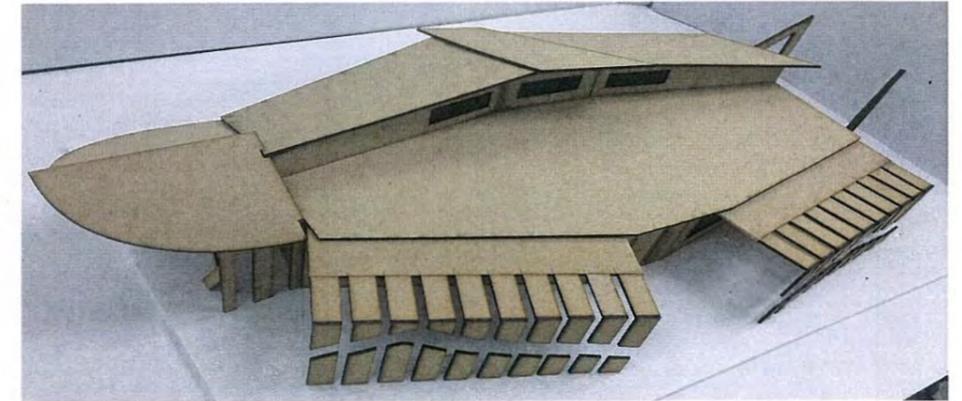
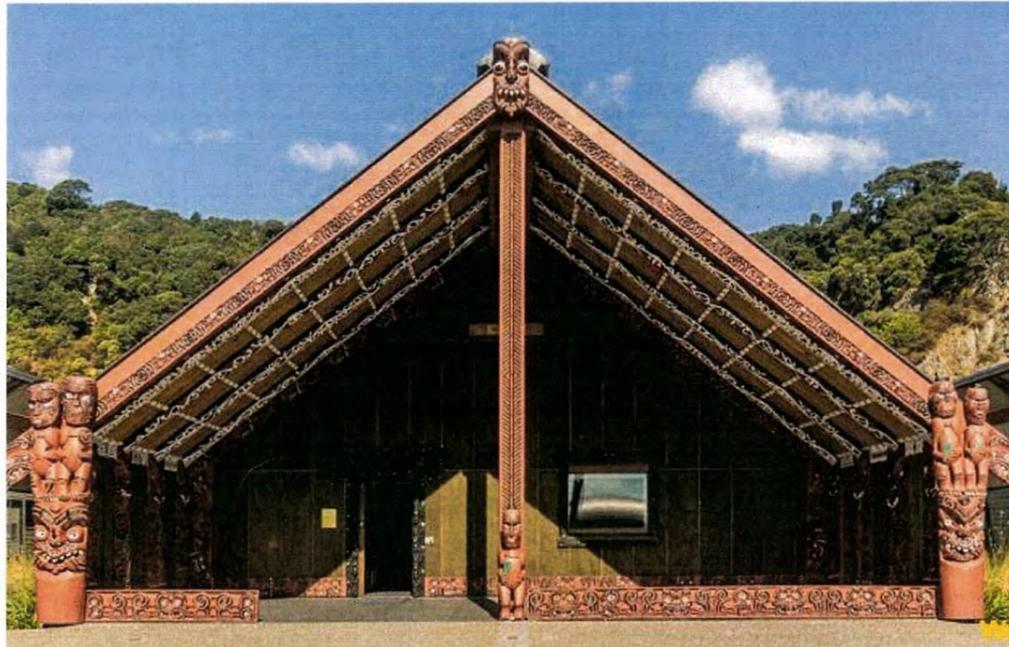
The weaving strands of the Harakeke represent the different parts of the community coming together in this sacred place.



The strong lines of the smaller windows at the back take ideation from the piupiu skirt's strong strands.

