



## A CHANGE OF STATE - COASTAL RECONSTRUCTION

ALEXIS SOUTHEY

ALMANAC  
AD676

## ALMANAC - CONTENTS PAGE

### CURATE - PAVILION:

Contexts and Catalyst	4
Location	16
Catalyst to Programme	34
Pavilion precedence	56

### CURATE - INFRASTRUCTURE:

Infrastructural research	64
Festival of Britain infrastructure	80

### LABWEEK - A CREATIVE BREAK:

90

### PARTI - PAVILION:

Diagrams	106
Workshop process	120
College sequence	146
Layout iterations	160
Systems and materials	188
Permanent elements	202
Temporary elements	232

### PARTI - INFRASTRUCTURE:

Diagrams	254
College Sequence	264
Rest Points	276
The New Pier	300
Access Points	314

### BIBLIOGRAPHY:

330

# **PAVILION**

**CURATE - CONTEXT AND CATALYST**

THE WIDER CONTEXT

Explaining context and the workshop's long-term plan:

When it came to communicating the fact that my workshop is moving after the festival, it was not fitting in the timeline. It needed to be it's own drawing.

The drawing needed to communicate the issue of coastal erosion, as well as the fact the workshop was moving. To determine where the workshop would go to, it needed to correlate with the parts of the UK which suffer from coastal erosion. This is where the diagram below illustrates where the different levels of erosion takes place.



Coastal erosion map. 2004. [https://www.researchgate.net/figure/Distribution-of-coastal-erosion-risk-in-England-and-Wales-After-Foresight-2004\\_fig2\\_266473337](https://www.researchgate.net/figure/Distribution-of-coastal-erosion-risk-in-England-and-Wales-After-Foresight-2004_fig2_266473337)

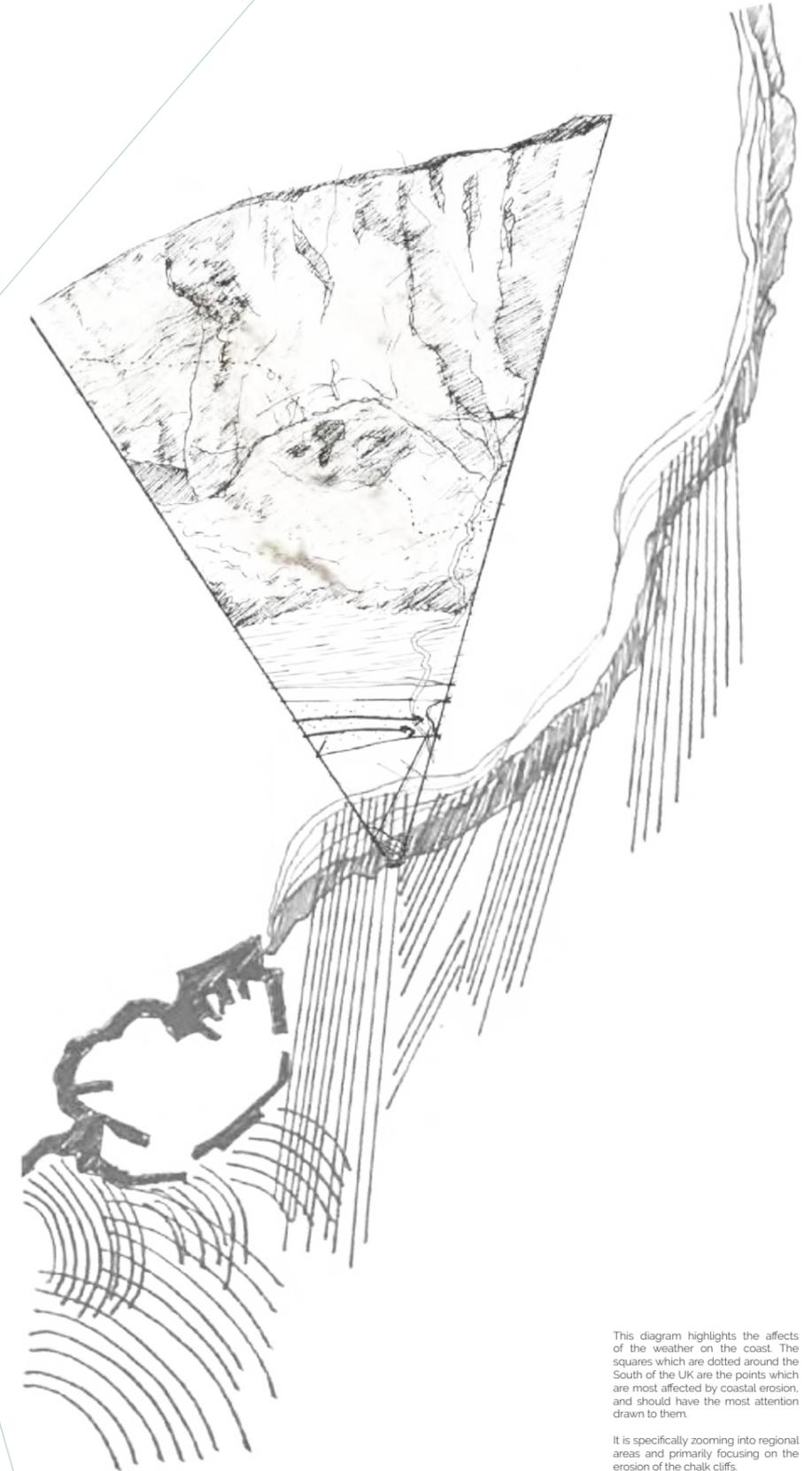
# CURATE - CONTEXT AND CATALYST

## THE WIDER CONTEXT



This drawing represents the issues with coastal erosion, but with a wider context of the South of the UK. I added the coastal effects of Dover and the chalk coastline.

I also looked at the areas with the highest risk of shoreline erosion and decided the workshop's future locations will be at the other 'hot points' because they will have a lot of waste material because of it.



This diagram highlights the affects of the weather on the coast. The squares which are dotted around the South of the UK are the points which are most affected by coastal erosion, and should have the most attention drawn to them.

It is specifically zooming into regional areas and primarily focusing on the erosion of the chalk cliffs.

Last term was a mostly research and exploration based project, looking at Territories, Britishness and Catalyst.

Territories was where I looked deeper into the West Pier. I was particularly interested in the in between stage of being below and above water. I was also interested in the effects of that and how the Cast Iron developed and changed over time.

For researching Britishness, I was particularly interested in the British coastline. This ranged from activities that took place there as well as the changes of the coast over time.

Finally, this lead to the affects of Coastal Erosion and this was where the totem was created. It symbolised the affects of coastal erosion on the natural elements and how over time, the coast will decrease in size and there won't be anything left.

**Reflection:**

This project was a great foundation for this following project. Something I wish to continue in this project is playing with materials, natural and industrial and how temporary structures could become permanent or how something you would think would last forever, is only a temporary thing.

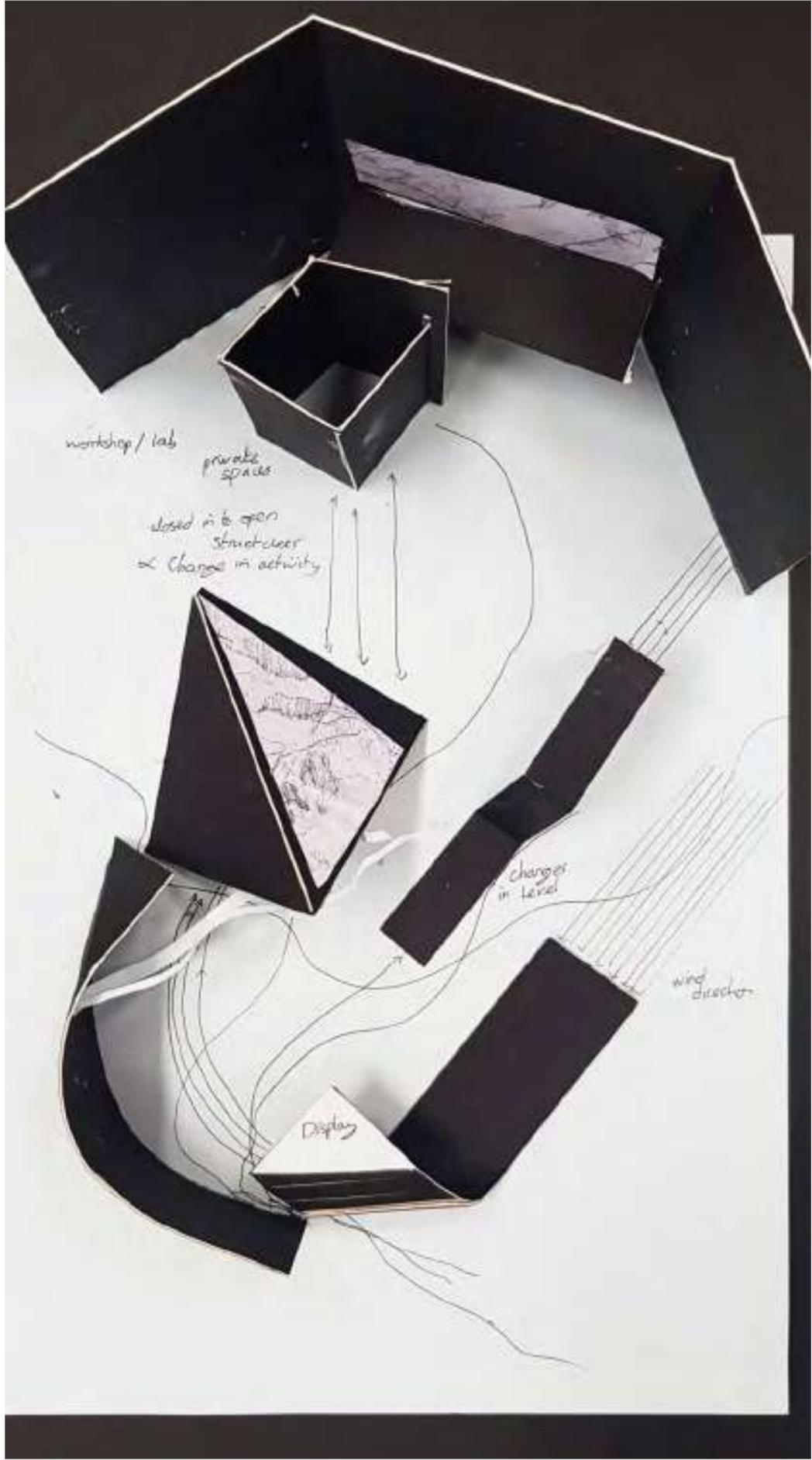
**CURATE - CONTEXT AND CATALYST**

**CATALYST TO PROGRAMME**

This design project will be developing work and research from the previous semester into a fully functional and experiential programme with regards to my 'British' catalyst of the

**British South coast and coastal erosion.**

I currently foresee this future programme being a workshop and/or exhibition space.



**Initial ideas:**

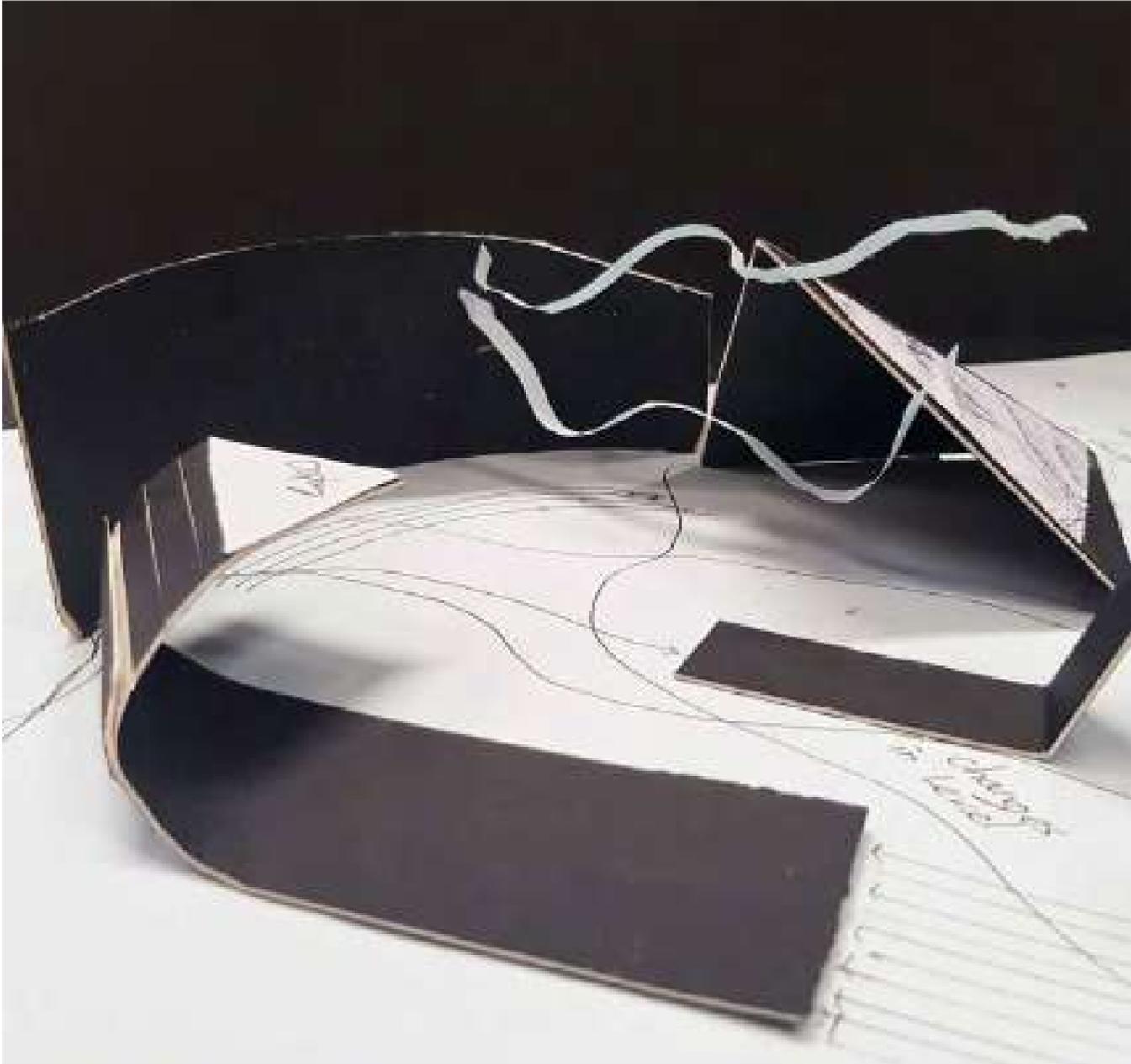
This 3D drawing was me expressing my initial ideas of how my catalyst could evolve to a programme.

This part was particularly looking at dynamic spaces, and how spaces could react with the natural elements - like wind.

I also had an interest of spaces which scale between interior only spaces and ones that are partially both.

I stuck an image of the texture of chalk and salt onto some of the surfaces to represent what the spaces could be made of.

The small wavy pieces of paper imply the changes of sea level and how it may intentionally affect the pavilion.



**Reflection:**

This method was a useful tool to allow myself to physically collage ideas onto a page quickly. However, this method I think would feel more suitable next time to be used when iterating and designing.

I plan to use 3 dimensional features when quickly sketching out ideas, shapes and spatial qualities.

**CURATE - CONTEXT AND CATALYST**

**CATALYST TO PROGRAMME**

The programme has developed from a workshop/exhibition space into focusing primarily on the workshop.

Last term, my catalyst was Coastal erosion and how it effects the British coastline.

Moving this toward a programme, it will become a workshop which will be using raw materials from regional coastlines. These materials will be from the chalk cliffs in Seaford, Eastbourne and Dover. The wasted material which is subject to the effects of coastal erosion, will be collected and transported to site.

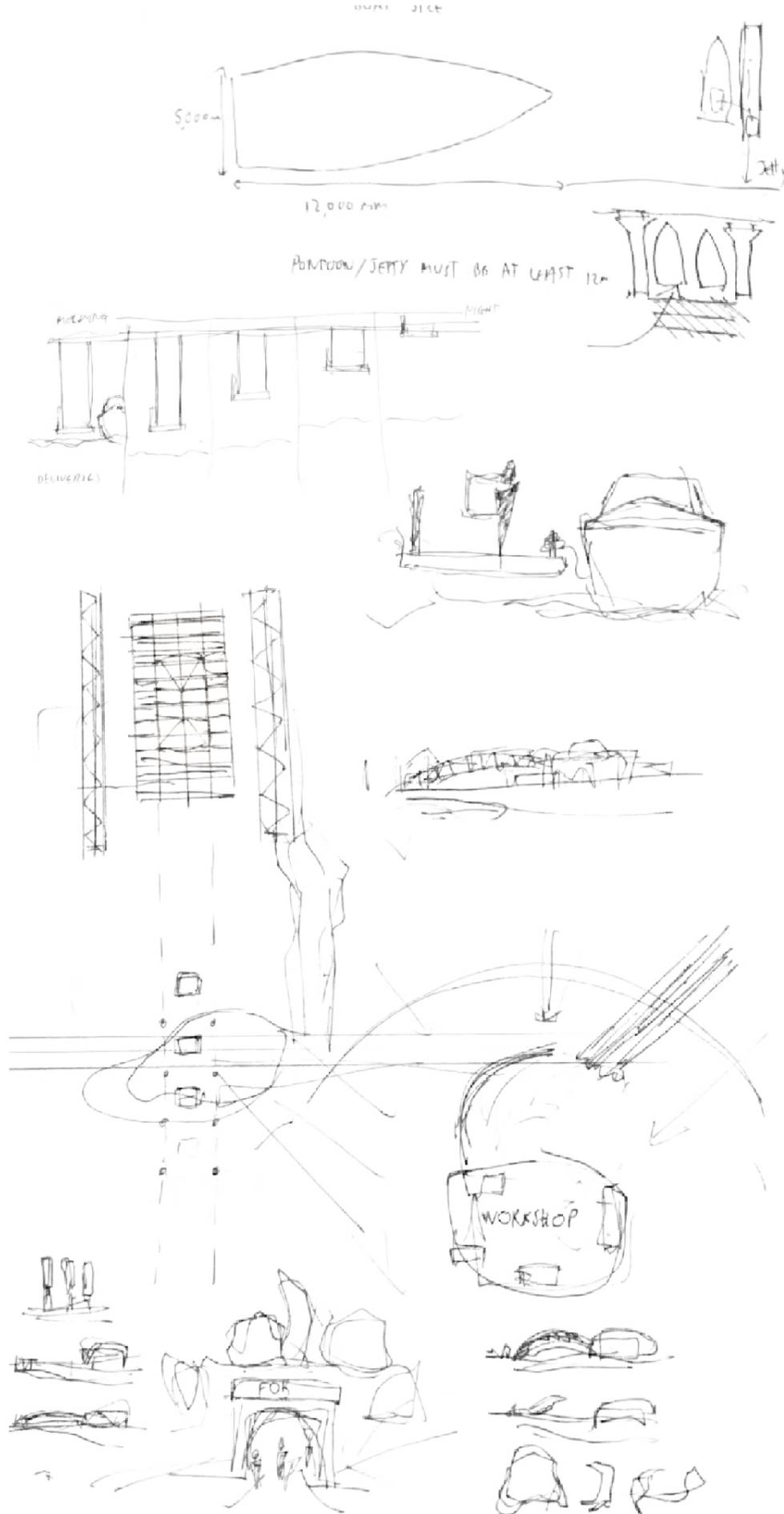
This material will be used as a component alongside others to create a new construction material. From this, the material will be used within the workshop to build two site specific protective structures. These structures will be tailored to protecting the public from the elements, such as, the wind and the rain/sun.



Photoshop render  
Author  
2019



Collaged map  
Author  
2019



**Initial programmatic ideas:**

These initial sketches focus on the fact that I was interested in using raw materials within the workshop. These sketches look at the ways of collecting the regional materials and how it might get there.

Hand drawn sketches  
Author  
2020

# CURATE - LOCATION

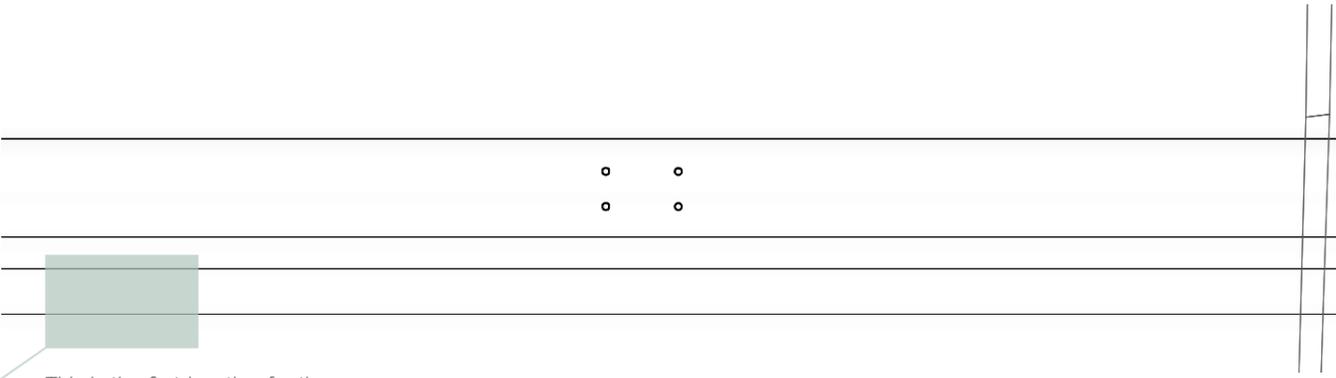
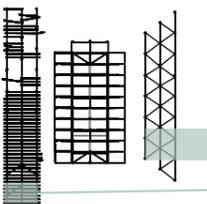
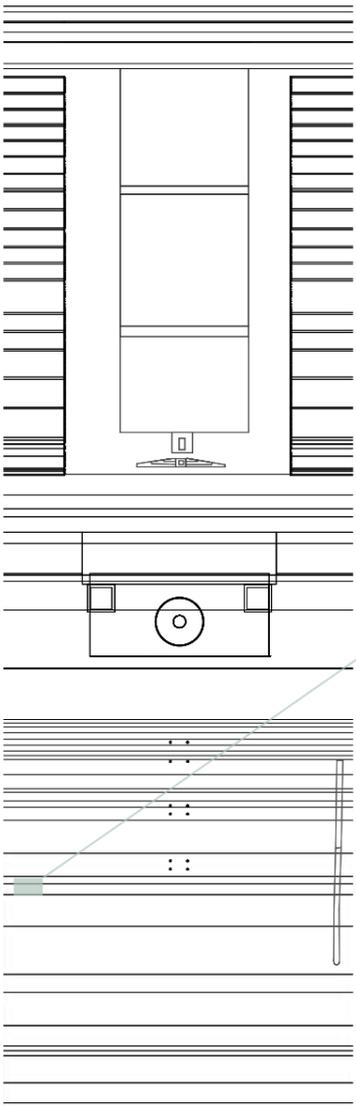
**CURATE - LOCATION**

**ZOOMING INTO SITE**

The first protective structure will be the one on the shore. This is because of the timing of the festival. If this was to take 1 to 2 months to build and complete, the structure would be ready in June or July. This would be the ideal time for the structure to become available to the public as it would be summer and they would be more likely to want the shelter from the sun.

It is also located on the West side of the festival because it will be in the perfect location to view the sunset at the end of a long day attending the festival.

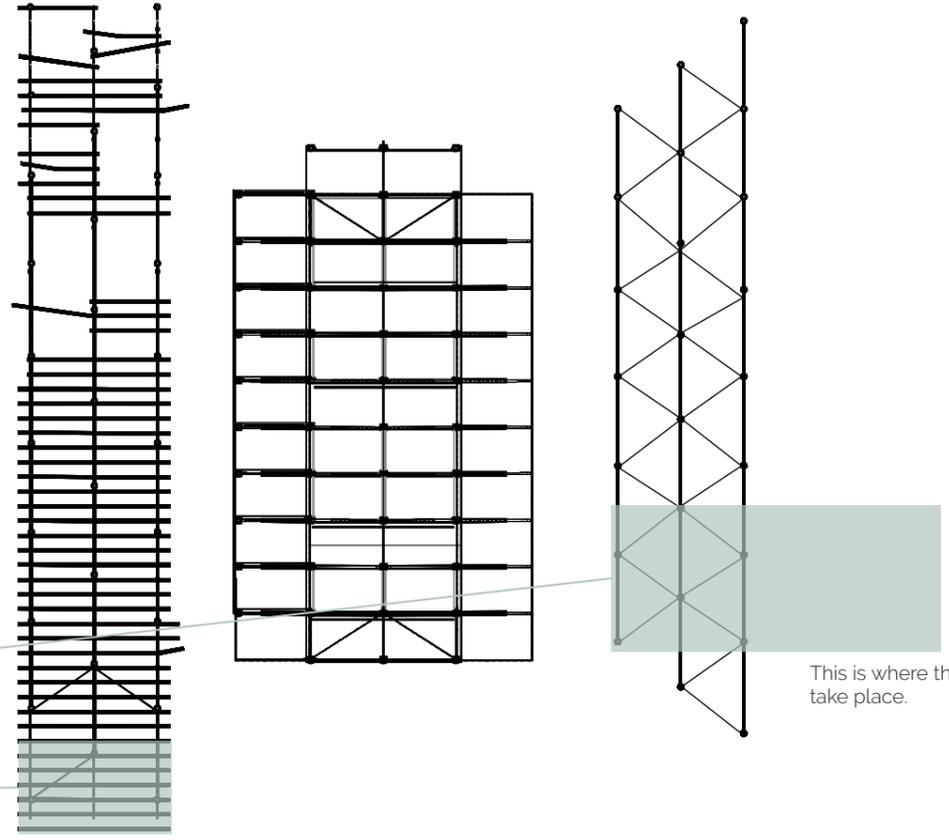
The second structure, taking several months to complete and install, would bring the festival to around September, when the weather is predicted to become slightly harsher on the festival goers and gives them a protective structure which would shield them from the wind when they reach the far end of the pier.



This is the first location for the protective structures. This one will prominently be tailored to protect the public from the rain, or be somewhere to stop for shade in the warm summer.

**Reflection:**

I think that the placement of my pavilion and the protective structures have been considered thoroughly. Especially thwe structures, I think that they have maximised the zones where people would most likely need them.



This is where the wind protection and view point structure will be installed during the festival. It is here due to the high south westerly winds.

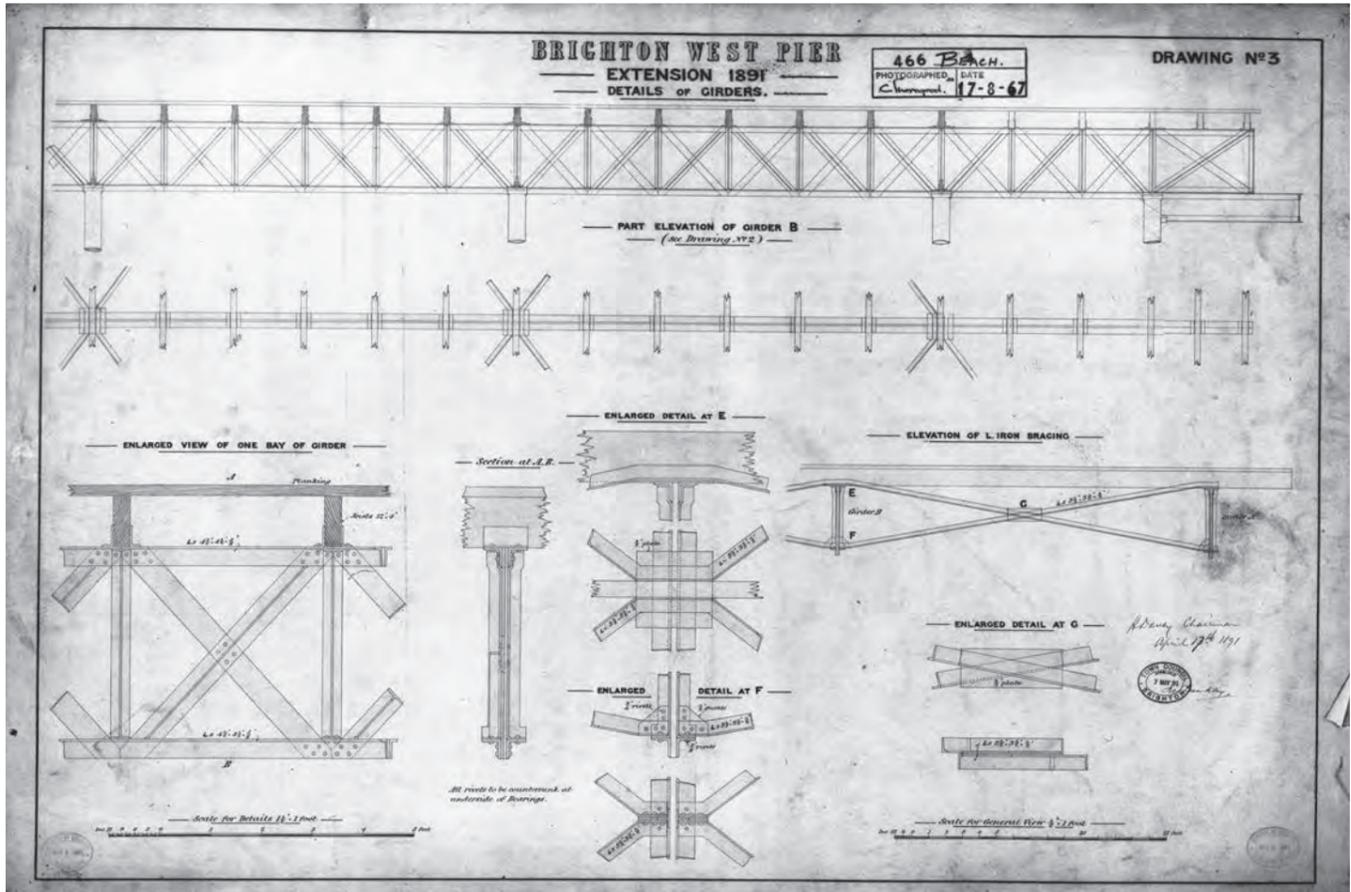
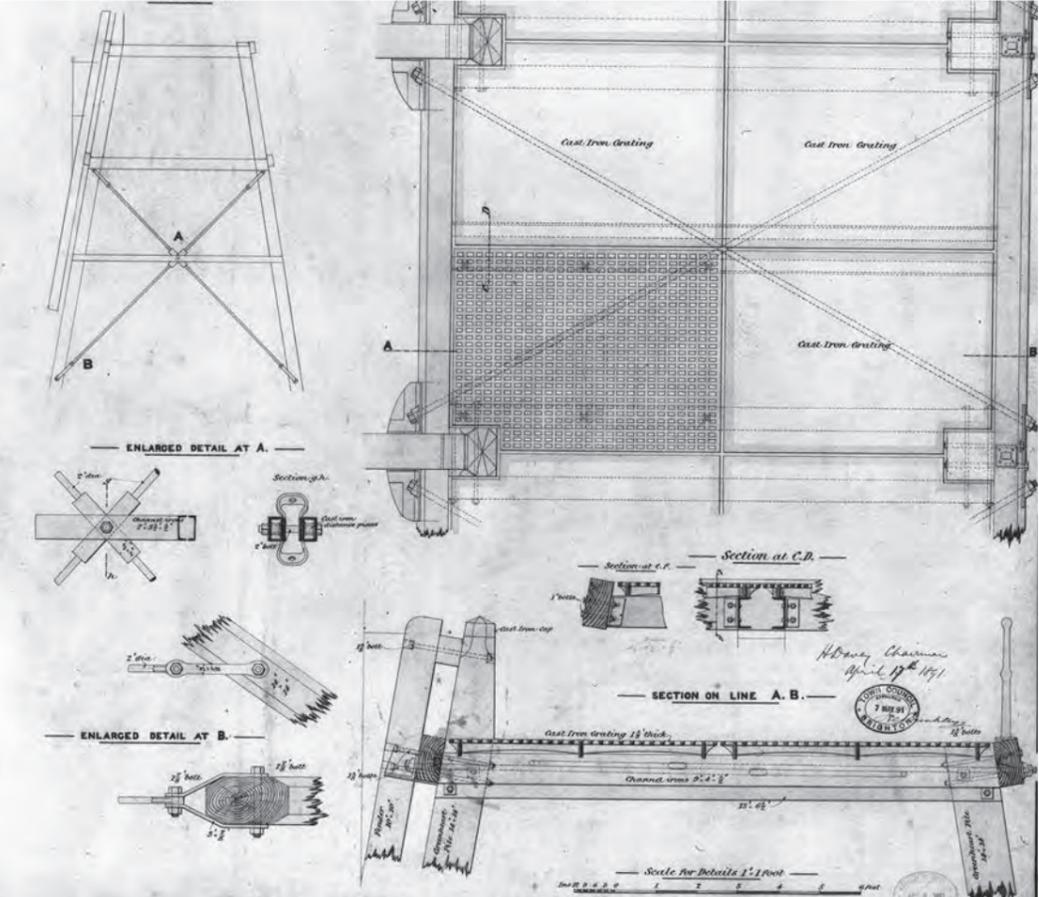
This is where the workshop will take place.

It is the highest **EXPOSURE POINT.**

CURATE - LOCATION

ZOOMING INTO SITE

By looking at these existing drawings, there are some connection details which are the same components I am trying to draw up in my plan, section and elevation. These allowed me to understand the structure to a greater level of detail - more than I was able to get from photographs taken when visiting site.



Orthogonal drawings of Brighton West pier, 1891. Brighton. The Keep.

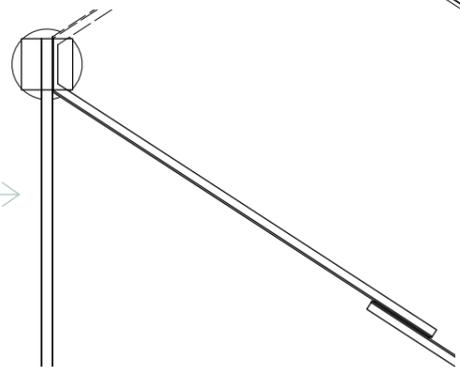
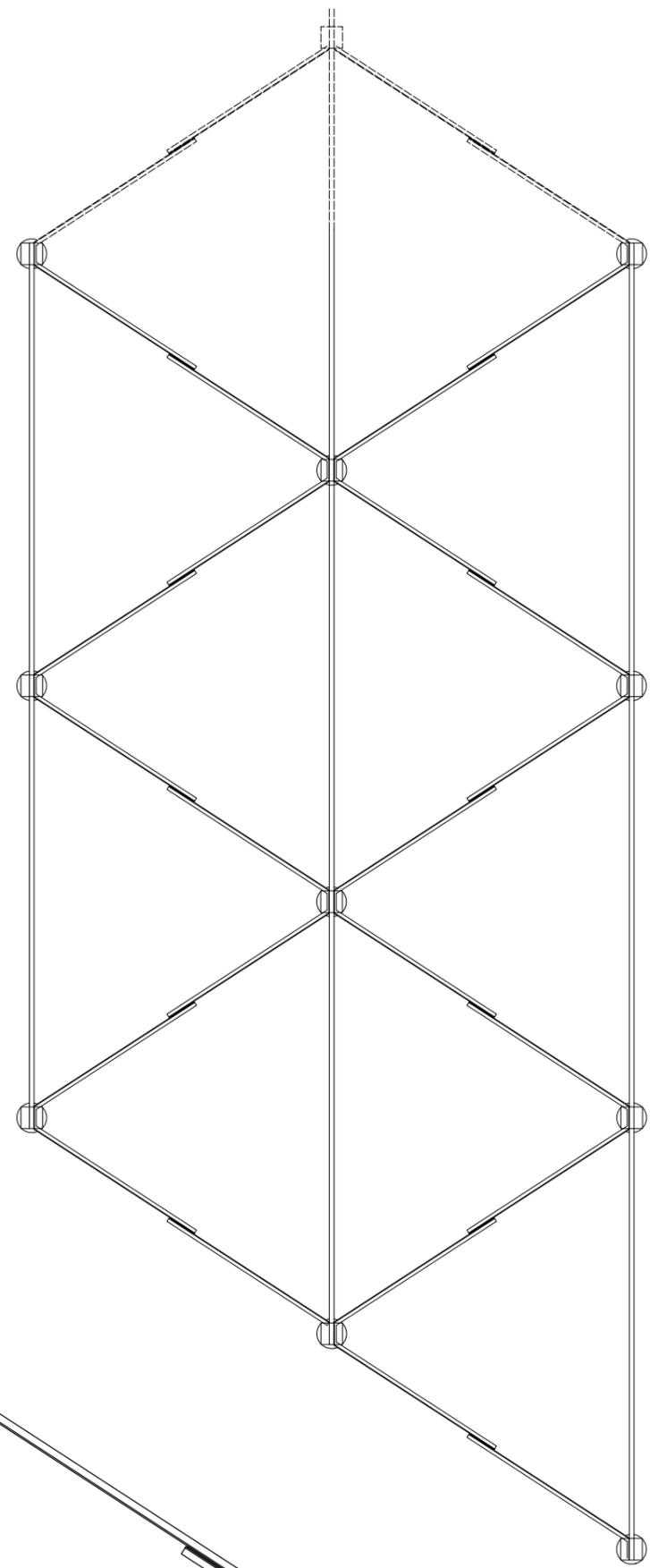
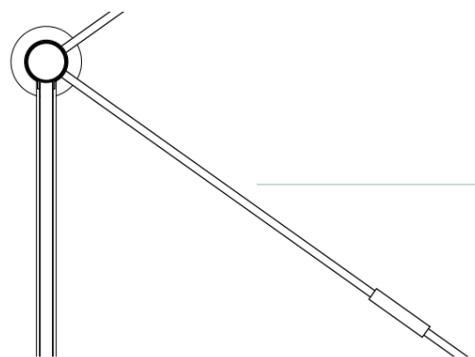
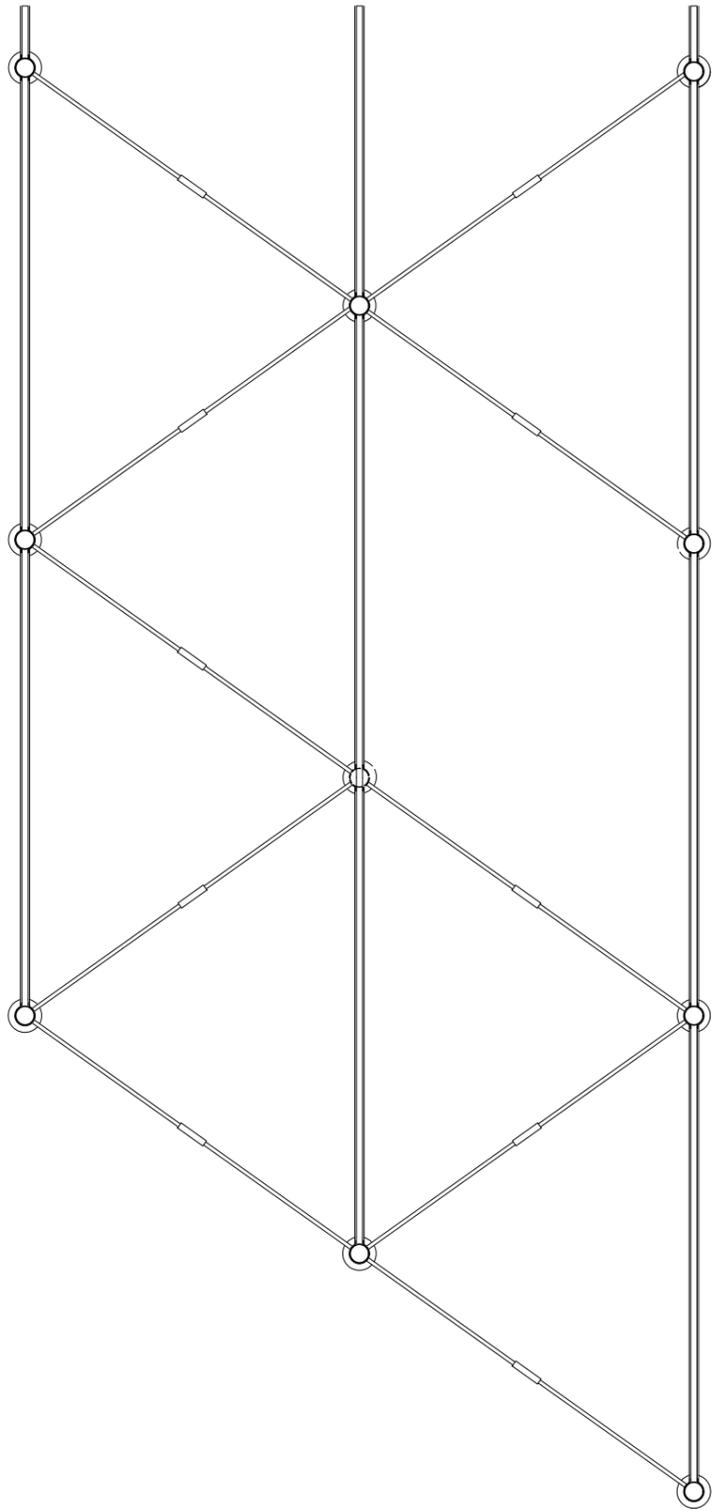
Photographs Author 2019

CURATE - LOCATION

ZOOMING INTO SITE

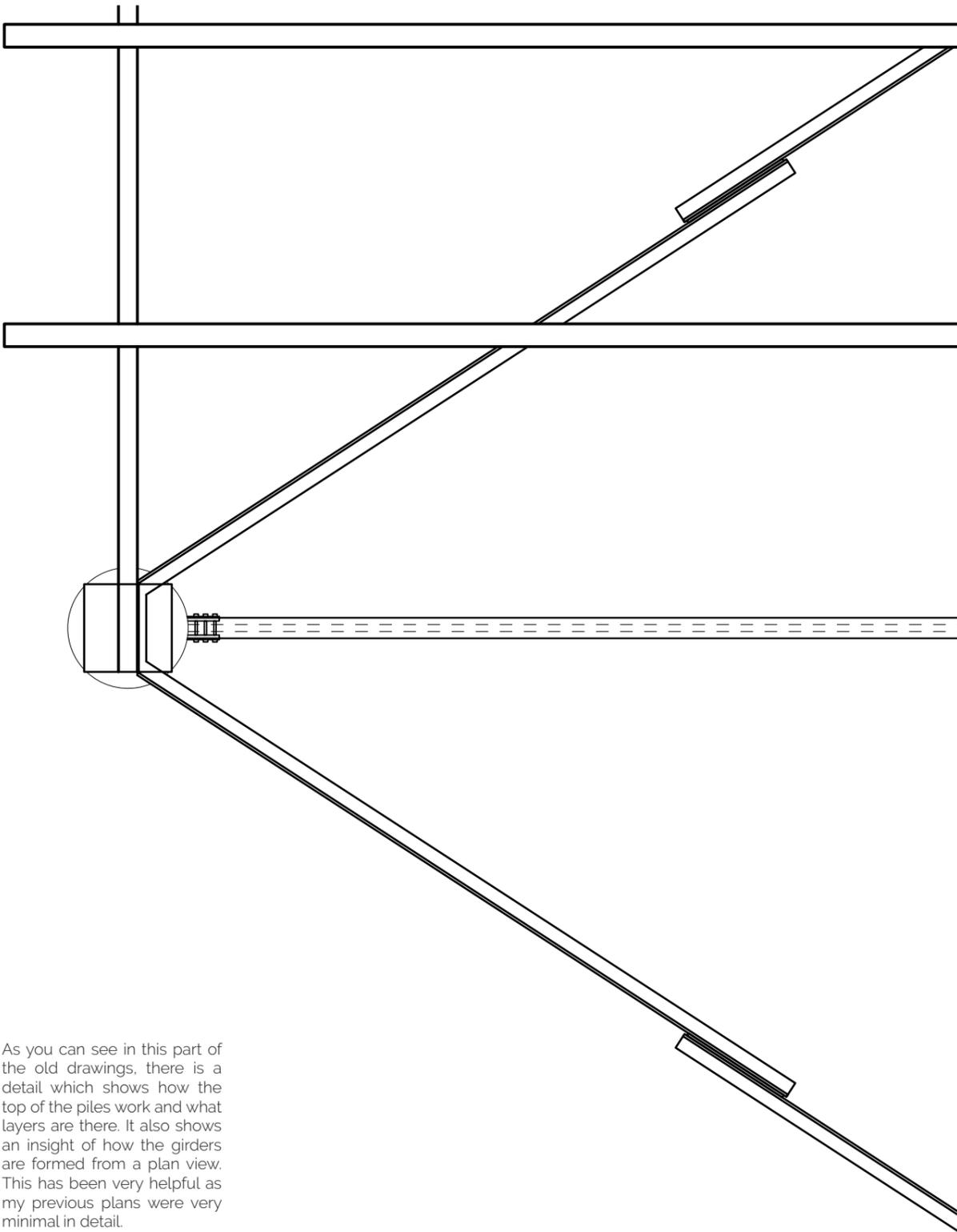
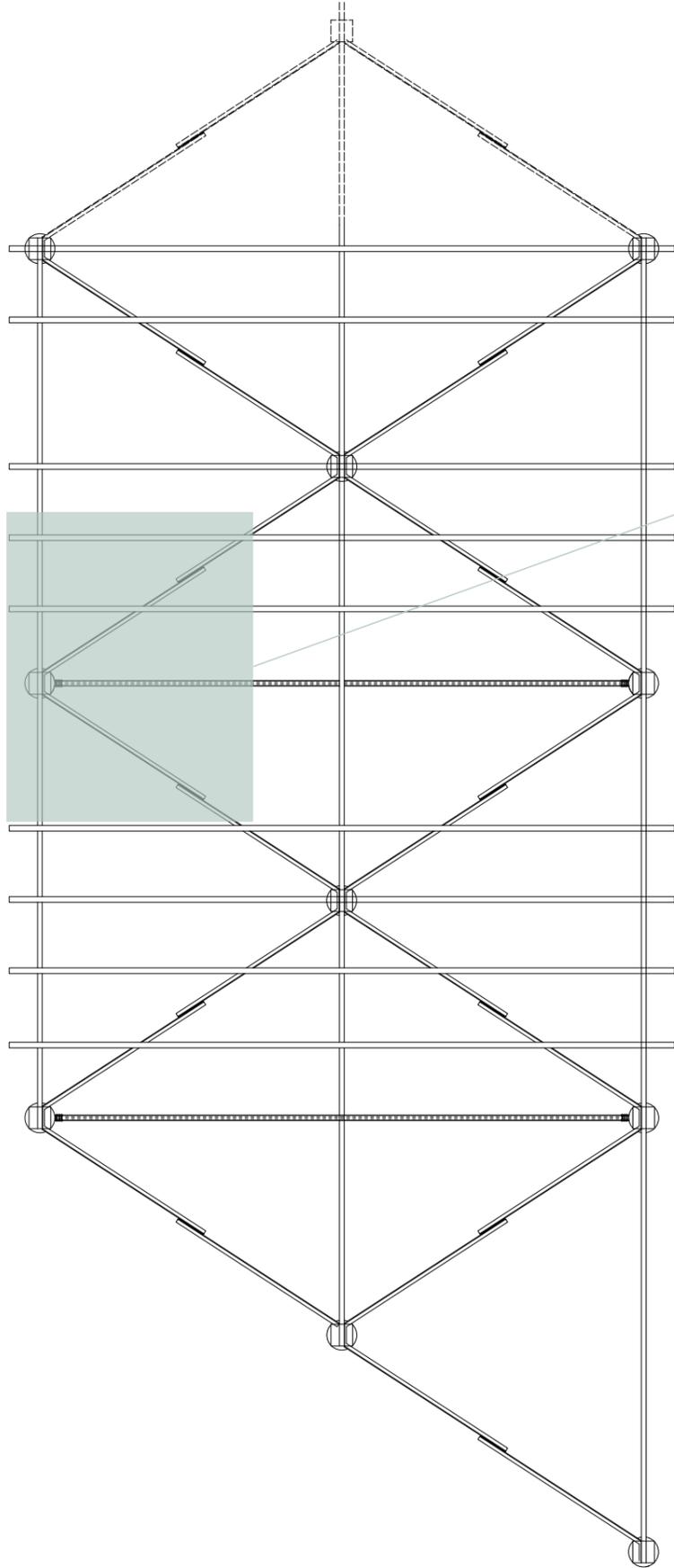
Reflection:

This is my first attempt of drawing the plan of my part of the site. I started this by tracing over the existing 3D model to get the rough grid lines and then by analysing the photographs of site, I was able to see rough shapes of how the East side of the pier could fix together.

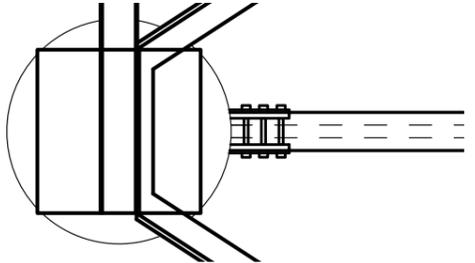
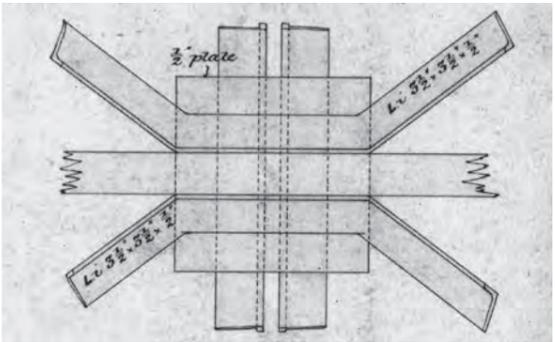


From the first attempt at drawing the plan to now, I have noticed that certain areas did not seem accurate. Before looking at the old drawings, I did not understand how the girders fitted together and how they sat on the pier.

This source was really helpful and has enabled me to work in greater accurate detail.

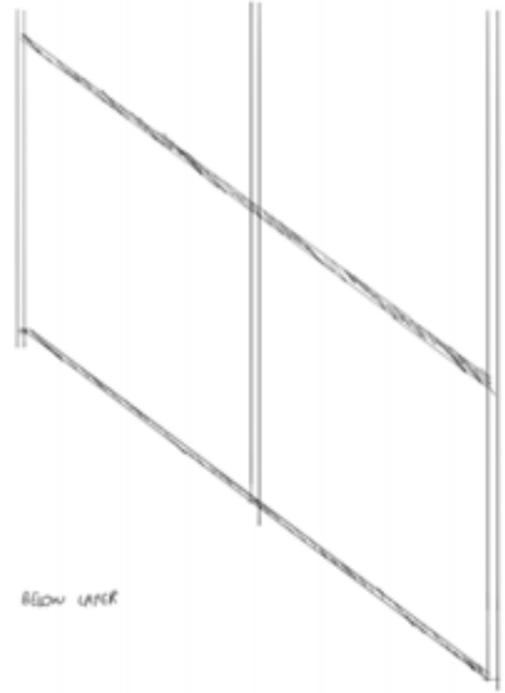
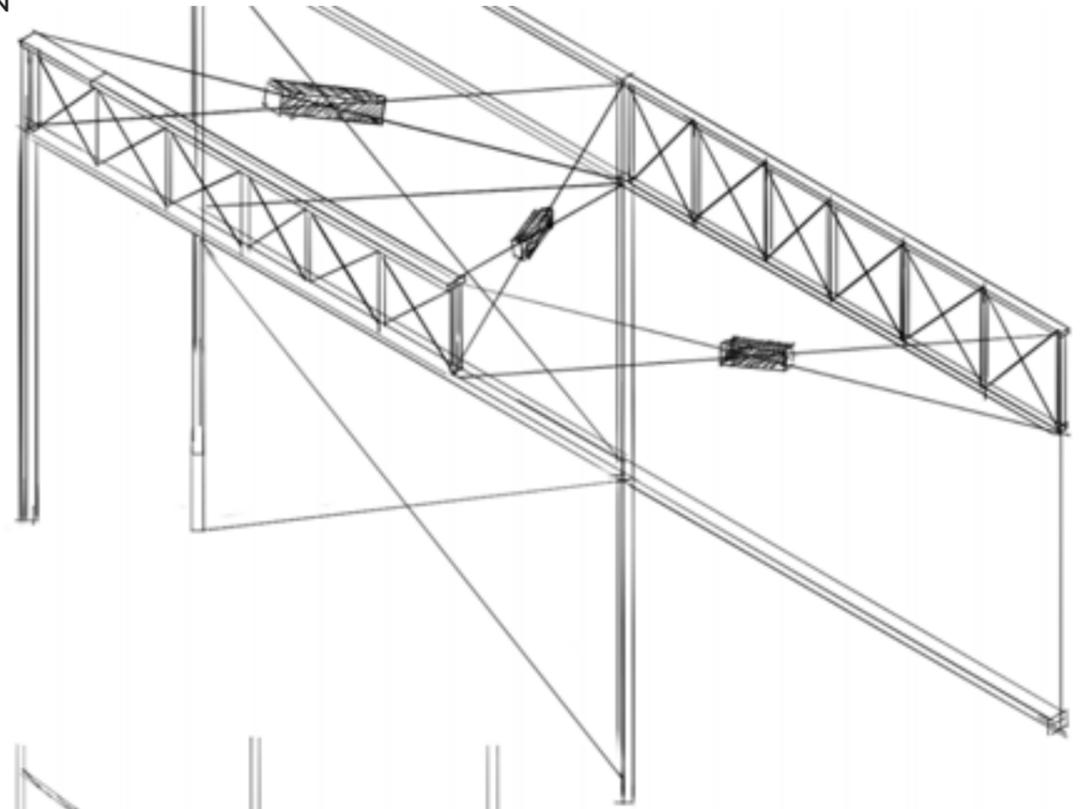


As you can see in this part of the old drawings, there is a detail which shows how the top of the piles work and what layers are there. It also shows an insight of how the girders are formed from a plan view. This has been very helpful as my previous plans were very minimal in detail.

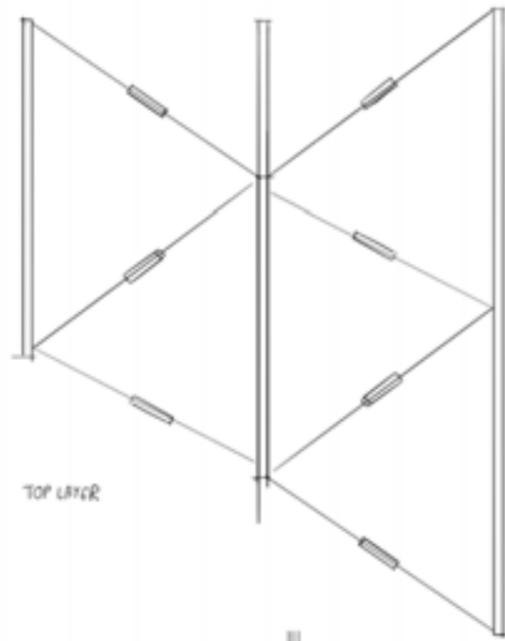


CURATE - LOCATION

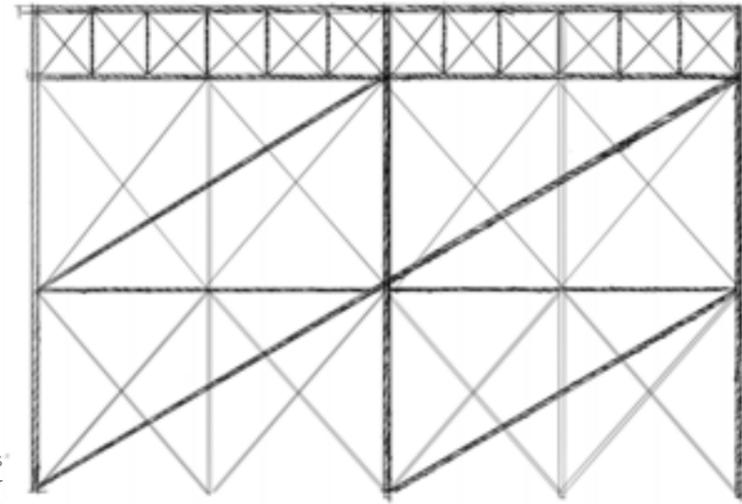
ZOOMING INTO SITE



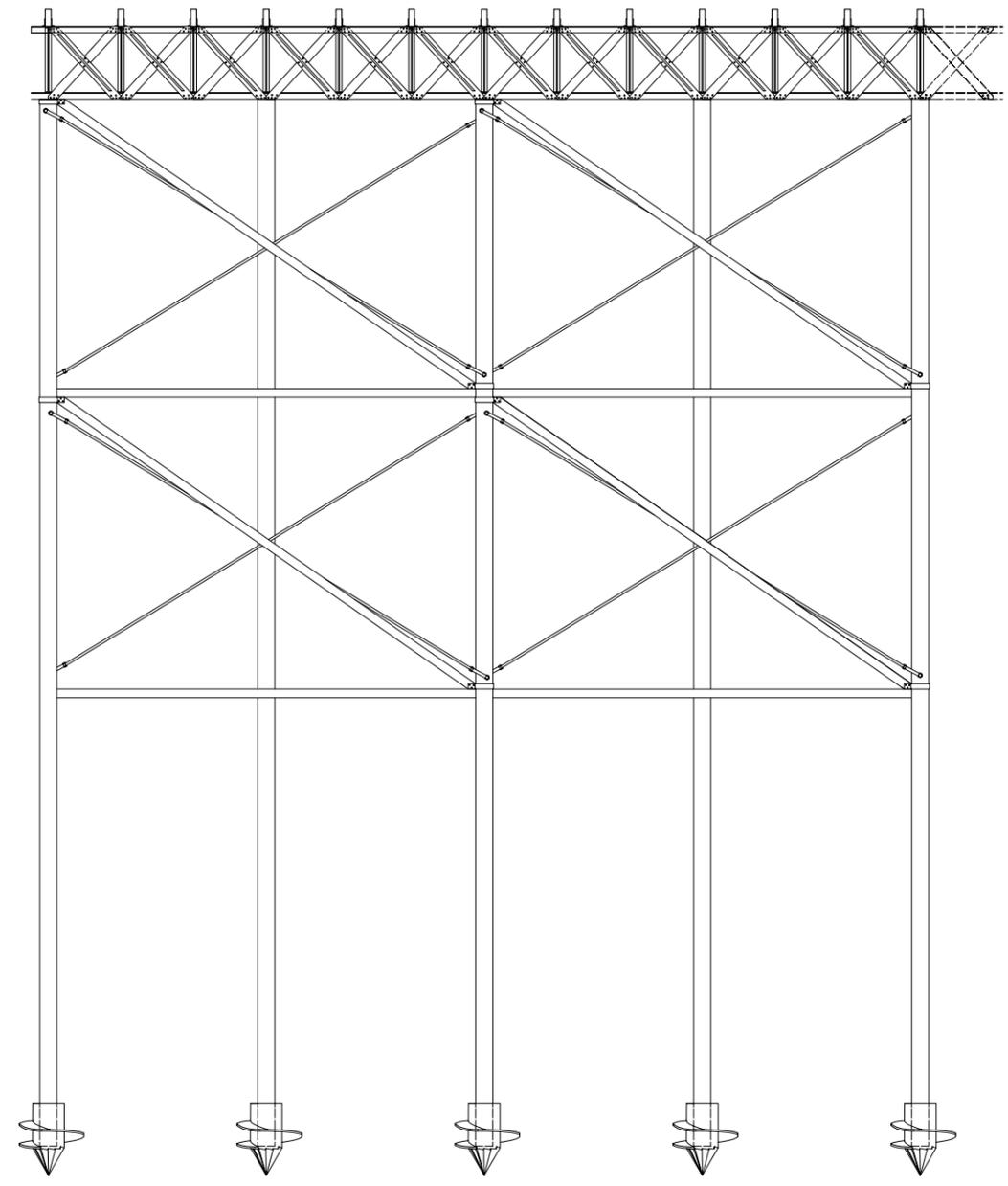
REAR VIEW



TOP VIEW



3 POINTS OF CONTACT PER CORNER

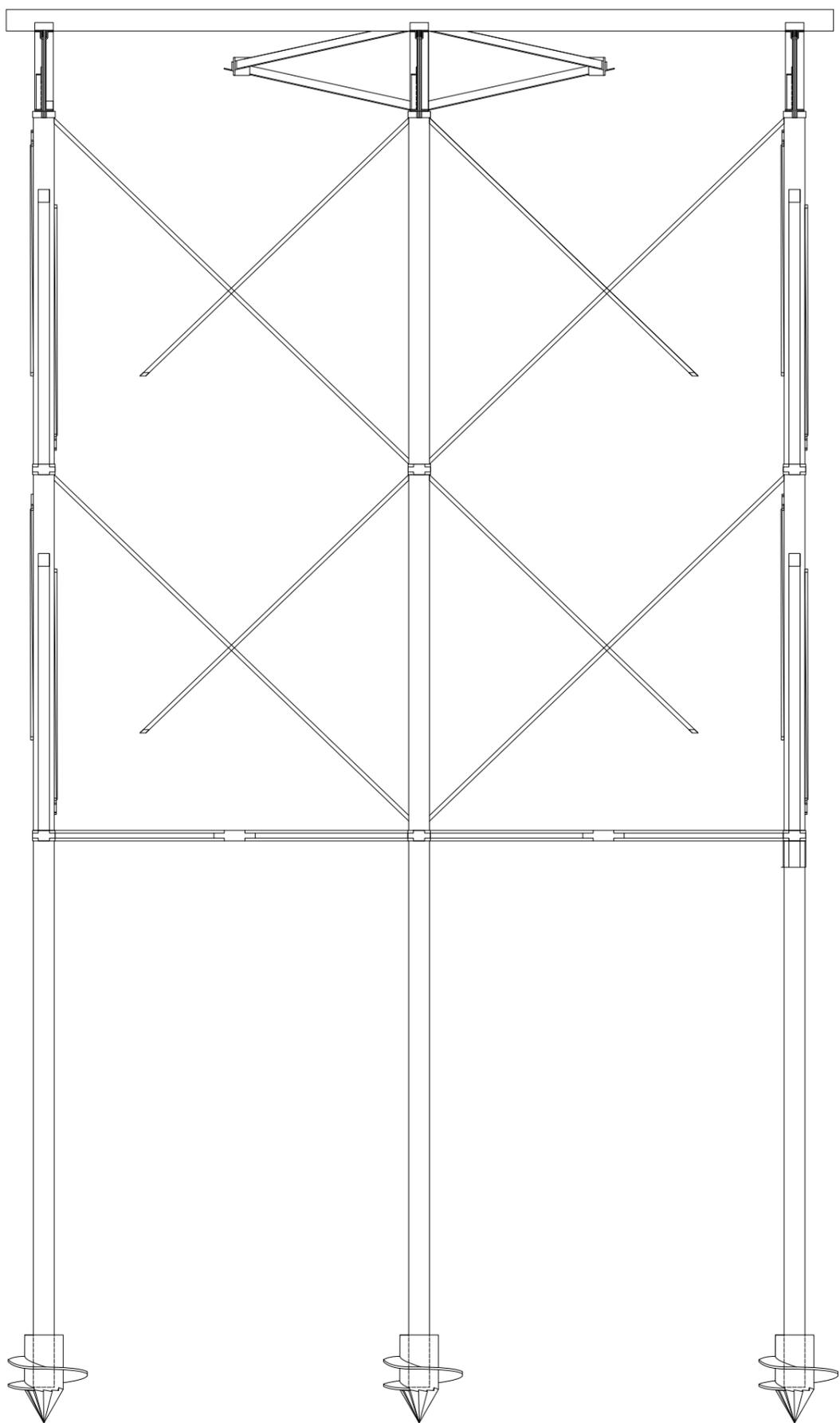
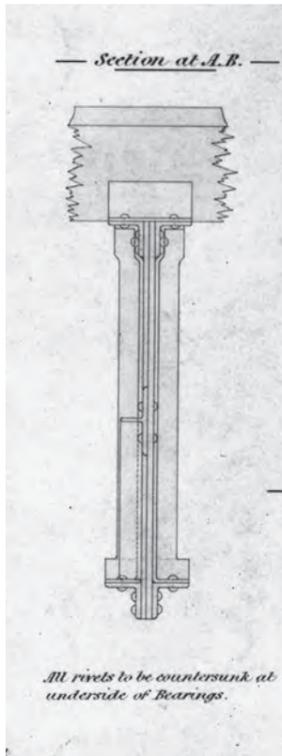
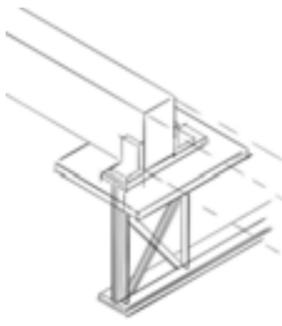


Vectorworks drawing  
Author  
2020

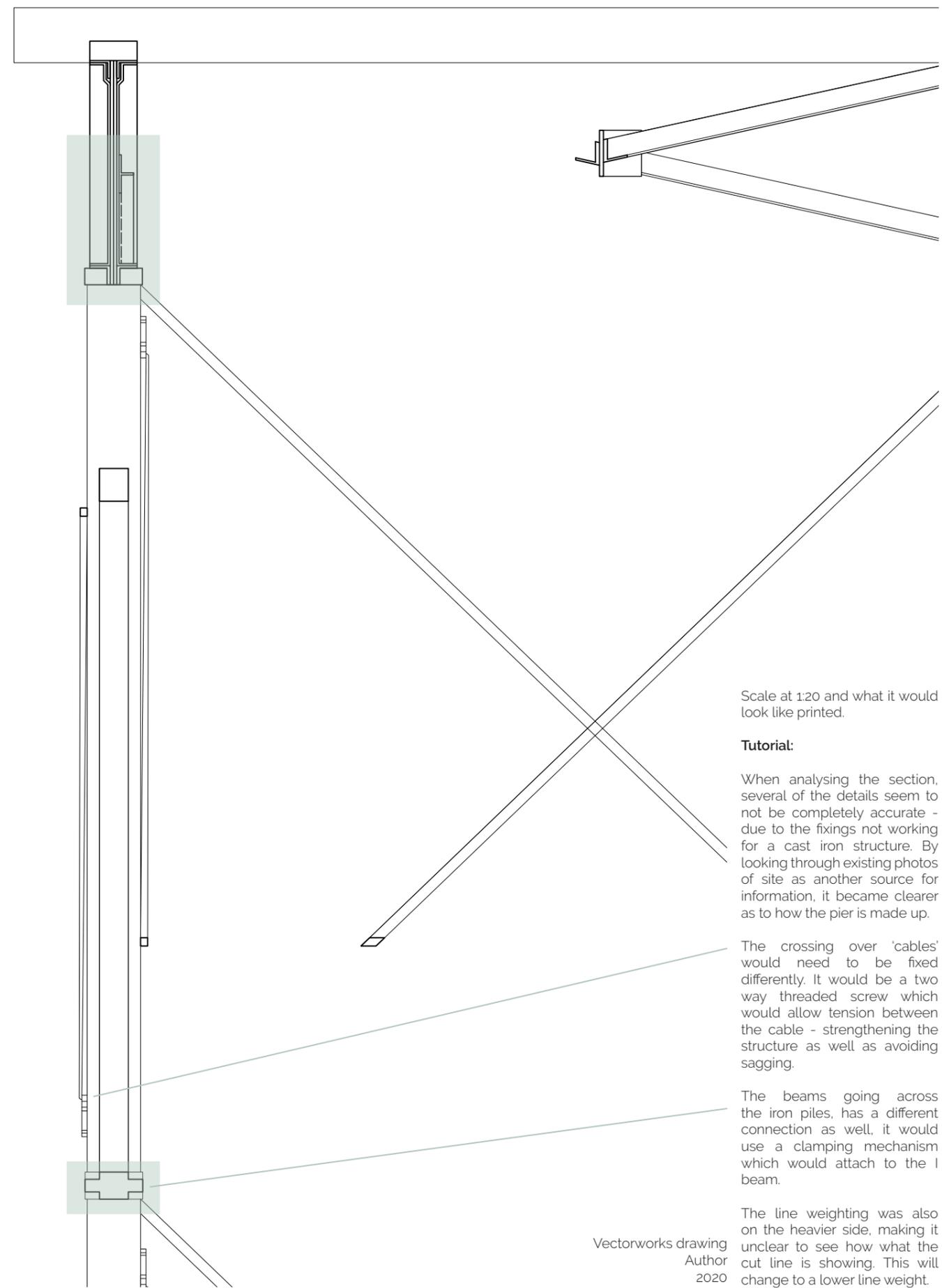
Reflection:

When trying to work out the details of the West Pier, I found analysing photographs and sketching rough structures/details a very helpful method and tool to work things out.

Even though some of the sketches are not entirely structurally accurate, it allowed me to think freely and to work in more than one orthogonal view.



Vectorworks drawing  
Author  
2020



Scale at 1:20 and what it would look like printed.

**Tutorial:**

When analysing the section, several of the details seem to not be completely accurate - due to the fixings not working for a cast iron structure. By looking through existing photos of site as another source for information, it became clearer as to how the pier is made up.

The crossing over 'cables' would need to be fixed differently. It would be a two way threaded screw which would allow tension between the cable - strengthening the structure as well as avoiding sagging.

The beams going across the iron piles, has a different connection as well, it would use a clamping mechanism which would attach to the I beam.

The line weighting was also on the heavier side, making it unclear to see how what the cut line is showing. This will change to a lower line weight.

Vectorworks drawing  
Author  
2020

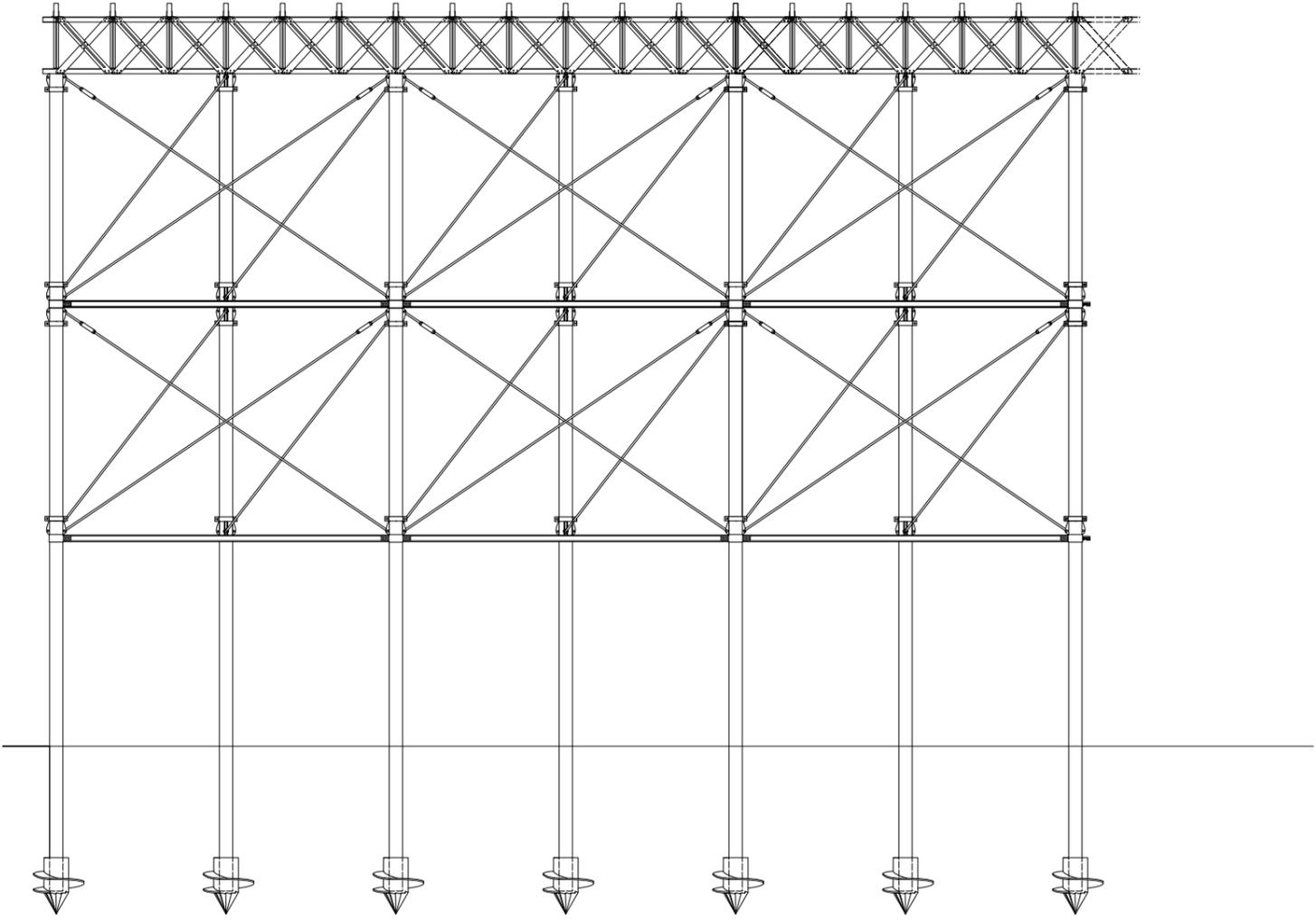
**CURATE - LOCATION**

**ZOOMING INTO SITE**

After the tutorial, I went back and adapted the drawings further. I have added more accurate connections and adjusted the line weights to communicate distance and details successfully.

Below is the entire drawing, not to scale.

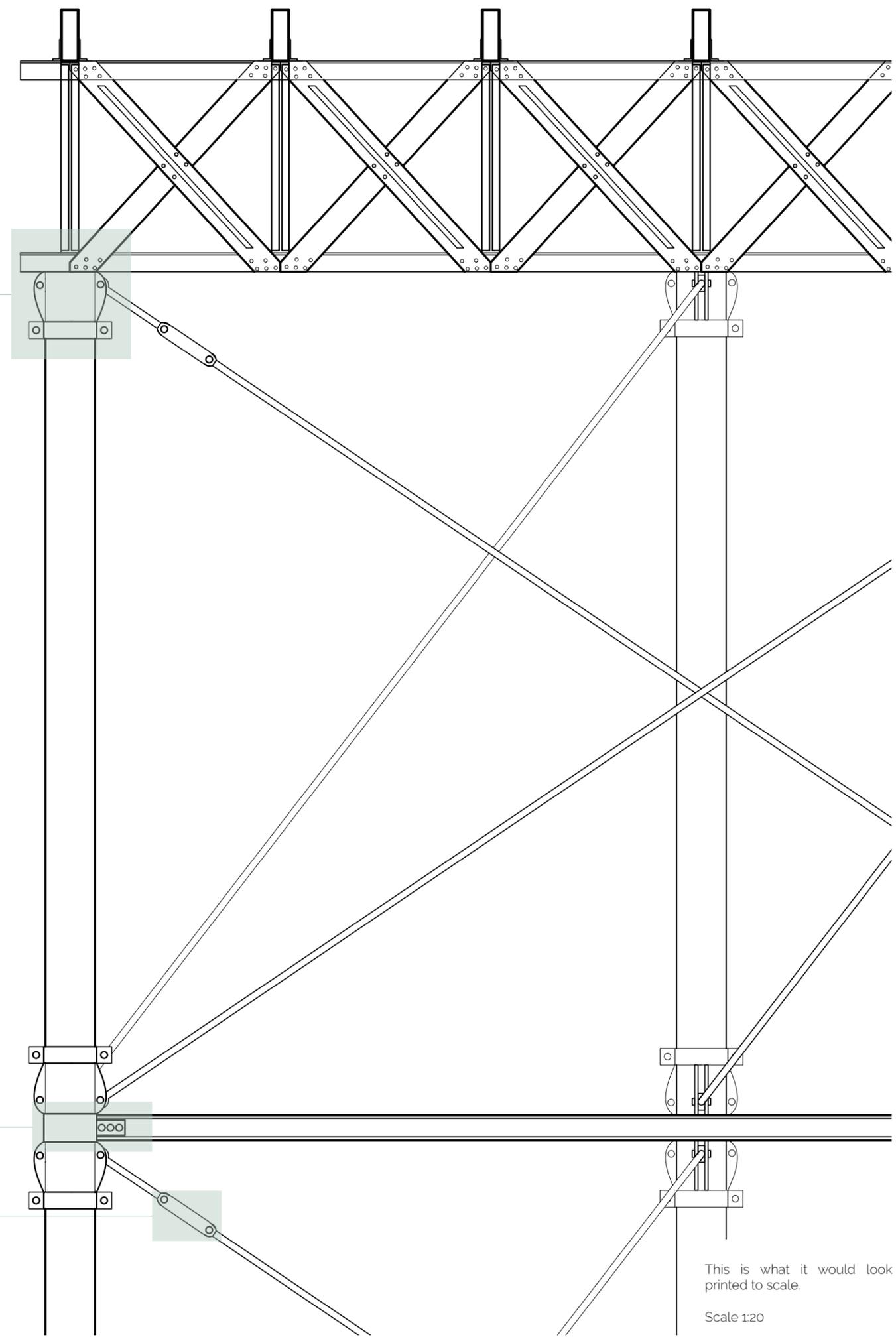
This is one of the technical details I did not document correctly previously. After a closer look - specifically at the photographs from the site visit - I was able to understand the iron structure and how elements joined together.



From the photographs, this was particularly more difficult to interpret how this was made. After a discussion with Stephen, I understood that it could be a threaded joining clamp which the cables would tighten in to. However, from the photographs, it looks as though it is a similar technology to the clamps the cables run from. I think it has been bolted together from both sides and been pulled tight.

In the Victorian construction era, it was very common for things to be attached through clamping things together. This is a clamp which wrapped around the iron pile and then was bolted together through the body of the I-beam.

Vectorworks drawing  
Author  
2020

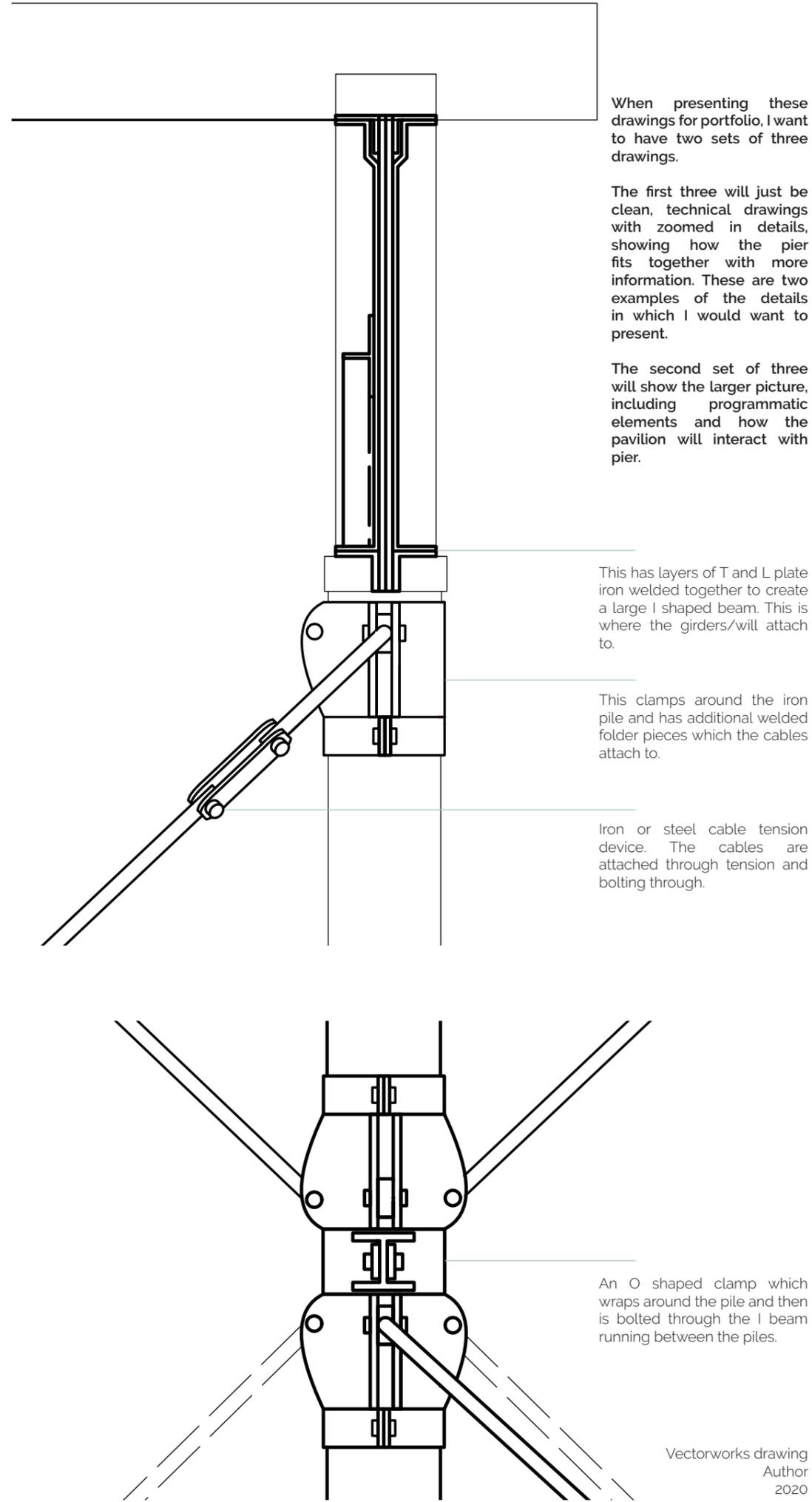
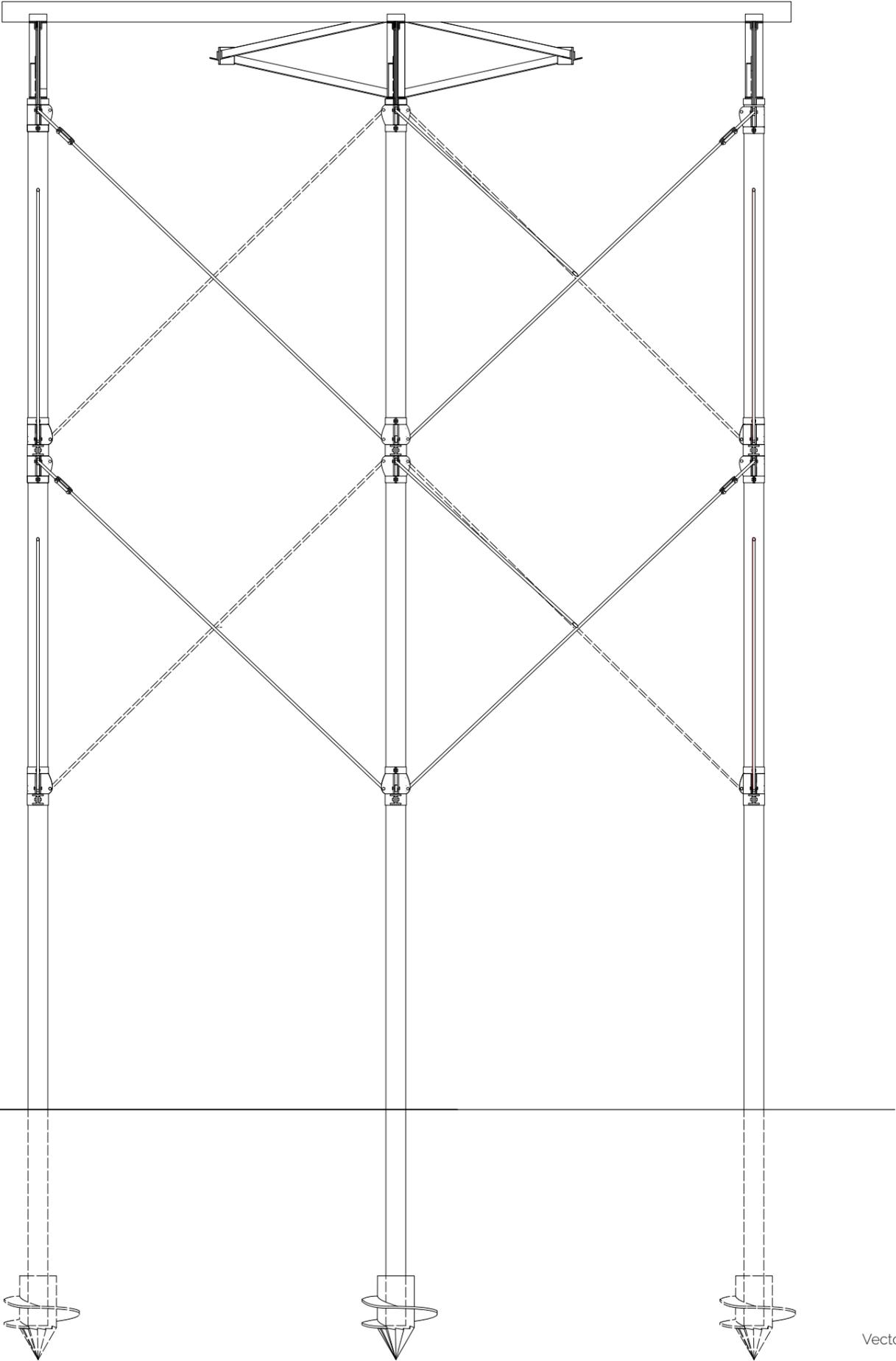


This is what it would look printed to scale.

Scale 1:20

CURATE - LOCATION

ZOOMING INTO SITE

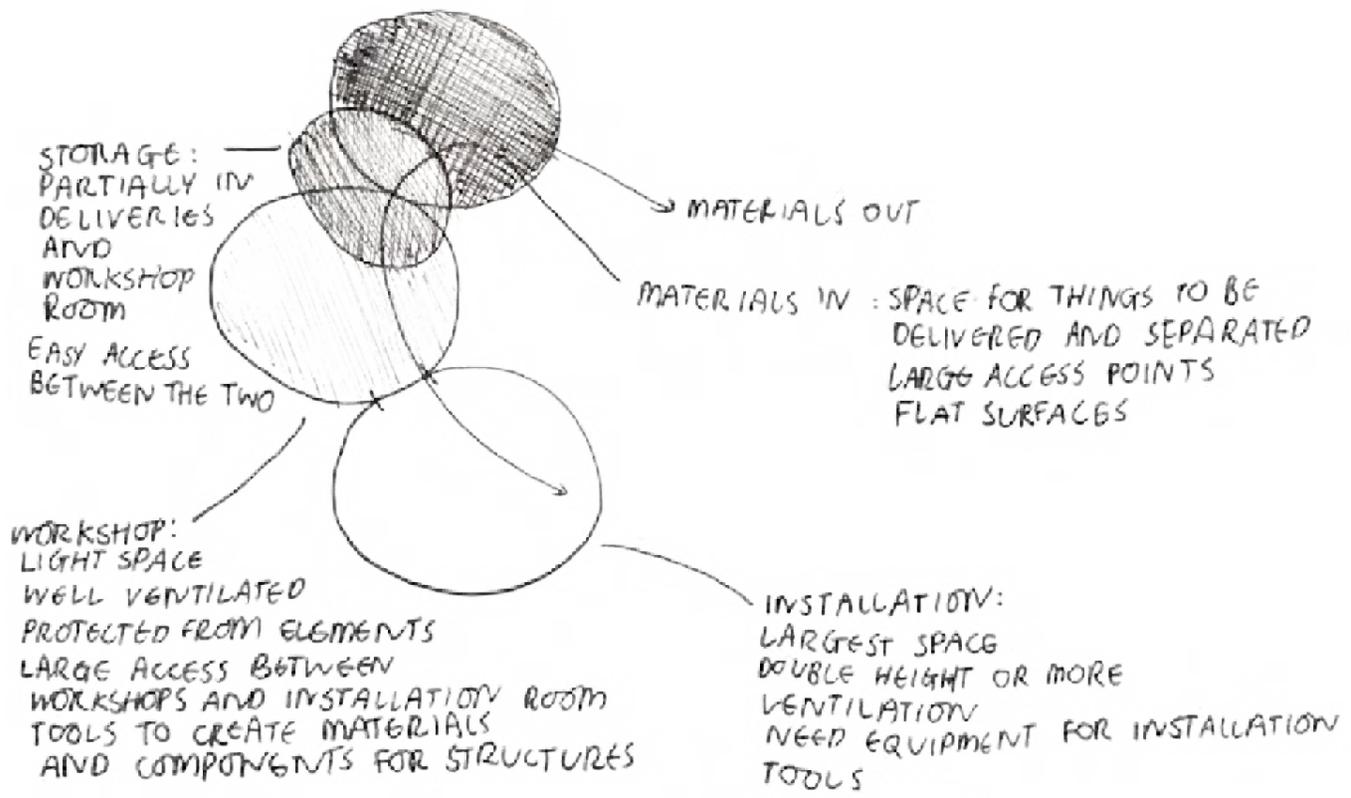


# CURATE - CATALYST TO PROGRAMME

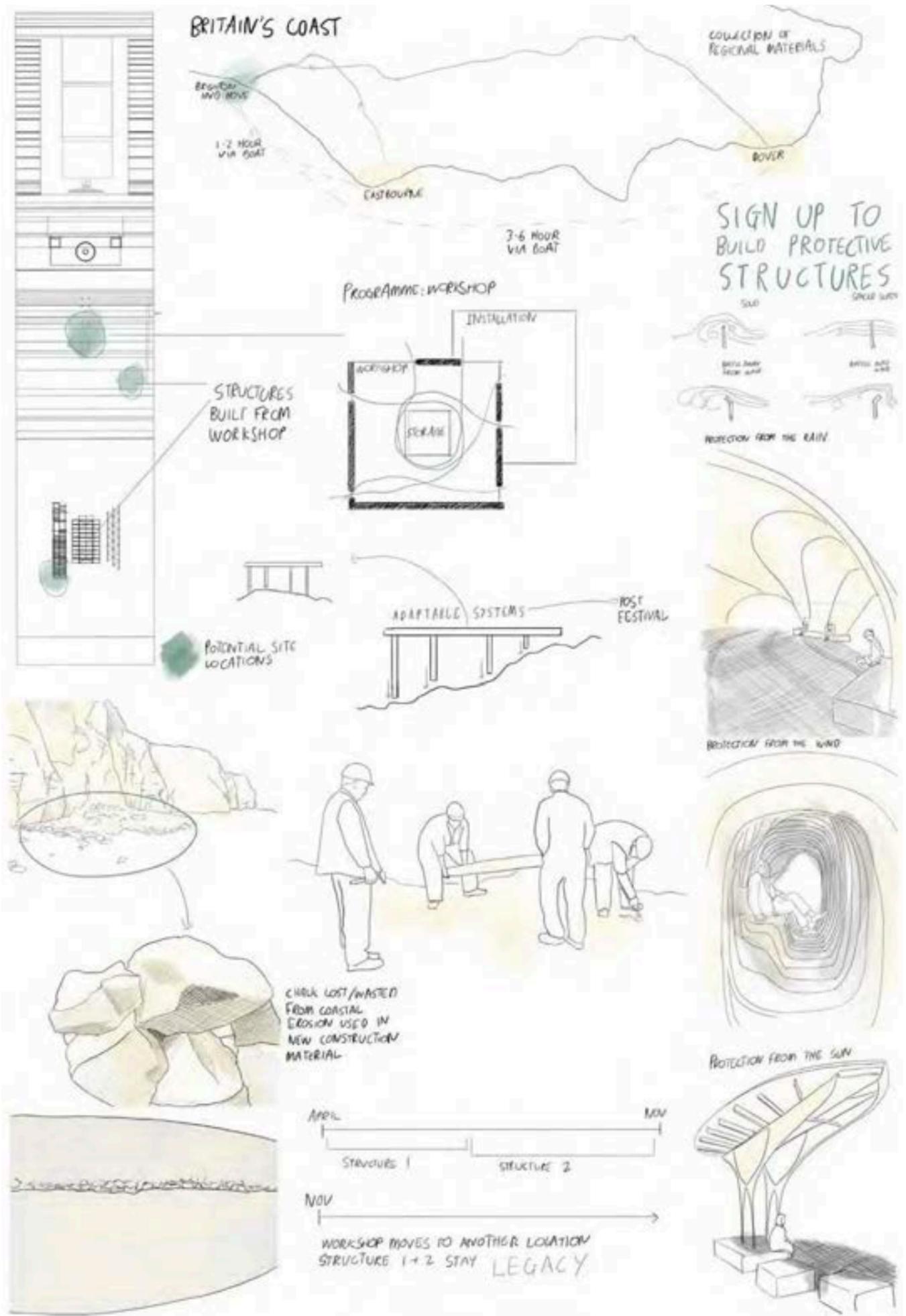
**CURATE - CATALYST TO PROGRAMME**

**PROGRAMME SPATIAL BREAKDOWN AND ITS REQUIREMENTS**

- Types of spaces:
- DELIVERY OF MATERIALS
- STORAGE
- LEARNING SPACE/  
MAKING OF MATERIALS
- BUILDING OF STRUCTURES



Hand drawn sketch  
Author  
2020

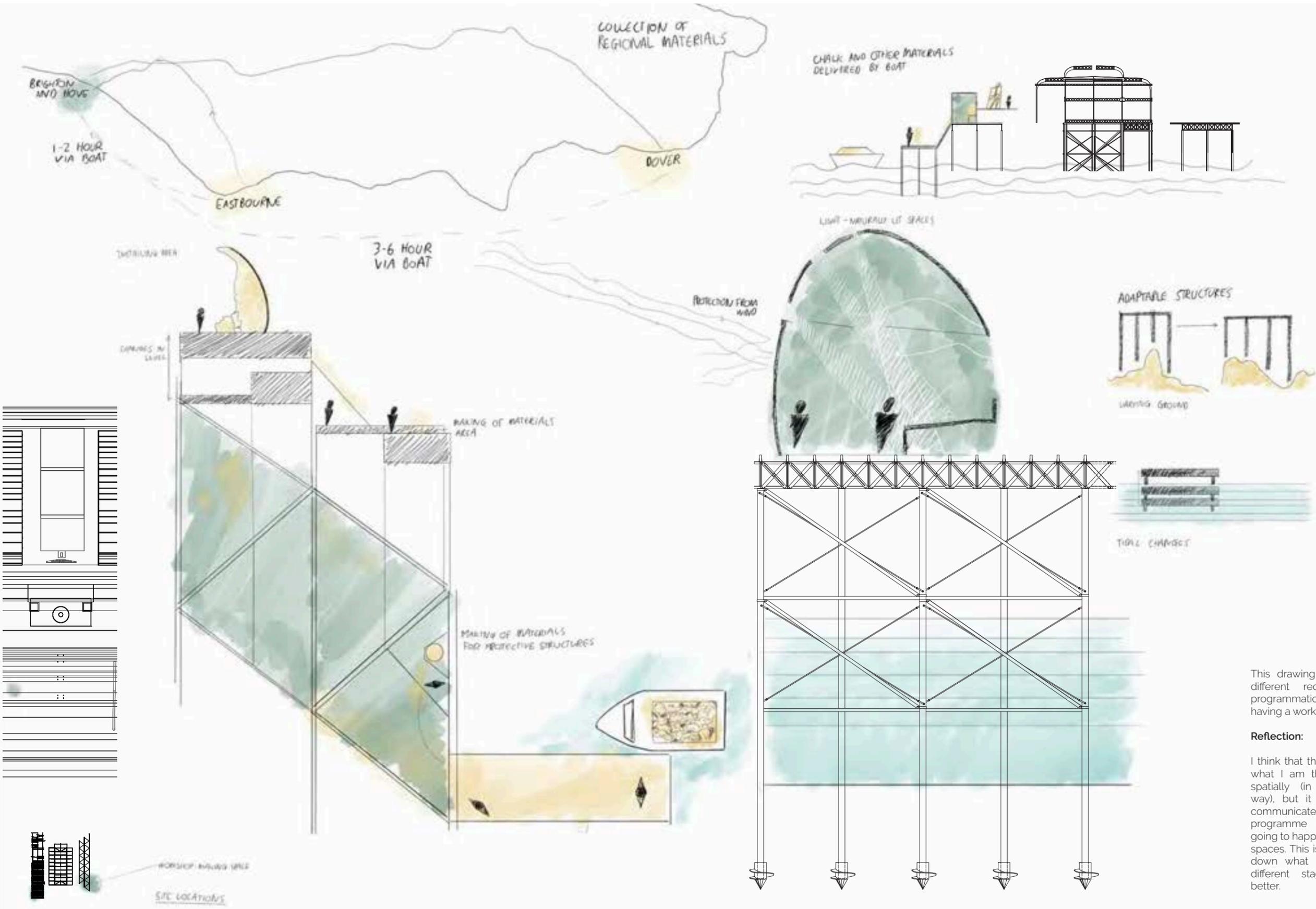


Hand drawn sketch  
Author  
2020

PROGRAMME SPATIAL BREAKDOWN AND ITS REQUIREMENTS

Location change c

The workshop relocated. This v the accessibility c materials. The be would be would boat. This wc interfering with the festival as well.



This drawing is showing the different requirements and programmatic ideas around having a workshop.

Reflection:

I think that this communicates what I am thinking of doing spatially (in a very rough way), but it does not really communicate what the programme is and what is going to happen in the different spaces. This is where breaking down what is happening in different stages would be better.

PROGRAMME SPATIAL BREAKDOWN AND ITS REQUIREMENTS



**Wharfware collection:  
Harry Trimble and Oscar  
Medley-Whitfield**

These designers designed and made ceramic pieces from the mud from the banks of the Thames.

Their work was for the Design museum in London. The Thames river is local to this museum and has been a resource in London in a previous time.

To make their ceramic set, they decided to use the regional material of the mud from the river bank.

The idea behind this project was to show how quality and beautiful pieces can be made from a regularly forgotten local source.

**Reflection:**

What was inspiring, in regards to developing a programme and activity for the Festival of Britain, was the uses of regional materials and if designed on a slightly bigger scale, a workshop could be made using regional materials lost from coastal erosion.

For a workshop to be functional and to be able to design one accurately, research of how they operate would be needed.

Chalcraft, Emilie. "Oscar Medley-Whitfield and Harry Trimble at Designers in Residence 2012" Dezeen. <https://www.dezeen.com/2012/11/18/oscar-medley-whitfield-and-harry-trimble-at-designers-in-residence-2012/> (accessed 2020).

CURATE - CATALYST TO PROGRAMME

PROGRAMME SPATIAL BREAKDOWN AND ITS REQUIREMENTS

Hello Wood - Mood for Wood:

Hello Wood is a Hungarian company which focus on making installations pop up architecture.

They also have a Hello Wood Education part of the company. This aspect is about encouraging university students to understand what it is like to project manage and what it is like to see installations from drawing to the final outcome.

Mood for wood is an international workshop, but this specific workshop was about creating an installation for a community garden. This workshop is held for a lot shorter period of time in comparison to the workshop time-frame in the Festival of Britain.

It was a week long workshop.



By having workshops like this, it allows groups of individuals to connect and create a new sustainable structure by the end of it.



The workshop will require a temporary space, with enough tools and materials to make the maquette designs decided at the beginning of the week.

Reflection:

When looking for inspiration/ how to engage with creating a workshop pavilion, looking at temporary workshops held by Hello Wood are a good catalyst to get an understanding of workshops and how to apply this to the Festival of Britain pavilion.

"Hello Wood at Mood for Wood 2015" Hello Wood. <https://hellowood.eu/education/project/hello-wood-mood-wood-2015>. (Accessed 2020).

**CURATE - CATALYST TO PROGRAMME**

**PROGRAMME SPATIAL BREAKDOWN AND ITS REQUIREMENTS**

**The Protective Structures:**

**STRUCTURE ONE:**

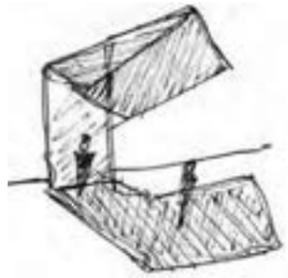
This will be located closer to the beach, sitting on top of the infrastructure. It is going to be a place to provide shade from the sun and/or shelter from the rain. It will be used mostly as a looking point, tailoring the view towards the sunset.



**Sun path for summer:**

Sunrise:	04:46:32
Culmination:	13:02:30
Sunset:	21:18:28
Dusk:	22:04:15
Daylight duration:	16h31m56s
Distance (km):	152.033.136
Altitude:	62.51°
Azimuth:	186.21°
Shadow length (m):	0.52

Sun Path. <https://www.suncalc.org/#/40.1789-3.5156.3/2020.04.26/11:16/1/3>. (Accessed March 2020).



This shelter must be able to protect a small handful of people (2-5). It would need to be several metres wide in order to leave each person enough space. The shelter would also need to be angled to be able to cast the largest possible shadow.



When the weather is worse in winter, it would be more beneficial for the shelter to be angled to also protect the users from the rain.

Hand drawn sketch  
Author  
2020

I like the way that this large steel clad structure is held up with minimal points of contact. This makes the structure more open plan, protecting people from the elements but it is not confined.



The angle of the structure has been designed to create the largest amount of shade possible. I want to use the sunpath to be able to maximise the amount of protection.

Bird-watching pavilion. Plant Architect. 2016. <https://www.dezeen.com/2016/05/16/bird-watching-pavilions-plant-architect-perforated-weathering-steel-corten-architecture-toronto-canada/> Photographer, Steven Evans.

**STRUCTURE TWO:**

It will be located in the windiest point on the pier. It is at the corner of the West side, and due to the South Westerly wind, this would be the most exposed point at the festival. This will be a rest point, for people to look out to sea or back toward the city and the festival of Britain. It must not block the view entirely but also it needs to fully ensure the wind doesn't enter the space.



The Birdhide/Wind shelter. Fylkesmannen i Finnmark. 2011. Hornoya. <https://www.biotope.cloud/2011/10/hornya-wind-shelter-and-birdhide.html> Photographer, Tormod Amundsen.

This shelter shows a variety of open and closed spaces. It is an example of how a shelter could protect someone from the elements but at the same time allows for people to access and view the scenery.



Wind shelter. McChesney Architects. 2008. Blackpool. <https://pro.magnumphotos.com/image/LON106393.html> Photographer, Peter Marlow.

Wind shelter must have a plane/surface which blocks the wind, so when someone is stood by it, they are protected. Curved surfaces bend the wind around the structure.

Local date	Tuesday, Mar 17								Wednesday, Mar 18							
Local time	00	03	06	09	12	15	18	21	00	03	06	09	12	15	18	21
Wind direction	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Wind speed (kt)	8	11	12	13	15	16	13	13	14	13	12	13	14	12	8	7
Wind gusts (max kt)	13	17	18	19	25	27	21	20	24	23	20	21	19	17	14	10

"Wind, waves and weather forecast." Windfinder. [https://www.windfinder.com/forecast/brighton\\_beach](https://www.windfinder.com/forecast/brighton_beach) (Accessed March 2020)

**CURATE - CATALYST TO PROGRAMME**

**PROGRAMME SPATIAL BREAKDOWN AND ITS REQUIREMENTS**

**Delivery of materials:**

It will need to protrude from the pier to allow boats enough room to dock briefly, deliver and transfer materials.

The size and orientation of the 'docking bay' will need to be at least 12,000mm long and 2,500mm wide. This is in order to fit the boat.

The platform will need to be sturdy and also have some form of barriers/wall on the other side, to ensure safety when collecting materials.

Users organising the workshop and deliveries, will need to be physically fit enough to carry and load/unloading materials.

Structural requirements - to be able to adjust to the tides.

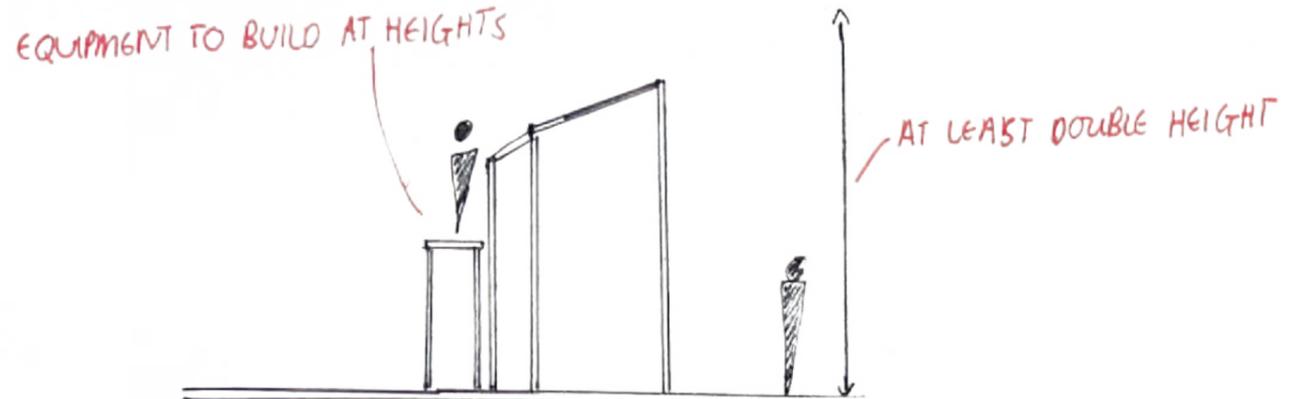
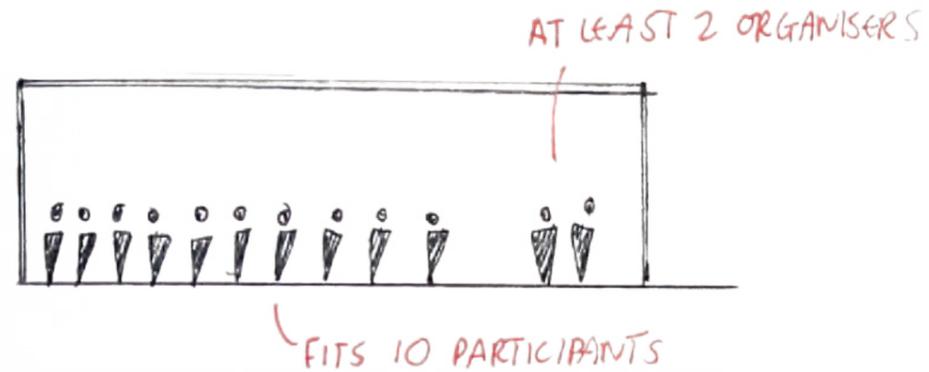
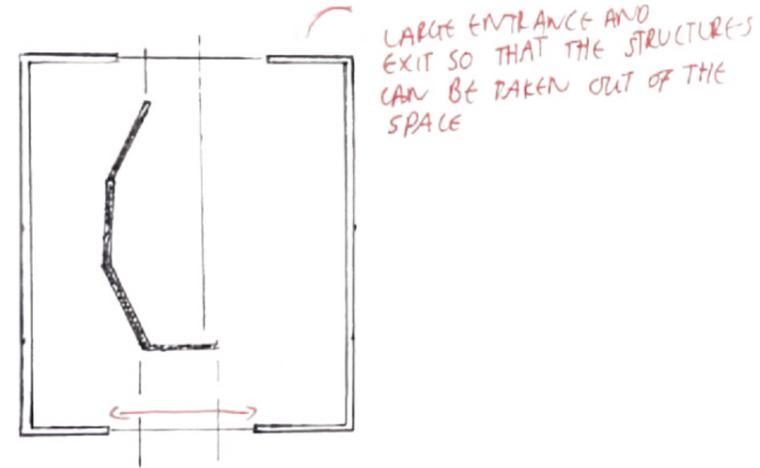
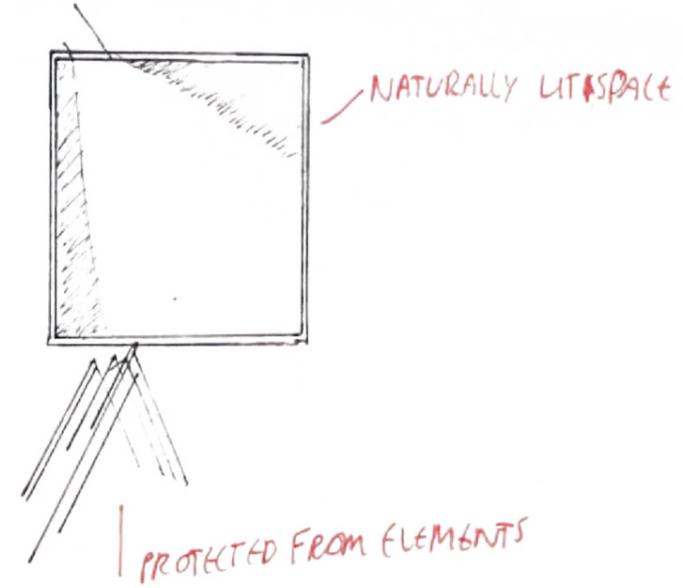
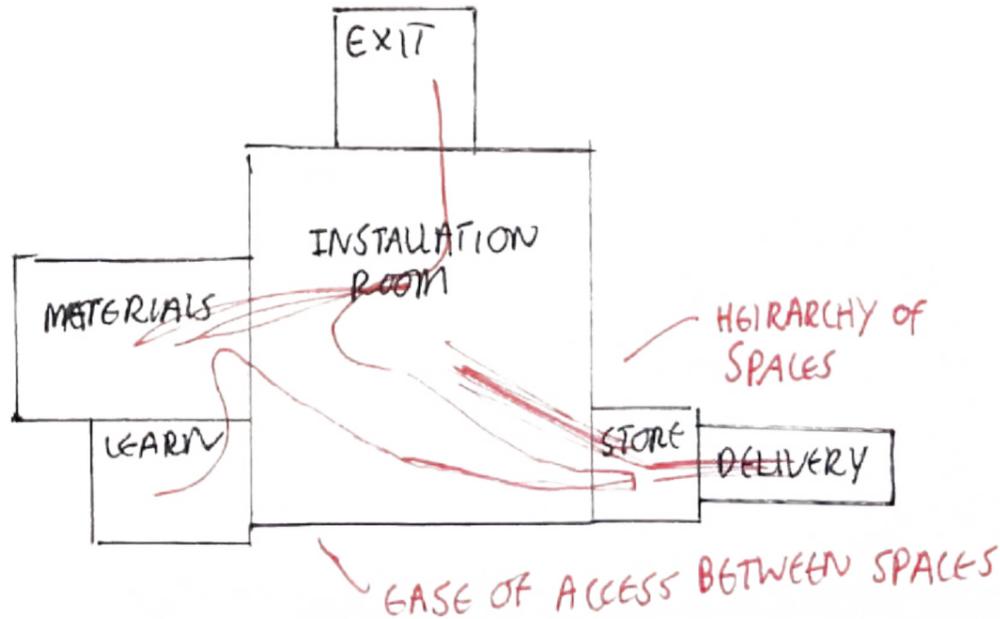
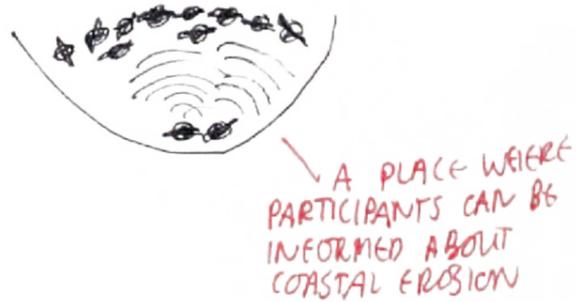
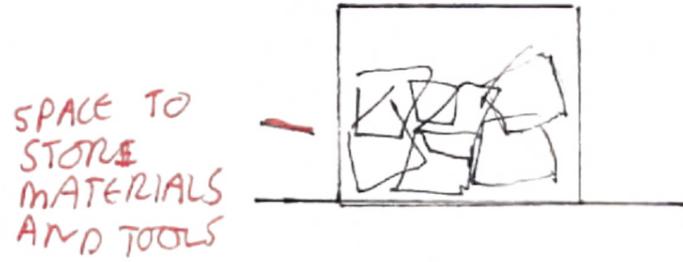
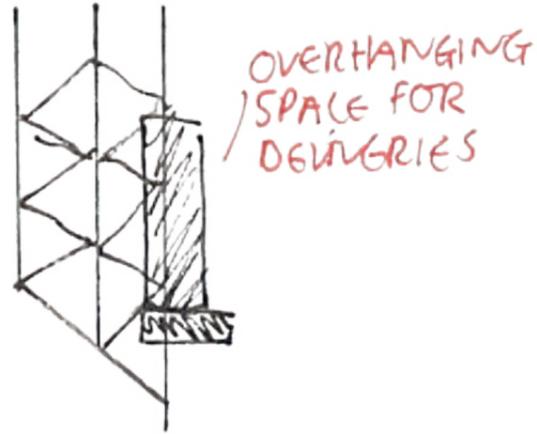
**Storage:**

The storage will have to be equipped enough to fit all of the materials for the workshop sessions which happen between deliveries.

The materials will be heavy as well, so it would need to be accessible for different types of users.

The storage could also be part of the structure itself, saving space and being mindful of materials.

It would need to be insulated from the outside elements to ensure the materials do not warp or get damaged during the festival.



**Learning space/making of materials:**

This space will have to be large enough to fit 12 people in (10 volunteers and 2 organisers).

In the mornings, people will learn about the effects of erosion and what the workshop is for. They will also have inductions on how to use the workshop and safely install/carry heavy items.

The space will need to be well lit and properly ventilated. This space will be where most components of the structures will be made, so workshop size and machinery requirements will need to be rather specific. WILL GOOGLE

Users, again would need to be fit enough to part take in making and carrying relatively heavy items. They must all be above the age of 18.

Machinery to cut down materials.

It must have a place to dispose of waste material (even though it will be minimal) correctly.

**Building of structures:**

The installation space will have to be large enough to fit 12 people in (10 volunteers and 2 organisers).

There must also be equipment which allows people to safely build above head height.

This room would need to be the largest, allowing for a double or triple height space. The entrance/exit and threshold would also need to be large enough to manoeuvre the protective structures once they have been completed.

THE PROGRAMMATIC JOURNEY

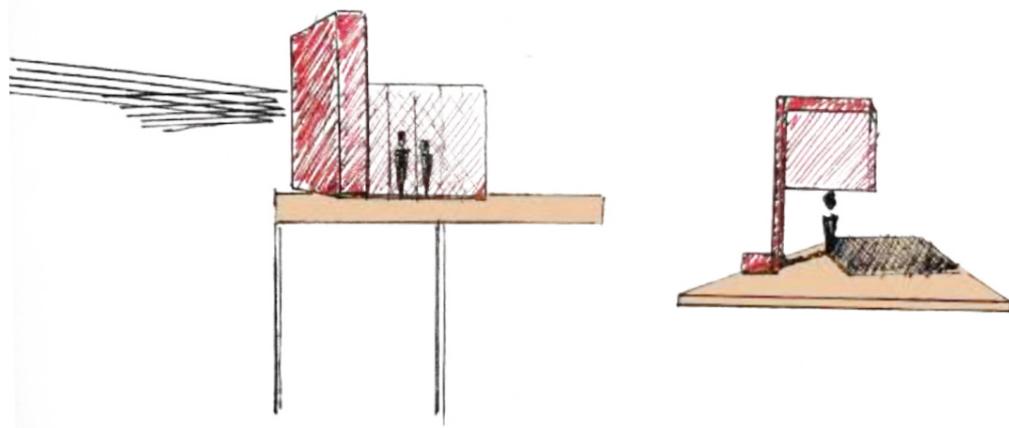
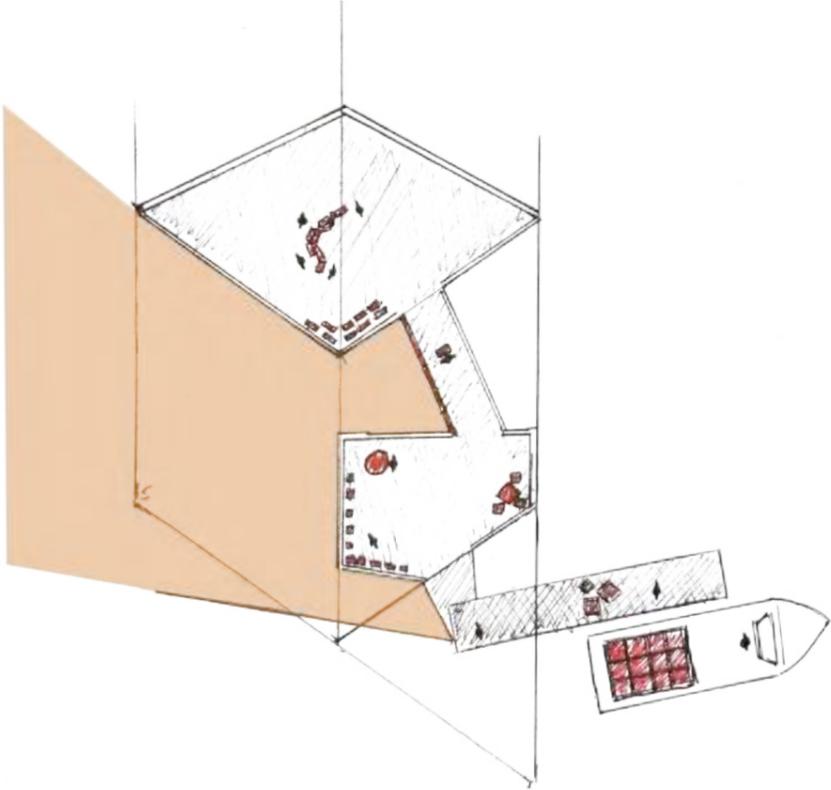
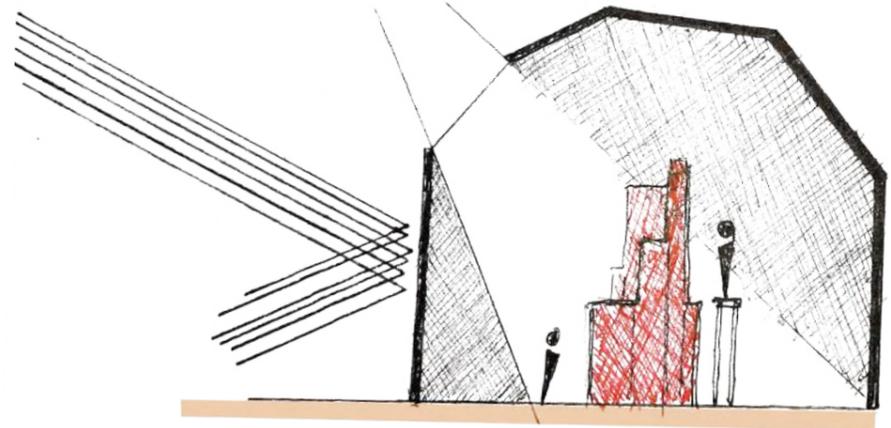
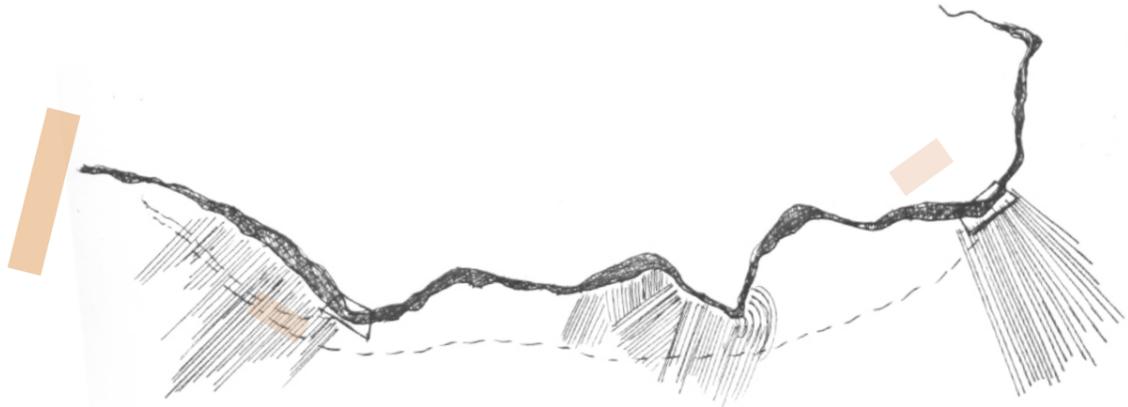
The chalk arrives at the platform on a boat. Things come in stages and not all in one go.

The chalk, on the site of the cliff will be collected and due to the circumstances of it breaking away from the cliff, it would most likely be a combination of large chunks and rubble. The chalk will be broken down further into smaller pieces, so it able to be transported as well as mixed into a new material when it arrives on the West Pier site.

The materials that are delivered will be placed into storage which will have to be adjacent to the room where materials and the components for the protective structures are made.

If there are any wet components that are made, there will need to be another threshold or space which would be able to hold and dry the 'bricks/ moulds'.

The final space will be the place for the construction of the structures. When they have been fully assembled, they will be transported to their site specific locations.



Once the festival is over, the workshop will move to various locations around the South of the UK and collect regional materials to create new protective structures for that site specific area.

THE PROGRAMMATIC JOURNEY

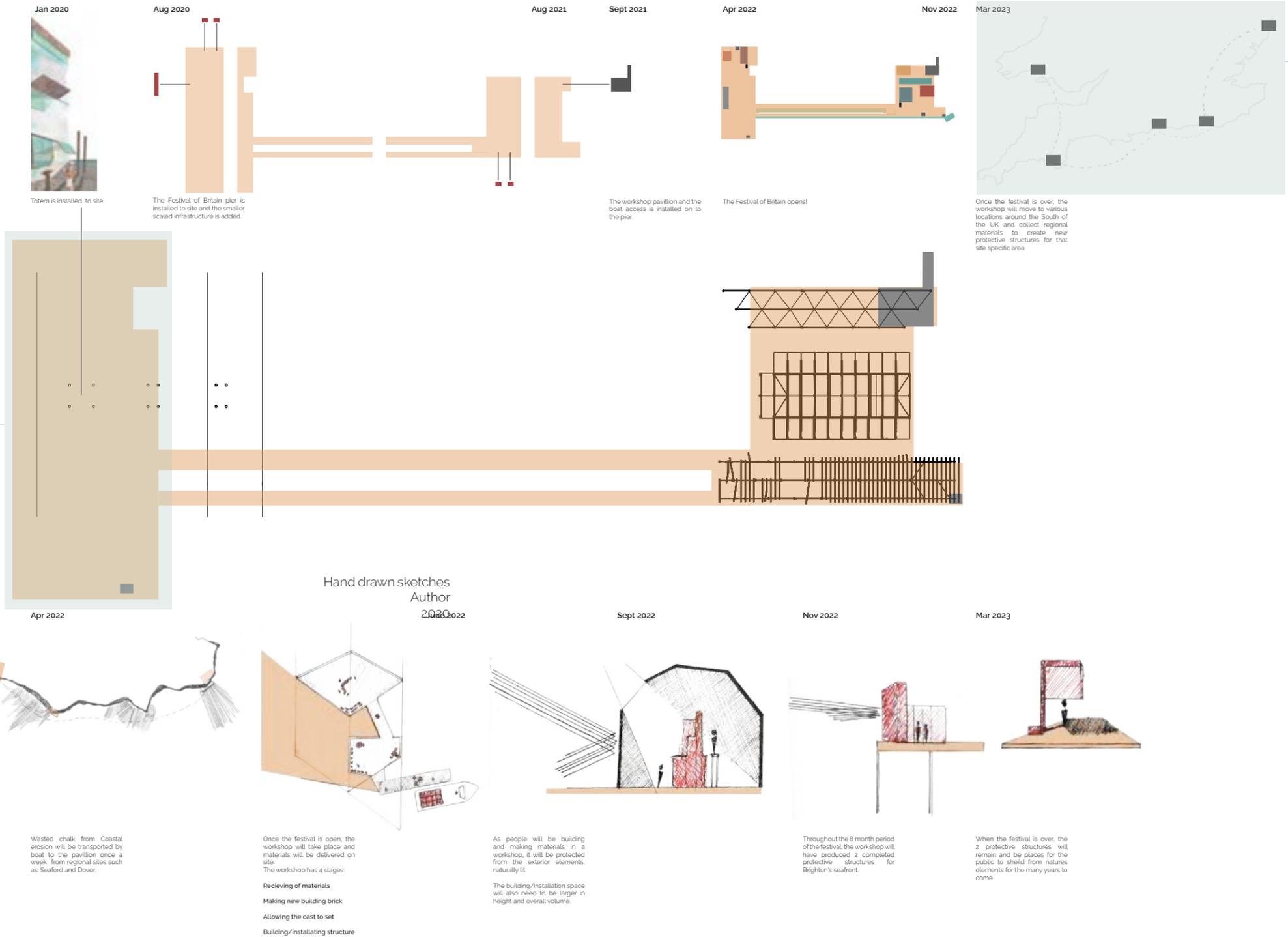
Timeline:

This was my first attempt to visualise my timeline and on this page, I am analysing why it was not fully effective.

Reflection:

I like that there are elements which communicate what is happening. I found this task quite difficult initially, so I am pleased that I have an initial draft where my thoughts are documented.

There is a lack of material palette. The infrastructure is very unclear visually of how it is going to look. I want to design the infrastructure further so that a material palette can come across.



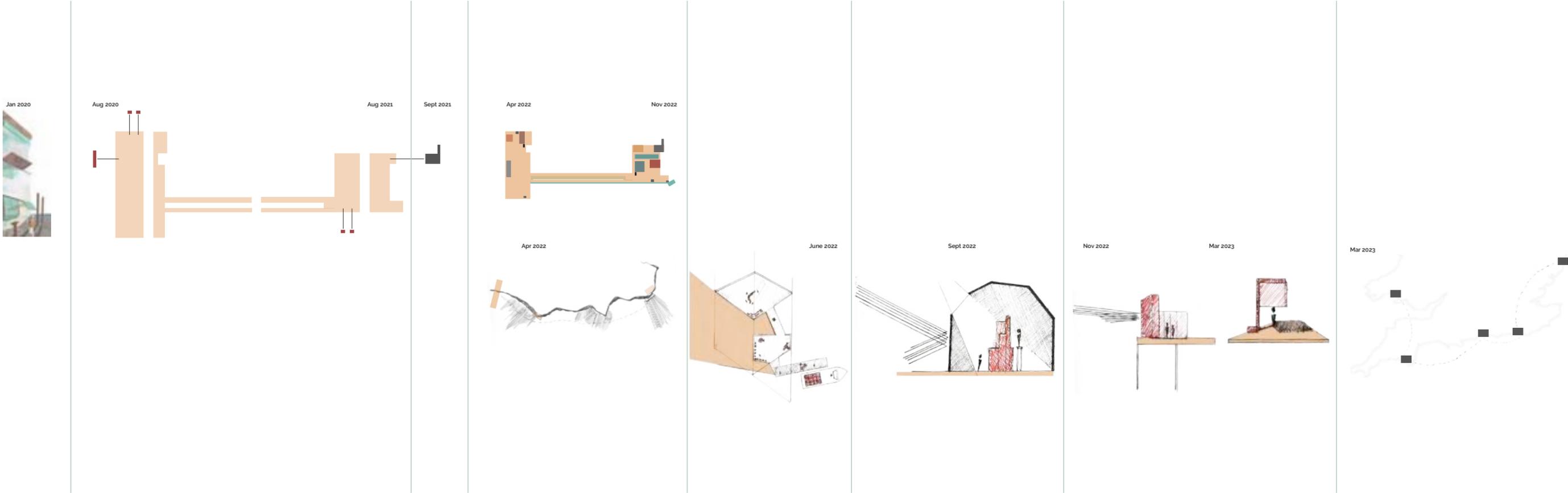
This drawing is quite an important part of the process and the journey of the programme. I think this map should be drawn to a bigger scale and be a drawing completely on its own, explaining the motion of the workshop.

The concept of time is also lacking. I will try and do this task again, but by starting with placing everything in one chronological visual line. Once the concept of time is clear, I will then make the drawing more complex. So far, it feels confusing to read and want to focus on doing that first.

THE PROGRAMMATIC JOURNEY

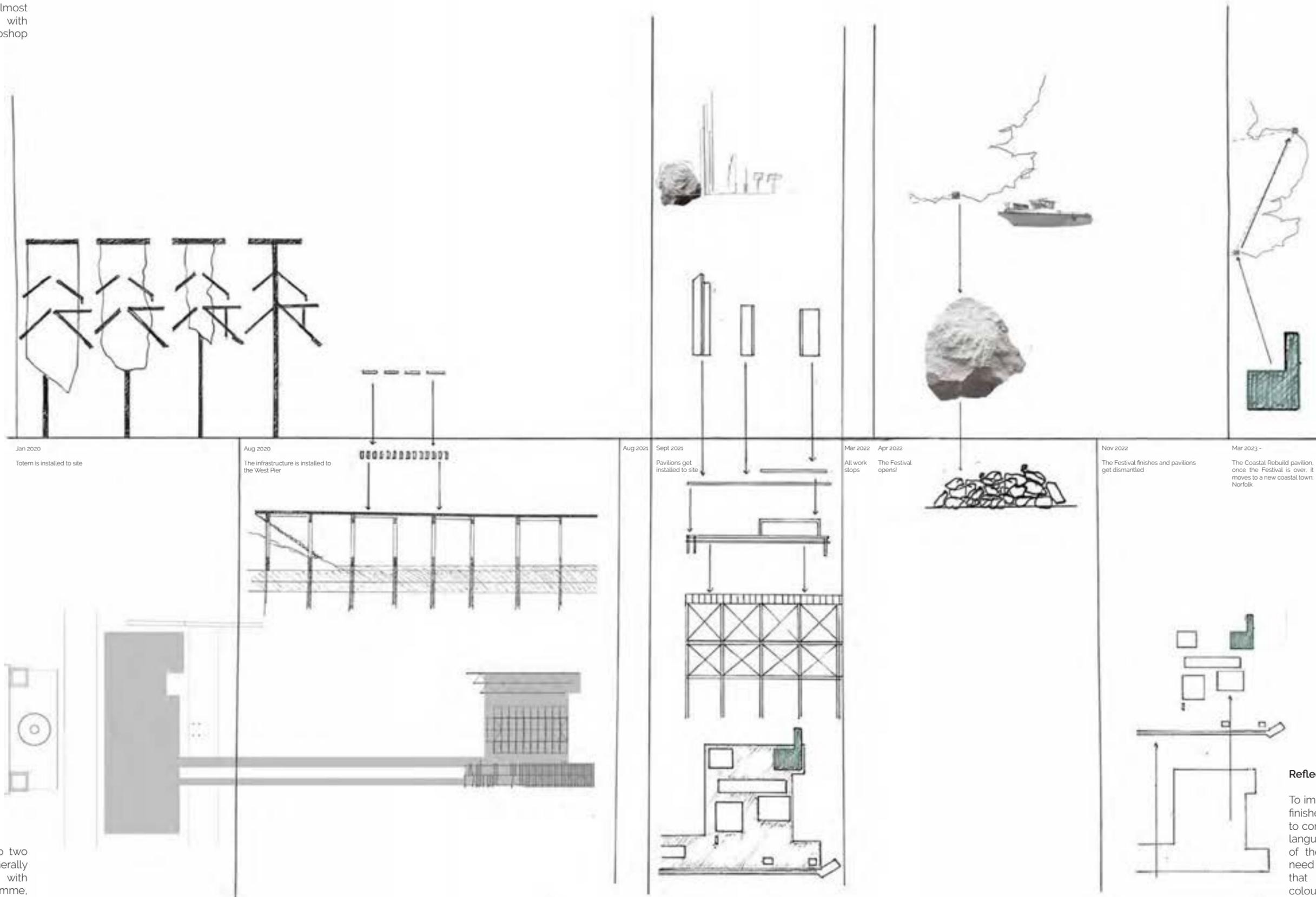
This timeline is a representation of how I want to set up the next timeline. It should be presented in chronological order to communicate time better. What the previous timeline was lacking was a sense of time!

This essentially is one of the most important aspects of the drawing - and is something to communicate better.



THE PROGRAMMATIC JOURNEY

This timeline is a completely different approach to the first attempt. This is almost entirely hand drawn, with minor amounts of Photoshop collaging.



This method divides into two parts. The top half is generally discussing things to do with the pavilion and programme, whereas the bottom half is discussing the festival and infrastructure.

This enabled the drawing to be clearer with what was happening and when it was happening.

**Reflection:**  
To improve this timeline for the finished portfolio, it would need to correspond with the graphic language of the other aspects of the portfolio, so this may need to be altered, whether that is regards to textures, colours and or collaging in materials.

# CURATE - PAVILION PRECEDENTS

**CURATE - PAVILION PRECEDENCE**

**FESTIVAL TEMPORARY STRUCTURES**

**The Burning Man (1 week):**

**Arthur Mamou-Mani:**

Tangential Dreams is a climbable sinuous tower made from off-the-shelf timber and digitally designed via algorithmic rules. Around 1,000 "tangent" thin wooden pieces are held in position via horizontal pieces rotating along a central axis, gently moving in the wind like leaves of a giant tree.

**Benjamin Langholz:**

The artist placed 27 stones in an ascending ring, supported by a central pillar and three surrounding pairs of columns. With each stone weighing over 450 kilograms, the 13.6-tonne installation was supported by a structural frame consisting of seven minimal steel columns.

This use of systems and materials are fascinating. I want to take this level of complexity within my designs.



Tangential dreams. Arthur Mamou-Mani. 2016. Burning Man. <https://www.thecoolist.com/burning-man-works-of-art/tangential-dreams-by-arthur-mamou-mani-art-of-burning-man-2016/>



Stone 27. Benjamin Langholz. 2019. Burning Man. <https://stonetwentyseven.com>

Sauna. JKMM Architects. 2019. Burning Man. <https://www.archdaily.com/924996/steam-of-life-pavilion-jkmm-architects>. Photographer, Hannu Rytky.



**JKMM Architects:**

The team used a minimal number of building parts to construct the circular pavilion. Timber slabs stacked on top of one another round the entire edifice allowing light to stream in naturally. Two different sizes of plywood form the ceilings, interior walls and sauna seating of the temporary construction.

**"We also thought bringing a sauna into the desert was so mad that we had to do it."**

What I really like is how JKMM uses one material for the entire project. It uses timber in two forms, panels and beams. Even with using minimal materials, it can make a visibly complex structure as well as being able to change the atmosphere to fit the purpose of a sauna.



**CURATE - PAVILION PRECEDENCE**

**FESTIVAL TEMPORARY STRUCTURES**

**The Venice Biennale (3 -6 months):**

This festival is quite different because the art installations and pavilions vary in lengths of time and it is not like the previous two, where installations are all made before, put up during the whole period of time, and then de-assembled once the festival is over.

**David Adjaye:**

This pavilion represents Ghana's freedom, with curved pavilions which are clad with earth.

The design of this installation is modelled on traditional Gurunsi earth houses. The pavilion has several interconnecting organic shaped galleries topped by a wooden roof. It contains artwork that celebrate the country's heritage and culture.



Earth House. David Adjaye. 2019. Venice Biennale. <https://www.dezeen.com/2019/05/13/david-adjaye-ghana-pavilion-venice-art-biennale/>. Photographer, David Levene.



**Lorenzo Quinn:**

The twelve sculpted arms join together over a canal, made by white resin. These hands joining together is to represent people and how cultures come together over their cultural differences.

This incredible set of sculptures, despite being for a temporary festival, has remained in Venice.

The successful aspect of the installation is the juxtaposition of the material in contrast to the built environment around it. What is also successful is the fact there is a lot of calculation and precision required for the sculpture to be able to free-stand as well as not erode/rust over time.



Building Bridges. Lorenzo Quinn. 2017. <https://www.thisiscolossal.com/2019/05/building-bridges-lorenzo-quinn/>. Photographer, David M. Benett.

**CURATE - PAVILION PRECEDENCE**

**FESTIVAL TEMPORARY STRUCTURES**

**The Serpentine (4 months):**

**Smiljan Radić (2014)**

This was the pavilion installed in 2014. The shell, which is white, translucent and made of fibreglass, inside sits a platform to walk on, creating the sensation that the entire volume is floating. This light looking structure sits in contrast to the large quarry stones which are supporting it.

This pavilion interests me because it uses high contrasts in material, and the fact shell is partly translucent and looks as though it could be a cave inside. It plays with natural form and mimics raw materials.

**LIFE AFTER SERPENTINE:**

The pavilion was purchased by London gallerists Hauser + Wirth and was ultimately installed in their Somerset park location.



Serpentine Pavilion. Smiljan Radić. 2014. London. <https://www.serpentinegalleries.org/exhibitions-events/serpentine-galleries-pavilion-2014-smiljan-radic>.



**Junya Ishigami (2019)**

This was made by arranging slates to create a single canopy roof that appeared to emerge from the ground of the surrounding park. Within, the interior of the pavilion was an enclosed cave-like space. It folds over like a large, heavy protective bird's wing resting on light supports, making it a aesthetically pleasing and physically challenging pavilion.

The use of the British material, slate is what I found fascinating; it is just a collection of slate, slotted together, resting on a gabion like mesh. Even though the weight would be immensely heavy, it looks as though it is floating with no struggle. I like this use of technology and would like to consider this within my own designs.

**LIFE AFTER SERPENTINE:**

It is currently unknown.



Serpentine pavilion. Junya Ishigami. 2019. London. <https://www.standard.co.uk/go/london/arts/junya-ishigami-serpentine-pavilion-commentary-a4169776.html>

# **INFRASTRUCTURE**

**INFRASTRUCTURAL RESEARCH**

FESTIVAL INFRASTRUCTURES

Glastonbury:

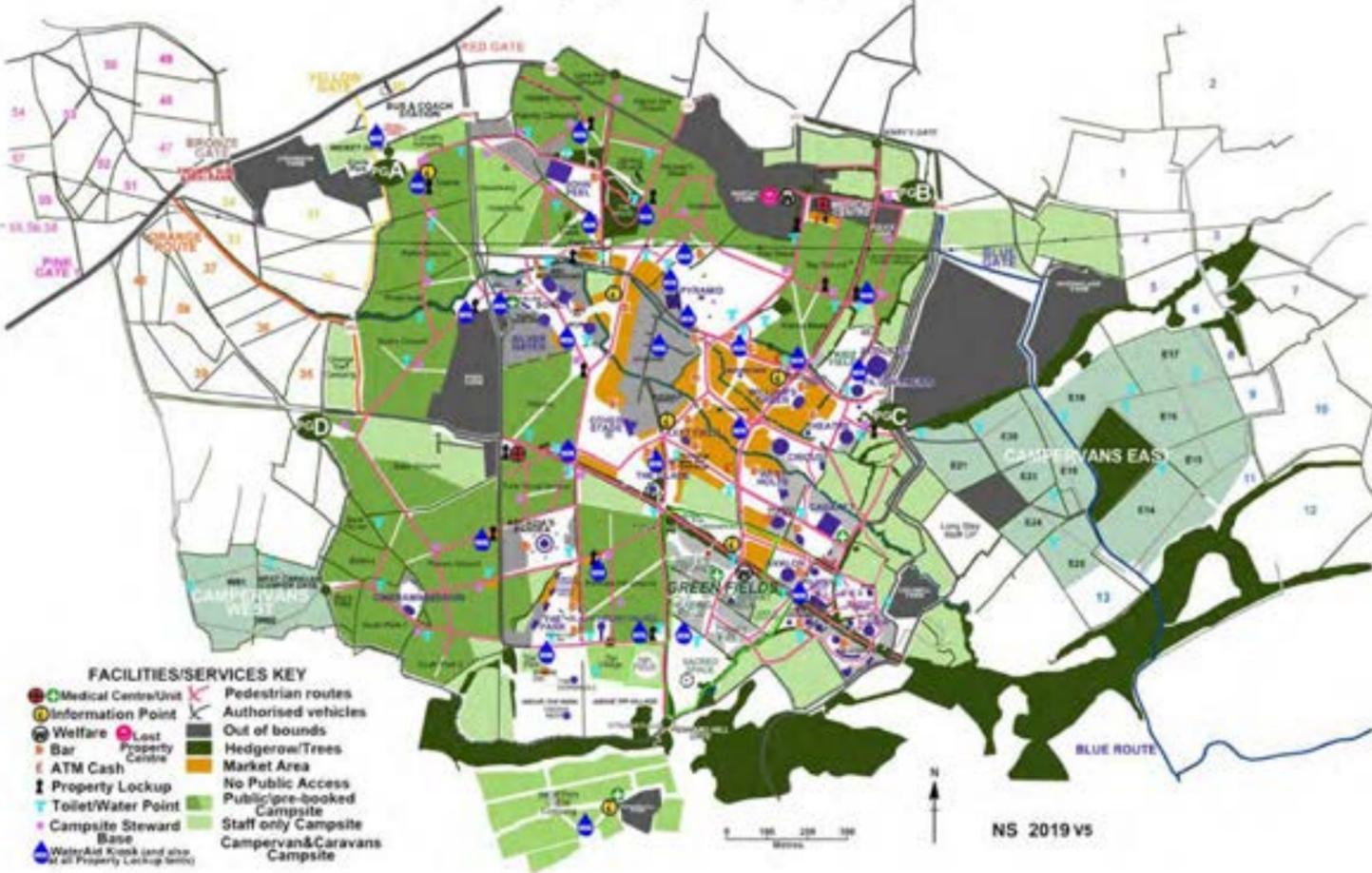
Glastonbury festival is a five day long festival held in the UK. It is an events based festival which predominantly focusses on music and performances. With any festival, there is a huge list of requirements needed for the festival to be successful.

In the diagram below, it shows the map for the festival in 2019. The key illustrates all of the facilities required for a successful festival.

Infrastructure definition - "The basic physical and organizational structures and facilities needed for the operation of a society"

Glastonbury Map. Michael Eavis. 2019. Glastonbury. <https://glastoaddict.co.uk/news/the-second-edition-of-news-roundup-part-2/>

Glastonbury Festival. 2010. Glastonbury. <https://www.wired.co.uk/article/glastonbury-data-usage-5g>



Glastonbury is the largest Greenfield music festival in the world. It has a capacity for a huge variety of people. It has dedicated areas for different types of festival goers, from quiet people and young families to the crazy partier.

This festival takes up a huge 900 acres and becomes a city just within a matter of days. It becomes a city, with an intense infrastructure.

Most of the infrastructure after the festival is used as a farm. The 'Pyramid' used as a shed for cows, and the waste from the 6,000 portable toilets goes into compost.

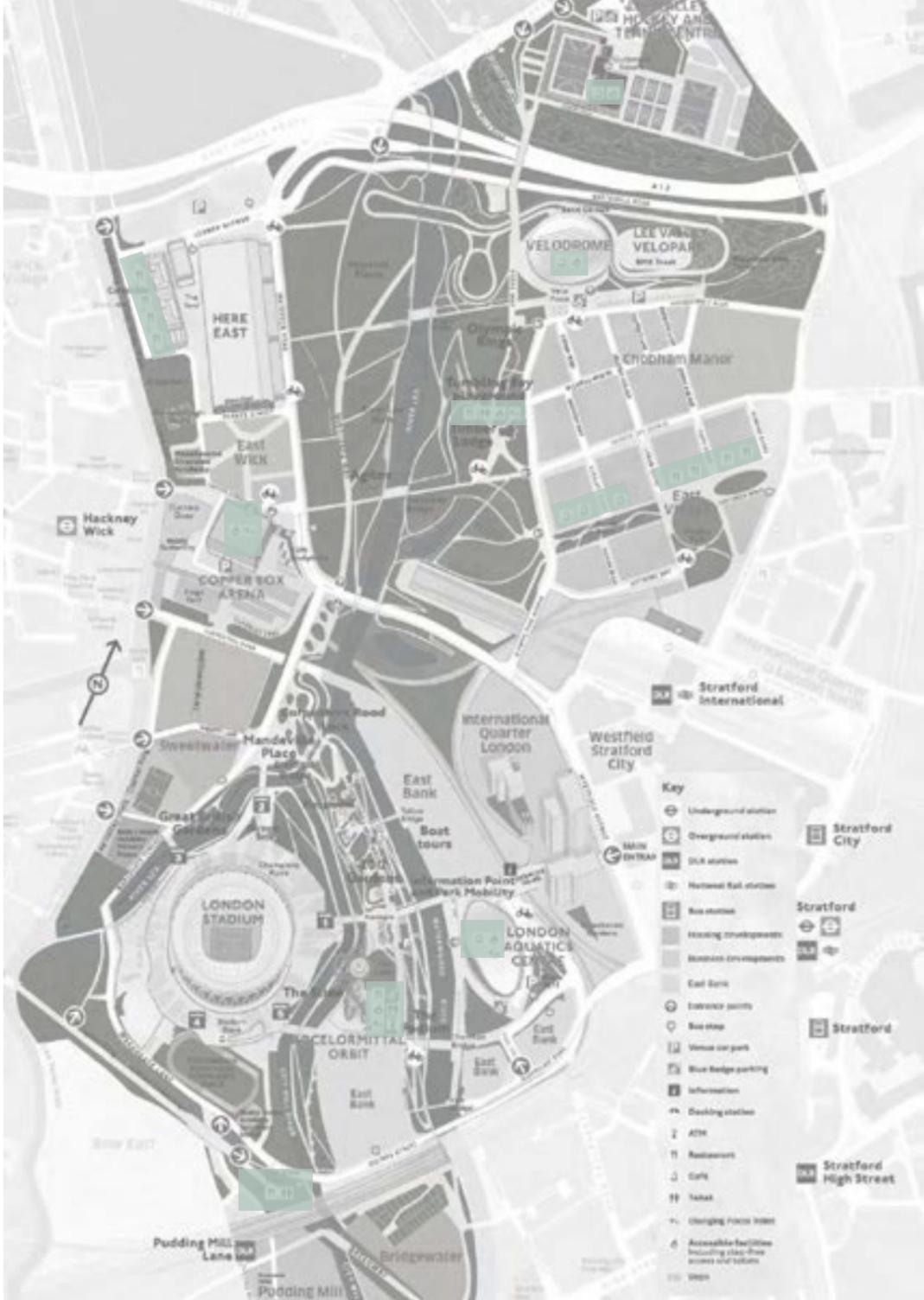


The Olympics (London 2012):

This is a famous example of a successfully functioning infrastructure. The strategic placement of the basic facilities for people to use are clearly mapped out on this drawing.

Because of the size of the Olympics as an event, there will always be over capacity, making this event difficult to cater for.

When having to cater for an event such as the Festival of Britain, a more considered acknowledgment of capacity would make the infrastructure more successful.



Olympic Map. Rod Sheard. 2020. London. <https://www.queenelizabetholympicpark.co.uk/the-park/plan-your-visit/park-map>

FESTIVAL INFRASTRUCTURES

Burning Man:

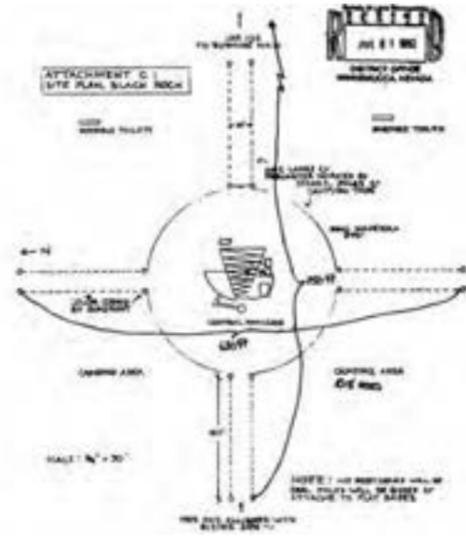
Burning man is a week long festival held in the Nevada desert once a year. It is a place where freedom is the main ethos. It is a place where people go to express themselves and create beautiful art installations.

The idea behind the festival is also to bring people back to their original roots and eradicate the use of money, profit and bartering.

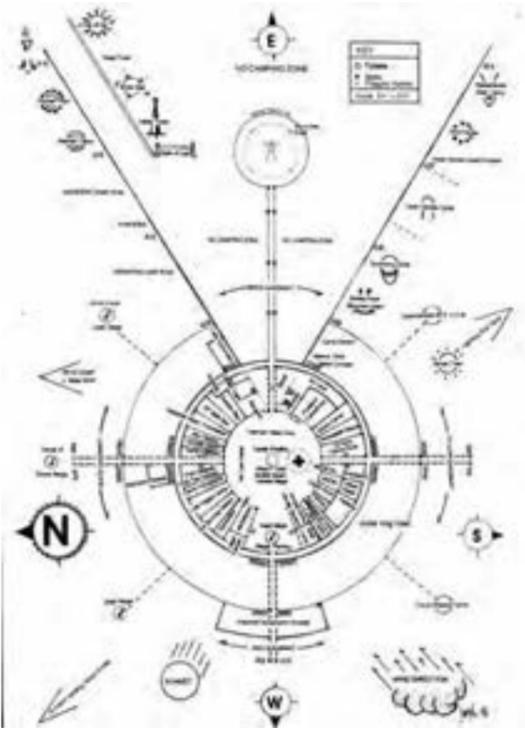


Burning man. Larry Harvey. 2018. Black Rock Desert. <https://www.architectural-review.com/essays/burning-intensity-an-overwhelming-collective-energy-fills-the-empty-plain-of-the-nevada-desert/10030451.article>

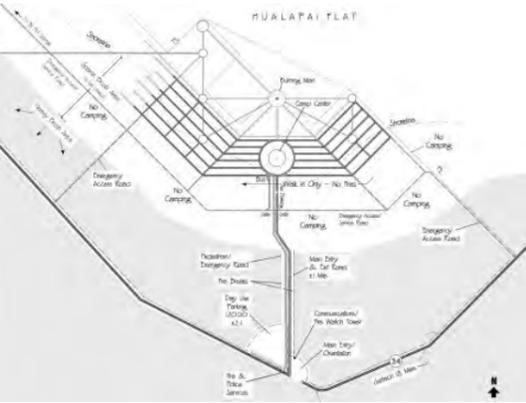
BRC Burning Man. Rod Garrett. 2015. Black Rock Desert. <http://www.dpwbr.com/evolution>



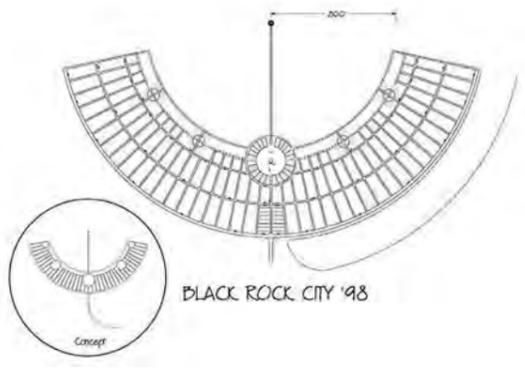
The original camp was formed in the shape of a circle. It originated from the traditional campfire circle. It was initially meant to be a weekend long festival, but it soon grew to become something that was a week long.



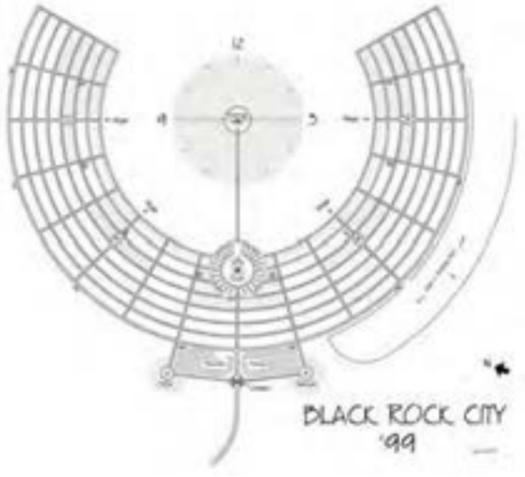
4 years later, a second circle called 'Ring Road' was made. The camp was sectioned off into parts. A zone, 'No Man's Land' was created in front of the Man to preserve the view of it. This left an opening called the 'Plaza'.



The year of 1997, there became a more structured infrastructure, giving sections names and roads so that people could orientate themselves better. Other urban amenities were made (like toilets and places for food). This was when an entrance called 'The gate' was introduced for the first time.



The following year a new blank infrastructure was introduced but was heavily influenced by the previous year. The original circular nature was brought back in, but on a much larger scale than ever before. This was the first time that it really began to work like a temporary city.



This is the most recent infrastructural design and it has remained this way ever since. It resembles a clock: Between 10 and 2 is the Playa. This is where all of the installations and activities take place. Between 2 and 10 is the main infrastructure, it is where people live and eat during the festival.

FESTIVAL INFRASTRUCTURES

Venice Biennale:

This festival is longer than Burning Man and Glastonbury. It is held over several months during the summer period, in Venice. Each year there are tens of installations and exhibitions held throughout the time period. The current and main places where the festival is held is in the Arsenale and Giardini.

Each of these spaces are tailored to allow visitors and artists/architects take part.

Venice's Art. Alejandro Aravena. 2016. Venice Biennale. <https://www.widewalls.ch/what-is-recycled-art-meaning/>



Waste of materials in festival construction:

This architect wanted to highlight the amount of wasted material used from the Venice Biennale in 2015, that in the 2016 entrance of the Arsenale, he created the entire space only using wasted plasterboard and metal.

From this year onwards, the festival has been more economically conscious of the wasted material being produced from the Biennale.

Reflection:

When designing the infrastructure, access and pier for the Festival of Britain, the most important aspect to acknowledge is the lifetime of the festival. If it is only going to be there for 8 months, the pavilions and the infrastructural design must have its life time place in consideration. If the pier is going to use a lot of material, energy and carbon footprint, the materials should be decided whether or not they are going to be temporary and if so, where will they go after the festival is over?

Arsenale's requirements:

ACCESSIBILITY

The exhibition area is fully accessible due to the presence of wheelchair ramps, elevators and uniform external itineraries.

SERVICES

There are plenty of facilities, such as: Bar, restaurant, bookshop, information point, free cloakroom, stroller free rental, baby changing/feeding room, family lounge.

Giardini's requirements:

ACCESSIBILITY

Ramp, stair-lift or assistance procedure.

SERVICES

Bar, restaurant, bookshop, information point, free cloakroom, stroller free rental, baby changing/feeding room.

Small-sized animals are allowed to enter the green area.



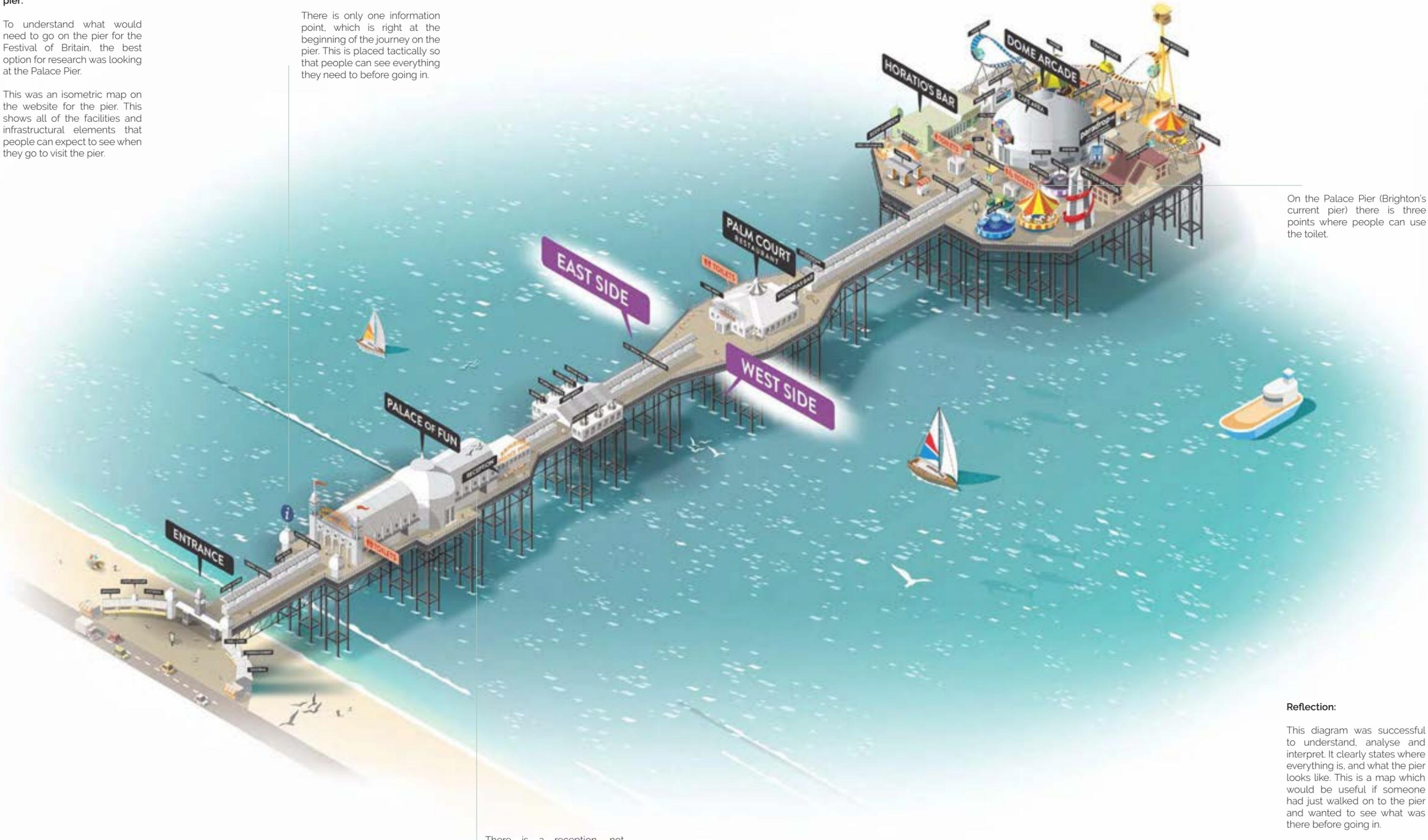
PIER INFRASTRUCTURE

Infrastructure required for a pier:

To understand what would need to go on the pier for the Festival of Britain, the best option for research was looking at the Palace Pier.

This was an isometric map on the website for the pier. This shows all of the facilities and infrastructural elements that people can expect to see when they go to visit the pier.

There is only one information point, which is right at the beginning of the journey on the pier. This is placed tactically so that people can see everything they need to before going in.



On the Palace Pier (Brighton's current pier) there is three points where people can use the toilet.

There is a reception, not directly at the beginning, but there is one so people know where to ask for help.

Reflection:

This diagram was successful to understand, analyse and interpret. It clearly states where everything is, and what the pier looks like. This is a map which would be useful if someone had just walked on to the pier and wanted to see what was there before going in.

For designing and communicating the infrastructure, access and rest points, this is a good source to understand what is required of a pier.

PIER INFRASTRUCTURE

**Blackpool pier:**  
Regular rest points along pier.



Access via train. This is such a long pier, it has the option to travel on the pier.



**Southend:**  
Regular rest points in the shapes of kiosks on one side.



Kiosk rest points on both sides.

**Cromer Pier, Norfolk:**  
There is beach access, but it is not within the pier boundary.

Blackpool pier. Eugenius Birch. 1863. Blackpool. <https://www.dailymail.co.uk/news/article-2992584/Blackpool-Central-Pier-sale-5million.html>



Cromer pier. George Skipper. 1896. Norfolk. <https://www.explorenorfolkuk.co.uk/cromer-pier.html>

Cromer pier front. George Skipper. 1896. Norfolk. <https://www.cromerpier.co.uk/bbc-antiques-roadshow-is-coming/>

Southend pier. White Arkitekter, 1830. [https://moovitapp.com/index/en-gb/public\\_transportation-Southend\\_Pier-London\\_and\\_South\\_East-site\\_56641578-2122](https://moovitapp.com/index/en-gb/public_transportation-Southend_Pier-London_and_South_East-site_56641578-2122)

**Cromer Pier, Norfolk:**  
Emergency access from the pier to the sea.

PIER ADAPTATION

Scheveningen pier, Den Haag:

The first version of this pier was made in 1901.

Vernieuwde Peir. 1959. Scheveningen. [https://nl.wikipedia.org/wiki/Bestand:Pier\\_van\\_Scheveningen\\_\(1959\).jpg](https://nl.wikipedia.org/wiki/Bestand:Pier_van_Scheveningen_(1959).jpg)



It then suffered from its first fire in 1943. The wooden framework/structure was burnt and removed.

The pier was reconstructed in 1959 by Maaskant Dickapon.

The flags were taken away

This portion was subtracted.



Vernieuwde Peir. 2017. Scheveningen. <https://www.dearchitect.nl/architectuur/nieuws/2017/10/pier-van-maaskant-op-affr-101183401>

Vernieuwde Peir. ZJA architects. 2013. Scheveningen. <http://www.nederlandinfoblog.nl/pier-in-scheveningen/>



This part of the pier was boarded up and then subtracted. In the power photograph you can see that it is no longer there.

Over time, the pier had been adapted and this extension was added later on. It is now serving as a part hotel/restaurant.



By adding paintwork to the concrete columns, it highlights the juxtaposition between old and new construction.

This part has not been painted. I think this is to show that this is part of the older structure and not apart of the new insertion.



By having a new addition to the original pier, they have used the following materials:

Steel

Cast iron

Timber

PIER ADAPTATION

This portion of the pier was added on a later date and then subtracted again.

Original iron pile



Zwarts & Jansma Architects are the newest layer of the Scheveningen pier's architectural journey.

Reflection:

By looking at all of the stages of this pier, it has really shown how versatile the life of a pier can be. What I thought was very successful was the insertion of the walkway/ access to the pier. It had been elevated and become something independent structurally. It still however, had a similar architectural language and there is a semi symbiotic relationship where the two connect as an access point.

This research was very helpful when considering the infrastructure for the West pier.



This is the newest structure. It has been inserted, hardly affecting of toughing the older existing surfaces, it is part of its own intervention.

This is a walkway, filled with food markets and becomes a terrace/walkway on the top floor.

New structural columns.

# CURATE - FESTIVAL OF BRITAIN INFRASTRUCTURE

**CURATE - FESTIVAL OF BRITAIN INFRASTRUCTURE**

**FESTIVAL INFRASTRUCTURE WORKSHOP**

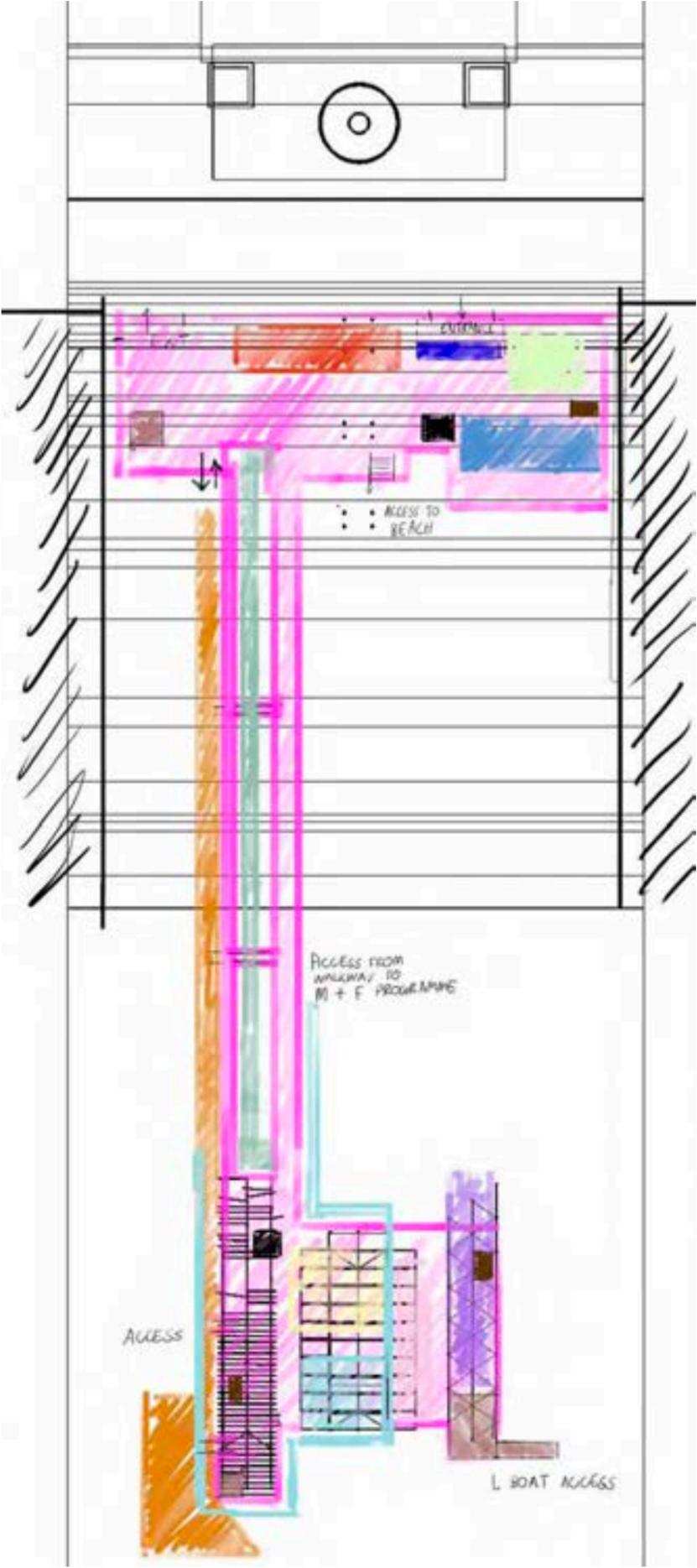
**Programmes:**

-  Lexi
-  Angelika
-  Mim
-  Fiona
-  Mary
-  Angela
-  Magda
-  Harry
-  Ray
-  Skye

**Infrastructure:**

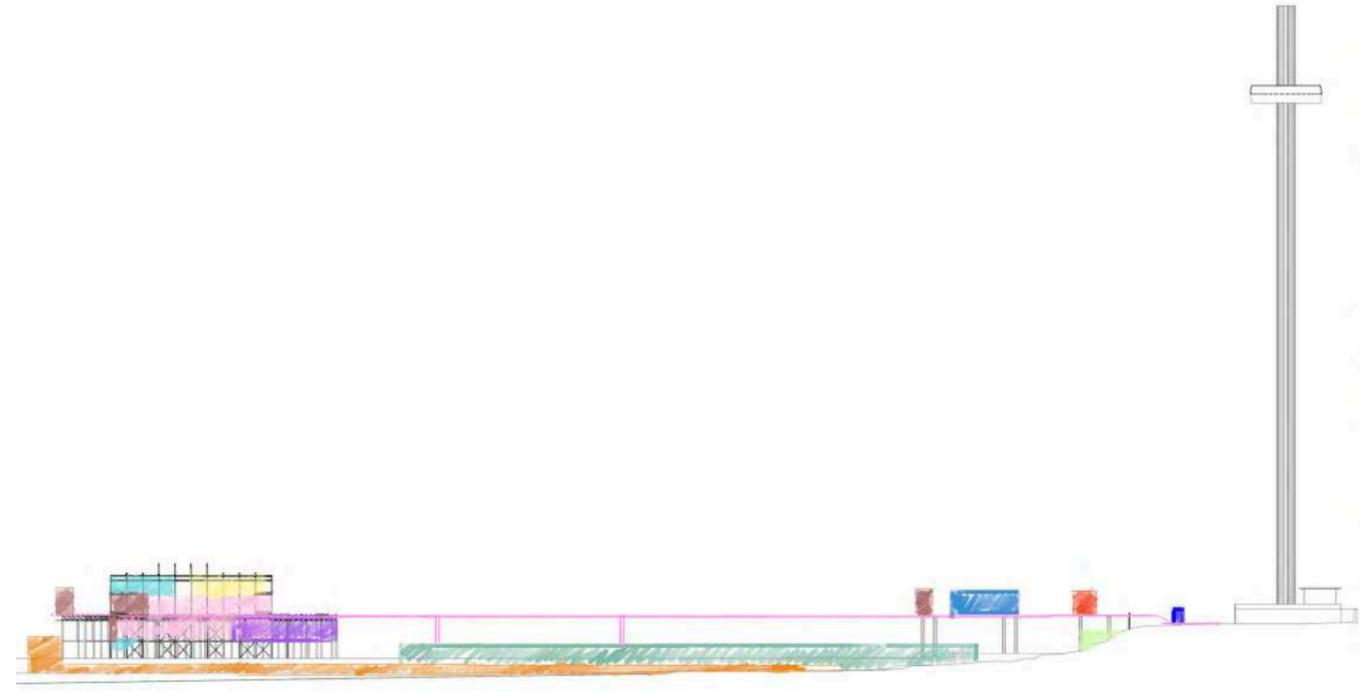
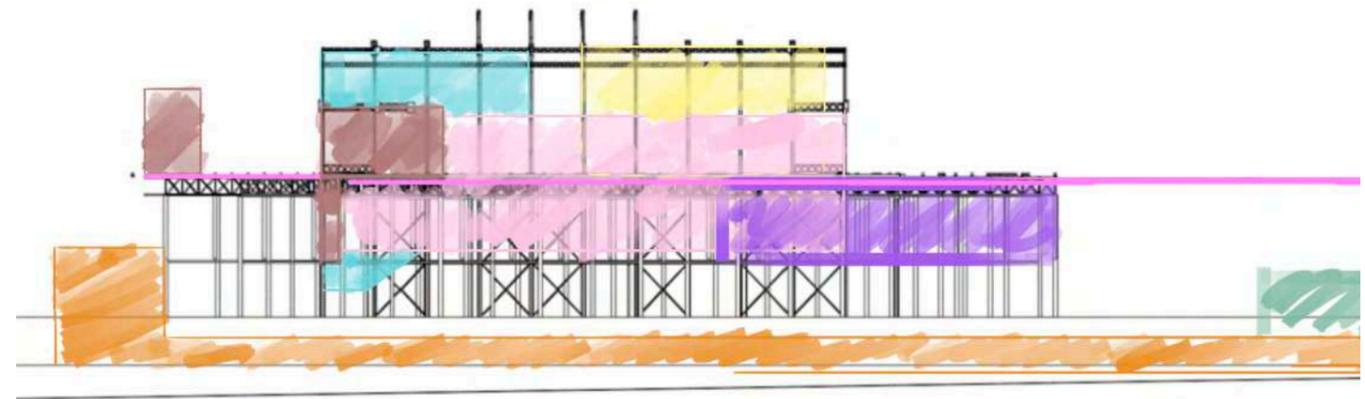
-  Decking/access
-  Toilets
-  Information points
-  Tickets

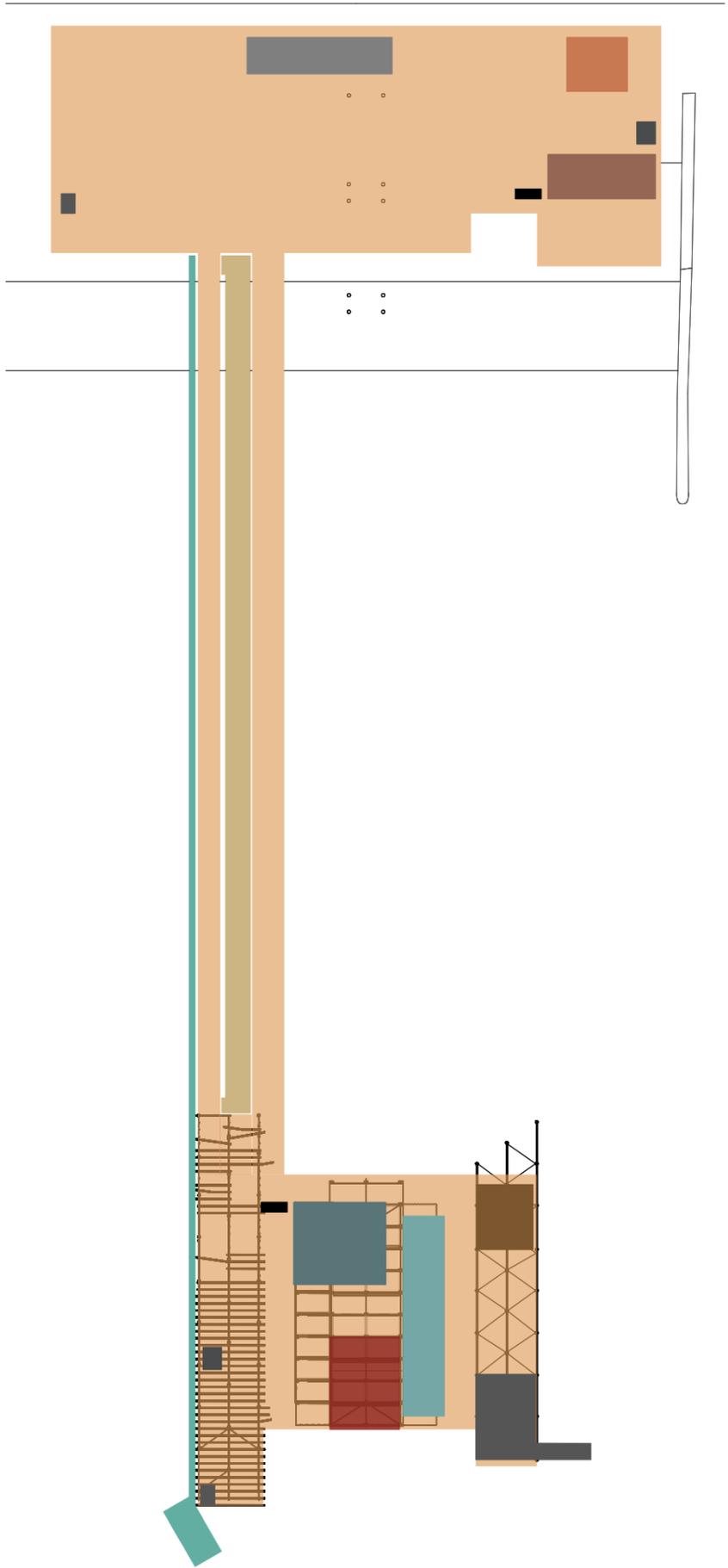
This was the workshop to first show what the infrastructure would /will be. After everyone pitched rough desirable locations, we placed everyone in places which wouldn't overlap and then made a rough shape of what the 'decking' would be like.



**Reflection:**

This task was incredibly helpful and I think that by me illustrating rough locations as we were deciding things in the workshop, it really helped us solidify what is going to happen and how the pier could look - with regards to changes in level, layout and connections to the pier.





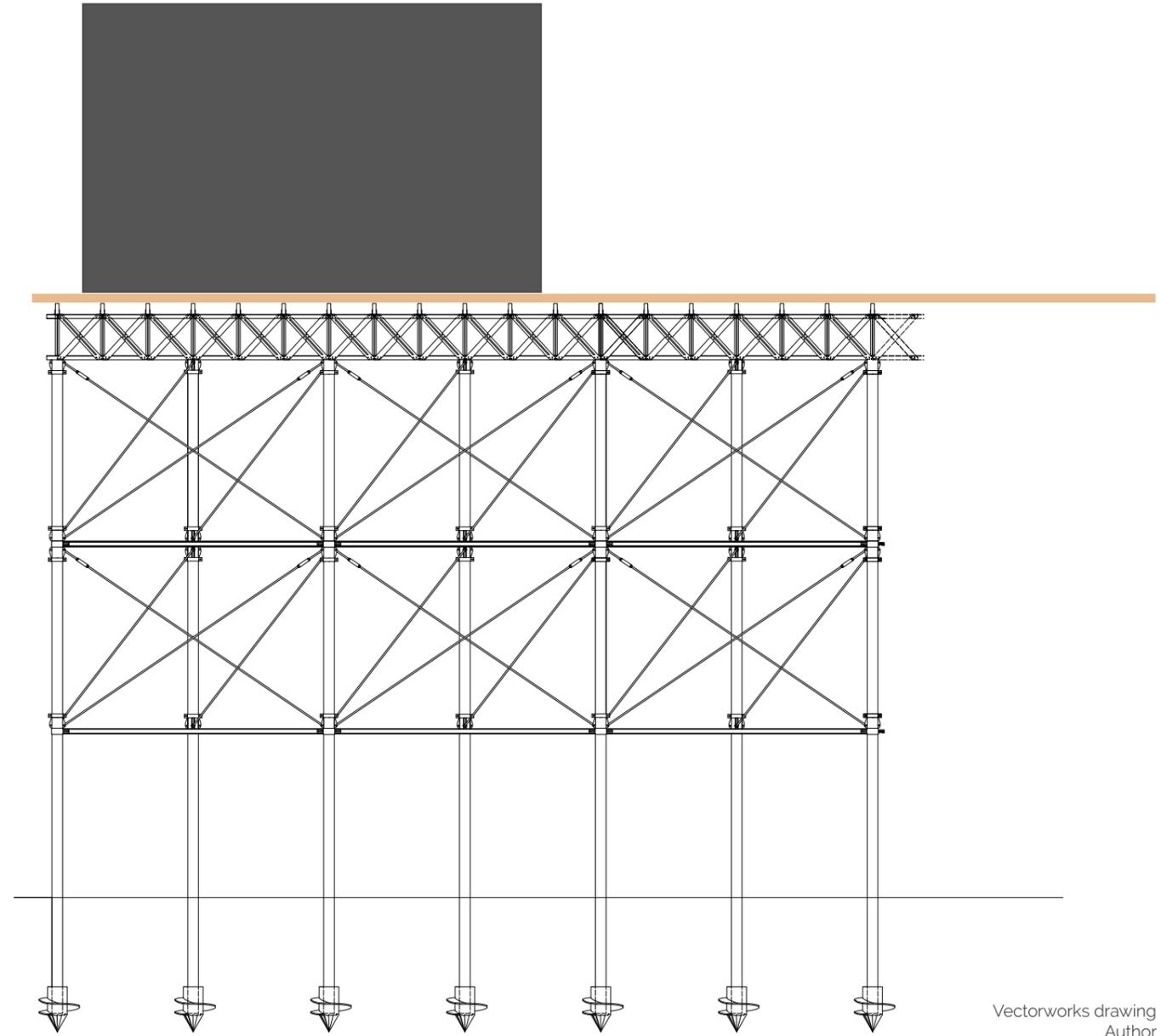
- Level 5**
- Up-cycling furniture
- Restaurant
- Thermal swimming
- Tailoring workshop
- Mechanics exhibition
  
- Level 6**
- Women in construction
- Currency workshop
- Pottery making
- THE COASTAL REBUILD**
- Underwater dining

**Reflection:**

After the workshop, I thought the sketched plan and section was not quite communicating the festival formally, so I created a master-plan using Vectorworks and the original site.

I colour coded each pavilion/programme and divided them in to two spectrums of colour - for the level 5s and the level 6s.

I have also quickly shown how it could translate into an elevation with a pavilion and where they would sit. There is no telling what my programme is though and how it or the infrastructure connects to the existing. I need to develop the conceptual designs further.



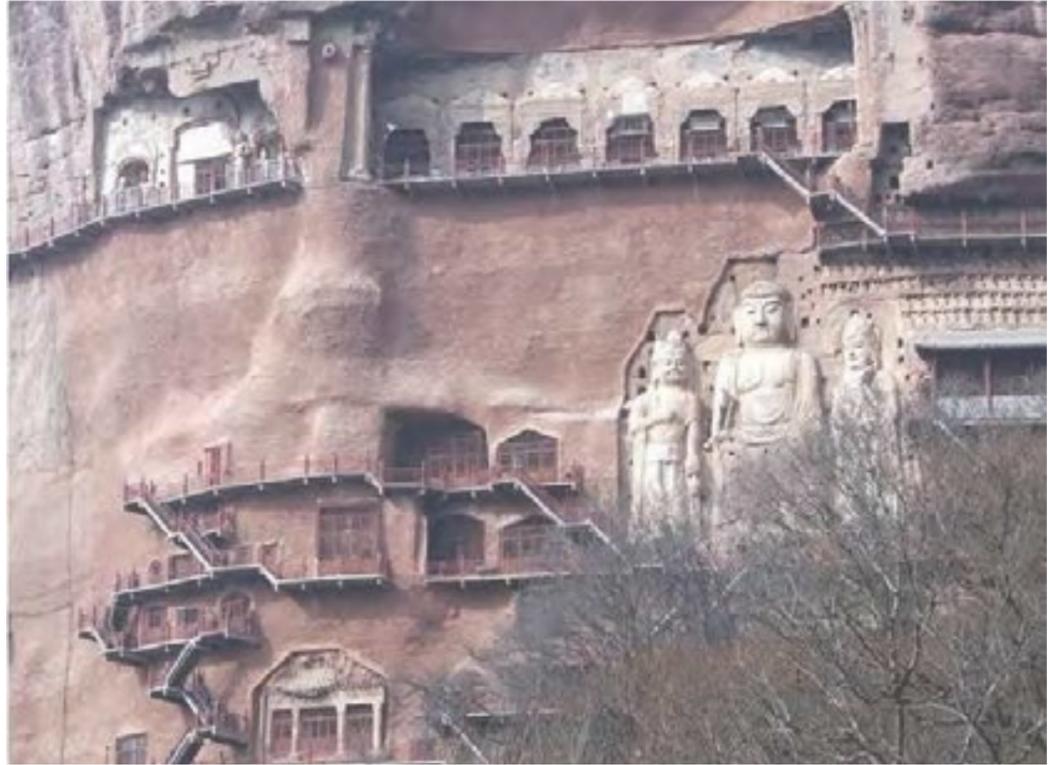
DESIGN ROLES

- Access and rest points
- Tickets and information
- Toilets and welfare

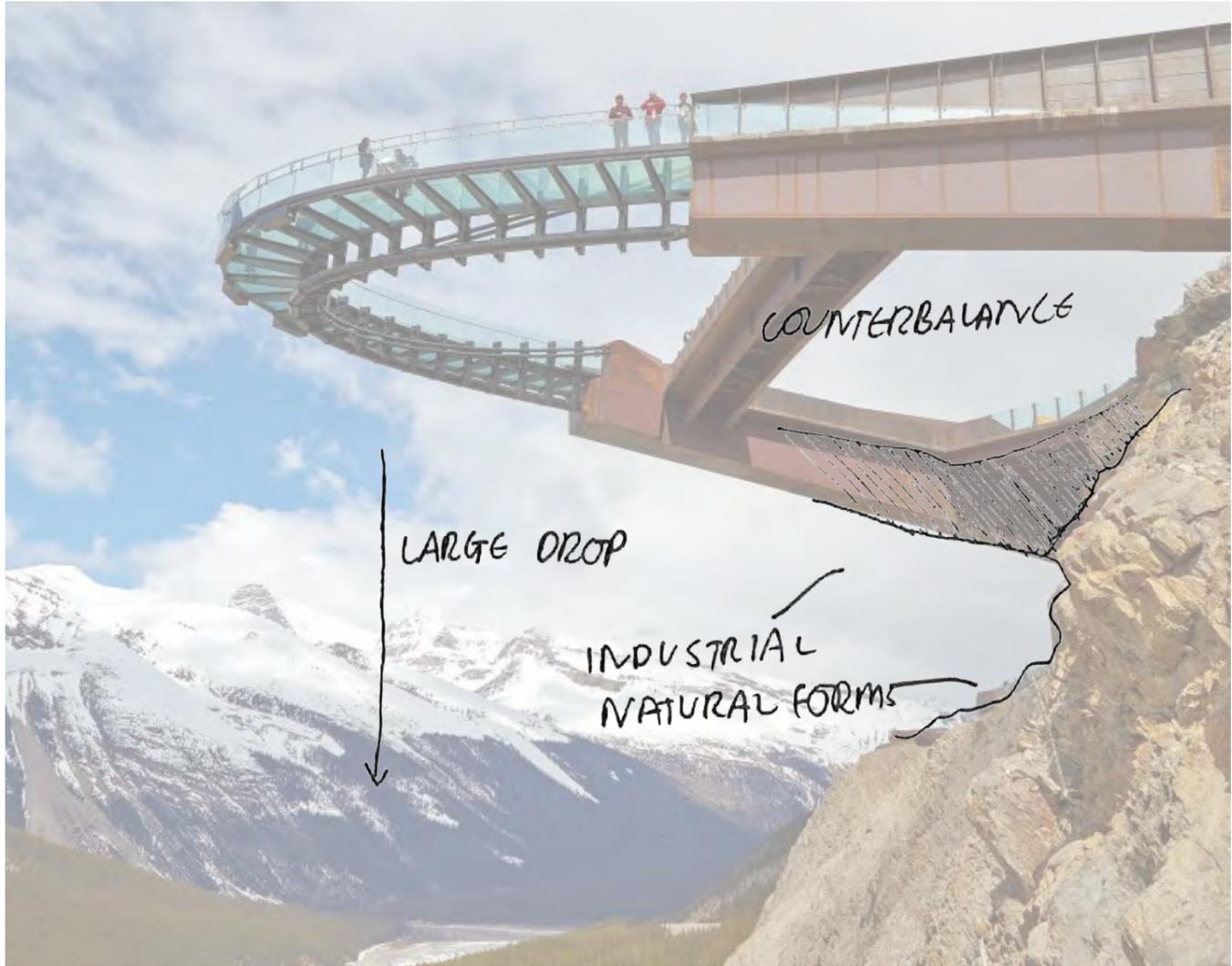
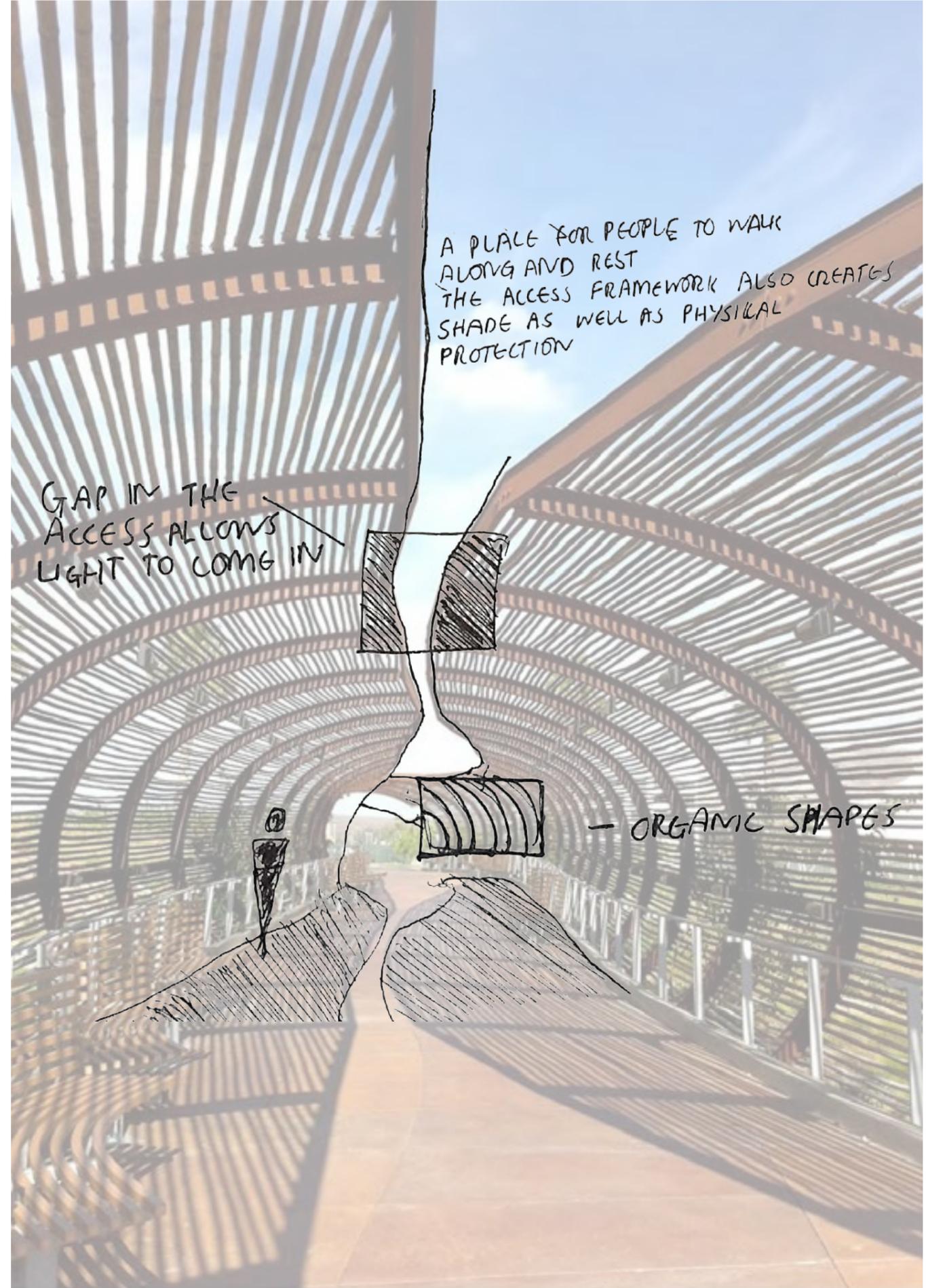
We are in a group of 5 people. To be able to design everything to a high enough standard with the required level of detail, the particular design roles have been split.

I am in the group which looks mostly into access and rest points - this is partly because my programme is looking into different types of access and the protective structures are a type of rest point. This way there could be a cohesive architectural language between this aspect of the infrastructure and my protective structures.

The Majijshan Grottoes. Gansu Province. <https://viola.bz/the-majijshan-grottoes-masterpiece-of-cave-architecture/>



Covered Walkway. November 10, 2010. Dos Lago's centre in Corona. <https://ranchoreuidoux.com/2010/11/10/linear-movement/>



Glacier Skywalk. Sturgess Architecture. 2014. Canada. [https://www.architectmagazine.com/technology/take-in-a-deep-breath-with-the-view-on-the-glacier-skywalks-glass-floor\\_o](https://www.architectmagazine.com/technology/take-in-a-deep-breath-with-the-view-on-the-glacier-skywalks-glass-floor_o)

DESIGN ROLES

Rest points:

When researching rest points for inspiration/different types, I found rest points which form and mould from one surface to another really fascinating.

It shows similar characteristics to adaptation and parasitic interventions where things intertwine and interconnect. It feels as though it is a symbiotic relationship - especially if the material palette is contrasting.

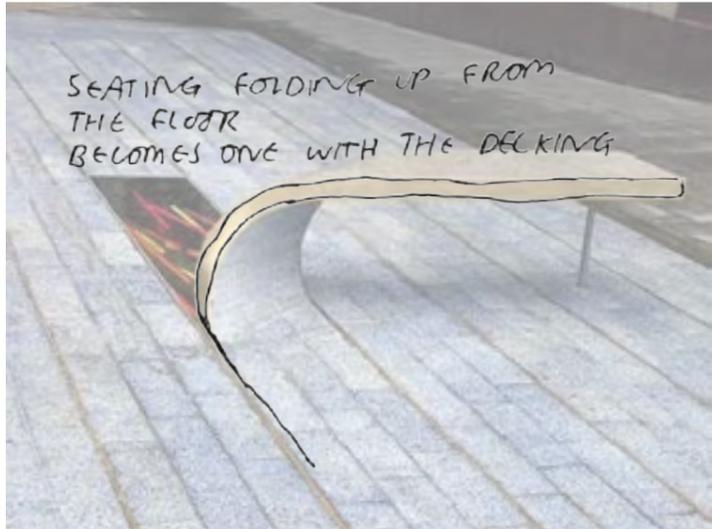
The Best weapon. A As Architecture. 2019. New York. <https://www.un.org/disarmament/fr/update/unveiling-of-the-best-weapon-displayed-at-un-hq-through-september-2019/>



Mini Parks. 2015. China. [https://inhabitat.com/12-inspiring-mini-parks-created-in-street-parking-spaces/1-dsc\\_0290-002/](https://inhabitat.com/12-inspiring-mini-parks-created-in-street-parking-spaces/1-dsc_0290-002/)

The Plaza. Landscape Architects. 2013. Stoss USA. <https://worldlandscapearchitect.com/the-plaza-at-harvard-university-cambridge-usa-stoss-landscape-urbanism/#XqVuGi-ZM-Wo>

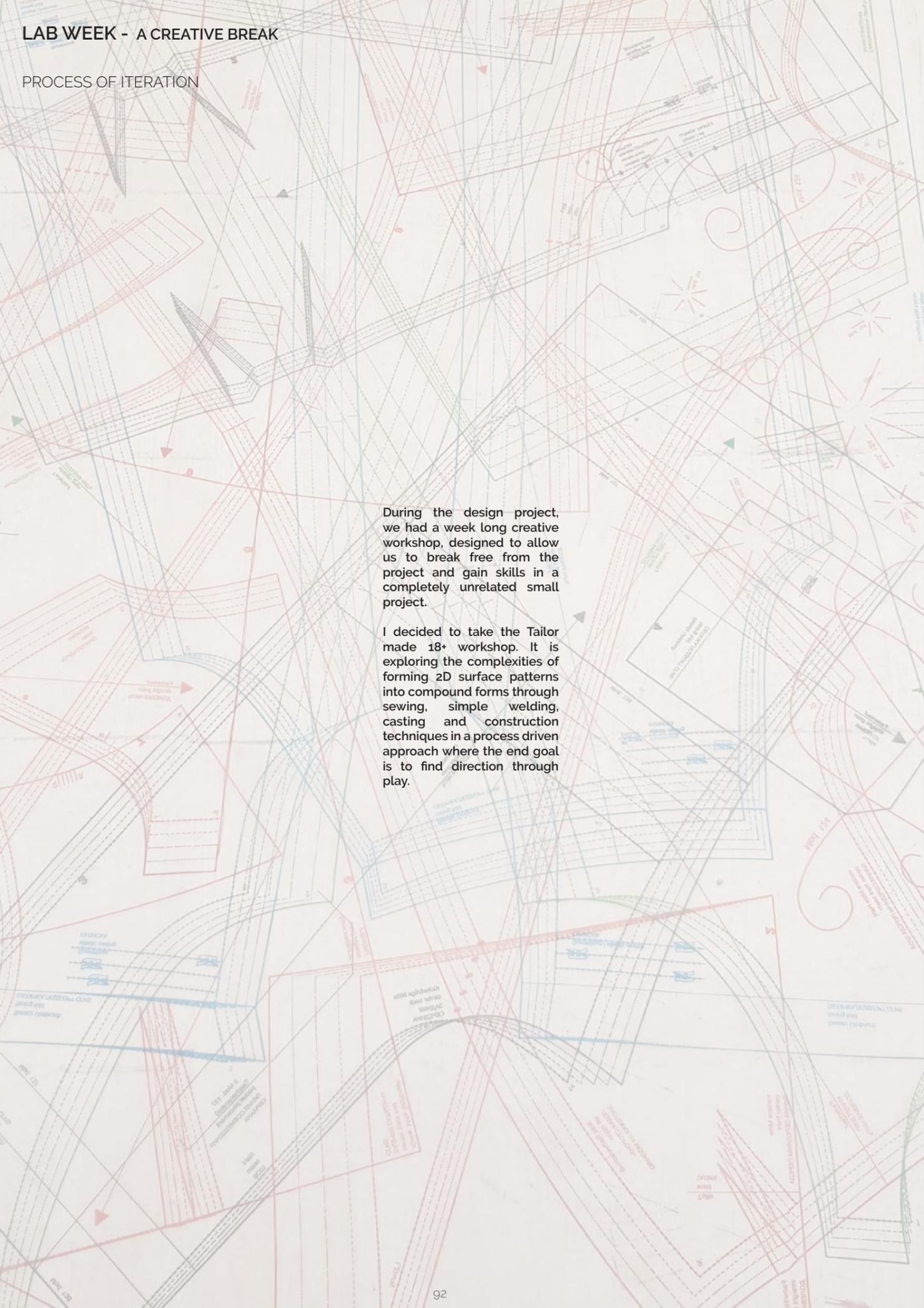
The Blue Carpet Project. Thomas Heatherwick. 2010. Newcastle. <http://lynseybarr.blogspot.com/2010/10/blue-carpet-project-uses-innovative.html>



# **LAB WEEK**

## **A CREATIVE BREAK**

PROCESS OF ITERATION



During the design project, we had a week long creative workshop, designed to allow us to break free from the project and gain skills in a completely unrelated small project.

I decided to take the Tailor made 18+ workshop. It is exploring the complexities of forming 2D surface patterns into compound forms through sewing, simple welding, casting and construction techniques in a process driven approach where the end goal is to find direction through play.



To start the week, we were given a 'cut sheet' with different fabric templates on them. As I decided to make half a blazer arm/chest piece, I had to cut out 3 pieces and then sew them together.

**Darts in tailoring:**

A dart is part of the sewing process which tapers and creates the contortion lines within a piece of clothing. This is what makes a very box like shape, the fitted clothing we wear today.

Photograph of textile work  
Author  
2020

LAB WEEK - A CREATIVE BREAK

PROCESS OF ITERATION

The next stage was to create a copper rod framework which would mimic the shape of the human form that fits inside of the garment.

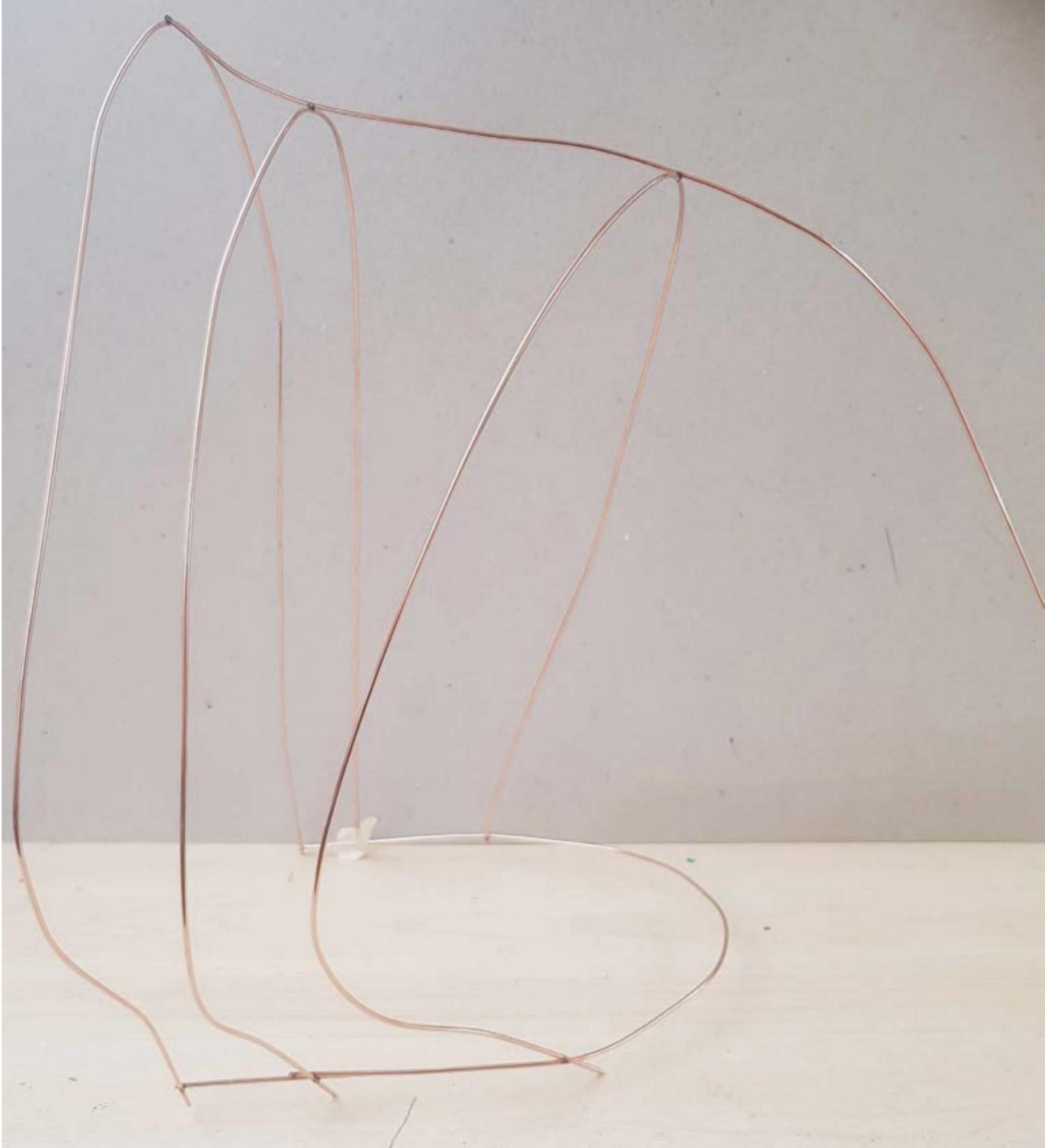
At my first attempt, it was really difficult to imagine the humans shape and then create the framework at the same time.

For the second frame, it was focussed more on the curvature of the female figure, and which parts protrude out and taper in.

The new frame had with a more simplistic method, but also created quite organic natural pathways. I want to follow these forms throughout the week long process.



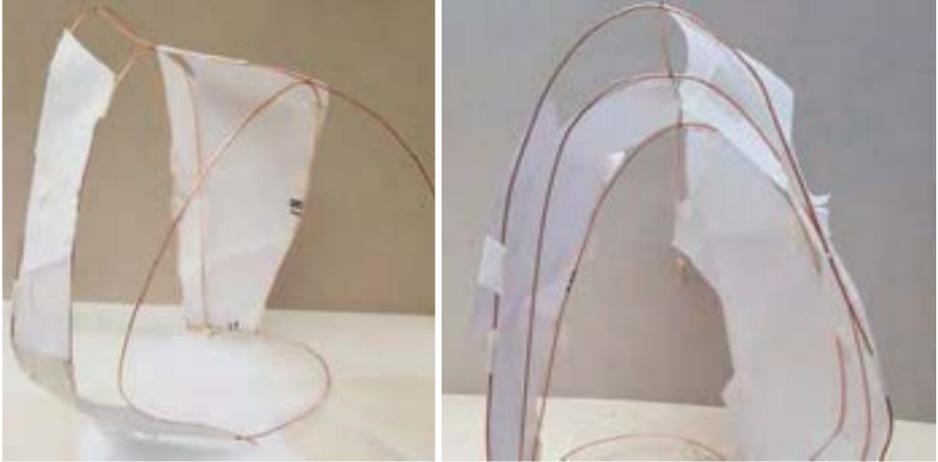
Photograph of textiles and model work  
Author  
2020



PROCESS OF ITERATION

This next stage of the process was to cover the structures made from the copper coated rods with paper. The aim of doing this was to be able to eventually make a template for a casting mould. I decided to do this in a more calculated and mathematical way - creating a geometric aesthetic.

Using paper was quite a difficult material to use, so I decided to use drafting film. It is a firmer material, but still just as easy to manipulate and warp.



To move forward, I placed all of the offcuts of drafting film onto a flat piece of card. Due to the organic shape of my wire frame, parts needed to be separated whereas others needed to have slits cut into it. Once it sat completely flat, I created a card template by tracing this layer and scored the edges to fold it back to its definitive shape.

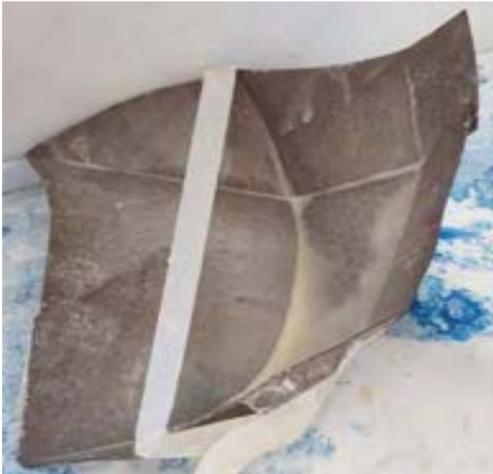
Photographs of model work  
Author  
2020



PROCESS OF ITERATION

This part of the process is what made the current work go from a series of template iterations to something solid and 3 dimensional.

Going from the drafting film to the card was quite challenging. Even though the shape has roughly been determined, the previous materials were more manipulative in shape, whereas card entirely relies on the scoring, folding and cuts to fit around the framework.



Once this was finished, the card mould was held in shape and a resin was poured over it. This process enabled this material to be reusable and it would not deteriorate.

This then allowed the mould to be used for materials such as plaster. So I made a mixture of plaster as set a mould inside it. This would hopefully take the shape of the mould and reveal the shape of the human form.

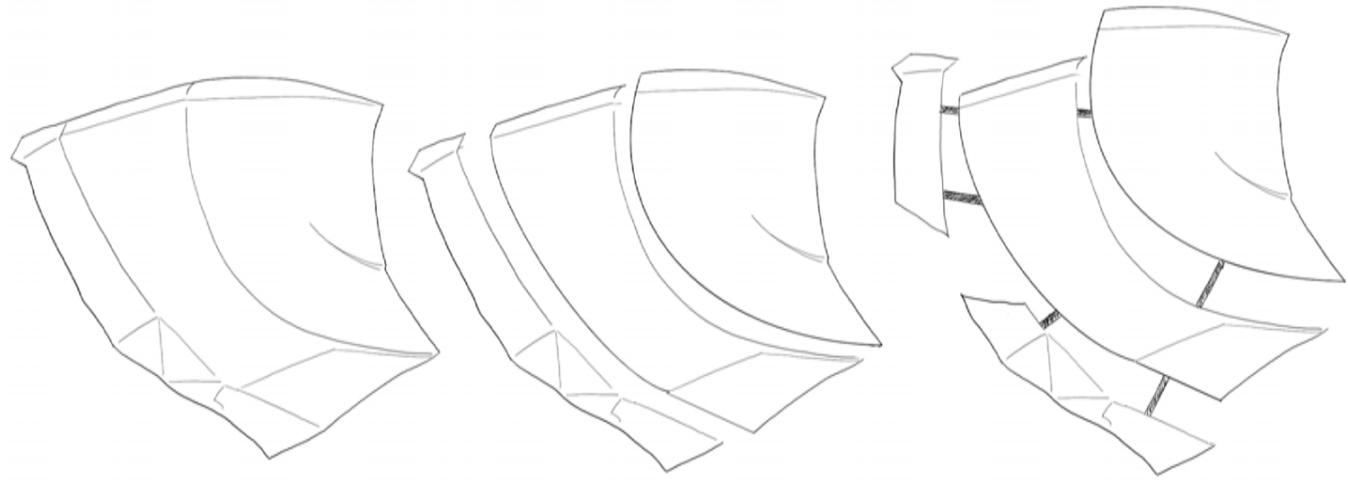


PROCESS OF ITERATION

This was the first cast iteration. Even though it was successful, I decided to do another two casts so I could alter and cut them in to different shapes - focussing on separating the casts by the organic planes created with the copper coated rods.



Photographs of cast work  
Author  
2020



Hand drawn sketches  
Author  
2020

Throughout the week, three moulds were made. With each mould, it fragmented more and more.

The first mould was just representing the form of the chest and shoulder.

The second one was cut along the three organic shapes made by the copper wire frame.

Lastly, the final model is showing the organic shapes separated, but then also held together using steel threaded rods.

PROCESS OF ITERATION

This week long break from the project was really beneficial for me and how I learn and develop ideas. When doing a process of iterations and they start to very in medium, I felt like this was when the main changes in design happened.

Using the method of casting was also a new experience for me. I had never done this. But, I can definitely see myself using this quick method to creating 3 dimensional forms.

**Even though this shape is based off the half tailoring of a shirt, the way I have pulled it apart and joined it back together looks as though it could be a space where people could inhabit.**

These quick sketches are examples of this and how something abstract could turn into a form.