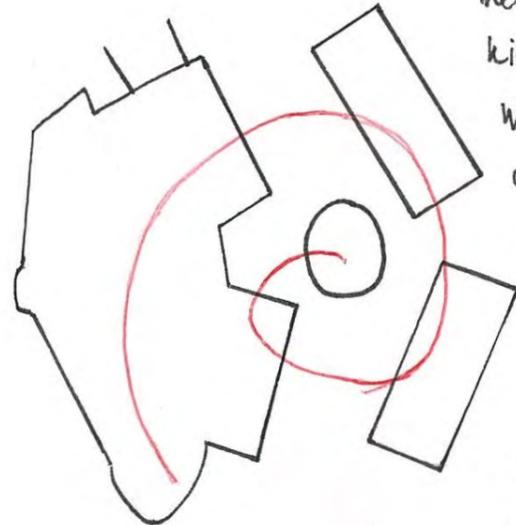
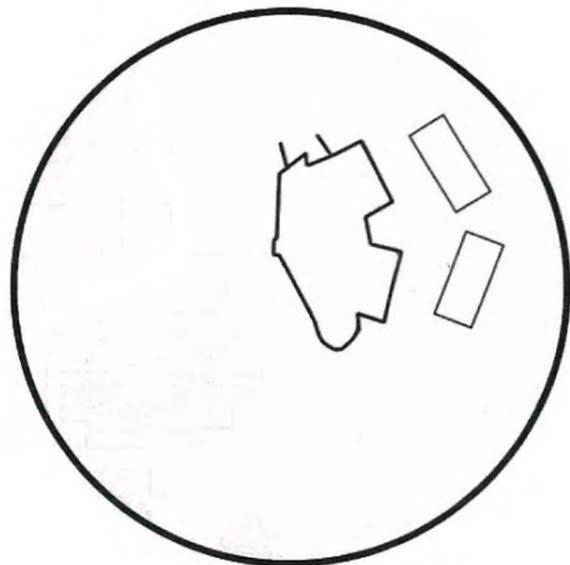


# Final



The Whareniui design encompasses all the aspects of a traditional Whareniui. This includes the open plan space with considerable amounts of storage space, the Maihi un Amo as the main features of both designs along with connections to the land and people through symbols and structure.

This building uses the same philosophy of community and spirituality which will make this building the heart of the school just as the chapel currently is.



The bathroom and kitchen facilities which were one of the requirements of the design create a koru spiral with the layout to symbolize unity.



Influenced by many of the communities symbols and icons this building is more than a building but a communal space for members of the school community and outside of it.

## Level 3 91627 (3.30)

### NCEA Design and Visual Communication (DVC) 2018

AS 91627 (3.30): Initiate design ideas through exploration (4 credits)

Achievement	Achievement with Merit	Achievement with Excellence	Overall level of attainment for 91627
Initiate design ideas through exploration.	Initiate design ideas through insightful exploration.	Initiate design ideas through extensive exploration.	
<ul style="list-style-type: none"> <li>Use starting experiences and visual communication strategies to <u>explore alternatives and variations to expand design thinking.</u></li> <li>Ideas are <u>re-generated</u> from alternatives and variations which <u>lead towards</u> design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>Use visual communication strategies and design thinking to <u>analyse and re-interpret</u> design ideas.</li> <li>An <u>emergent train of thought</u> is identified and <u>informs</u> further design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>Use visual communication strategies and design thinking to <u>extend and transform</u> design ideas.</li> </ul>	

**Underlined aspects were used in making judgements.**

**A diagonal line indicates that a specific aspect was either not in evidence or was not shown in enough evidence to reach the appropriate level.**

*NB: To ensure the school and student can remain anonymous, some areas of the folio have been blanked out.*

Pages 1- 4 have the context, research, and starting points outlined. Pages 5-11 demonstrate starting points and experiences of traditional Maori clothing, materials, patterns, environmental elements and botanical features. The visual communication strategy where combination of exploration of design thinking of shapes and forms in context to a building and then re-generation of these leading to design ideas all on one page is effective.

Pages 12-17 show analysis and re-interpretation of design ideas occurring with a focused train of thought. The context and research of the Wharenuui are informing the design ideas and pushing the extension and transformation of these along. Freehand sketching and 3-dimensional modelling convey the design thinking and are considering the building with philosophy central to a Wharenuui. Page 23- 29 detail elements around design ideas in relation to the building construction, the interior, and the user(s) in context. Pages 30 - 31 summarise the elements and design ideas that has been extensively explored to conceive the unpredictable and non traditional Wharenuui.

This submission is an Achievement with Excellence. It has consistent design thinking throughout with a focused context that is repeatedly considered. The various use of visual communication strategies help convey the explored and insightful design ideas effectively.