Photograph of cast model  
Author  
2020



Mixed media sketches  
Author  
2020

Photograph of final models  
Author  
2020



# **PAVILION**

## **PARTI - DIAGRAMS**

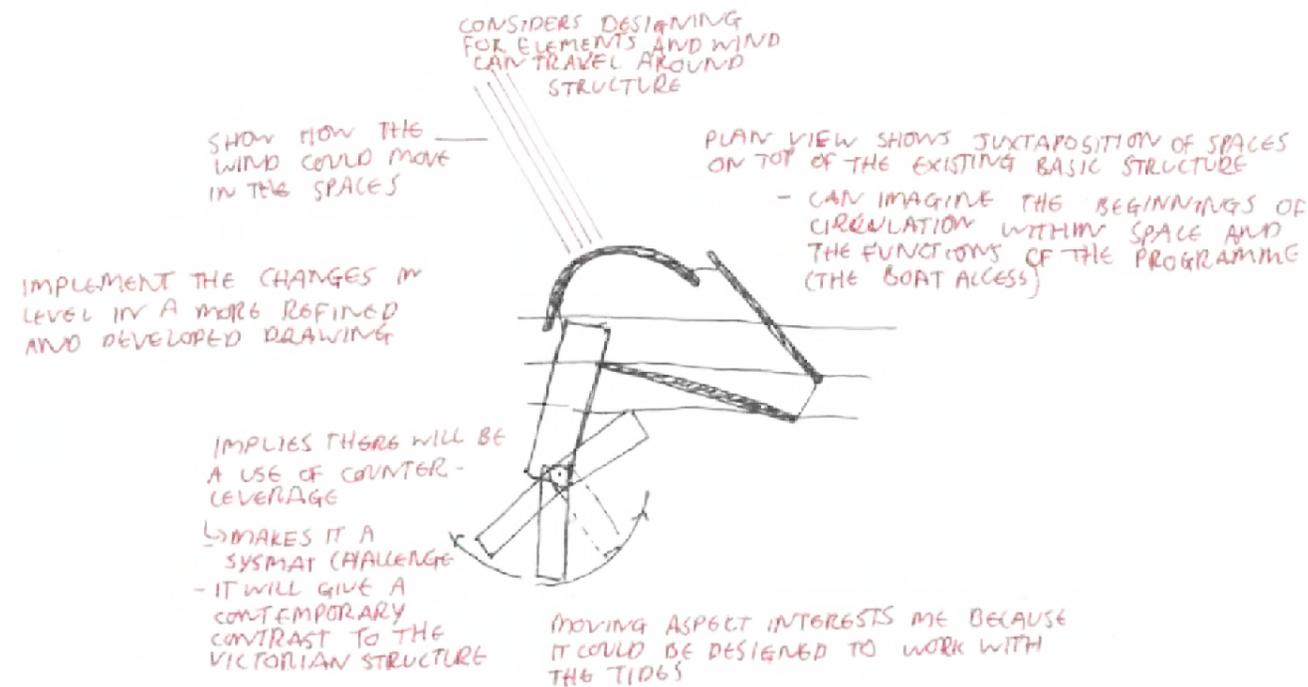
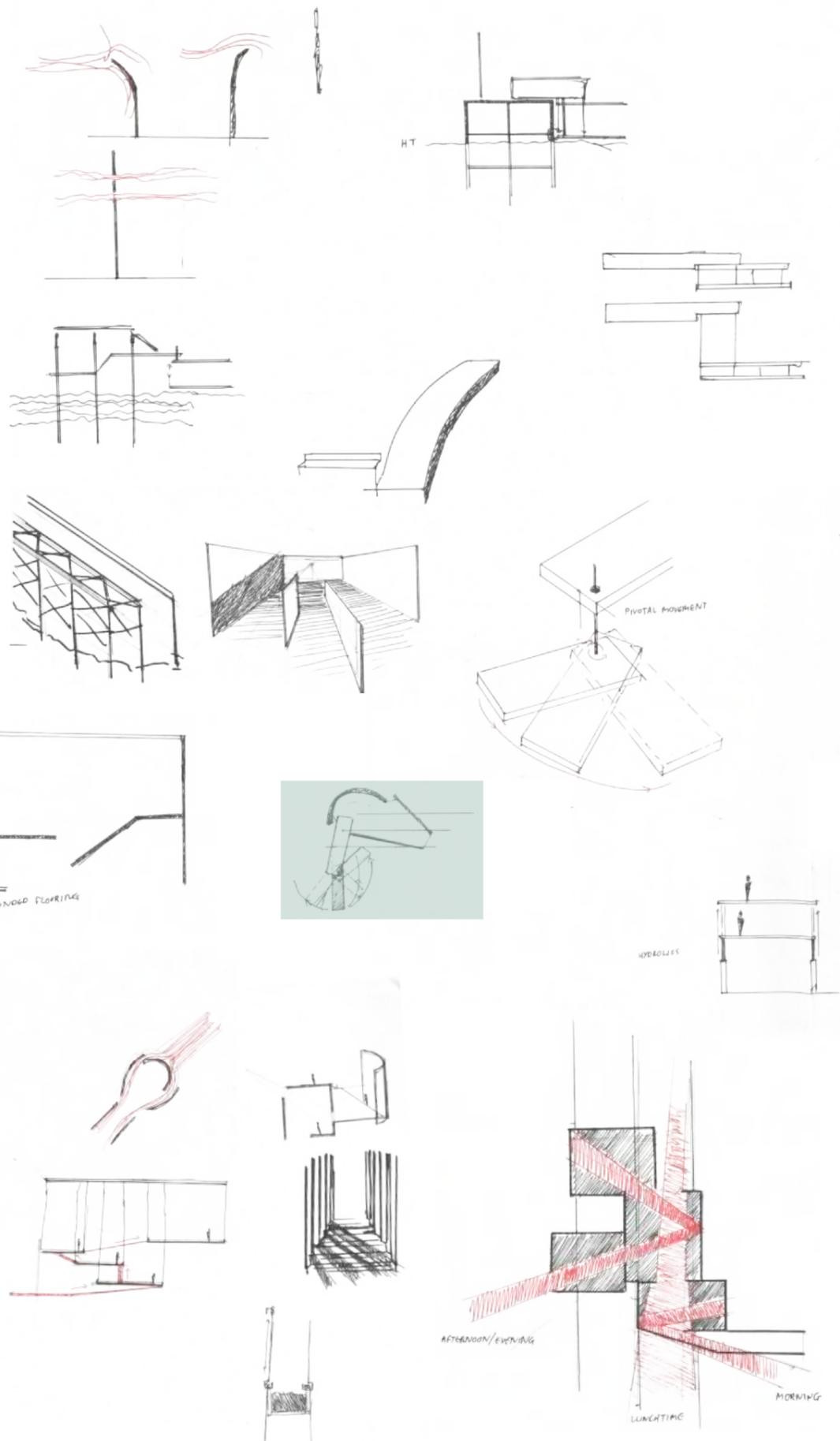
**PART I - DIAGRAMS**

**INITIAL ITERATIVE SKETCHING AND DEVELOPMENT**

**Rapid fire sketching:**

To start designing, sketching as many ideas as I could, as fast as I could felt like the best way to exhaust all of the possibilities at that time. By doing this, I was able to get a selection of ideas out on to paper and gave me the opportunity to chose one or several of the key elements I found interesting to later continue and develop.

These sketches look at changes in level, the movement of wind through a structure, the movement of structures and natural light.

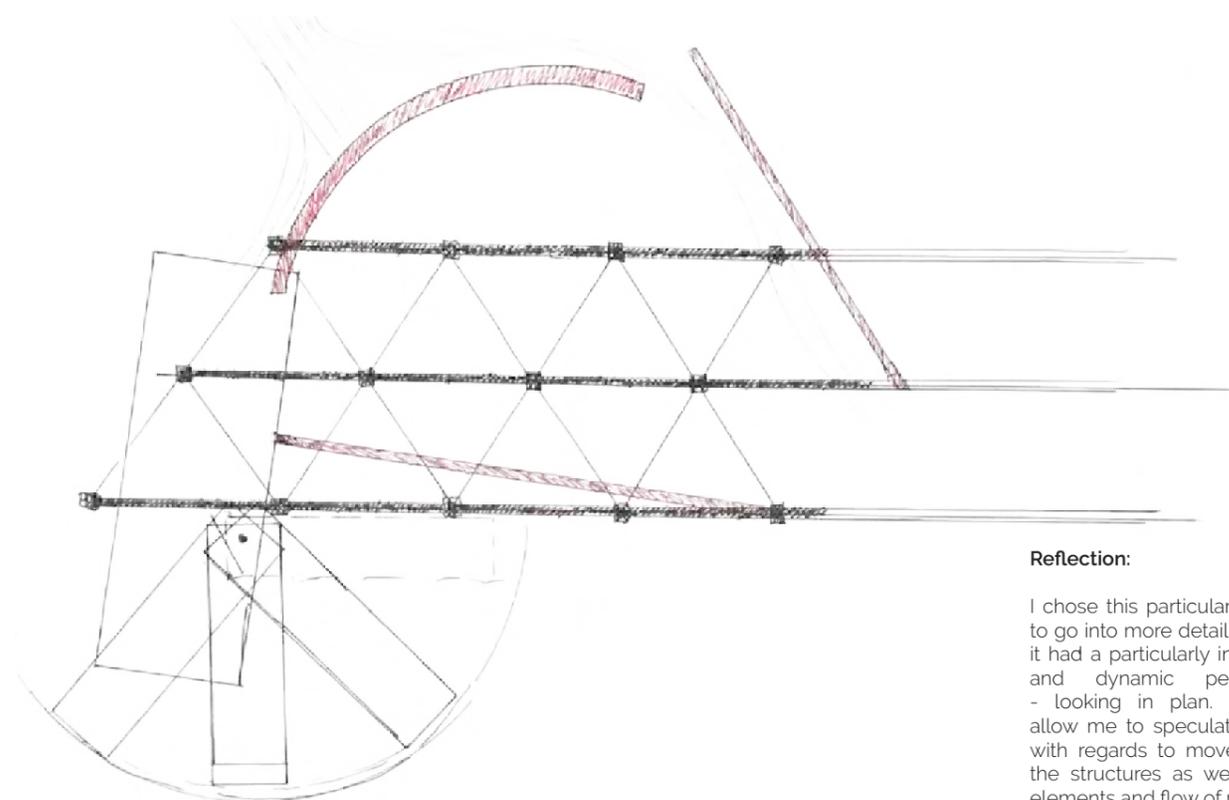


**IMPROVEMENTS:**

IT IS MISSING THE ATMOSPHERIC QUALITIES AND THE PERSPECTIVE OF WHAT THE SPACE FEELS LIKE. ADD AN ASPECT WITHIN THE SKETCH WHICH IS 3 DIMENSIONAL

LIGHT QUALITIES COULD BECOME APPARENT

EXPLORING THE TECHNOLOGY WHICH WILL FACILITATE THE PIVOTAL AND HYDRAULIC STRUCTURE MOVEMENT

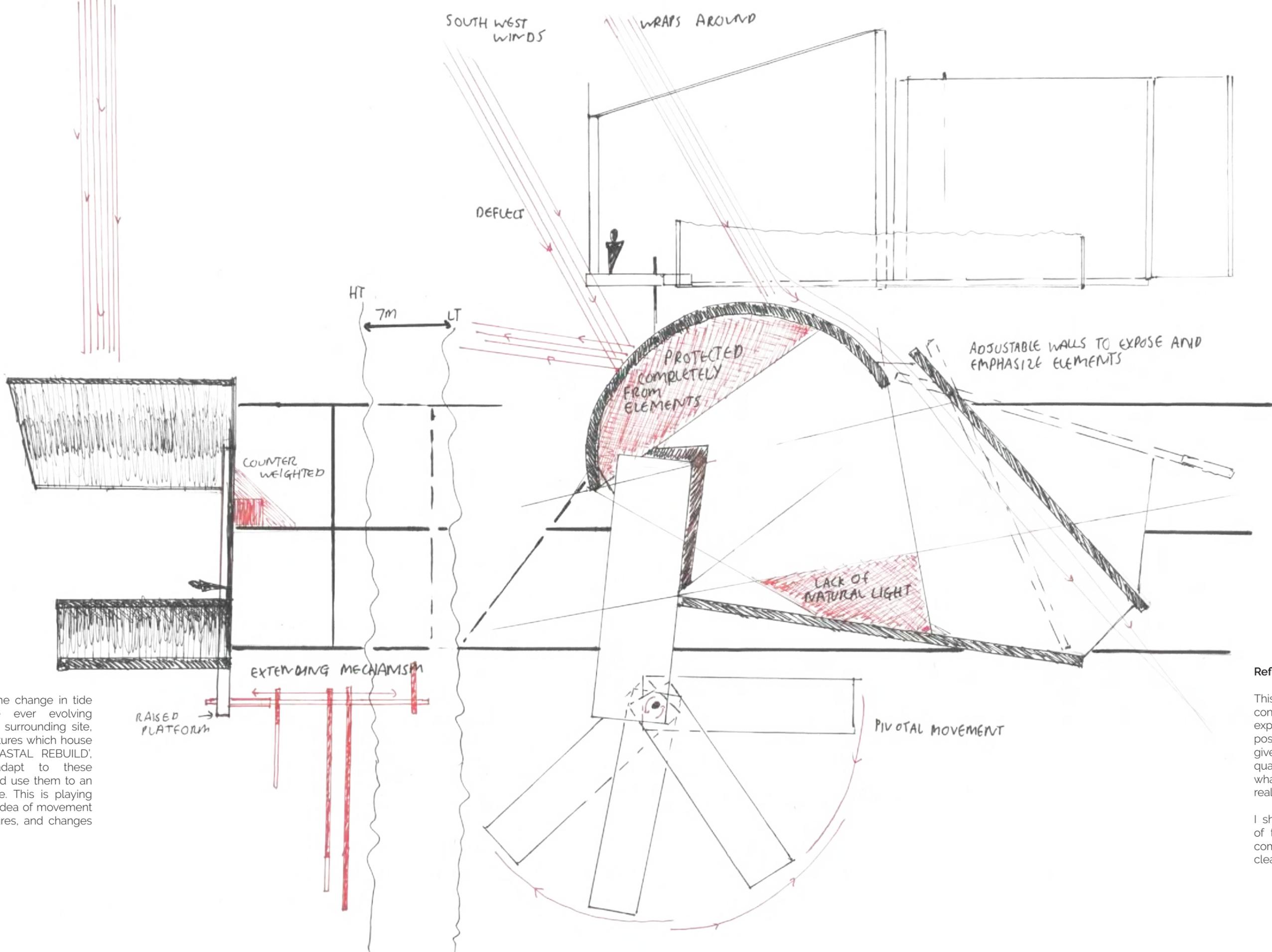


**Reflection:**

I chose this particular drawing to go into more detail because it had a particularly interesting and dynamic perspective - looking in plan. It would allow me to speculate further with regards to movement of the structures as well as the elements and flow of people.

PARTI - DIAGRAMS

INITIAL ITERATIVE SKETCHING AND DEVELOPMENT



Due to the change in tide and the ever evolving elements surrounding site, the structures which house 'THE COASTAL REBUILD', could adapt to these forces and use them to an advantage. This is playing with the idea of movement in structures, and changes in levels.

Reflection:

This drawing, as a conceptual sketch, explores multiple different possibilities. It however, gives no sense of spatial qualities, materiality and what it would look like in real life.

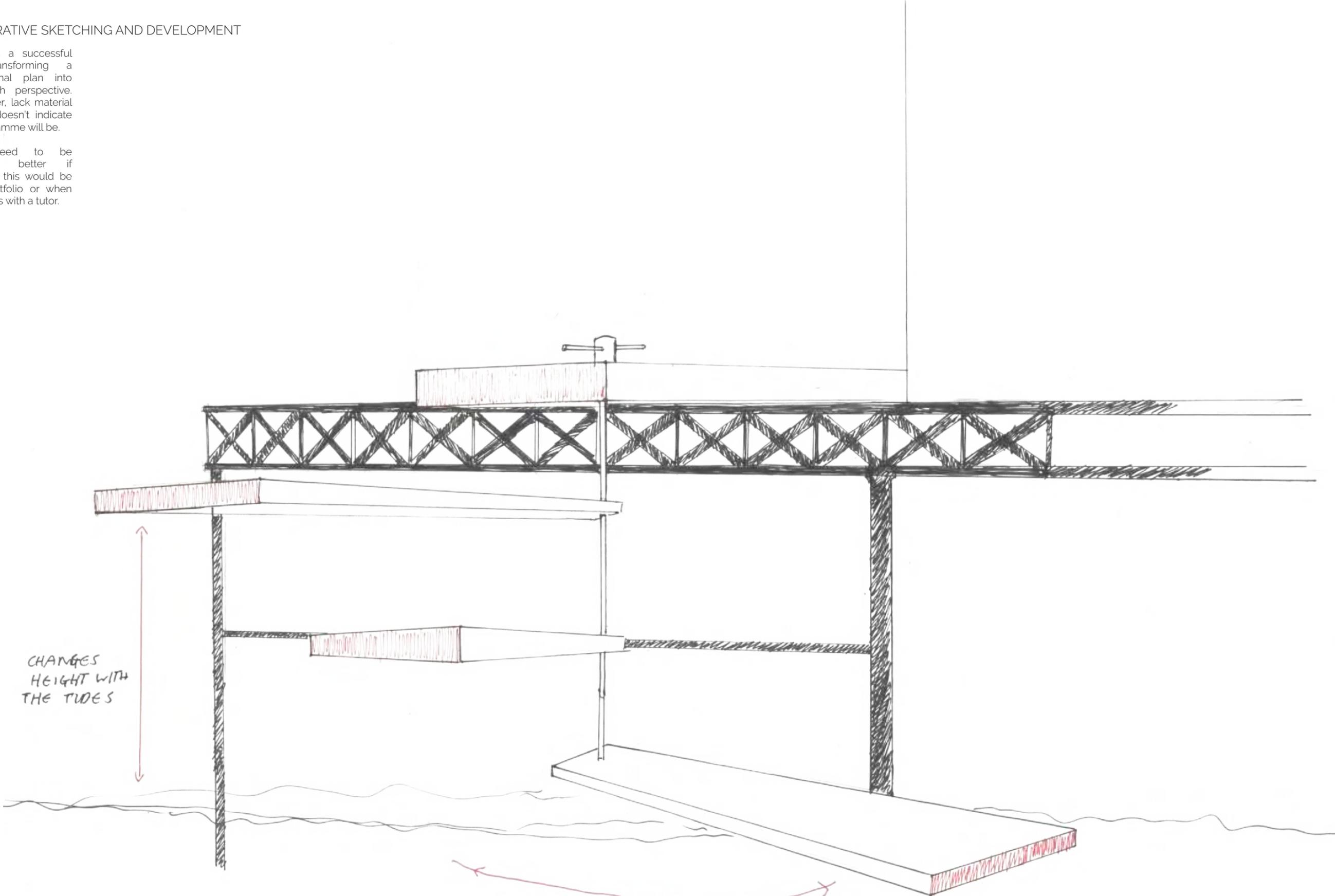
I shall draw a perspective of the current drawing to communicate my ideas clearer.

PARTI - DIAGRAMS

INITIAL ITERATIVE SKETCHING AND DEVELOPMENT

This sketch is a successful way of transforming a two dimensional plan into something with perspective. It does however, lack material qualities and doesn't indicate what the programme will be.

This will need to be communicated better if something like this would be used in a portfolio or when discussing ideas with a tutor.



CHANGES  
HEIGHT WITH  
THE TIDES

MOVES TO DIFFERENT ORIENTATIONS  
FOR DIFFERENT VEHICLES AND TYPES  
OF WEATHER

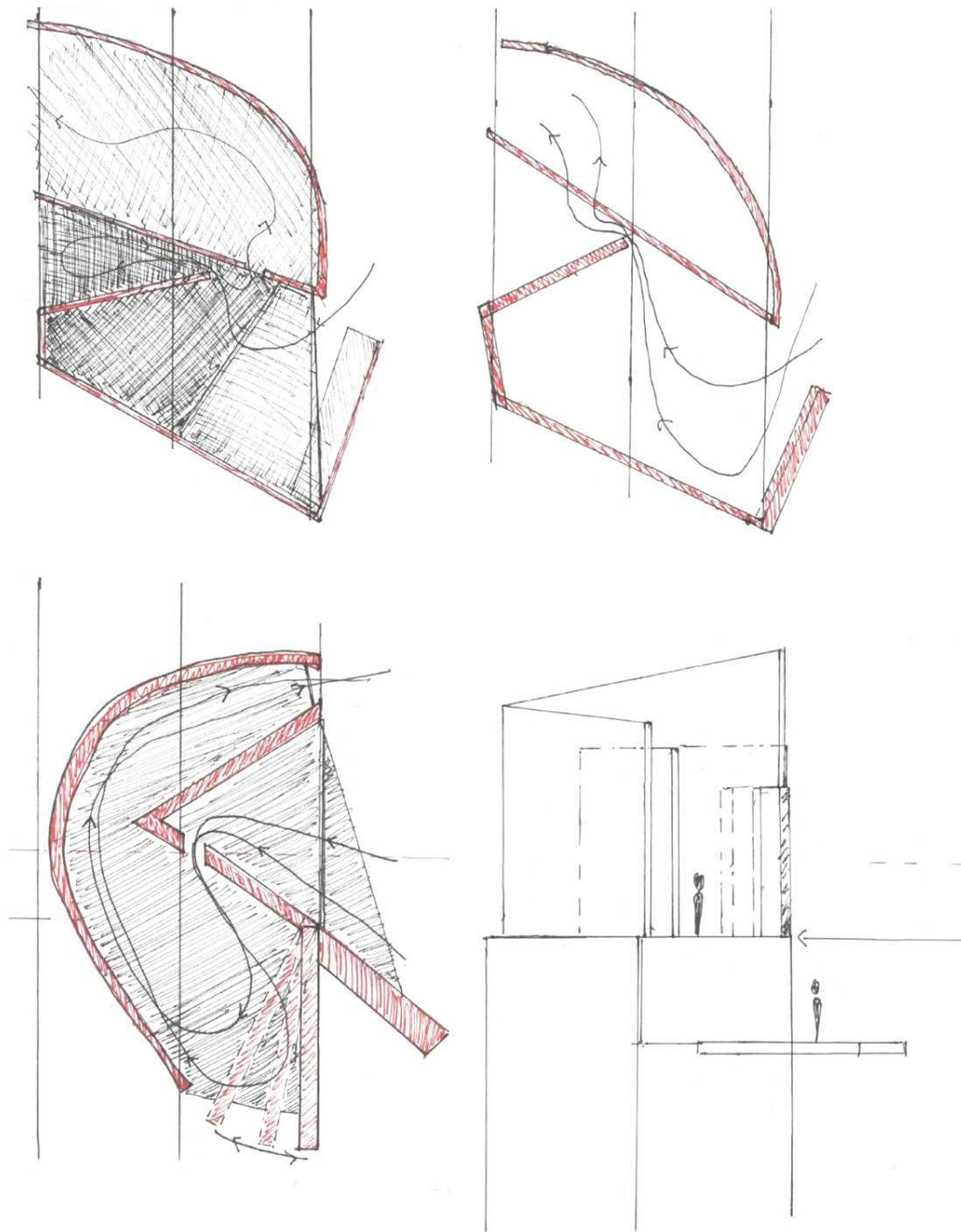
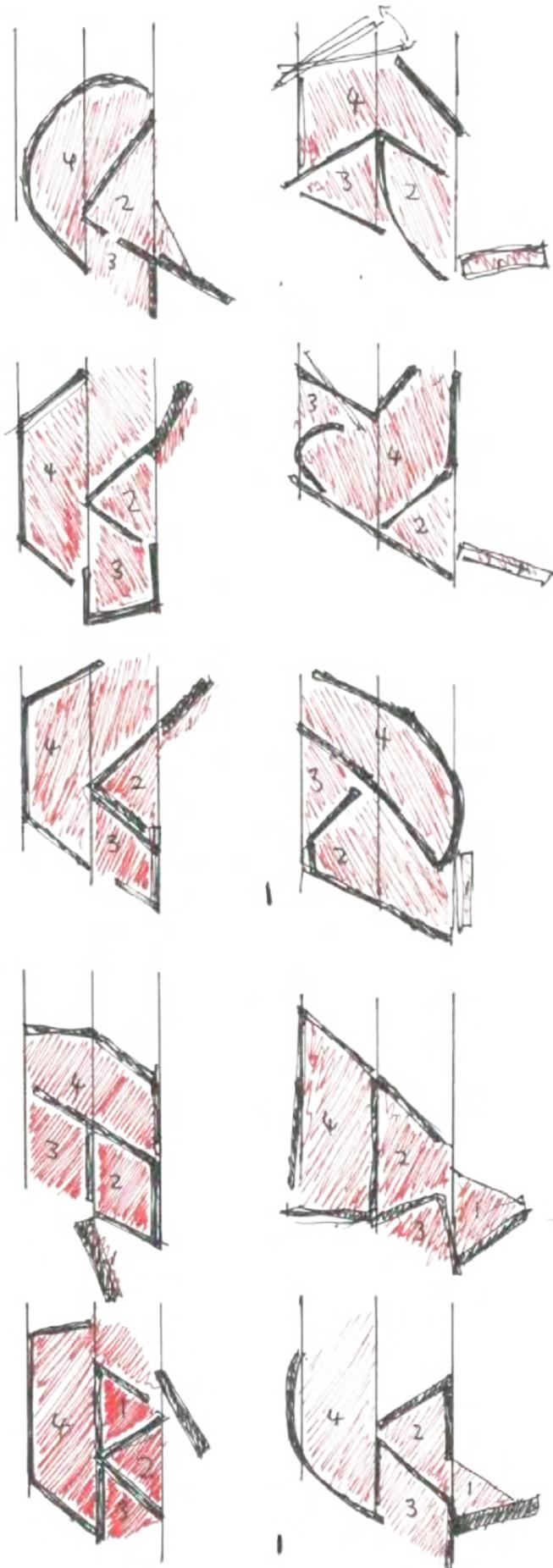
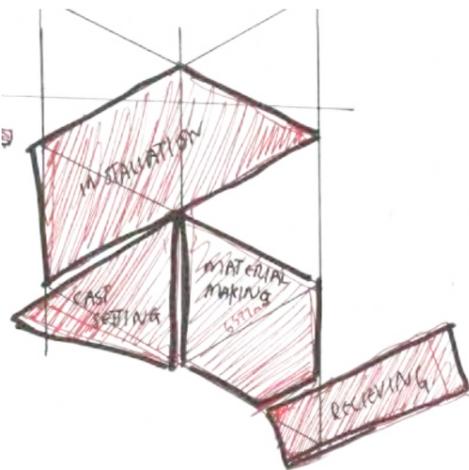
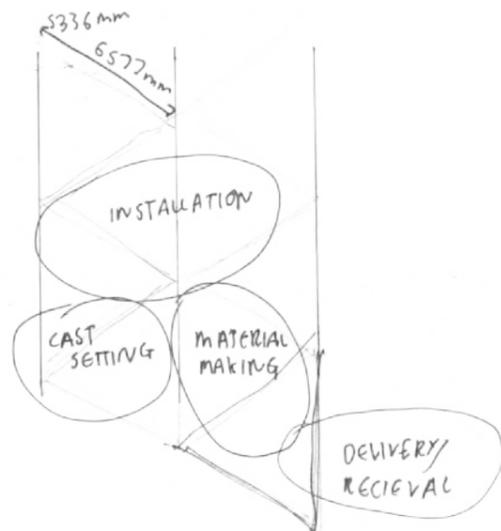
**PARTI - DIAGRAMS**

**INITIAL ITERATIVE SKETCHING AND DEVELOPMENT**

**Layout:**

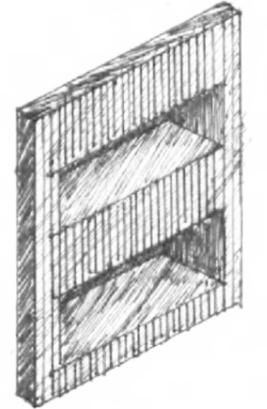
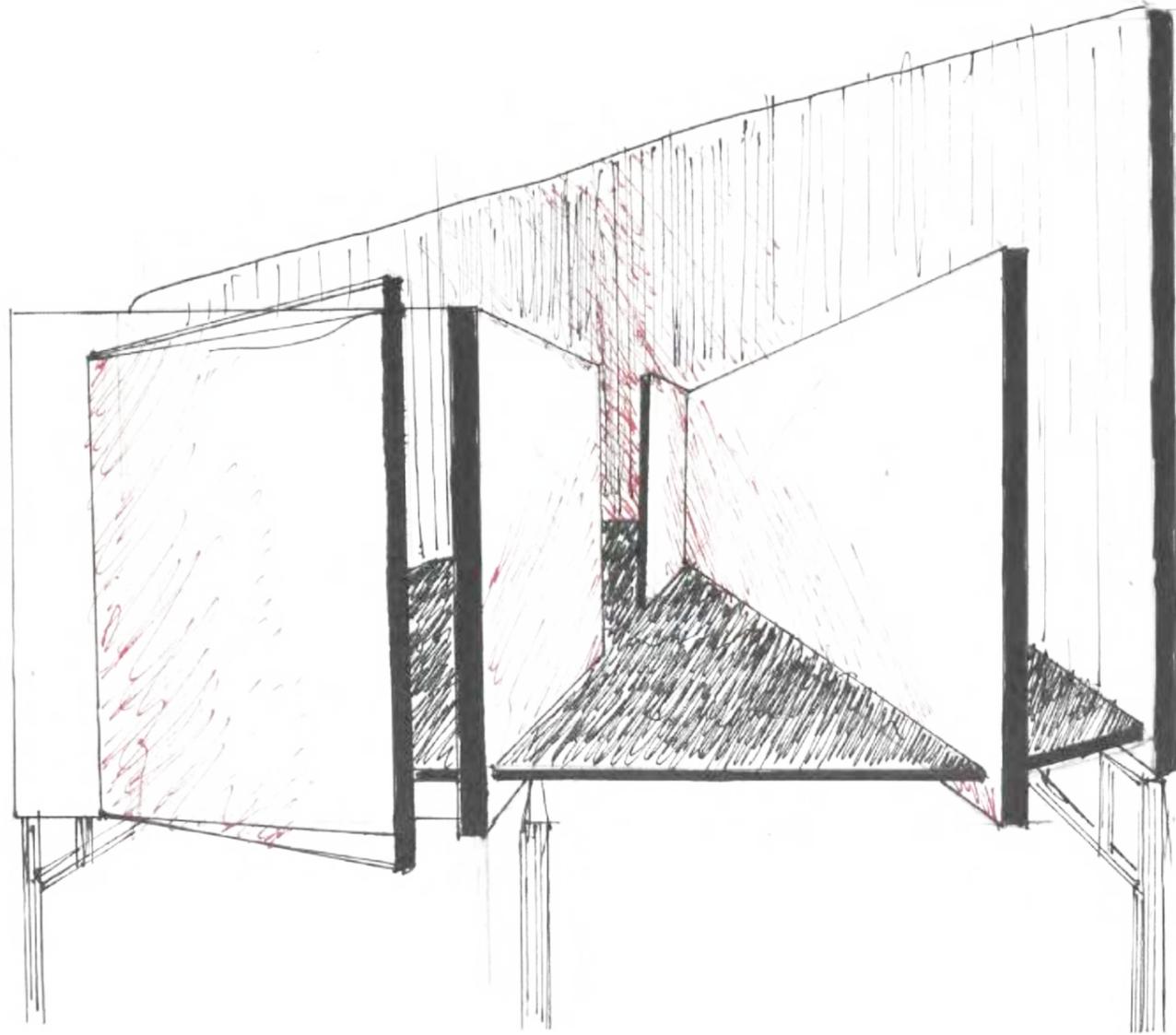
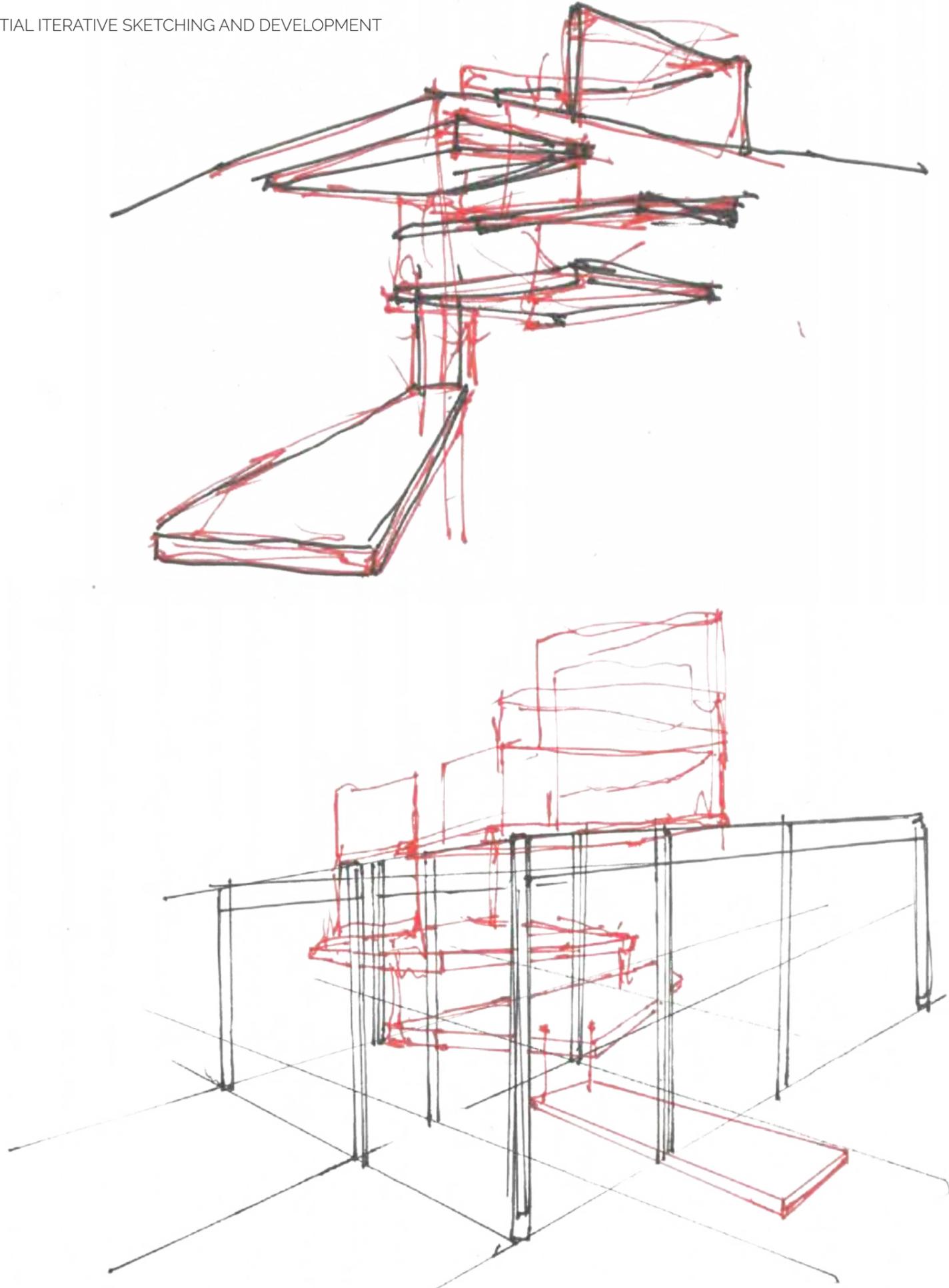
This page explores multiple iterations of the same thing. Based on the current rough ideas of the programme, these rooms are what have been deciphered. I want to consider the existing pier structure when designing, so, some of the placements are tailoring to the anchor points for the cross bracing.

The main commonality is that the access for boats will need to be on the east side - away from the rest of the pier and on the same side as the boats arriving direction.

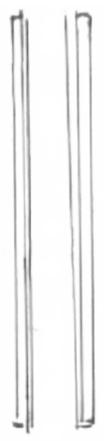


**Reflection:**

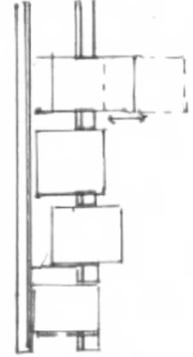
I decided to pull two of the iterative designs forward and to explore them further. This way, I was able to look at the movement within the spaces and how the walls (as explored previously) could move to create different spaces.



WALL MADE FROM WOOD



WALL



**Reflection:**

This spread shows how the progression from conceptual to more detailed, and how this process may work.

The first sketch was a conceptual sketch showing movement and layout, based on the sketches on the previous page. It then develops to sitting in site, still as a perspective sketch. Once the layout was clear of where it was going to be on site, a perspective sketch looking inside the space was drawn.

This led to the idea of what it is like in the space and what are the functional requirements of the space. This last sketch is a refined drawing suggesting potential options for in-wall storage and how it may work. It is also looking at the materials and cladding for the surface.

PARTI - DIAGRAMS

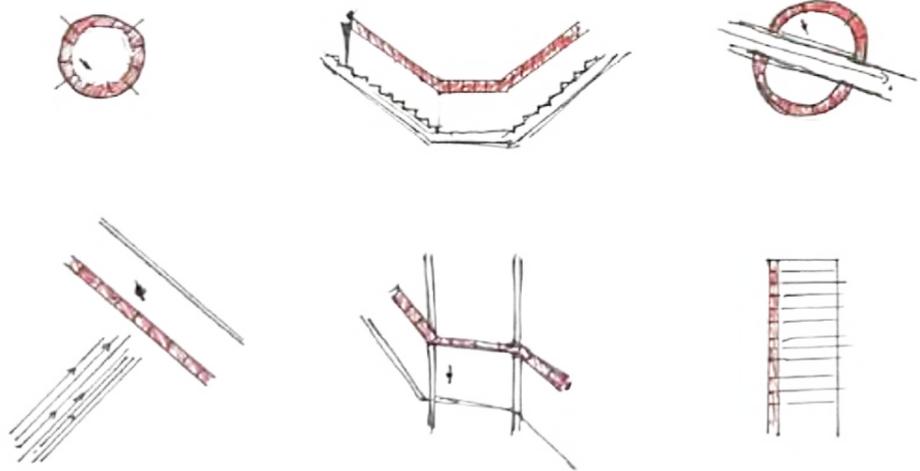
INITIAL ITERATIVE SKETCHING AND DEVELOPMENT

After drawing some layouts of what the spaces could look like, I decided to sketch some conceptual ideas of how and what the casting room would look like.

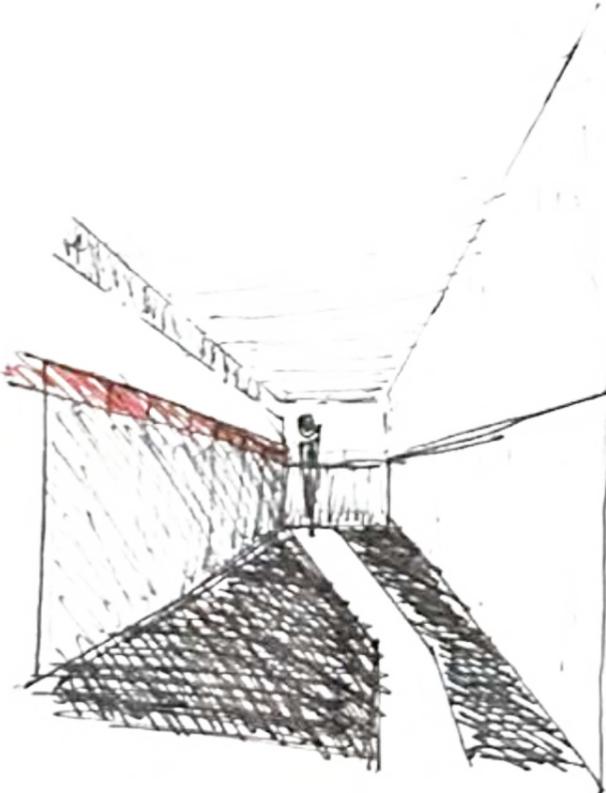
The red in the diagrams is where the chalk/materials are placed. These are different types of storage units, and as this room is generally a place where people would just come in and out to place or collect the casts.

This is where the idea developed that the casting room could become a threshold. It could be a place that is in the in between.

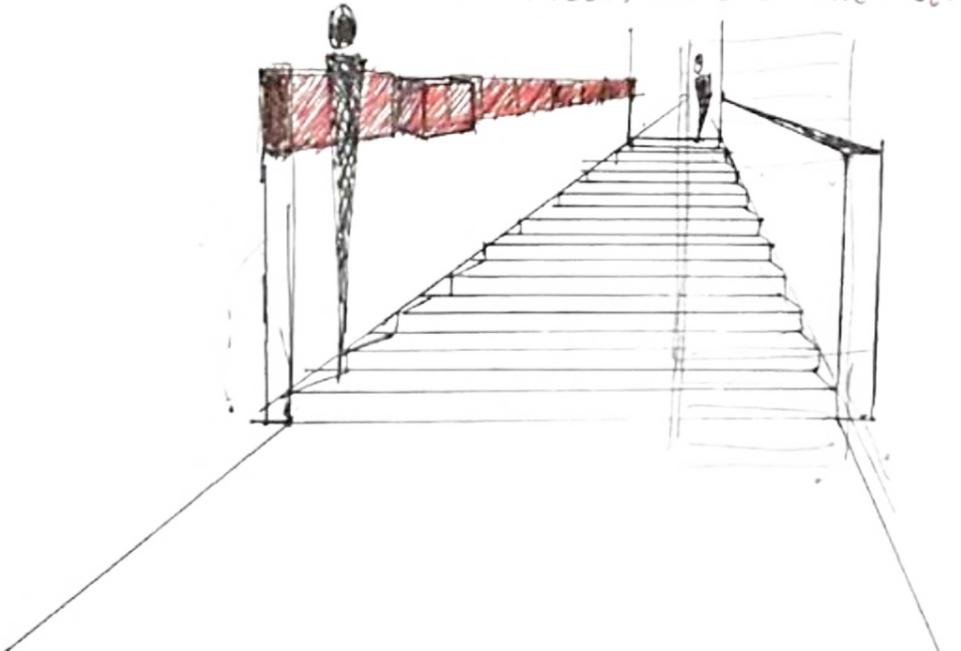
CASTING/SETTING ROOM:



This threshold is orientated so that the casts are on the exterior wall which would be exposed to the wind. This would speed up the drying process.

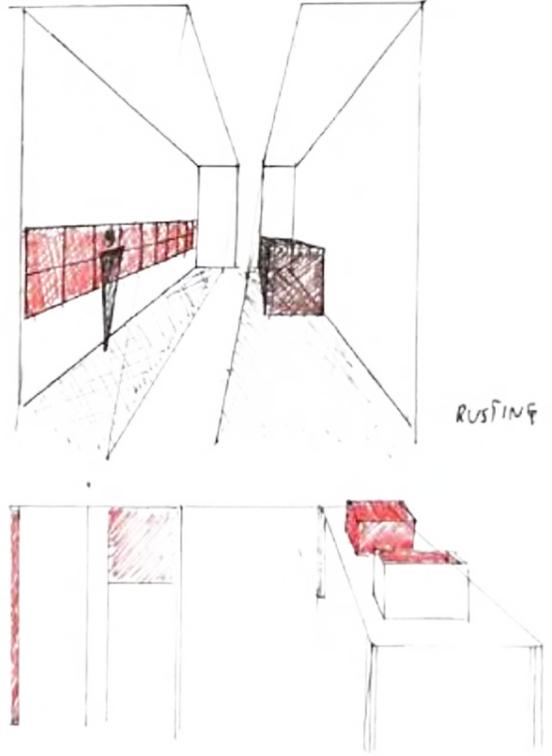


CASTINGS IN THE WALL, EXPOSED TO THE ELEMENTS AND IS PLACED/REMOVED WHEN SET



WALKWAY AND THRESHOLD BETWEEN MATERIAL MAKING SPACE AND THE WORKSHOP

GALLERY-BOX STYLE ROOM: MINIMALISTIC



RUSTING QUALITIES

Tutorial - Rob:

When speaking to Rob about this idea of a threshold for the casting room, he raised a very valid point that the method of making the chalk protective structures has not been decided yet, so the materials might not even need to be cast.

These sketches were also designed for a specific purpose and function, so before any more iterative sketches could go further, a proper method of how the structures are made will need to be decided.

## **PARTI - WORKSHOP PROCESS**

**PART I - WORKSHOP PROCESS**

**WORKSHOP PROCESS**

**Understanding the product to design the workshop:**

As the programme is going to be a workshop, where participants will make and build protective structures during the course of the festival. In order to design the workshop spaces sufficiently, there needs to be a clear understanding of what the participants are making and how they are going to do so.

Before any other iterative design work can continue, figuring out all of the logistics of the 'final products' need to be determined first.

**Questions to work out:**

What are the structures going to be?

They are going to be protective shelters. One will be protecting people from the wind and another is for shading the sun/rain.

How many people will they need to cater for?

This will need to be determined by the number of people and what they look like. Most likely to be at least 2,000mm tall.

How big are the structures going to be?

They will be designed for 1-3 people to comfortably fit.

What can chalk be mixed with?

Need to research

What can raw chalk be coated in to protect it?

Need to research

How would the structure be lifted?

It could be carted on pulley systems or broken down to be carried in parts

How heavy is it in comparison to size? (Density)

Try to aim for something lighter, better for carrying and the environment

How long will it take to build one structure with 10 to 12 people?

Can only determine this when the process of making is decided

How will the workshop have to facilitate the building process?

Need to research site specific and workshop specific information

How could the structures come apart and together again?

Using connections which can disconnect in parts, using modular designs, having the structure made into framed sections



Copper tubing. <https://www.luvata.com/products/hollow-conductors>

The chalk structures would benefit from having a framework system to hold it in place.

Looking back at the Totem from the last term, the idea of using chalk with steel and copper would potentially be aesthetically and structurally pleasing.

Steel is readily available and close to Brighton, also it is structurally better to work with. Copper would aesthetically add to the chalk structures, but would not help as much structurally while still being sustainable.



Steel tubing. <https://rotaxmetals.net/what-makes-square-metal-tubing-suitable-for-a-variety-of-applications/>



Steel suppliers, Hove. <https://www.google.co.uk/maps/search/steel-supplier+brighton/@50.8887482,-0.3742199,10z/data=!3m1!1e1>

CHALK

History of chalk:

A lot of chalk was deposited during the Cretaceous Period of geologic time. It was a time of global high sea levels that began at the end of the Jurassic Period about 145 million years ago and the beginning of the Paleogene Period about 66 million years ago.

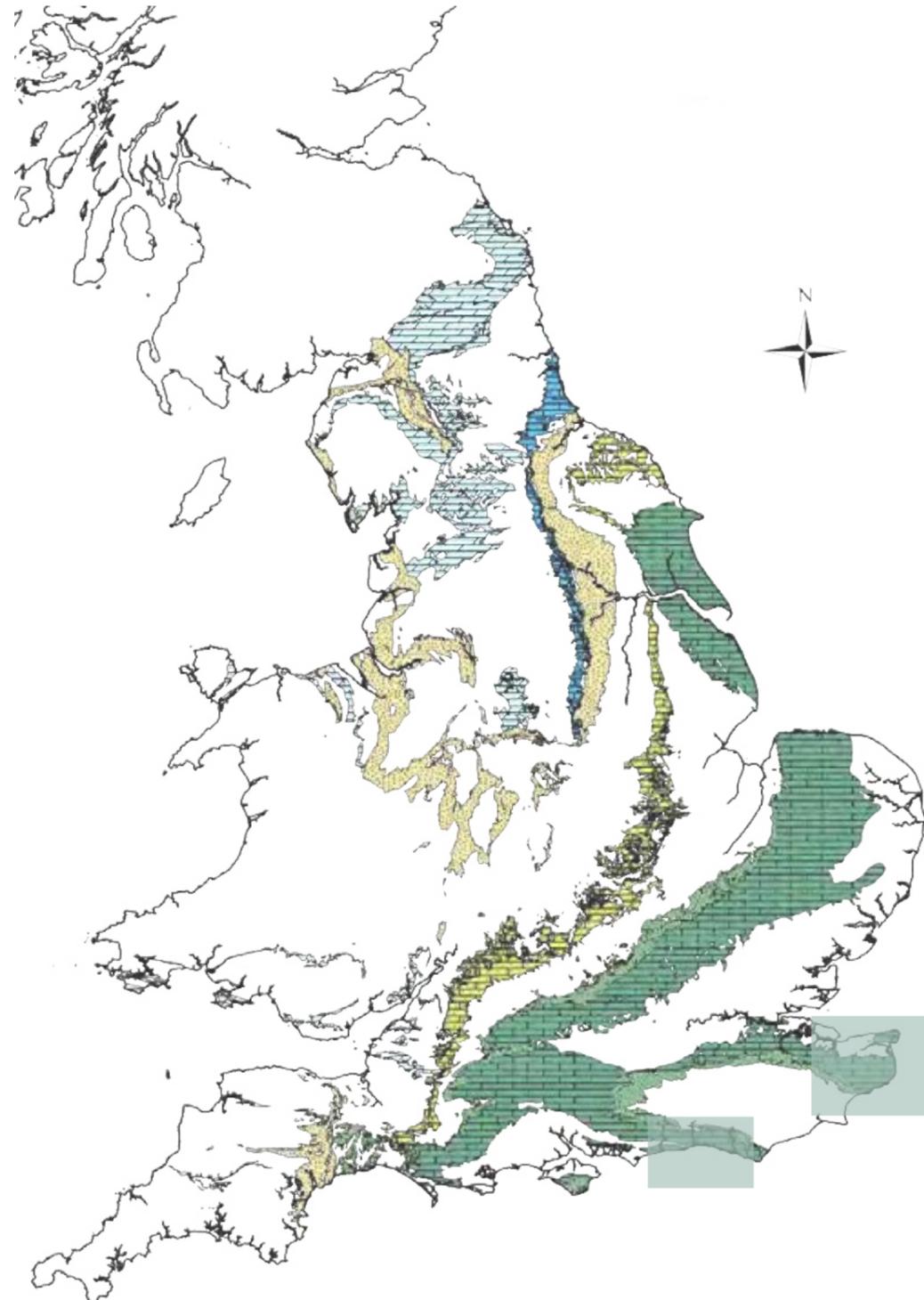
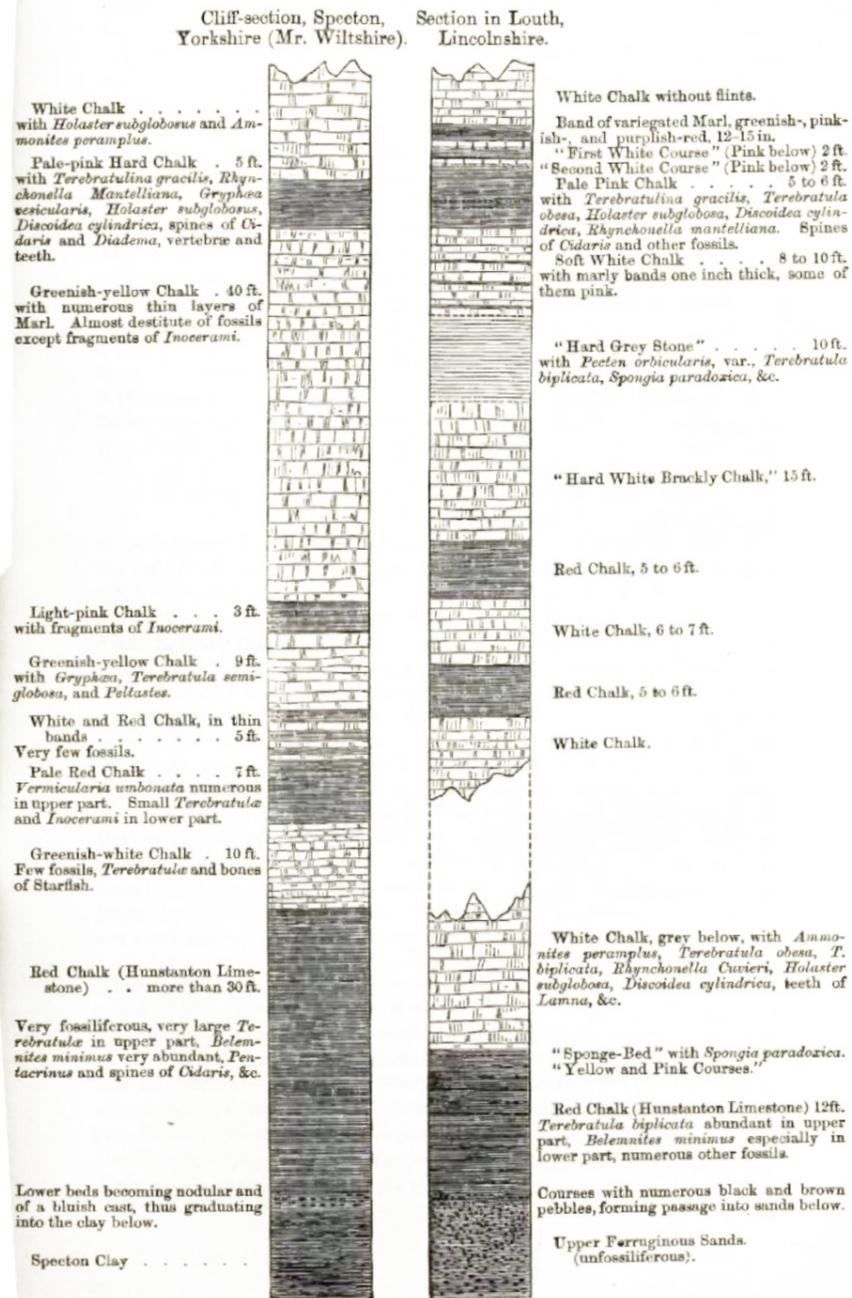
Chalk is a variety of limestone composed mainly of calcium carbonate derived from the shells of tiny marine animals known as foraminifera and from the calcareous remains of marine algae known as coccoliths.

It forms from a fine-grained marine sediment known as ooze. When foraminifera, marine algae, or other organisms living on the bottom or in the waters above die, their remains sink to the bottom and accumulate as ooze. If most of the accumulating organic debris consists of calcium carbonate, then chalk will be the type of rock that forms from the ooze.

Today it would be classed as a non-clastic carbonate sedimentary rock that is mostly composed of the mineral calcite. Natural chalk consists of gradual accumulation of very small calcite plates.

Natural chalk is rather resistant to erosion in comparison to other natural composites (like clay) due to its porous structure.

Fig. 3.—Comparative Sections of the Lower Chalk &c. of Yorkshire and Lincolnshire.



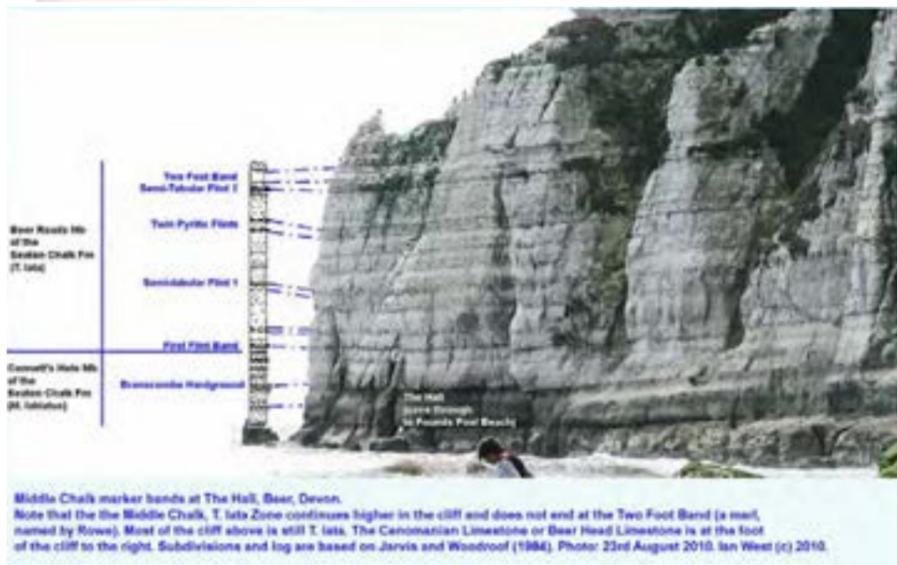
Chalk located in Britain:

Chalk, shown on this map, deposits on the East and South East of the country. The highest point on the map is York. The largest proportion is located in the South East.

For the workshop to take place, it will come from places such as Eastbourne and Dover.

Distribution of aquifers. 2006. <https://qjeh.lyellcollection.org/content/40/4/335/tab-figures-data>

- Chalk
- Greensands
- Jurassic limestones
- Permo-trassic sandstones
- Permian Megnesian limestone
- Carboniferous limestone series



Layers of chalk cliff. <http://www.southampton.ac.uk/~imw/Beer.htm>

**PART I - WORKSHOP PROCESS**

**CHALK**

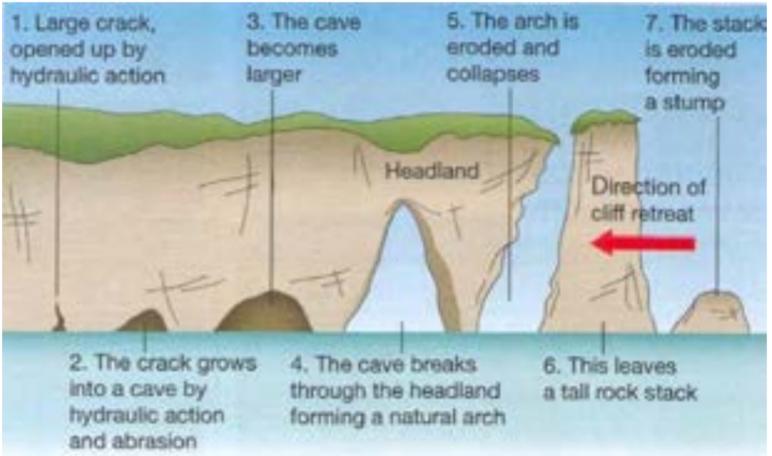
**Mining of chalk:**

Chalk is mined from chalk deposits both above ground and underground. Chalk mining boomed during the Industrial Revolution, due to the need for chalk products such as quicklime and bricks.

Some abandoned chalk mines remain tourist destinations due to their massive expanse and natural beauty.



Margate caves, 2013. <https://theisleofthetnews.com/2019/03/07/stunning-photos-show-the-progress-being-made-at-margate-caves/>



Coastal erosion. <http://thebritishgeographer.weebly.com/coasts-of-erosion-and-coasts-of-deposition.html>

**Physical properties:**

Chalk is usually white or light grey in colour. It is extremely porous, permeable, soft and friable. It is soft, fine-grained and easily pulverized.

**Using chalk as a material:**

When chalk is broken down into dust, it is such as fine material, each particle almost as small as it can go.

Due to this, it can be compressed a lot more than other materials. This makes it a very dense and strong structure.

What chalk struggles with structurally, is that it does not bond together very well on its own - allowing it to break down and erode in harsh weather conditions.

As a building material on its own - with no surface protection/bonding to anything else - it will break down and can not rely on being part of a permanent structure.

**Reflection:**

This is where I will research methods, materials and carry out tests to determine how these protective structures will be made.

STAGE	TYPE & LOCATION	ROCK	ROCK	ROCK	ROCK	ROCK	ROCK
GLACIAL							
PLEISTOCENE	Chalk with glauconitic at base	White limestone with glauconitic at base			Wasting		Wasting
CRISTIAN			Wasting				
SAUCONIAN					Chalk with flints		
CONTACTAN	?					Chalk Rock	
TURGIAN			Chalk		Chalk	Waltham Rock	
CONCRETAN	White sands Glauconitic sands	Glauconitic sands	Glauconitic sands and sandy limestones		Salisbury Rock		Chalk
					Grey Marl	Grey chalk	Tottenham stone
					Chalston Rock	Chalk Rock	Chalk

**PART I - WORKSHOP PROCESS**

**MATERIAL RESEARCH**

**Bonding agents for chalk:**

Cements  
Resin

**Concrete and resin:**

Tiles can be formed from mixing chalk, concrete and resin. As a combination of materials, it was successful to bonding the chalk.

However, once the oil based acrylics mix with the chalk, it makes them permanent and unsustainable solids. It would never biodegrade and the chemical reaction would be irreversible.



Prime Matter, chalk and resin. Olivia Aspinall. 2014. <https://www.frameweb.com/news/prime-matter-by-olivia-aspinall>

**Concrete:**

When mixing concrete and chalk together, it reduces the durability of the bricks, making it structurally more brittle.

It becomes more susceptible to water and acidic rain.



Concrete mixture. <https://www.concreteyou.com/products/#/>



Singh, Vineet. "Experimental studies on replacement of cement with chalk powder and coconut fiber in conventional concrete" 2016. Page 308.



**Resin:**

Using chalk as a pigment with resins is very common.

Chalk doesn't contribute to the structural side of the chemical mix, it just gives the resin a milky white colour.



When looking at bonding agents for chalk, the majority of the options are oil based resins. These chemicals, when they react with the chalk. They would then bind the materials together - which is something that I need for the project, but it leaves a similar negative affect on the environment to concrete and other bound materials. It causes them to become permanent and the chemical process cannot be reversed.

**Reflection:**

Due to the negative environmental factors that mixing chalk with these materials will cause, a more economical option will have to be sourced. This is where next this research will be carried out.



Resin jewellery. <https://dinosaurdesigns.co.uk/products/resin-block-ring-black-dot-on-chalk>

**PART I - WORKSHOP PROCESS**

**MATERIAL RESEARCH**

**Jesmonite:**

Jesmonite is a water-based composite material used to make decorative moulded objects. It can be cast and laminated.

**Building benefits:**

- Superior cast and glass reinforced mouldings
- Solvent free and no VOCs
- Fire resistant
- Lightweight
- Impact resistant
- Easy to use
- Adaptable material
- Suitable for decorative cast objects, mould cases, and wall panels
- It can replicate nearly any surface, colour, or texture




Jesmonite casting workshop. Phil Cuttance. 2019. <https://www.barbican.org.uk/whats-on/2019/event/jesmonite-casting-workshop-with-phil-cuttance> 130

Jesmonite furniture. Malgorzata Bany. 2018. <https://www.dezeen.com/2018/09/16/london-design-festival-malgorzata-banys-jesmonite-furniture-the-new-craftsmen-exhibition/>



Jesmonite is a modern material used in new art projects and workshops. Other than being a great thing to use for smaller items, it has also been used for furniture design.

This designer's pieces have a plaster-like finish, but are stronger than works made in plaster and are cool to the touch like stone. The durable material can also be cast to resemble wood, stone or other materials.

**Reflection:**

I want to use this material with chalk to test its durability, strength and how it would be able to withstand the natural elements.

PARTI - WORKSHOP PROCESS

MATERIAL RESEARCH

Tessa Silva, an RCA graduate created a new castable material from surplus milk and chalk.

Silva's material is a modern take on one that was originally used as flooring in the Tudor period.

It was made using sour milk that had expired, and was poured similarly to concrete.

**"The material that I have adapted from this is much more solid."**

By extracting the milk proteins, it means the material is purer and harder in consistency, and doesn't take much time to cure or dry when compared with the Tudor milk flooring.

Life span:

If it was soaked in water for a number of hours, it will eventually begin to decompose and crumble into dust.

This means it would not be able to be the external material source for the structures - but it implies it could be used as an internal structural element or skin.



Chalk and milk Tessa Silva 2019 <https://www.dezeen.com/2019/12/10/tessa-silva-chalk-cheese-homeware-design/>

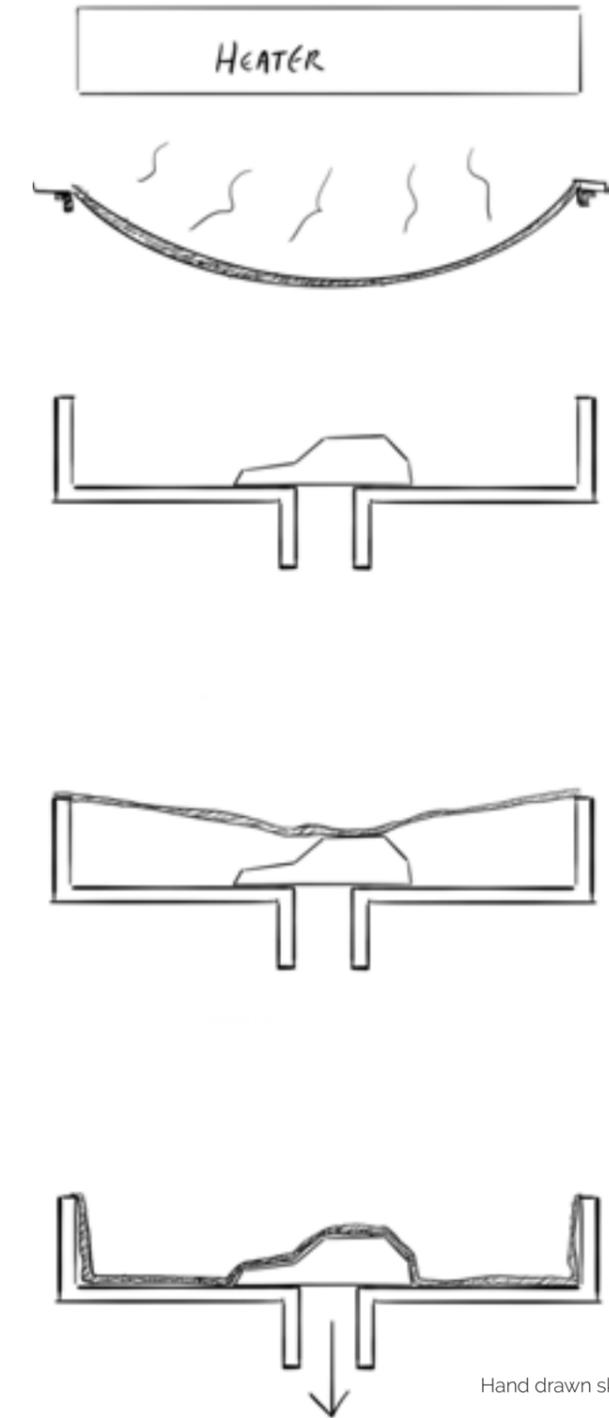
**PART I - WORKSHOP PROCESS**

**MATERIAL RESEARCH**

**Vacuum forming plastic around the chalk:**

If the structures were to be made in a similar way to dry stonewalling, a layer of thin acrylic/plastic could be vacuum formed around the surface of the chalk and therefore would become a protective skin.

This method would be successful at protecting the chalk surface layers, ones most susceptible to erosion, **but it is a permanent material which would be difficult for re use.**



Hand drawn sketches  
Author  
2020

**Acrylic paint:**

Very similar to the vacuum forming, even using something as thin as an acrylic wash of paint would protect the surface. Other than the fact it is again an **oil based permanent material**, it would work well. However, from an aesthetic point of view, it would completely remove the authentic and beautiful texture and colouring of the chalk.

**Linseed oil:**

Linseed oil is a fairly common type of paint, which is used for coating and protecting surfaces.

**Pros:**

It is low maintenance

It is more elastic than other coatings which allows movement/warping of wood etc

It enhances the colour of the material beneath

Greater for the environment than other methods

**Regional!**

**Cons:**

Lower viscosity, harder to apply than other coatings

Disfigures slightly, especially when moisture is embedded within the material beneath

**Lime-wash:**

When chalk is heated to 800 degrees and mixed with water, it becomes a lime-putty. When it is diluted further, it becomes like a paint.

If this is applied to the structure, the chemical reaction made from heating up the chalk makes it resistant to the elements. This resistance will allow the raw material structure to stand with protection.

**Pros:**

The structures would be made of chalk but also protected by the same thing.

It is less permanent

There is plenty of resources at the pavilion!

**It stops any chalk being wasted in the building process**

**Cons:**

It needs to be heated up on site



Linseed oil finishing <https://ardec.ca/en/blog/22/linseed-oil-a-natural-solution-for-wood-finishing>

**CHALK - THE BEST SOLUTION!**

I liked the idea of using the same material that is forming the structure to also protect it. It has a slightly ironic meaning - as this is a material which suffers from erosion - and I want the amazing raw material that it is to be the thing keeping the new protective structure's safe.

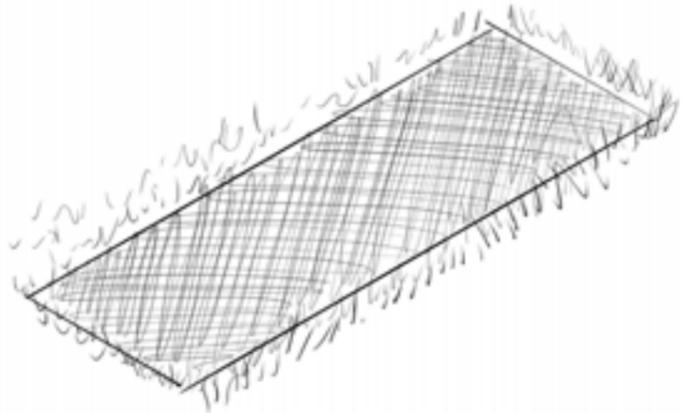
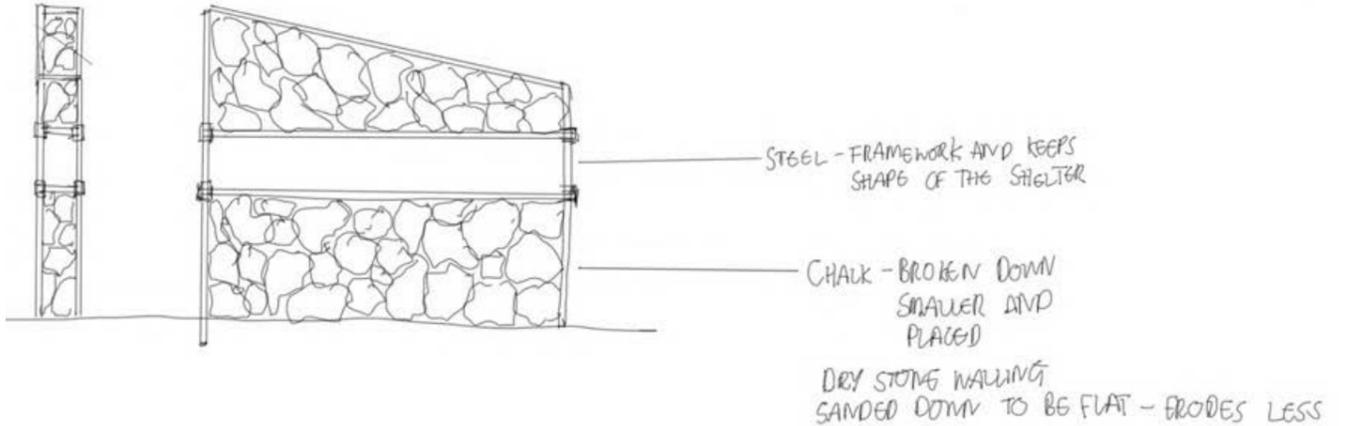
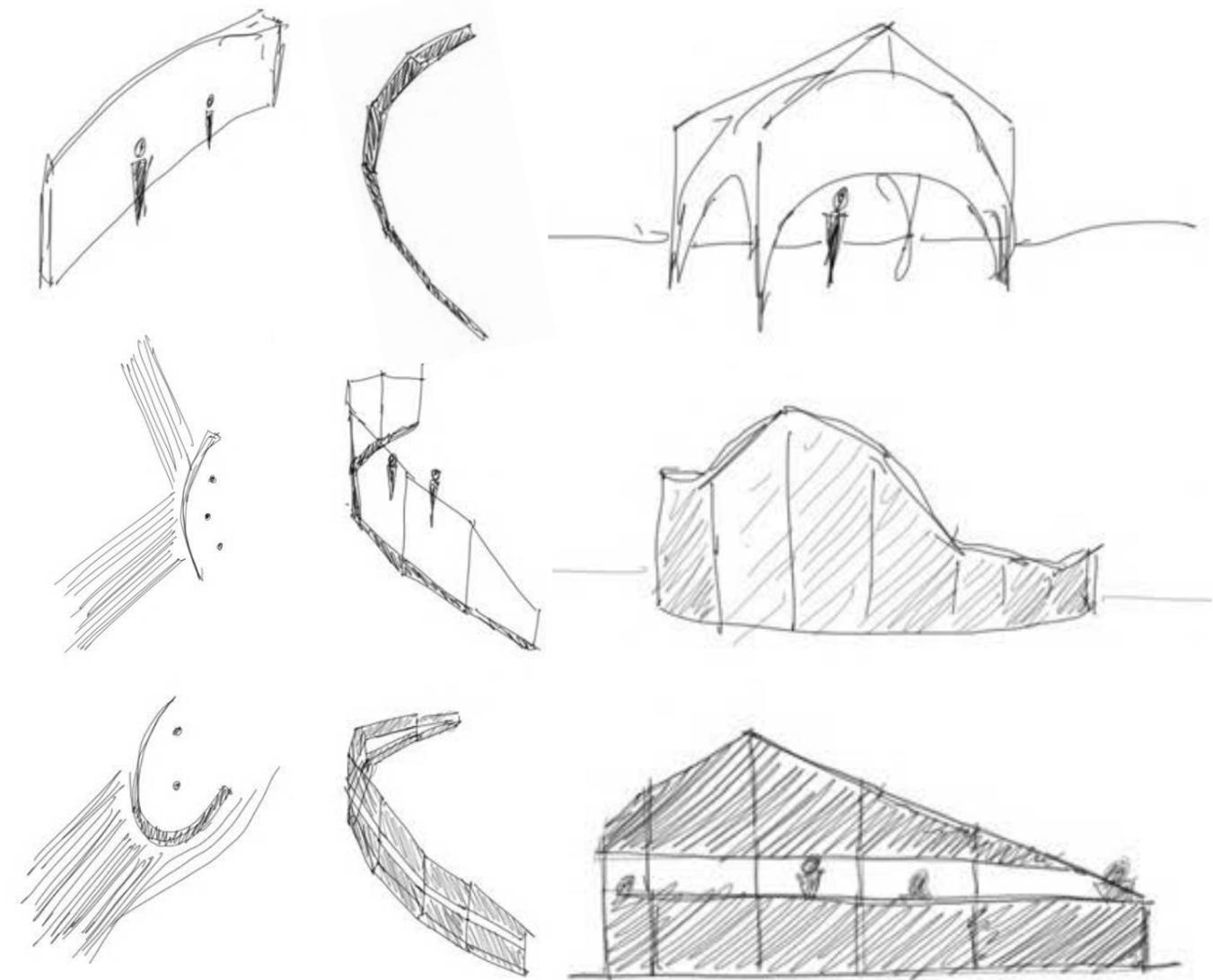
**PART I - WORKSHOP PROCESS**

**CHALK STRUCTURE BUILDING METHOD**

When I was iterating different types of wind shelters, I became fond of the simplistic design of a wall which would stop the elements penetrating through.

This is where I thought of making a modular design which could come together and apart.

Hand drawn sketches  
Author  
2020



**Dry stone walling:**

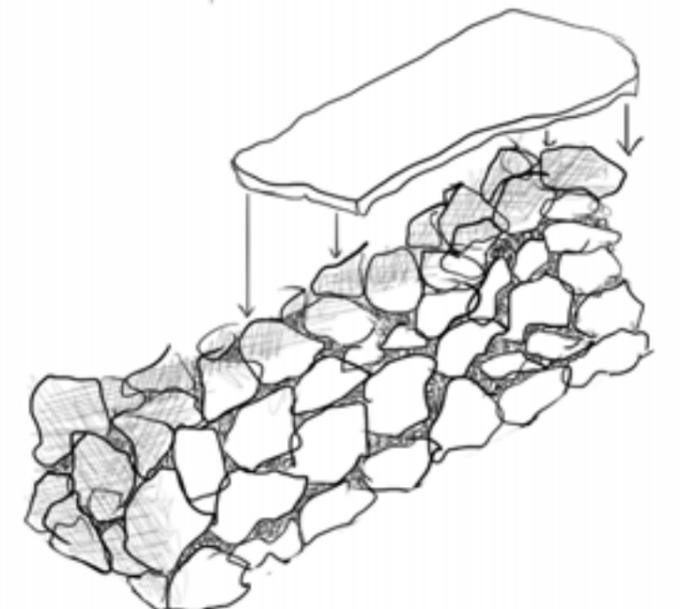
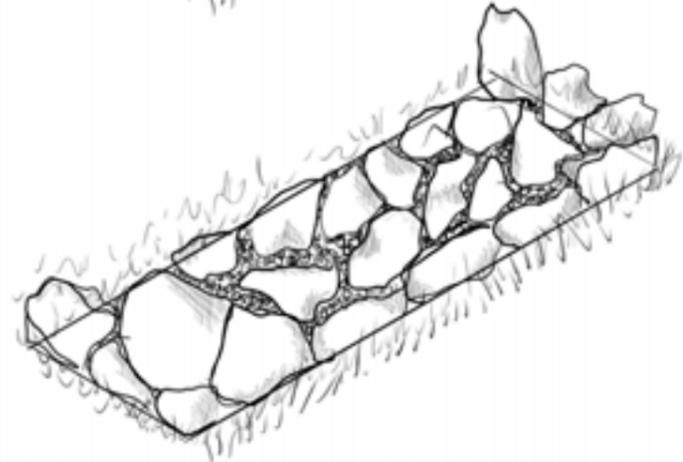
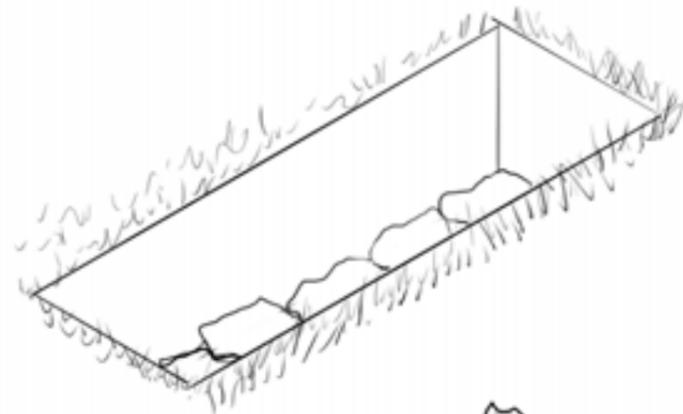
First, map out where the wall is going to sit on the ground.

Dig a foot deep foundation and place the largest stones faced flat at the bottom. The wall is going to rest on this.

Work up the wall by creating a pile which is carefully balanced and the stones progressively get smaller as the wall gets higher.

As the wall gets taller, it will need to be stabilised, so use small stones to fill in the gaps between. This will lock the wall in place more.

Traditionally, the stones need to be larger on the top, it will be a greater force which covers a larger area of the wall.



**Reflection:**

I think that this method would be a great way to create the structures. It opens up the natural process of raw materials and there can be a performance style element for people to watch this process take place.

I would like to use as few materials as possible for the protective structures and keeping chalk the main raw ingredient of the process. **The Column by Adrian Paci** is what inspired this performance approach to the programme.

Hand drawn sketches  
Author  
2020

**PARTI - WORKSHOP PROCESS**

**CHALK STRUCTURE BUILDING METHOD**

**The Column - Adrian Paci:**

This project primarily focusses on the length of time it takes for cargo ships to travel from one place to another. What I found most interesting is how companies turn these boats into temporary factories, to not waste time.

Paci wanted to highlight the journey of a raw material, starting in one raw form to a beautifully crafted piece of architecture ornamentation.

He hired a group of Chinese craftsmen to work into this raw piece of marble, starting in China and ending in France.



The Column. Adrian Paci. 2013. Tirana. <https://artdesign.unsw.edu.au/unsw-galleries/adrian-paci-column>.



This project and process was documented fully in a 25 minute film. Its simple beauty sparked from the primitive process of building.

**Reflection:**

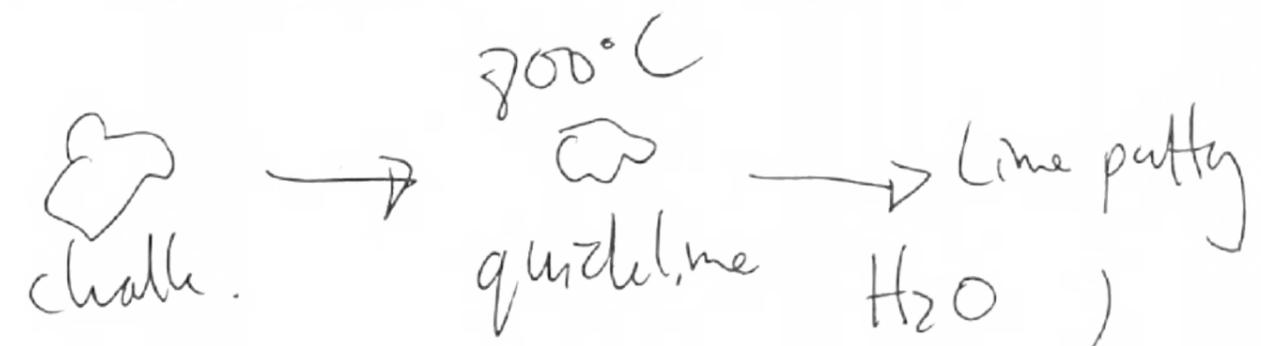
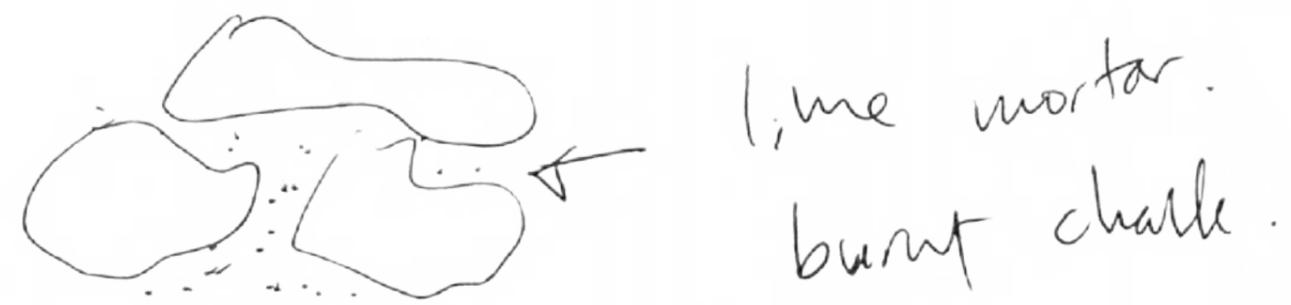
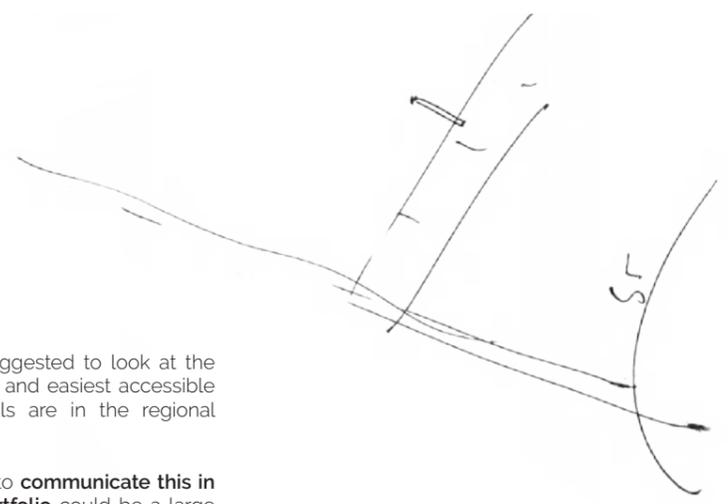
This project has made me realise that I want to keep the construction of the wind and sun shelters minimal and as traditional as possible.

Because of how beautiful the film is, it shows the performance in something like this and it has made me realise I want to make the workshop/pavilion viewable for the festival goers. I want the process to be exposed and admired.

CHALK STRUCTURE BUILDING METHOD

SYSMAT Tutorial:

This conversation was with Ben, one of the SYSMAT tutors.



lime wash -> 'paint' protective coating.

linseed oil -> more weatherproof.  
West Sunex, (flax)

Ben suggested to look at the closest and easiest accessible materials are in the regional area.

A way to communicate this in the portfolio could be a large aerial map, circling a larger and larger area and pin pointing where what materials can be found.

When talking about a beam/craining system for the pavilion, he highlighted the fact that there is a lot of debris under the pier which could be used to make the craining system.

Cast Iron however, is a very heavy and dense material, so it may not be the most suitable option for carrying things.

This part of the tutorial will and has impacted my decision making hugely on how the protective structures are made. As he is very familiar with using a variety of materials, he informed me that the entire structure could be made of chalk entirely. The only thing that would be needed is H2O and a kiln to heat the chalk up. This was very useful, and will influence the way the protective structures are built.

**PART I - WORKSHOP PROCESS**

**CHALK STRUCTURE BUILDING METHOD**

**The structure making process:**

After researching methods and speaking to my SYSMAT tutor, I have decided the way I would like the workshop to run and how the structures are going to be made.

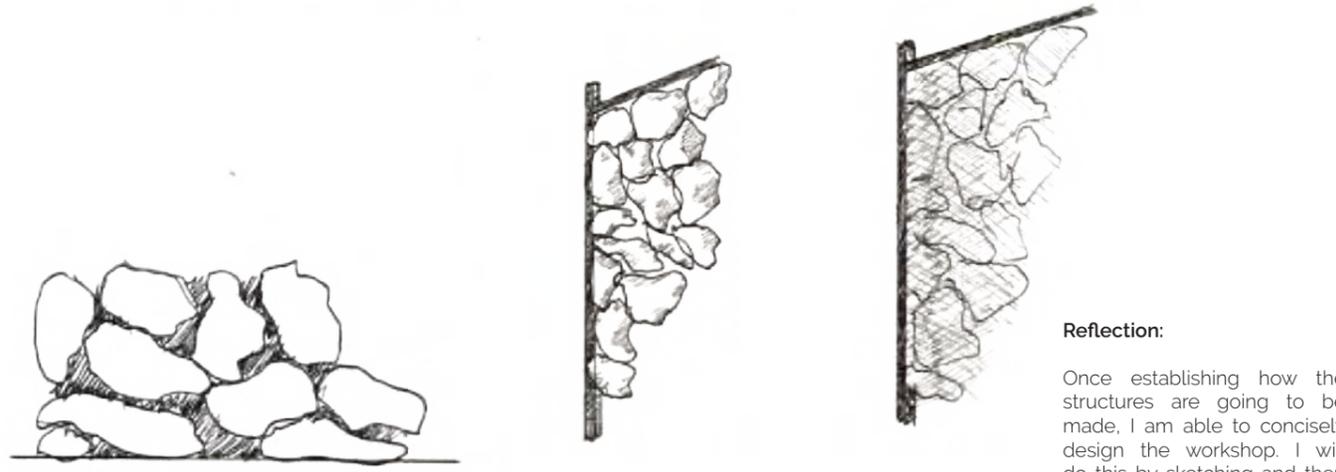
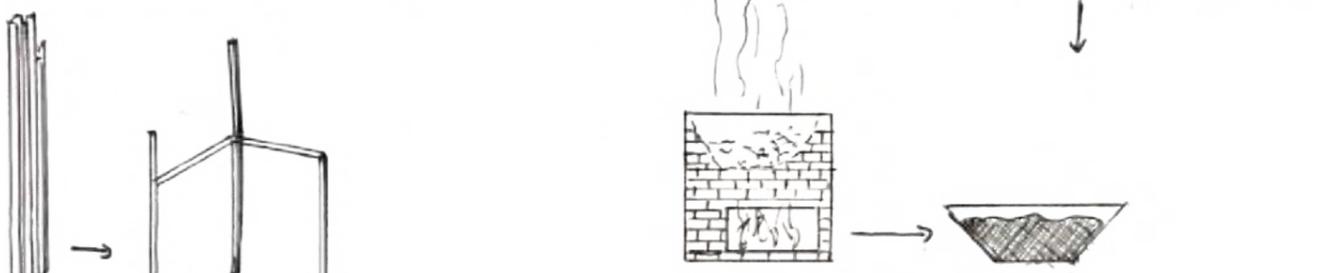
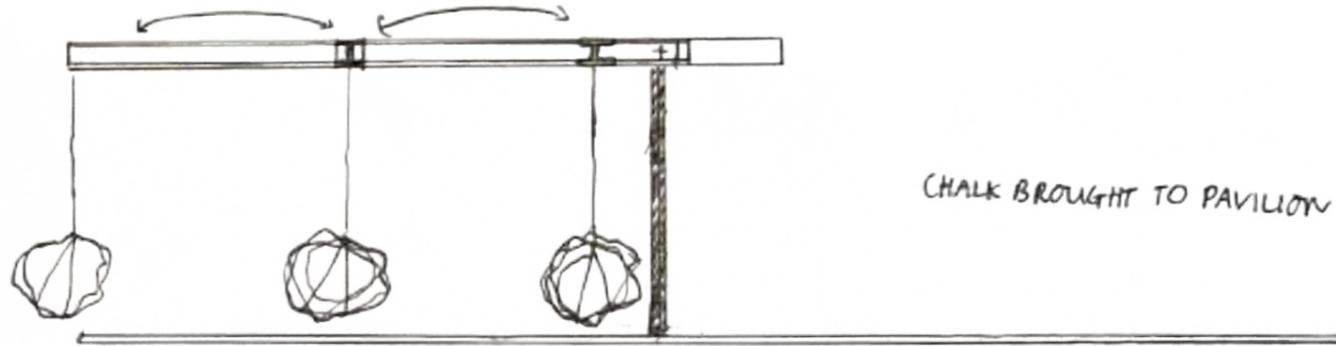
The steel framework is brought to site

The frames are installed together in preparation for the chalk

- The chalk arrives
- The chalk is broken down
- The larger pieces are placed aside
- The smaller pieces and 'dust' from the workshop is collected

- This chalk is heated in a kiln at 800 degrees
- This quicklime is collected
- Some is left and water is added to make a Lime wash

- The structure is built up inside the frame, using the quicklime to cement the structure together
- Once the structures are set in place, the exterior of the structure is sanded down to become a smooth surface
- A layer of the lime wash is added to the structure
- The structure is placed in its specific site location



■ = QUICKLIME  
 ○ = CHALK

HAND SAND PAPER  
 STRUCTURE ON EXTERIOR  
 TO BECOME FLUSH

**Reflection:**  
 Once establishing how the structures are going to be made, I am able to concisely design the workshop. I will do this by sketching and then working into these sketches with collaging in materials and technology.

**PART I - WORKSHOP PROCESS**

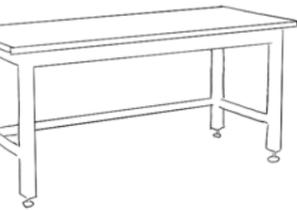
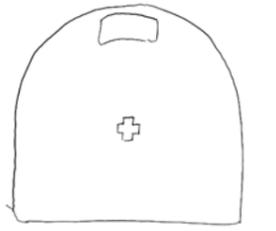
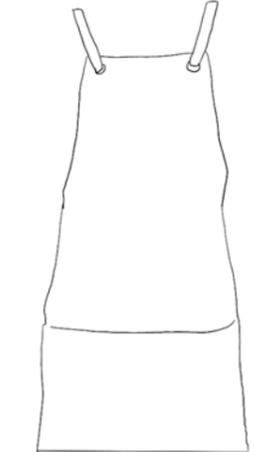
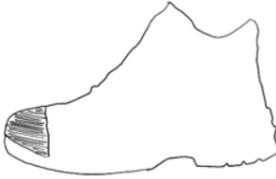
**TOOLS FOR WORKSHOP**

To use a functioning workshop, PPE is essential.

Eye, ear and head protection may also be necessary depending on tasks.



Bandsaw. [https://www.craigmoreonline.co.uk/sip-8-swivel-metal-cutting-bandsaw?gclid=CjwKCAjwnlr1BRAWEiwA6GpwNRUg4zmyRUL2FAd3z5bNVh5WRZ4KkrNBh-gtR\\_zmsJrWMqrO6pKBoCSYUQAvD\\_BwE](https://www.craigmoreonline.co.uk/sip-8-swivel-metal-cutting-bandsaw?gclid=CjwKCAjwnlr1BRAWEiwA6GpwNRUg4zmyRUL2FAd3z5bNVh5WRZ4KkrNBh-gtR_zmsJrWMqrO6pKBoCSYUQAvD_BwE)



- The essentials:**
- Steel toe capped boots
  - Aprons
  - First aid kit
  - Steel workbench



Vice. [https://www.dwtoshop.com/armorgard-ev6-6-engineers-vice?gclid=CjwKCAjwv4\\_1BRAHEiwAtMDLsmip1E8qbz1m0VYLVpml3YKDVJZb96rjOw\\_sgg-8qfK6PxyaSdMBJEBoCDogQAvD\\_BwE](https://www.dwtoshop.com/armorgard-ev6-6-engineers-vice?gclid=CjwKCAjwv4_1BRAHEiwAtMDLsmip1E8qbz1m0VYLVpml3YKDVJZb96rjOw_sgg-8qfK6PxyaSdMBJEBoCDogQAvD_BwE)

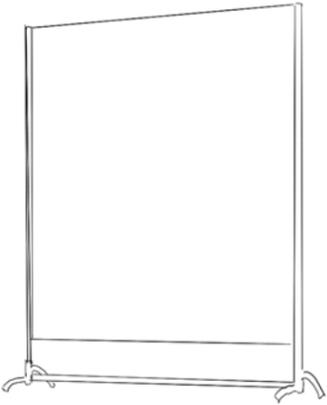
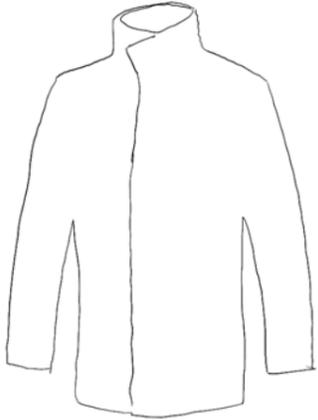


Tool set. [https://www.toolden.co.uk/power-tools/cordless-kits/makita-dlx6044pf3-6-piece-18v-combo-kit-bx-3-x-3-0ah/?gclid=CjwKCAjwv4\\_1BRAHEiwAtMDLskiOE6R-v8Mz0DLtcf1K7WKSrVCbgf8TQfymjQUHWGf6OgA2DRBmRoCN58QAvD\\_BwE](https://www.toolden.co.uk/power-tools/cordless-kits/makita-dlx6044pf3-6-piece-18v-combo-kit-bx-3-x-3-0ah/?gclid=CjwKCAjwv4_1BRAHEiwAtMDLskiOE6R-v8Mz0DLtcf1K7WKSrVCbgf8TQfymjQUHWGf6OgA2DRBmRoCN58QAvD_BwE)

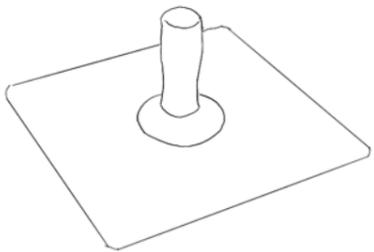
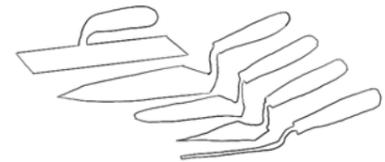


Welder [https://www.machinemart.co.uk/p/010110125/?da=1&TC=GS-010110125&gclid=CjwKCAjwnlr1BRAWEiwA6GpwNW08wbOnl6XjvmJrWqUGUK-Z7bezmkMWYEkEB3z3X6HxmKcpM3fw\\_RoCaj8QAvD\\_BwE](https://www.machinemart.co.uk/p/010110125/?da=1&TC=GS-010110125&gclid=CjwKCAjwnlr1BRAWEiwA6GpwNW08wbOnl6XjvmJrWqUGUK-Z7bezmkMWYEkEB3z3X6HxmKcpM3fw_RoCaj8QAvD_BwE)

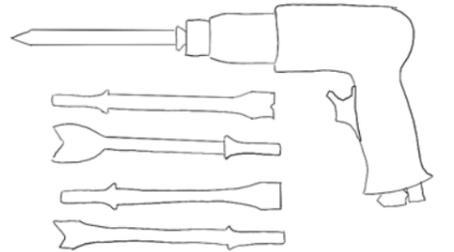
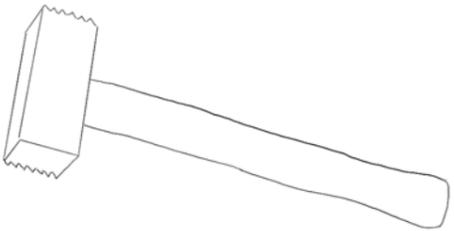
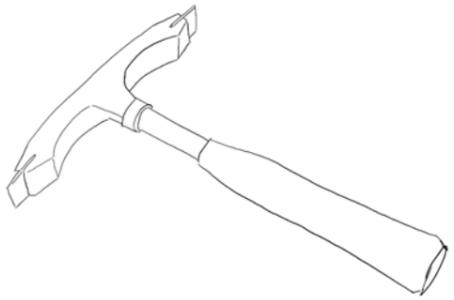
- Heavy duty tools for steel:**
- Metal band-saw
  - Vice
  - Drill, angle grinder, reciprocating saw, circular saw, impact driver
  - Hand welder



- Welding PPE:**
- Welding head/eye protection
  - Welding jacket
  - Gloves
  - Welding curtain



- Quicklime tools:**
- 40 litre tub** - to carry quicklime from the kiln
  - Trowel set** - this helps to spread and the mould the quicklime
  - Plasterer's float** - the distribute the quicklime



- Chalk tools:**
- Scrunching tool and cob** - this allows participants to chip and sculpt into the chalk
  - Bushing hammer** - makes it easier to break down chalk into finer granules (for the quicklime)
  - Heavy duty chisels**

# PART I - COLLEGE SEQUENCE

PART I - COLLAGE SEQUENCE

FORMING SPACES WITH COLLAGE

When reviewing the process and what is important in my programme, these were the most important images to communicate this:



SHOWING  
MOVEMENT  
OF THE GANTRY

First view starting at the view of West Pier facing shore and have the chalk being lifted/craned in by the gantry style I beam. To really communicate the grandiose nature of the chalk, it must have a powerful nature to it.



Large room, must feel incredibly high ceiling. People will be building parts of the protective structures by using the natural bricks of the chalk.

PHYSICAL PERFORMANCE  
AND MOVEMENT OF  
CHALK  
BREAKING  
DOWN



The chalk then gets brought in, cut up/broken down into smaller pieces. People must show that they are working together and building as a team. For atmosphere, show a level of dustiness and rustiness. Variation of light qualities from chalk.

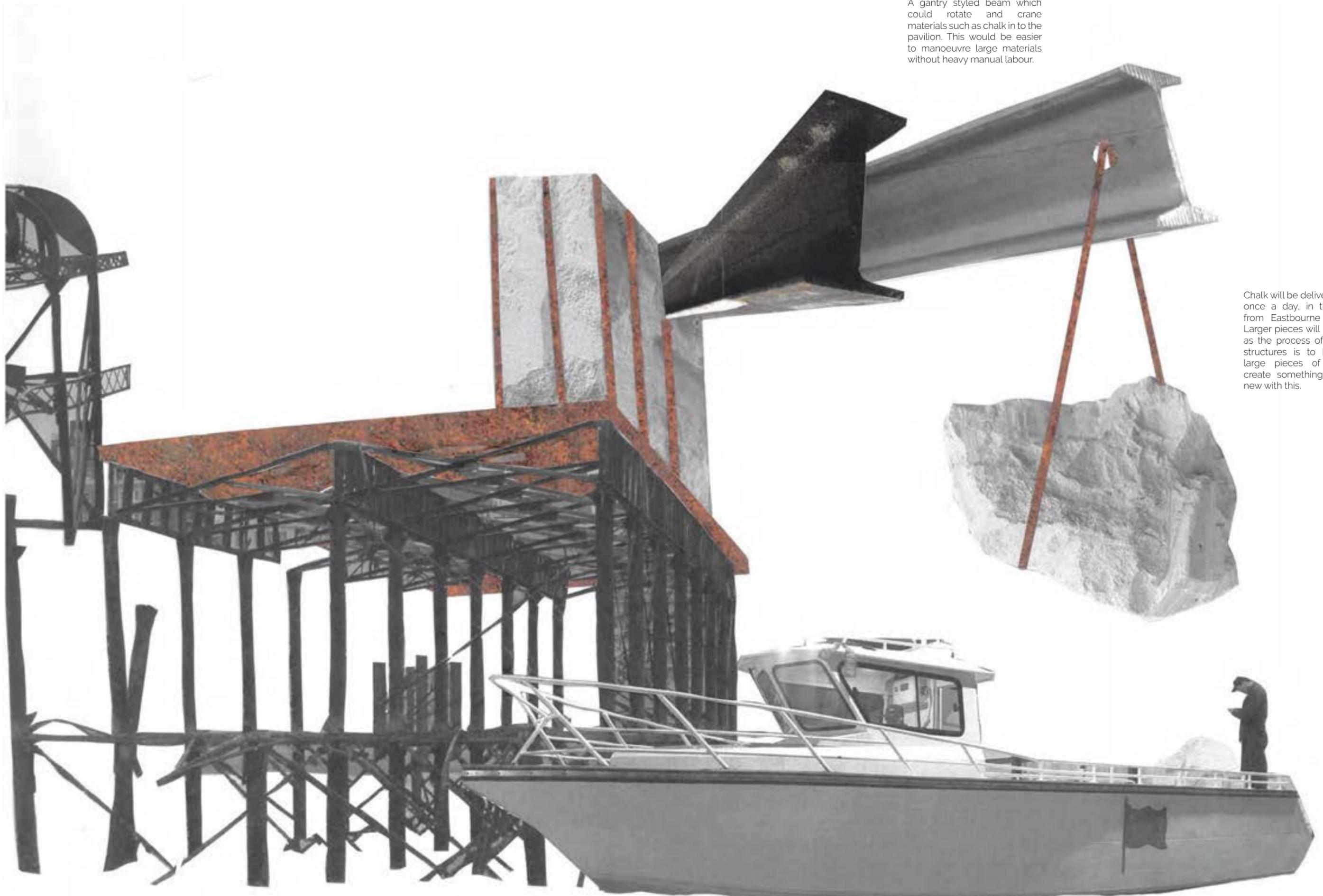


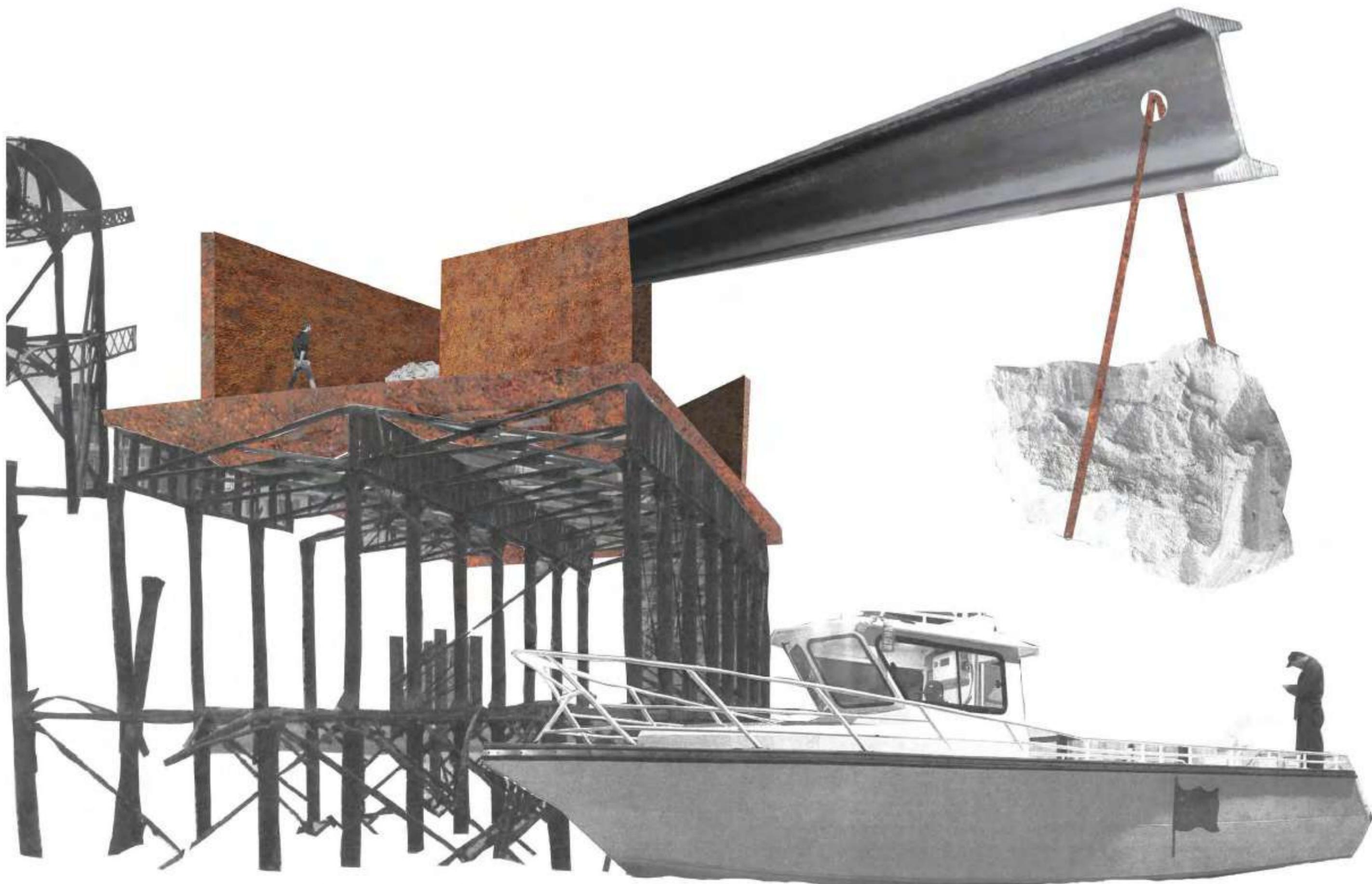
The final stage is when people are transporting the new structure along the infrastructure. The weight of the structure should look heavy, but will be transported to be light.

FORMING SPACES WITH COLLAGE

A gantry styled beam which could rotate and crane materials such as chalk in to the pavilion. This would be easier to manoeuvre large materials without heavy manual labour.

Chalk will be delivered by boat, once a day, in the morning, from Eastbourne and Dover. Larger pieces will be collected as the process of making the structures is to break down large pieces of chalk and create something completely new with this.



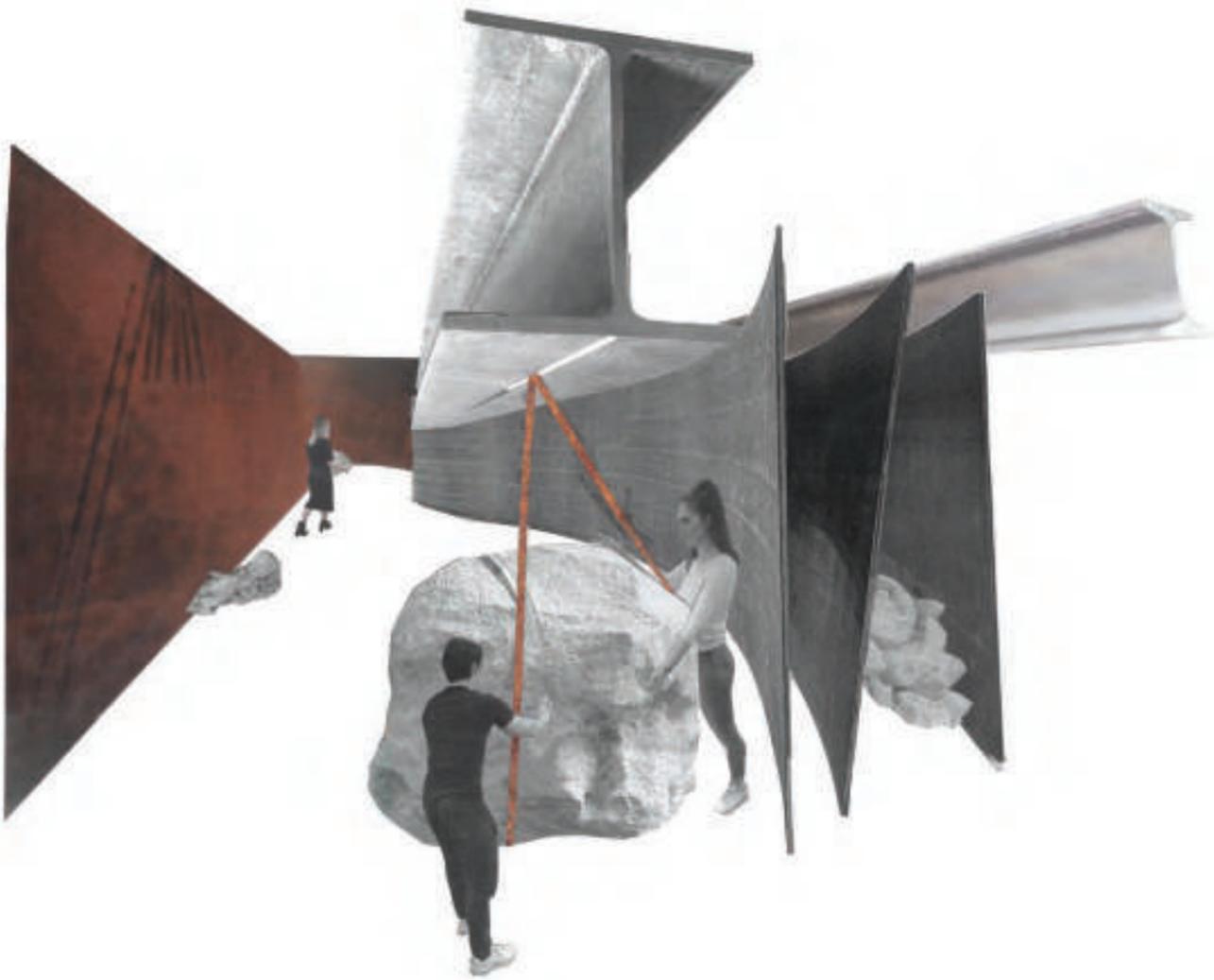
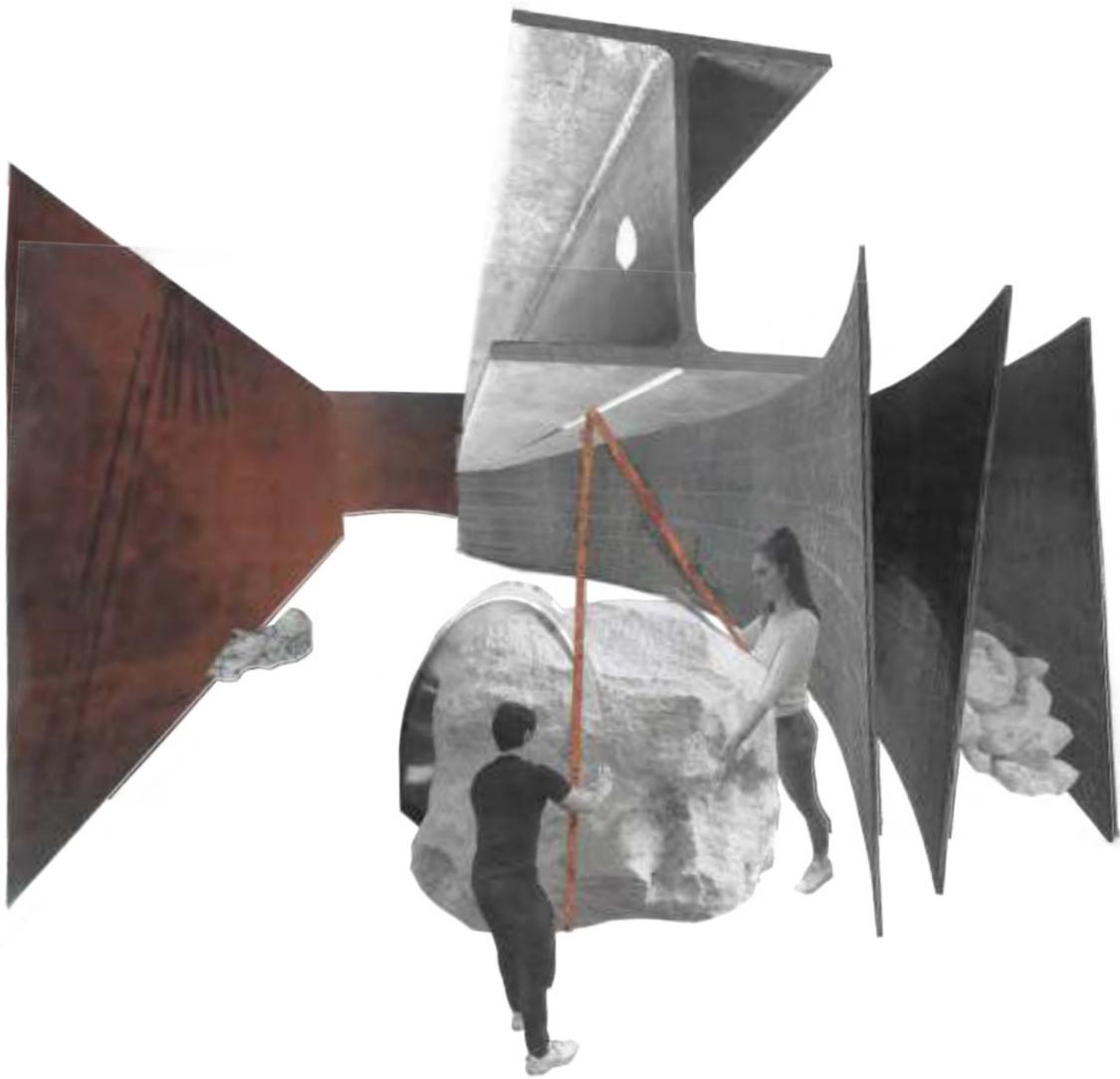


PARTI - COLLAGE SEQUENCE

FORMING SPACES WITH COLLAGE

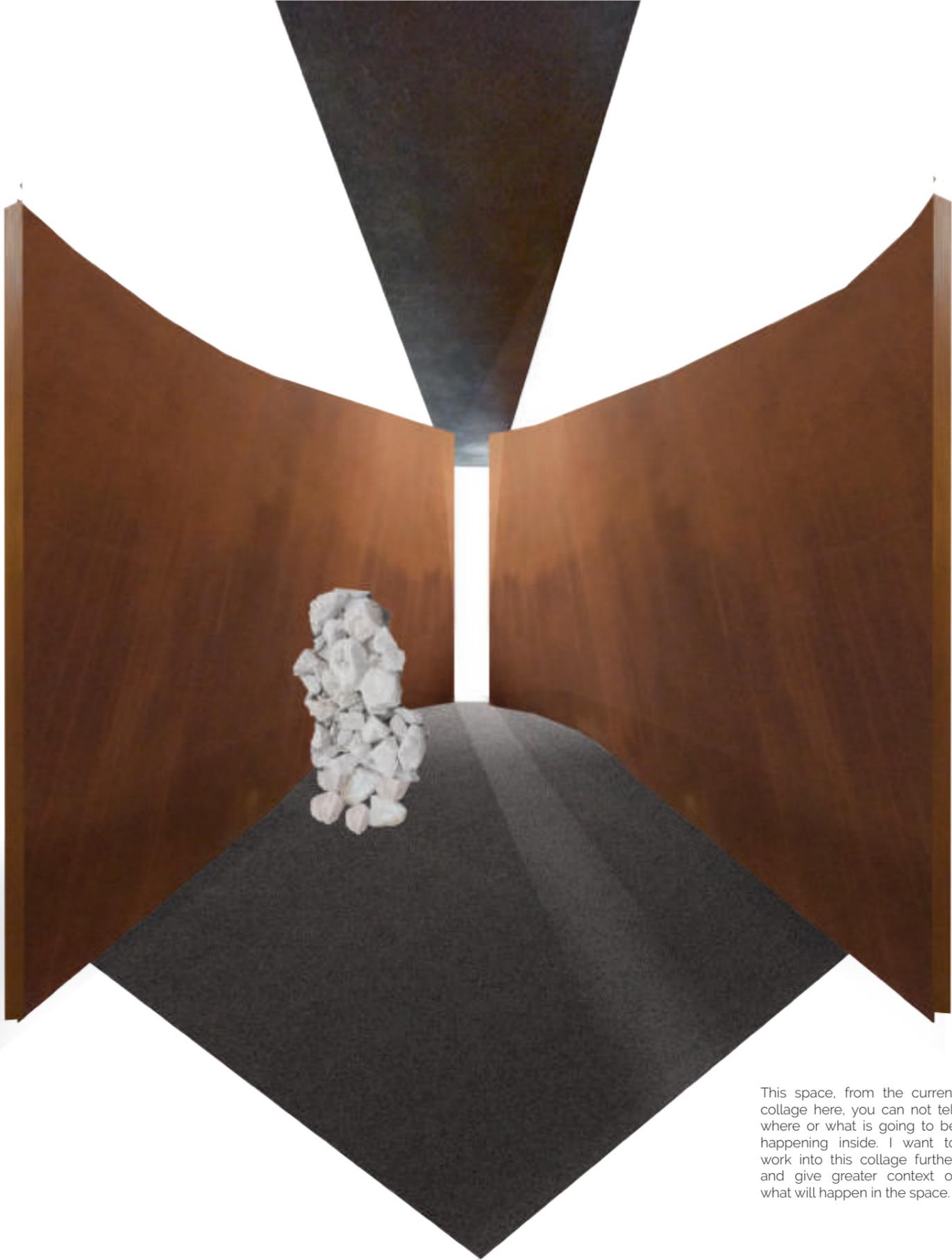
This collage is exploring the concept of how the gantry style beam could bring the chalk into the space, as well as discussing how the walls may look.

By using imagery from Richard Serra's work, a sense of materiality has become present. This collage however, does not give enough contextual information and it is not clear where in site this would reside.

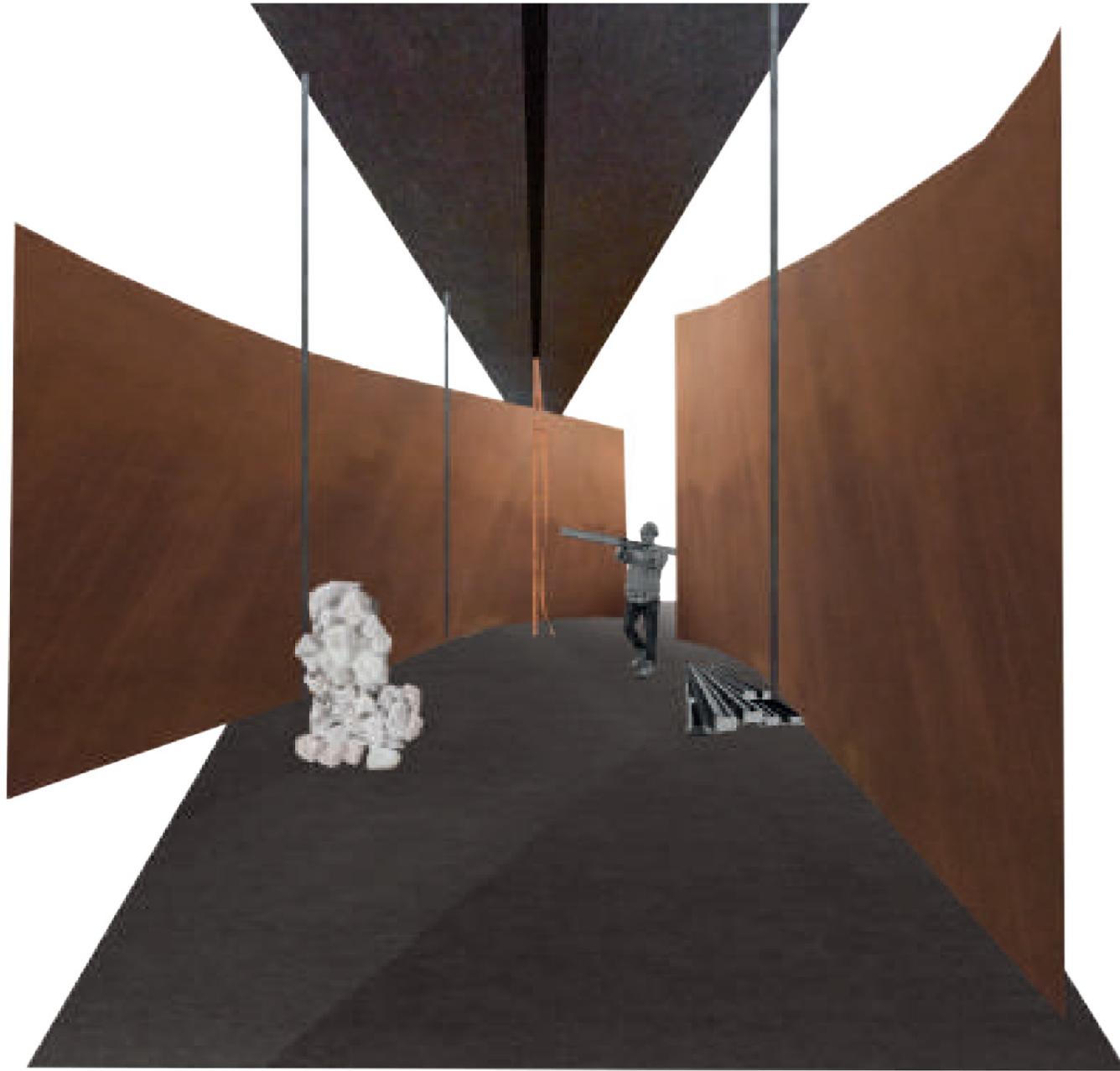


This second iteration has changed ever so slightly by adding in an i beam at another direction, implying the fact that it pivots and moves over the walls.

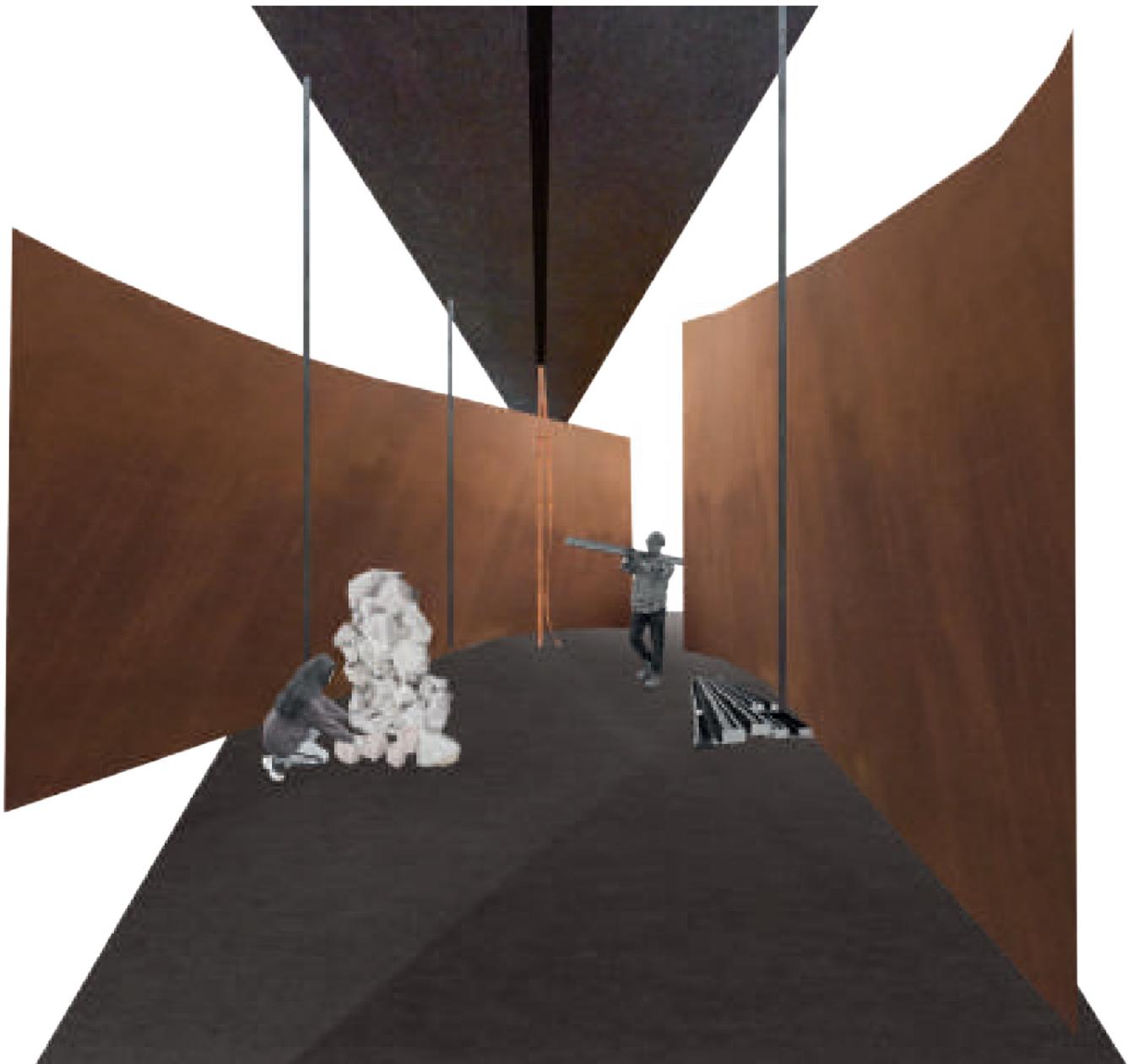
Background context as well as a sense of enclosure would make this collage more effective in communicating the spaces.



This space, from the current collage here, you can not tell where or what is going to be happening inside. I want to work into this collage further and give greater context of what will happen in the space.

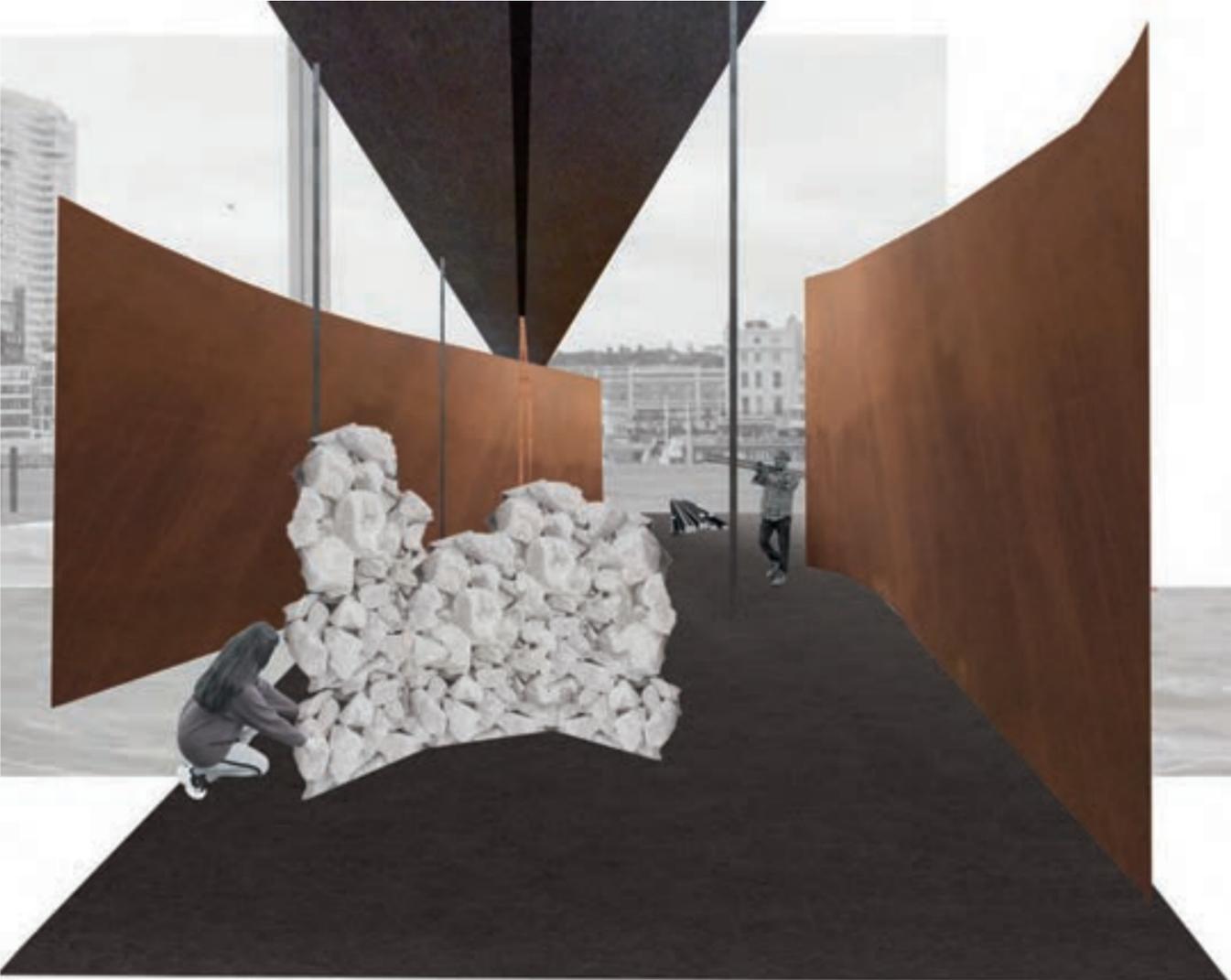


By adding a person in the background and some of the equipment that might be used, it gives a sense of programme. I also changed the layout of the space slightly and gave some indication of structural elements.



I like the idea of the walls feeling as though they are planes and people can move between, in and out of them smoothly. I want the entrances and thresholds to feel as the one space naturally forms into the next one.

Addition of the background context. It also makes the space come across as though it is partially inside and out - which is what I wanted to convey.



By creating a more formed structure out of chalk, it gives an indication of what the structures could look like and how they are made.

Iteration in design. Originally, I did not know what I wanted this collage or space to look like. So I decided to iterate. I would evolve my collage as I went along, changing my collage as my ideas changed. Documenting and using this method was very helpful. It shows my process but at the same time, it allows me to develop my ideas further than if I just completed the first collage.

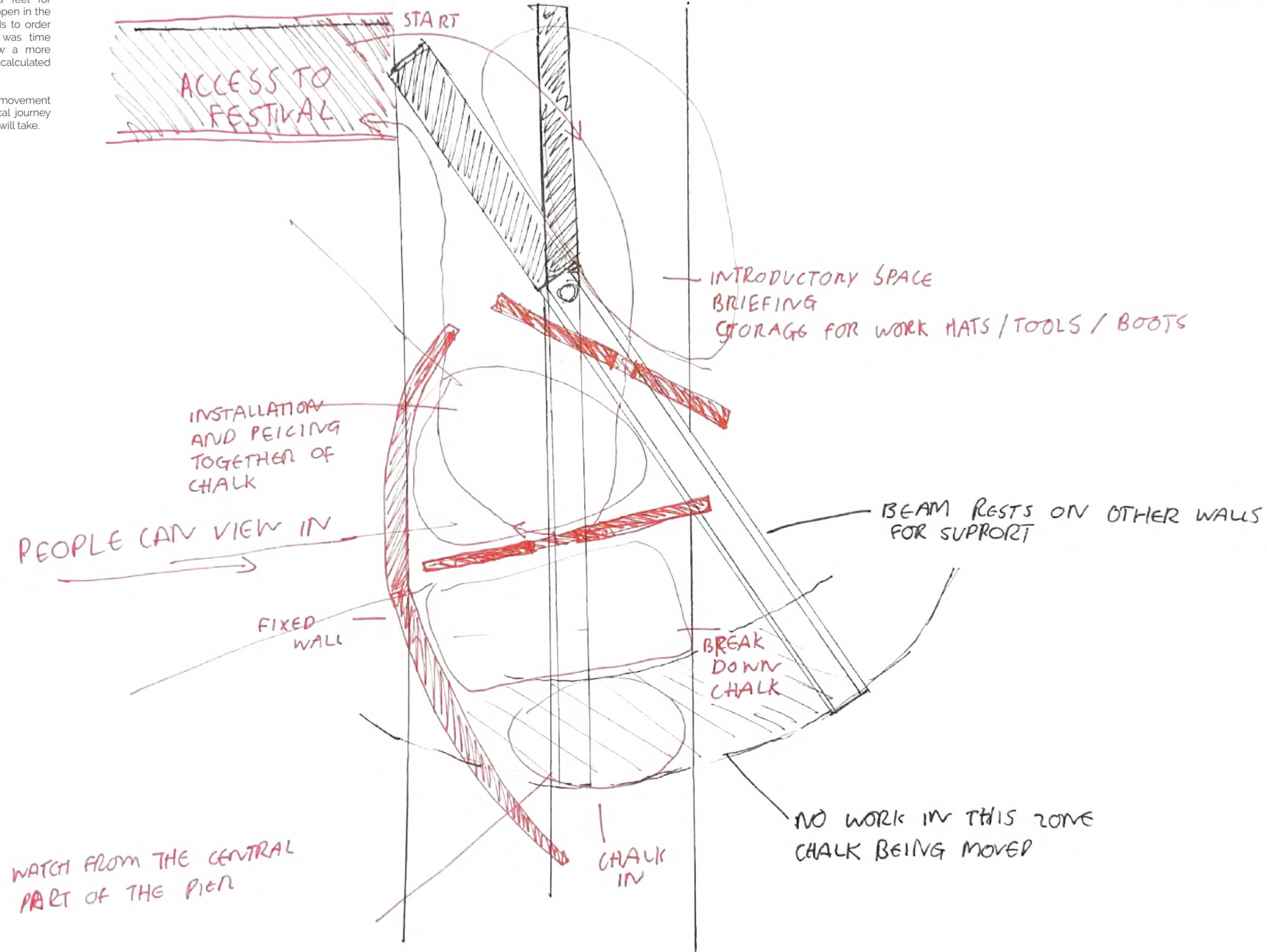
# PART I - LAYOUT ITERATIONS

PARTI - LAYOUT ITERATIONS

DEVELOPMENT OF LAYOUT

Once establishing a 'feel' for what is going to happen in the pavilion, with regards to order and movement, it was time to iterate and draw a more straightforward and calculated plan.

This plan discusses movement and the chronological journey that the participants will take.



PARTI - LAYOUT ITERATIONS

DEVELOPMENT OF LAYOUT

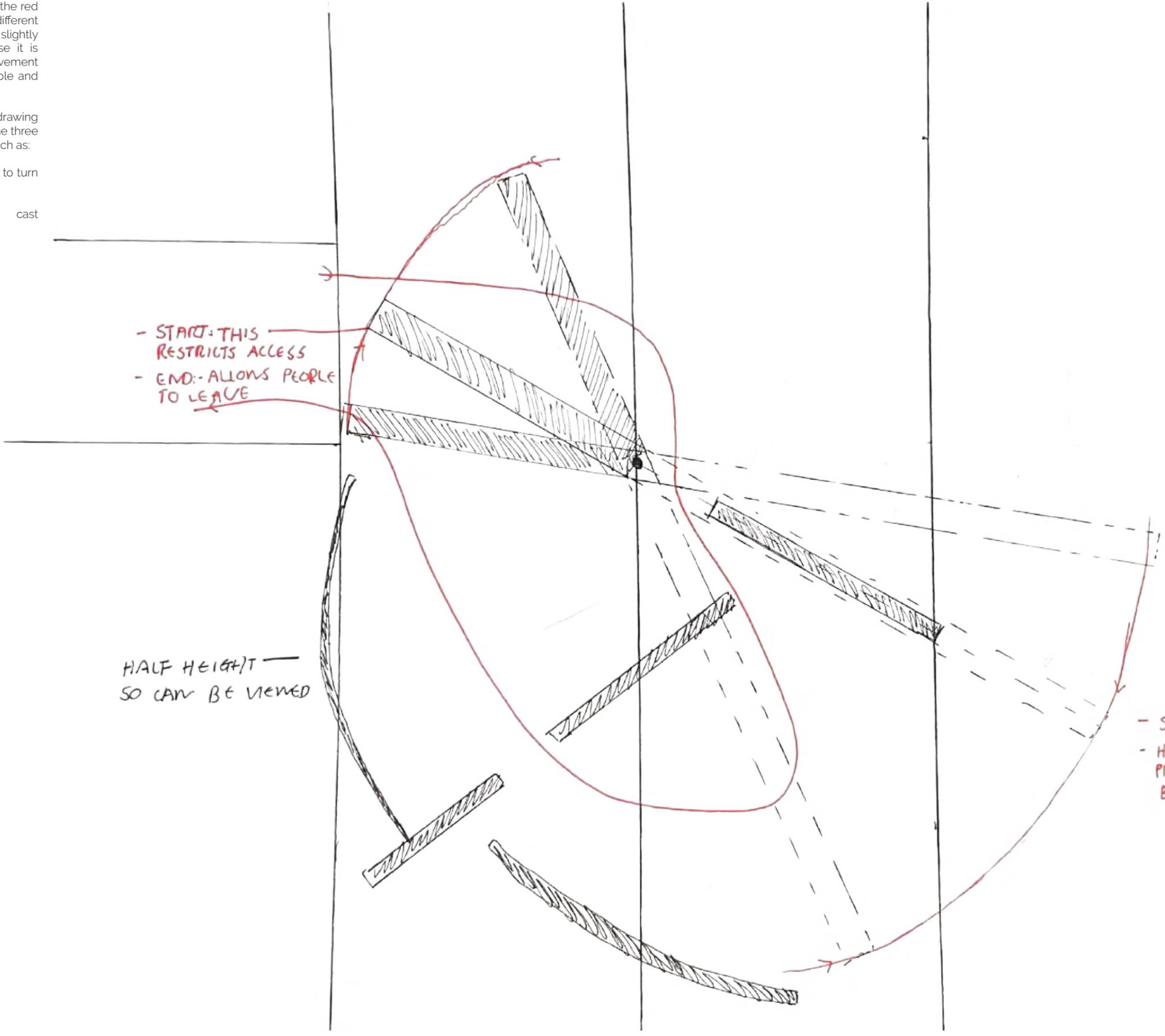
Developing from the previous drawing, the black and the red are completing two different tasks. This drawing is slightly more simplistic because it is only discussing the movement of the wall/beam, people and the chalk.

This two dimensional drawing would benefit from some three dimensional aspects, such as:

How the beam is going to turn across the pavilion

What shadows are cast throughout the day

Spatial qualities



- START: THIS RESTRICTS ACCESS  
- END: - ALLOWS PEOPLE TO LEAVE

HALF HEIGHT - SO CAN BE VIEWED

- START: COLLECT CHALK  
- HELPS MOVE CHALK ALONG PROGRESS SO CAN BE BROKEN DOWN

**PARTI - LAYOUT ITERATIONS**

**DEVELOPMENT OF LAYOUT**

In the morning, the workshop session will begin where the participants enter from the festival infrastructure. The pivoting beam/wall is orientated to allow participants to enter and the beam is overhanging the pier, so the chalk can be collected by boat.

The chalk gets collected by boat and the participants get introduced to the workshop and how the day is going to be run. This is where people will get prepared, grab their tools, place their things watch the chalk arrive.

Around midday, the participants bring the chalk in from the gantry style beam and they begin to whittle and break down the chalk. This will be a place where people from the festival can view the process.

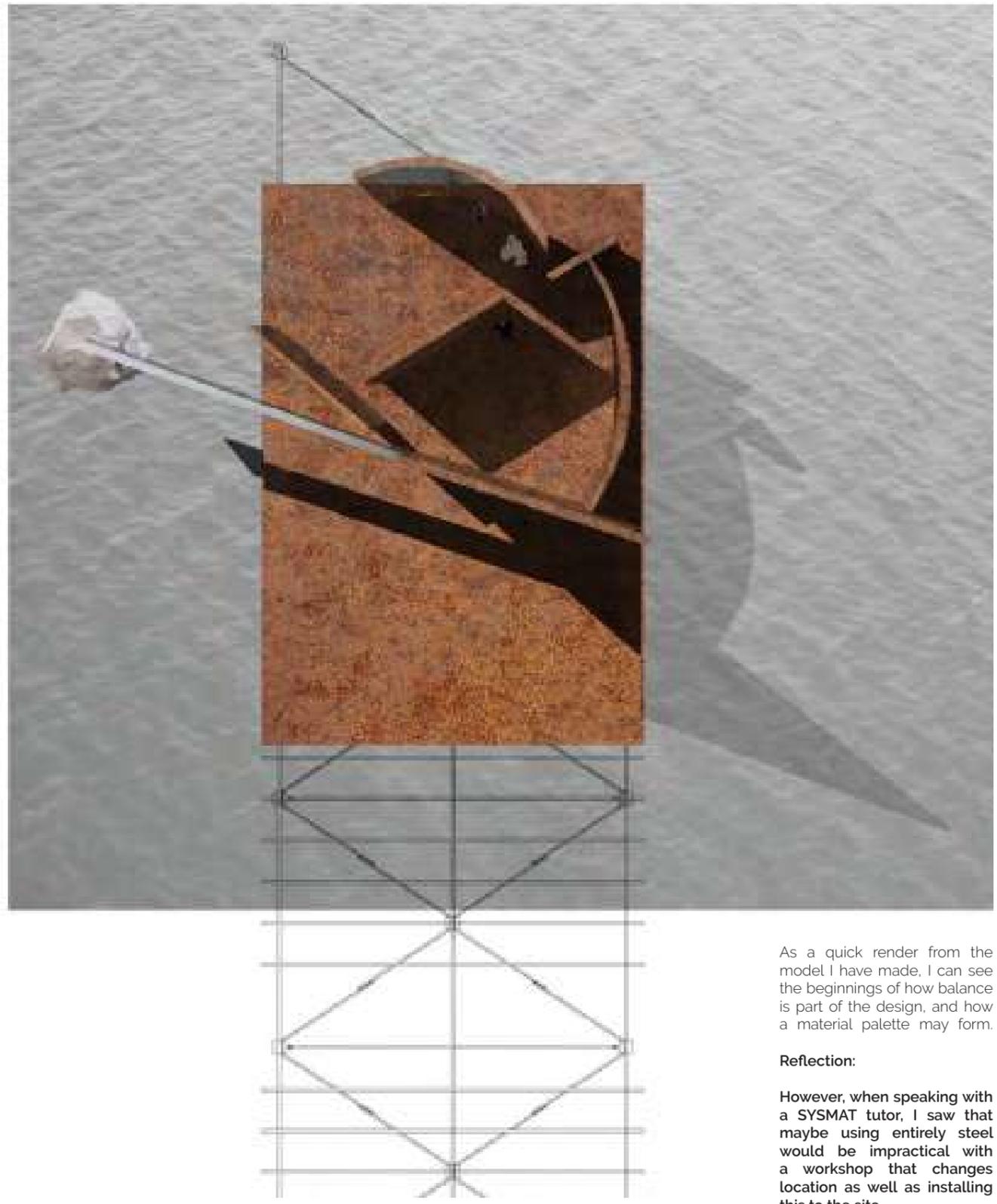
The next space is where these boulders of chalk are joined together and installed into modular forms. This will be the most visible space for the public.

When the installation, or parts of the installation are complete, it will be manually carried out through the space now created from the pivoting wall/beam.



When trying to visualise this rough layout and design to be able to make perspective drawings/collages, I decided to make a small model maquette of the design I drew.

This allowed me to visualise the space more accurately and I was able to look at elements like the spatial qualities, light and time.



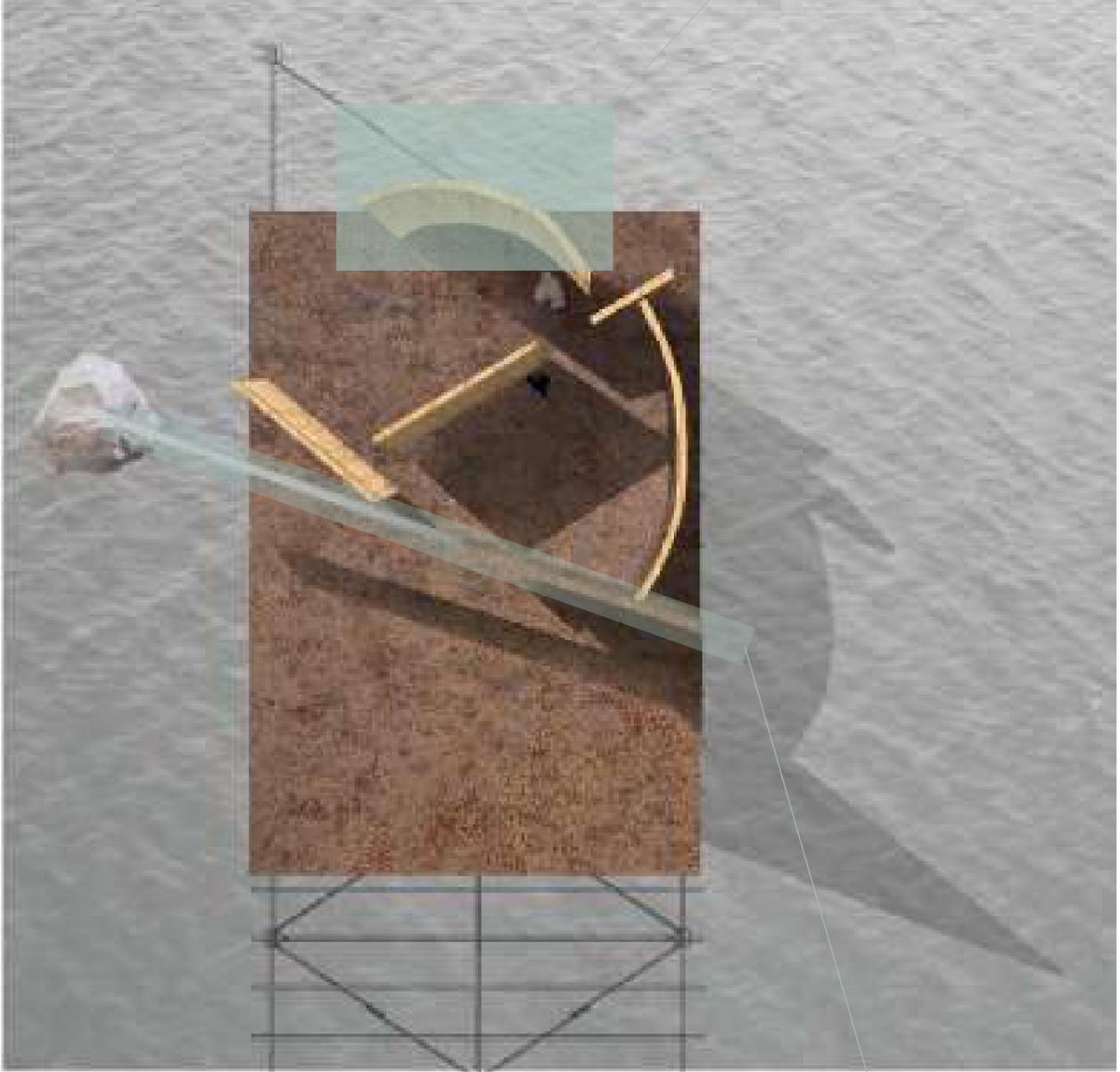
As a quick render from the model I have made, I can see the beginnings of how balance is part of the design, and how a material palette may form.

**Reflection:**

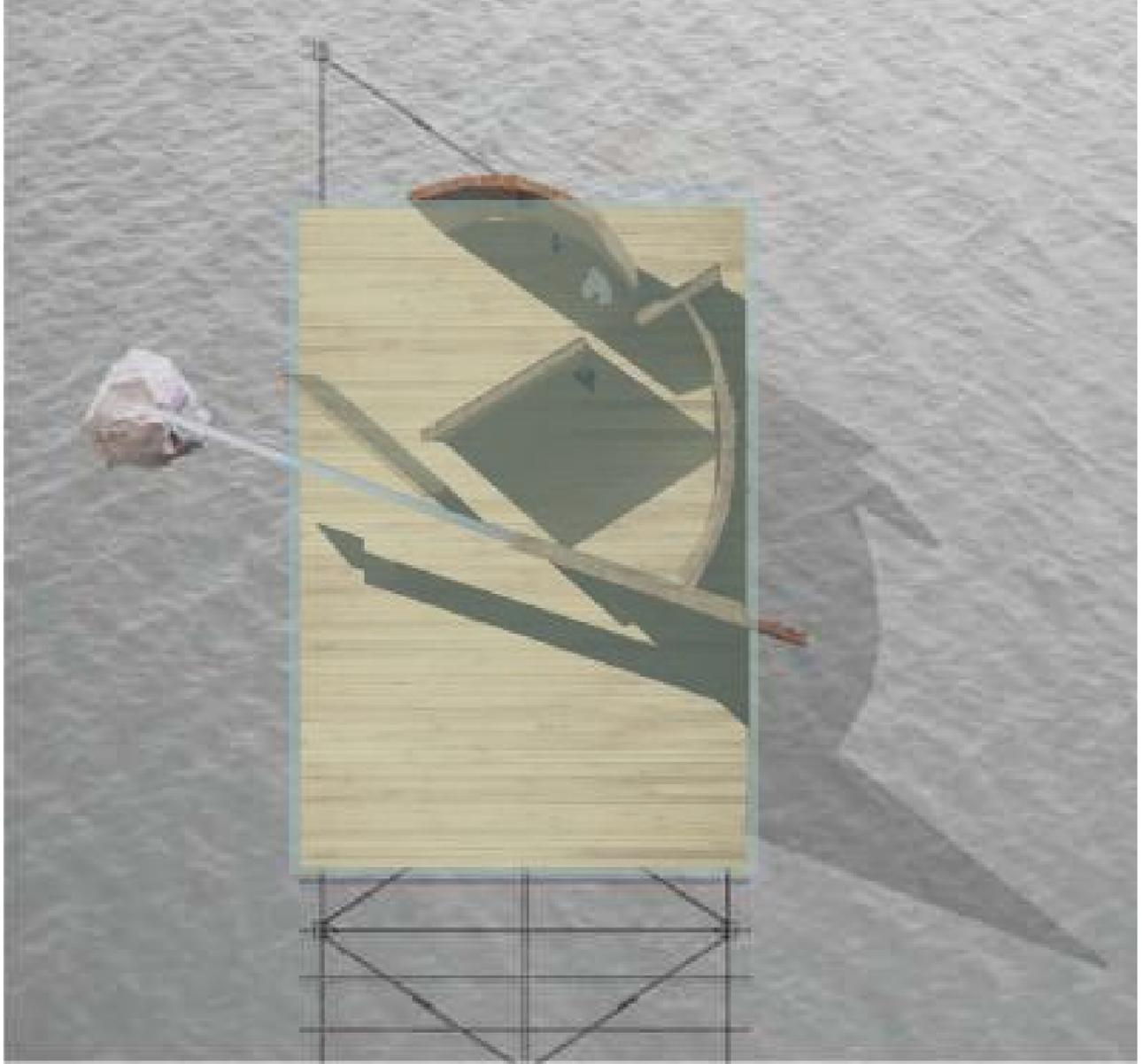
However, when speaking with a SYSMAT tutor, I saw that maybe using entirely steel would be impractical with a workshop that changes location as well as installing this to the site.

This collage explores the idea of using timber/lightweight materials which could be modular and easily transportable.

I want to explore other temporary materials which could be used.



I wanted to keep this as corten steel to indicate that once the festival is over, this and the floor people walk on will be **the only thing that remains**. It will be something to be **admired and interacted with after the festival**.



This collage explores the use of a lighter base that the pavilion may sit on.

I like the use of a lighter material, but when I started thinking of longevity and the legacy left behind after the festival, I want the material used to be able to remain structurally sound but show how it would decay over time.

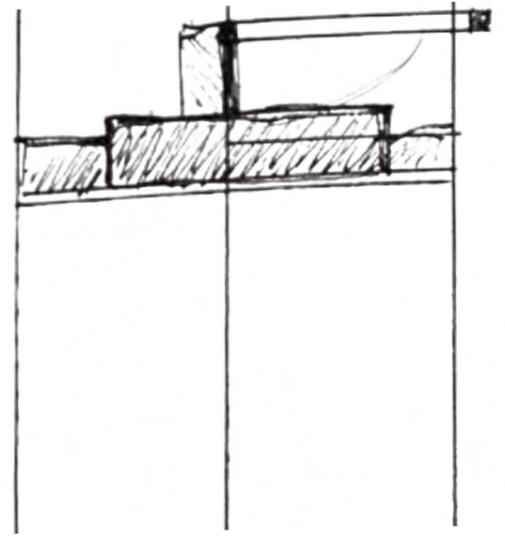
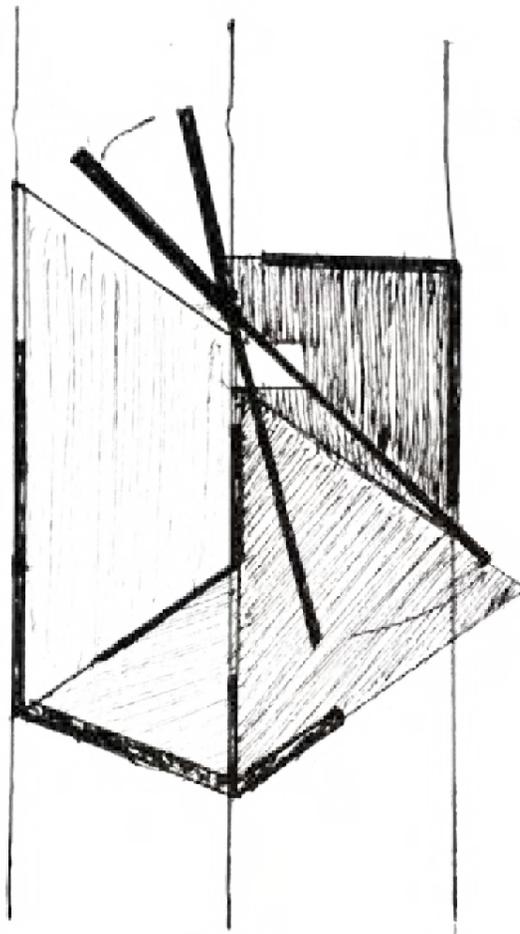
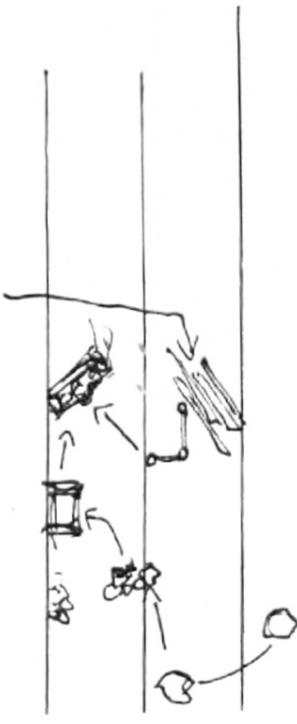
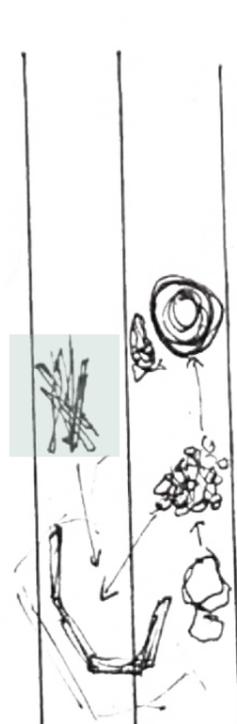
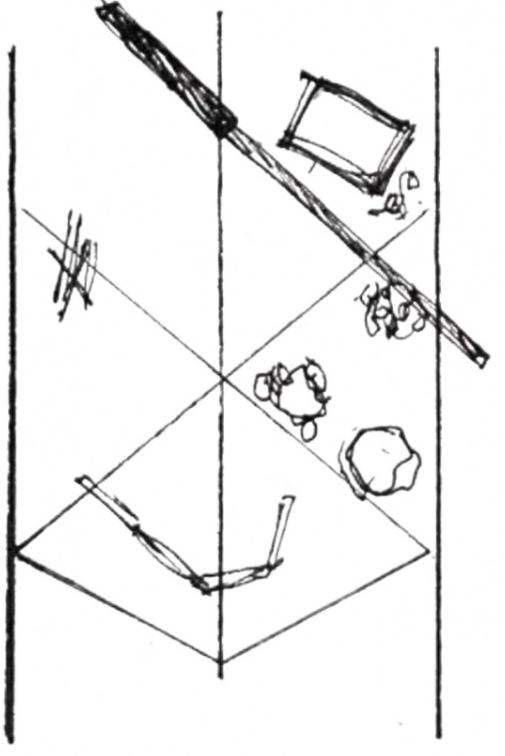
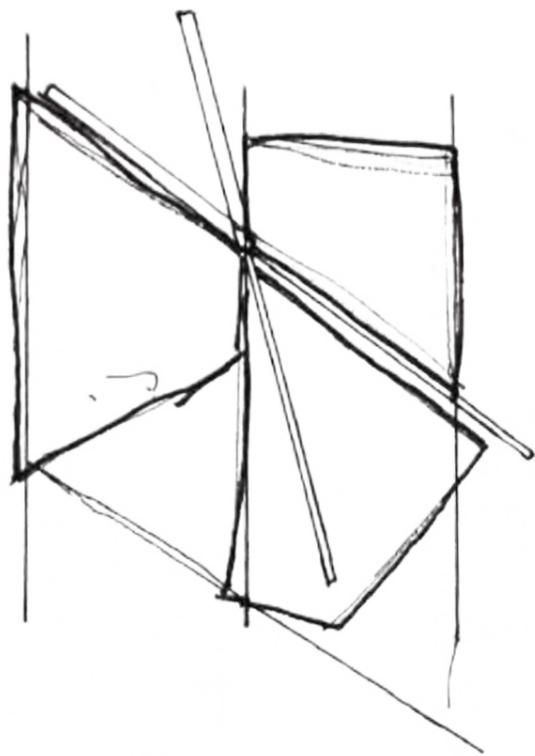
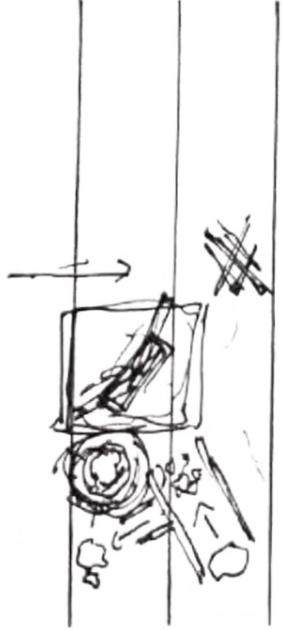
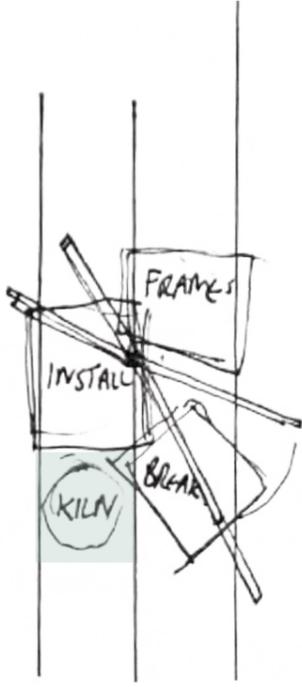
**PART I - LAYOUT ITERATIONS**

**DEVELOPMENT OF LAYOUT**

With the workshop process in mind, I have sketched a few iterations of different ways I see the pavilion following through.

The main aspect which I imagine would need to be fixed is the pivoting wall/beam. I want this to continue through my design, and in order to bring in the chalk, it would make most sense for the start of the breaking up process to start on that side of the pier.

The kiln, where the quicklime is made, will release some smoke. This will rise up above the pier, and I want to use this tactically as a way to draw in the attention of the people walking at the festival and along the beach front. It makes the viewers curious as to what is going on there.



I think that having the framework part should also be on the outside of the pier. This way, the metal can also be brought to the pier by boat and give the beam more than the one purpose of lifting the chalk.

This drawing is exploring how the space could be split up by the various tasks that take place in the workshop.

I have shaded them at different amounts to represent changes in levels and what partitions may be installed.

**PARTI - LAYOUT ITERATIONS**

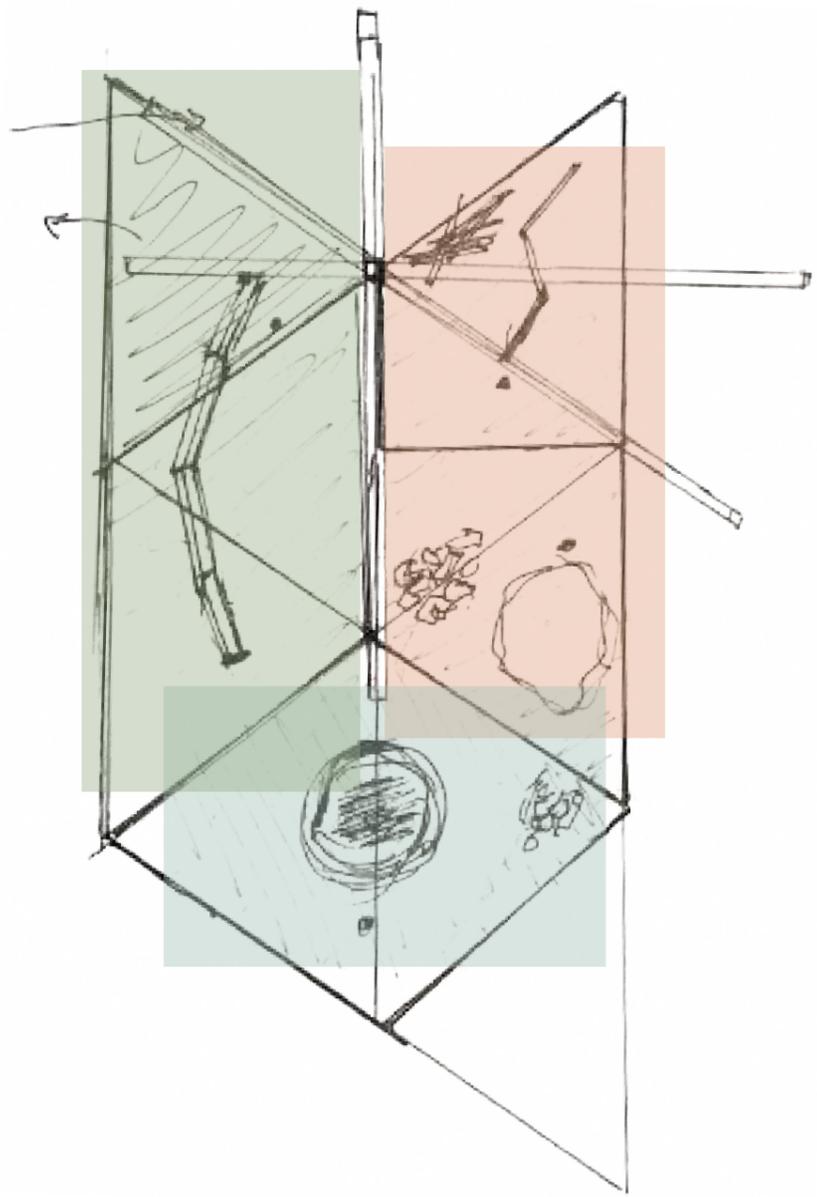
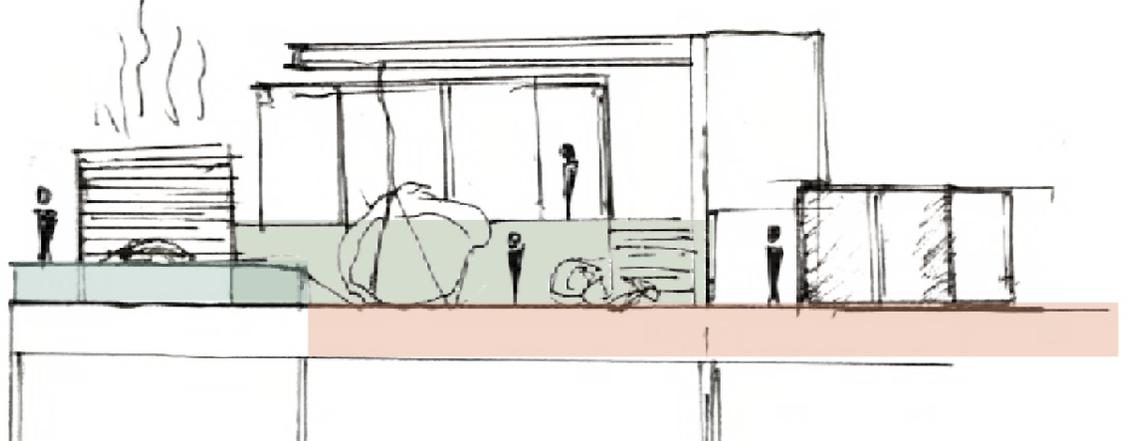
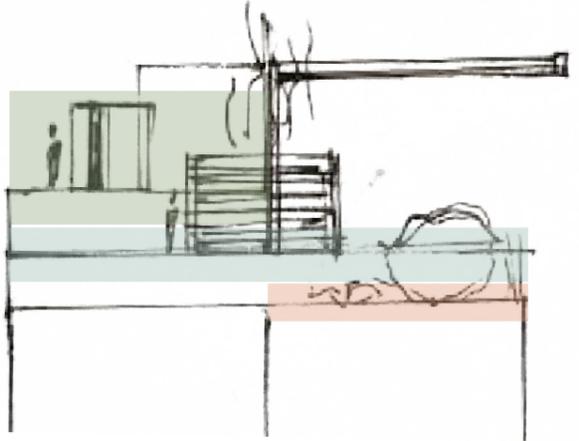
**DEVELOPMENT OF LAYOUT**

This currently is the preferred orientation of the pavilion.

I found drawing the design roughly in the North facing and West facing elevation very helpful as a process.

**It allowed me to see the design come to life.** I would like to now make some models of this arrangement, and iterate with the use of different levels and partitions of space.

**Then I will proceed to look at more specific technology to accommodate the design I want to have.**

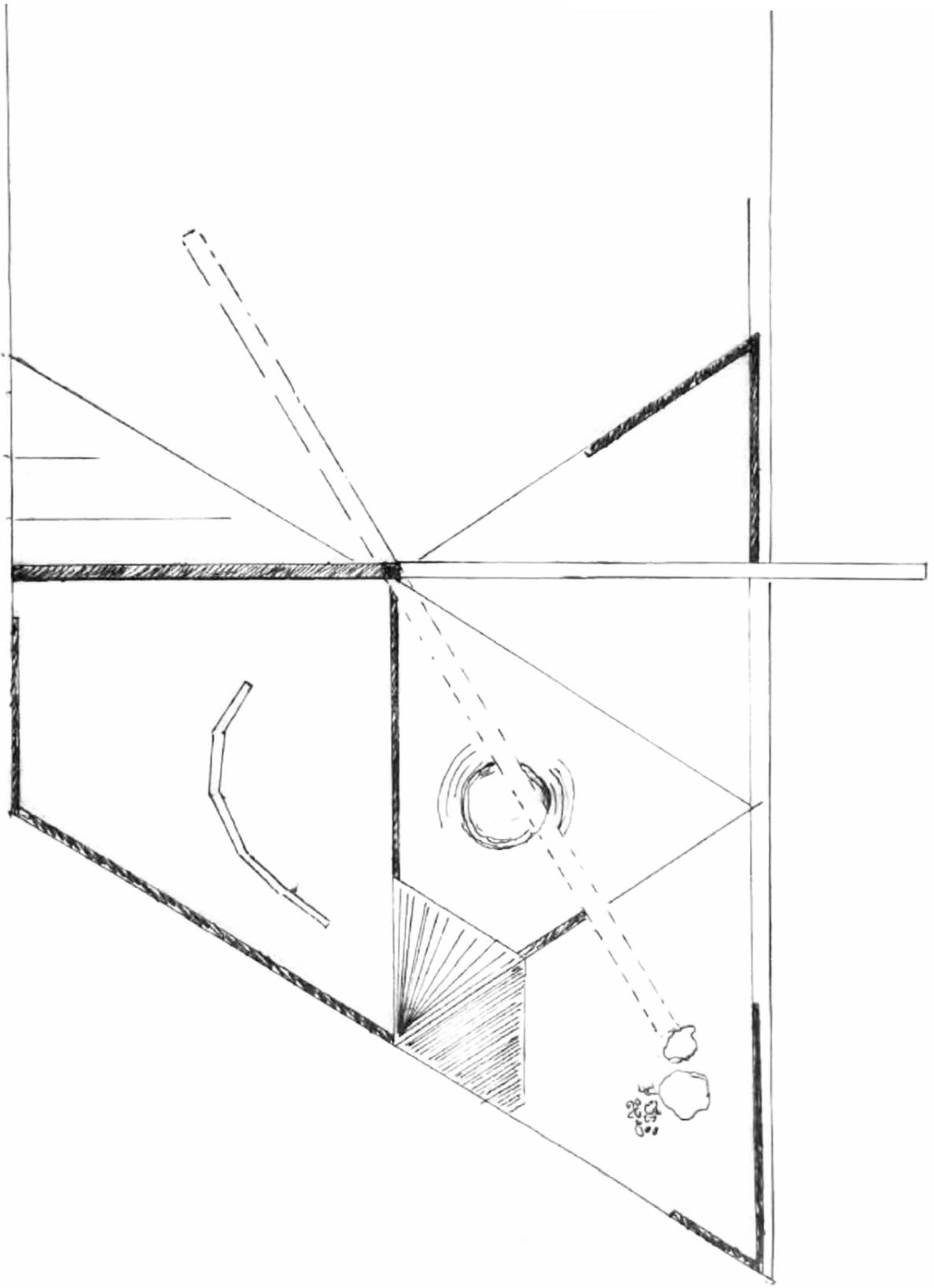


**I want to have 3 levels:**

-  G - Breaking the chalk/framework
-  1 - The kiln
-  2 - Installation of structure

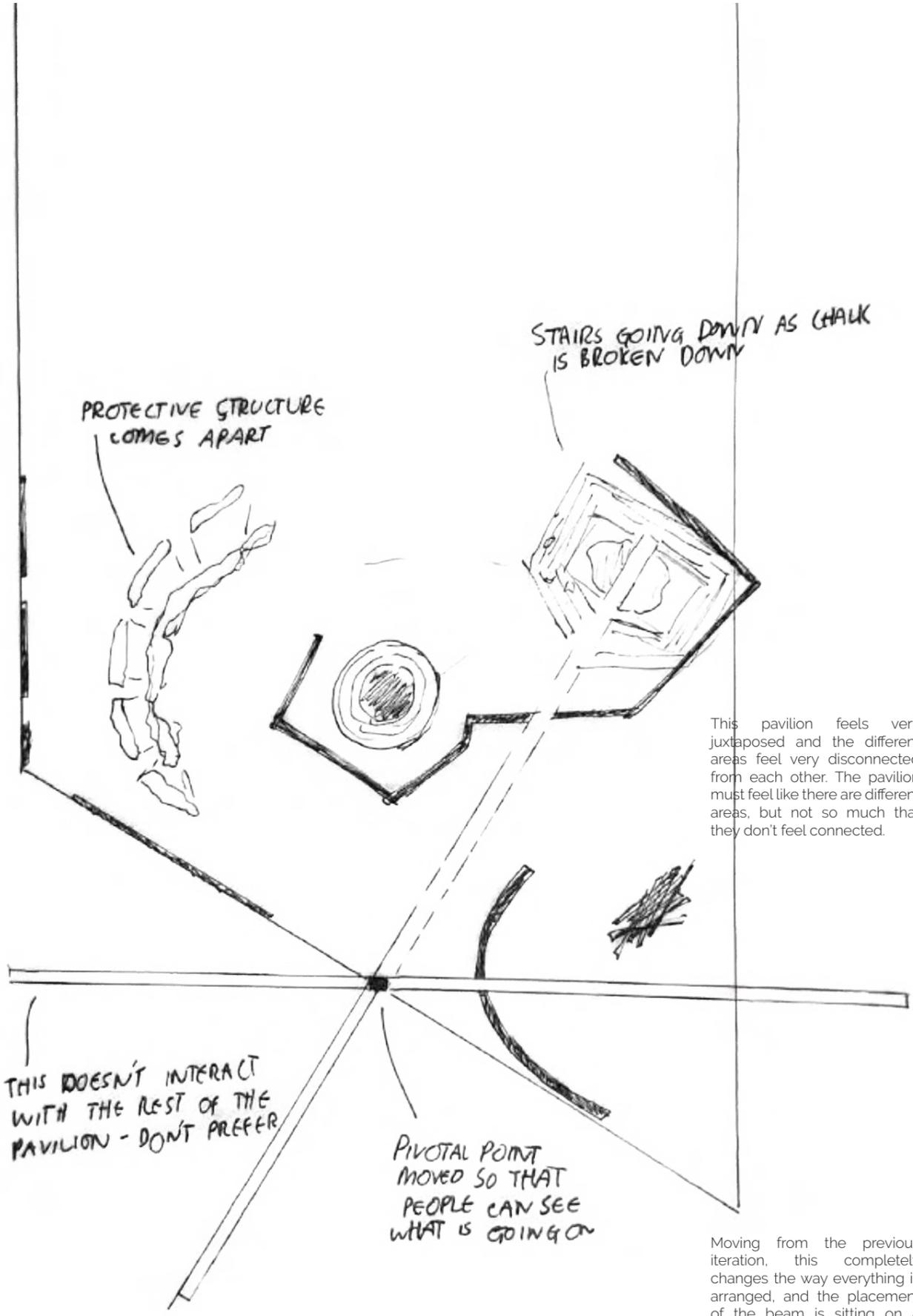
DEVELOPMENT OF LAYOUT

The left side of the pivoting beam is a wall, by having the building area of the workshop on the end side of the pier, behind the wall, it doesn't allow the public viewing the pier to see what is happening in the installation area, which is one of the main performance areas.



This first iteration is primarily following the structural grid of the West pier.

Another problem with having the chalk drop off section on the far side of the pier is that is also makes it difficult for the public to see this process happening. It also makes the entrance and first part of the building process difficult to get to.

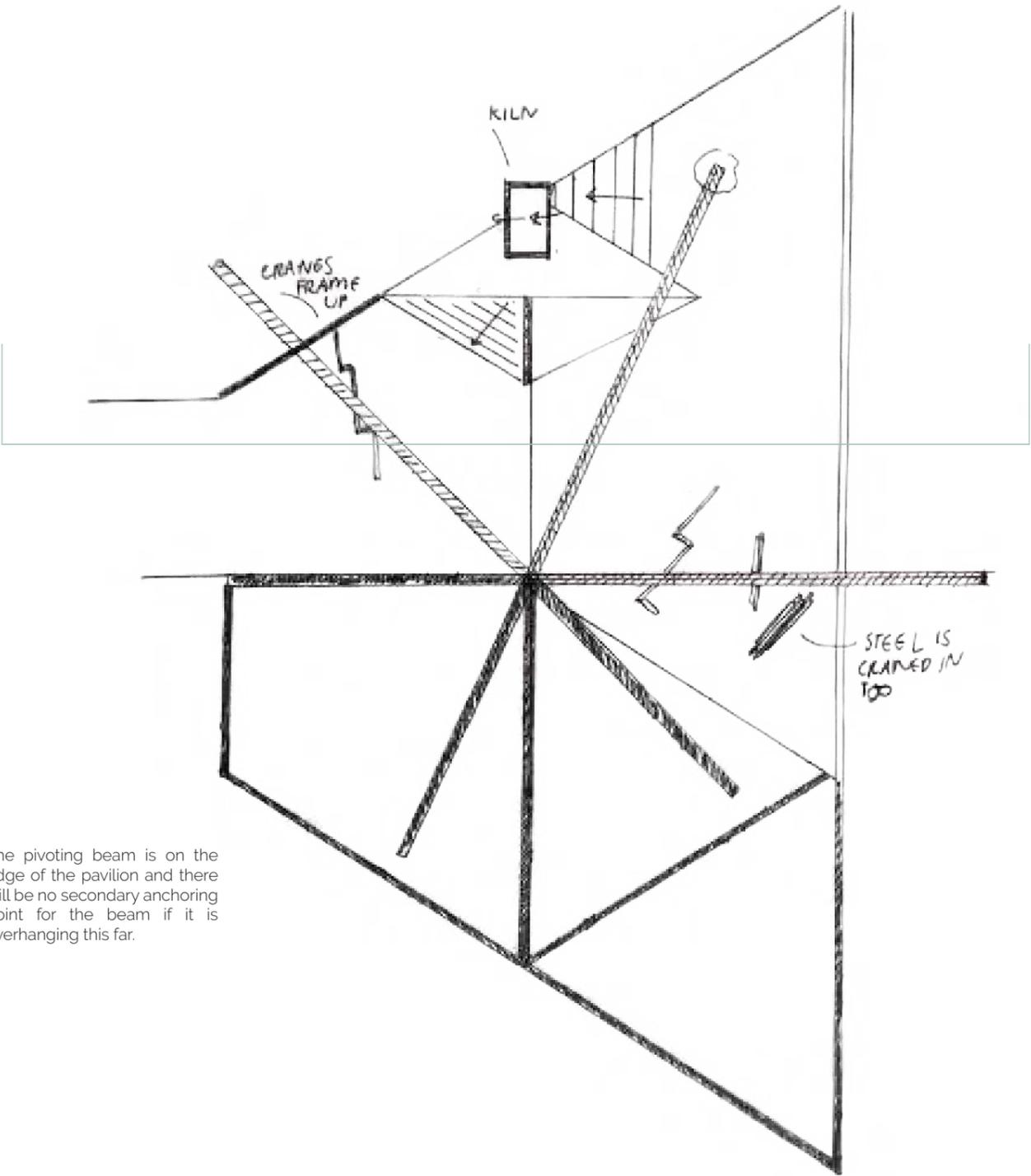


This pavilion feels very juxtaposed and the different areas feel very disconnected from each other. The pavilion must feel like there are different areas, but not so much that they don't feel connected.

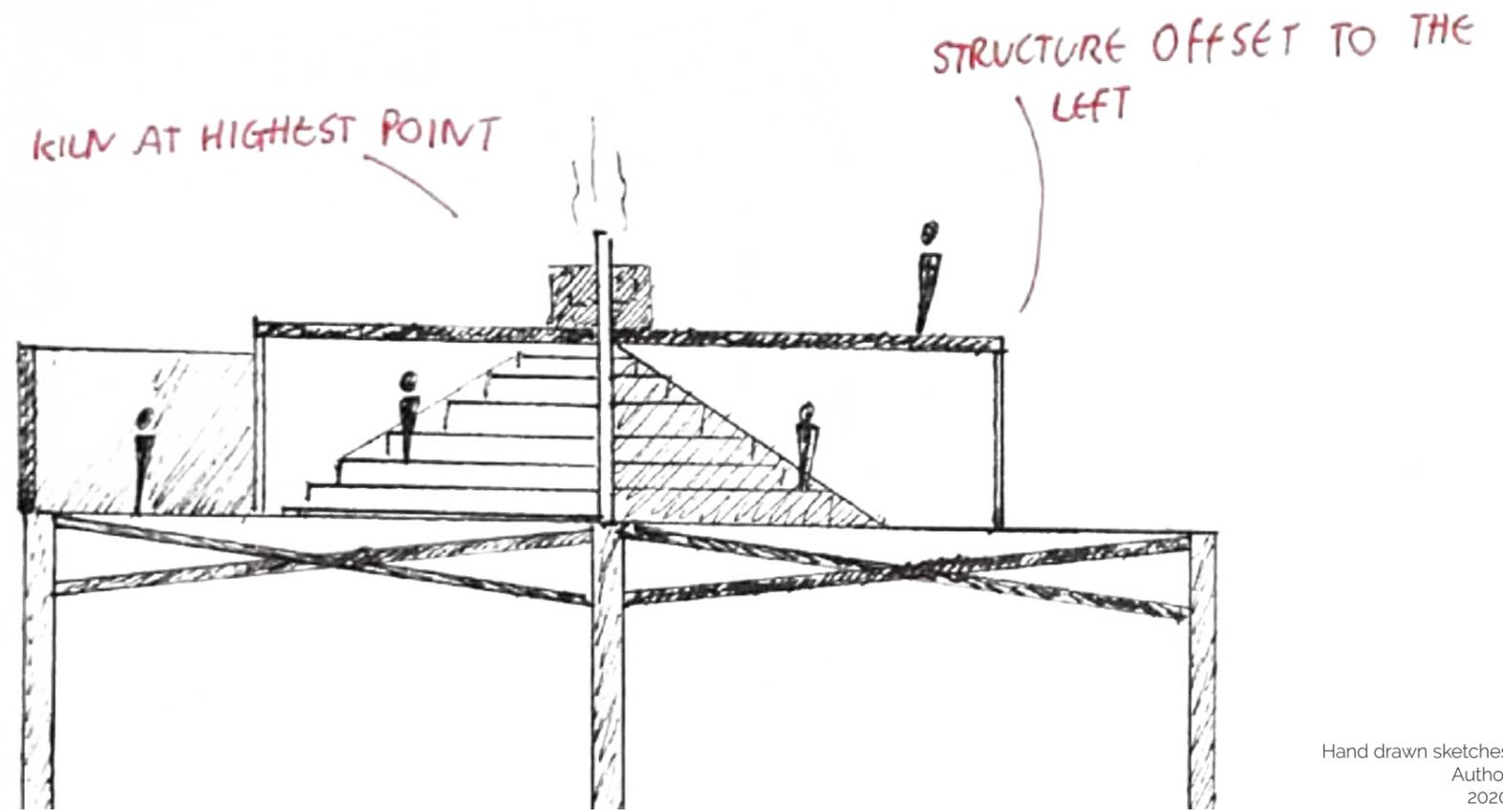
Moving from the previous iteration, this completely changes the way everything is arranged, and the placement of the beam is sitting on a different structural pile.

PARTI - LAYOUT ITERATIONS

DEVELOPMENT OF LAYOUT



The pivoting beam is on the edge of the pavilion and there will be no secondary anchoring point for the beam if it is overhanging this far.



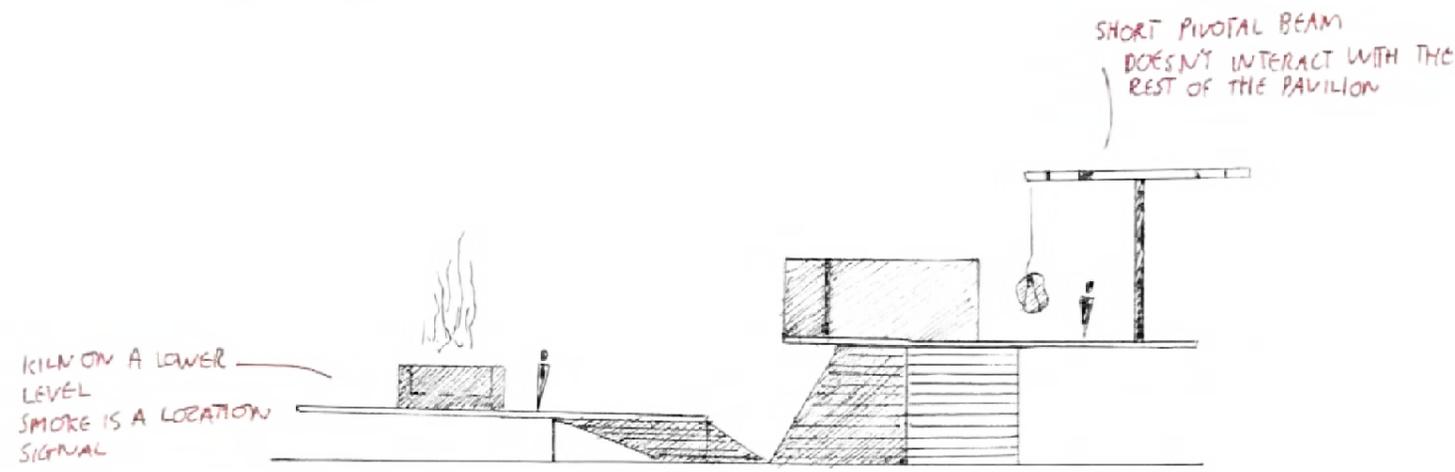
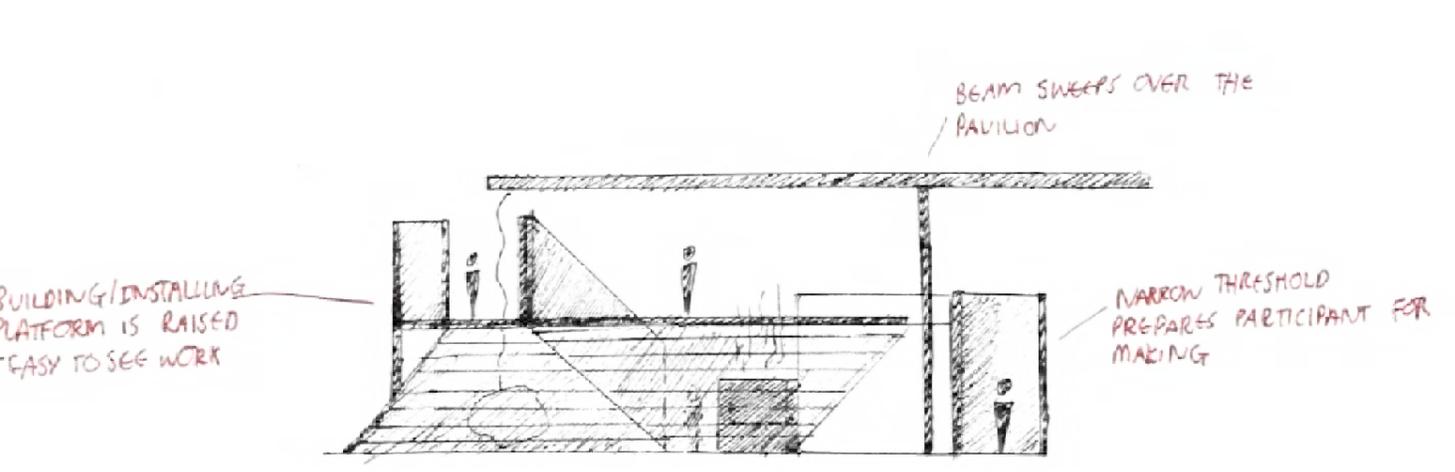
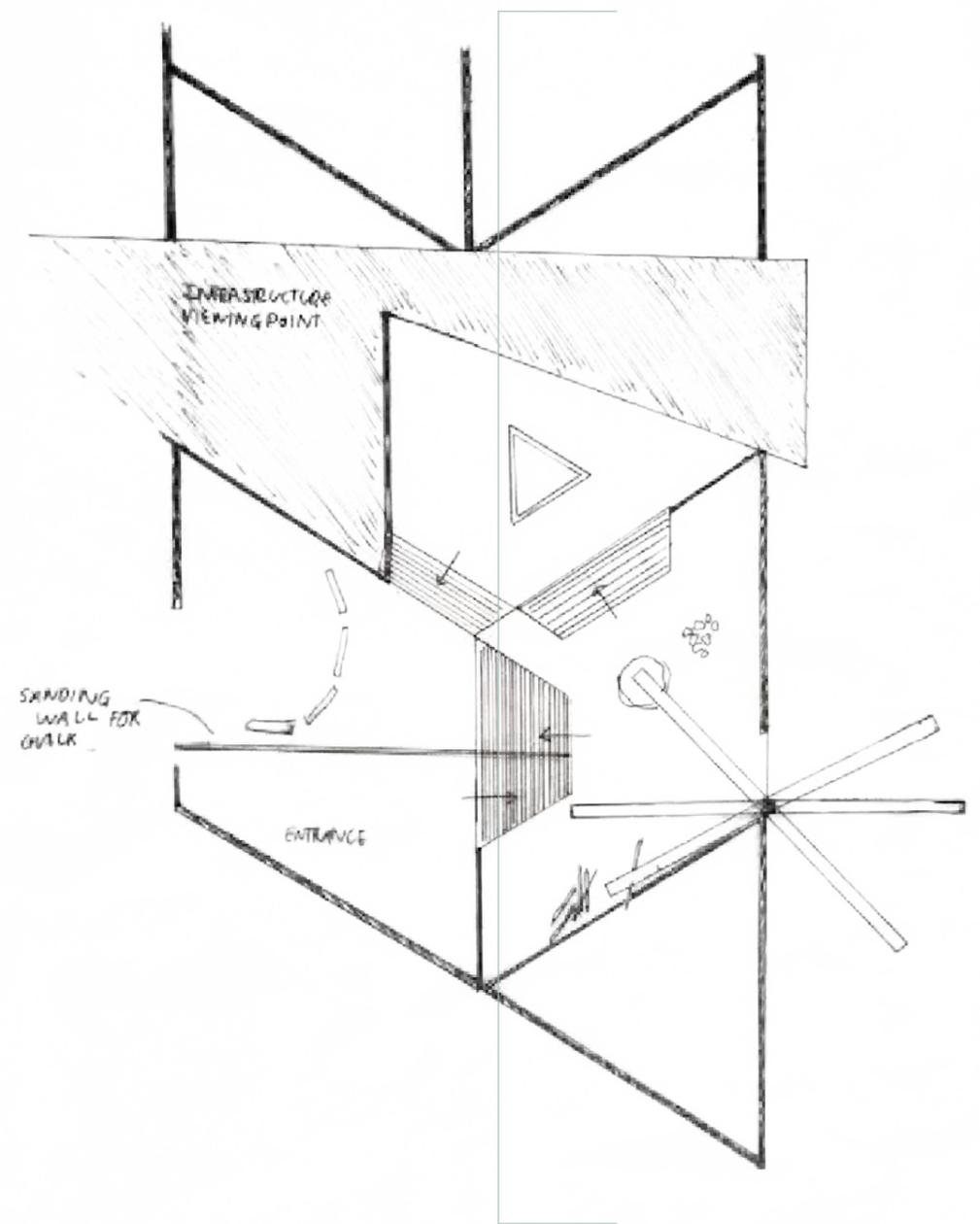
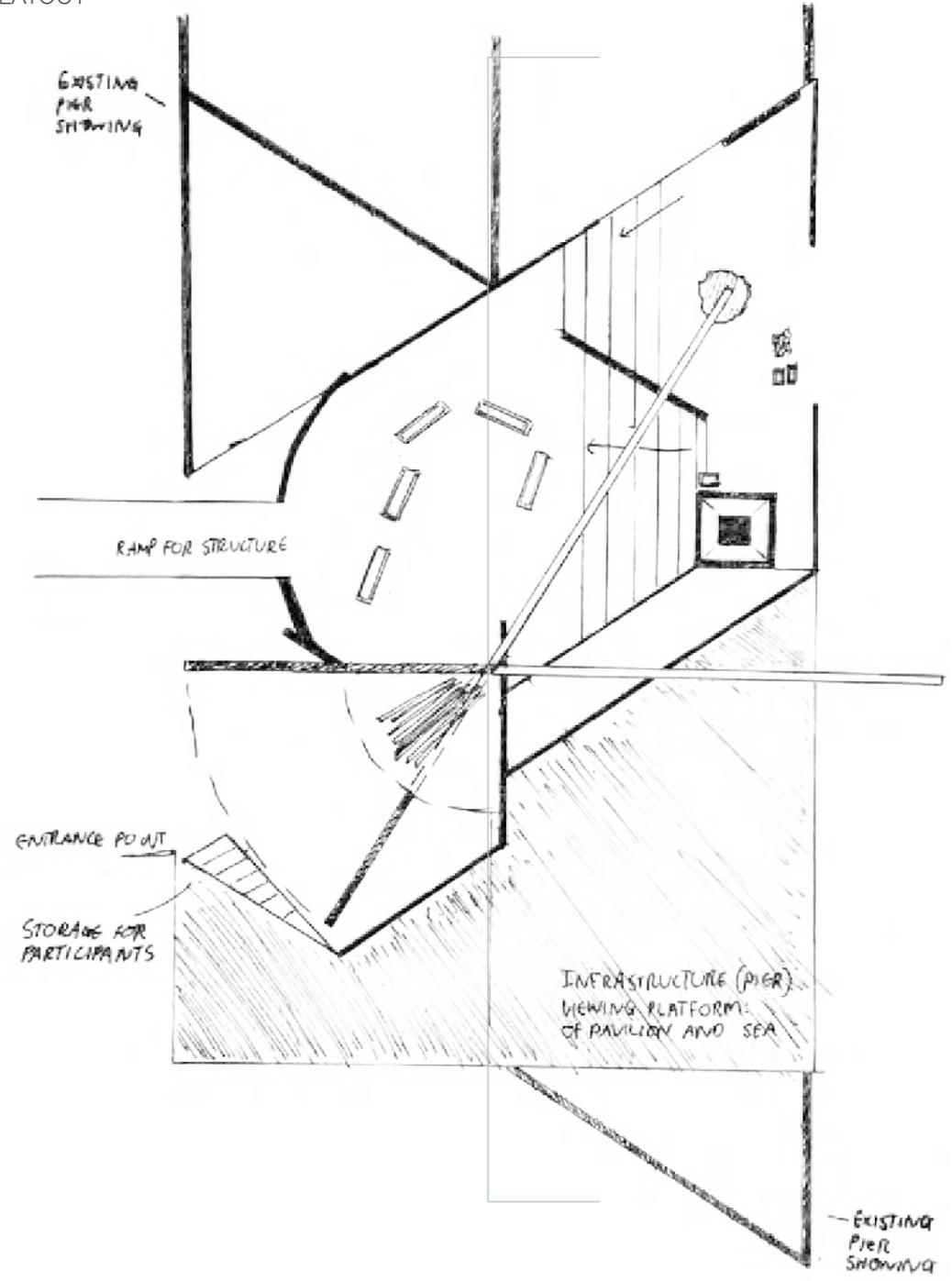
Reflection:

This explores what it would be like if the pavilion had an open plan - connecting all of the spaces.

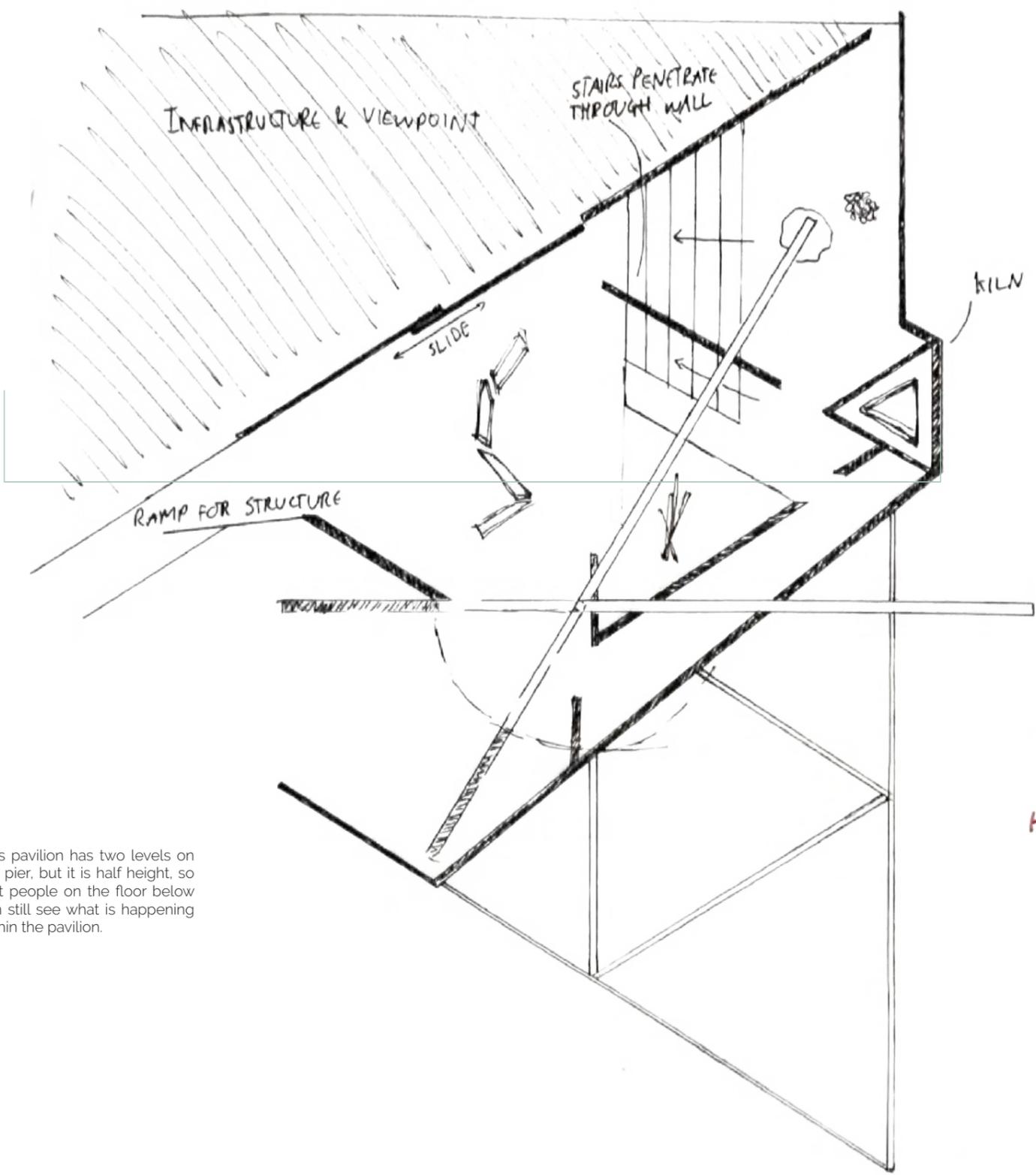
This gives the pavilion a lack of diversity and this is very apparent in the sectional sketch.

Without sketching this is in section, it wasn't as obvious how little the pavilion was. It felt minimal and was closer to a small installation than a place where people build things.

DEVELOPMENT OF LAYOUT



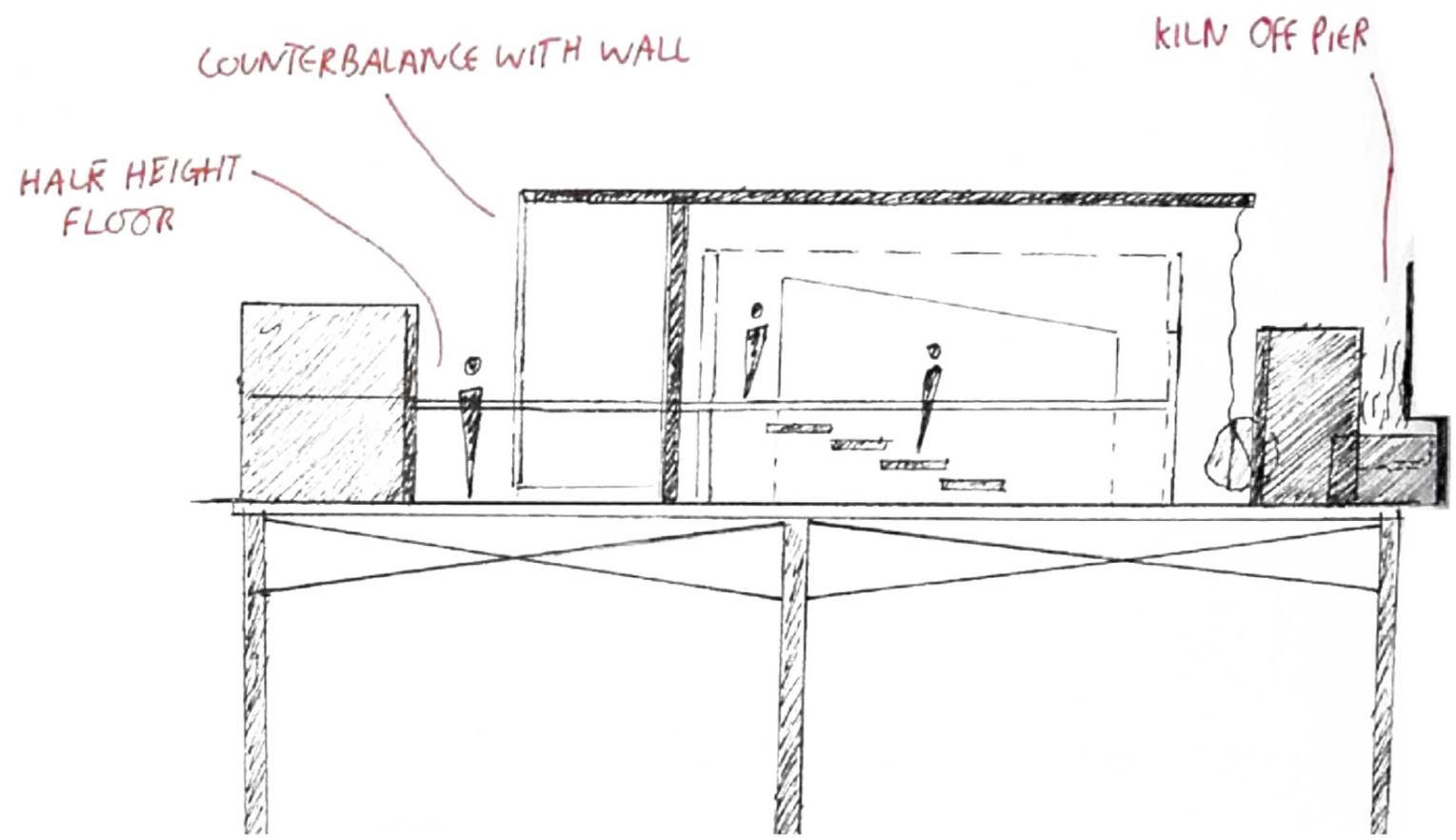
DEVELOPMENT OF LAYOUT



This pavilion has two levels on the pier, but it is half height, so that people on the floor below can still see what is happening within the pavilion.

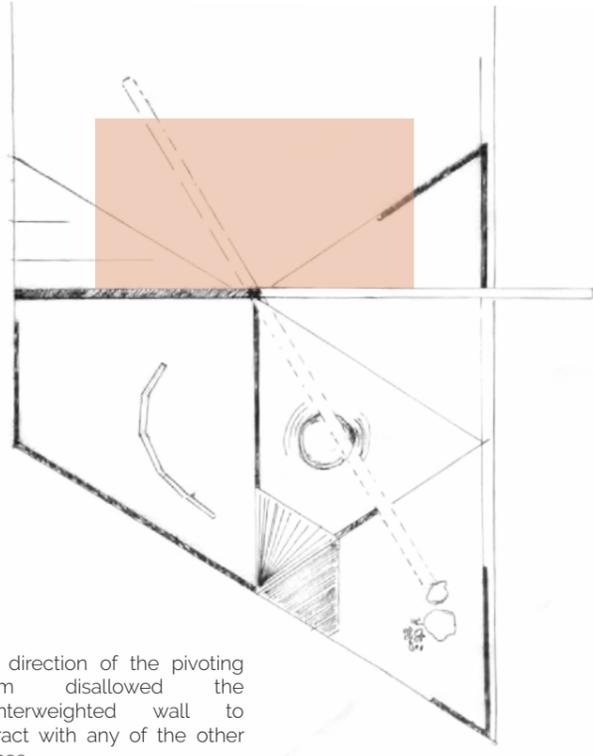
The pivot is counterbalanced with a wall and this interacts with another space in the pavilion, making it feel integrated with the design.

The steps will be elongated to highlight the journey that the chalk and building materials take to get to the workshop/ installation stage.

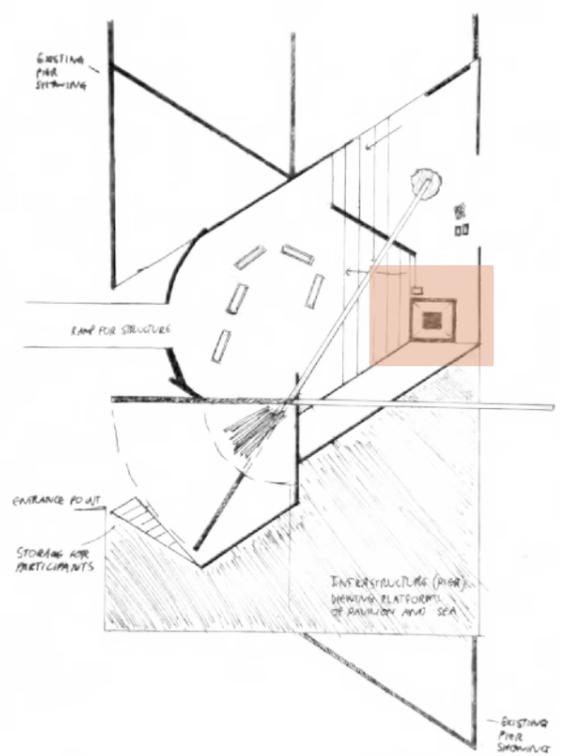
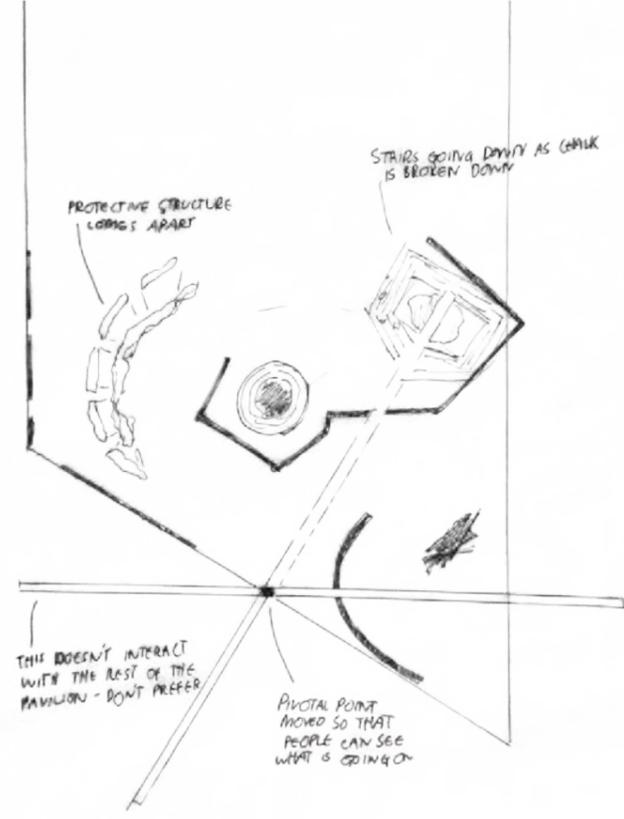


PARTI - LAYOUT ITERATIONS

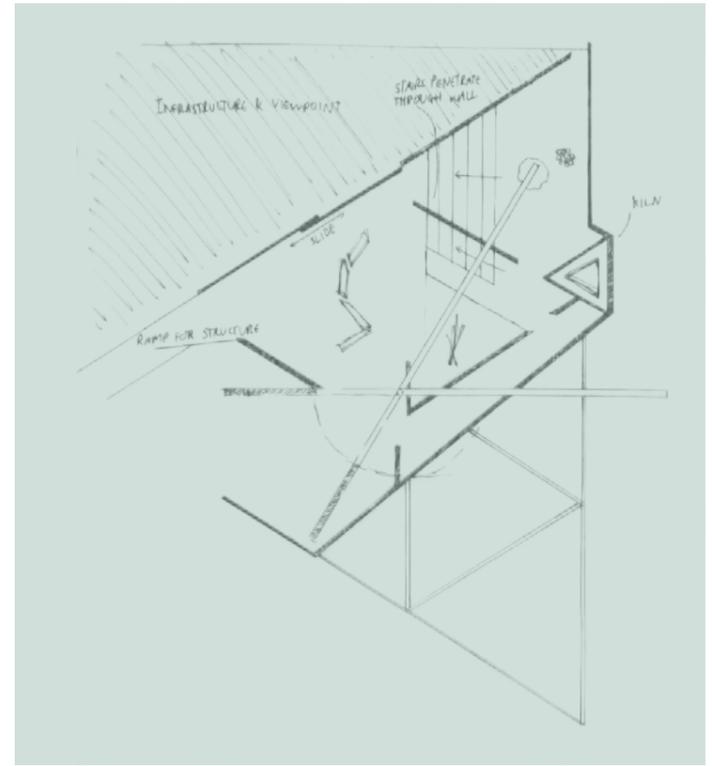
DEVELOPMENT OF LAYOUT



The direction of the pivoting beam disallowed the counterweighted wall to interact with any of the other spaces.

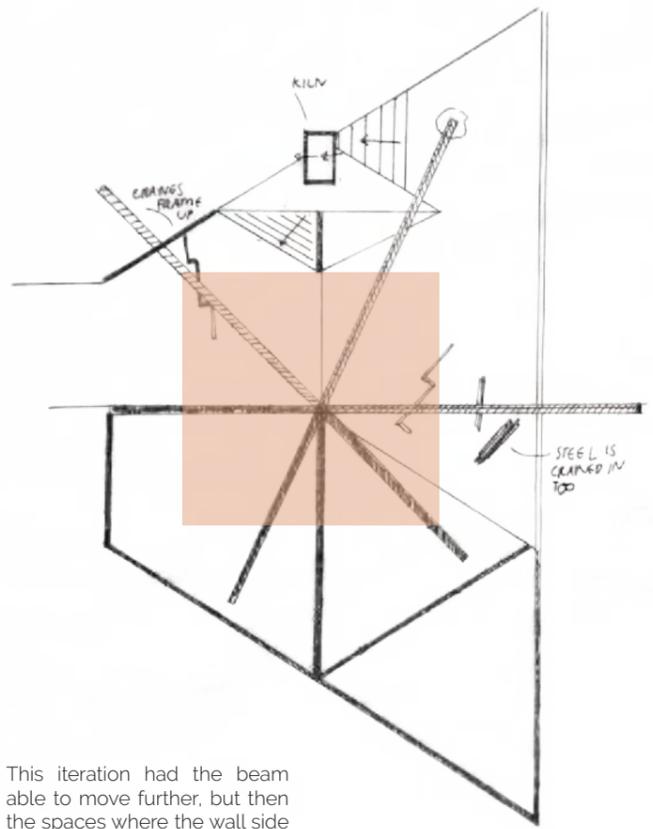


Even though this layout is very similar to the one on the right, the placement of the kiln was unsuccessful. It was blocking the smooth journey from going from the reception to the chalk breaking down space. This needed to be changed for the next iteration.

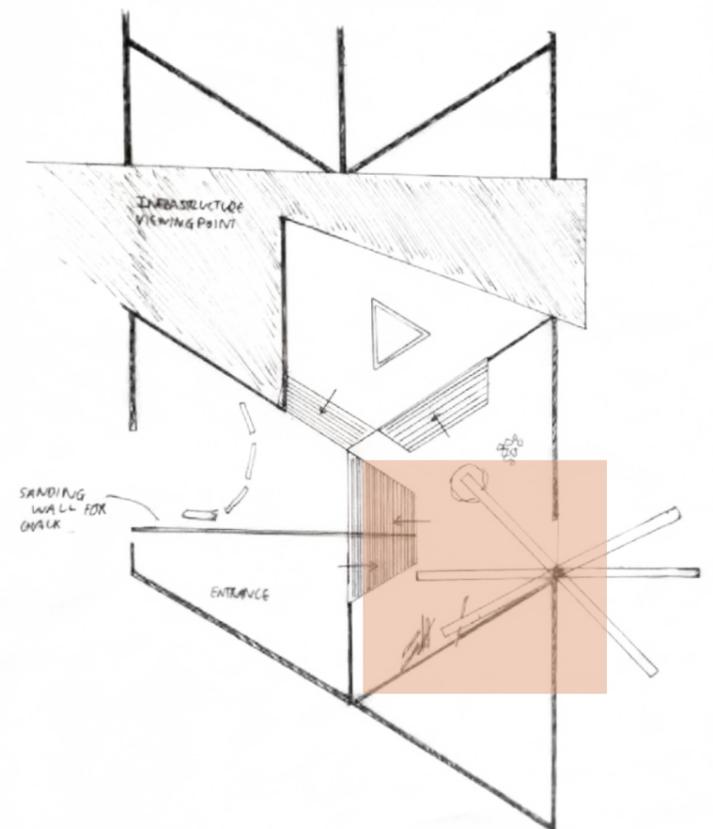


Reflection:

This layout was chosen as the best one to carry forward into making a 3D model. It separated the space adequately and the beam worked well with interacting with the most of the pavilion. The alteration in the stairs as well felt successful. There are two experiences to be had, each one side of the wall.

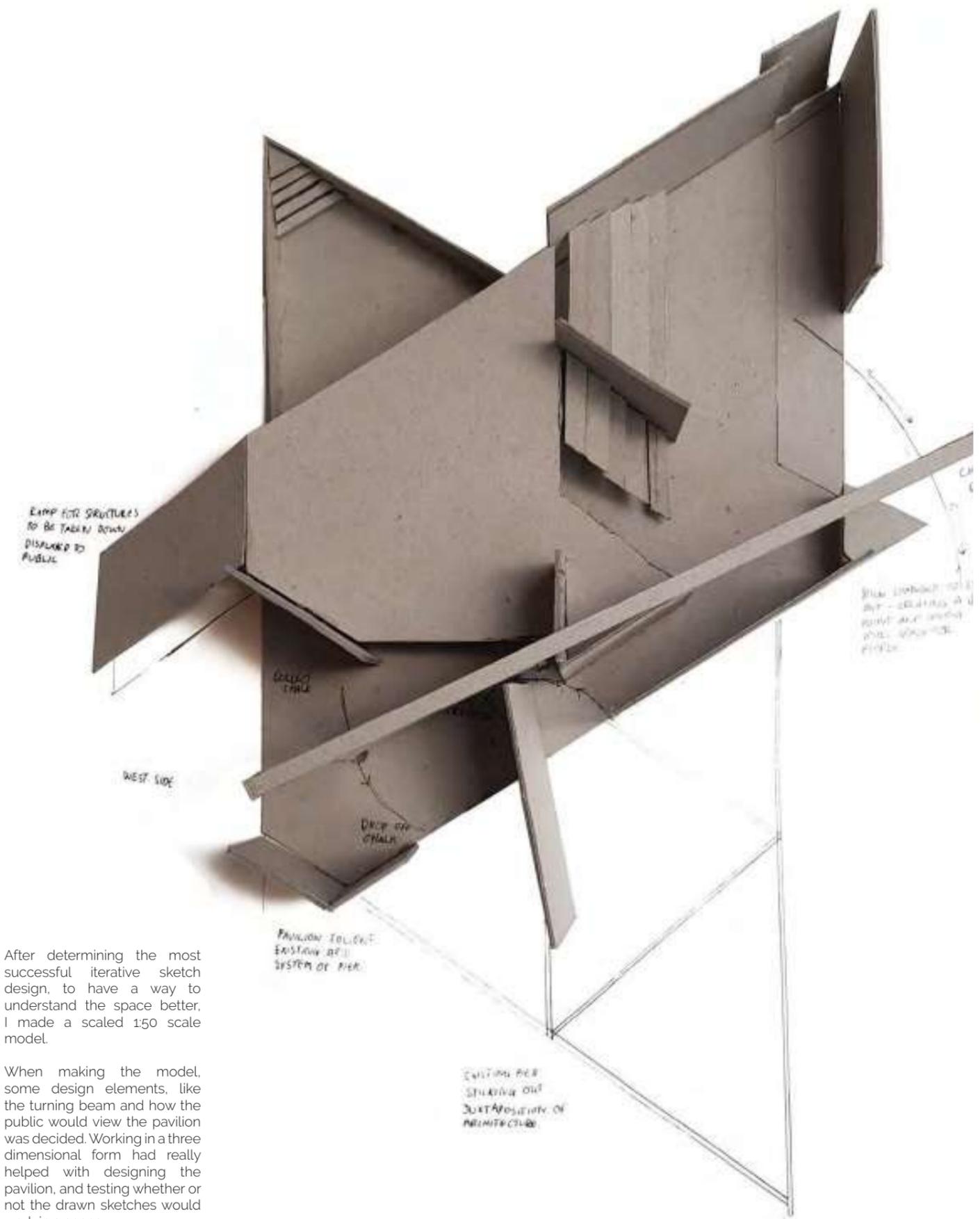


This iteration had the beam able to move further, but then the spaces where the wall side was, it was interacting with nothing and just became dead space.



The beam is too short to accommodate the location of the pivot point.

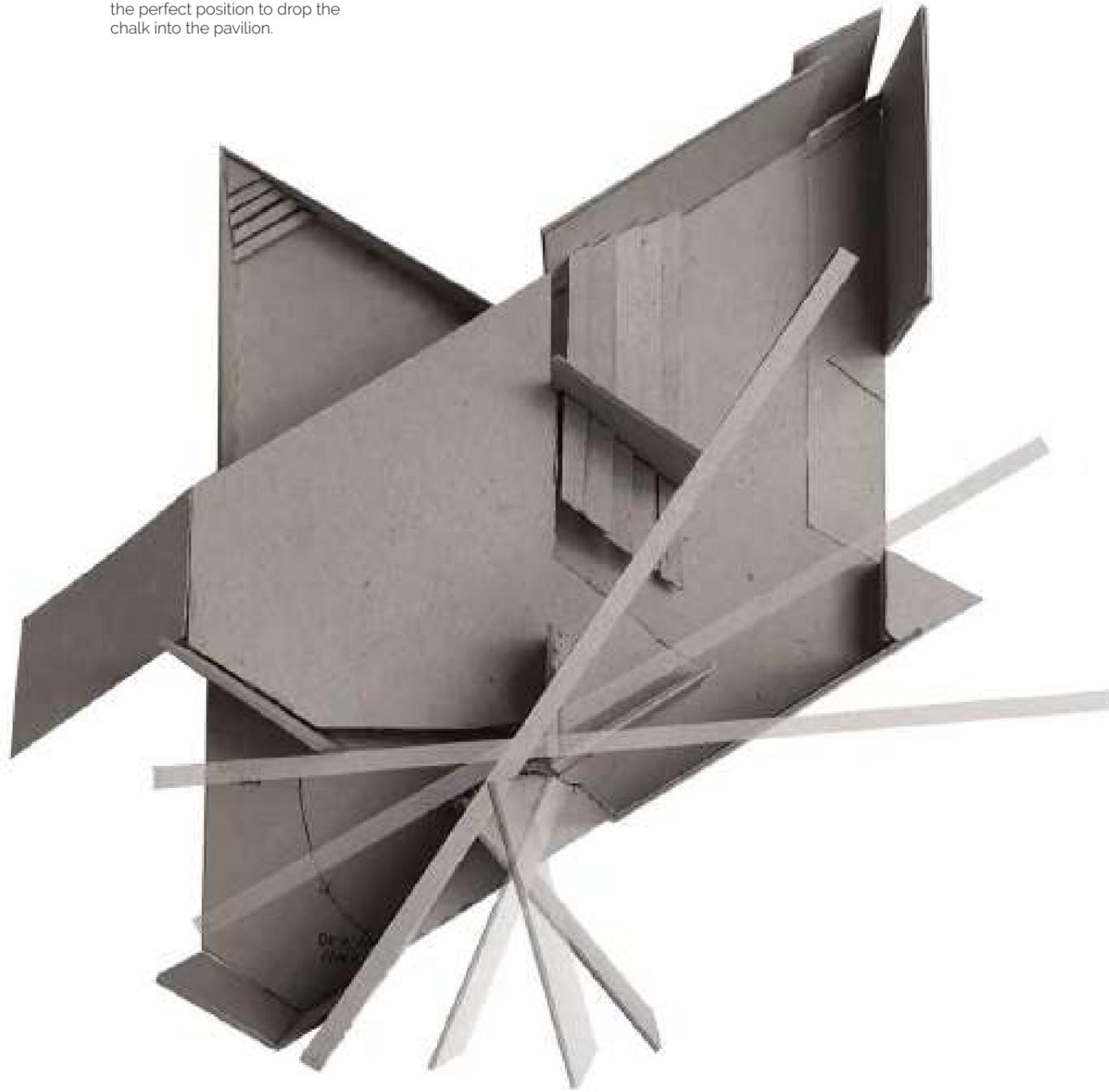
SPATIAL EXPLORATION



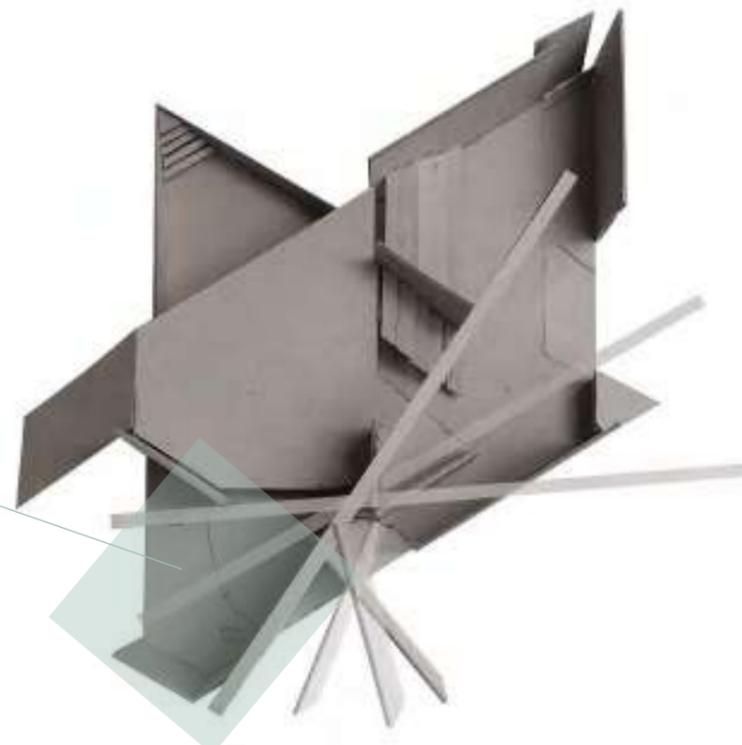
After determining the most successful iterative sketch design, to have a way to understand the space better, I made a scaled 1:50 scale model.

When making the model, some design elements, like the turning beam and how the public would view the pavilion was decided. Working in a three dimensional form had really helped with designing the pavilion, and testing whether or not the drawn sketches would work in a space.

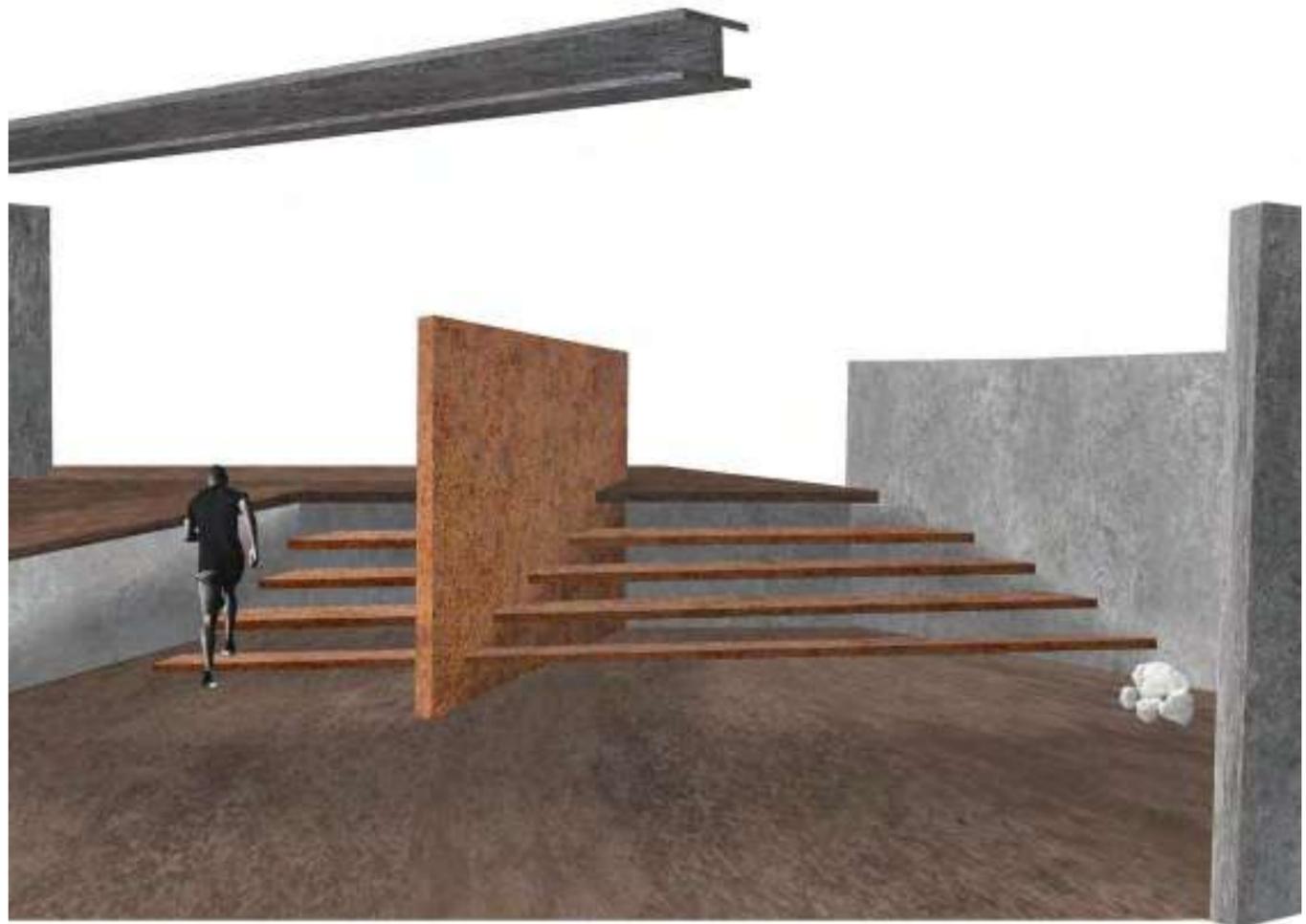
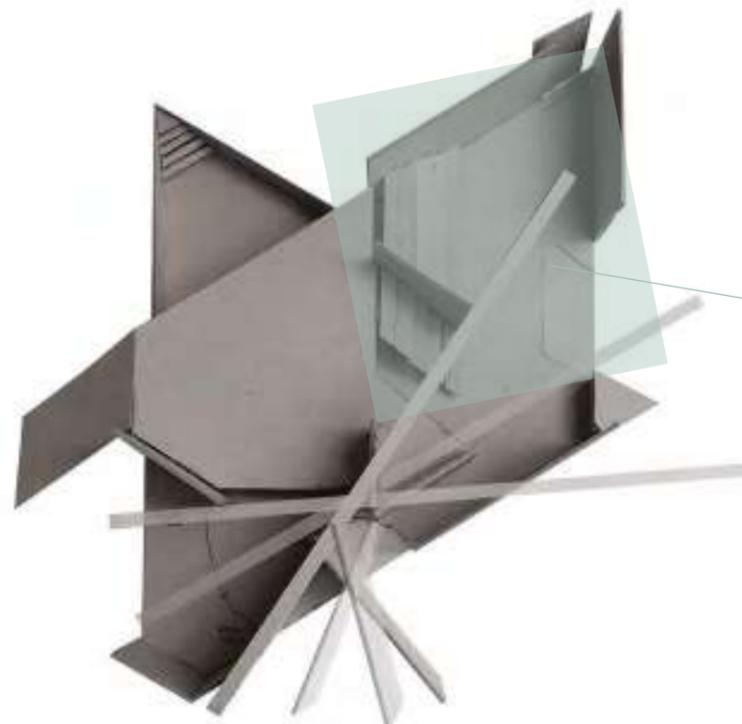
This collage shows how the walls interact with each other. The wall closing off the walkway opens and as it turns 90 degrees, it can fit through the slit which is in the pivoting beam wall. They then interlock, thus keeping the two walls in the perfect position to drop the chalk into the pavilion.



The reception, drawn from the perspective of entering



The chalk breaking down space, drawn from the perspective of the East side of the pier



## **PART I - SYSTEMS AND MATERIALS**

SYSTEMS AND MATERIAL CHOICE

- # 507 mechanical movements

- Carlo Scarpa, Tomba Brion / or if timber

What is the afterlife of the workshop? Workshop element from timber → move

Javier Corvalán Vatican Chapel Venice Biennale

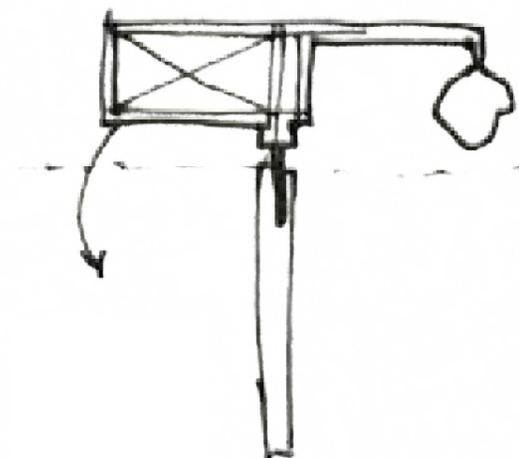
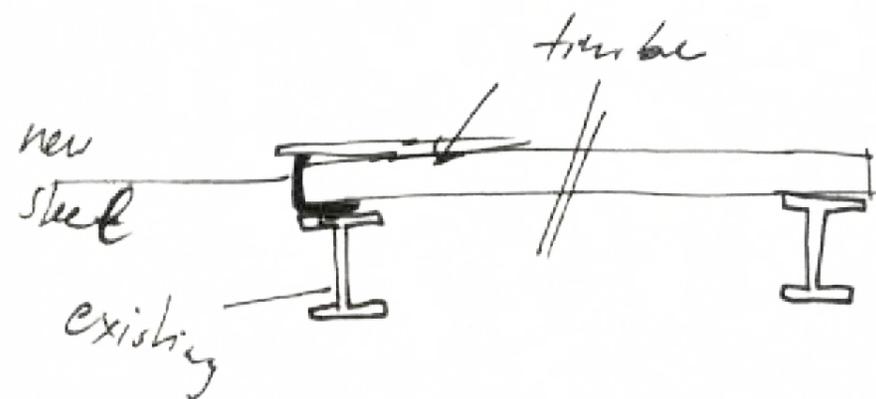
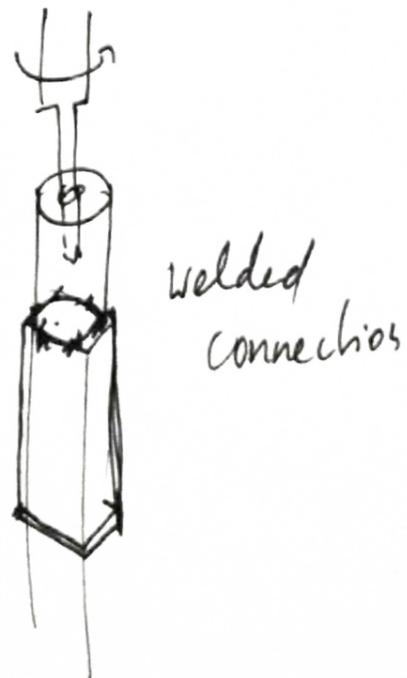
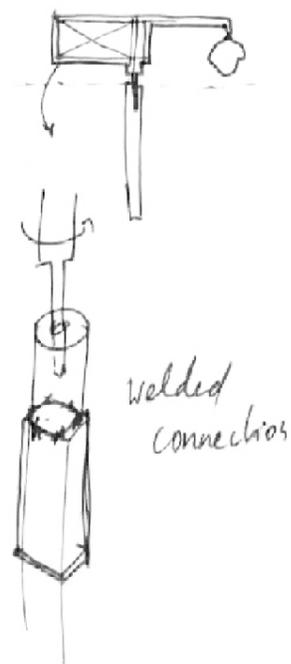
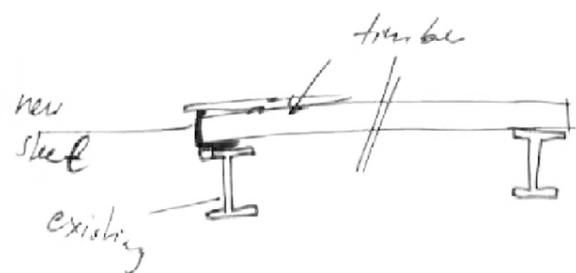
plywood sheet sizes

if this is temporary + movable → maybe it's timber?

one fixed steel element

make model with pier structure

- Nicolai Bo Andersen Teatrum Mundi



Joining the pavilion with the pier:

When speaking to the SYSMAT tutor, this was one method of joining the 'base' of the pavilion with the existing pier:

Adding light weight timber joists

Bolting the joists to metal L plates

Weld the L plates to the existing cast iron pier

Finally adding new cladding on top of the joists/frame

Another aspect was joining the pivoting beam to an existing pile as this would give the beam/wall more support.

The drawing below shows the pivoting top part inserting into a pile and also welding to it. This would secure this large structure to the pier.

Reflection:

I would like to research further into this method and see how successful it would be. When initially analysing this, the welding comes across as a permanent solution. Other less invasive methods may be better.

SYSMAT Tutorial:

Johanna is an Architect who came into to give SYSMAT advice. The main question was how does the pivoting beam work and attach to the existing structure as well as the decking which attaches to the existing pier.

The main concern was, if the workshop is going to move after the Festival of Britain is over, having thick corten steel planes may be too heavy and difficult to transport, and that looking at other materials which are lighter and easier to change.

STRUCTURE AND SKIN

Nicolai Bo Andersen - Theatrum Mundi:

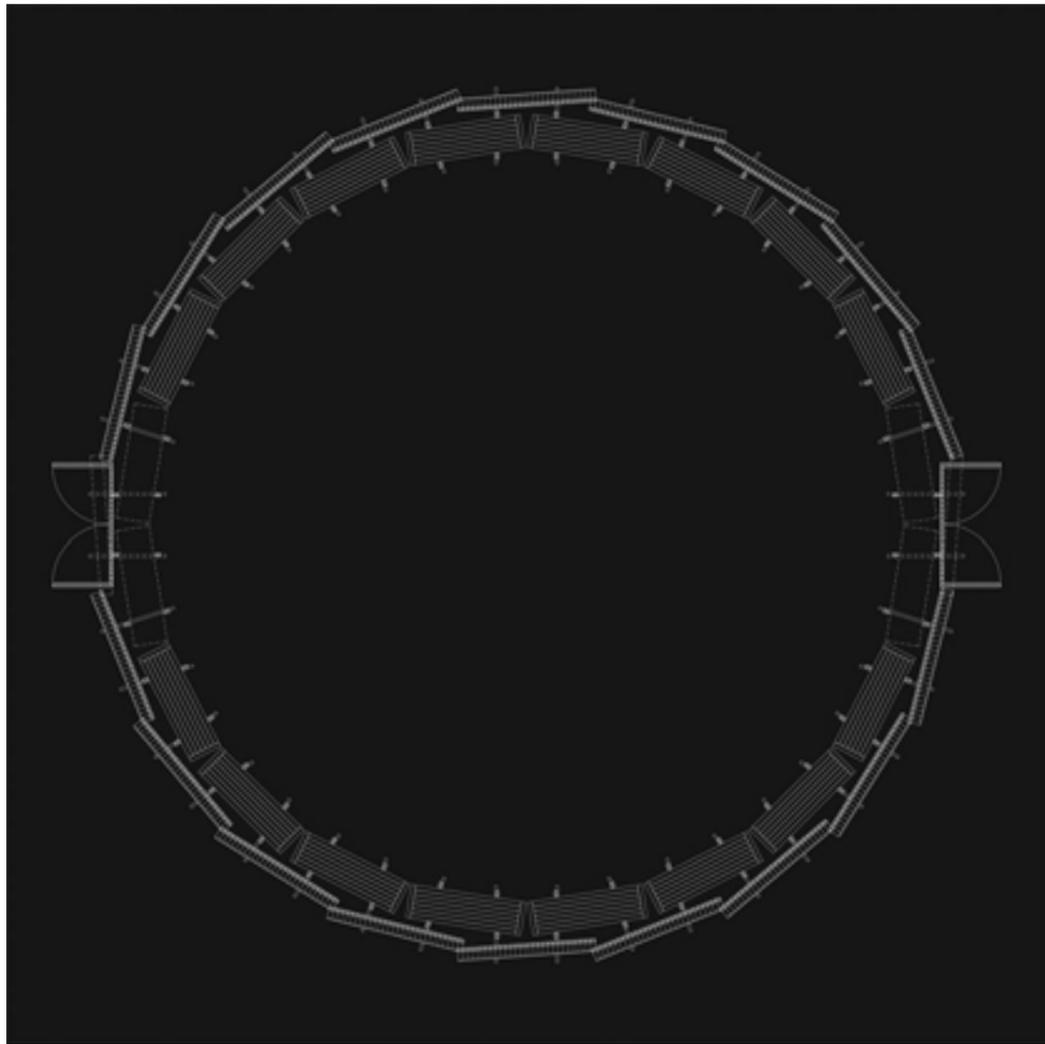
In my SYSMAT tutorial, this project was one of the few suggested.

Reflection:

The first image is of a small maquette model, showing how this repetitive form has created a spherical shape. I understand how using this light material would be beneficial. However, this type of design is quite limiting. I would struggle to use the same methodology to create a diverse space, with varying levels and a definitive workshop brief.

With Rob, in our tutorial, he discussed the ideas of using a framework and a skin. It was irrelevant for which part would stay site specific and which would travel and change to the next place.

With regards to the systems and technology used in this project, I want to explore pavilions/structures which use various materials and channel some of the architectural language of the pier into the design of the pavilion.



Theatrum Mundi. Nicolai Bo Andersen. 2020. <http://www.nicolaibo.dk/TheatrumMundi.html>. (Accessed 2020).



Javier Corvalan - The Vatican chapel:

The frame of the project is made from steel and is clad in thin plywood sheets.

The interesting part of the chapel is that it moves with the wind, rain and other elements. The entire cylindrical object is held in tension by the tripod and the wooden cross.

This allows it to move without having to support itself on further points. This gives the impression that it is floating and there is a large consideration of the forces.



It has been discreetly connected with the use of circular nail heads or rivets.

This cross braced steel frameworks allows the frame to make a cylindrical shape without having to sacrifice any of the structural integrity.

Vatican Chapel. Javier Corvalan. 2018. Venice. <https://divisare.com/projects/386723-javier-corvalan-laboratorio-de-arquitectura-alessandra-chemollo-vatican-chapel>. Photographer, Alessandra Chemollo.

**PARTI - SYSTEMS AND MATERIALS**

**STRUCTURE AND SKIN**

**Cutty Sark Pavilion:**

This pavilion had a short design to outcome time period of six months, forcing the architects to think of a way to make a pavilion with the least number of materials and easily constructed.

This pavilion has a similar journey to my pavilion. It was built to stand in one place for a set period of time, then be de-assembled and relocated multiple times; **implying that the pavilion is light in weight and can be moved with ease.**



It uses a **fabric like skin**, and a timber frame. By using tensile strength, it allows the skin to attach to the framework tightly, protecting the visitors from the outside elements.



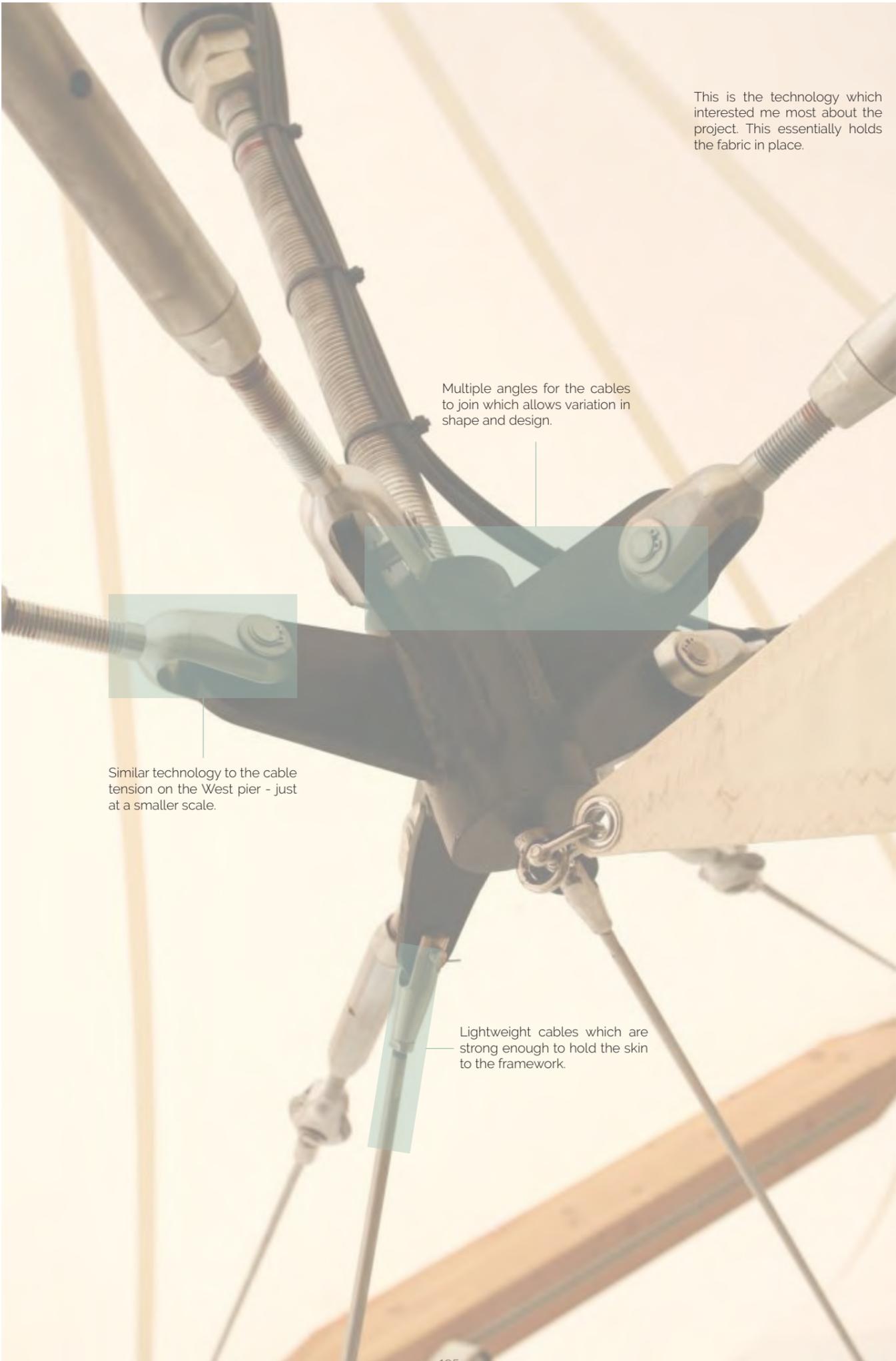
By using a fabric like material, it can change and adapt to different frameworks and attach at different points - making different shaped pavilions.

**If the framework for my workshop was to change at the second or third location, it would be able to mould to a new shape and be reused in a new way.**

Imagery showing the lightweight nature of the skin and how it rests gently to the frame.



Cutty Sark Pavilion. BAKOKO. 2013. London. <https://www10.aecfcafe.com/blogs/arch-showcase/2013/01/15/cutty-sark-pavilion-in-london-united-kingdom-by-bakoko/>. Photographer, BAKOKO.



This is the technology which interested me most about the project. This essentially holds the fabric in place.

Multiple angles for the cables to join which allows variation in shape and design.

Similar technology to the cable tension on the West pier - just at a smaller scale.

Lightweight cables which are strong enough to hold the skin to the framework.

**PART I - SYSTEMS AND MATERIALS**

**STRUCTURE AND SKIN**

**Timber and steel reinforcement:**

Tree tents international has created a light in weight and carbon footprint structure using modular construction.

When designing my workshop pavilion, I will need to be able to create a structure which is easily transportable and adaptable to fit different functions inside.

Each workshop will be focussing on their own regional material, so the process of how they would make the product (the structures) would be different. This requires a design element which can change and adapt.

I like this concept of using CLT timber with steel reinforcements. It is a great way of construction because the modular timber items can be prefabricated and then assembled with ease on site.

This would be the same with dismantling after the festival is over.

Looking at this detail connection closer, it shows how it would fit together. This is essentially a washer which bolts through the timber and attaches to the steel tube - holding the structure firmly in place.

This method is a modernised, small scaled version of how the C clamps are fitted around the Iron piles on the West pier.

**Reflection:**

Even though the shape of this design is more cylindrical, which would not be directly transferable to my pavilion, I like the idea of exploring this type of construction further and seeing if it would be a suitable method for my design work.



Glamping pod. Fuselage. <https://treetents.co.uk/products/fuselage/>.



**Sheet aluminium skin:**

Another aspect of this design I really like, is the fact they use a light weighted metal - sheet aluminium - as a skin to clad their framework.

When looking at my design previously, I was looking at making entirely steel structures. After speaking with a SYSMAT tutor, this was **not going to be great for the environment** and would **not be plausible as a temporary** and adaptable structure.

However, this company has used sheet panelling which is a much more realistic method for interchangeable designs and would be lighter for the carbon footprint for my project.

Cladding made from sheet aluminium.

**Pros:**

- Light weight
- Malleable
- Less carbon footprint
- More durable than other metals
- 100% recyclable

**Cons:**

- Thin aluminium could get damaged easier
- Slightly more expensive

**PART I - SYSTEMS AND MATERIALS**

**STRUCTURE AND SKIN**

**Brooks and Scarpa - Reactor Films:**

I really like the juxtaposition of the architecture and how it has been inserted into the existing space. It looks as though it is part of the existing but there are elements which may be able to be picked up and moved.

The colour palette was another feature that drew this project to my attention. Even though it is partly made from rather heavy materials, it feels like it is partially floating.

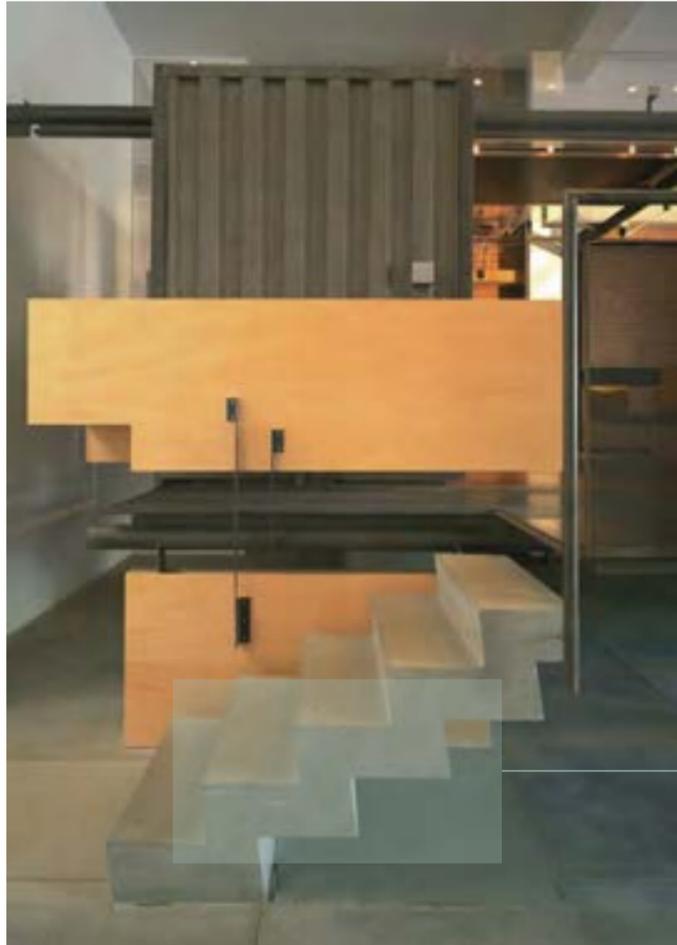


Track and rail system which would run the steel sheet door/wall along the corrugated cladding.

Rusted steel panelling. This could be recycled and collected regionally around the UK, for my project.

**Material palette:**

- Recycled corrugated container
- Timber panelling
- Steel - Pipes, Mesh, Sheet
- Concrete



The structure is raised off the ground.

This is another way of holding the structure up. The material appears that it is mostly concrete (maybe with reinforced steel inside).

Concrete cast stairs

Reactor Films installation. Brooks + Scarpa. 2012. Santa Monica. <https://www.archdaily.com/233676/reactor-films-brooks-scarpa-architects>. Photographer, Marvin Rand.

PART I - COLLAGE SEQUENCE

STRUCTURE AND SKIN

Studio Sitges:

This project is really fascinating with how the architect has created light pivoting doors, using industrial, Corten and stainless steel.

The design was focused on maximising the relationship with the inside and outside. This has been executed using sliding and pivoting doors.

Another successful design element is that the pivotal point is not in the centre. This gives the option for a varying experience to walk through and **cuts up the space asymmetrically.**



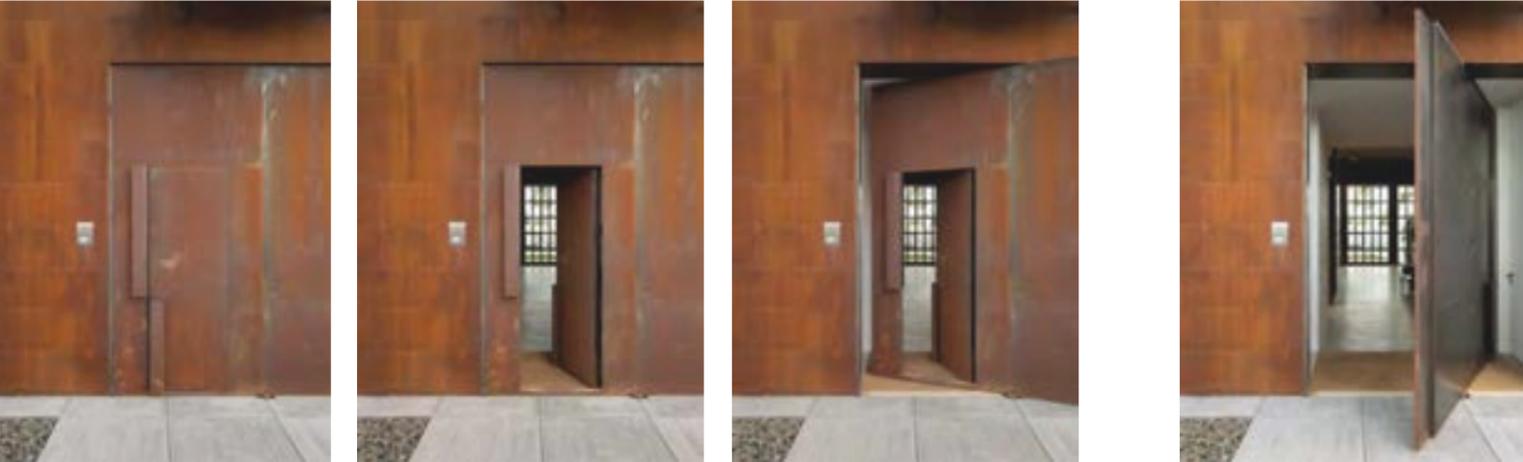
Pivoting door. Olson Kundig, 2014, Spain. <https://www.dezeen.com/2014/01/21/studio-sitges-by-olson-kundig-architects/>

Corten steel structure. Reulf Ramstad Arkitekt. 2019, Rosheim, France. <https://www.archdaily.com/929935/chemin-des-carrieres-park-walk-reulf-ramstad-arkitekter>. Photographer, Florent Michel.



These steel planes look and are very heavy, but because they are thin sheets and have been curved, they portray a lightness to them which is successful.

The way these planes are arranged, it separates the spaces and gives it a 'maze' like environment.



# PART I - PERMANENT ELEMENTS

**PART I - PERMANENT ELEMENTS**

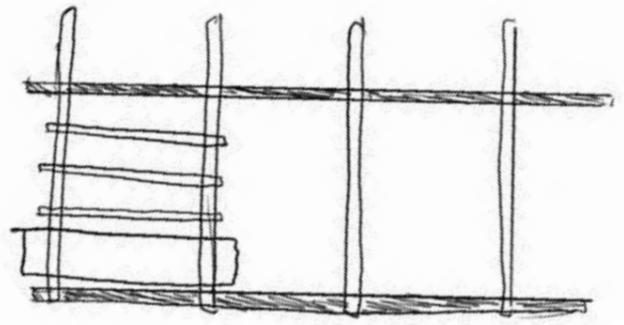
**SUBSTRUCTURE**

**Technology tutorial:**

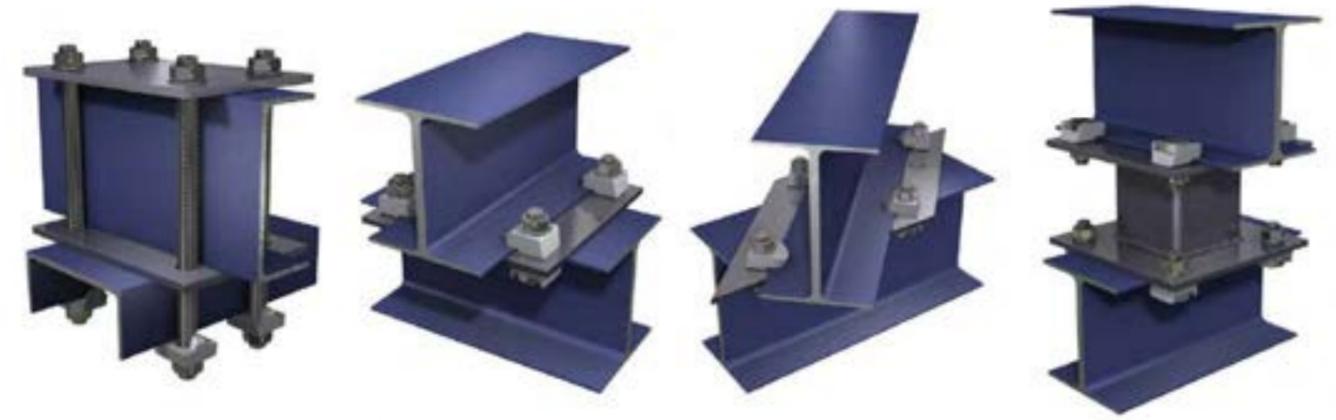
I had a tutorial with Stephen, looking at the current technology I have researched and what I needed advice with.

These sketches are all showing how I could attach my architectural layer on top of the existing pier.

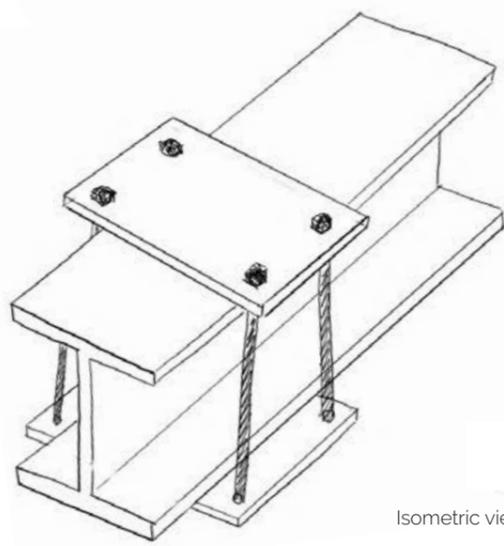
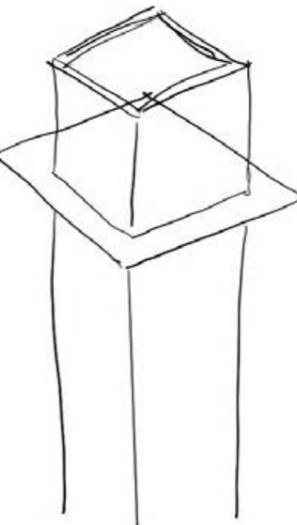
He suggested I used a clamping method using steel plates. These plates would be placed either side of the **existing and my new 'floor' and bolted through together.** This simple technology would securely hold the materials together and **would not be invasive to the pier.**



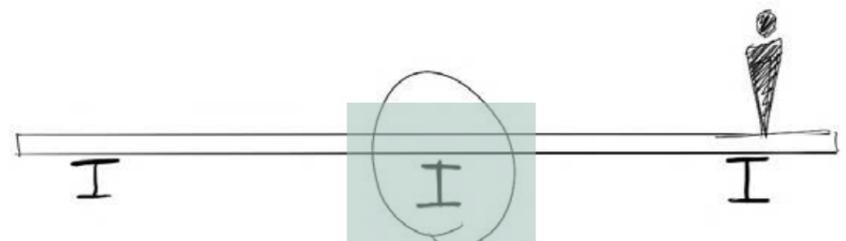
Plan view - The black lines represent the existing pier and this is a brief drawing showing how joists and layers could be built up on the pier.



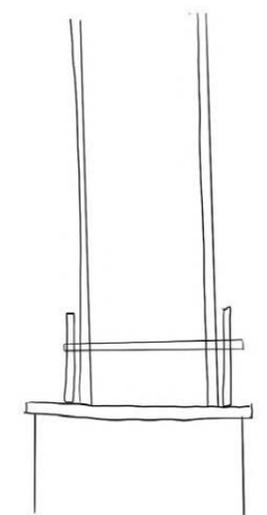
I beam clamps. <https://www.inasolutions.com/connection-solutions/boxsok-rapid-assembly-tool>



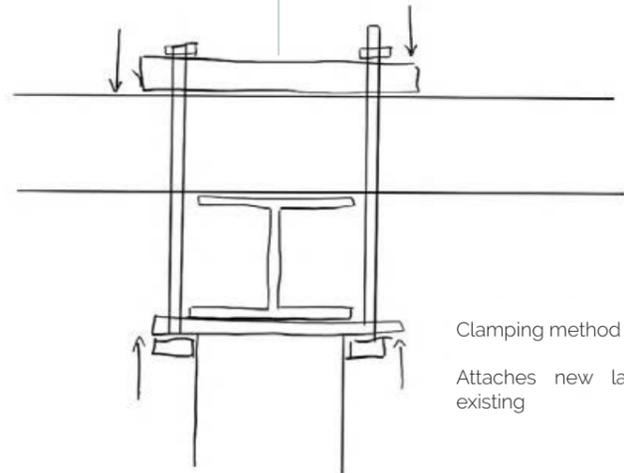
Isometric view - clamp



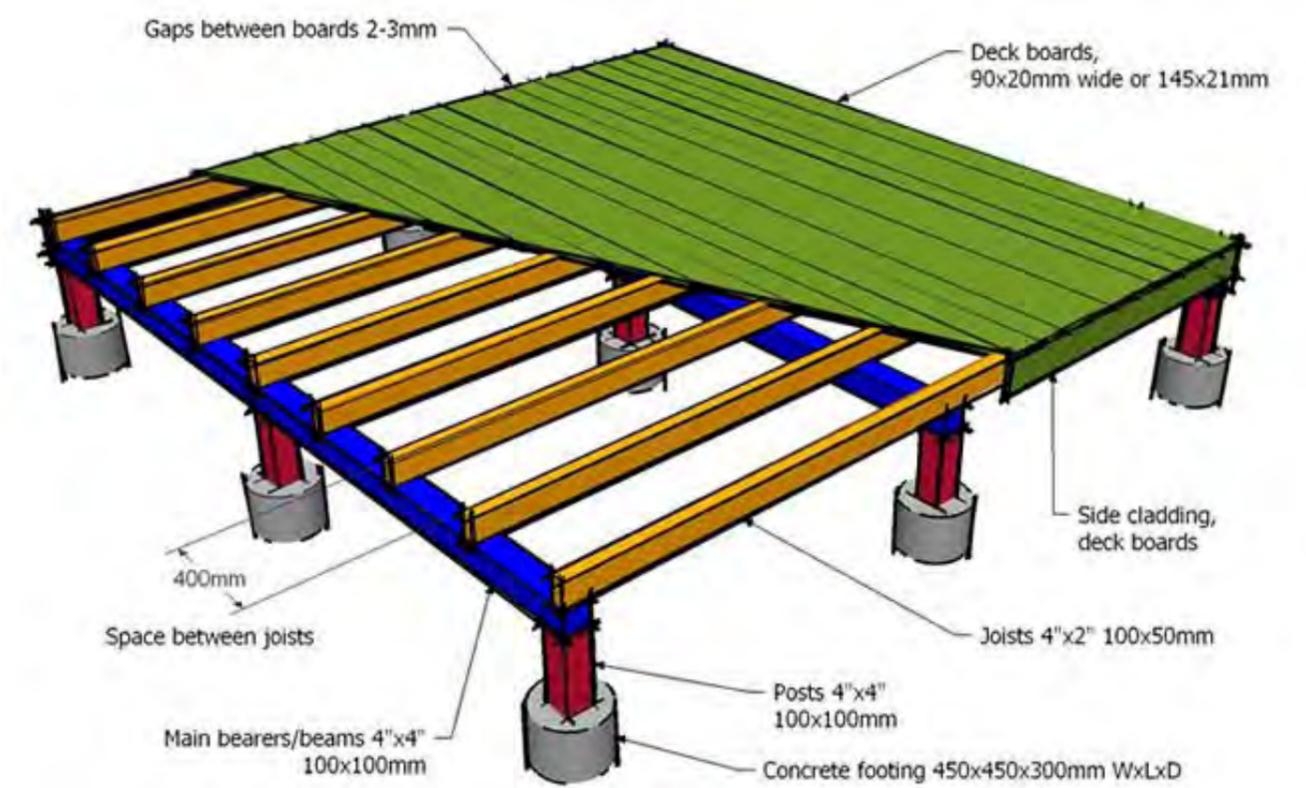
Hand drawn sketches  
Author  
2020



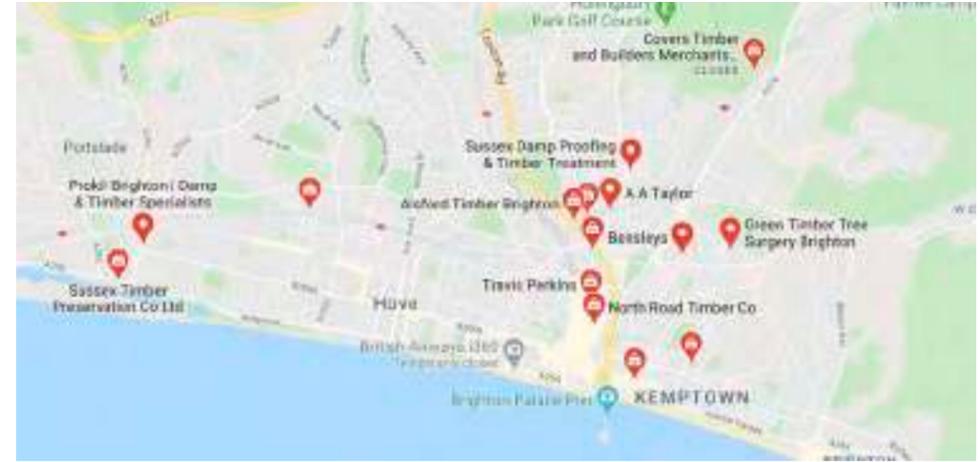
If I wanted to add levels, this is a proposed way to clamp the new structural walls together.



Clamping method  
Attaches new layer to the existing



Decking layers. <https://www.gardenbuilders.co.uk/index?jsCart=5bb17d59427f5451dffce8563094d95e>



There are plenty of local timber sources which would be able to provide the materials needed to make the substructure.

Timber suppliers, Brighton. <https://www.google.co.uk/maps/search/timber+supplier+brighton/@50.9369253,-0.424875,10z/data=!3m1!4b1>

**Reflection:**

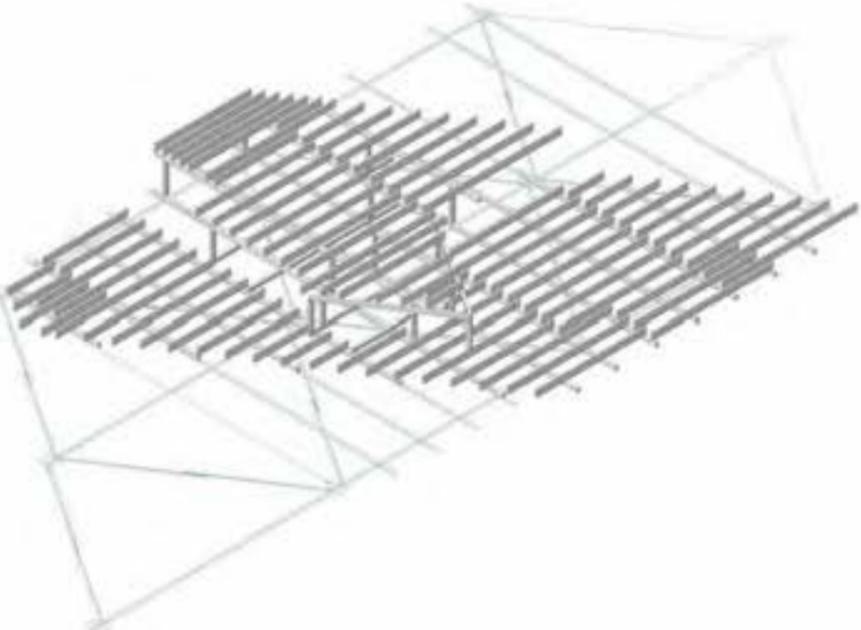
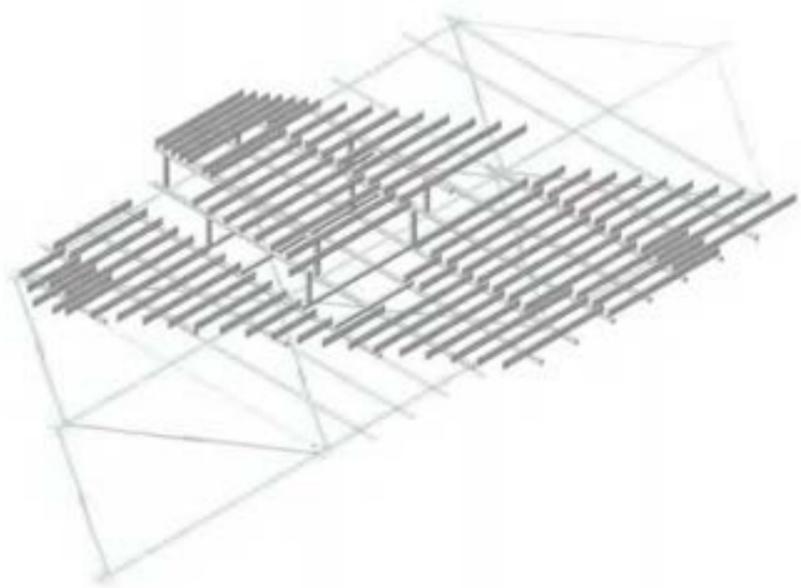
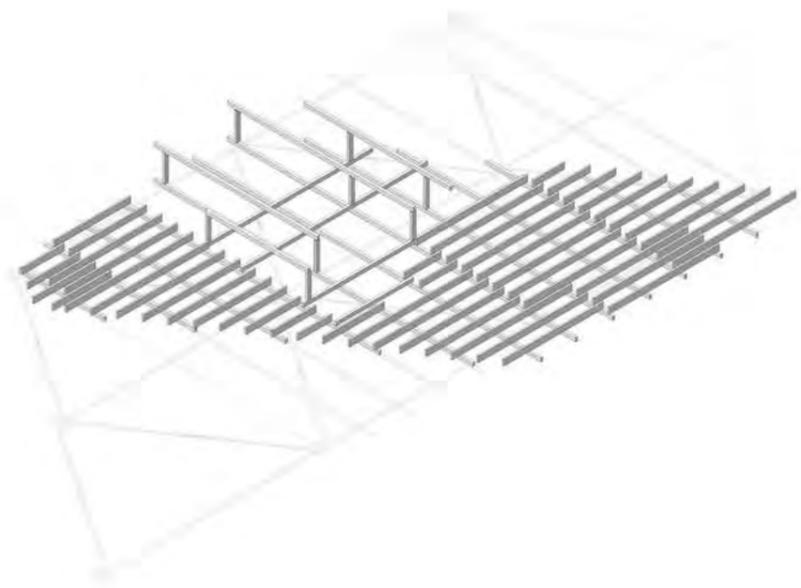
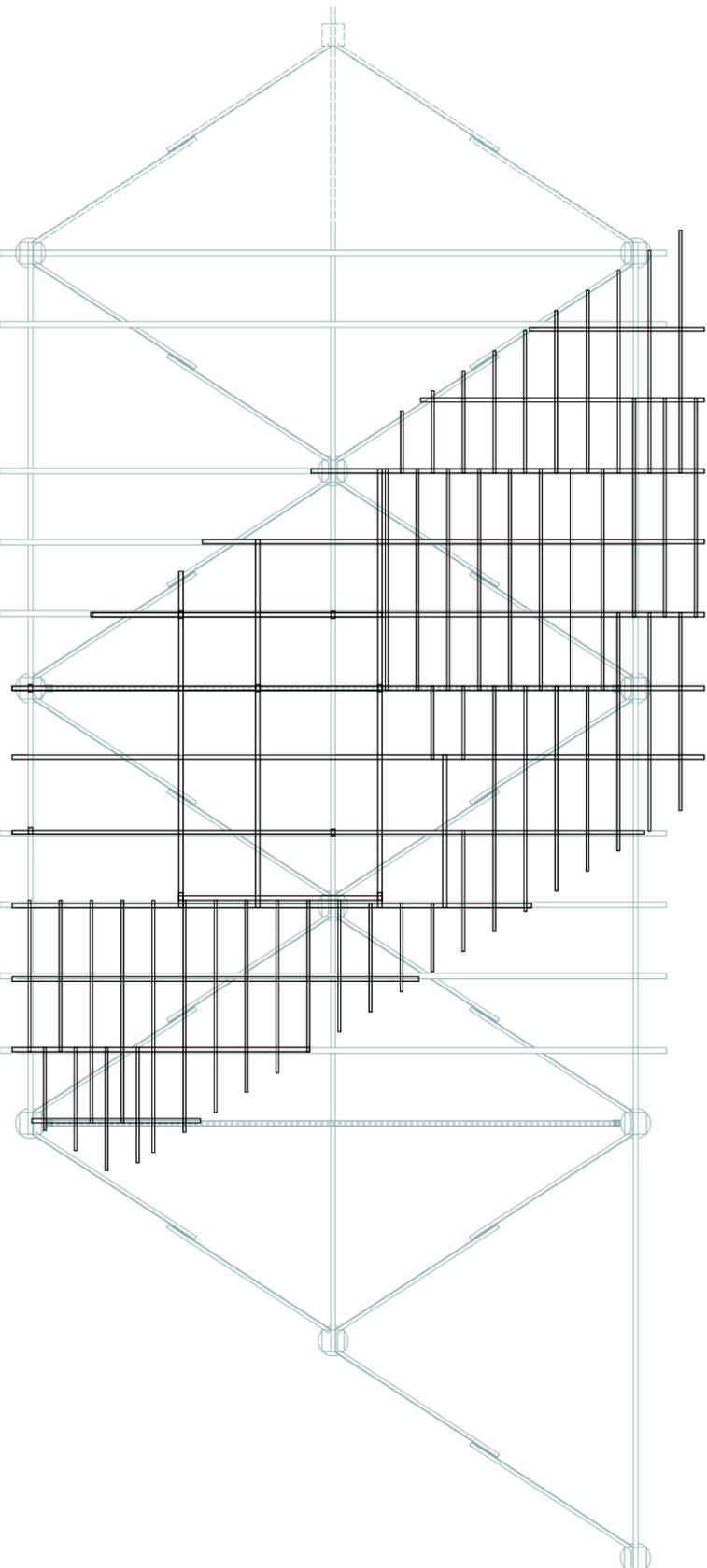
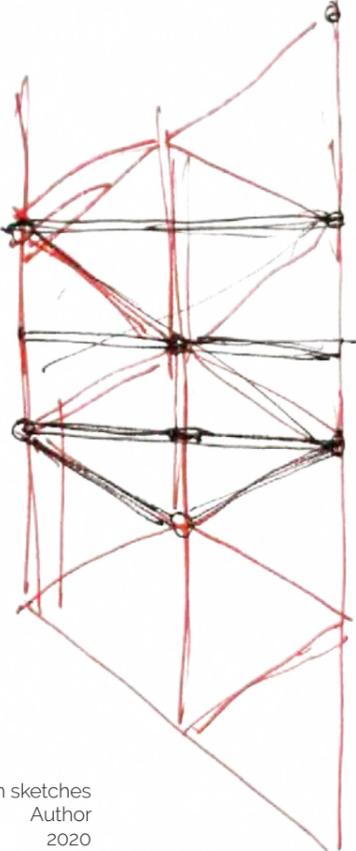
By looking at sub-structural technology and how the layers build up, this aided the decision making.

There will be **steel beams** which will rest across the existing structure.

**On top of the steel beams, CLT joists** will sit perpendicularly, to close the gaps and create a good base for a cladding to go on top.

PART I - PERMANENT ELEMENTS

SUBSTRUCTURE



Hand drawn sketches  
Author  
2020

These sketches represent the way the beams will sit on top of the existing structure. They will span across the three main girders

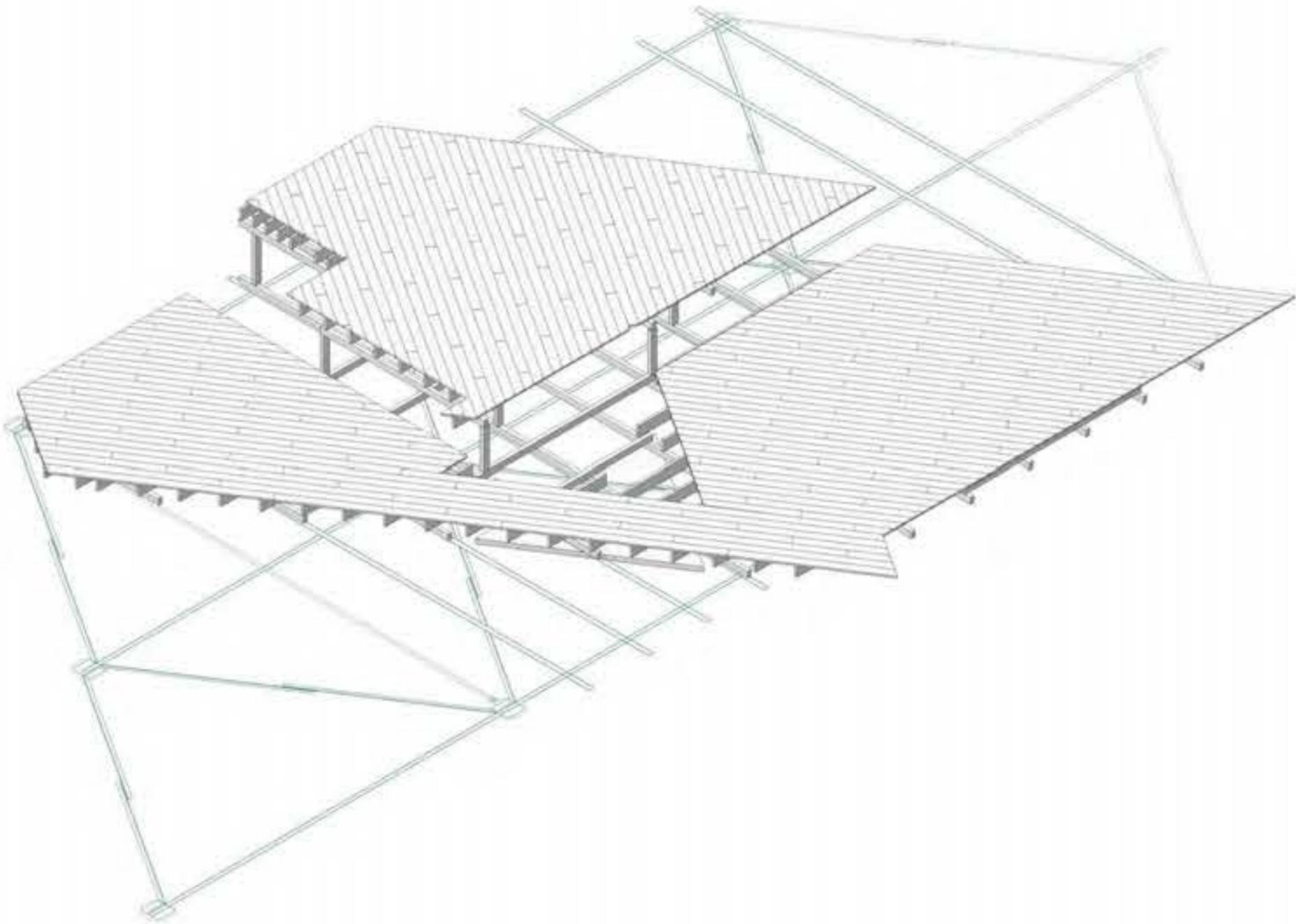
Vectorworks model  
Author  
2020

When designing the first floor, the beams which run perpendicular to the West pier will not be at a height where timber joists can rest on top of them.

This means that the framework of the first floor shape needs to come up and there has to be a frame which is built at that height.

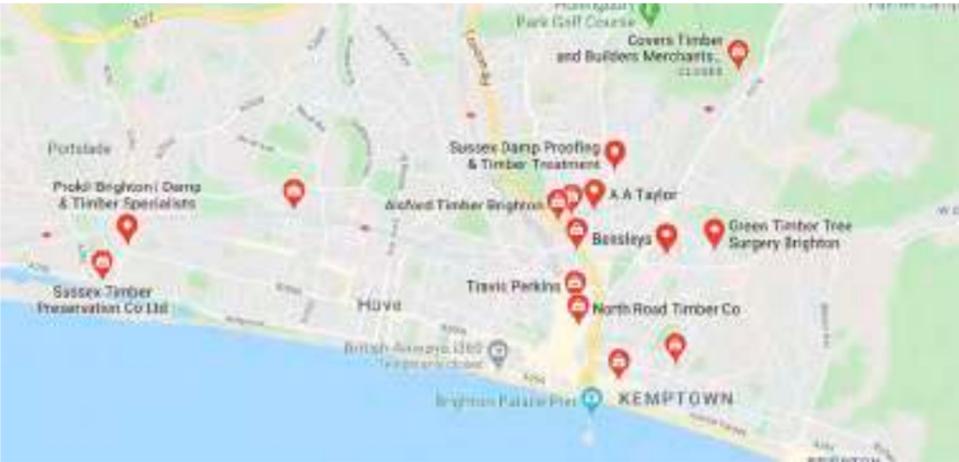
Once the frame on top is built, then the joists can sit across the new frame.

**By using this method, it means that the pavilion is solely relying on the structure of the West pier and does not need to have additional support which would affect the sea bed and be more invasive.**



Vectorworks model  
Author  
2020

Timber sourcing in Brighton:



Timber suppliers, Brighton. <https://www.google.co.uk/maps/search/timber+supplier+brighton/@50.9369253,-0.424875102/data=!3m1!4b1>

For a design decision made when rendering parts of the physical model, it would add to the experience if the floor surface changed over time - due to the uses of chalk and a workshop.

**The best way to highlight chalk is to have a dark surface.**

The floor cladding will be Black Ash timber. This can be locally sourced and fabricated off-site, near the pier.

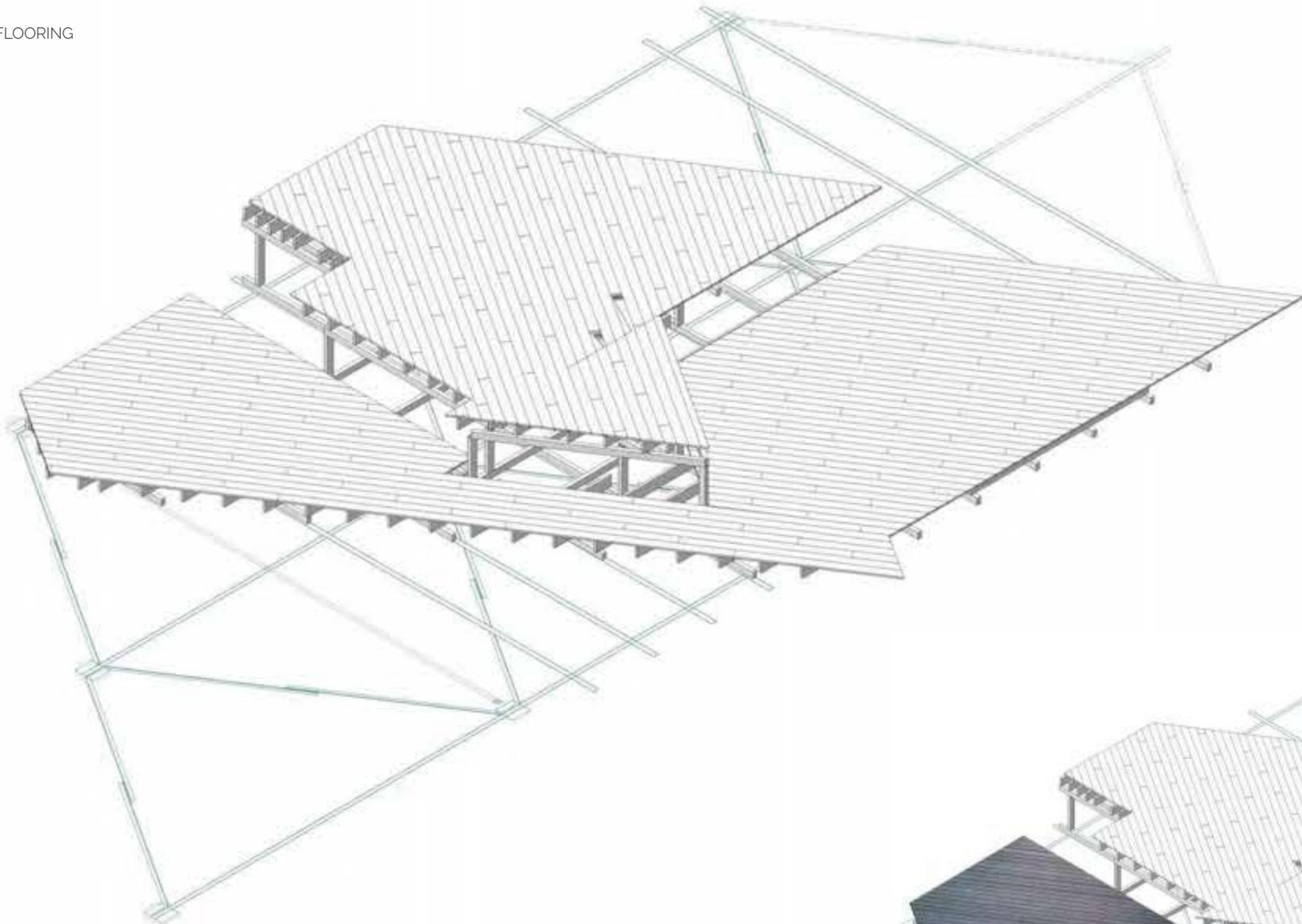
**The floor board dimension size would be:**

**114mm x 38mm x 3600mm.**

The length would vary due to the shape of the pavilion.

PARTI - PERMANENT ELEMENTS

FLOORING



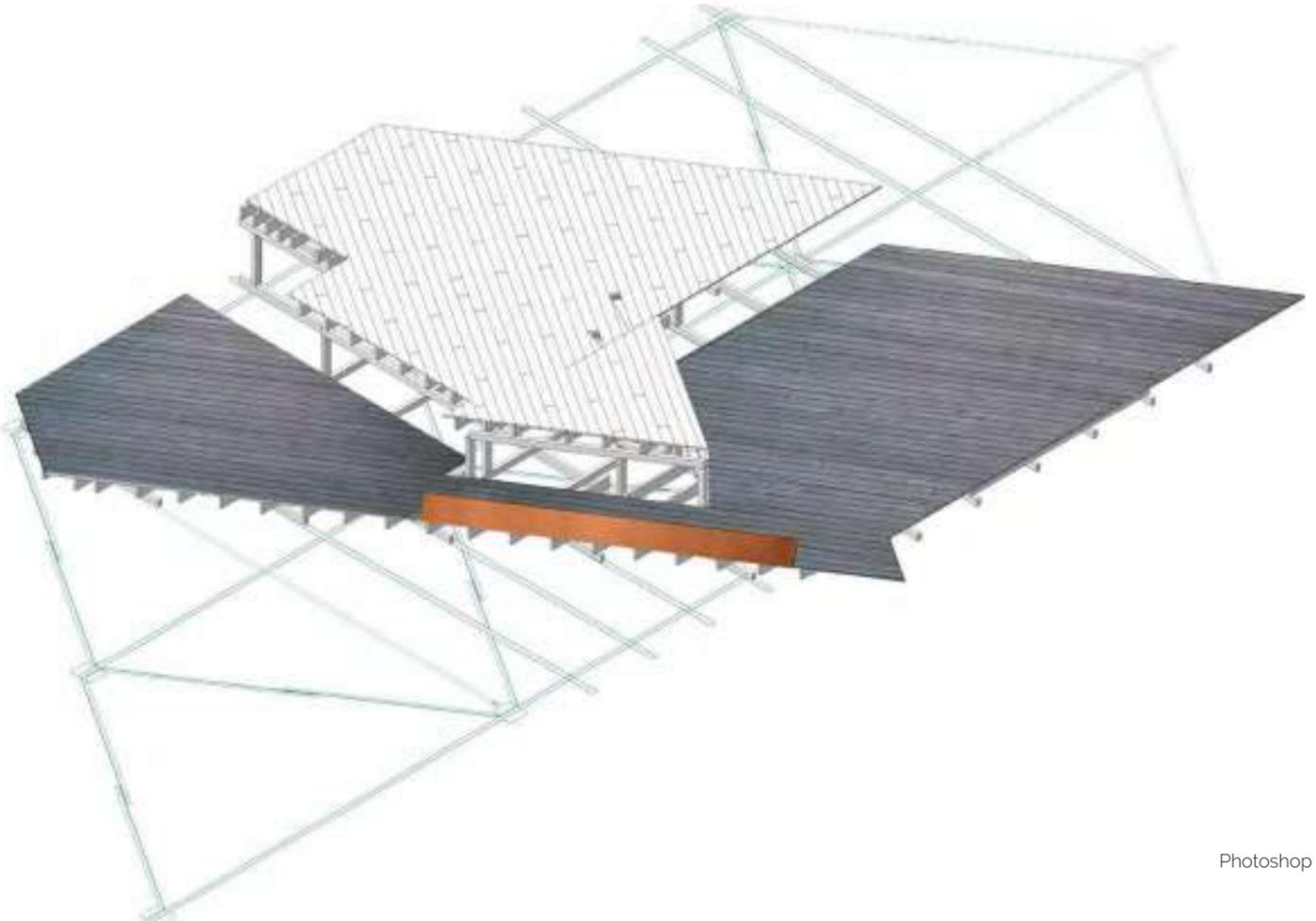
Vectorworks model  
Author  
2020



Photoshop collage  
Author  
2020

**Reflection:**

This quick render is to show the colour palette of the floor and the image above is exploring the textures that would be made on the floor when the workshop has been running for a while and the chalk settles in to the surface of the wood.



Photoshop collage  
Author  
2020

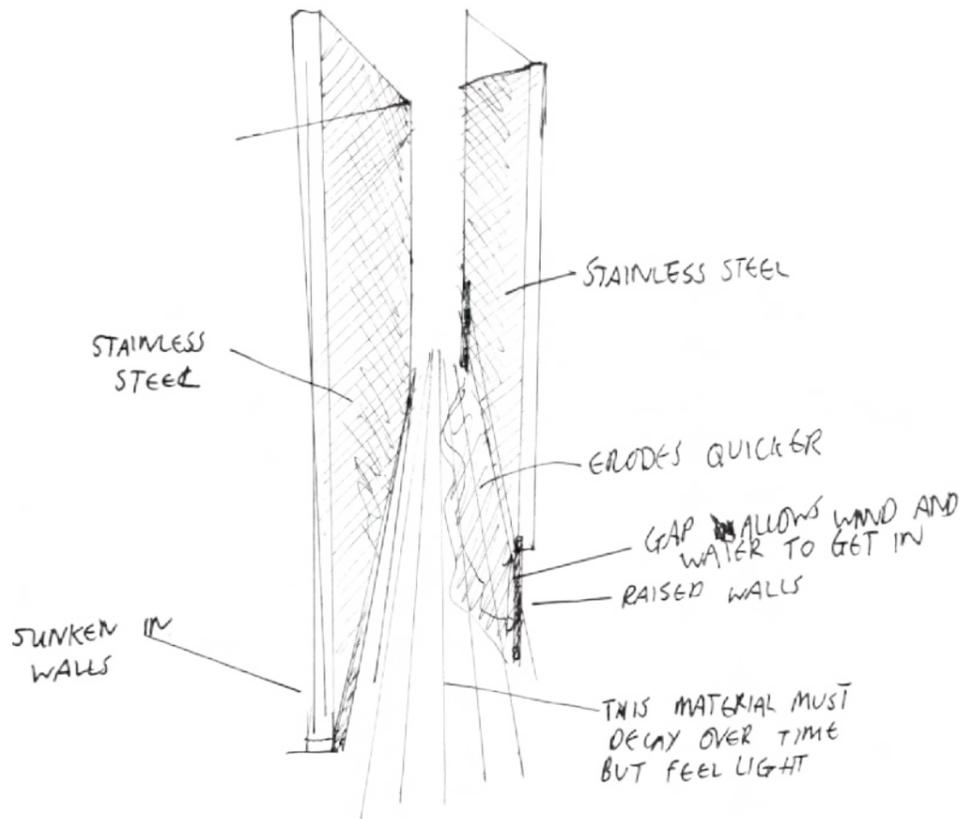
PART I - PERMANENT ELEMENTS

FLOORING

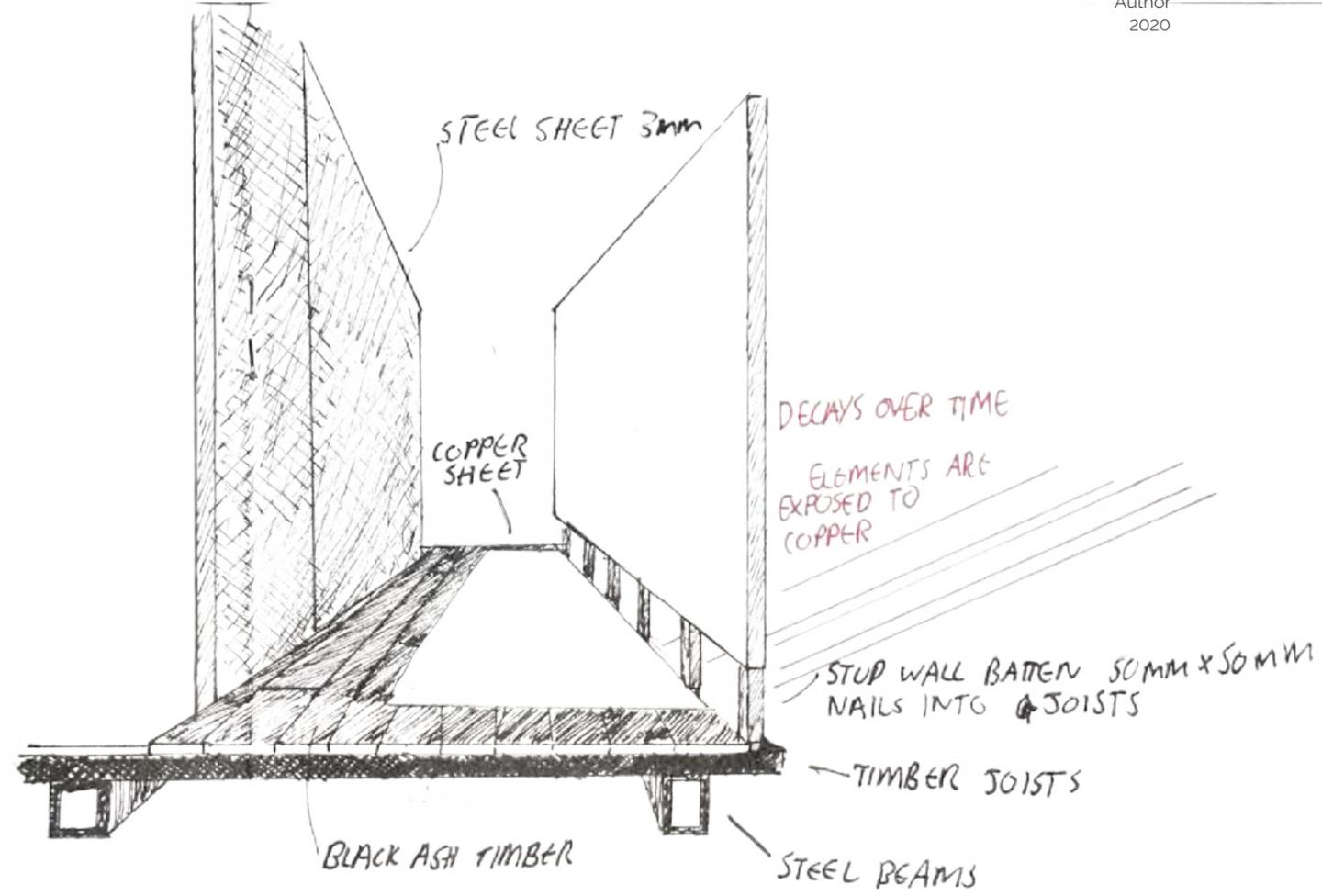
Because movement is a large influencer to the pavilion design, the idea of having an element of the floor which would dynamically change aesthetically was interesting.

In the threshold of the pavilion, moving from the entrance/beginning area towards the first task of the workshop, people would walk through this threshold.

By having the exterior wall raised from the ground, it exposes the threshold to some of the elements, such as light, rain, sea and wind. To highlight this change throughout the pavilion's life-cycle, I decided to place a Copper sheet on the ground. It will be a completely different texture to the wood, so would be noticeable to walk on, and then the drastic changes in colour and pattern would also become more apparent over time.



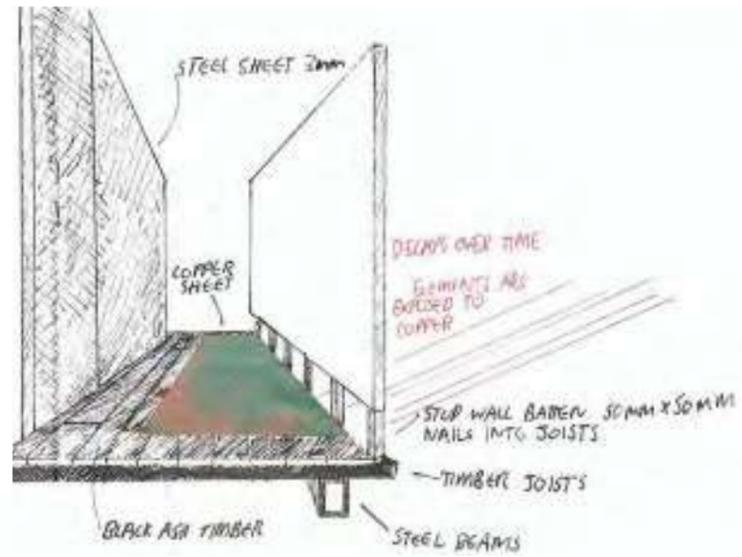
Hand drawn sketches  
Author  
2020



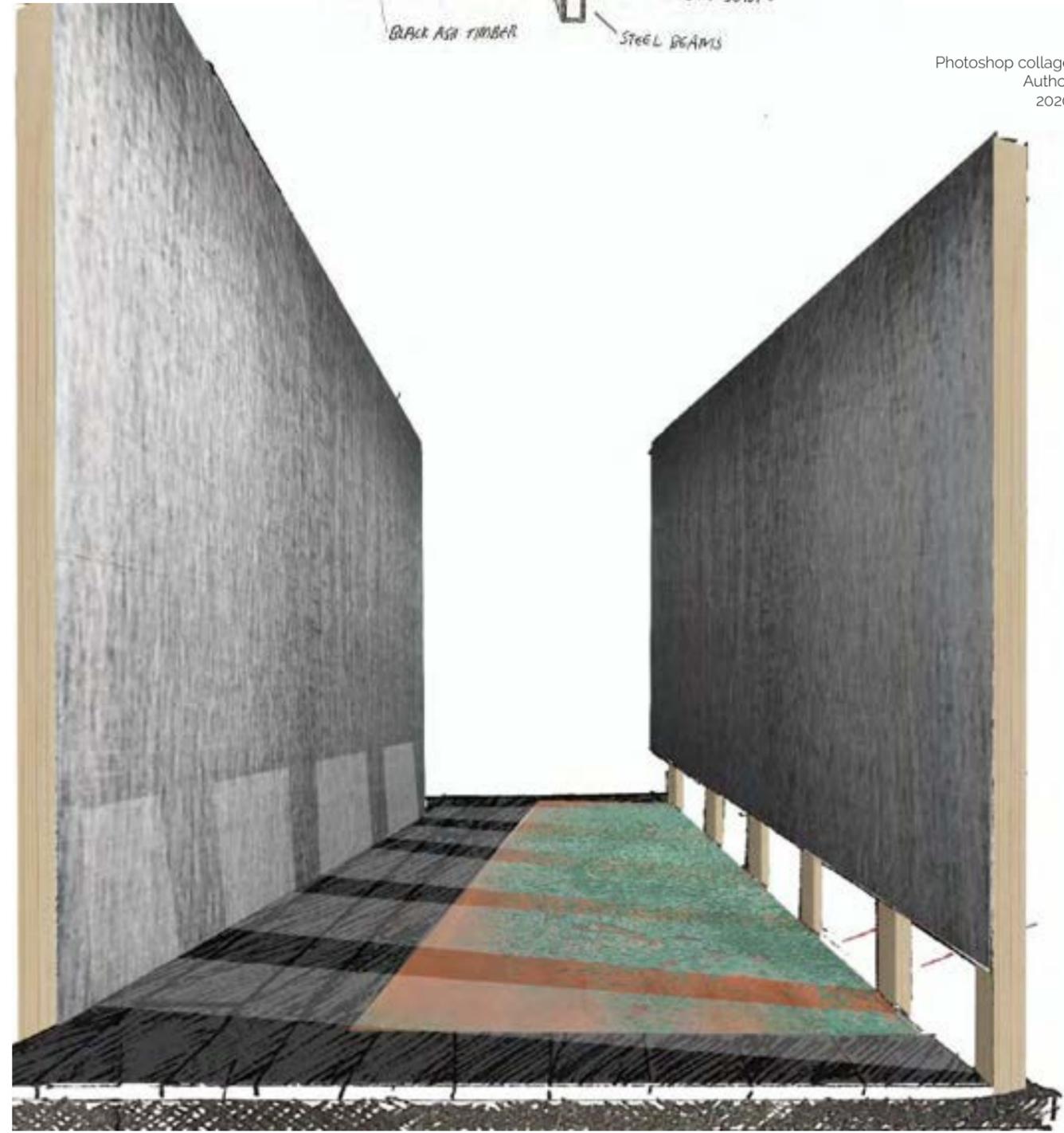
Reflection:

By rendering in the rough material tones and textures, it gives a quick glimpse as to what is successful about the design as well as an atmospheric experience.

This method is very successful and helpful when trying to make design decisions as well as communicating ideas across.



Photoshop collage  
Author  
2020

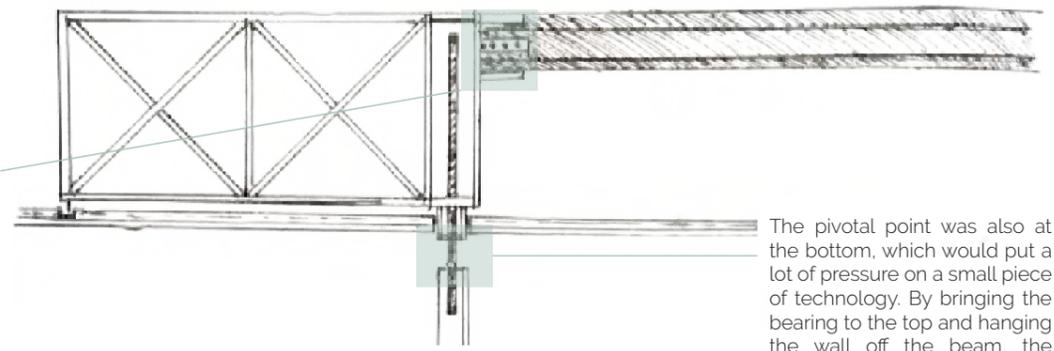


**PARTI - PERMANENT ELEMENTS**

**PIVOTING BEAM/ WALL**

During the tutorial, Stephen pointed out that having a heavy beam attached to a frame, when **under a lot of stress, it may snap.**

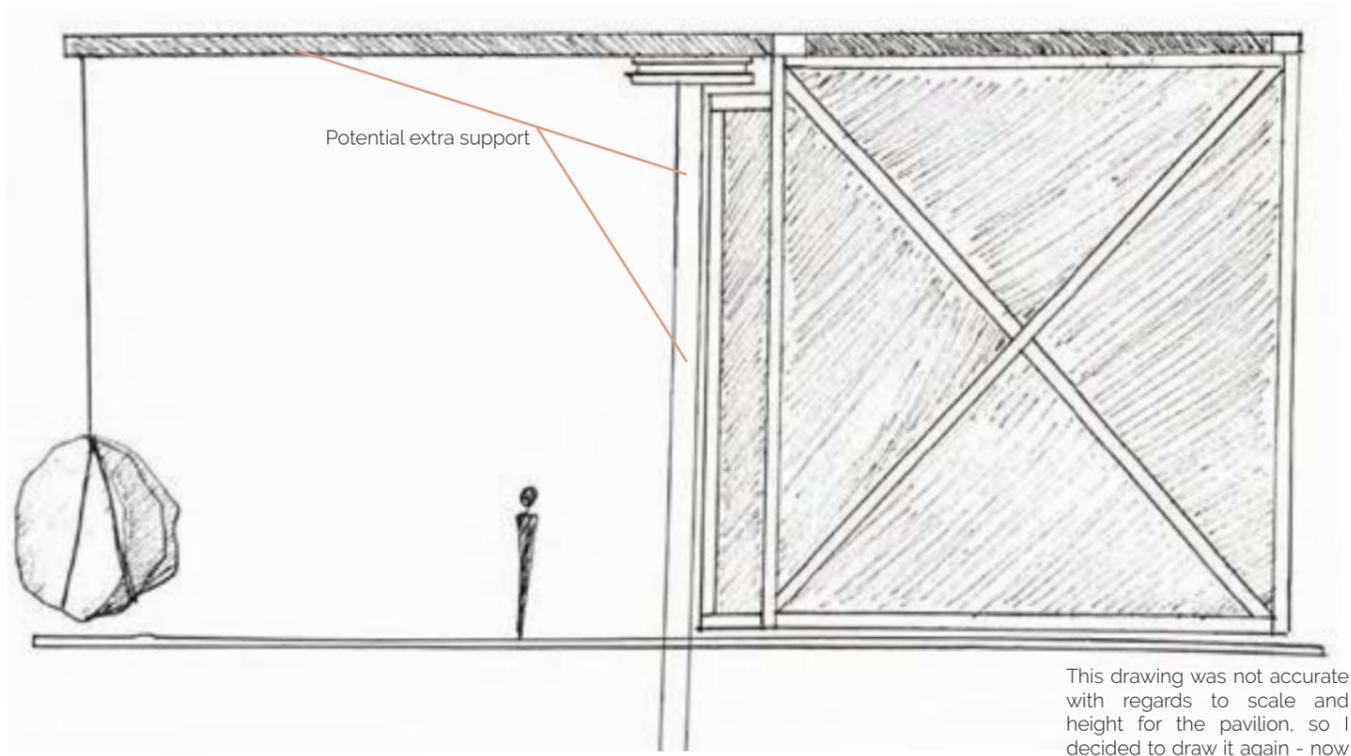
A better way to deal with this was to **span the beam over the entire top** and then work out the counter weight on either side.



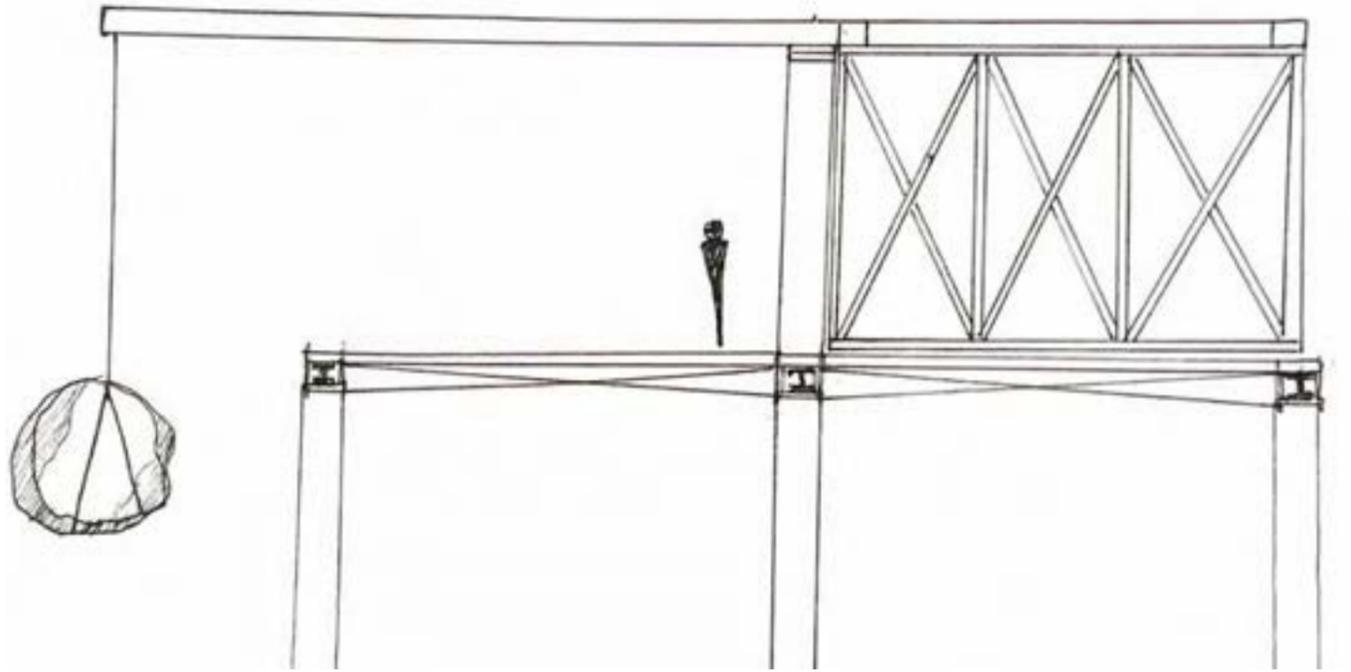
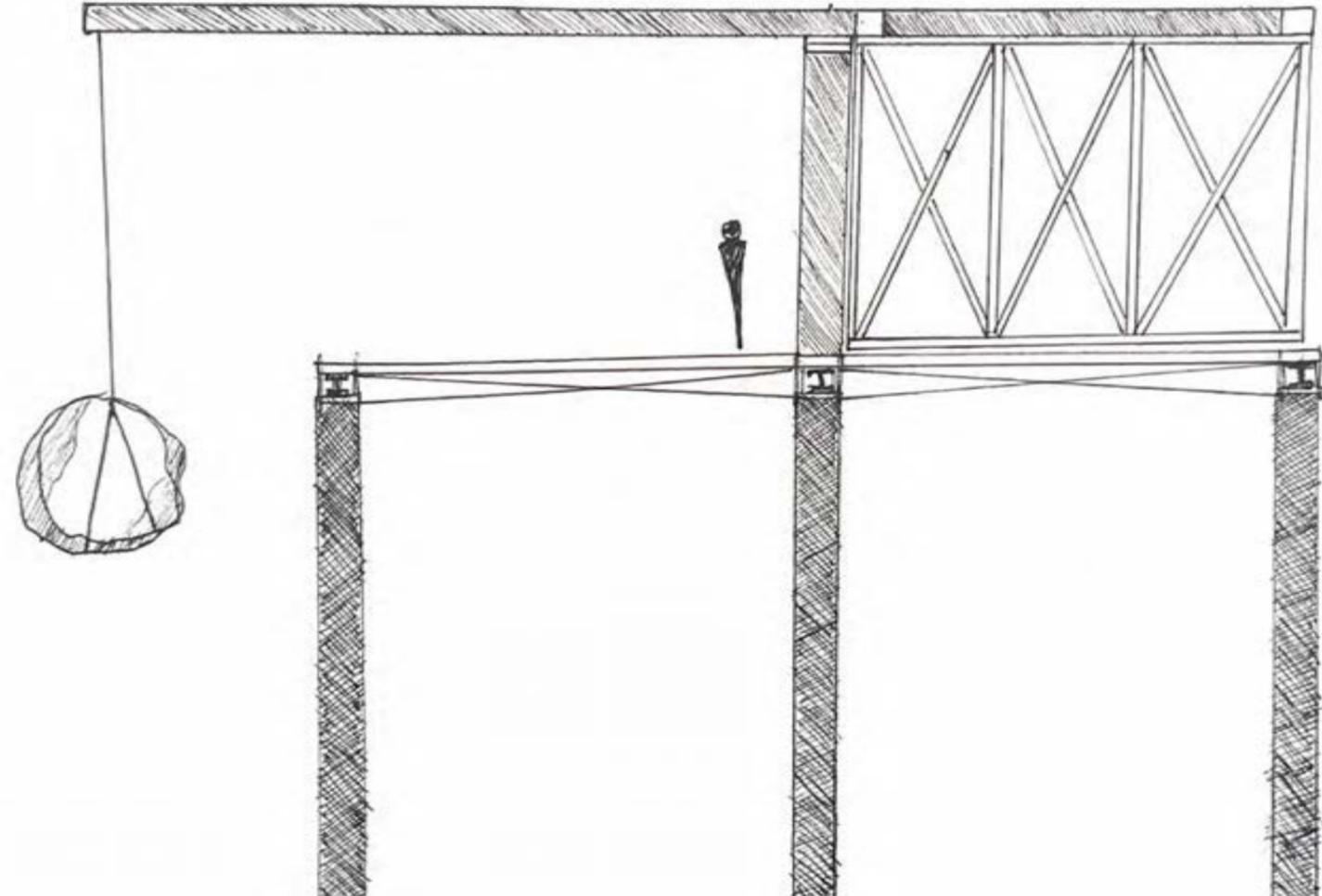
The pivotal point was also at the bottom, which would put a lot of pressure on a small piece of technology. By bringing the bearing to the top and hanging the wall off the beam, the pivoting will be cleaner and more stable.

**Key of Current materials:**

-  Cast Iron
-  Steel
-  Timber



This drawing was not accurate with regards to scale and height for the pavilion, so I decided to draw it again - now with context.

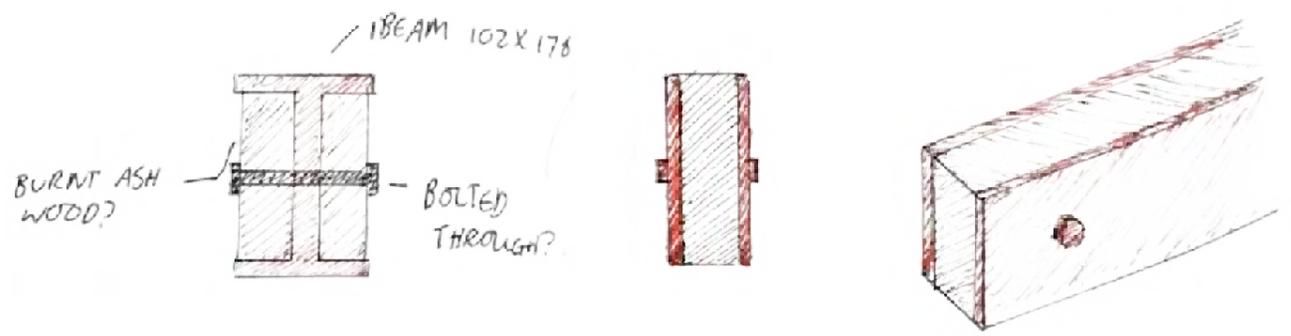


**Reflection:**

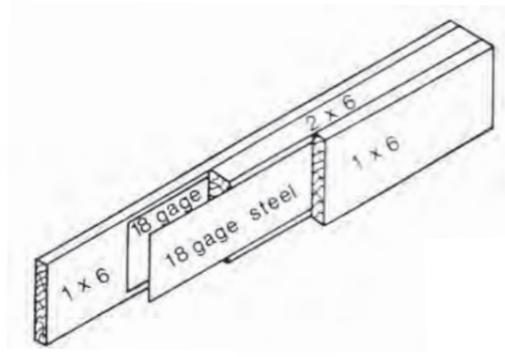
From all of the sketches for this technology, it is beginning to feel more resolved as a design. This drawing communicates materials and shows vaguely how they will fit together. Now **I would like to determine the closer details at a scale of 1:2 to 1:5.** This way I can have a full understanding of how this would work and what exact fixings and materials I would need.

PARTI - PERMANENT ELEMENTS

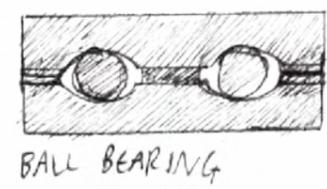
PIVOTING BEAM



**Flitch beam:**  
 This beam is made of wood, but to strengthen it there has been a layer of steel placed in between. This reinforces beams.



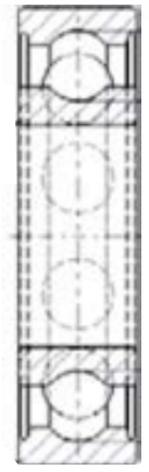
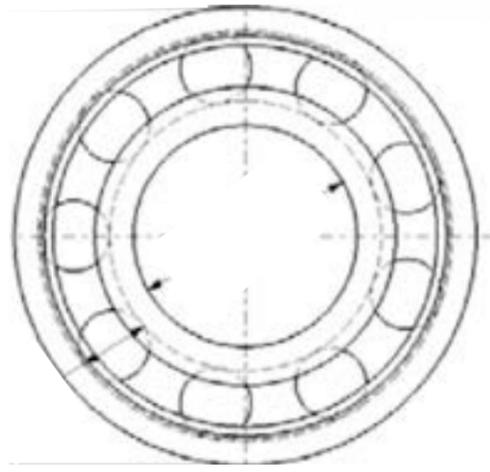
Flitch beam drawing [https://www.researchgate.net/figure/Flitch-beam-arrangement-using-18-gage-steel-by-Coleman-Hurst-71-cited-in-Alam-68\\_fig36\\_331355241](https://www.researchgate.net/figure/Flitch-beam-arrangement-using-18-gage-steel-by-Coleman-Hurst-71-cited-in-Alam-68_fig36_331355241)



BEAM WELDS TO PLATE ON OUTER BEARING CIRCLE

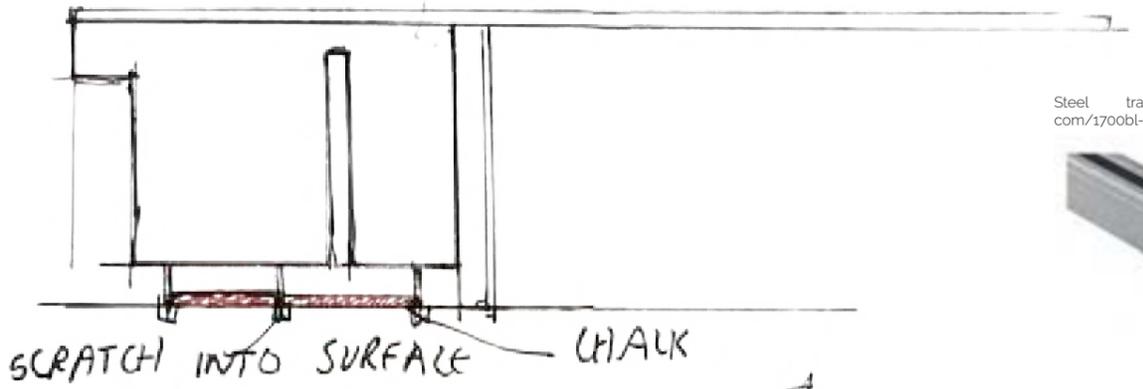
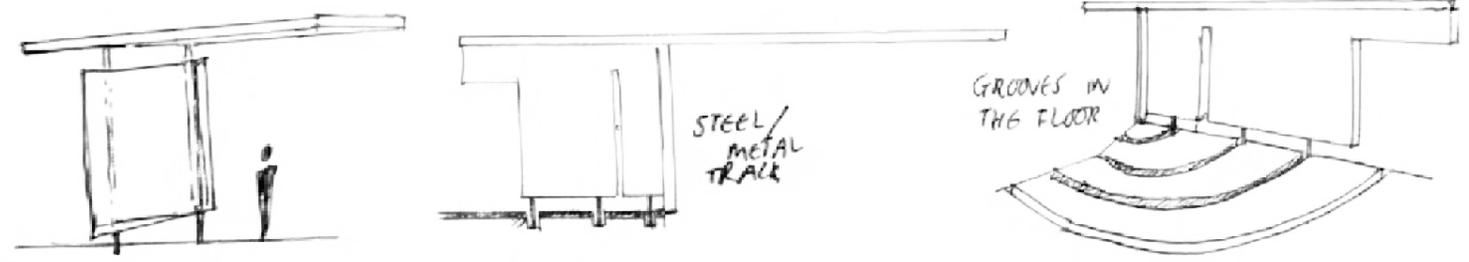


BASE ATTACHES TO INTERNAL BALL BEARING CIRCLE



**Ball Bearing:**

In most crane technologies, the pivotal point is operated by a ball bearing, varying in sizes. By using a ball bearing technology, this will allow the I-beam to rotate smoothly and safely.

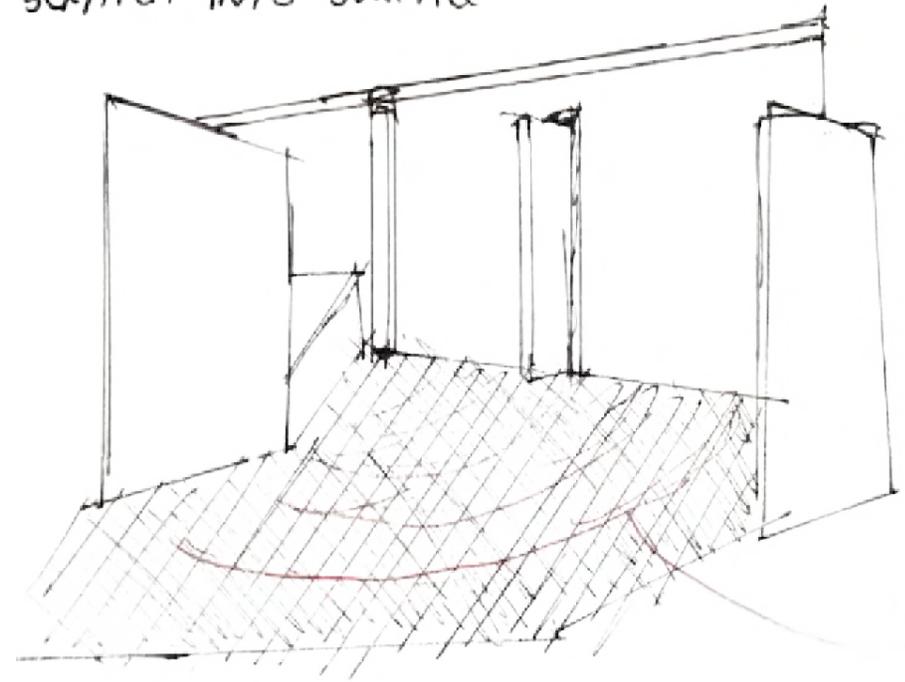


Steel track <https://www.adctracks.com/1700bl-track-channel>



**Reflection:**

Galvanised steel U shaped track. This will aid the movement of the beam, and will keep the moving wall more stable.



CHALK RESIDUE ON BLACK ASH TIMBER

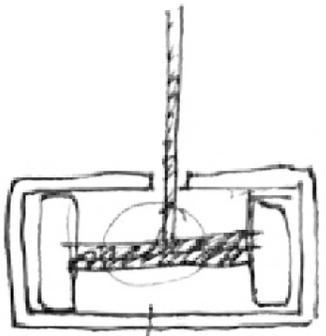
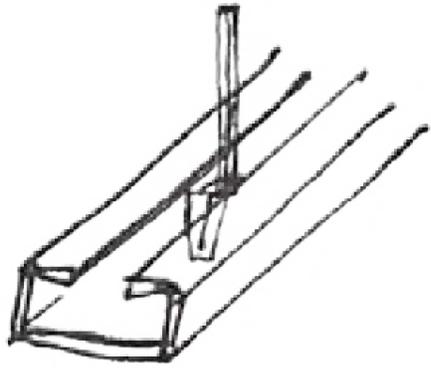
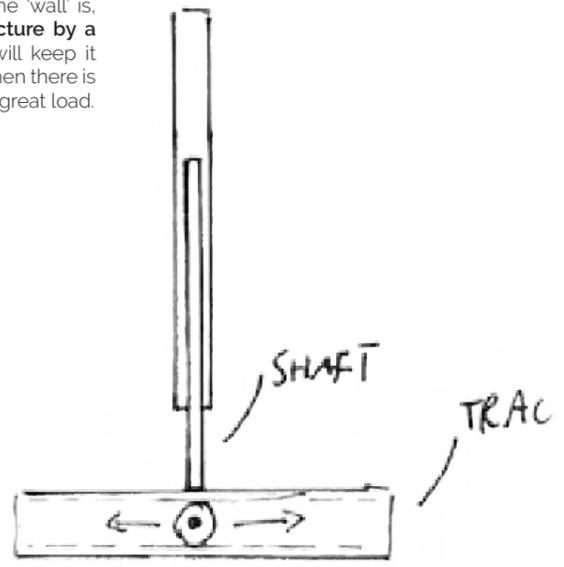
Ball bearing diagram. [https://www.researchgate.net/figure/The-geometric-sizes-of-damaged-ball-bearing-6206\\_fig5\\_317570537](https://www.researchgate.net/figure/The-geometric-sizes-of-damaged-ball-bearing-6206_fig5_317570537)

PART I - PERMANENT ELEMENTS

PIVOTING BEAM

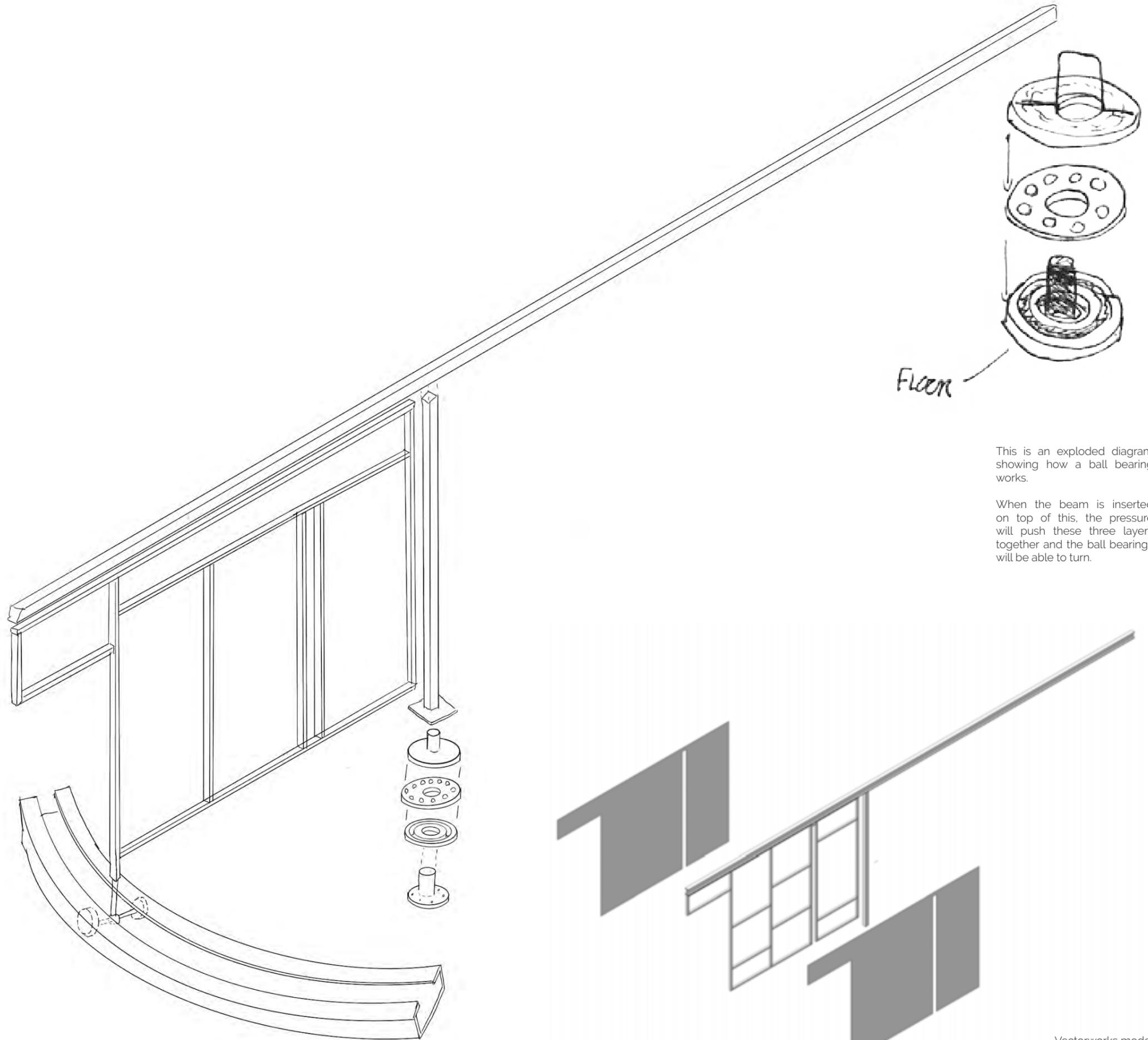
When having a pivotal point turning on such a large span, it can not only rely on that one point of contact on the ground.

By adding a steel curved track on the end where the 'wall' is, it anchors the structure by a second point and will keep it from spinning out when there is wind or it takes on a great load.



CURVED TRACK = AXEL PIVOT POINT

Because the track will be curved, the wheels on the T bar will need to be on an axis.

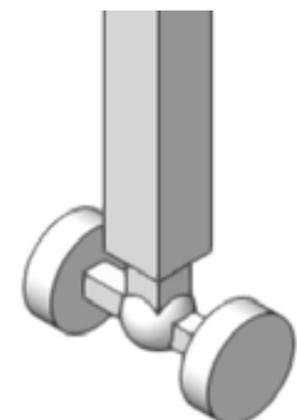
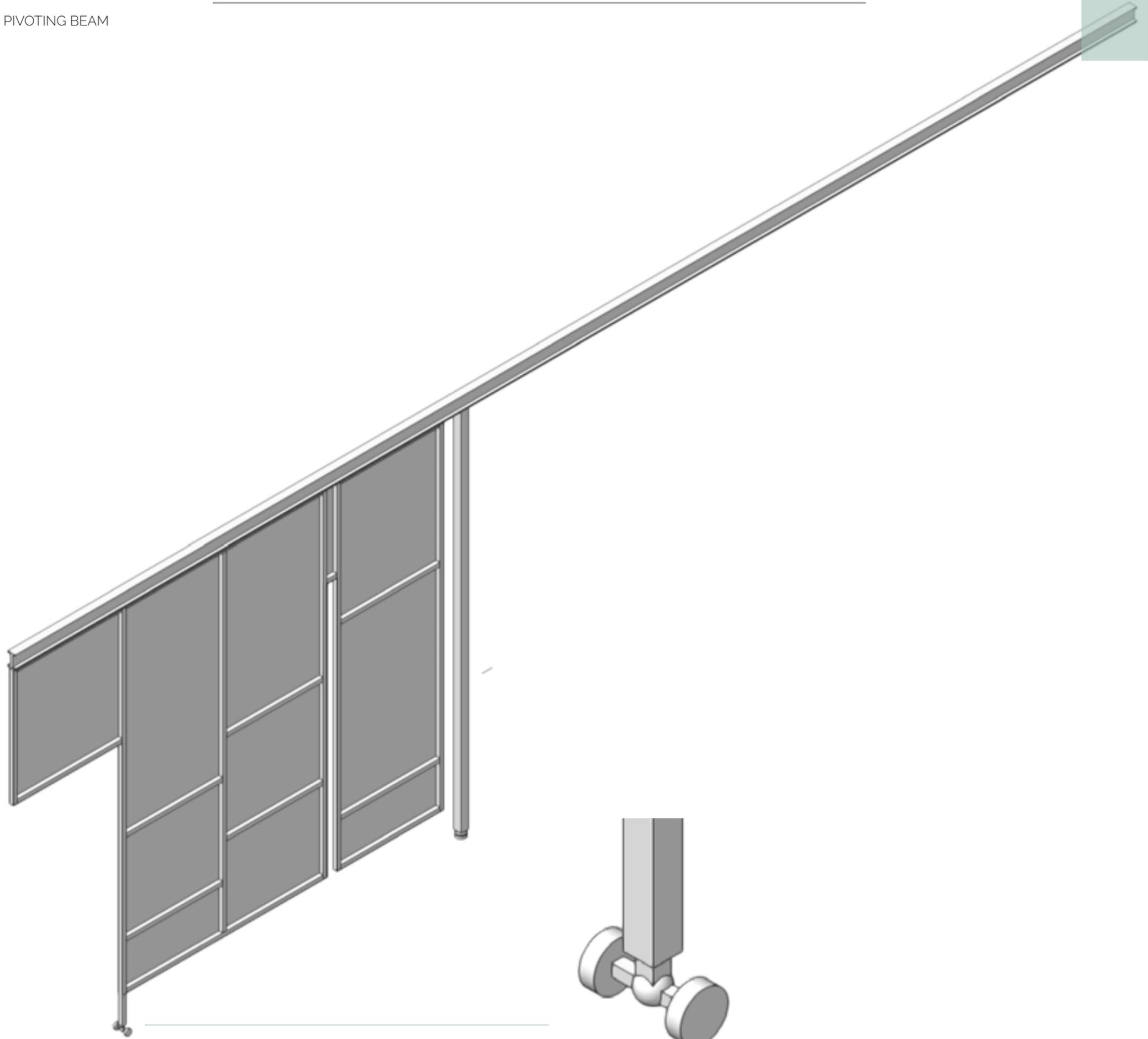


This is an exploded diagram showing how a ball bearing works.

When the beam is inserted on top of this, the pressure will push these three layers together and the ball bearings will be able to turn.

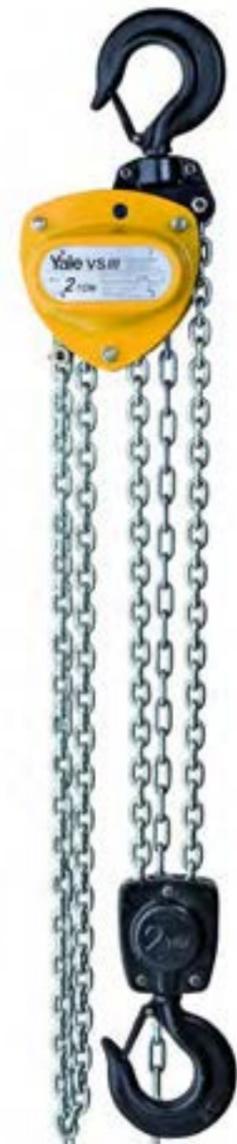
PART I - PERMANENT ELEMENTS

PIVOTING BEAM



Close up of the T-bar runner that sits inside recessed track.

I beam ton clamp. [https://www.toolfetch.com/media/catalog/product/cache/1/image/1024x/gdf78eab33525d08d6e5fb8d27136e95/O/Z/OZ1BC\\_000.jpg](https://www.toolfetch.com/media/catalog/product/cache/1/image/1024x/gdf78eab33525d08d6e5fb8d27136e95/O/Z/OZ1BC_000.jpg)



**Technology changes:**

When looking at rigging systems to collect the chalk, this is one of the most effective and suitable.

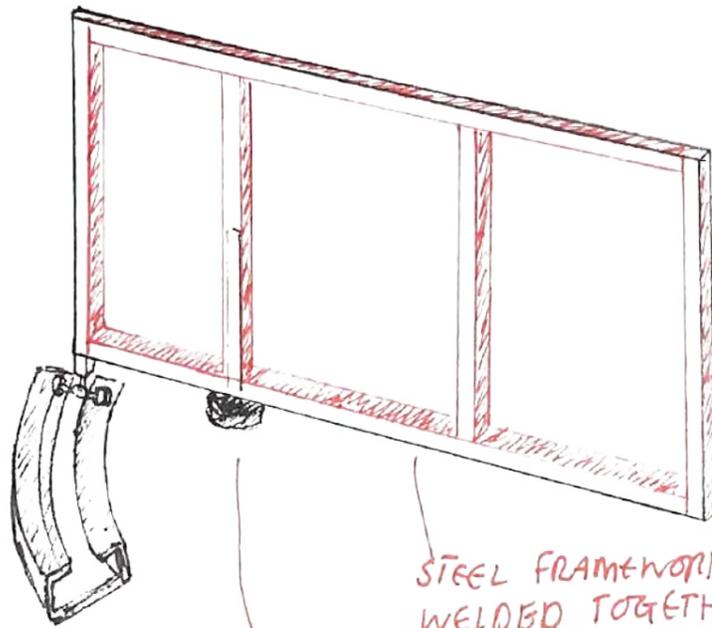
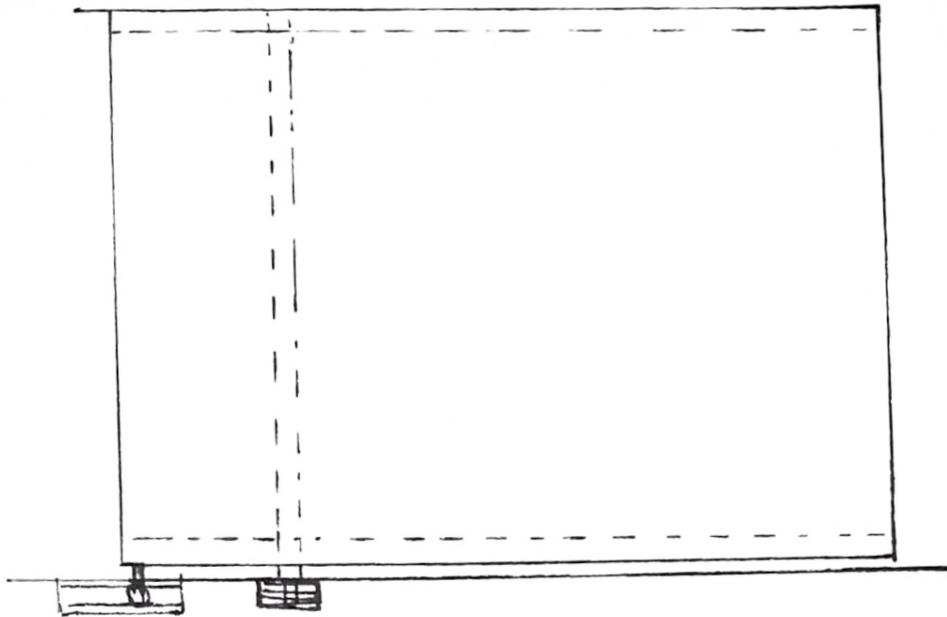
It is a 1 ton beam clamp. It attaches to the flange of the i Beam and at the base of the clamp, a chain or rigging system can be attached to it.

Originally, a flitch beam seemed like the most effective choice, but after looking at the variety of i beam clamps, **using an i beam would be a better choice for the pivoting beam.**

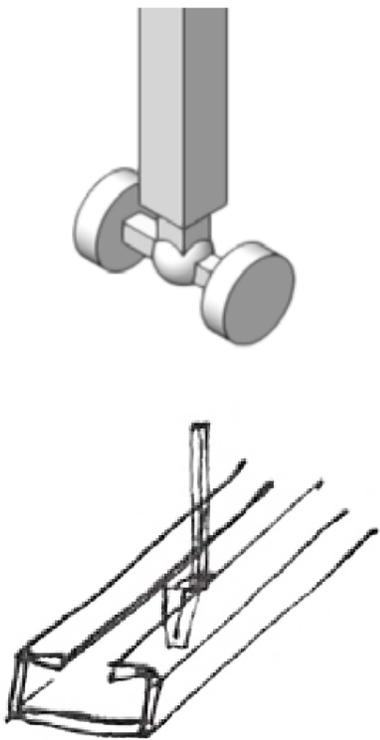
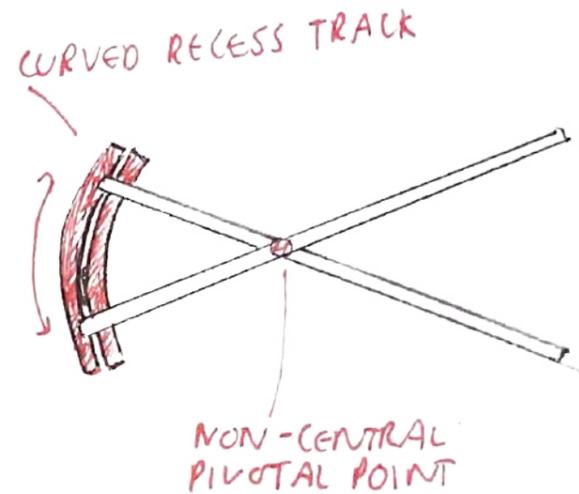
**Yale VSIII Chain Block:**

This chain block is designed to carry between 250kg and 5000kg. It will be suitable for the types of things that will need to be lifted up throughout the workshop duration.

PIVOTING WALL

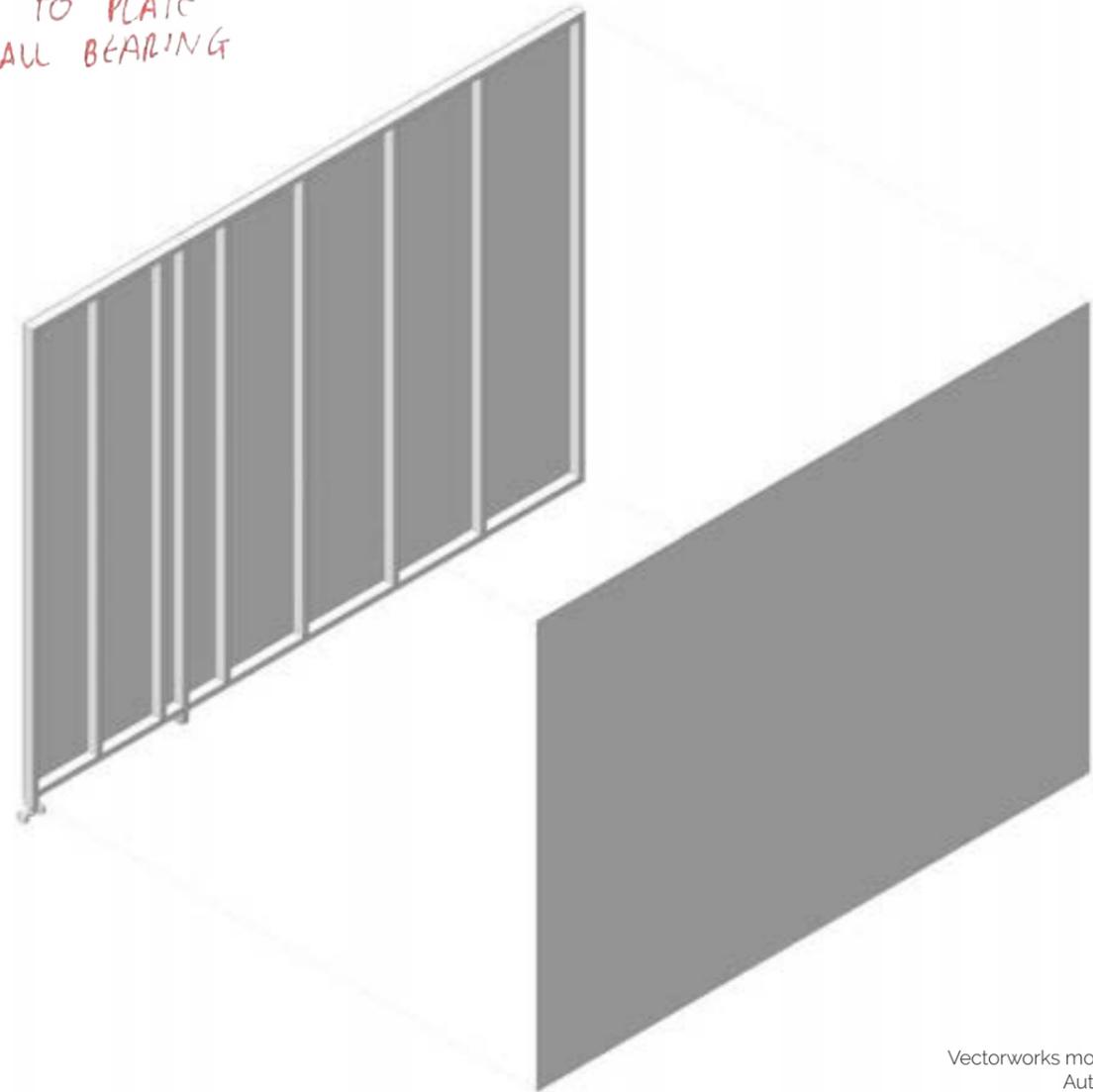


STEEL FRAMEWORK  
WELDED TOGETHER  
BEAM WELDED TO PLATE  
AND TOP OF BALL BEARING



Replicating technology:

For the pivoting wall, instead of using a pivoting mechanism attached to a frame, top and bottom, I will be using a ball bearing and track system again. This to ensure that the aesthetic of it 'floating' remains.

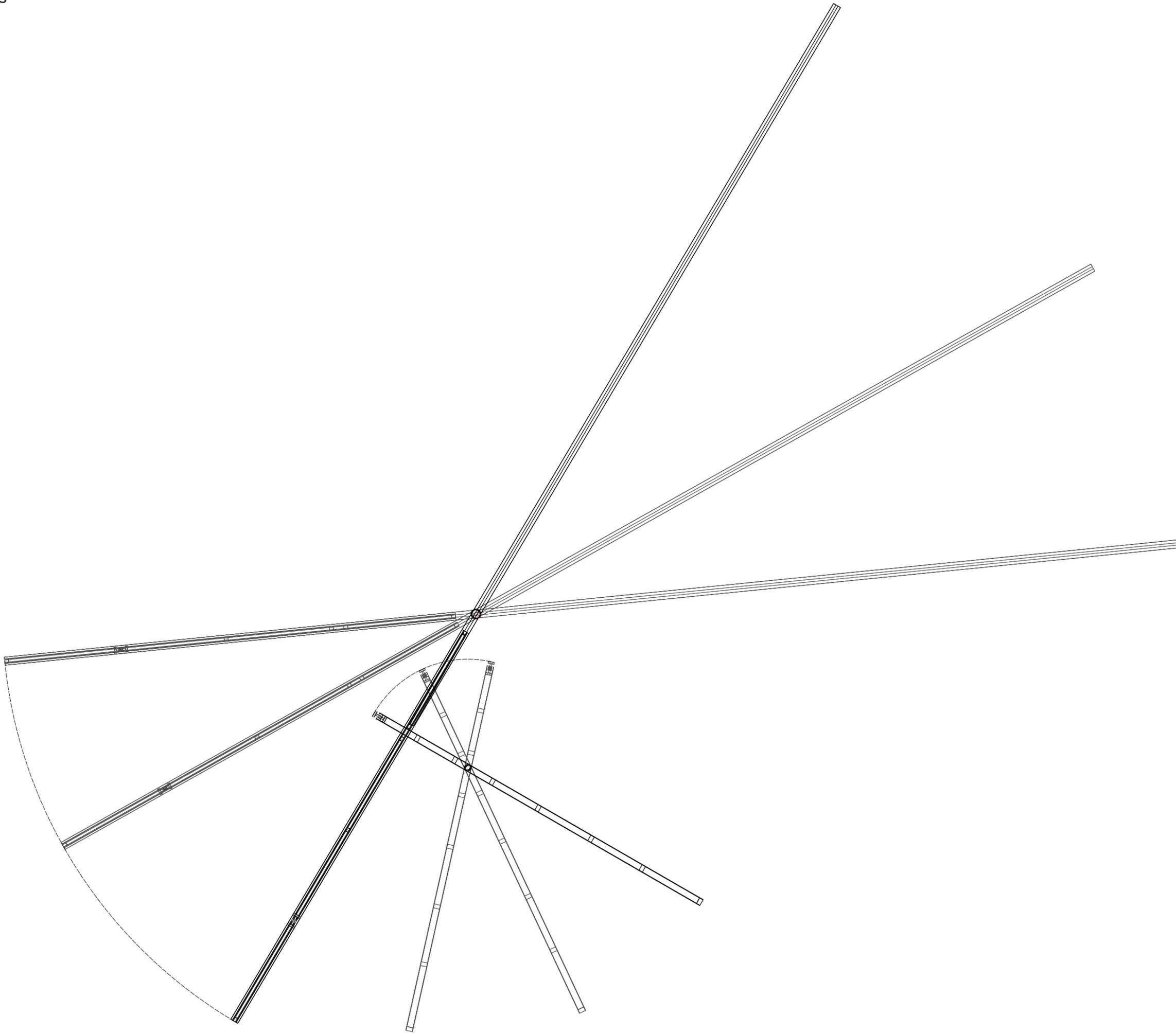


PART I - PERMANENT ELEMENTS

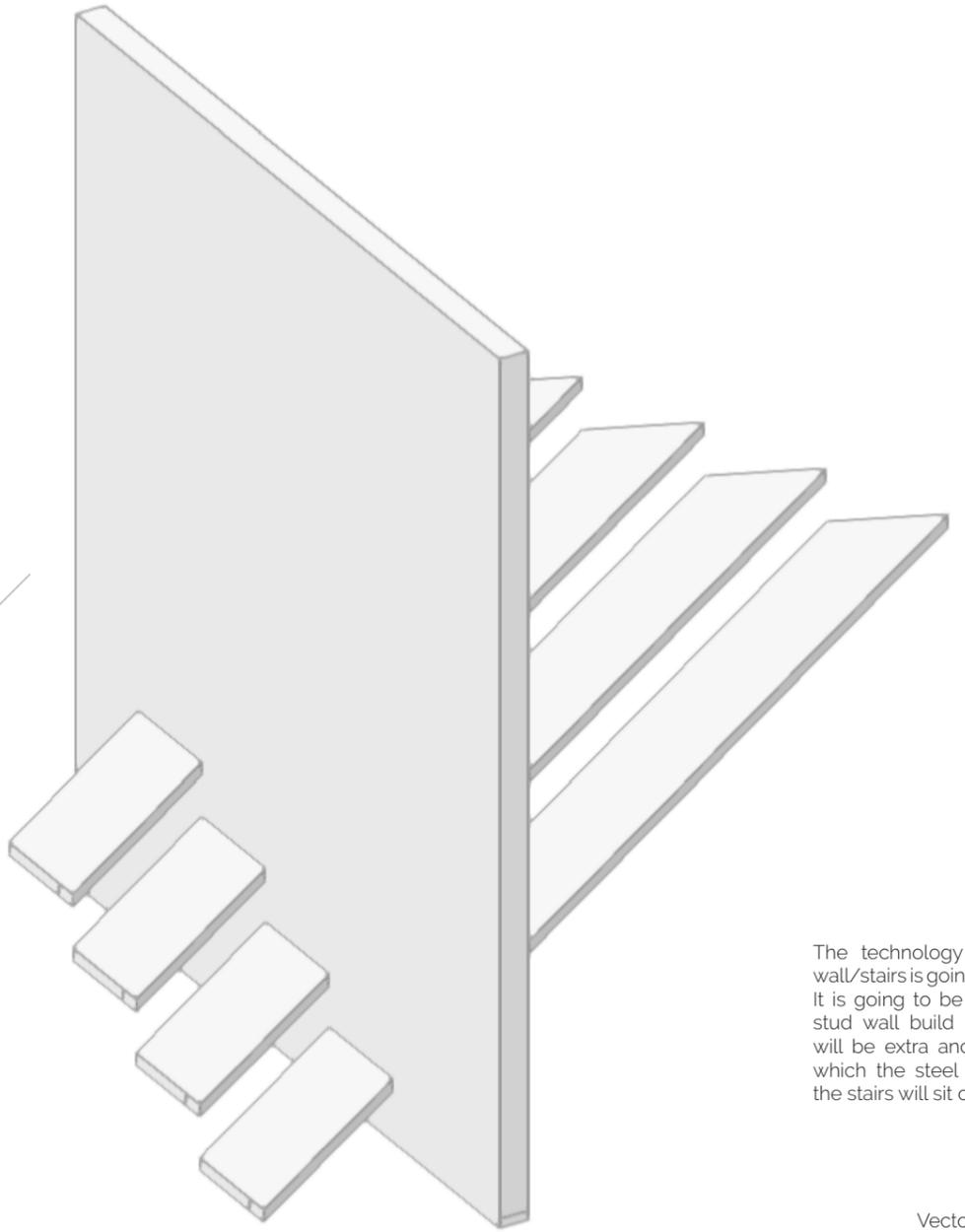
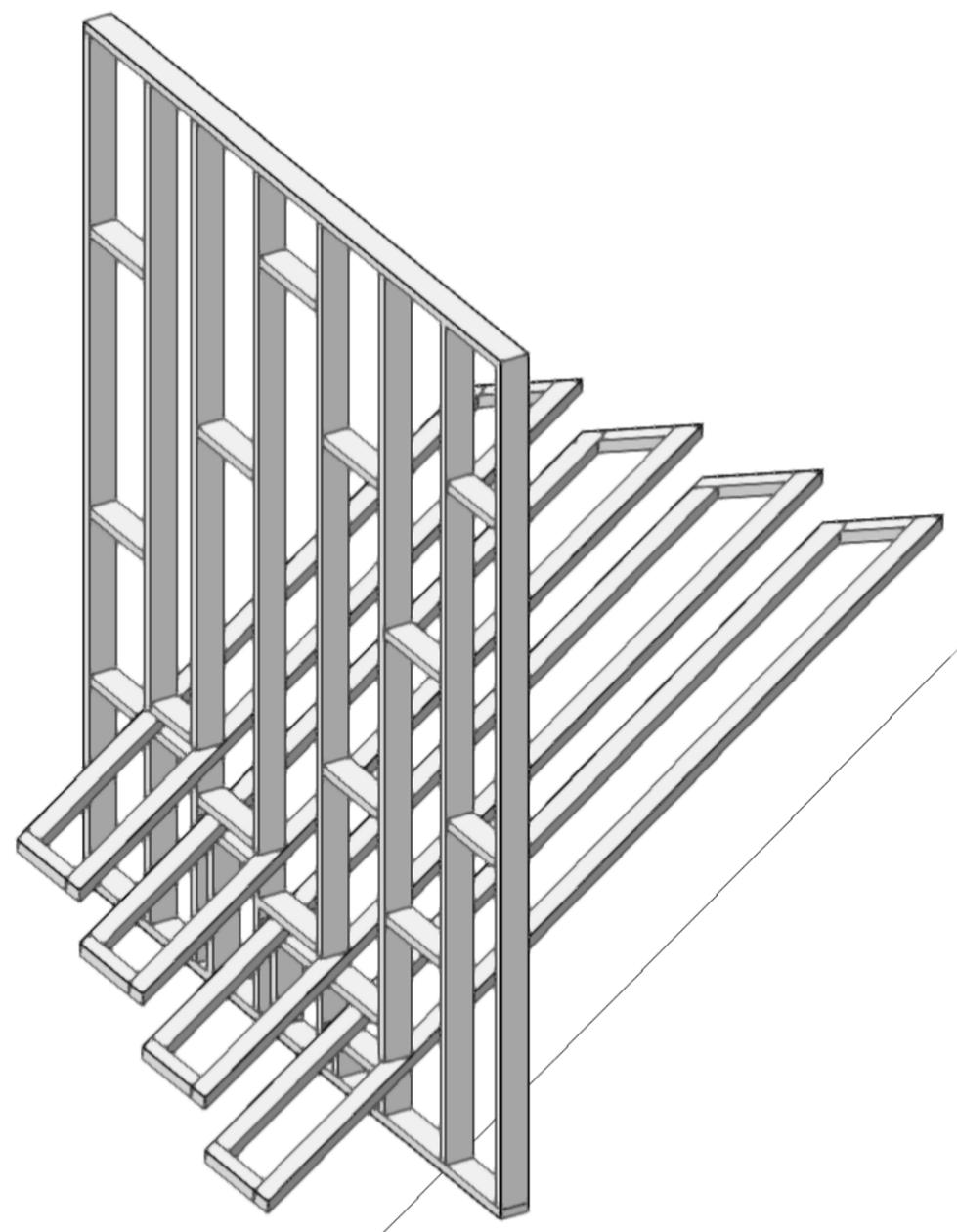
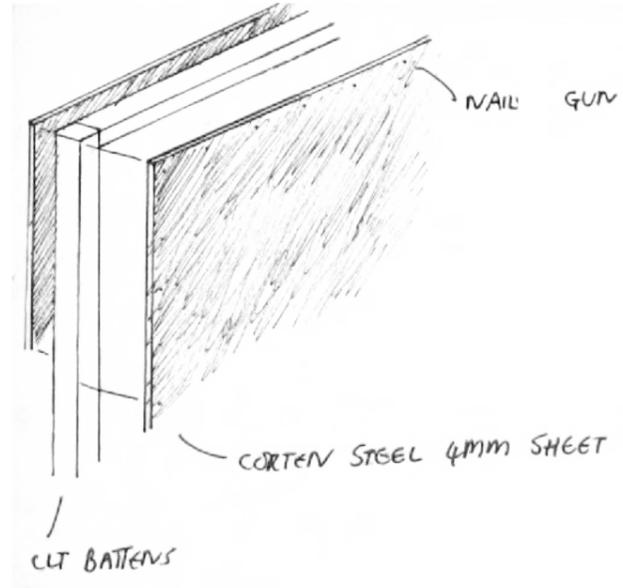
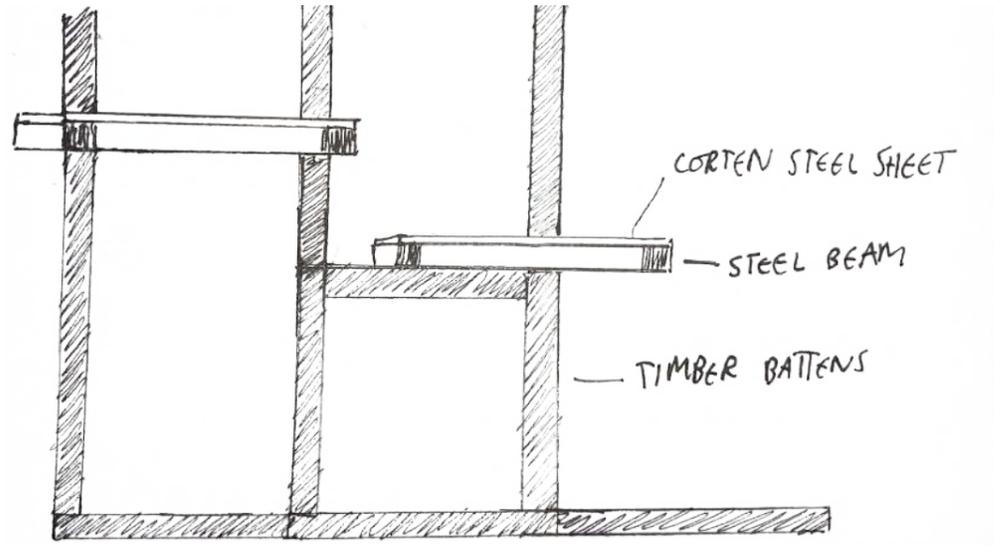
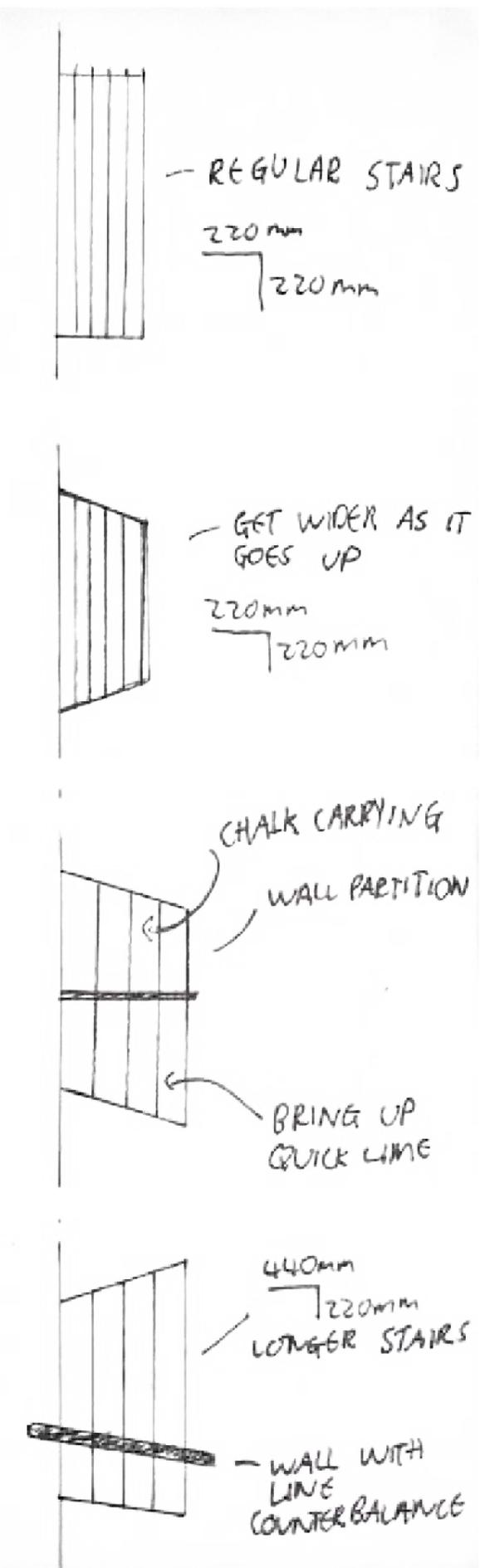
PIVOTING BEAM/ WALL

These two pivoting structures are individual parts of the pavilion, but without the wall moving counter-clockwise and the beam structure having a tactically placed slit in the framework, the beam would not be able to rotate fully to drop off the chalk on the pier.

These two items are dependant on each other and **once they're both in full rotation, they interlock with each other, becoming on piece of architecture.**

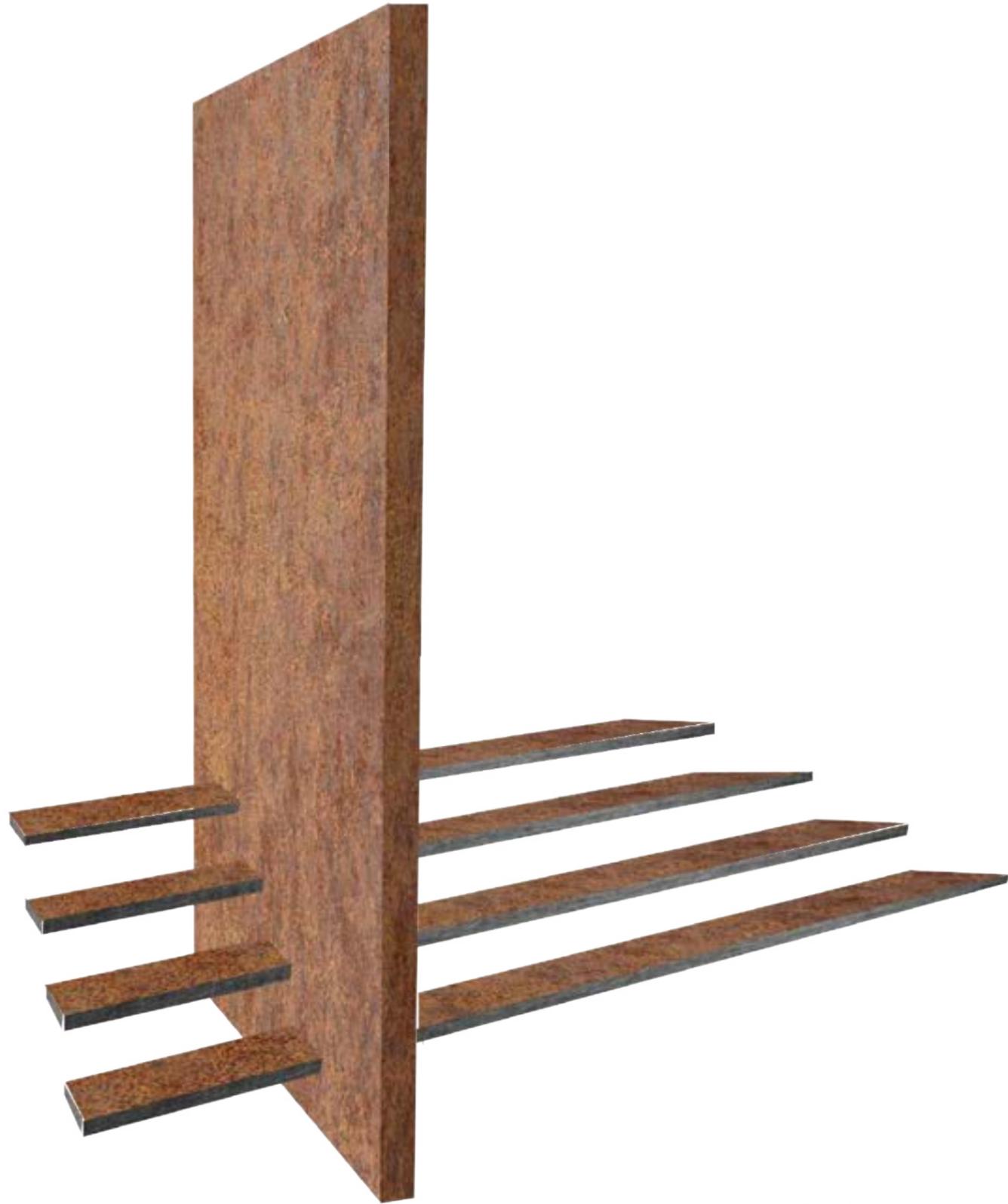
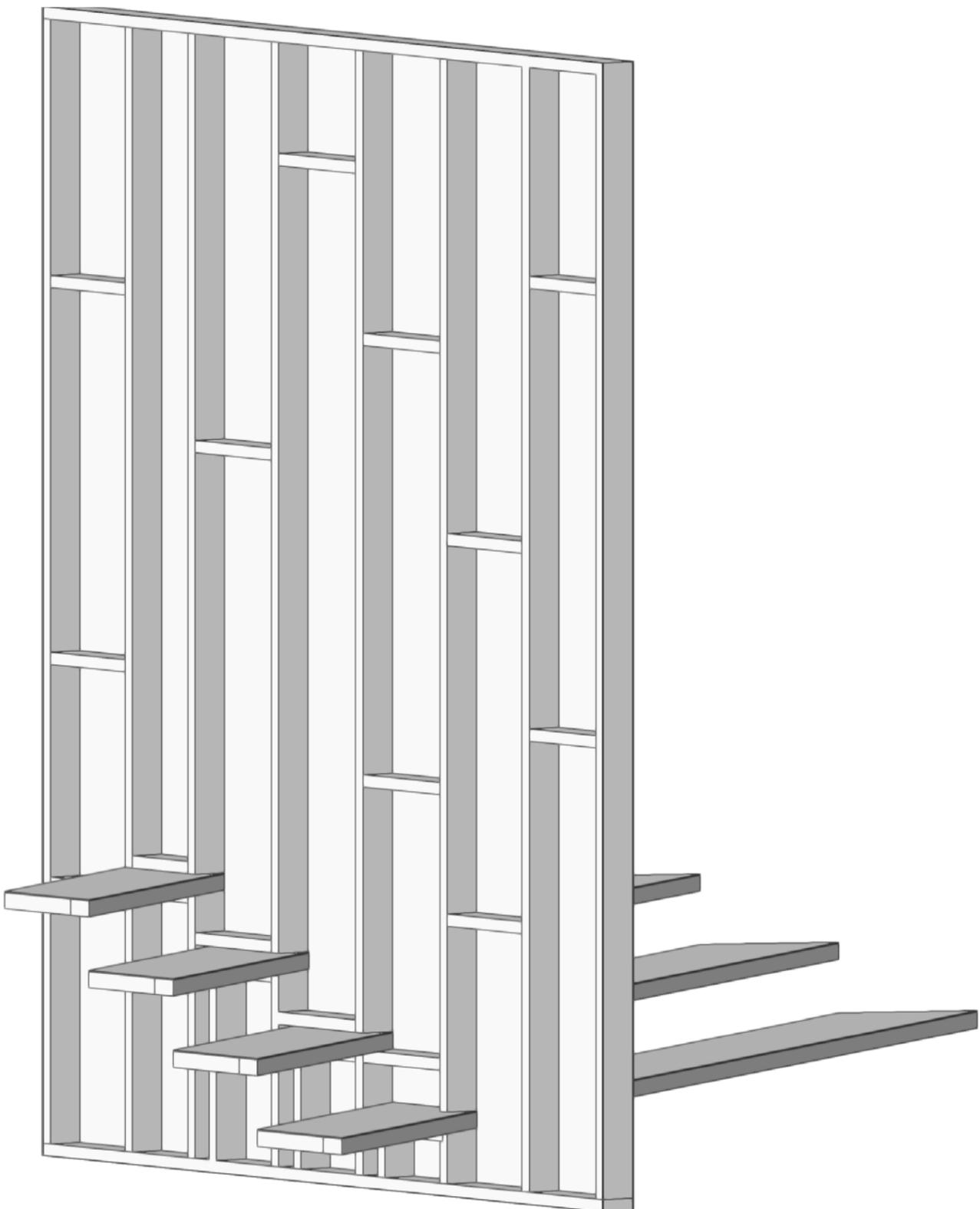


COUNTERBALANCING STAIRS



The technology within these wall/stairs is going to be simple. It is going to be similar to the stud wall build up, but there will be extra anchoring points which the steel framework of the stairs will sit on.

COUNTERBALANCING STAIRS



**Reflection:**  
 As a final wall/stairs, it becomes visually one piece of architecture, **emphasising balancing and counter-leverage - something which is a theme running through several of the permanent elements.**

KILN



Cooking kiln. [https://www.ebay.co.uk/itm/Alfa-Pizza-E-Brace-pizza-oven-gas/274067342543?\\_trkparms=aid%3D1110007%26algo%3DHOMESPLICE](https://www.ebay.co.uk/itm/Alfa-Pizza-E-Brace-pizza-oven-gas/274067342543?_trkparms=aid%3D1110007%26algo%3DHOMESPLICE)

This is a type of oven - primarily used for cooking, but can also be used for firing, as it can get up to 800 degrees. However, it is not durable enough and would not be big enough to make the quicklime inside.



Handmade kiln. <http://www.handprintpress.com/wp-content/uploads/2013/12/ahiasunfactory.jpg>

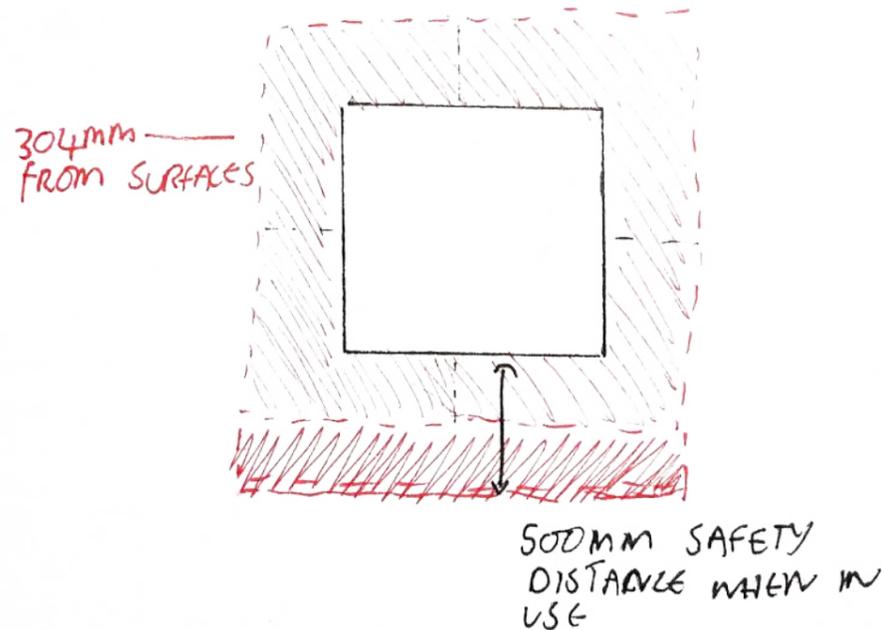
Traditional hand made kiln:

This kiln is handmade, composed of saw dust and clay. The base for this particular kiln is made of concrete breeze blocks, but for sustainability reasons, these 0% CO2 bricks could be used instead.

There is a cavity below the clay portion, which wood or coal could be placed and burned inside. This is the perfect type of kiln to produce the conditions required to make quicklime.



This Cement block is made with Lime, slag and natural Aluminosilicate.



Zero Cement block. Taj Easton, 2015. Handmade kiln. <http://www.handprintpress.com/wp-content/uploads/2013/12/ahiasunfactory.jpg>

Hand drawn sketches  
Author  
2020

## **PARTI - TEMPORARY ELEMENTS**

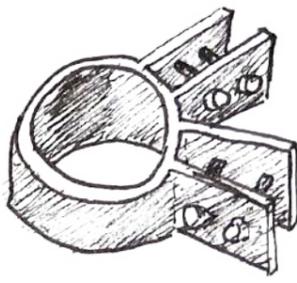
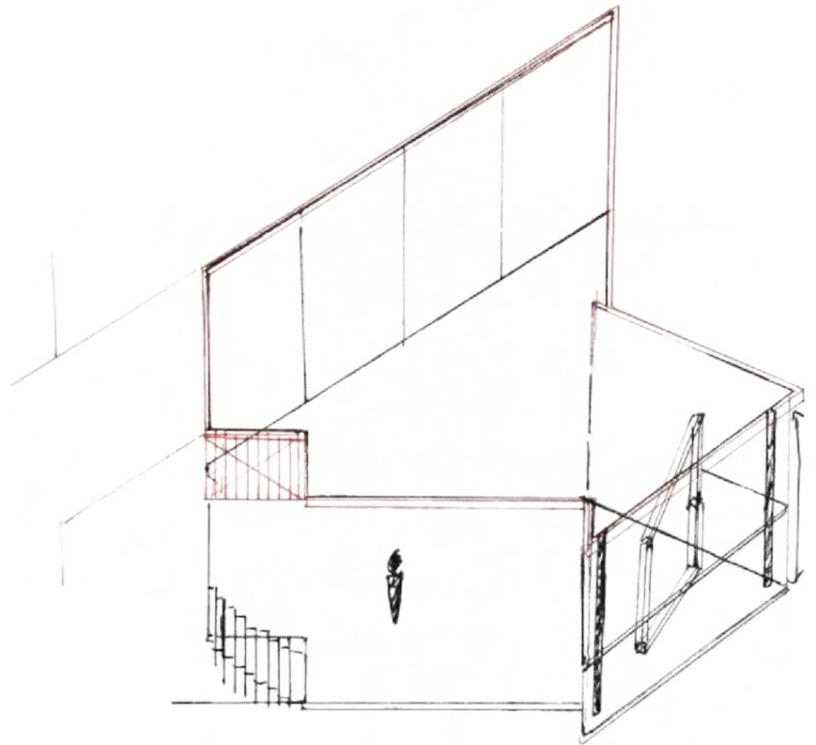
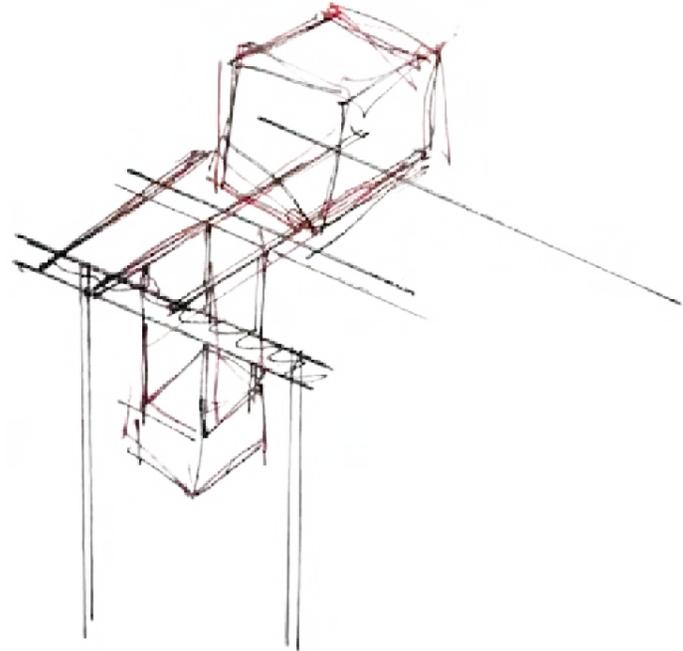
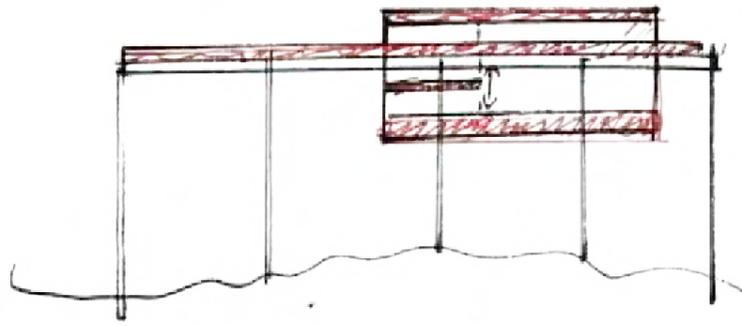
**PARTI - TEMPORARY ELEMENTS**

**VIEWING PLATFORM**

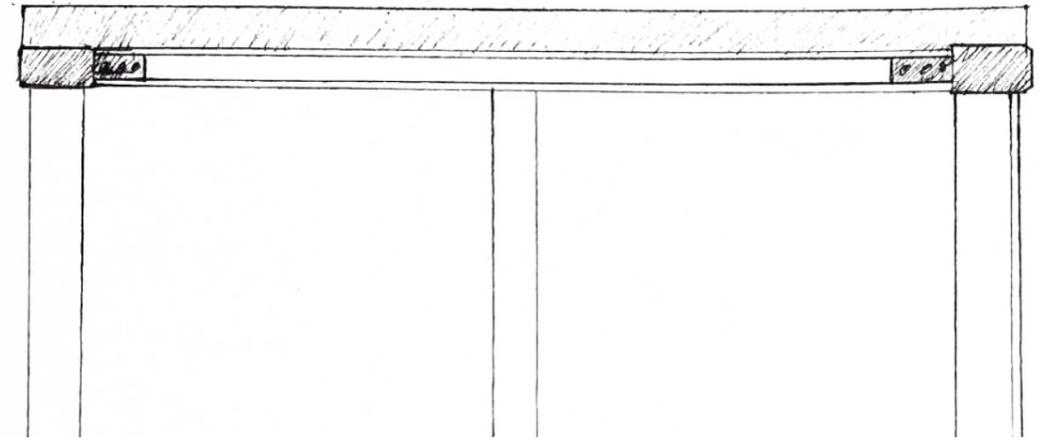
When designing the pavilion, the majority of it is sitting on top of the existing structure. Even though there is some experimentation of levels, I wanted there to be an immersive place that the participants could rest when they were not taking part in the workshop.

This is a platform which will sit below the pavilion's surface. **It will be a place where the participants can understand the architectural interaction between the existing and the pavilion.**

As this is less programme specific, I want the materials for this to be part of the temporary construction.



Steel clamp which connects two angles of I beams to it. This allows a triangular frame to be built.



The main anchor points for the platform to attach to are the three piles triangulating around it.

They will attach I beams to the pile using large clamps - this is a very similar technology to the pier's existing cast iron clamps.

Once the triangular frame is made, two I beams with blanks on the ends will attach inside the frame and be welded together.

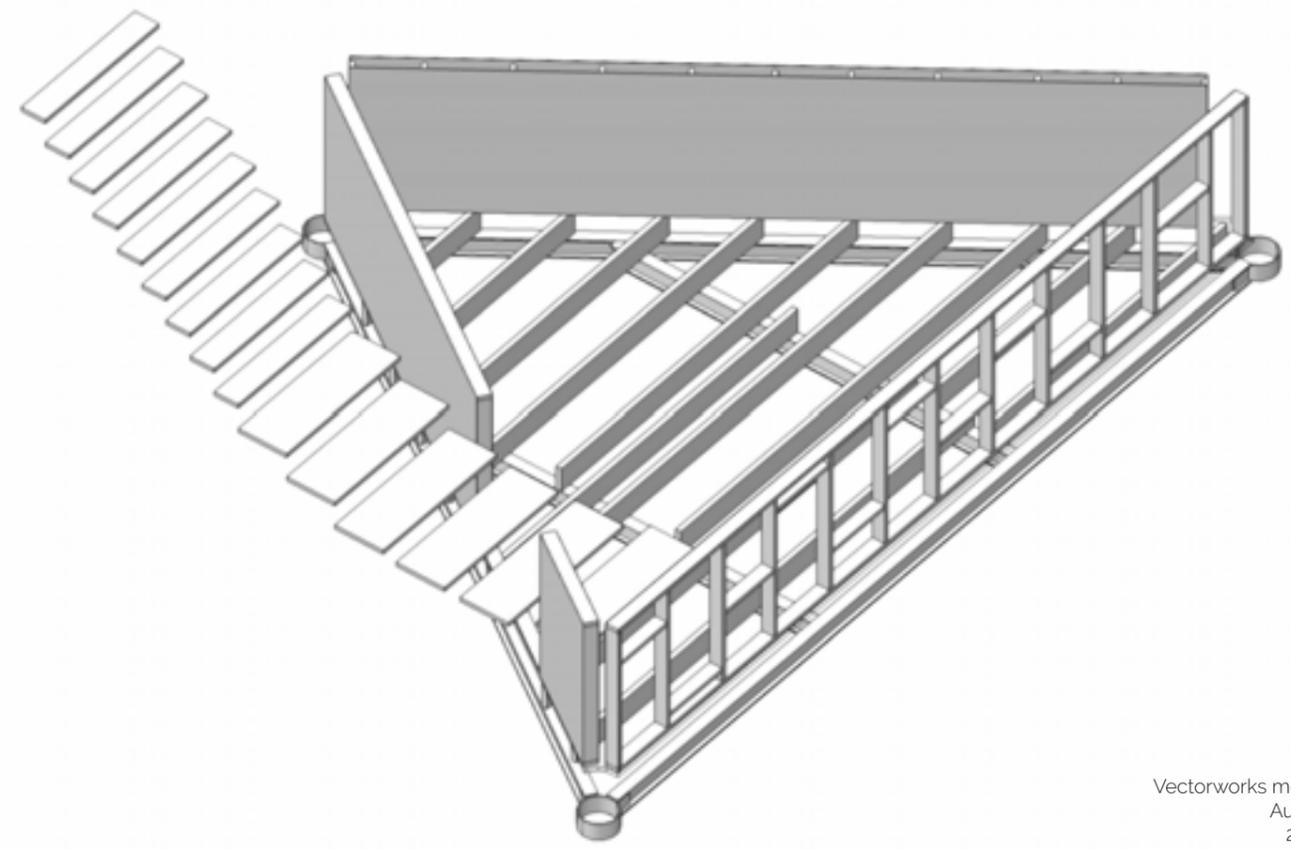
This will give smaller surface areas for CLT joists to run across them.

A similar black ash timber decking will then attach to the floor of the platform.

Around the platform are 1300mm short stud walls, which will house/protect the people walking inside (like balustrades).

This allows people to have a magnificent view of the underside of the pavilion, the existing West pier structure and the sea from a new level.

Hand drawn sketches  
Author  
2020



Vectorworks model  
Author  
2020

Hand drawn sketches  
Author  
2020

VIEWING PLATFORM

This view is showing the underside of the pier, pavilion and the viewing platform. It gives a sense of what it make feel like being underneath the pavilion also in regards to the sea levels.



VIEWING PLATFORM



Above view of the Viewing platform (without the pavilion shown).



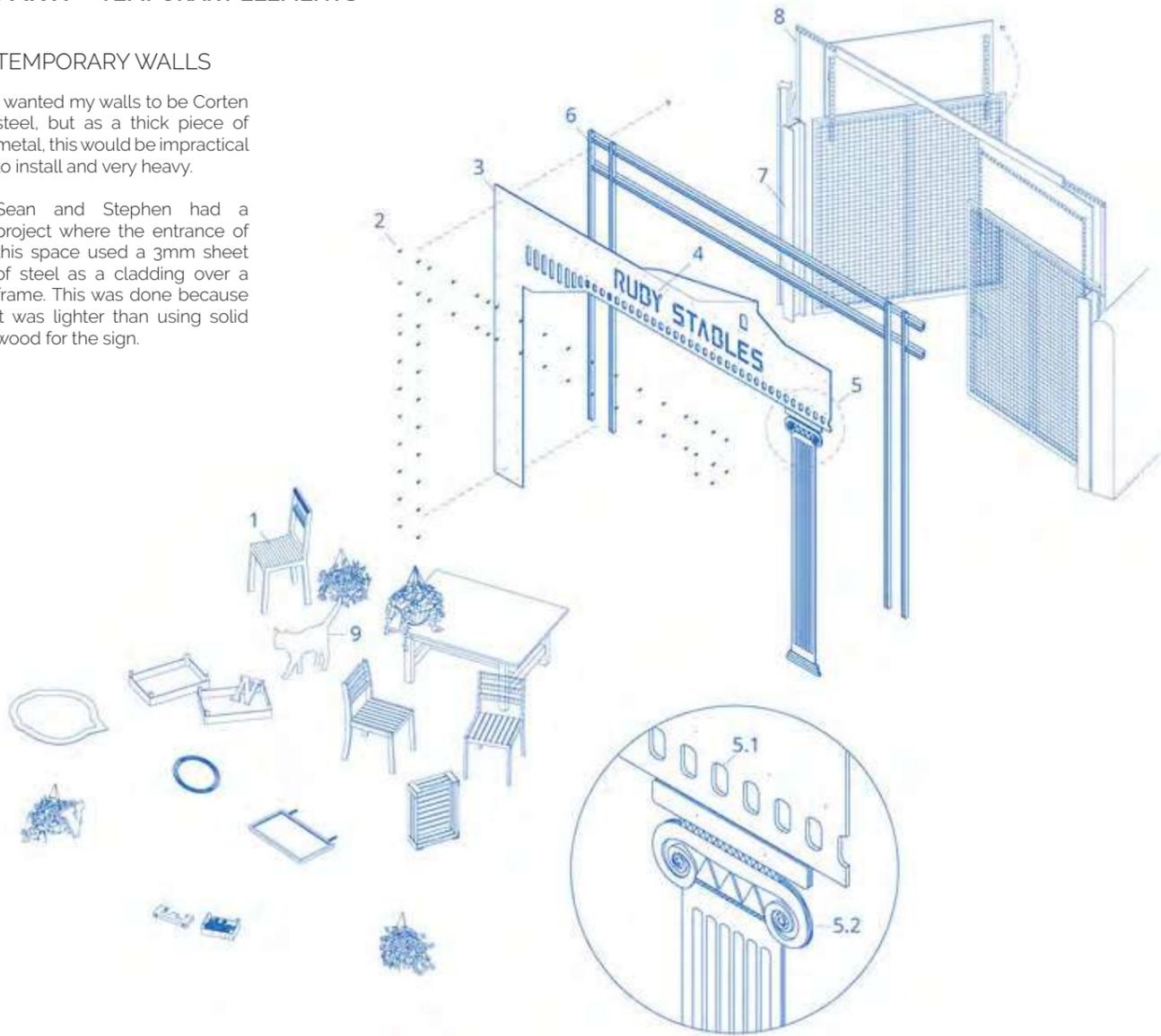
South West facing view of the Viewing platform (without the pavilion shown).

**PARTI - TEMPORARY ELEMENTS**

**TEMPORARY WALLS**

I wanted my walls to be Corten steel, but as a thick piece of metal, this would be impractical to install and very heavy.

Sean and Stephen had a project where the entrance of this space used a 3mm sheet of steel as a cladding over a frame. This was done because it was lighter than using solid wood for the sign.



Shopfronts in E17, Sean and Stephen, Walthamstow. <https://seanandstephen.com/projects/shopfronts-e17/>



**Reflection:**

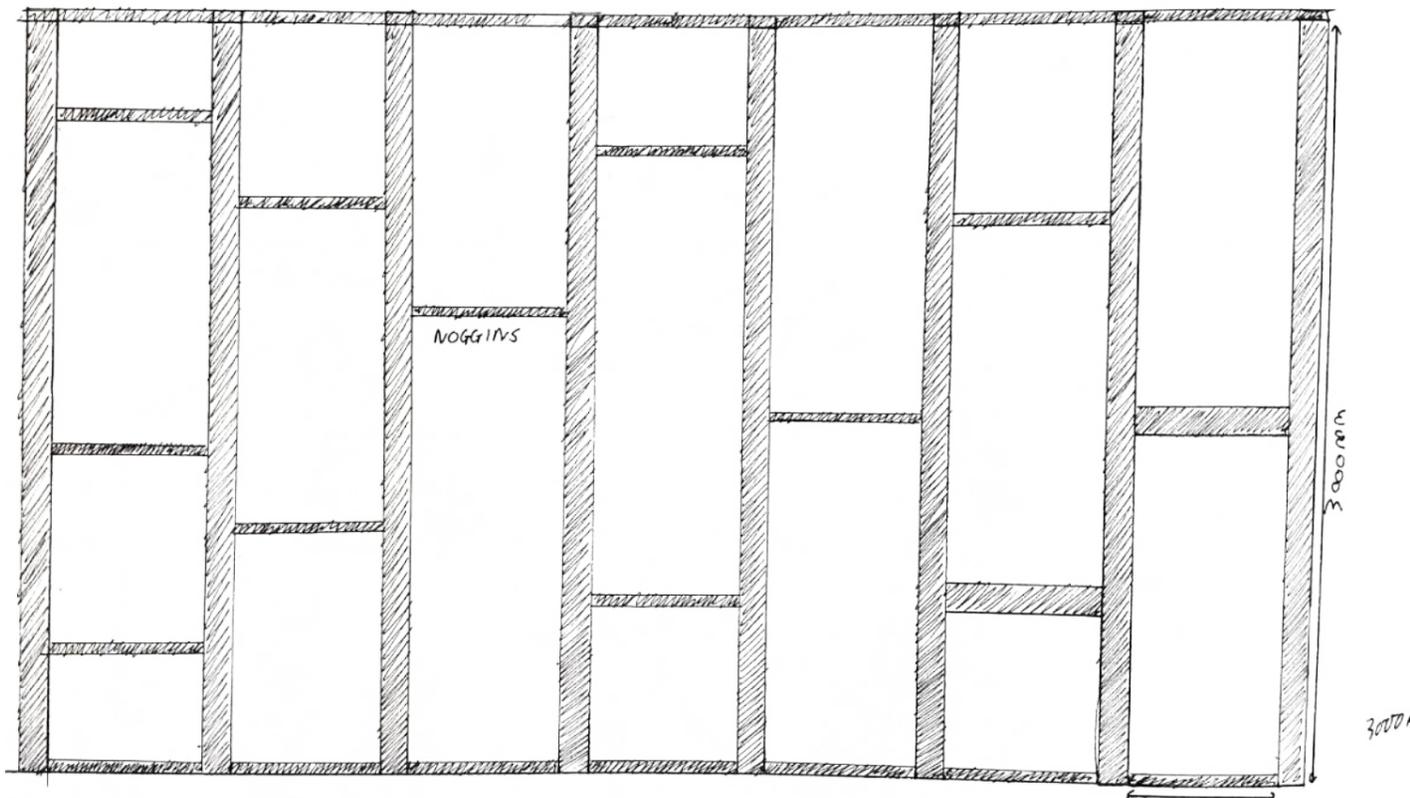
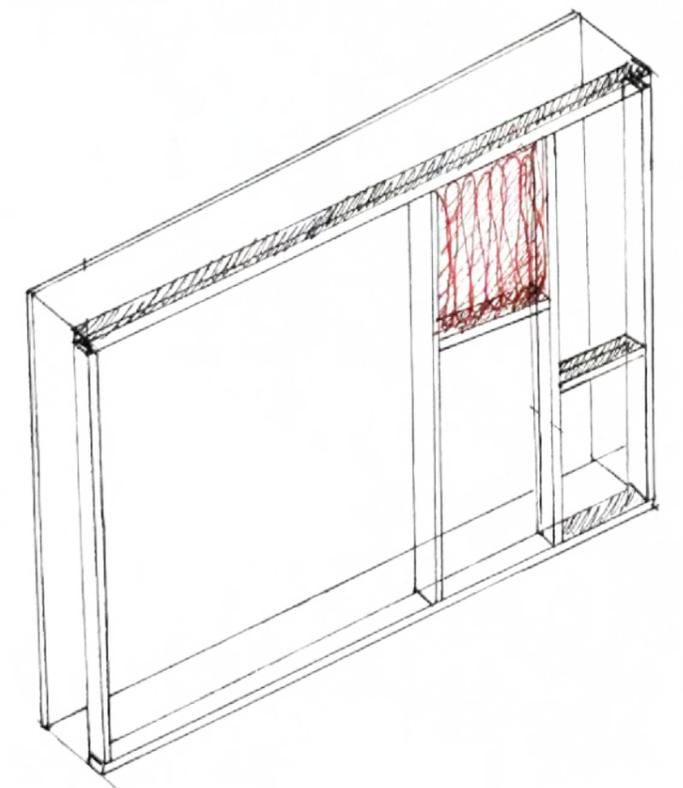
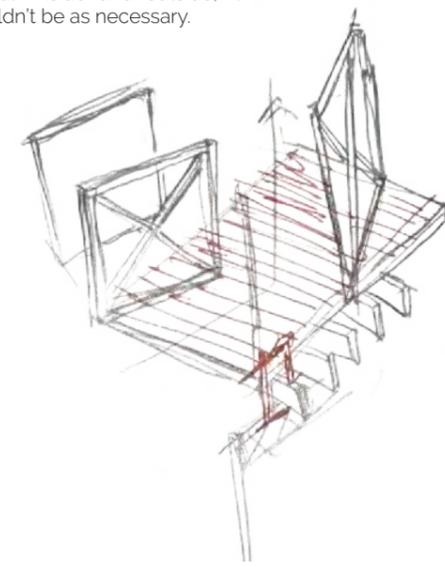
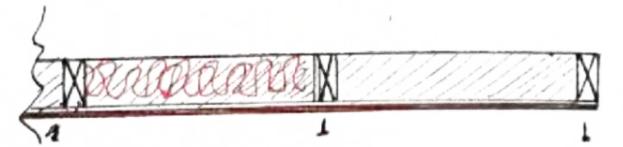
After looking at this project, I think I want to explore and potentially **use sheets of steel as a cladding for the temporary parts of the pavilion**. This way, I can **communicate the affects of rust and erosion** in the aesthetic, but it **would not be wasteful of materials** and the Carbon footprint would be lower.

**Stud walls:**

Stud walls are quick and effective ways of building and are generally lighter than other more permanent walls.

These can be easily assembled and disassembled, allowing versatility in design and would be able to move on to the next workshop location.

Most walls like this will be filled with insulation, but as this pavilion is playing with the idea of half inside and outside, it wouldn't be as necessary.



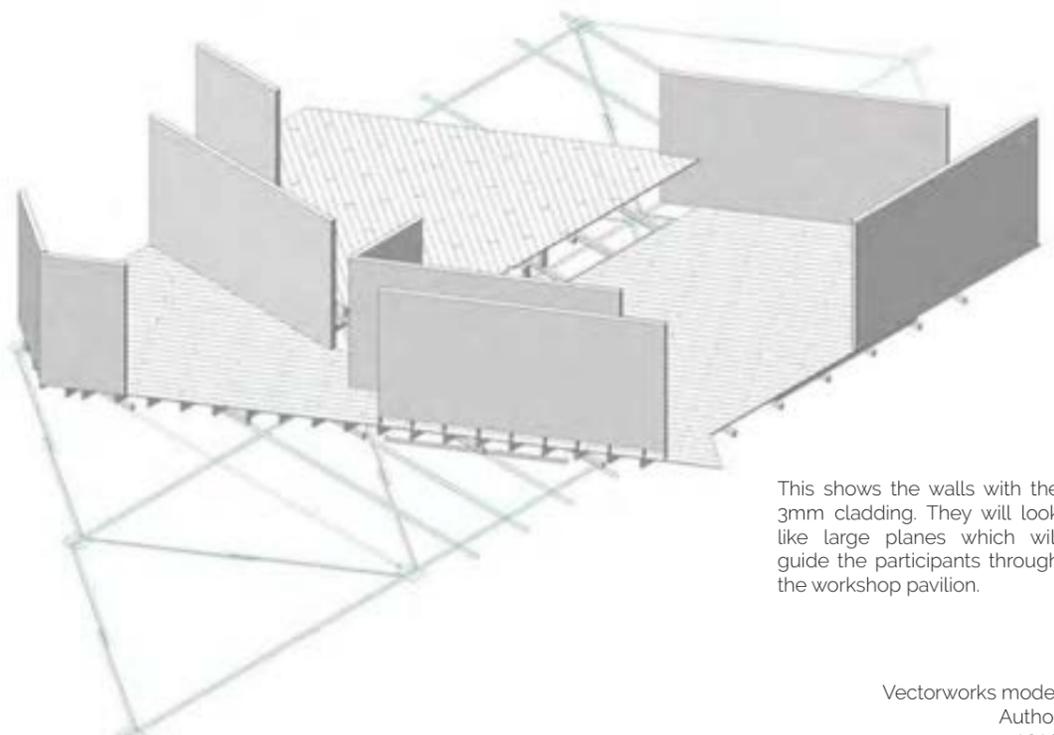
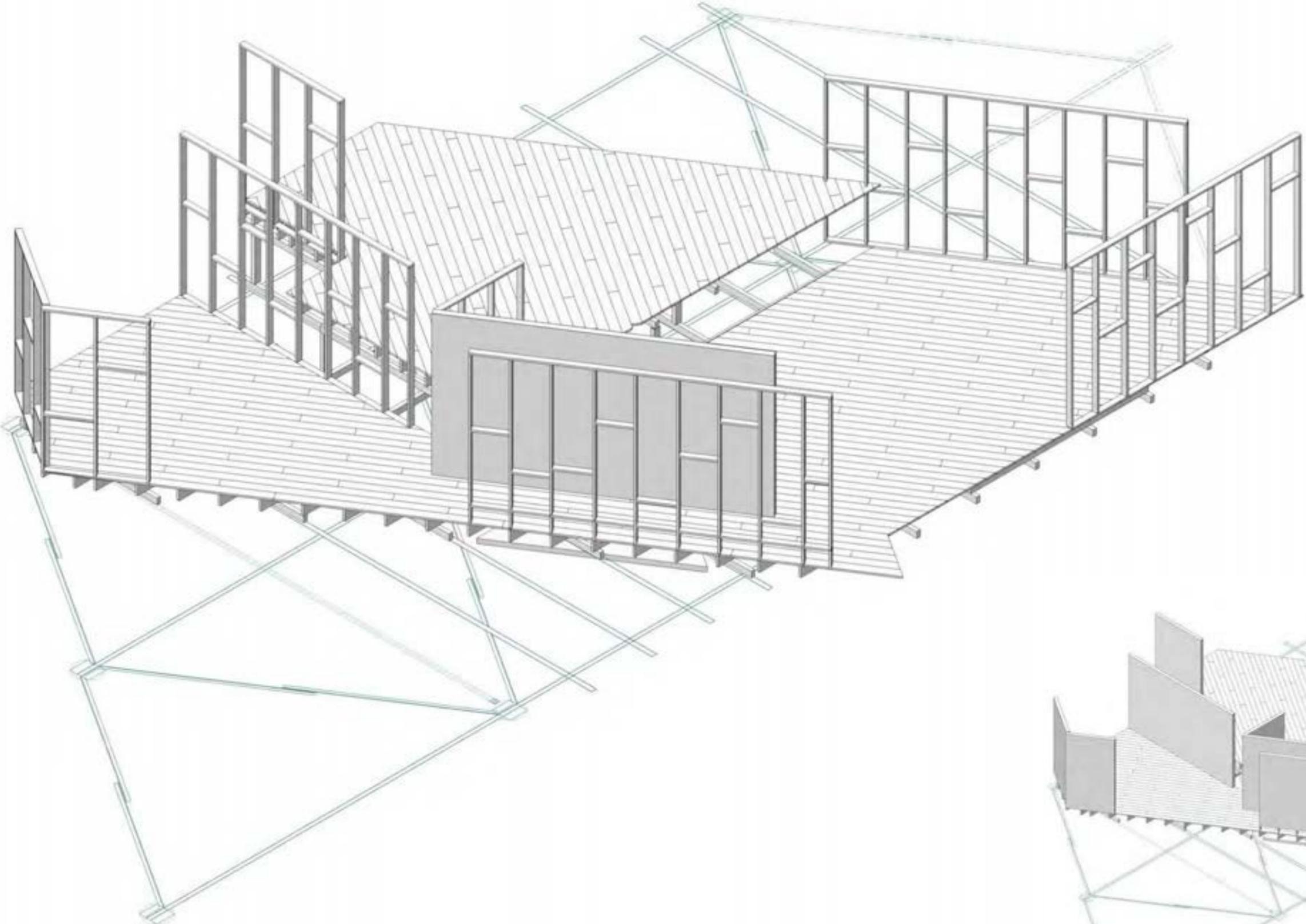
STUD WALL - TEMPORARY STRUCTURE PART OF PAVILION

PART I - TEMPORARY ELEMENTS

TEMPORARY WALLS

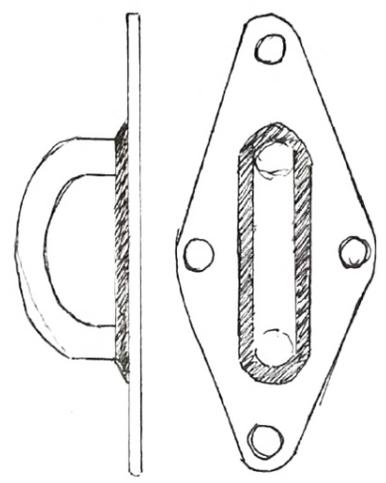
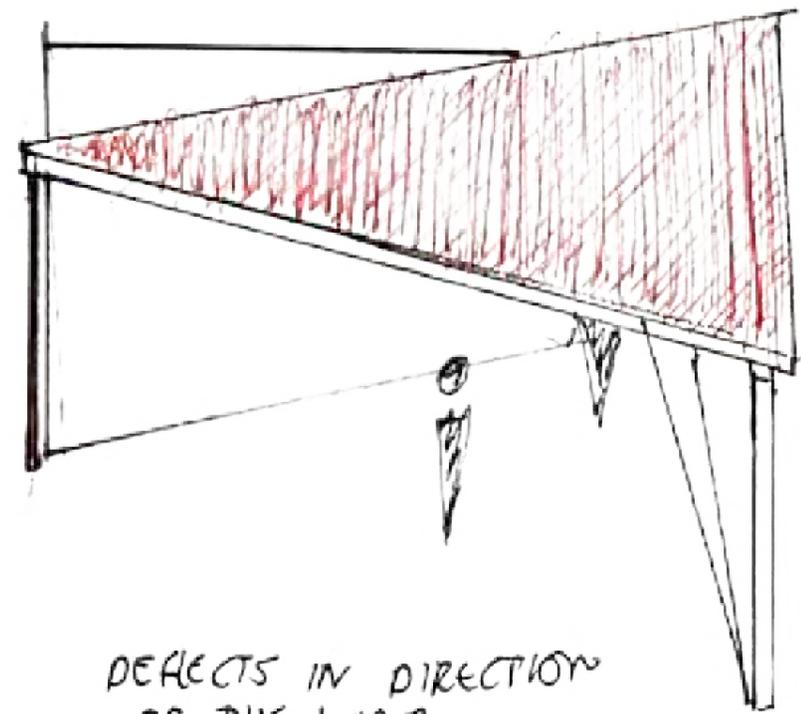
This shows how the temporary walls will be installed in the pavilion.

The bases of the stud walls will fix to the timber joists on the level below the decking, to stabilise them further.

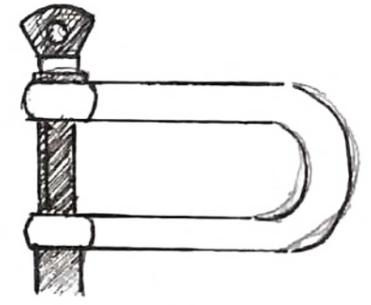
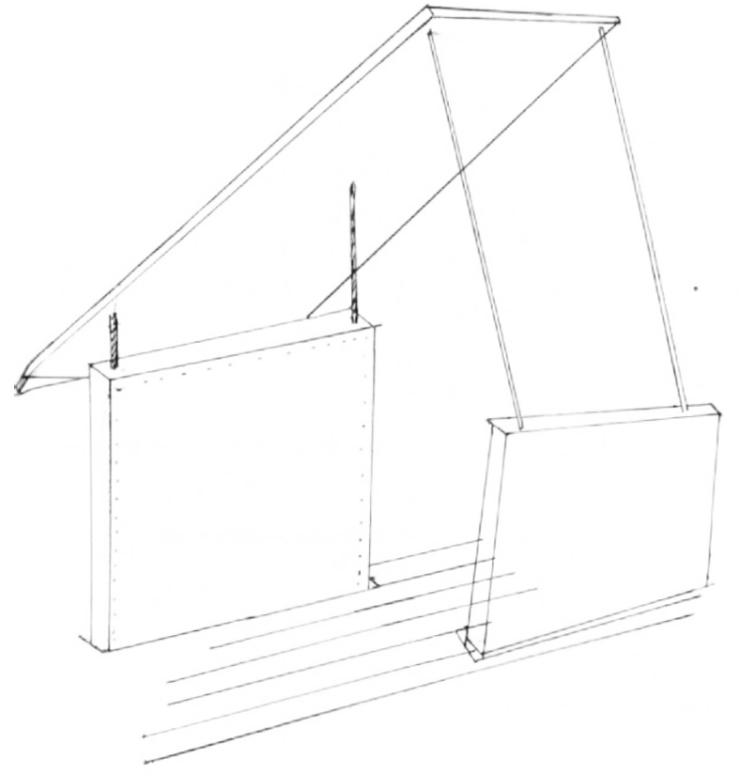


This shows the walls with the 3mm cladding. They will look like large planes which will guide the participants through the workshop pavilion.

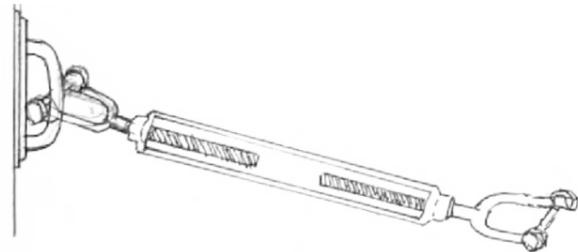
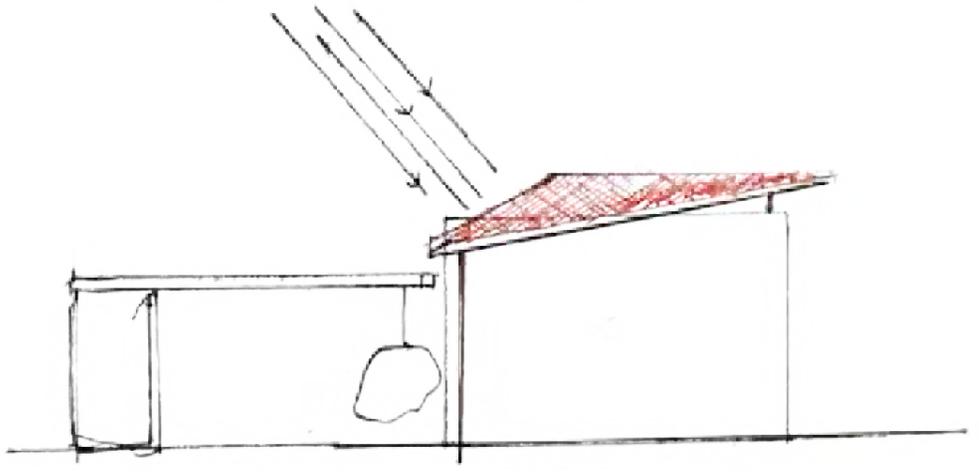
TEMPORARY ROOFING



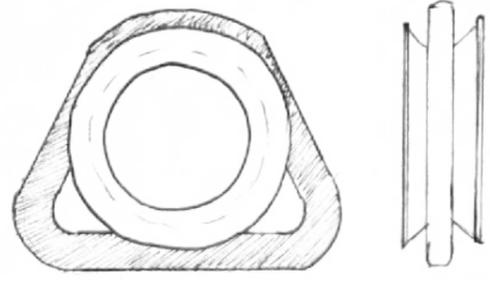
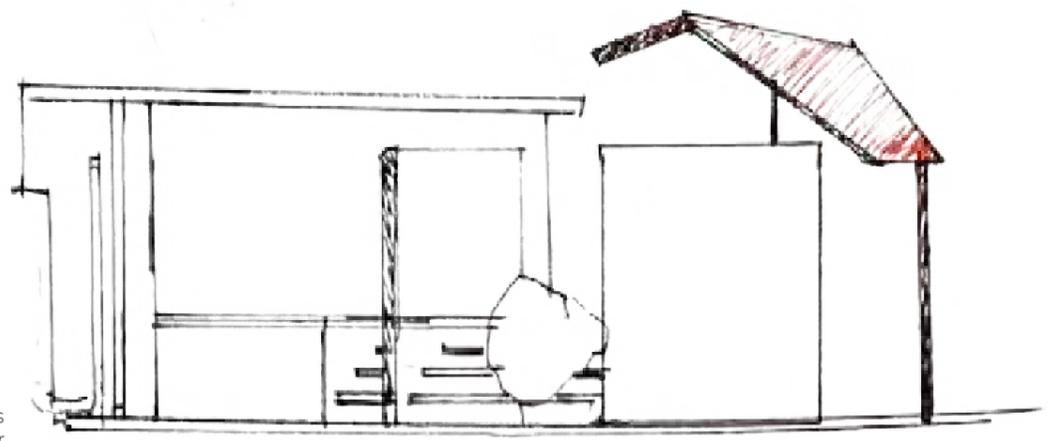
Pad eye - stainless steel. This fixes to the wall



Dee shackle - stainless steel



US Type turnbuckle - this gives the sheet tension and keeps the shape tight.



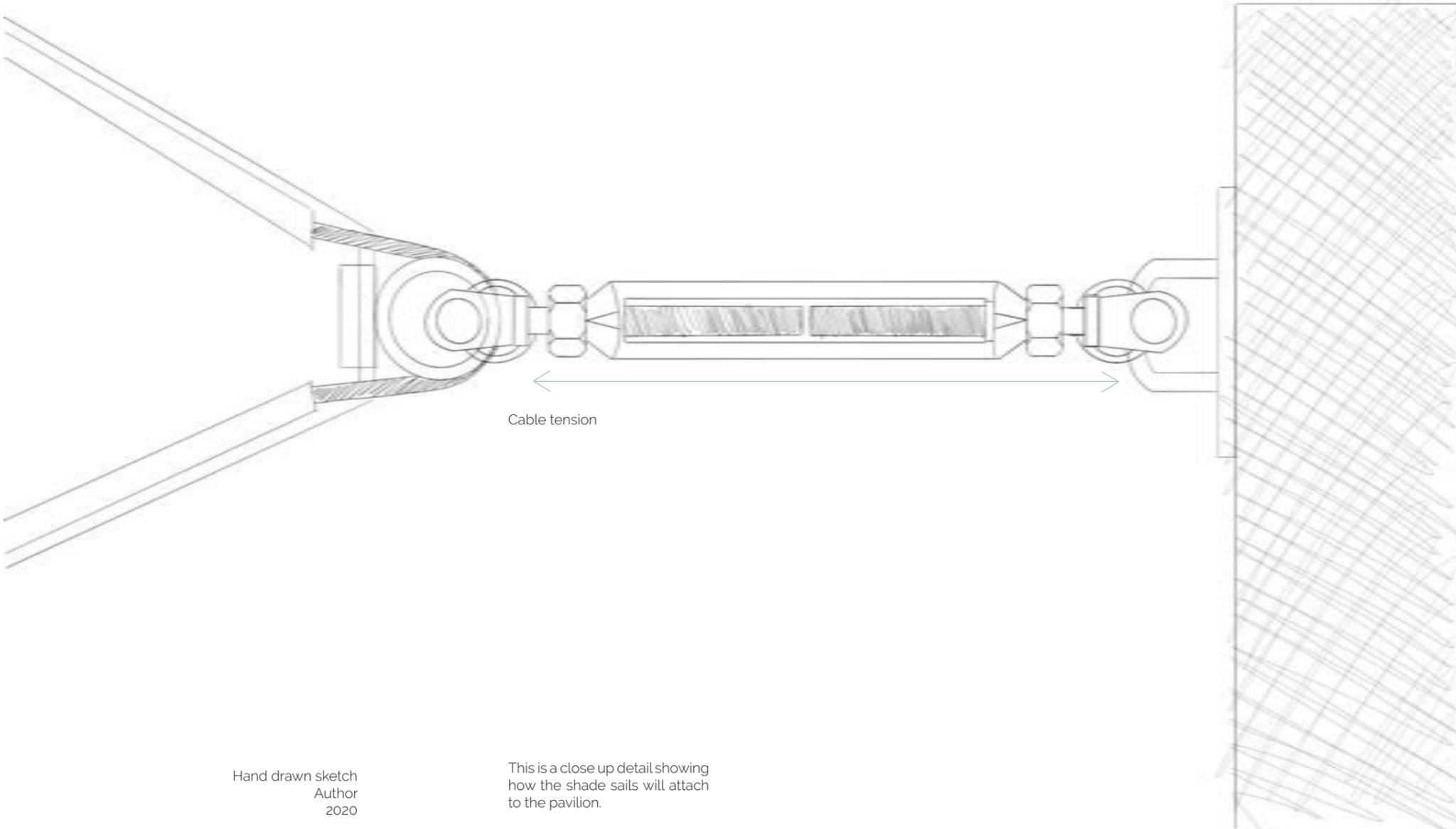
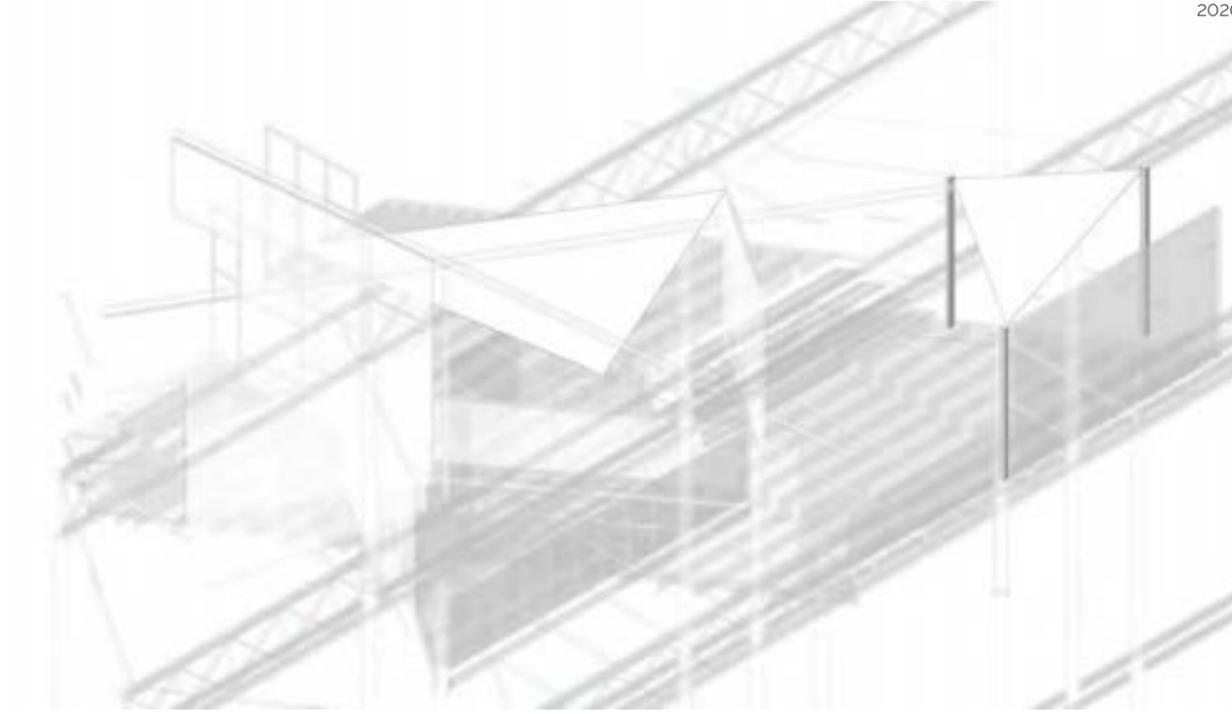
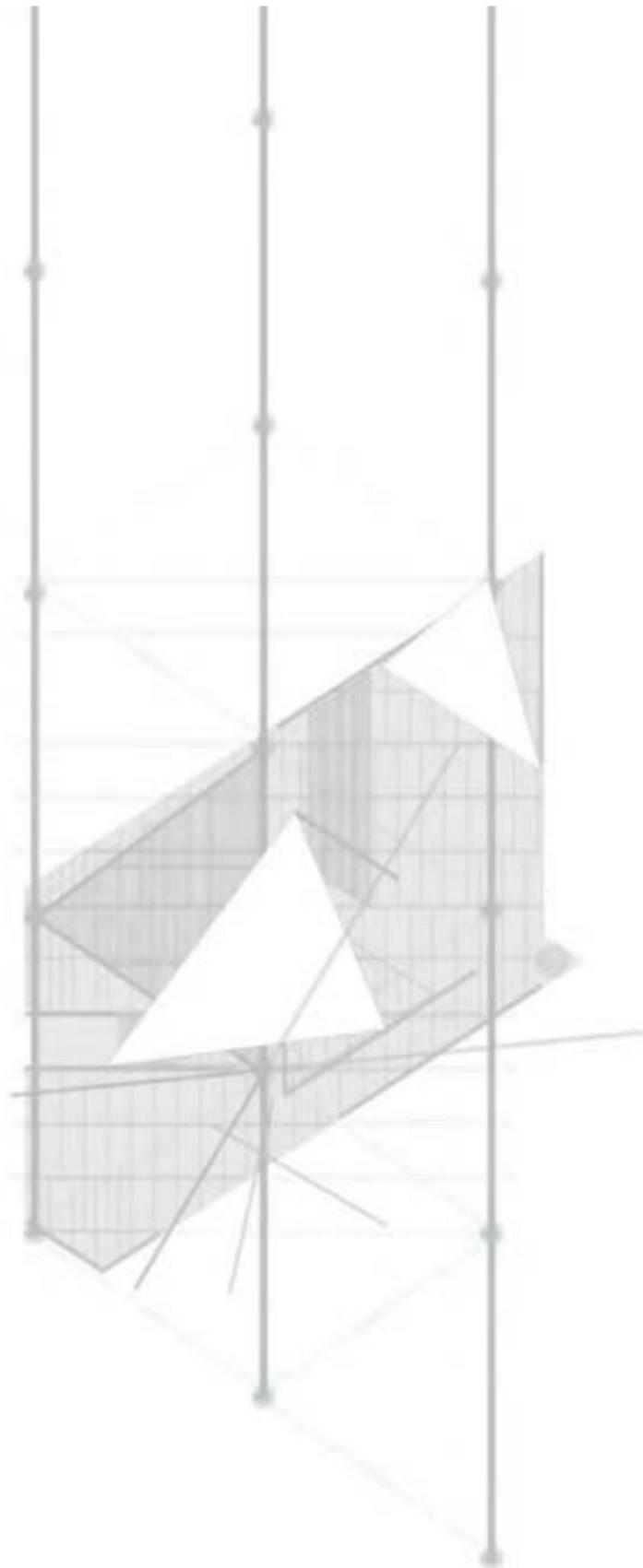
D Ring Thimble Round shave - this is where the steel cable runs through



10mm Steel Cable - this gives the sheet tension



TEMPORARY ROOFING



The temporary roofs will only cover parts of the pavilion. The upper right roof is giving a shaded portion for the people breaking down the chalk and the same for the installation of the structures.

Hand drawn sketch  
Author  
2020

This is a close up detail showing how the shade sails will attach to the pavilion.

**PARTI - TEMPORARY ELEMENTS**

**AFTER THE FESTIVAL**

**After the festival:**

When the festival is over, the temporary elements will be disassembled from the pavilion and **taken to the new location for the next workshop.** This is going to be Norfolk.

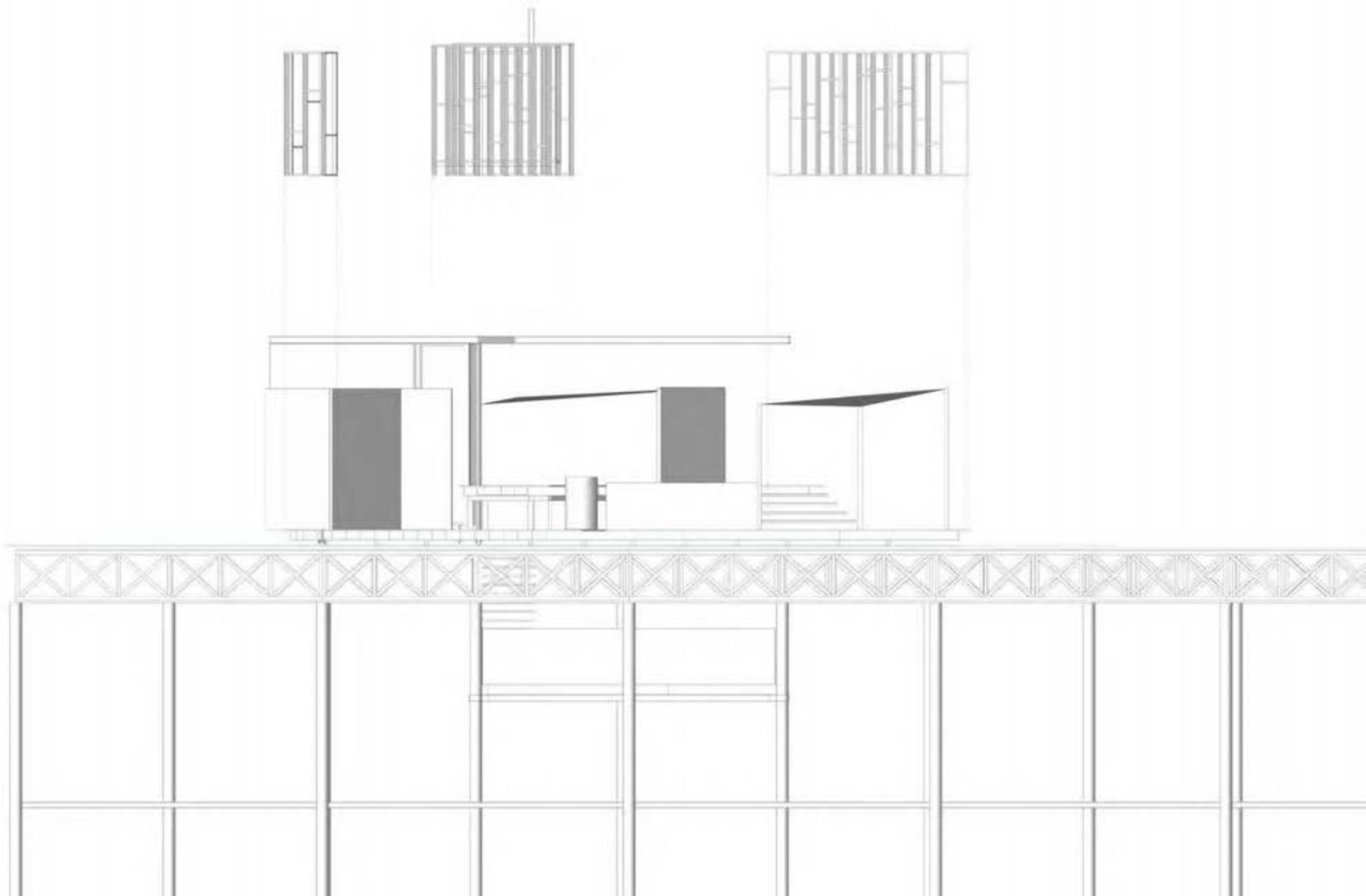
The material choices and how they have been constructed have been considered so that they can easily be taken apart and transported in one operation. **This is to lower the carbon footprint of the project.**



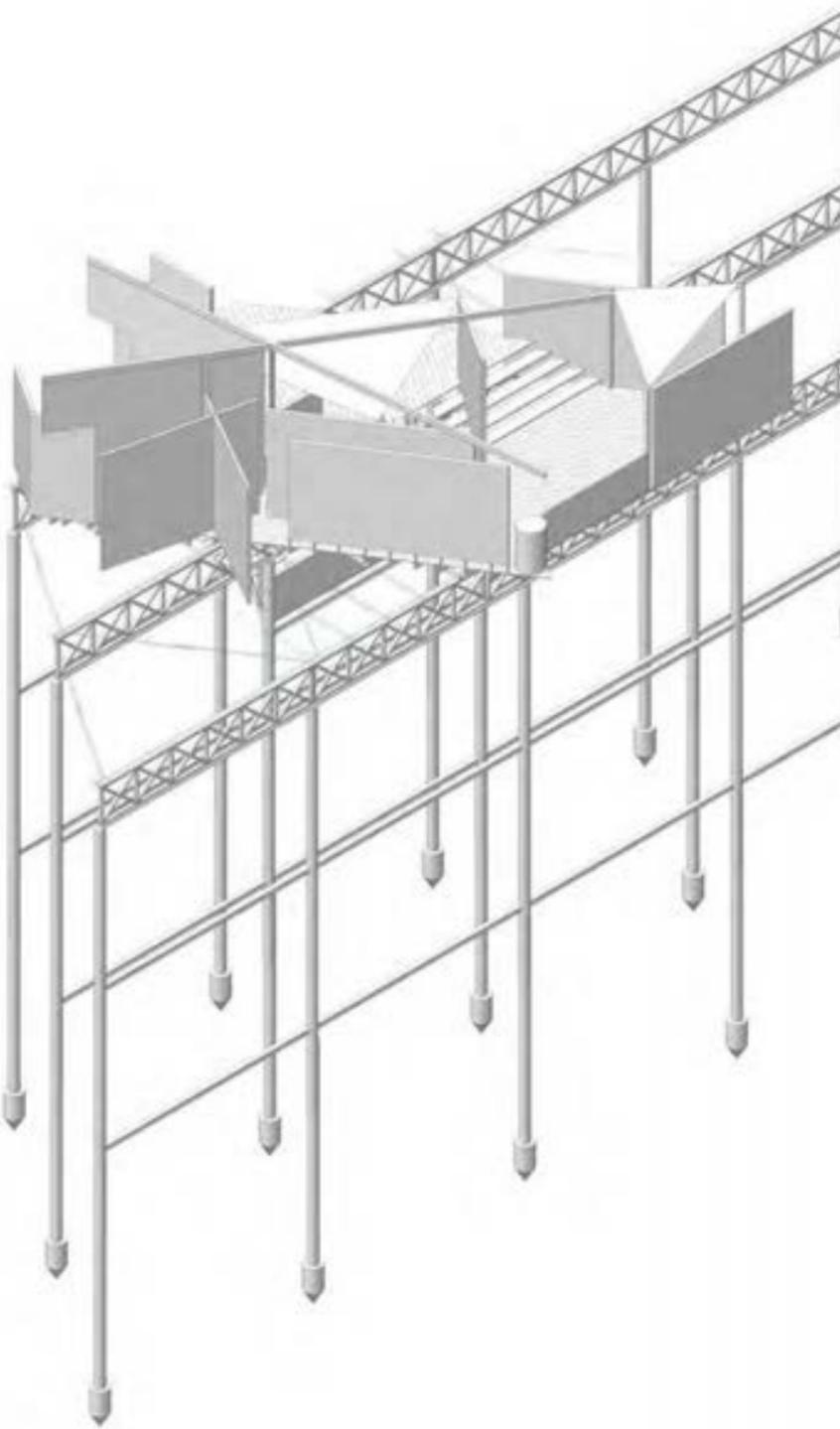
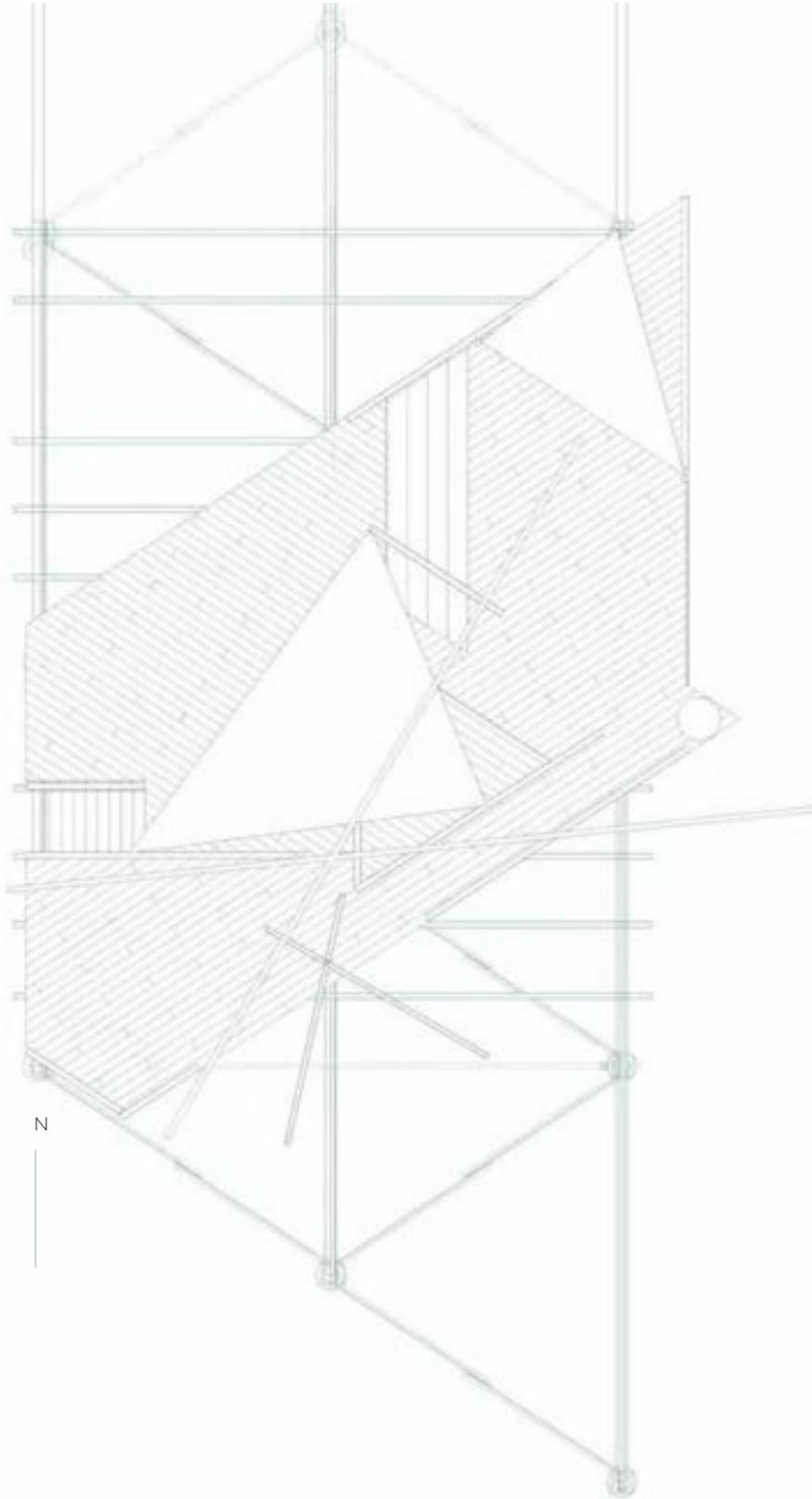
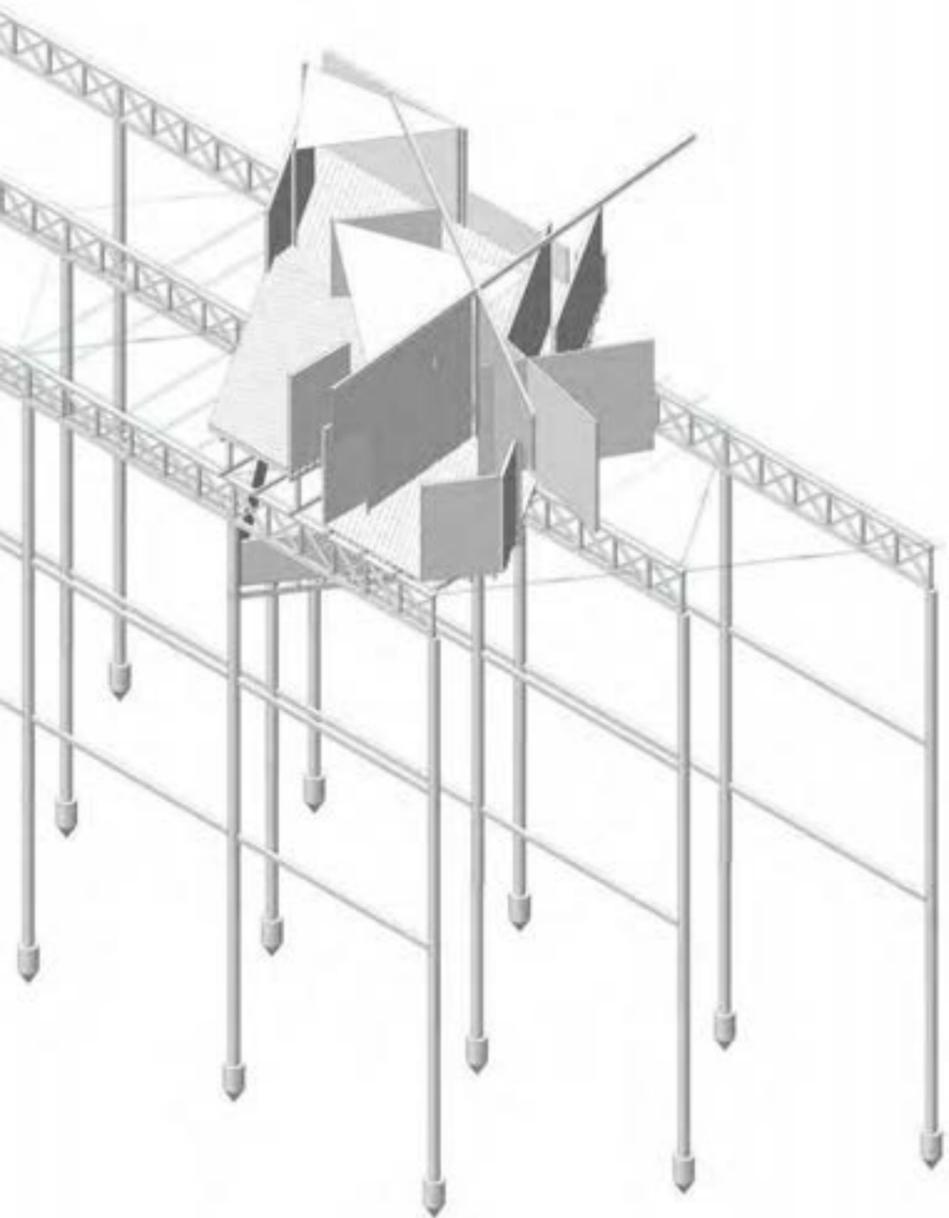
**The next workshop:**

Happisburgh is going to be the next location for the workshop. This is because this is one of the worst hit locations due to coastal erosion and there will be plenty of materials which can go to a better cause rather than drifting into the sea.

Happisburgh. <https://www.google.co.uk/maps/place/Happisburgh,+Norwich/@52.8243095,1.5140307,14z/>

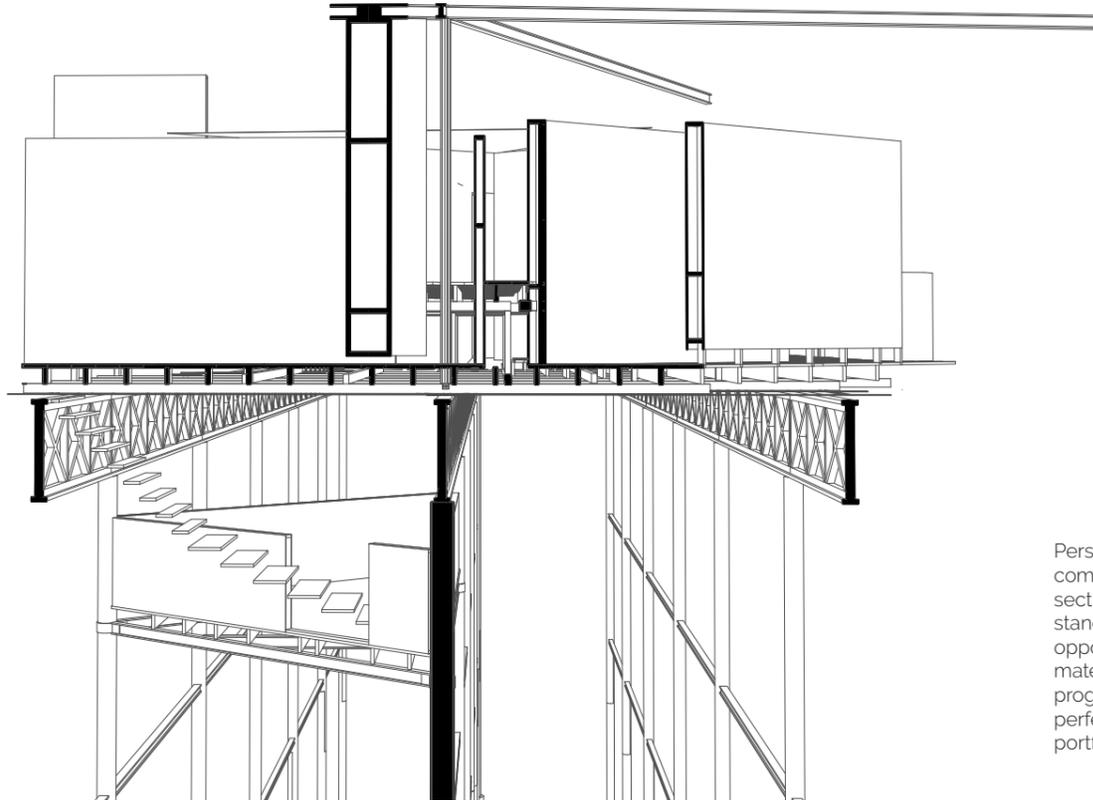
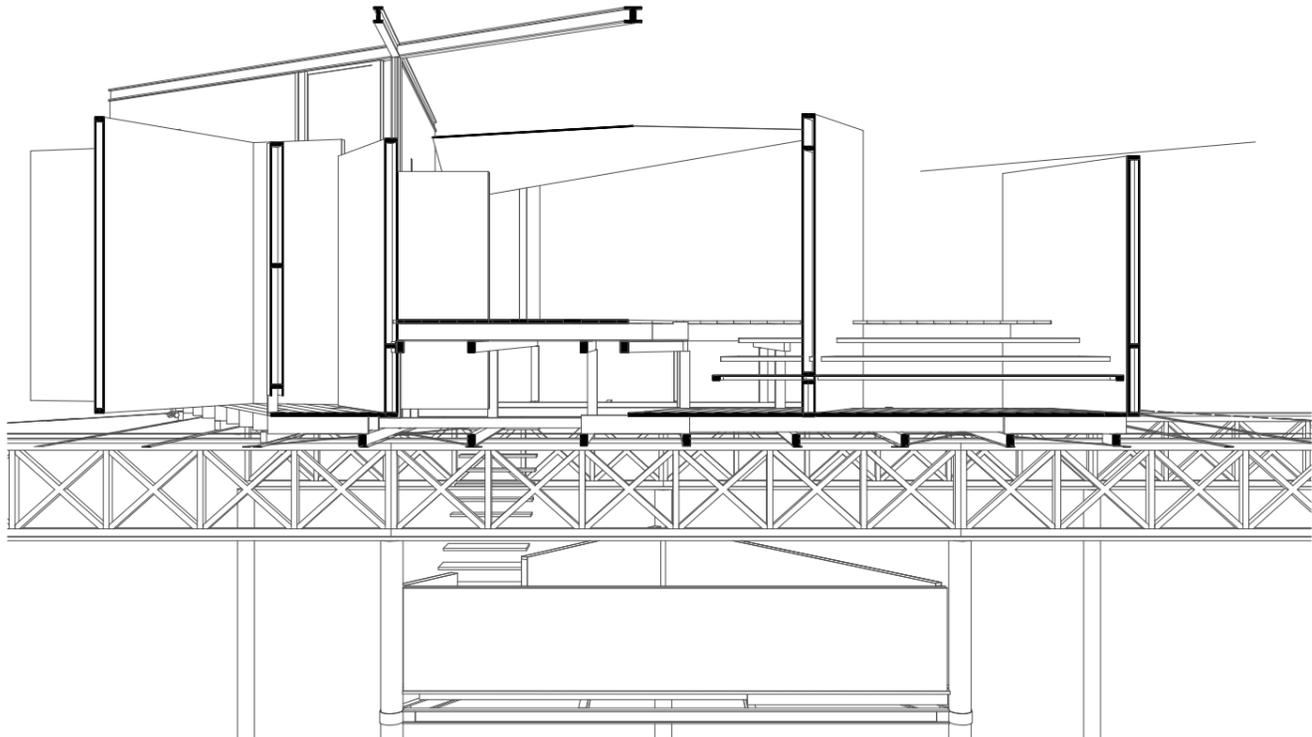
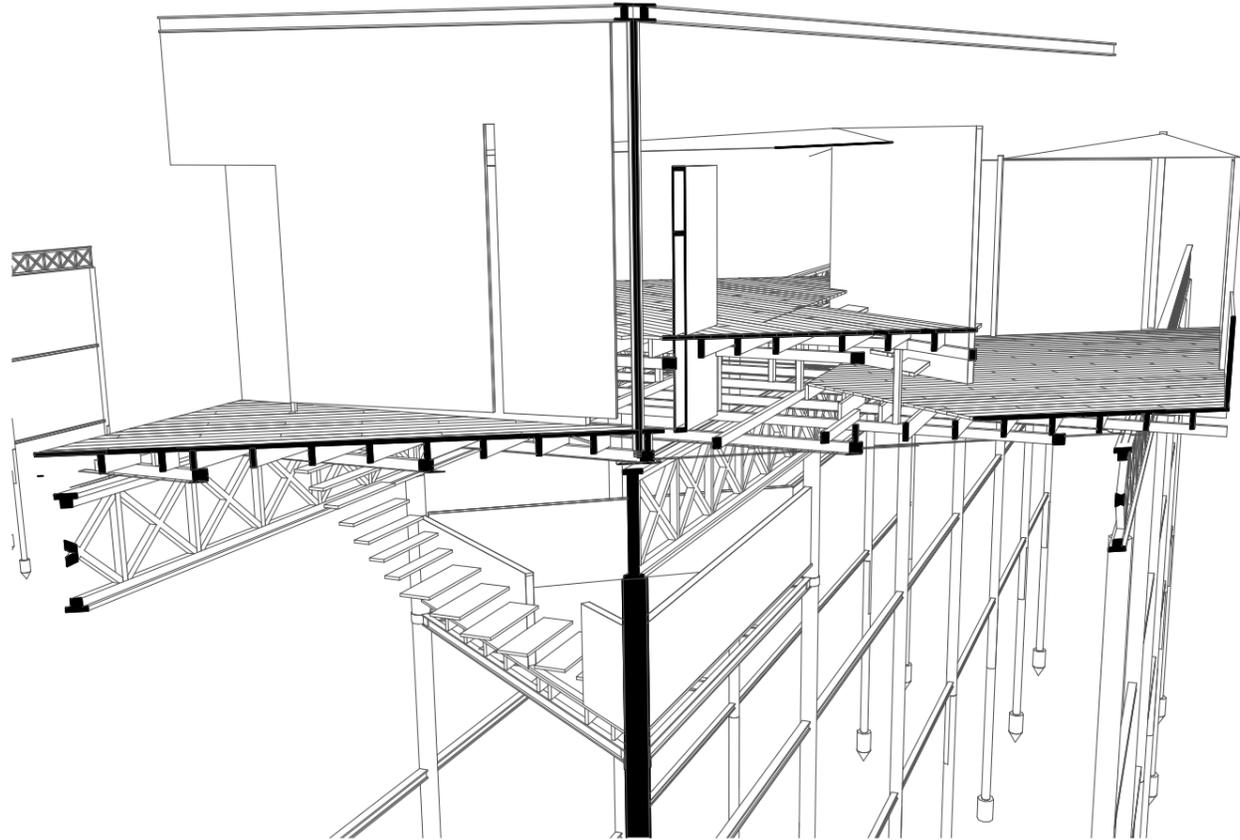
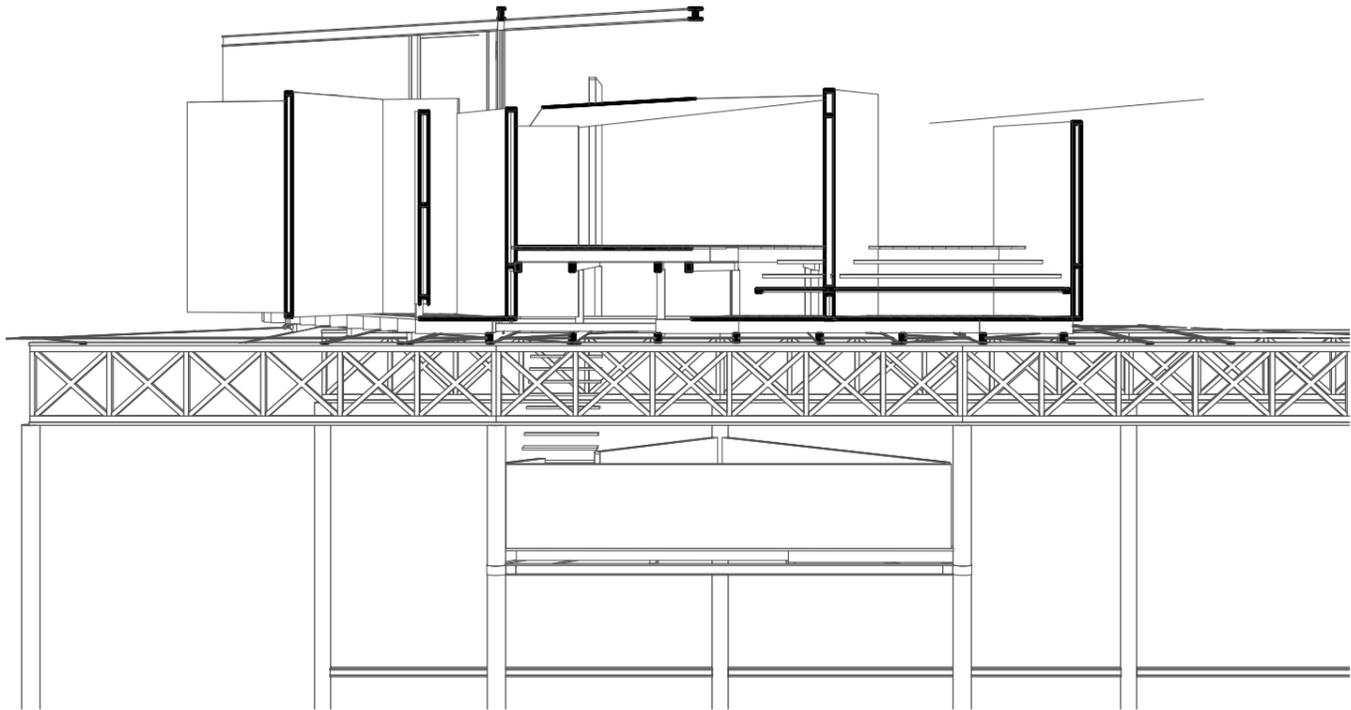


FINAL PAVILION



COMMUNICATING SYSTEMS AND MATERIALS

These are several views of perspective sections taken from the 3D finished model. They are great to start with as base drawings. For the final portfolio, when showing what technology is used and highlighting details in the pavilion.



Perspective sections in comparison to orthogonal sections can make a drawing stand out. It gives the opportunity to collage in light, materials, experience and programme - making them perfect drawings to use for the portfolio.

# **INFRASTRUCTURE**

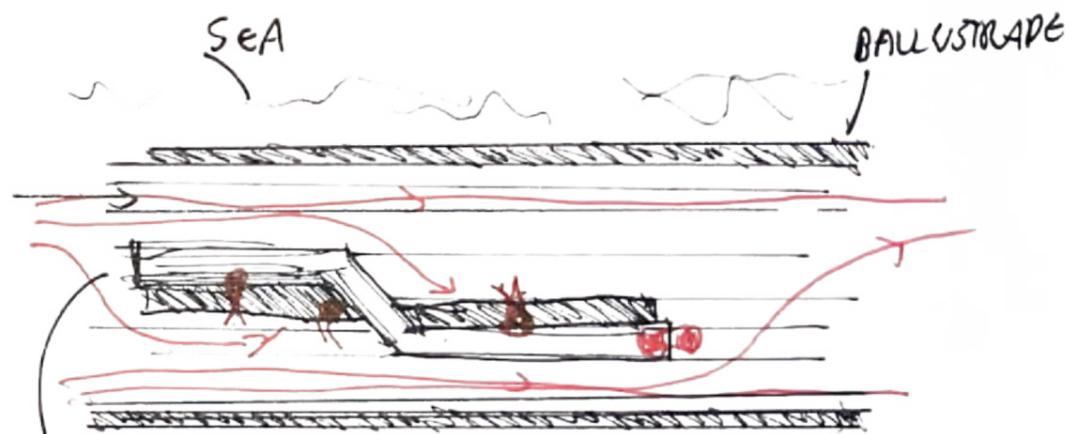
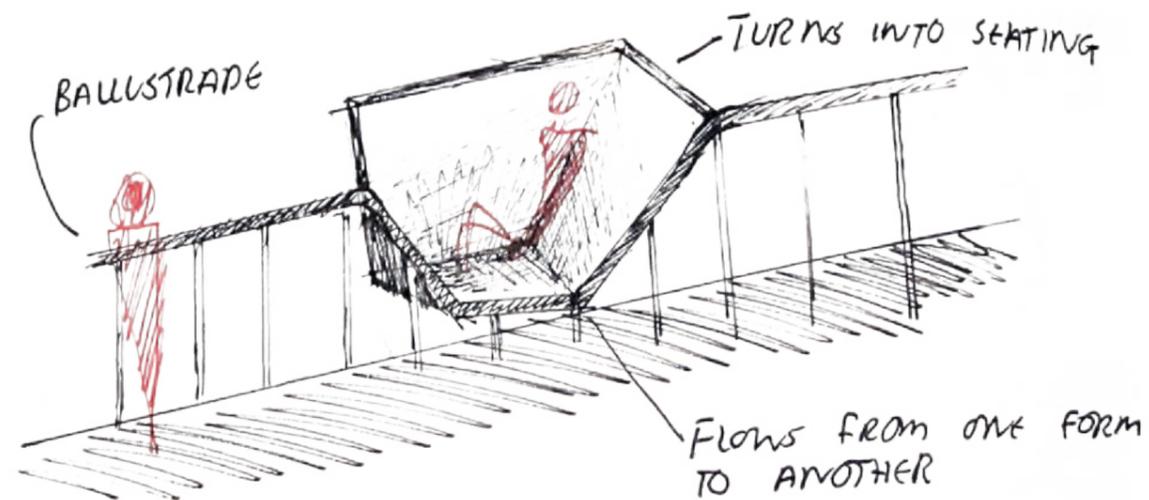
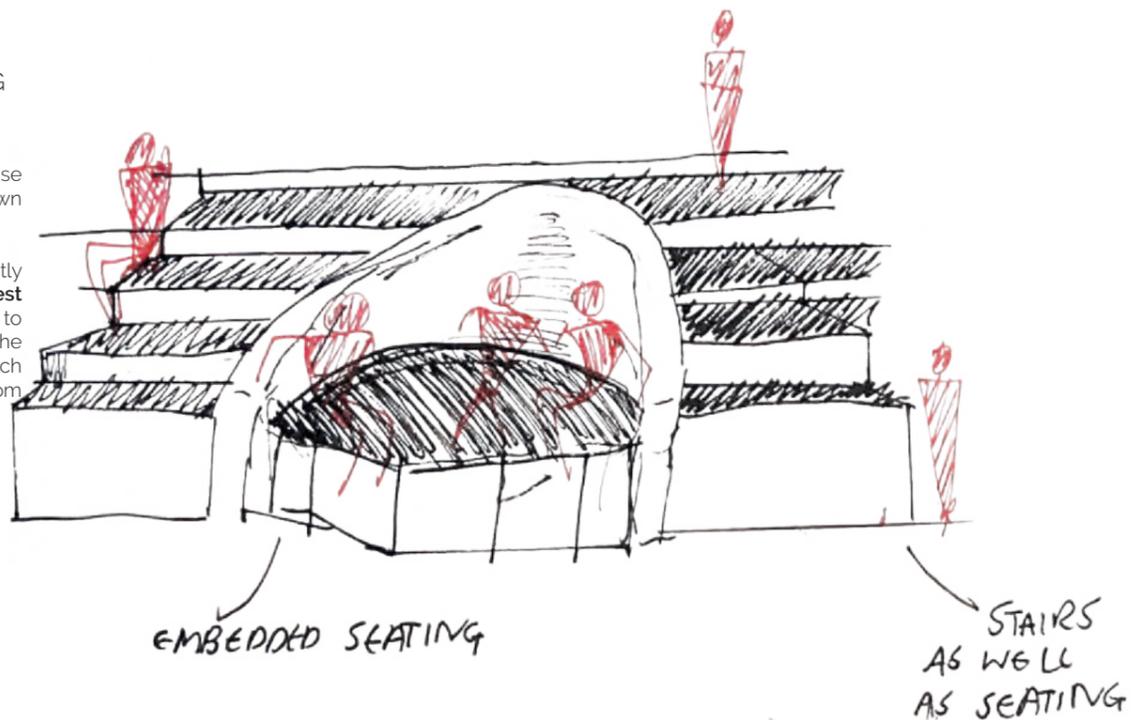
## **PART I - DIAGRAMS**

ITERATIVE SKETCHING

Iterative sketching:

The idea behind this exercise was to produce and get down as many ideas as possible.

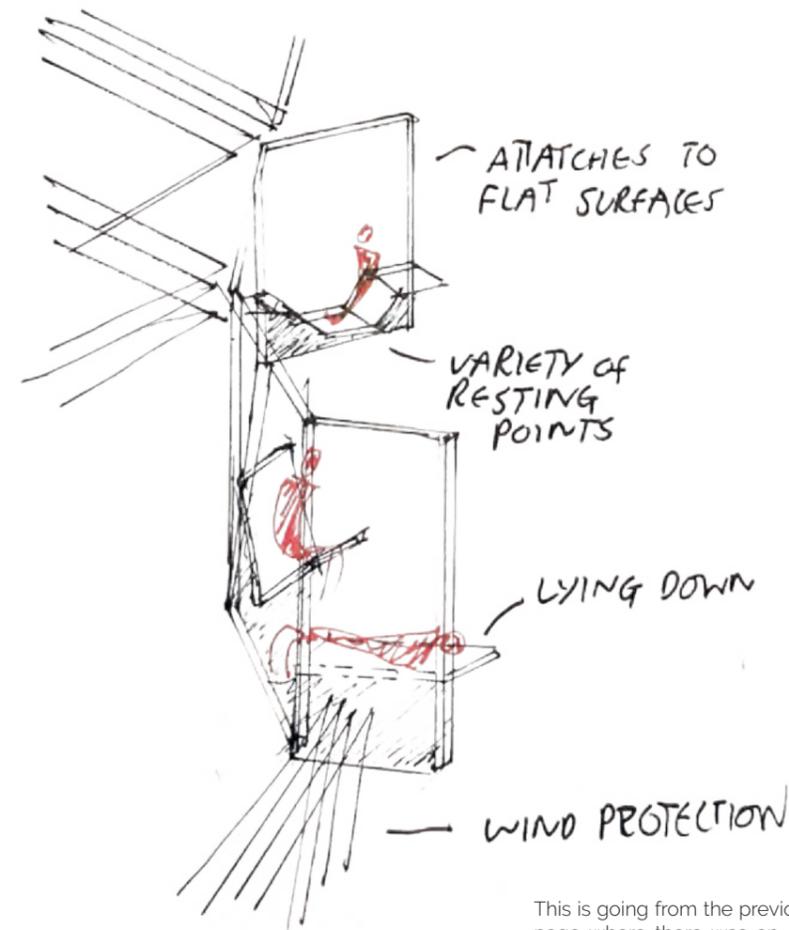
These parts are predominantly focusing on **seating and rest points**. The initial idea was to merge seating into some of the more functional aspects, such as the seating merging from the stairs and a balustrade.



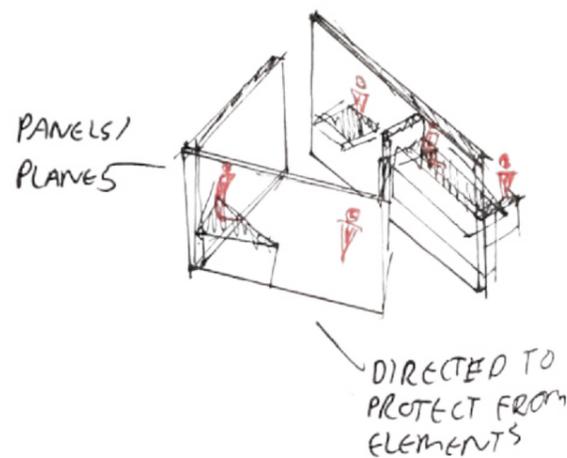
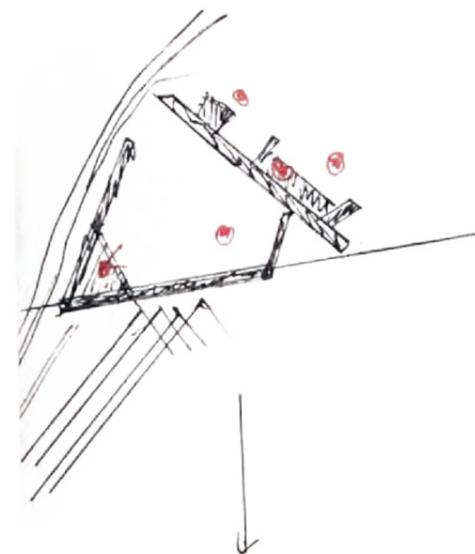
**AERODYNAMIC STYLE SEATING**  
IT WILL NOT DISRUPT THE NATURAL FLOW OF MOVEMENT

These sketches look at seating which follow the shapes of panels. The types of seating all come from a panel or structural plane.

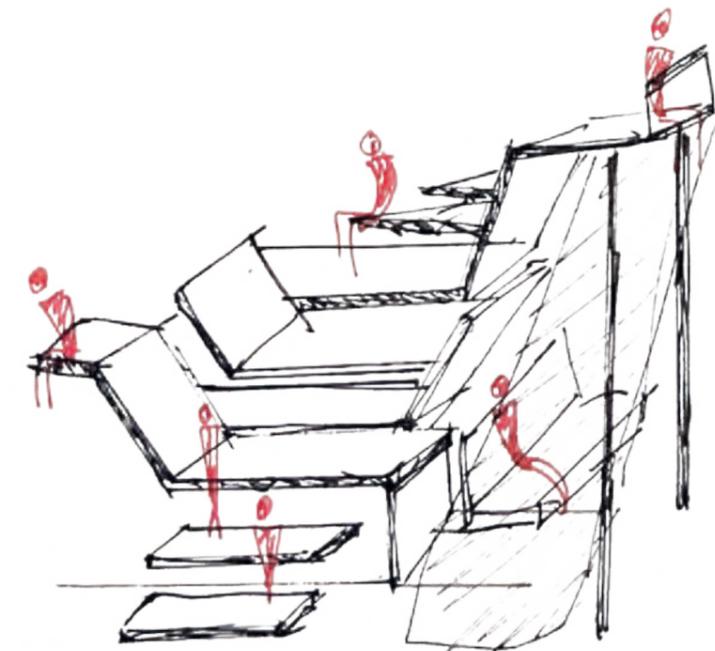
The most important factor would need to be accessibility, protection and comfortability.



This is going from the previous page where there was an exploration of seating and stairs. They merged from one to the other, becoming one larger communal area.

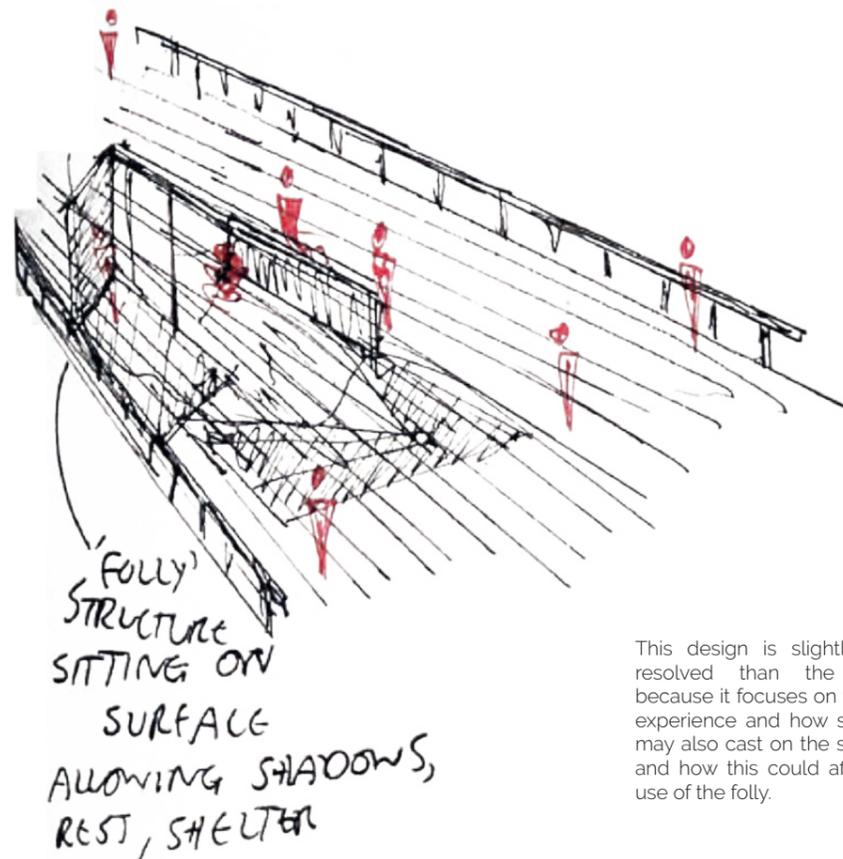


This sketch is extrapolating the idea, from plan to an isometric view. The enables an understanding of how the urban furniture would be used.



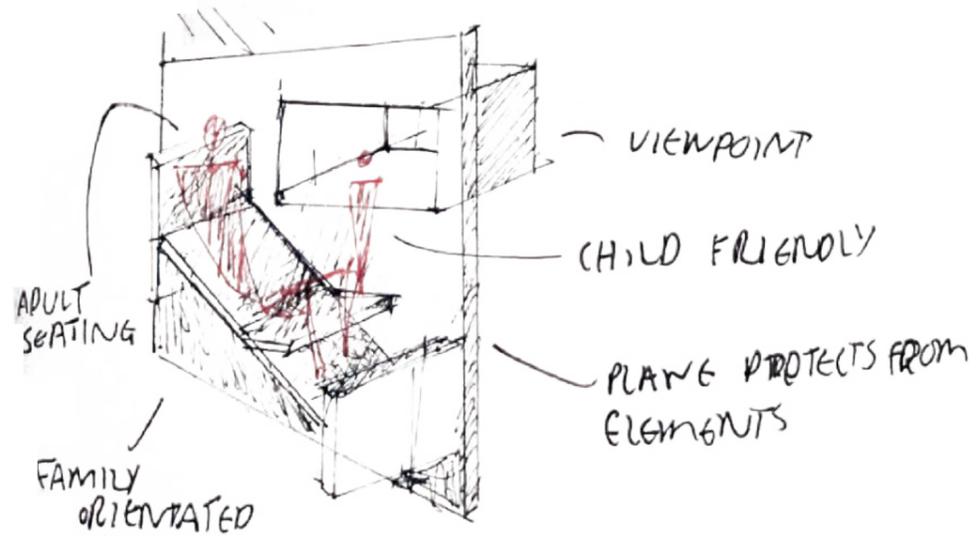
ITERATIVE SKETCHING

Following from the ideas of structural planes, this shows how the public could interact with the urban furniture, and who could use this.



'FULLY' STRUCTURE SITTING ON SURFACE ALLOWING SHADOWS, REST, SHELTER

This design is slightly more resolved than the others because it focuses on the user experience and how shadows may also cast on the structure and how this could affect the use of the folly.



ADULT SEATING  
FAMILY ORIENTATED  
VIEWPOINT  
CHILD FRIENDLY  
PLANE PROTECTS FROM ELEMENTS

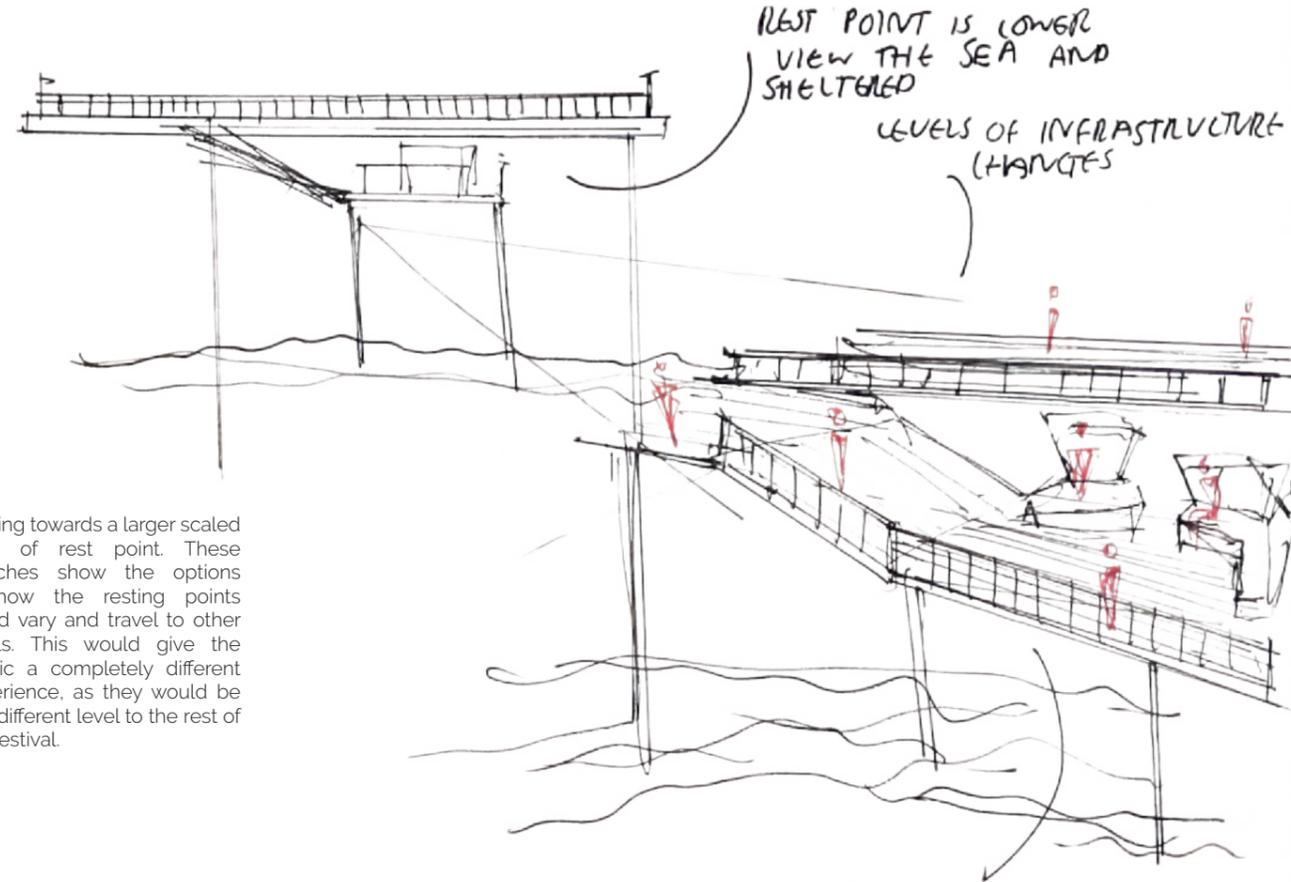
This design is a completely different idea. This extrapolated from the interest of moving pieces of architecture and how this could make multi-purpose and dynamic structures.



CYLINDRICAL DESIGN - THEY CAN 'INTERLOCK' BUT ALSO ROTATE

BECOME AMPHITHEATRE - LIKE

This one visually discusses that the circular shaped stairs can move and rotate around a track and then, when all of them are aligned, it could become amphitheatre like.

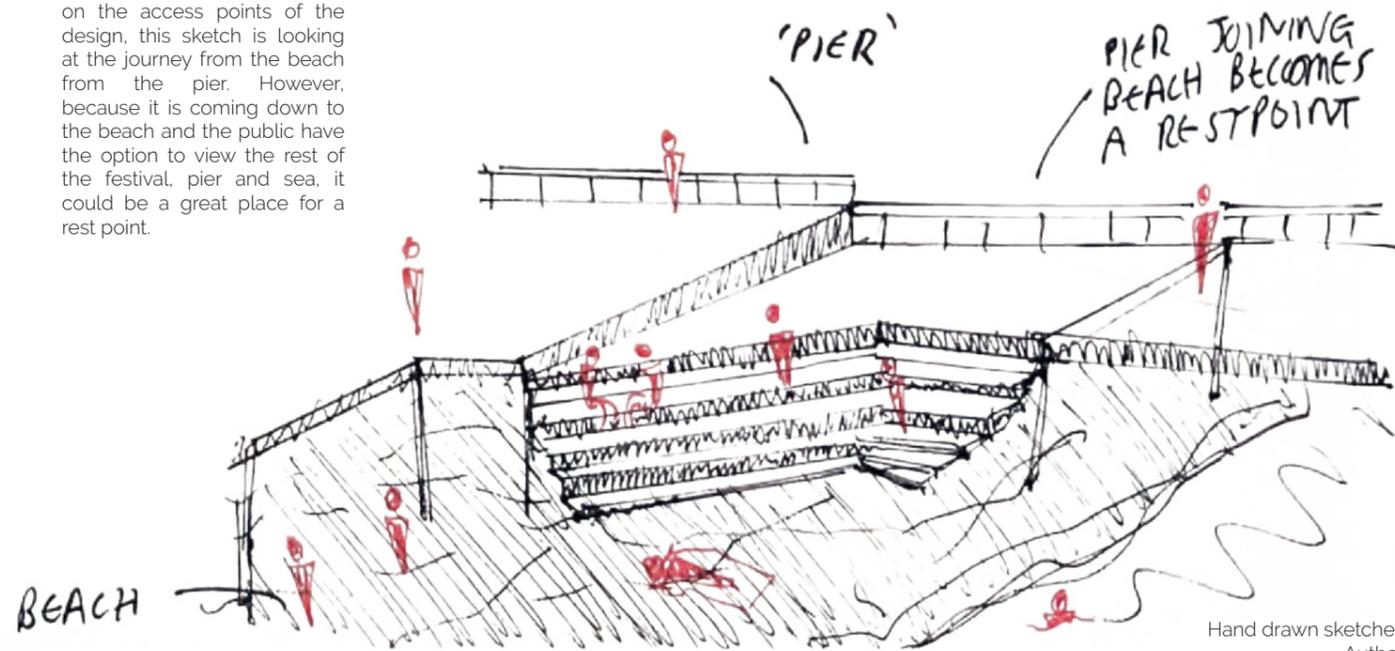


REST POINT IS LOWER VIEW THE SEA AND SHELTERED  
LEVELS OF INFRASTRUCTURE CHANGES

Moving towards a larger scaled type of rest point. These sketches show the options of how the resting points could vary and travel to other levels. This would give the public a completely different experience, as they would be at a different level to the rest of the festival.

IMMERSIVE EXPERIENCE WITH THE WATER BUT CAN SEE THE TECH OF THE NEW 'PIER'

As the design role also focuses on the access points of the design, this sketch is looking at the journey from the beach from the pier. However, because it is coming down to the beach and the public have the option to view the rest of the festival, pier and sea, it could be a great place for a rest point.



BEACH

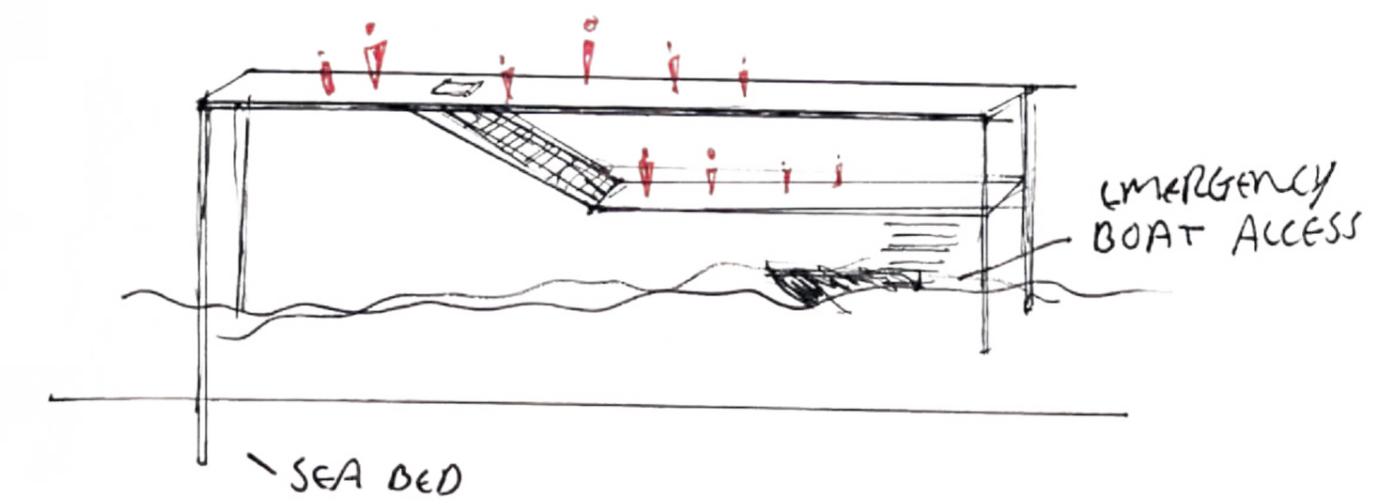
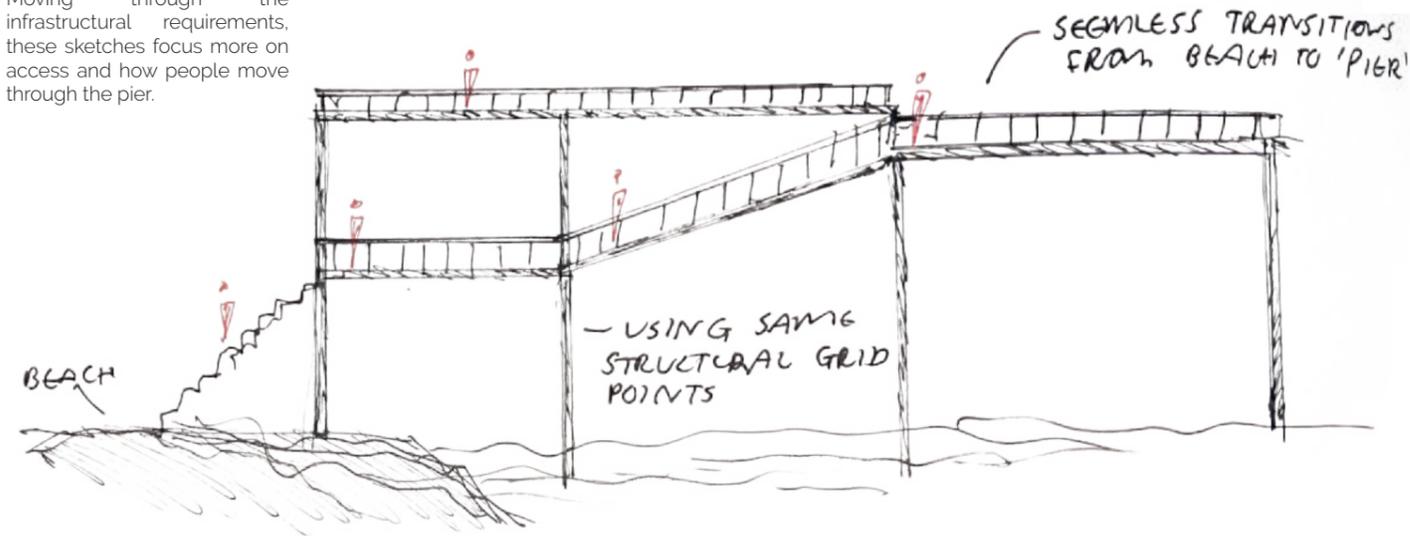
'PIER'

PIER JOINING BEACH BECOMES A RESTPOINT

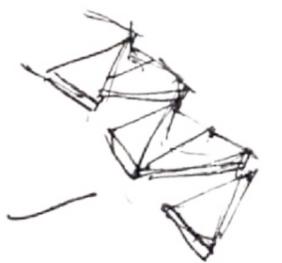
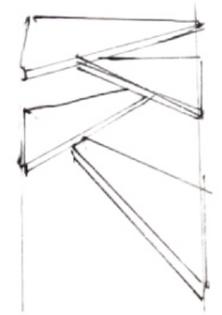
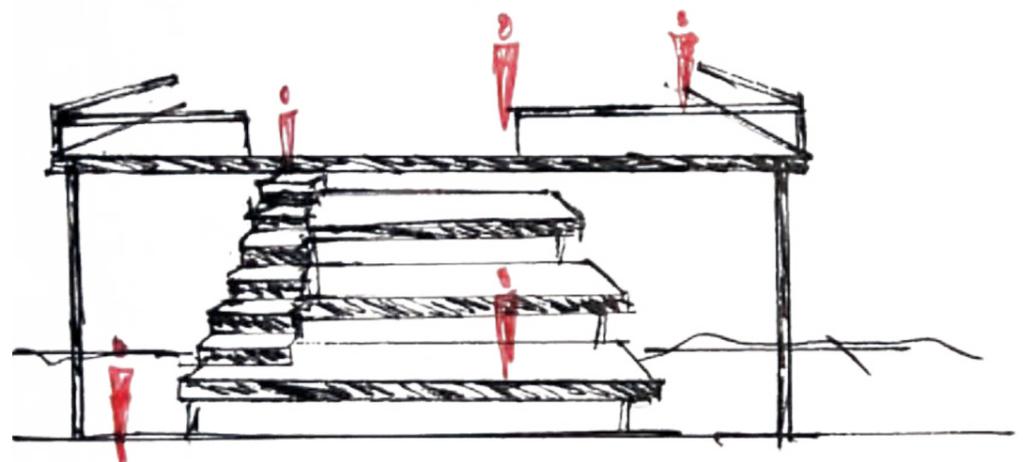
PART I - DIAGRAMS

ITERATIVE SKETCHING

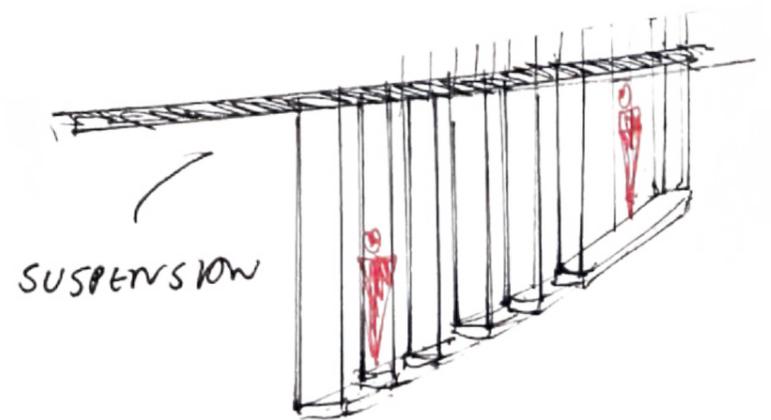
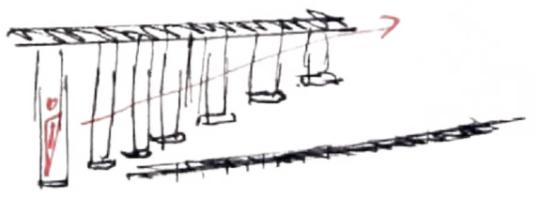
Moving through the infrastructural requirements, these sketches focus more on access and how people move through the pier.



Inspired by steps with different levels, famous by Carlo Scarpa, these light steps resemble the entrance of the decking for the festival.

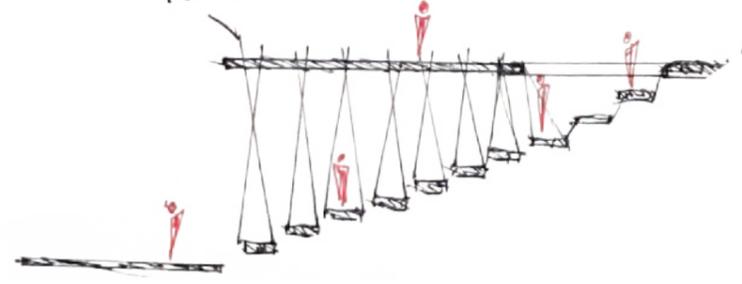


ALTERNATING TRIANGULAR SHAPED STAIRS

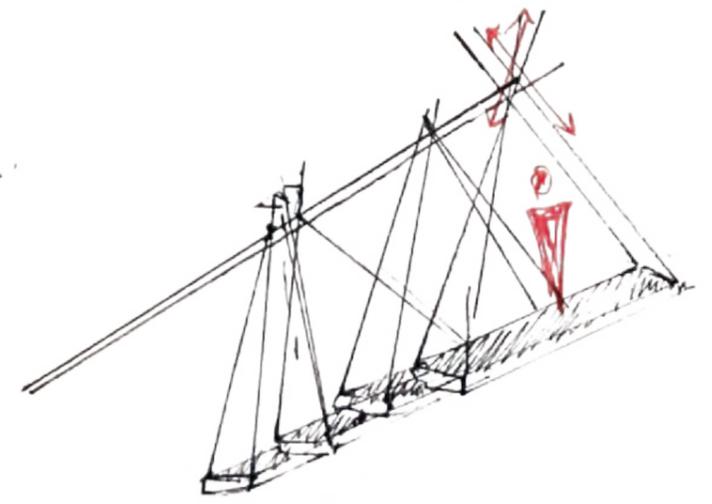


These variations are looking at suspension within stairs and rather than supporting the stairs from underneath, like most conventional staircases, these are suspended from above, using tension to hold them in place.

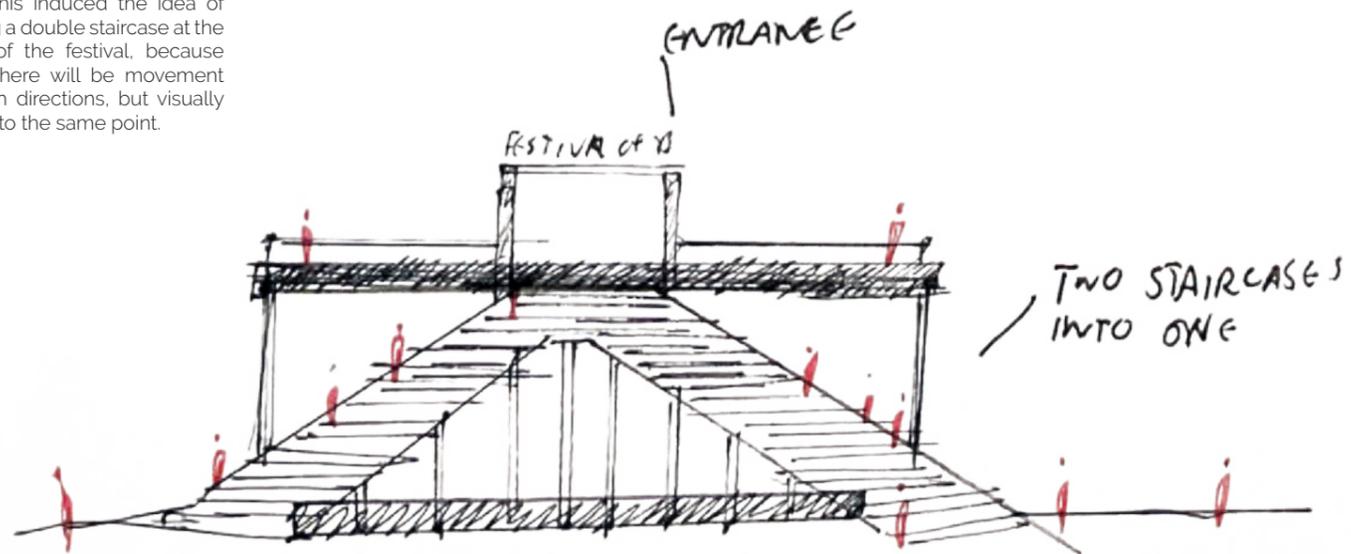
HANGING FROM PIER



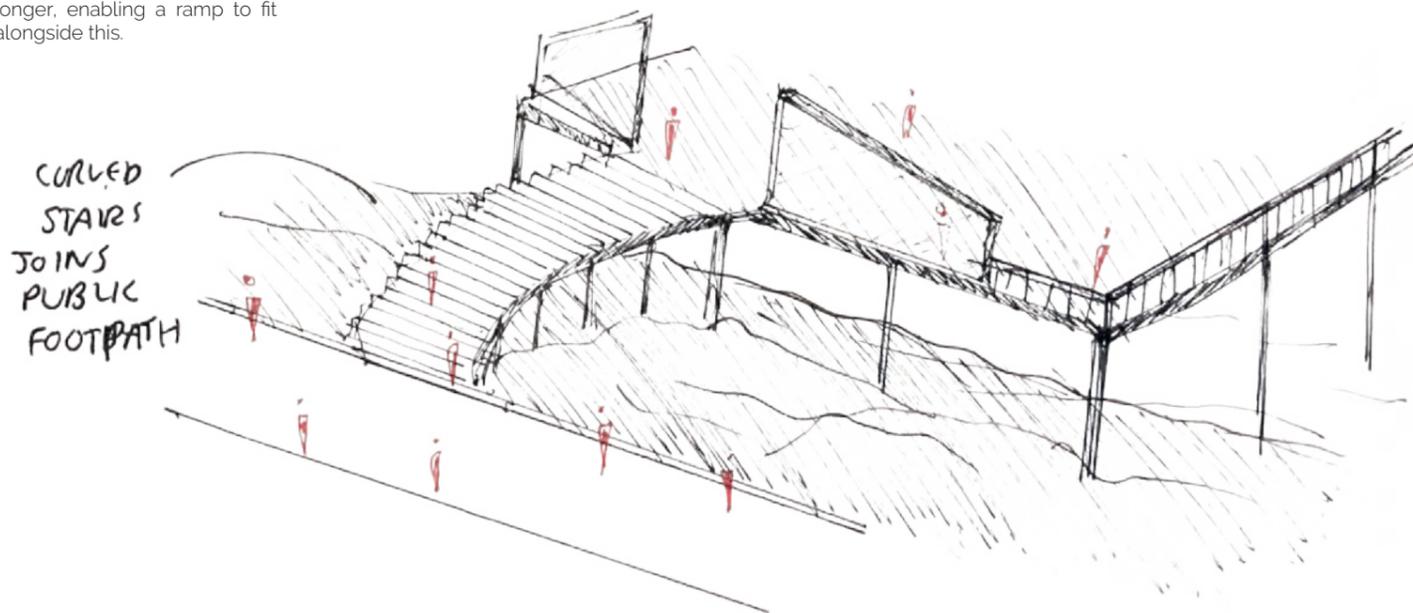
CROSS TENSION



Because the festival will need a point where people enter and exit. This induced the idea of having a double staircase at the front of the festival, because then there will be movement in both directions, but visually going to the same point.



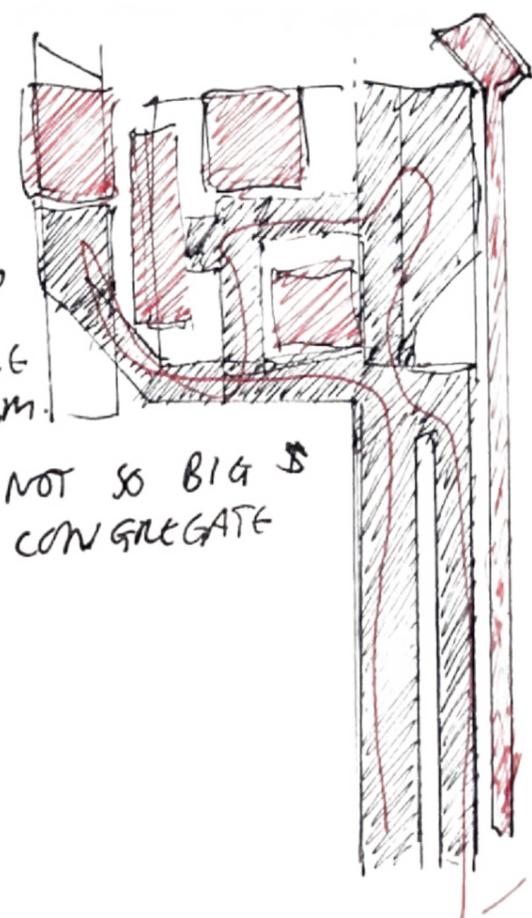
As there will probably need to be a ramped access point, the idea of having a curved staircase makes the journey from the beach to the pier longer, enabling a ramp to fit alongside this.



PAVILIONS

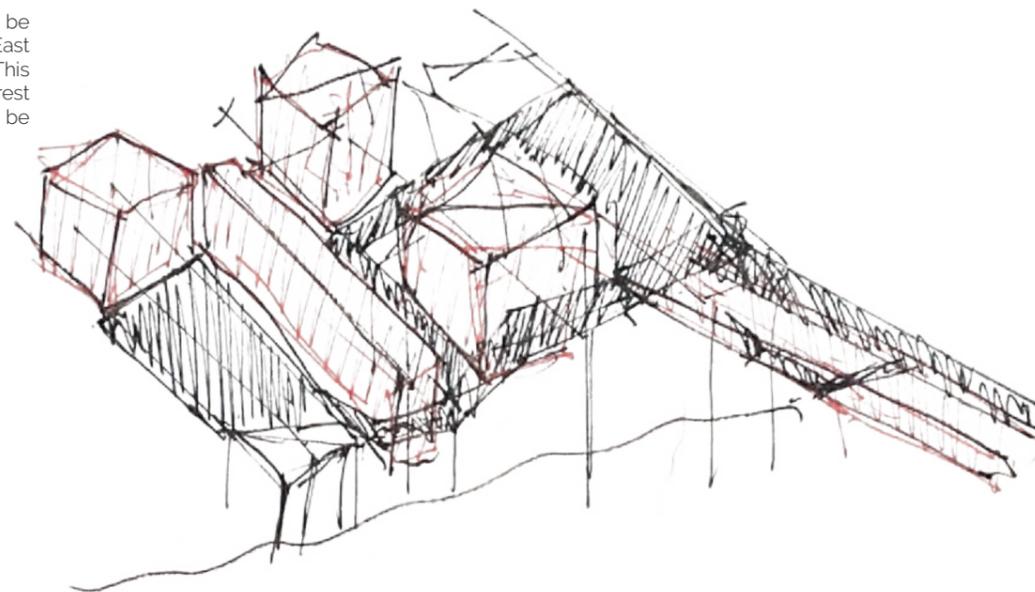
WRAPS AROUND PAVILIONS  
ALLOWS PEOPLE TO ACCESS THEM

PATHWAYS NOT SO BIG &  
THEY WILL CONGREGATE



In Curate, the workshop locations were allocated along the pier. Because the pier is a complex structure, with different levels, the decking would not be a large, flat surface, so this explores the idea of having smaller pathways, leading the public to the different pavilions, but also having large enough spaces which allow people to stop and rest where they want to.

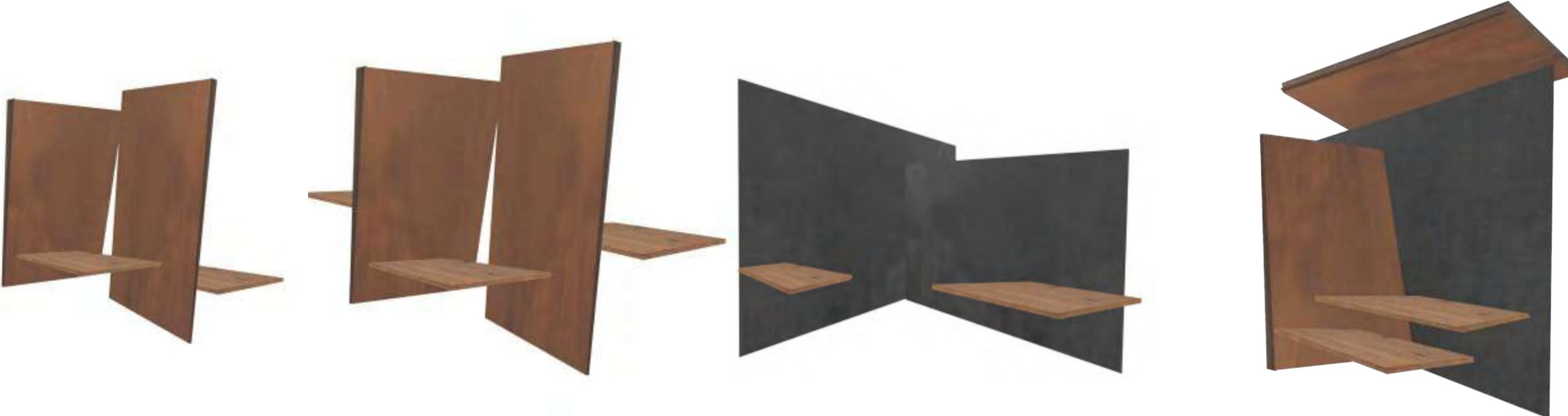
There are also going to be larger platforms on the East and West side of the Pier. This will be where some of the rest point style furniture could be placed.



# PART I - COLLAGE SEQUENCE

**PARTI - COLLAGE SEQUENCE**

SUGGESTING EXPERIENCE AND INTERVENTION



**Conceptual collaging:**

On this spread, these collages explore different types of structures which follow the parti diagrams and iterative sketches. What was most successful was the juxtaposition of the planes and structural frames.

This makes the urban furniture look as though it is a sculpture and this would work aesthetically on top of the pier that will be fabricated.

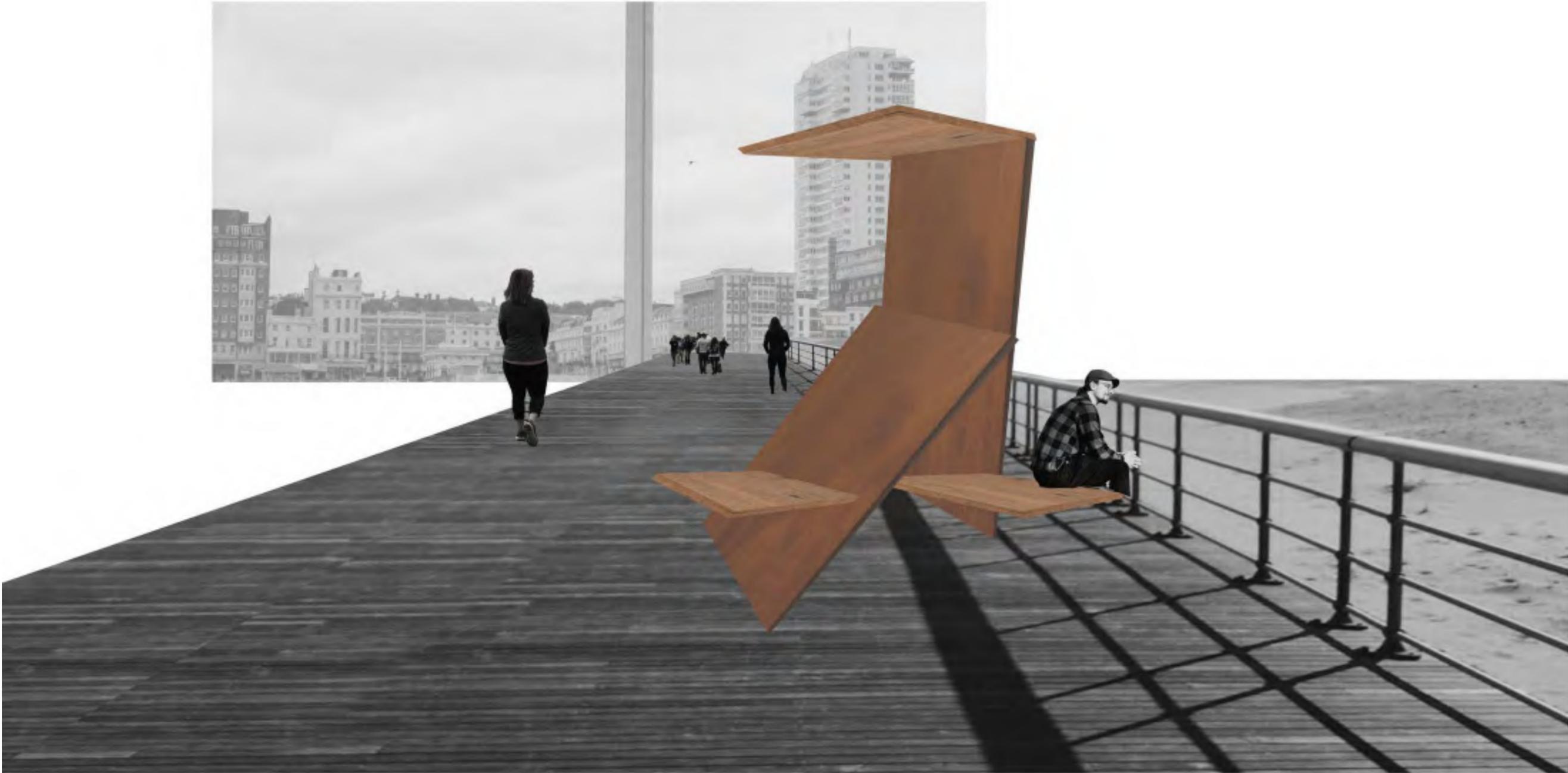
By having them as more abstract forms, they are not constricted to site specific locations and can be placed anywhere along the pier.

**Reflection:**

What needs to be improved is the consideration of the user interface. These structures could be more specific to different scenarios where someone would want to rest or be sheltered from the elements.

PARTI - COLLAGE SEQUENCE

SUGGESTING EXPERIENCE AND INTERVENTION



This collage shows what it could be like to have one of the rest points sitting on the new pier. The materials used are wood, for sustainable design as well as lightness in weight.

This collage however does look as though the structure is placed on unnaturally, and does not fit as well with the background. I would like to develop this drawing more, to become a greater conceptual and visual piece.

PARTI - COLLAGE SEQUENCE

SUGGESTING EXPERIENCE AND INTERVENTION



This collage communicates the experience of using the rest point structure more effectively because it takes up less visual space on the pier and because of the shadows, it feels as though it is integrated with the rest of the infrastructure. **The pier, access and rest points should all feel connected.**



This represents the intervention that is going to take place. A new pier is going to be added, joining the gaps between the land and the old pier. It is going to look light weight and it is going to attach mostly on the right side of the West Pier. It will feel long and thin, but will not feel intrusive to the surrounding context.

PARTI - COLLAGE SEQUENCE

SUGGESTING EXPERIENCE AND INTERVENTION

This collage felt particularly successful because it gives a clear indication of what the experience may be like going on to the festival pier.

It shows the different journeys a person can take on the pier, giving the experience variation of views.



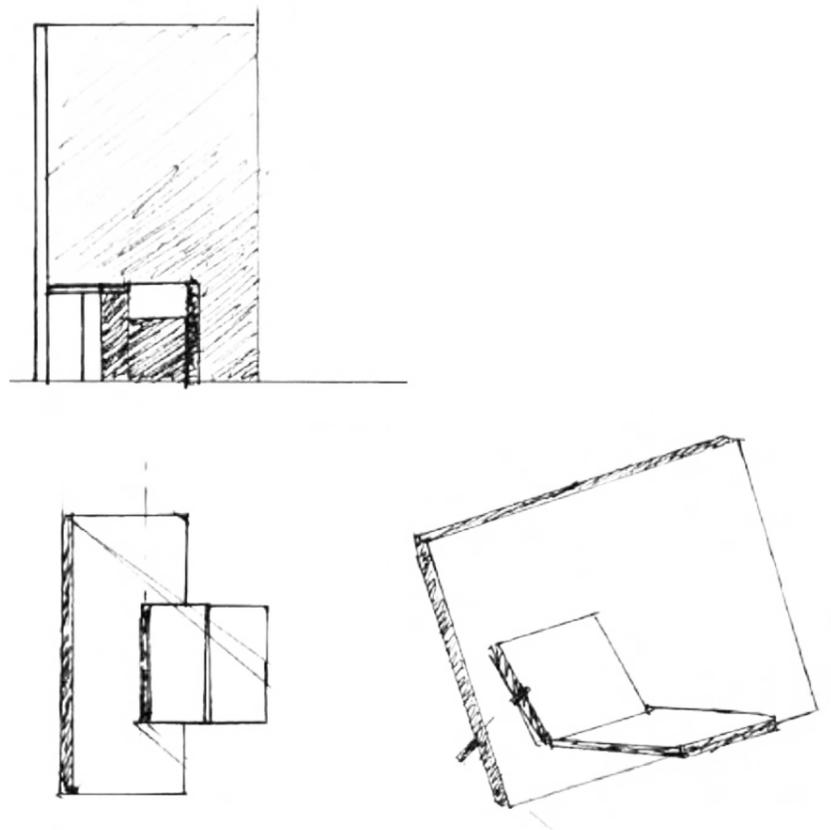
## PARTI - REST POINTS

PARTI - REST POINTS

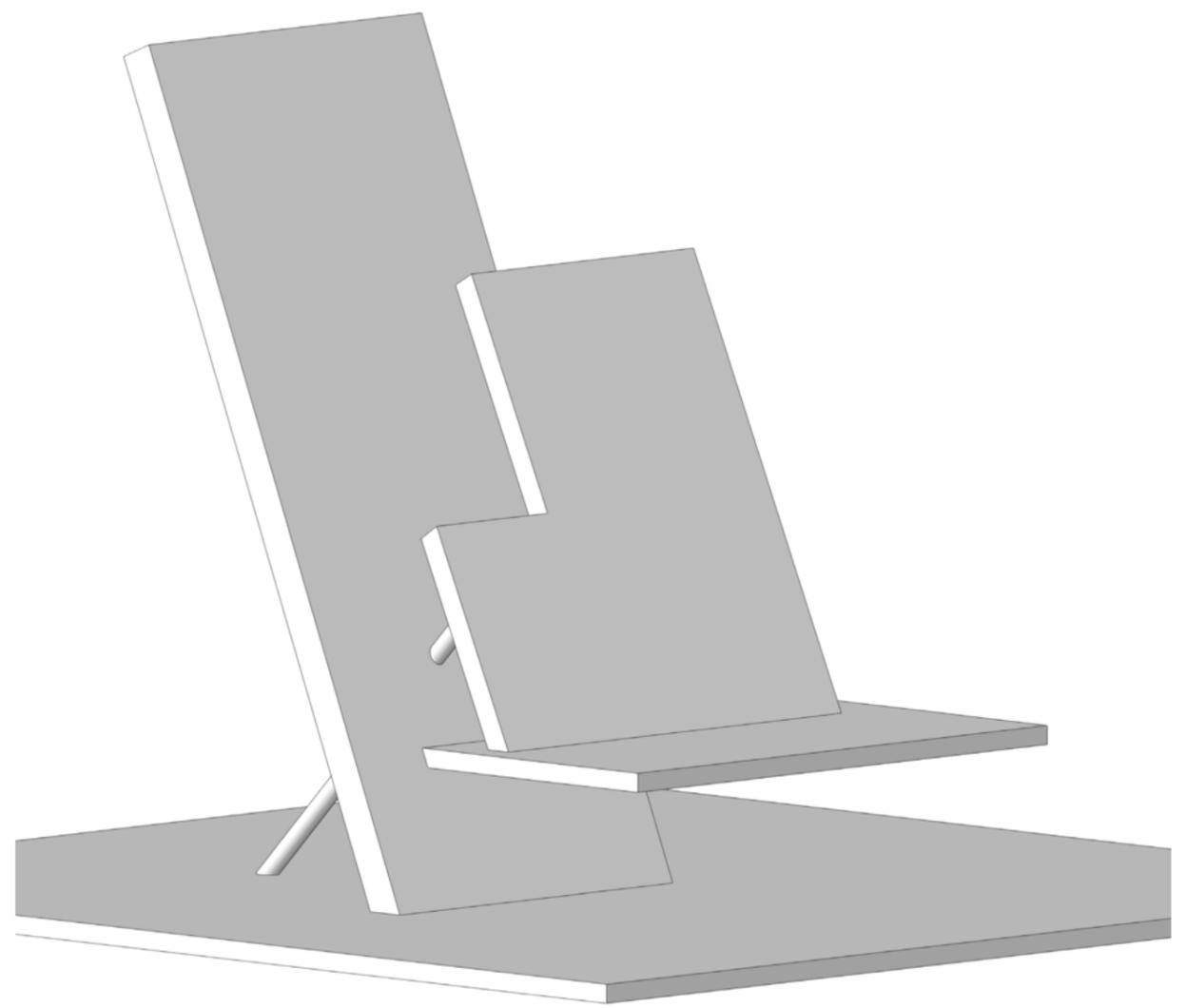
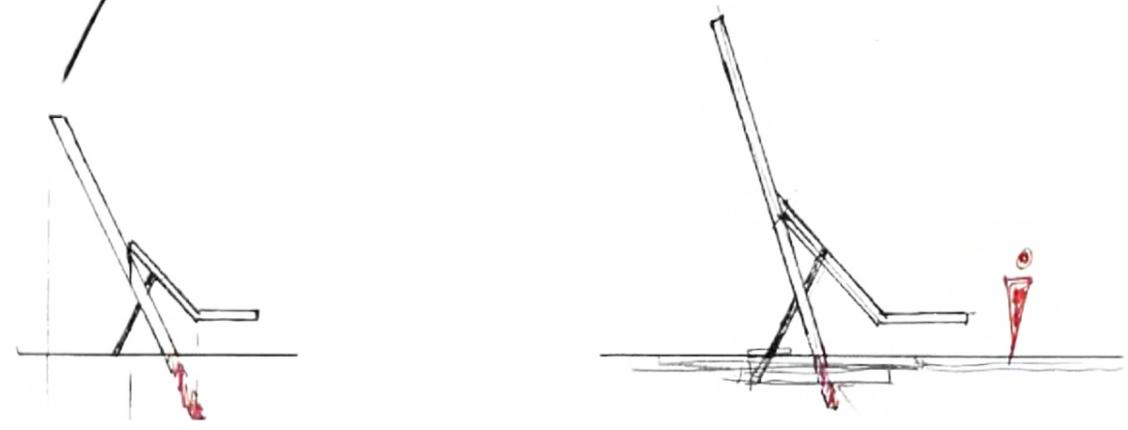
DESIGN REFINEMENT AND SYSMAT

Inspired by the Parti diagrams, the designs which felt most successful - to manufacture as well as sustainably assemble were ones which played with wooden planes.

6 REST POINTS TO LOOK LIKE SCULPTURES



BALANCING OF MATERIALS  
LARGE PLANE TO SHIELD PEOPLE  
VARIETY OF SEATING ARRANGEMENTS



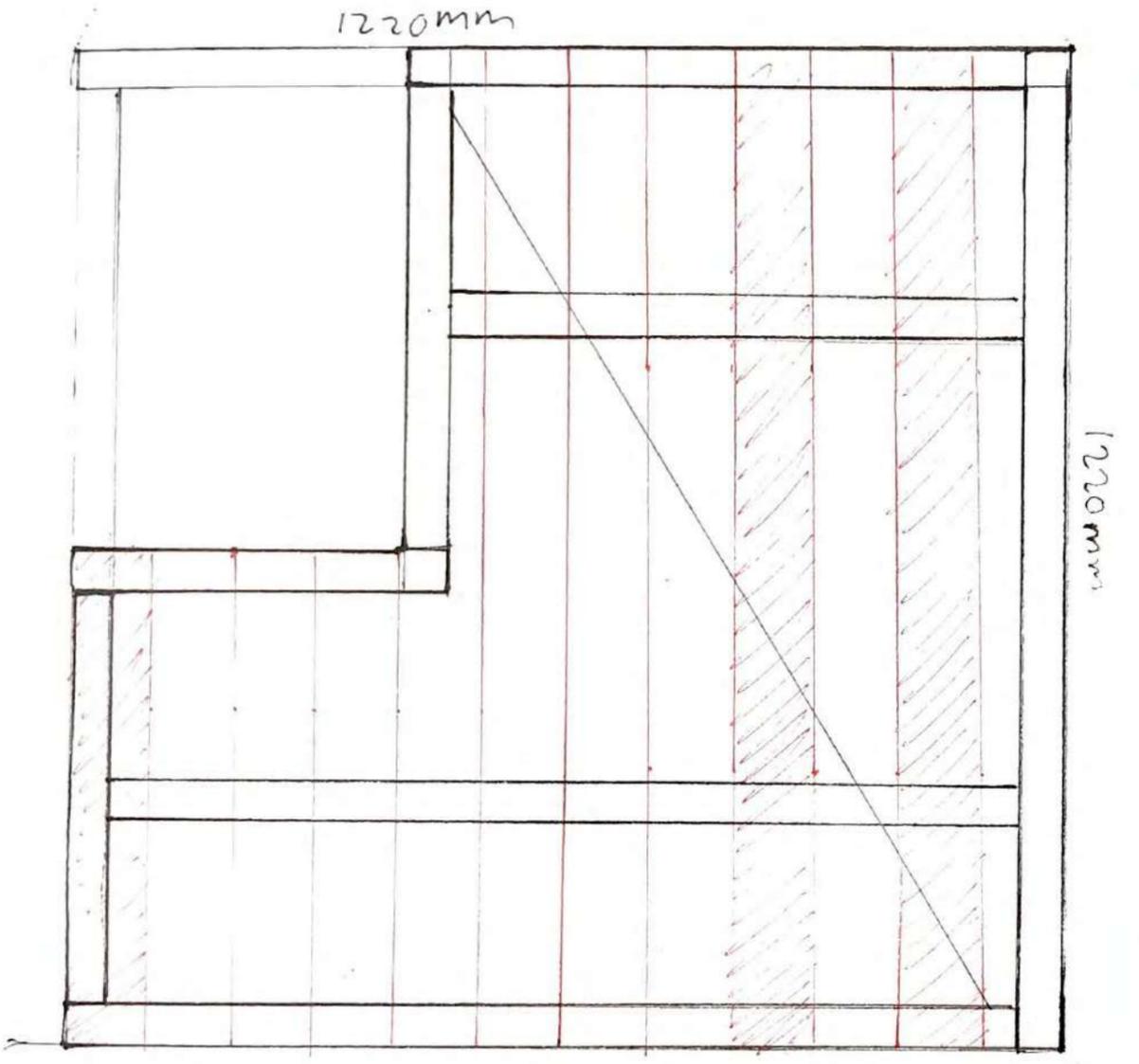
Hand drawn sketches  
Author  
2020

Vectorworks model  
Author  
2020

REST POINT 1 CONSTRUCTION:

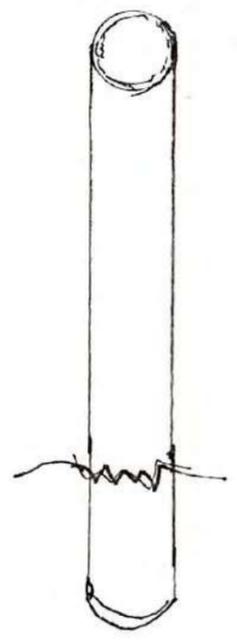
1220 X 2440  
1220 X 610

☒ 50 X 50 MM BATTEN



8mm CEDAR CLADDING  
DEEPER RED/WOOD COLOUR  
TURNS ASHY OVER  
TIME

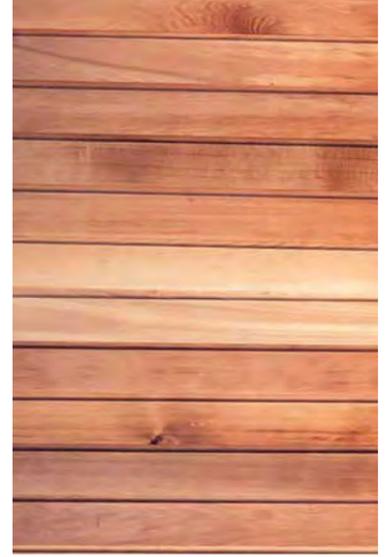
DIVIDE 1220 X 610 PANEL  
BY 6 - LONG WAYS



50mm SCAFFOLD TUBE X 2

SCAFFOLD FITTING 'FEET'

Cedarwood cladding. <https://architecturaltimbercladding.co.uk>  
Steel sheet. <https://jooinn.com/metal-4.html>



Hand drawn sketches  
Author  
2020

Material Palette:

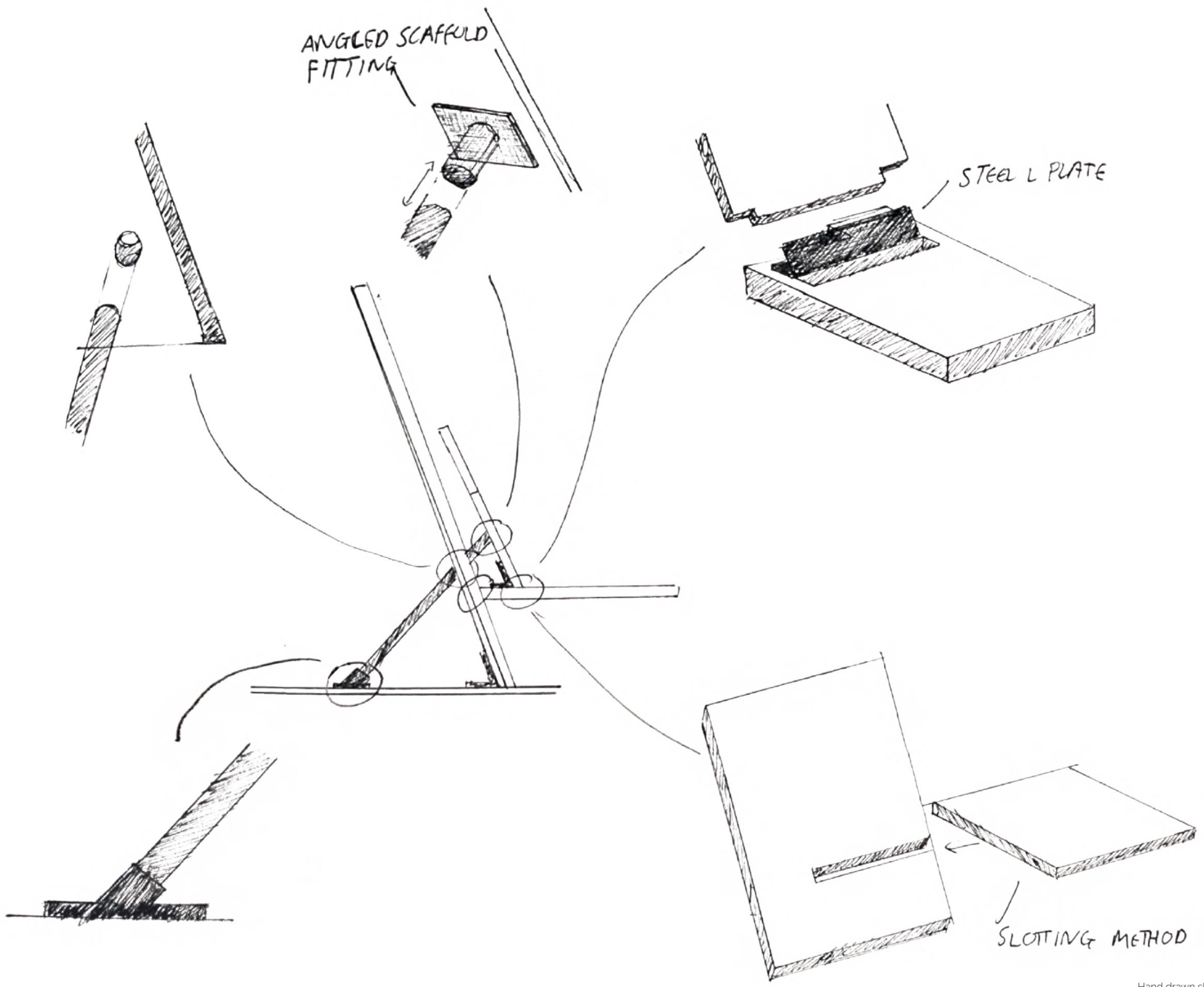
- 50mm x 50mm batten
- Sheet steel, steel plating
- Scaffold tubes
- Cedar wood cladding

PARTI - REST POINTS

DESIGN REFINEMENT AND SYSMAT

This page explains the technology of the structure and how it would fit together.

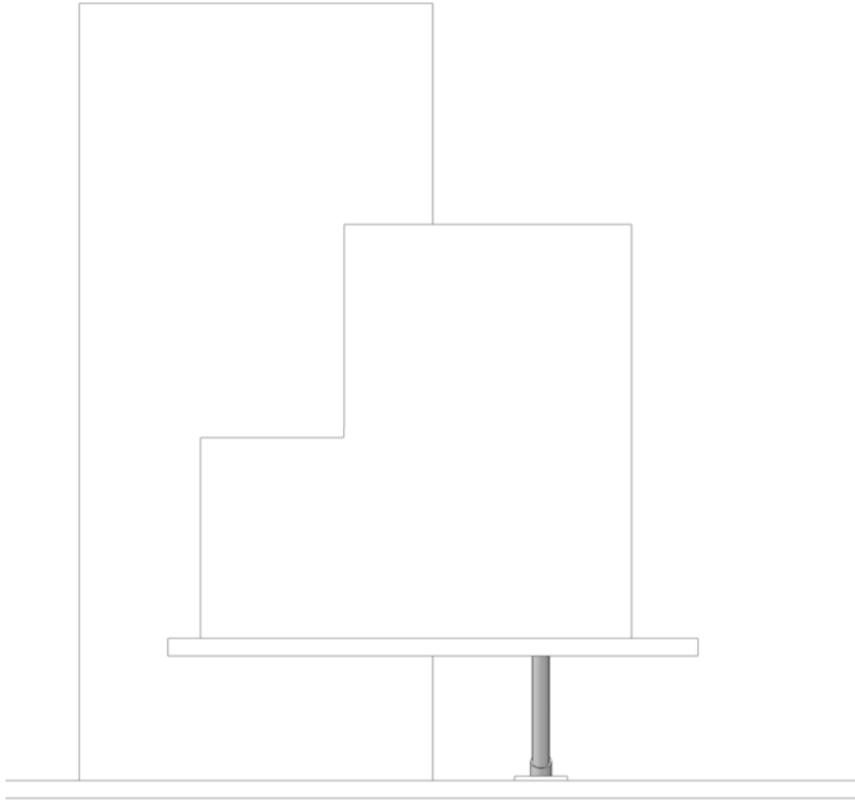
Most steel connections should join through a plate and the wooden planes would join together through slotting.



PART I - REST POINTS

DESIGN REFINEMENT AND SYSMAT

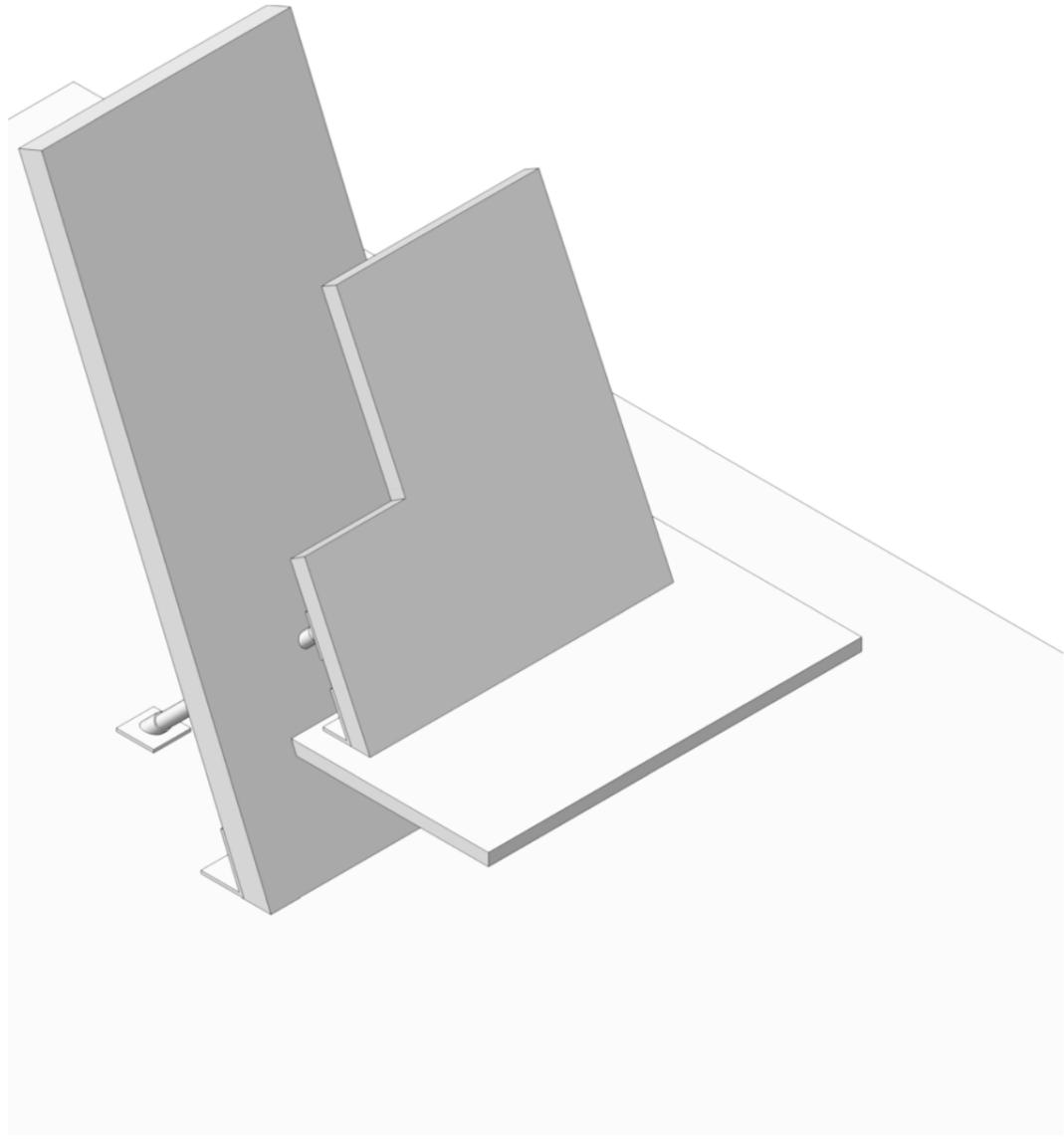
The final product, 3D modelled



Front elevation



Side elevation

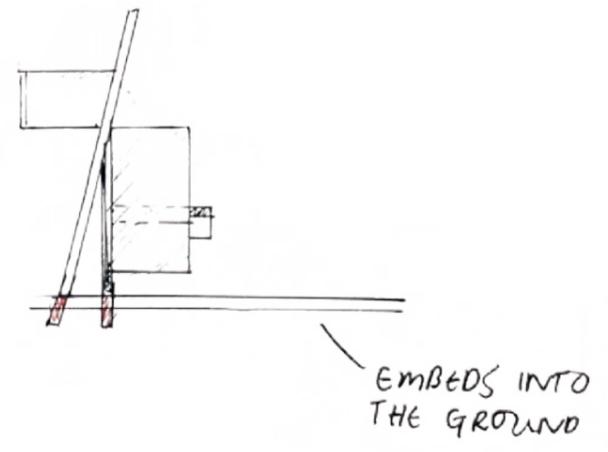
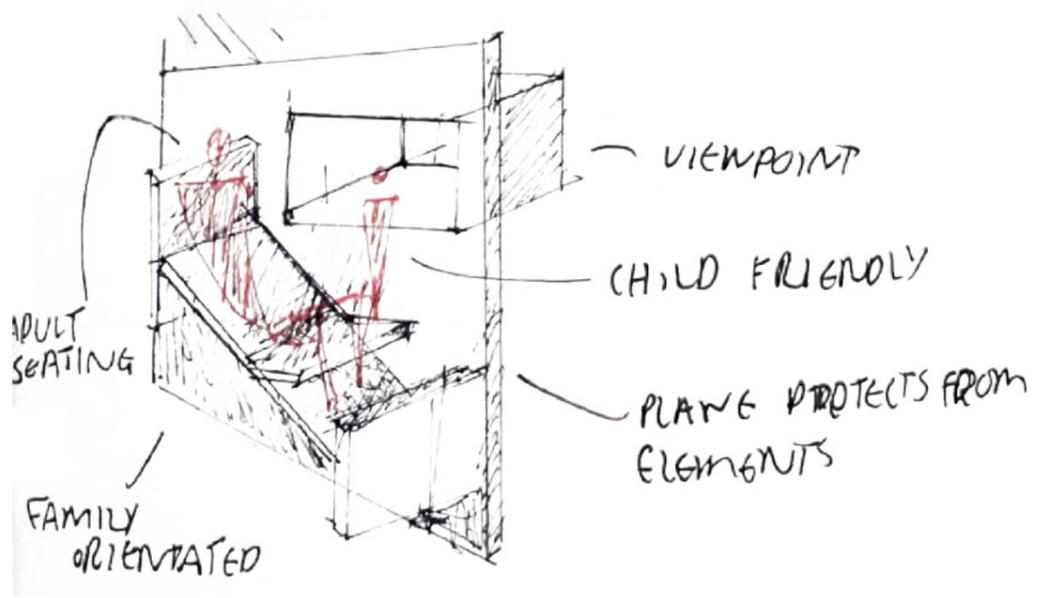


Isometric view

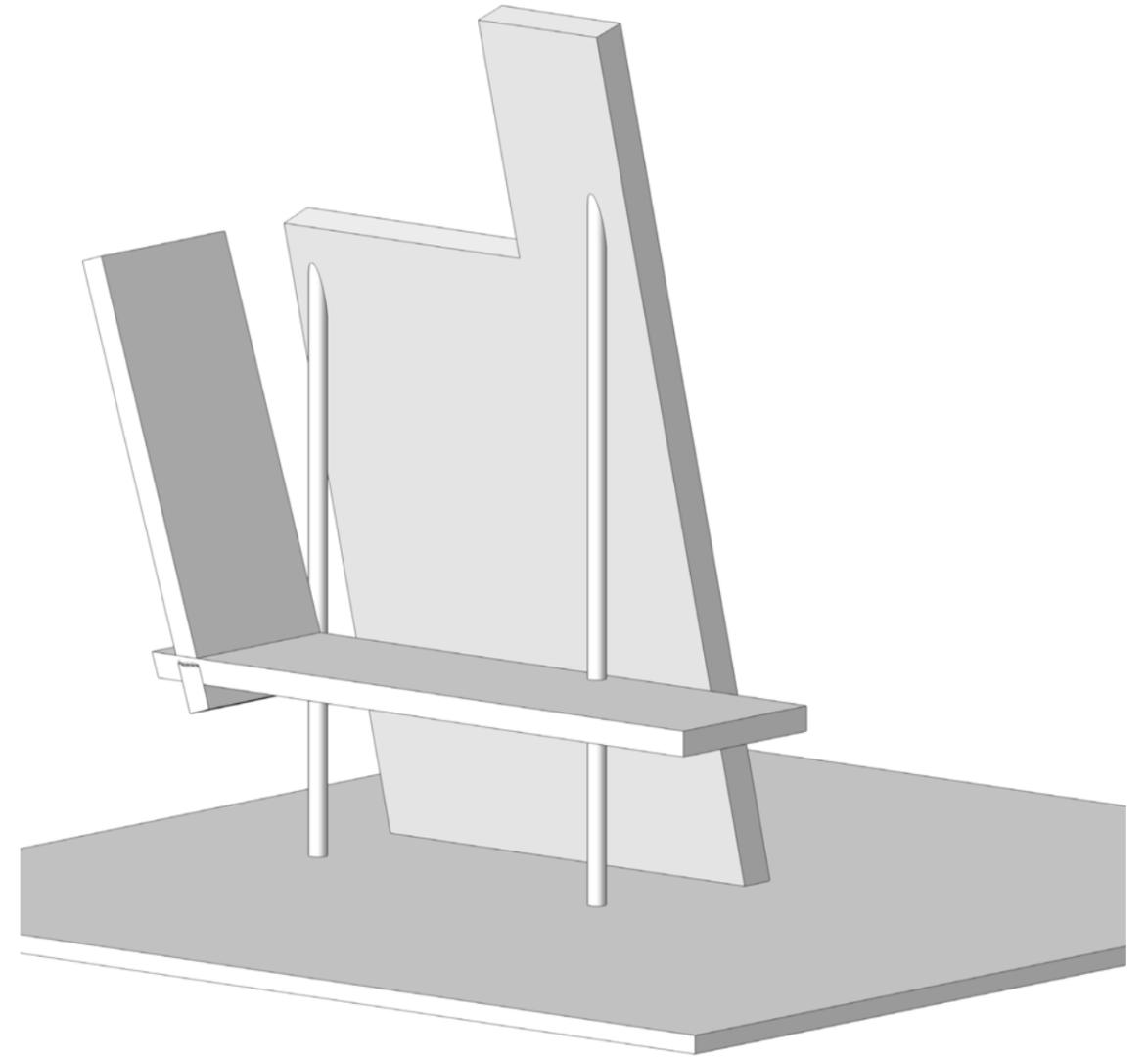
PARTI - REST POINTS

DESIGN REFINEMENT AND SYSMAT

This sketch from the parti diagrams influenced this design. Having the experience where someone can sit/rest on one of these, while protected by the wind, but are able to stand on the structure and look over the top are all elements that appealed to me.



Hand drawn sketches  
Author  
2020



**PART I - REST POINTS**

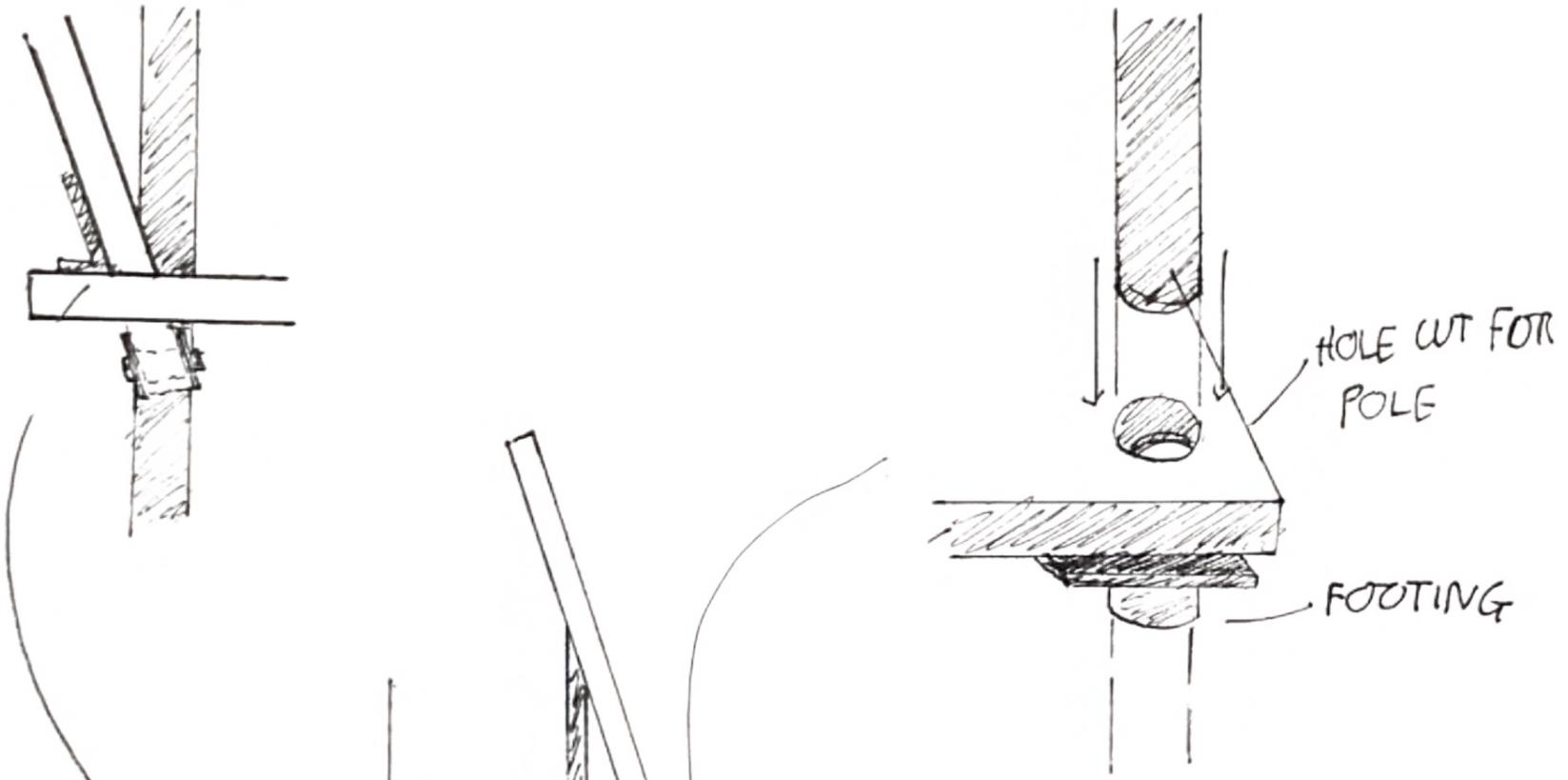
**DESIGN REFINEMENT AND SYSMAT**

This page explains the technology of the structure and how it would fit together.

Most steel connections should join through a plate and the wooden planes would join together through slotting.



Steel L plate. <https://www.amazon.co.uk/Rolled-Steel-Angle-Holes-Bolts/dp/B075Y3X4YQ>



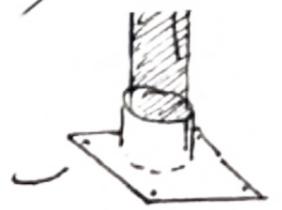
HOLE CUT FOR POLE

FOOTING



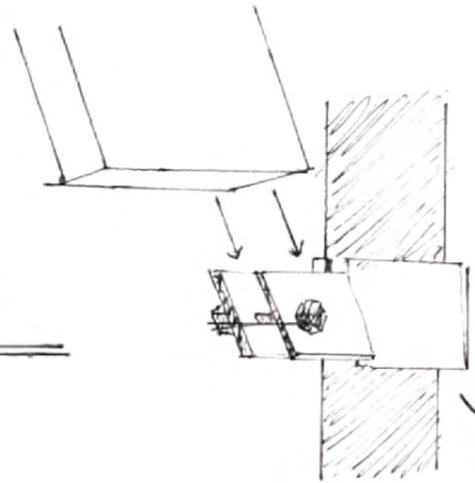
Scaffold foot. <https://constructionproductsdirect.co.uk/collections/scaffolding/products/scaffold-base-plate>

SCAFFOLD FOOT



SCAFFOLD SWIVEL SK GIRDER COUPLER

Scaffold fitting. <https://www.indiamart.com/proddetail/scaffolding-beam-clamps-8805015548.html>



CLAMP AROUND WOODEN PLANE

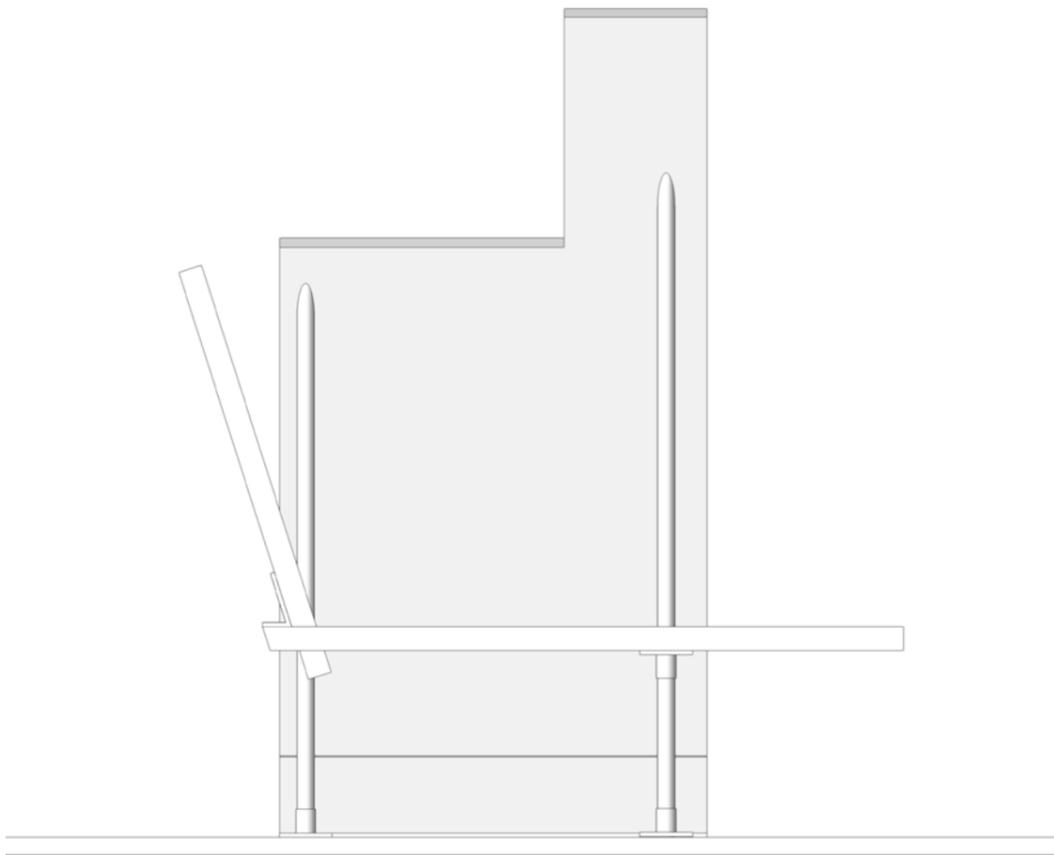
STEEL L PLATE



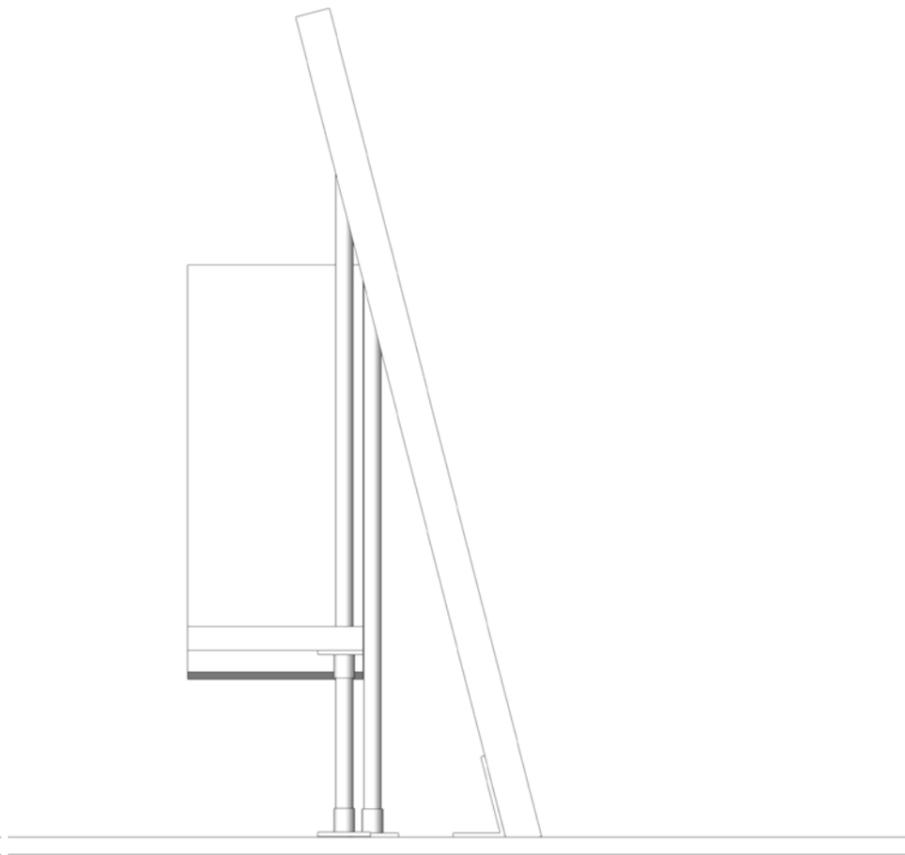
PART I - REST POINTS

DESIGN REFINEMENT AND SYSMAT

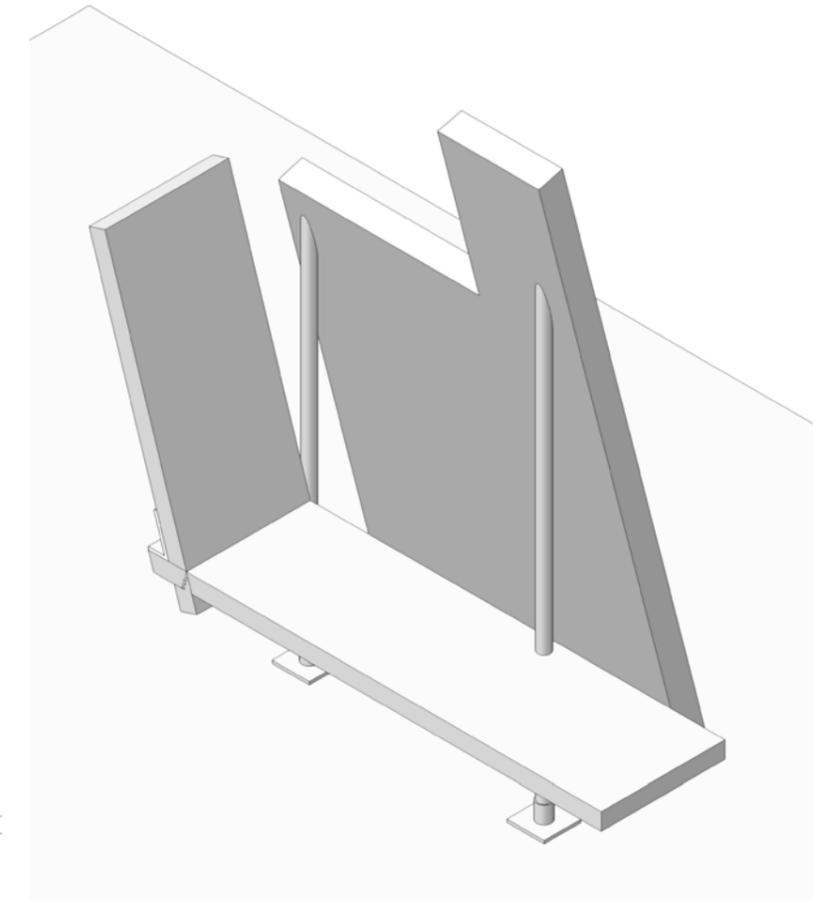
The final product, 3D modelled



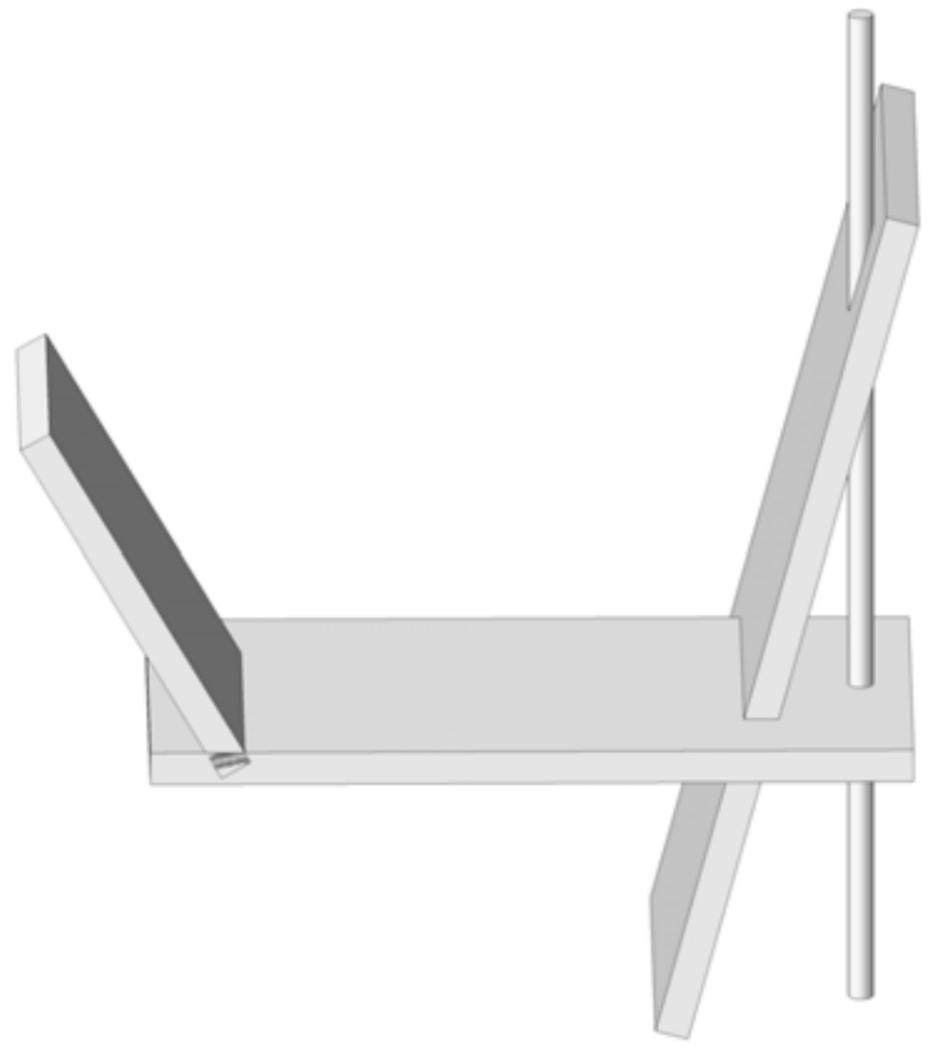
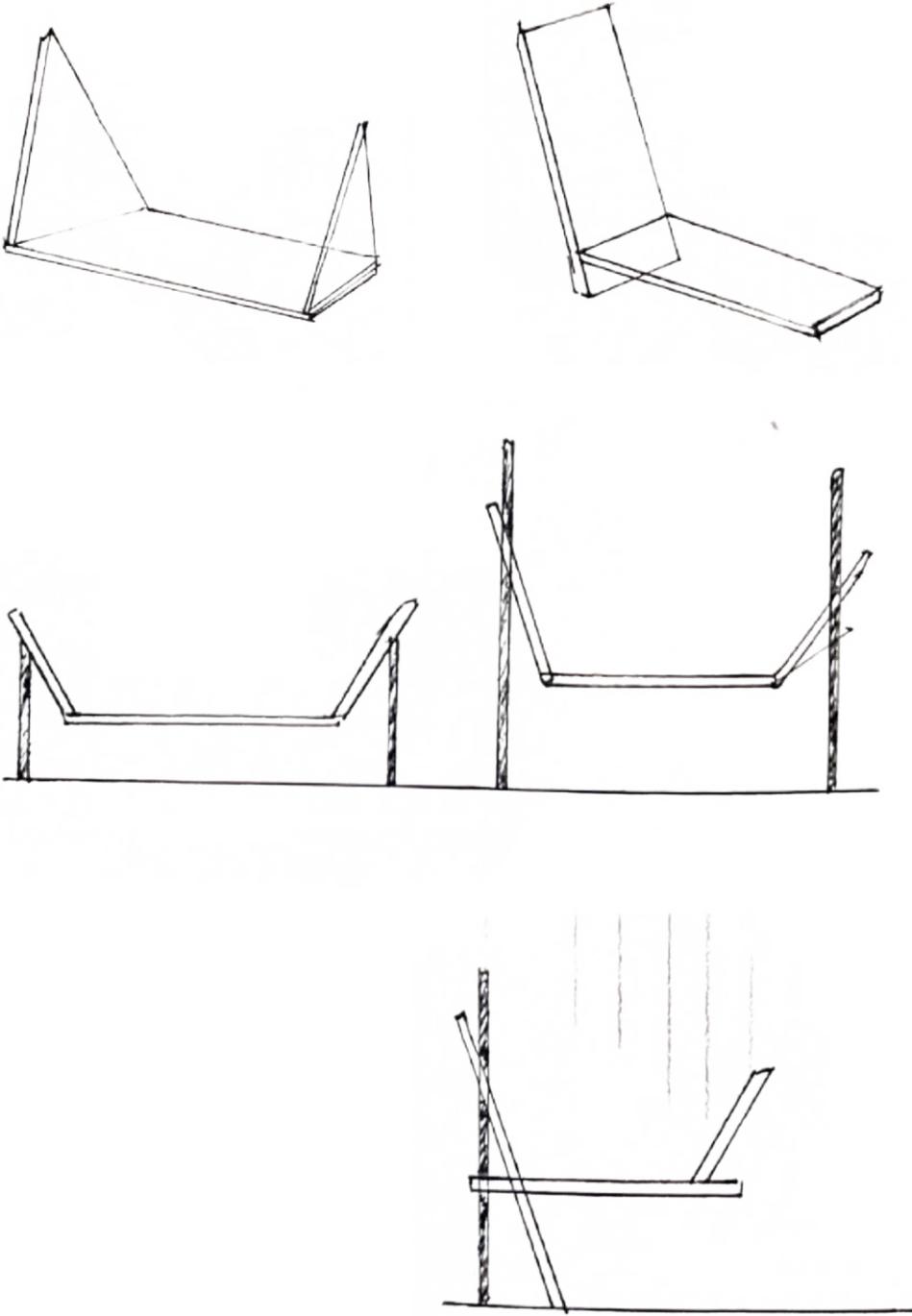
Front elevation



Side elevation



Isometric view

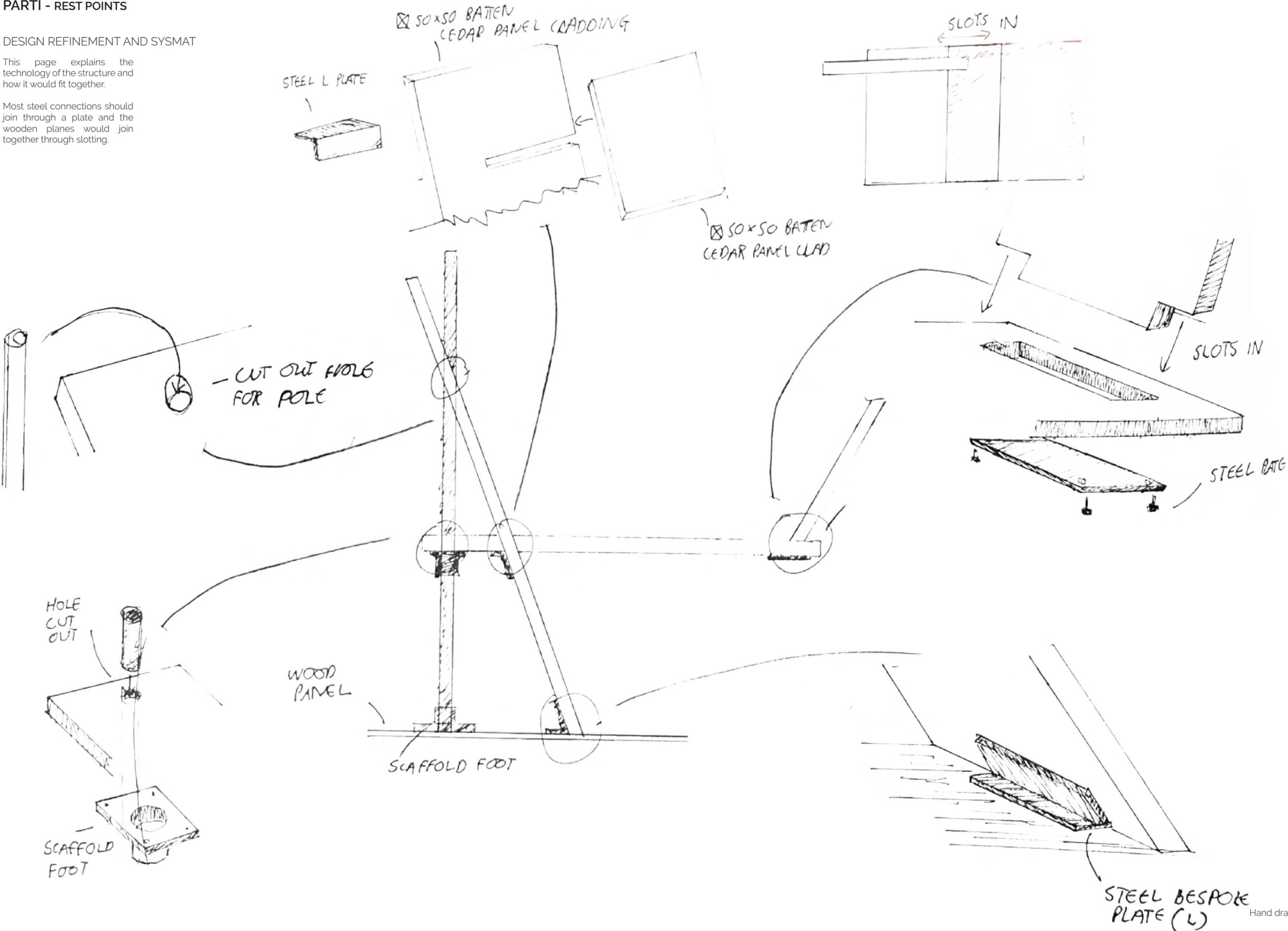


**PART I - REST POINTS**

**DESIGN REFINEMENT AND SYSMAT**

This page explains the technology of the structure and how it would fit together.

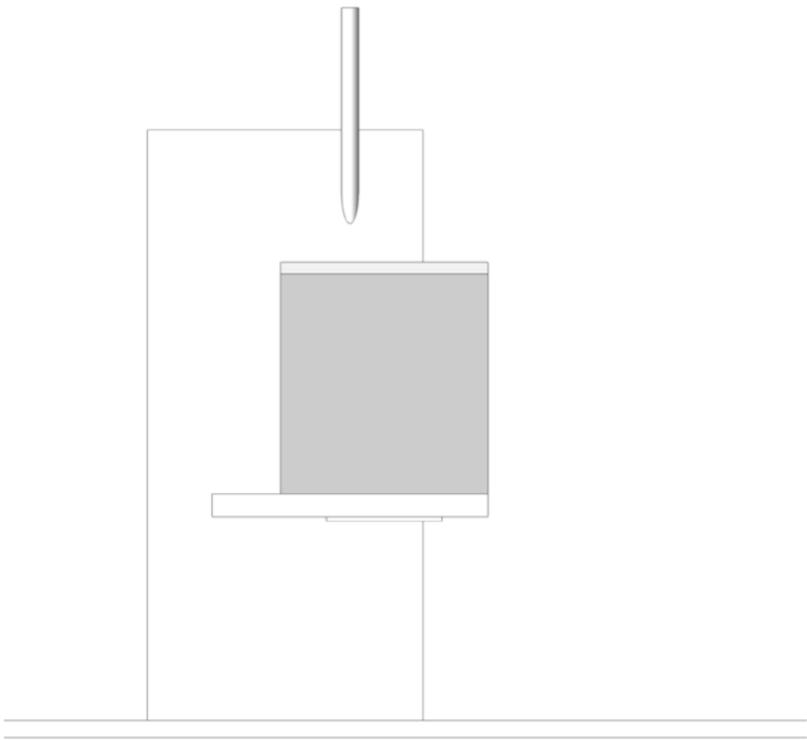
Most steel connections should join through a plate and the wooden planes would join together through slotting.



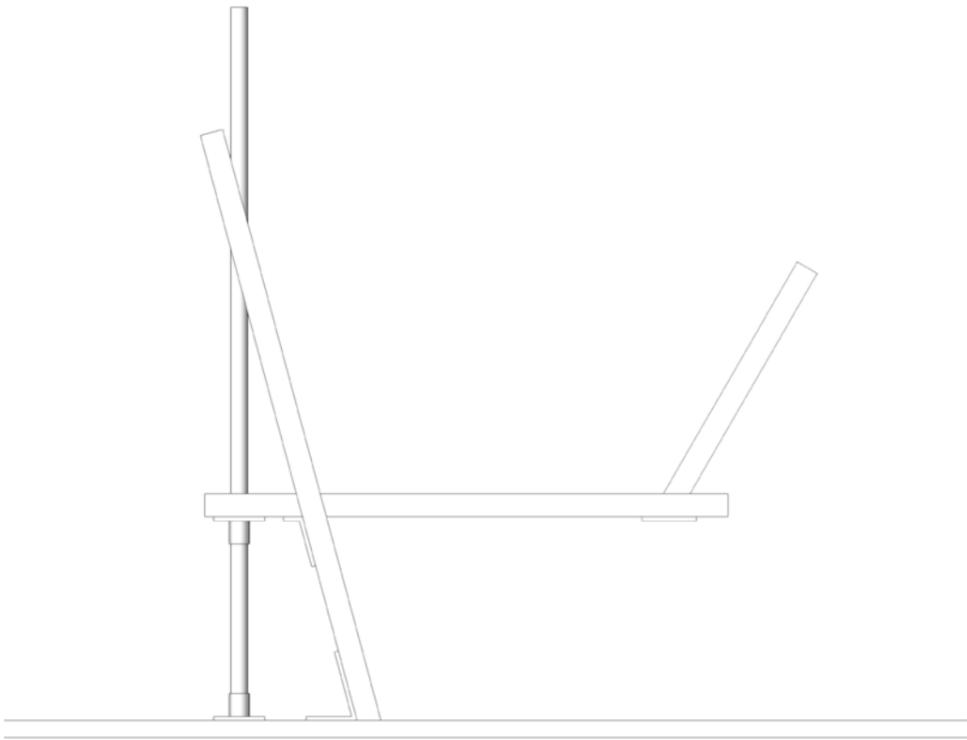
PART I - REST POINTS

DESIGN REFINEMENT AND SYSMAT

The final product, 3D modelled



Front elevation



Side elevation



Isometric view

# PARTI - REST POINTS

## DESIGN REFINEMENT AND SYSMAT

Once the construction method, materials and technology were decided, the best way to represent the outcome of these rest points were to render them through Photoshop.

These designs have worked successfully and would integrate well with the rest of the festival infrastructure.



**Reflection:**

When communicating the uses of these rest points in the portfolio, inhabiting the drawings will be a key element to allowing the viewer to understand how people will use them.

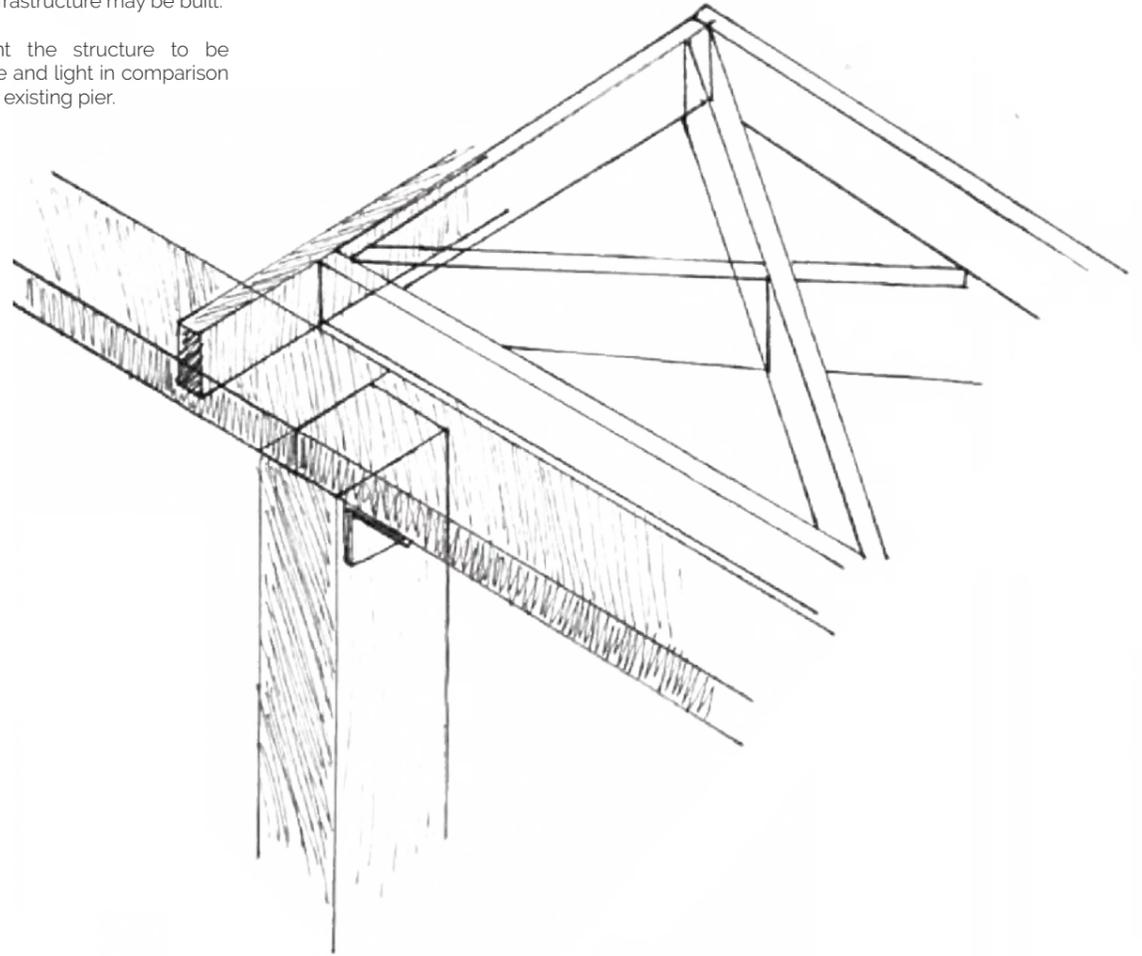
## PART I - THE NEW PIER

**PARTI - THE NEW PIER**

**DESIGN REFINEMENT AND SYSMAT**

This page is exploring the how the infrastructure may be built.

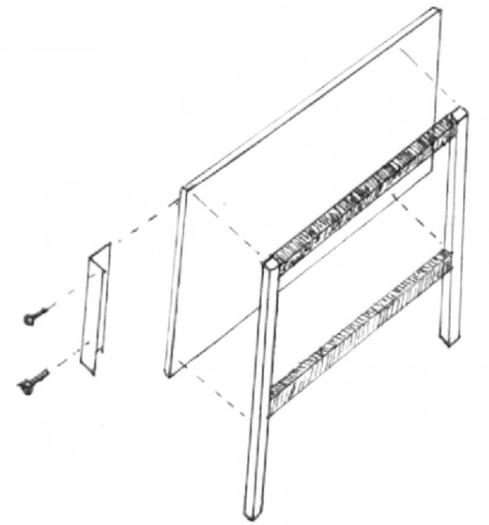
I want the structure to be simple and light in comparison to the existing pier.



**Steel rectangular tubes:**  
Weld frame together on site  
L Plates for heavier joints

- PIER FRAME!**
- STEEL FRAME
  - WOODEN FRAME INSIDE
  - WOODEN PANNELLING ON TOP
  - USE WASTE BUILDING SITE MATERIAL TO CREATE MICRO CONCRETE 'PAINT' TO PROTECT WOOD AND HAVE SKIN

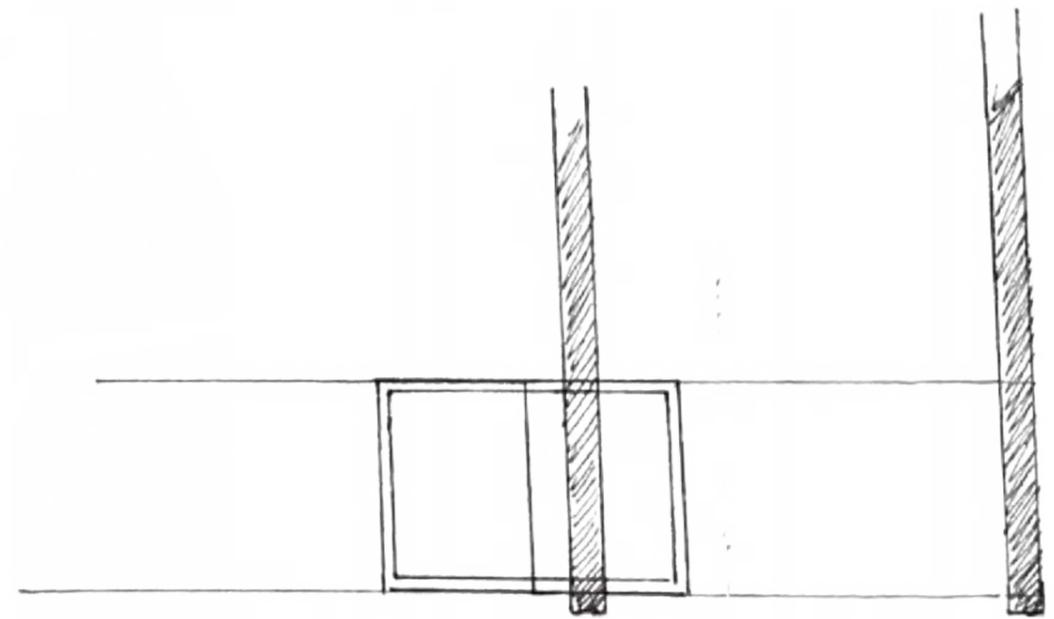
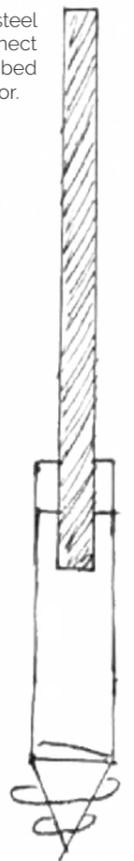
WOOD PANEELS RECLAIMED 'CHIPBOARD STYLE' WOOD 1220 X 2440  
STEEL RECTANGLE TUBES



NS

I imagine the largest steel tube will fit/weld or connect with piles which will embed themselves into the sea floor.

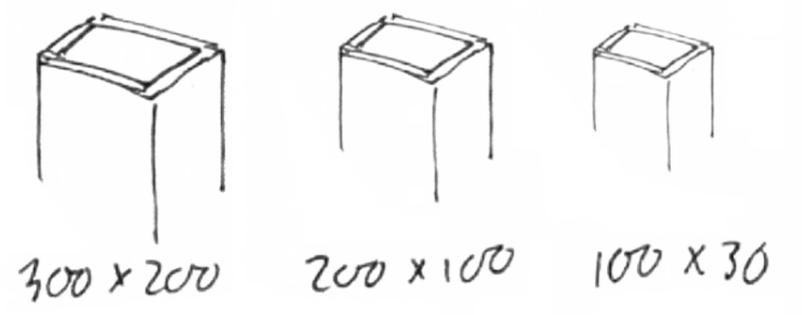
300 x 200



200 x 100 : 12,200 METRES  
CAN FIT 5 2440M PANEELS

**Plan view of layers:**  
This drawing shows how the directions of the joists and beams correlate with each other.

**Steel tube sizes (mm):**



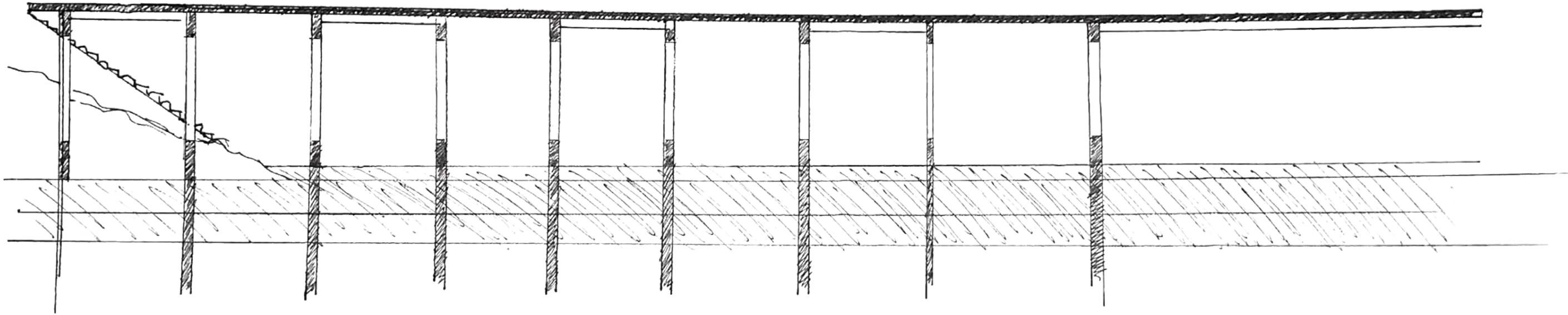
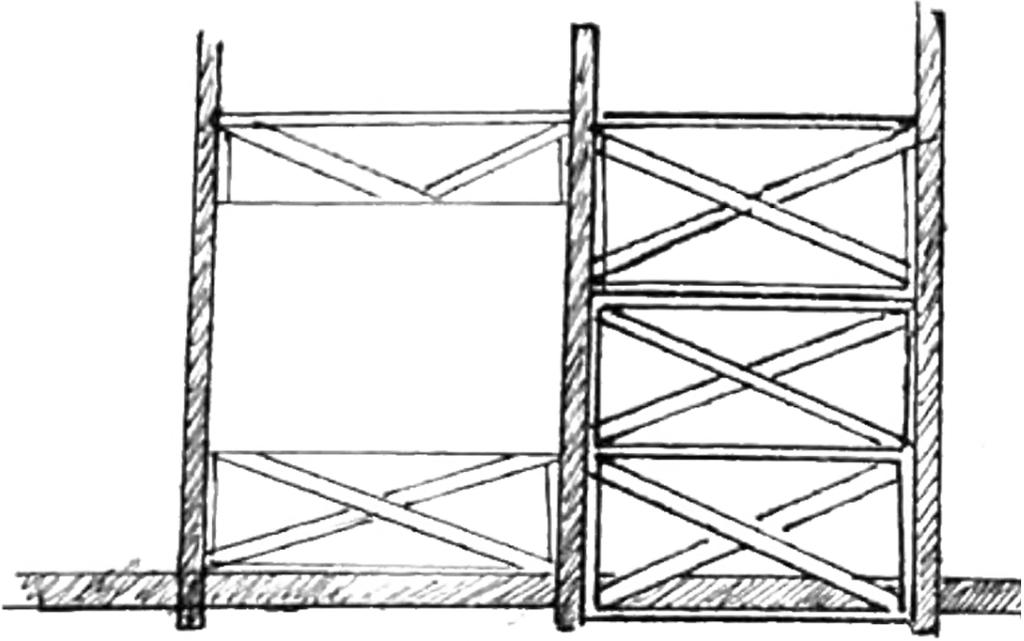
300 x 200

200 x 100

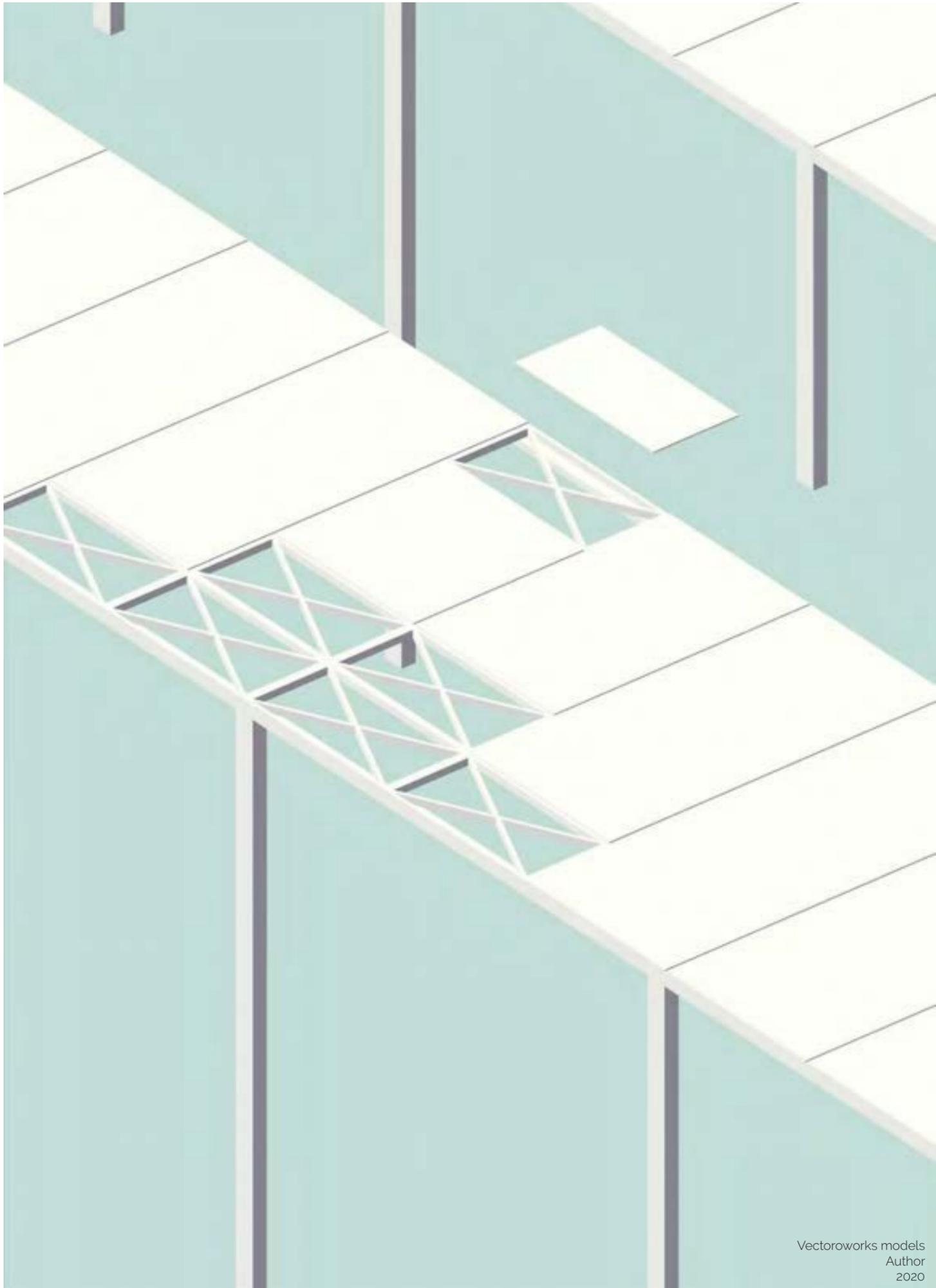
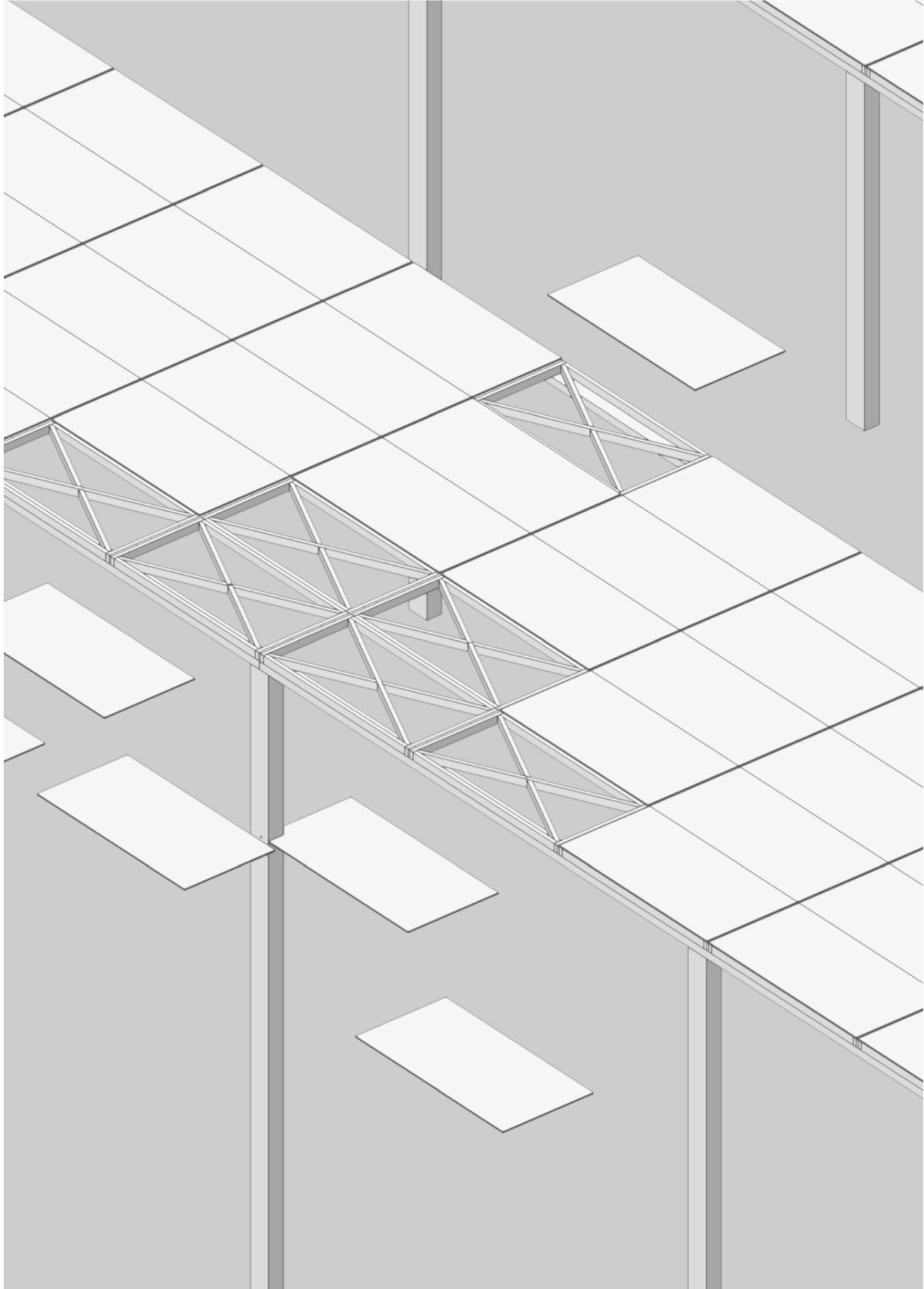
100 x 30

PARTI - THE NEW PIER

DESIGN REFINEMENT AND SYSMAT



LIGHT WEIGHT FEEL IN COMPARISON TO THE EXISTING  
 STEEL AS FRAMEWORK  
 USING MIRRORS ON THE STRUCTURAL POINTS OF THE PIER TO GIVE THE AFFECT IT IS FLOATING  
 WASTE MATERIALS FROM BUILDING SITE TO MAKE NEW MATERIALS  
 WASTED AND CRUSHED BRICKS, BUILDING SITE STUFF  
 ADD ADHESIVES TO CREATE A FORM OF CONCRETE/CAST STUFF  
 THIS WILL SAVE MONEY AND LESS WASTED BUILDING MATERIALS FROM THE HOSPITAL SITE  
 MIMICS MICRO CONCRETE



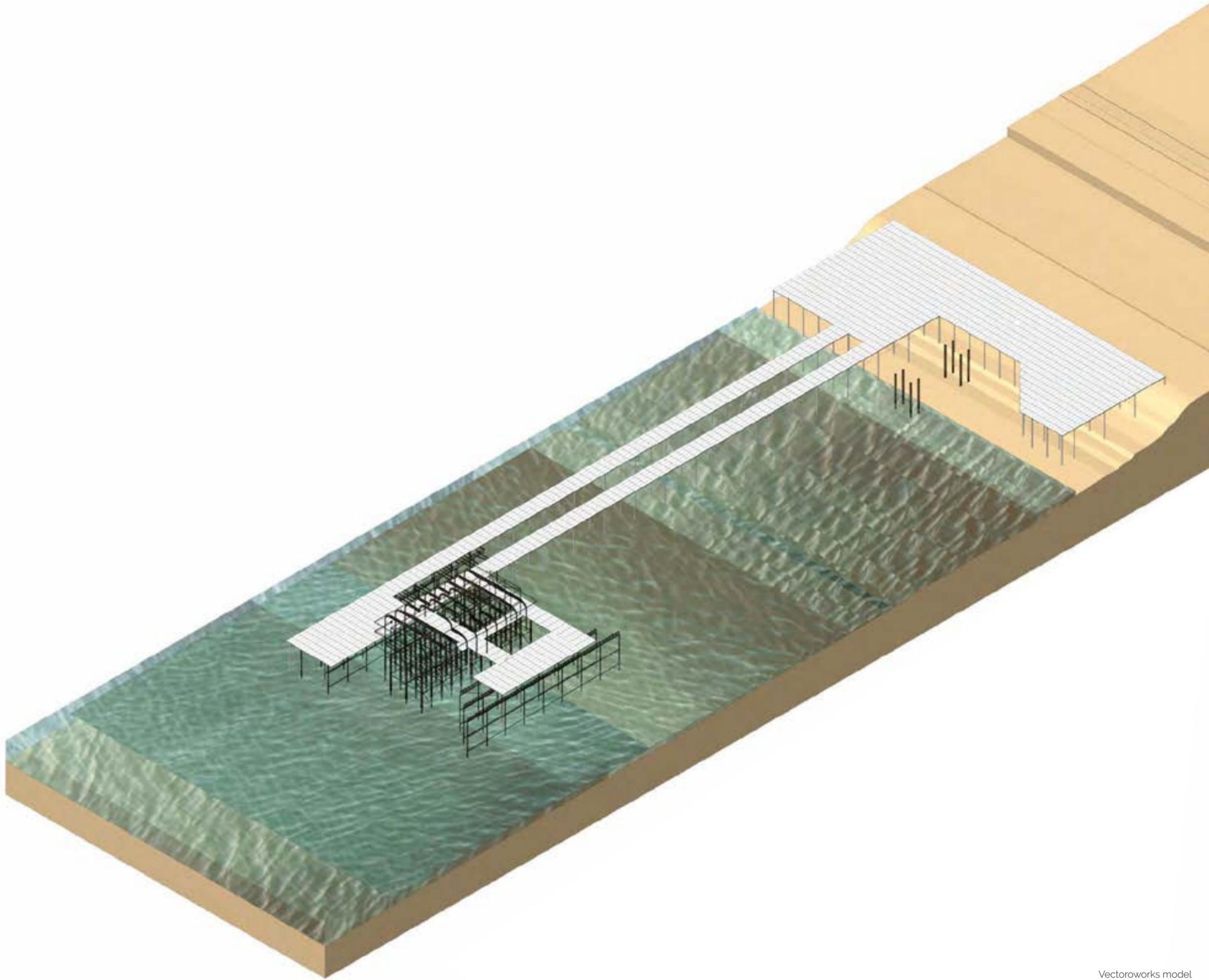
# PART I - THE NEW PIER

## DESIGN REFINEMENT AND SYSMAT

This render is showing the final shape of the pier and how it is going to interact with the existing context as well as the West Pier.

The new pier is offset to the West side of the West pier. This allows visitors to still be able to view the festival and the West Pier from the shore. The new pier also weaves in between the West pier, in regards to the locations of the pavilions, this is to ensure that the new design is not overpowering and does not take away from the old architectural layer.

Now the frame and shape is determined, the access points will be the next important piece to place, because this is the only way they will be able to get on to the Festival pier.



**PART I - THE NEW PIER**

**DESIGN REFINEMENT AND SYSMAT**

These renders show slightly more what the pier would look like in regards to material palette and aesthetic contrast to the Cast Iron structure of the West Pier.

Other safety elements to consider are the balustrades.

Photoshop renders  
Author  
2020



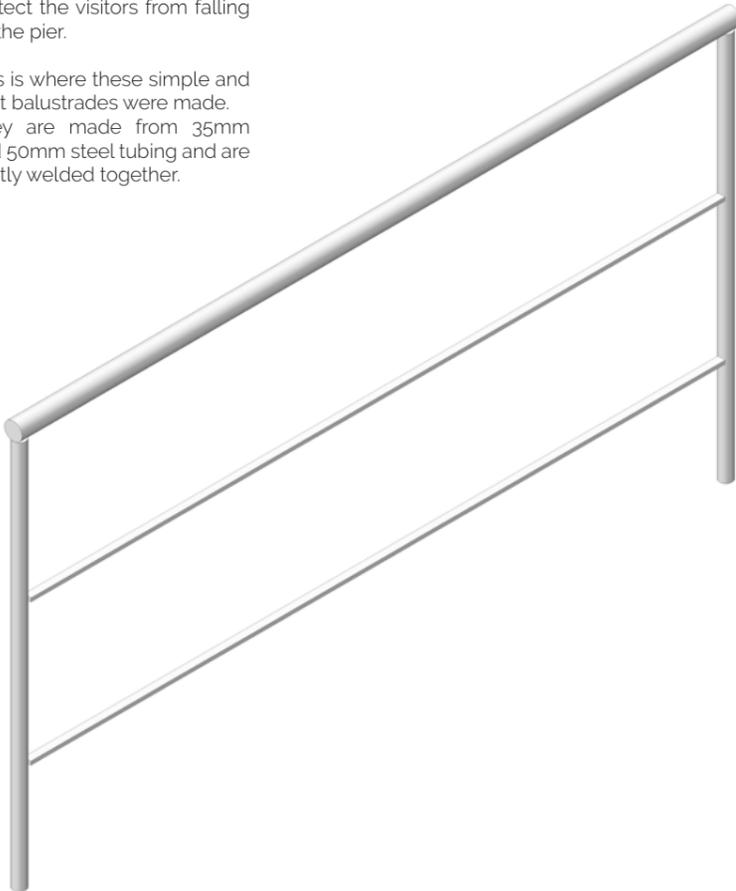
**PARTI - THE NEW PIER**

DESIGN REFINEMENT AND SYSMAT

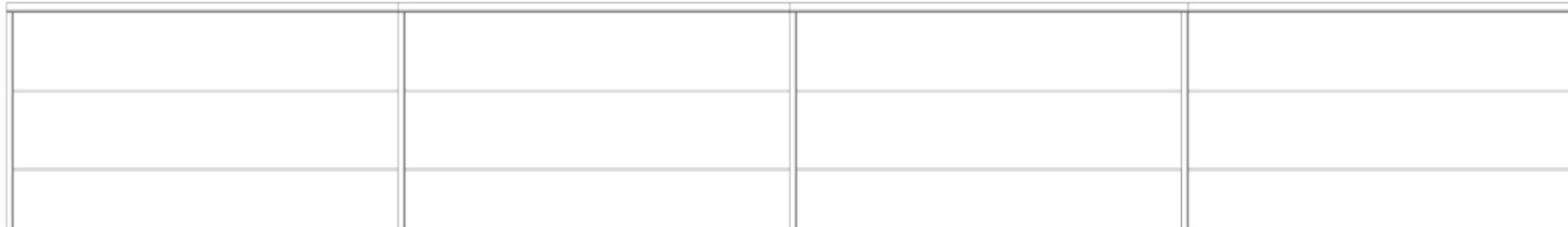
**Balustrades:**

When designing the new pier, it became apparent that there needed to be balustrades to protect the visitors from falling off the pier.

This is where these simple and light balustrades were made. They are made from 35mm and 50mm steel tubing and are lightly welded together.



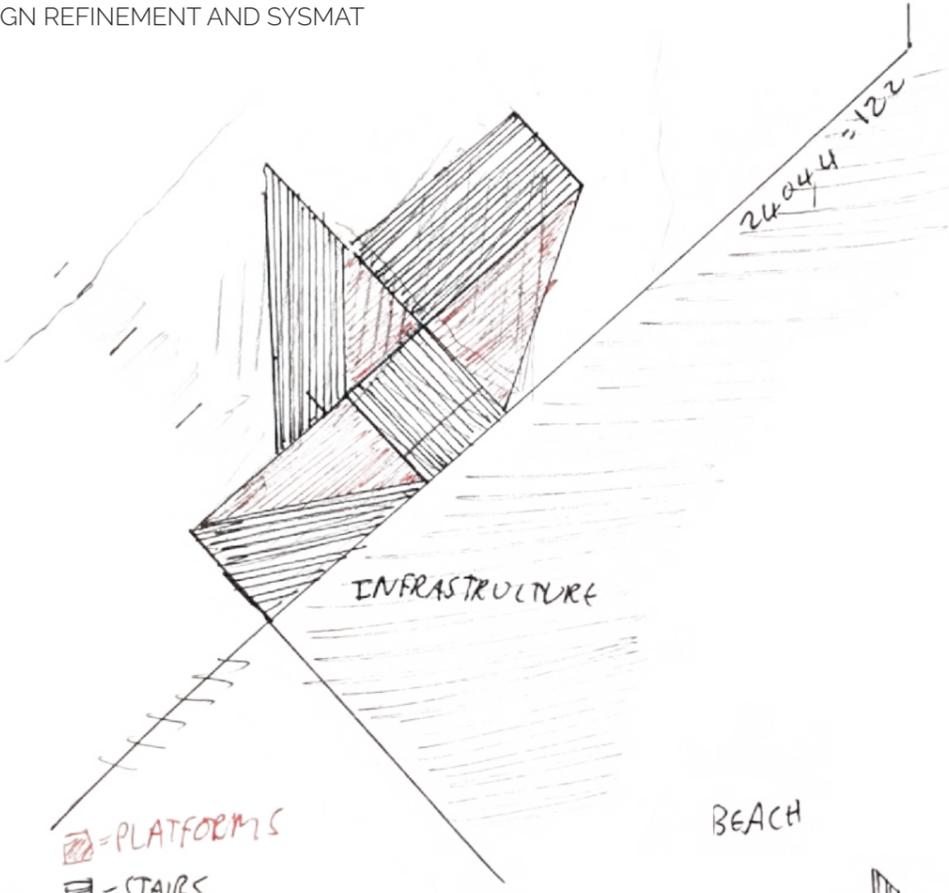
Vectorworks model  
Author  
2020



## PART I - ACCESS POINTS

PARTI - ACCESS POINTS

DESIGN REFINEMENT AND SYSMAT

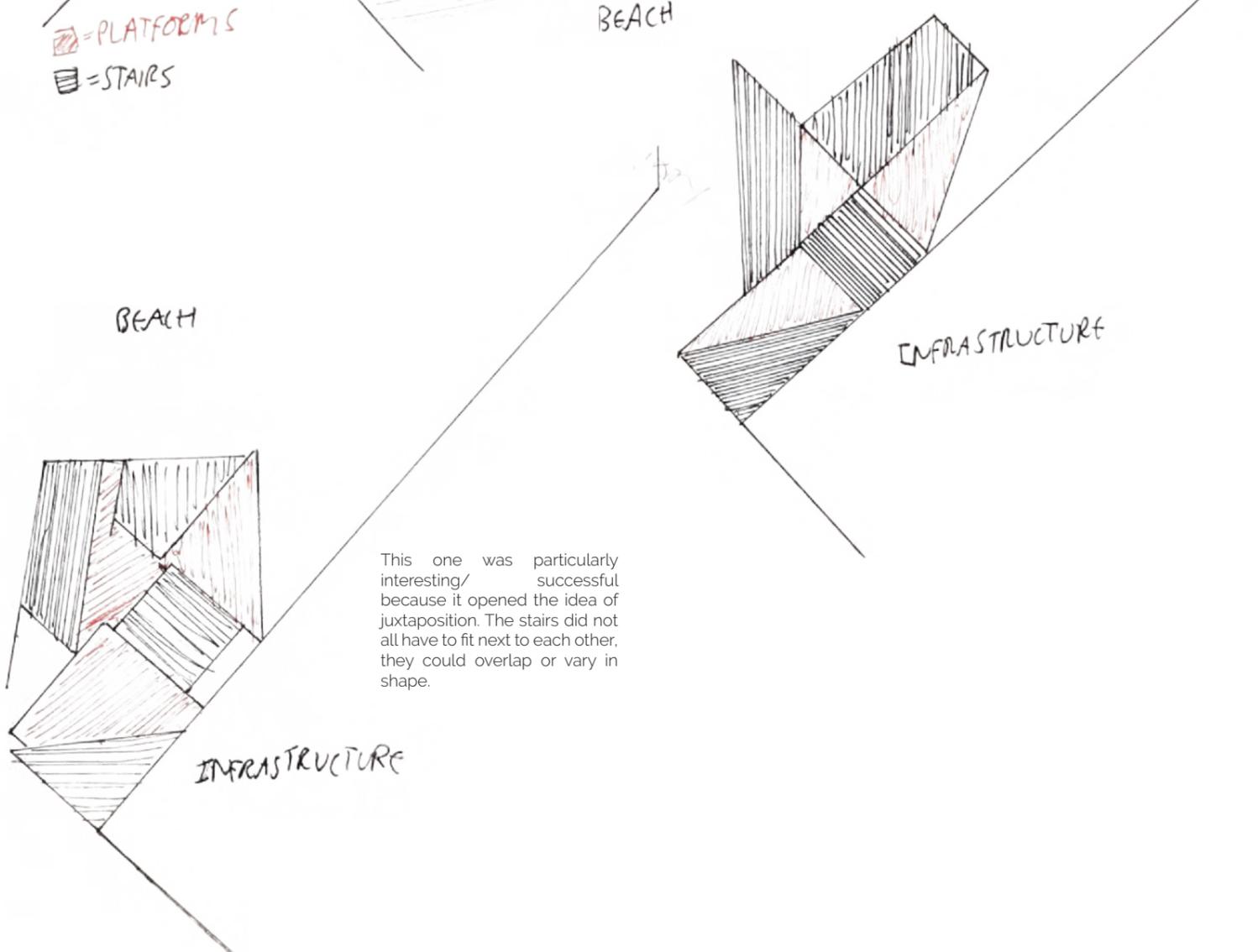


11075MM TO BEACH  
 3080MM x 3  
 1895MM x 1

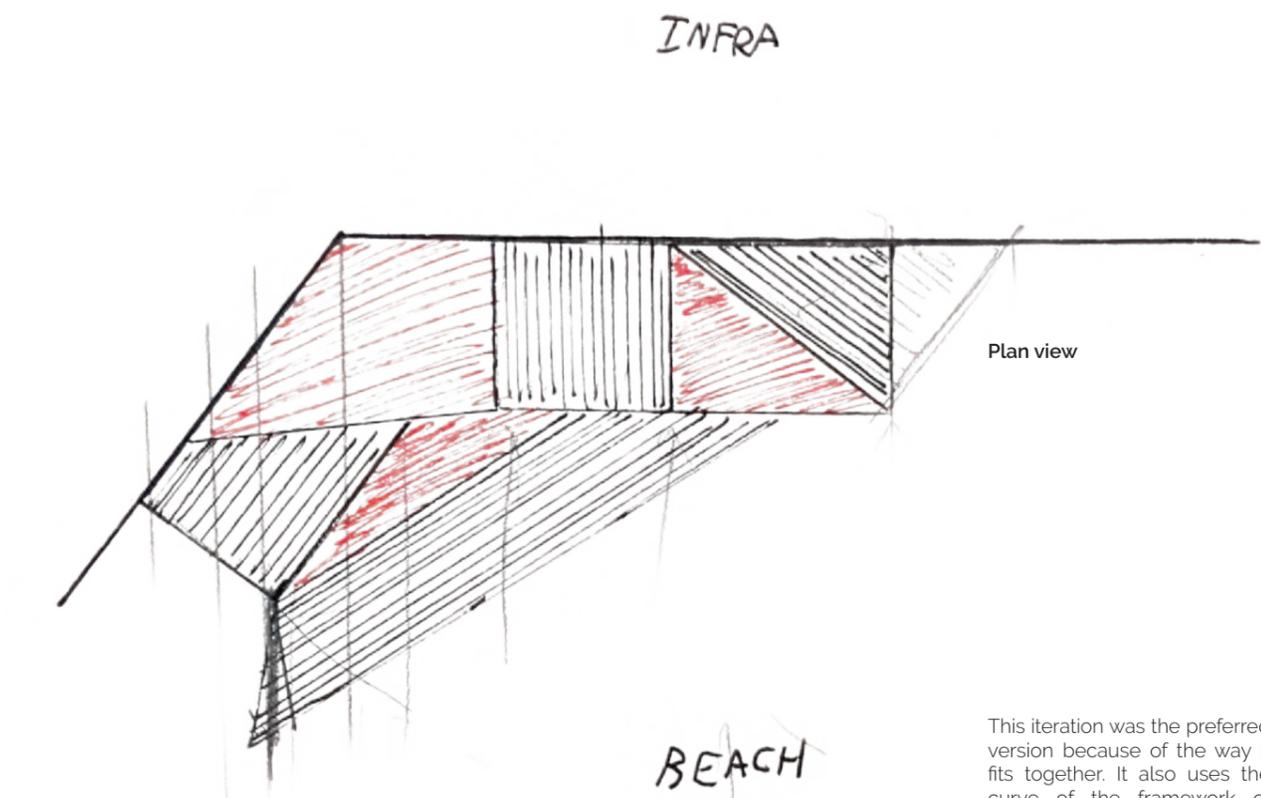
When trying to work out the access of going from the new pier to the beach, it is around 11 metres in height difference.

For safety reasons, there will need to be several platforms to break up the journey down to the sea. These sketches explore the different arrangements of platforms to staircases, to work out the most optimal views for the public.

☐ = PLATFORMS  
 ▨ = STAIRS

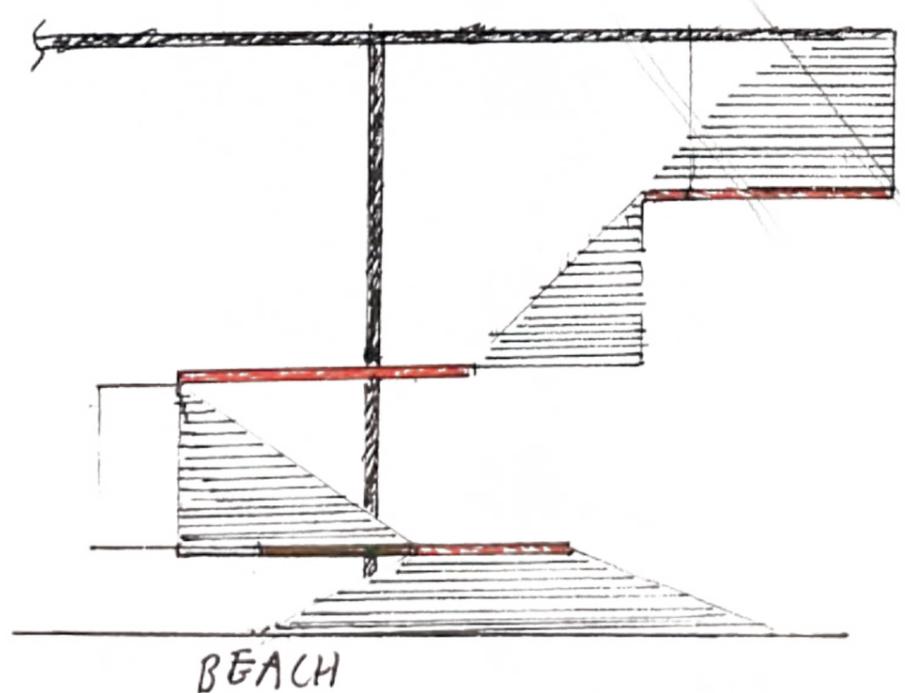


This one was particularly interesting/successful because it opened the idea of juxtaposition. The stairs did not all have to fit next to each other, they could overlap or vary in shape.



Plan view

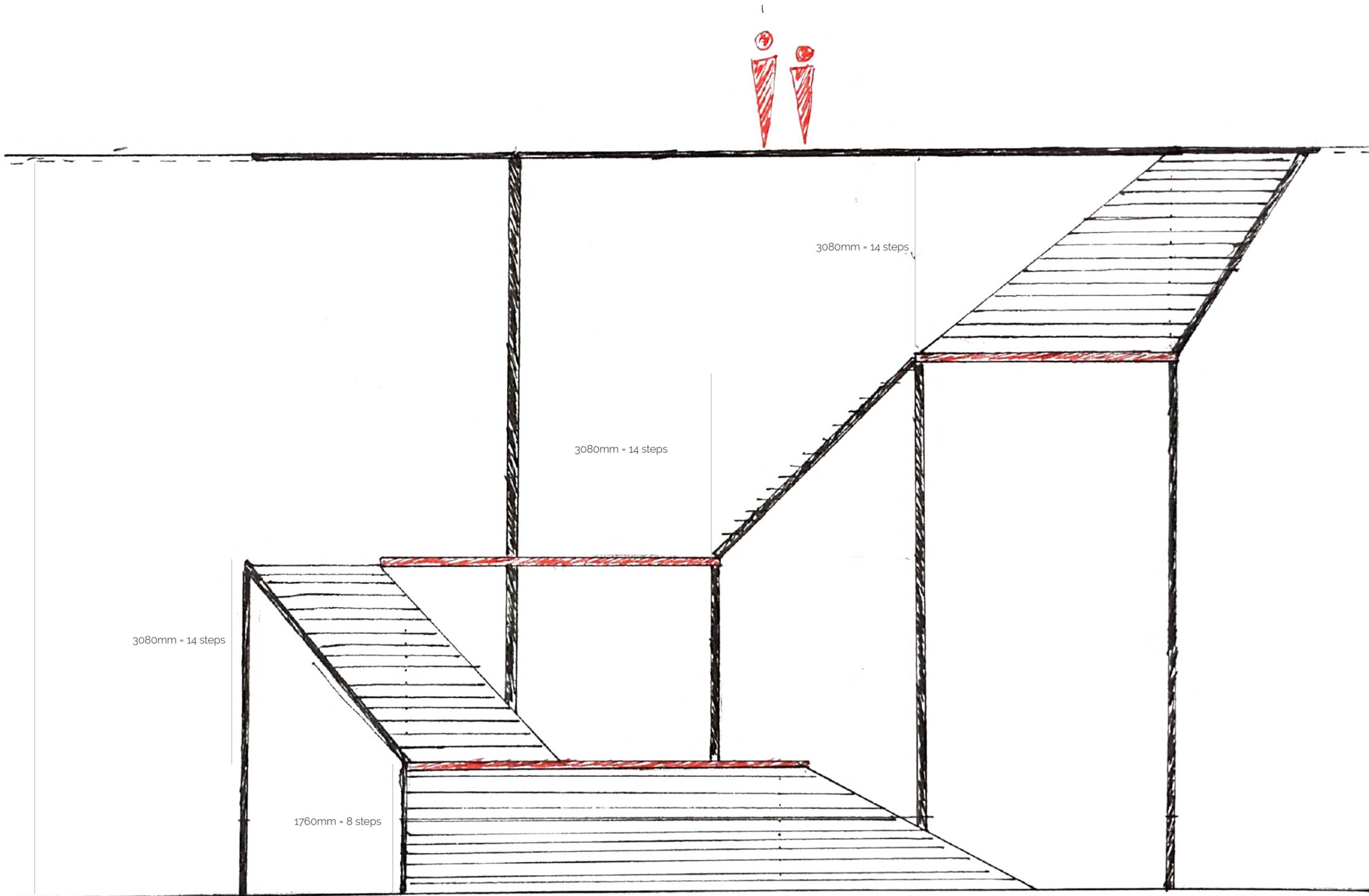
This iteration was the preferred version because of the way it fits together. It also uses the curve of the framework of the pier to its advantage, and allows a natural turn to view the West Pier, festival and the sea.



Elevation

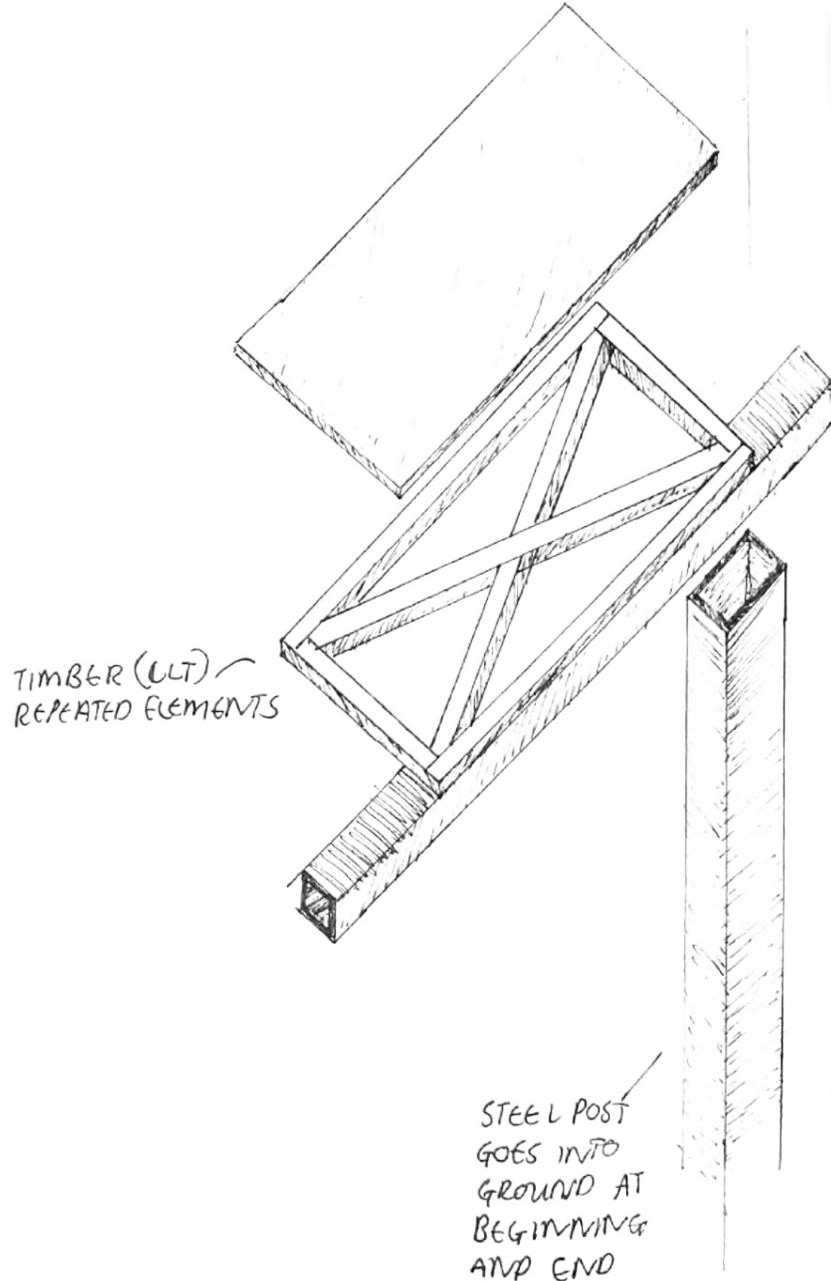
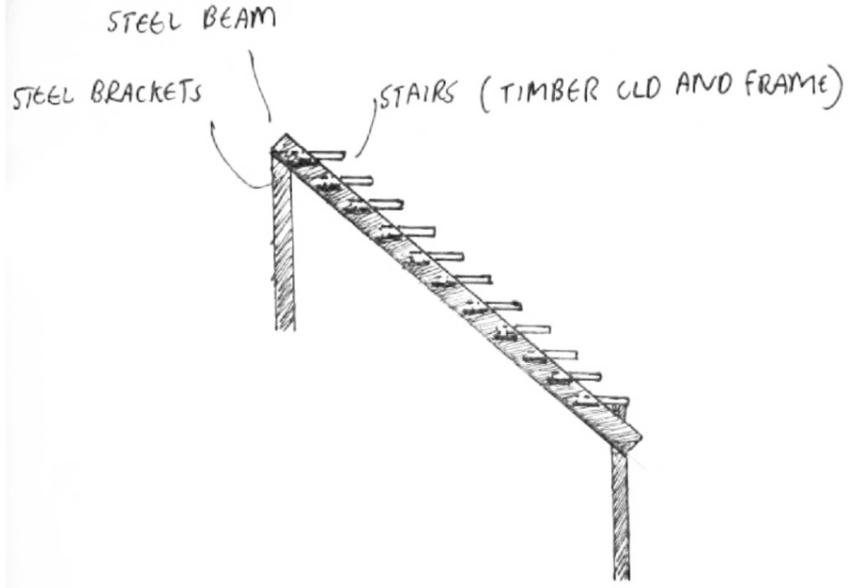
PARTI - ACCESS POINTS

DESIGN REFINEMENT AND SYSMAT



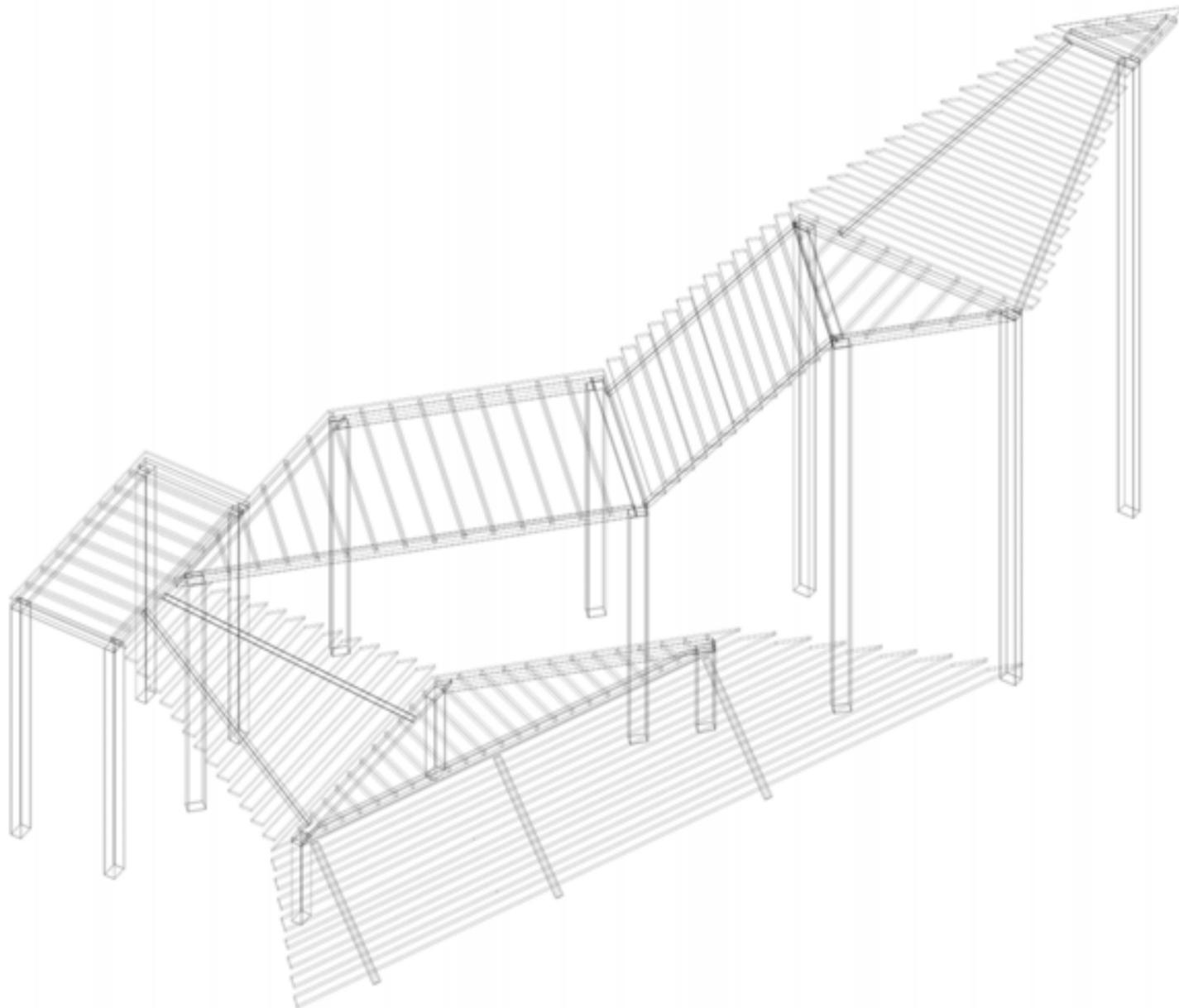
PARTI - ACCESS POINTS

DESIGN REFINEMENT AND SYSMAT



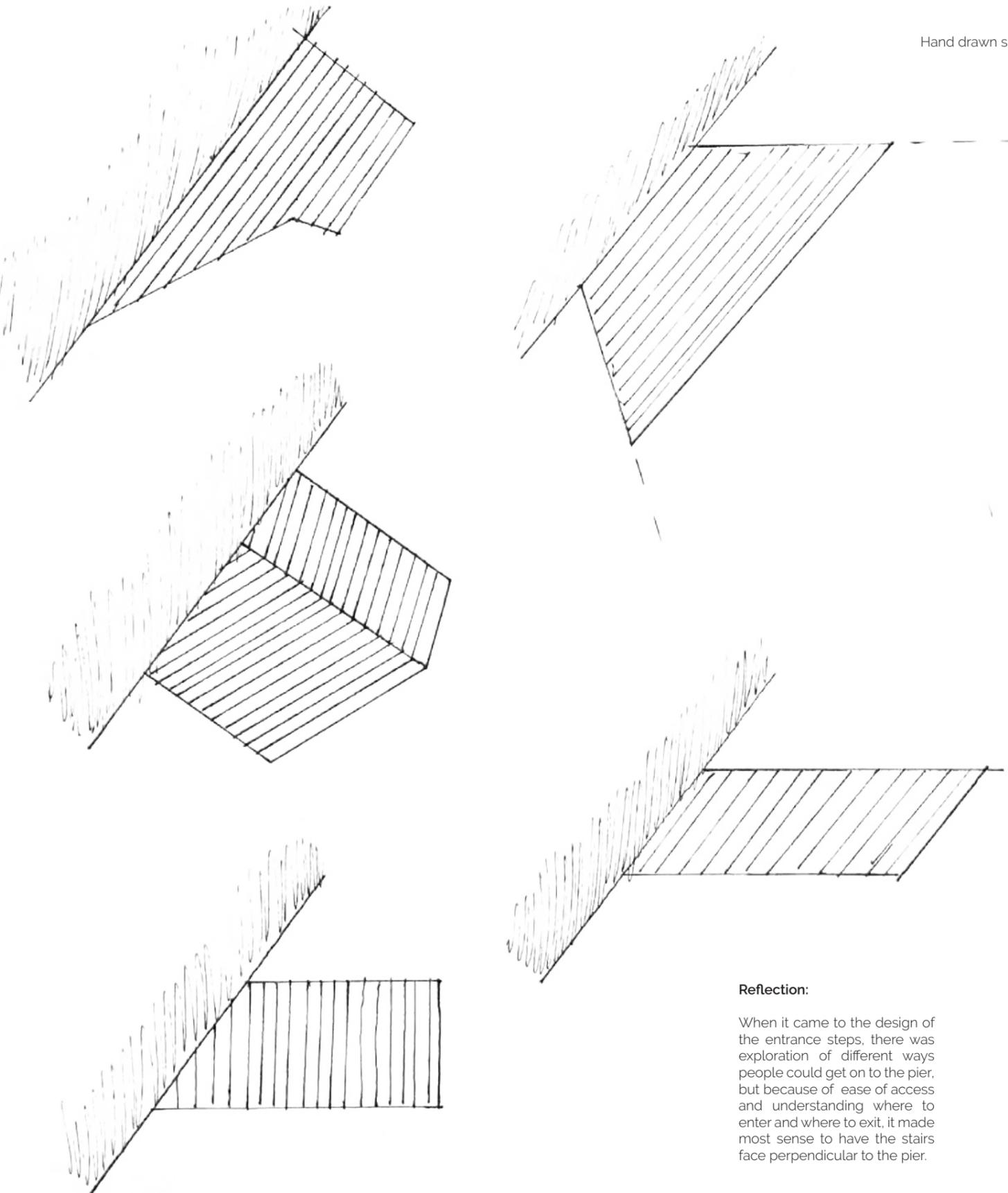
PARTI - ACCESS POINTS

DESIGN REFINEMENT AND SYSMAT

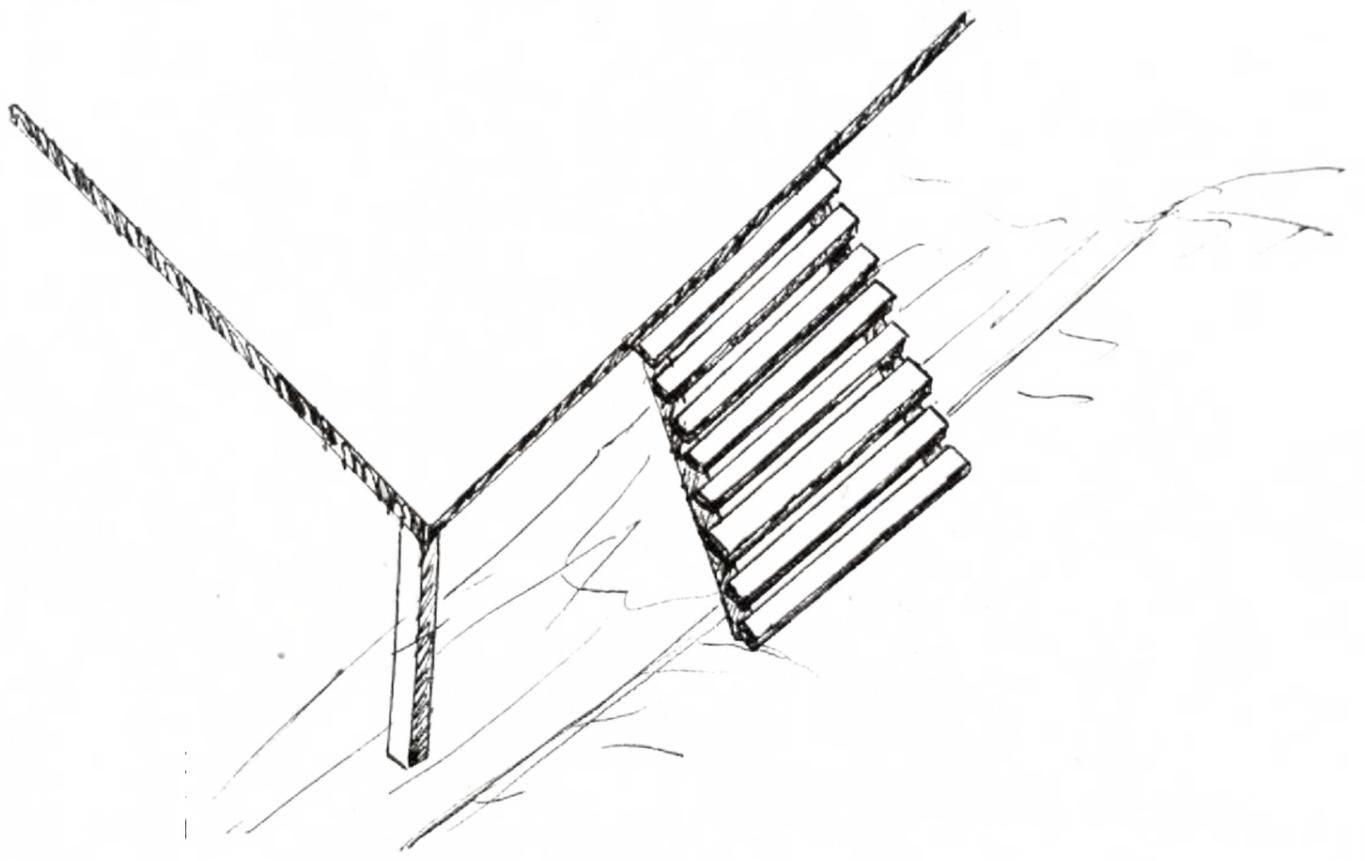


The framework will mostly be made from steel, giving the structure the support it needs as well as having a lightweight, floating design to them.

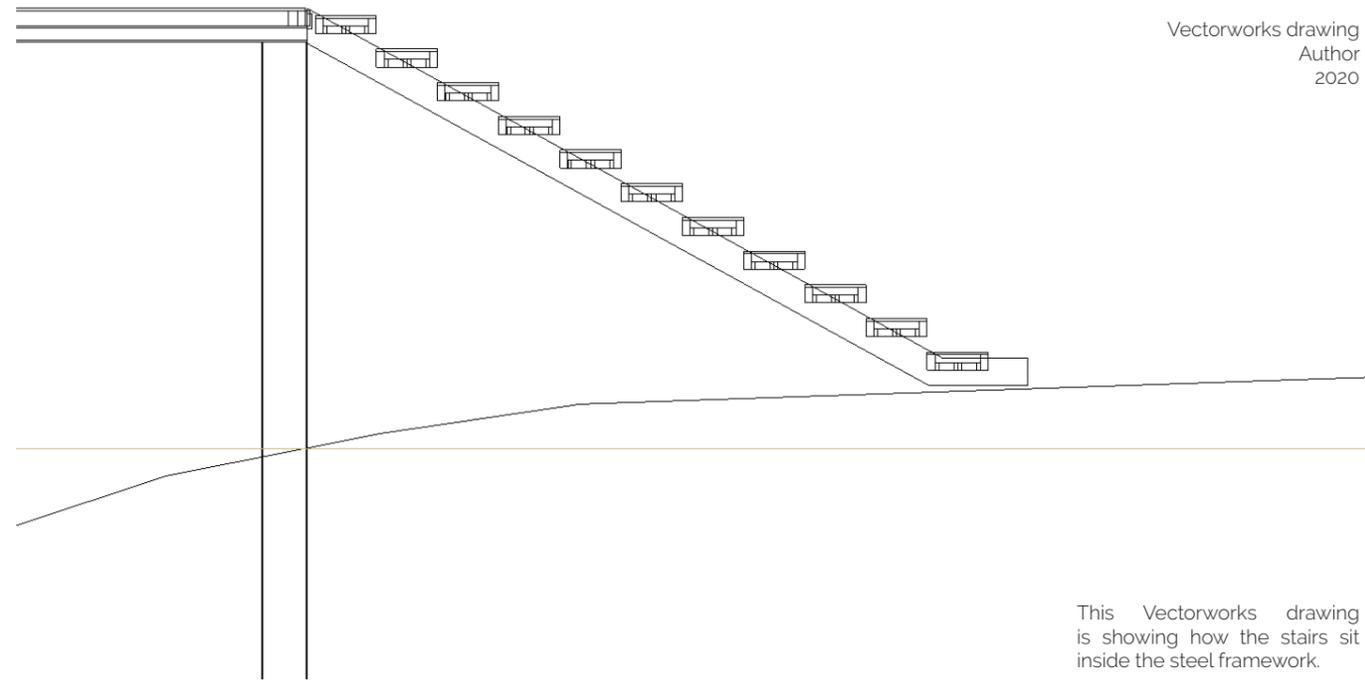
2506 mm HEIGHT FROM GROUND - ENTRANCE STEPS



Hand drawn sketches  
Author  
2020



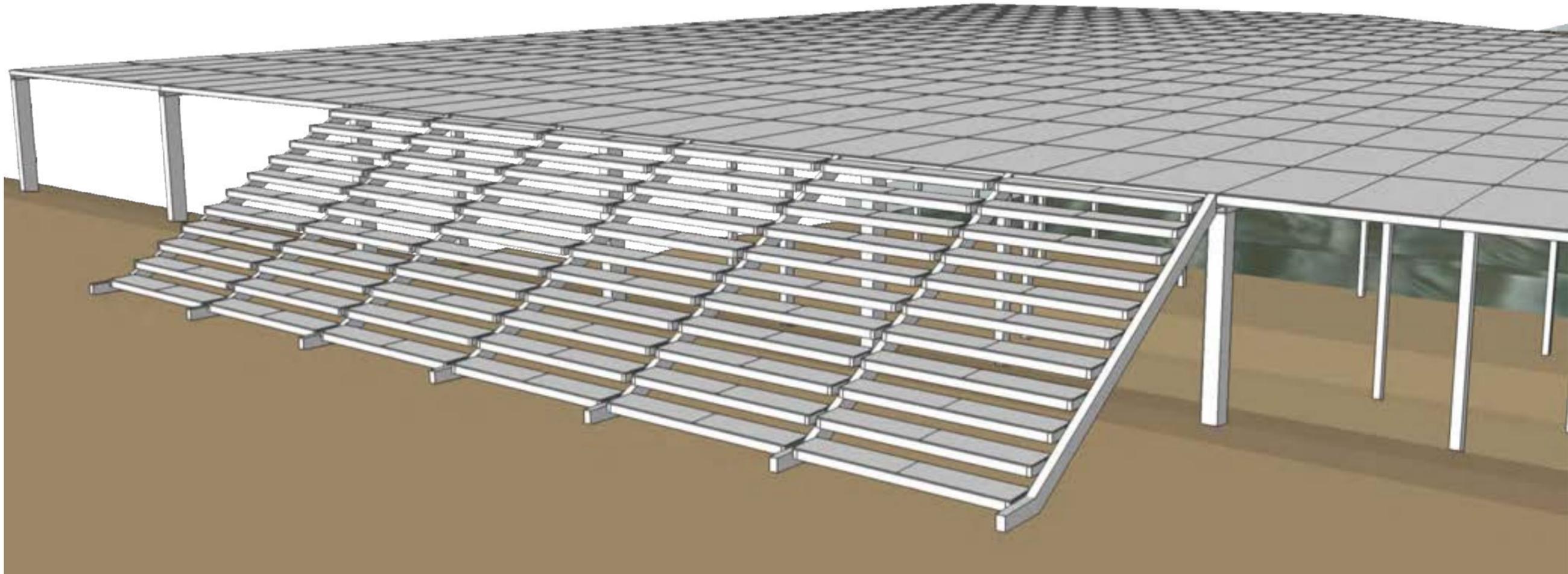
Vectorworks drawing  
Author  
2020



**Reflection:**

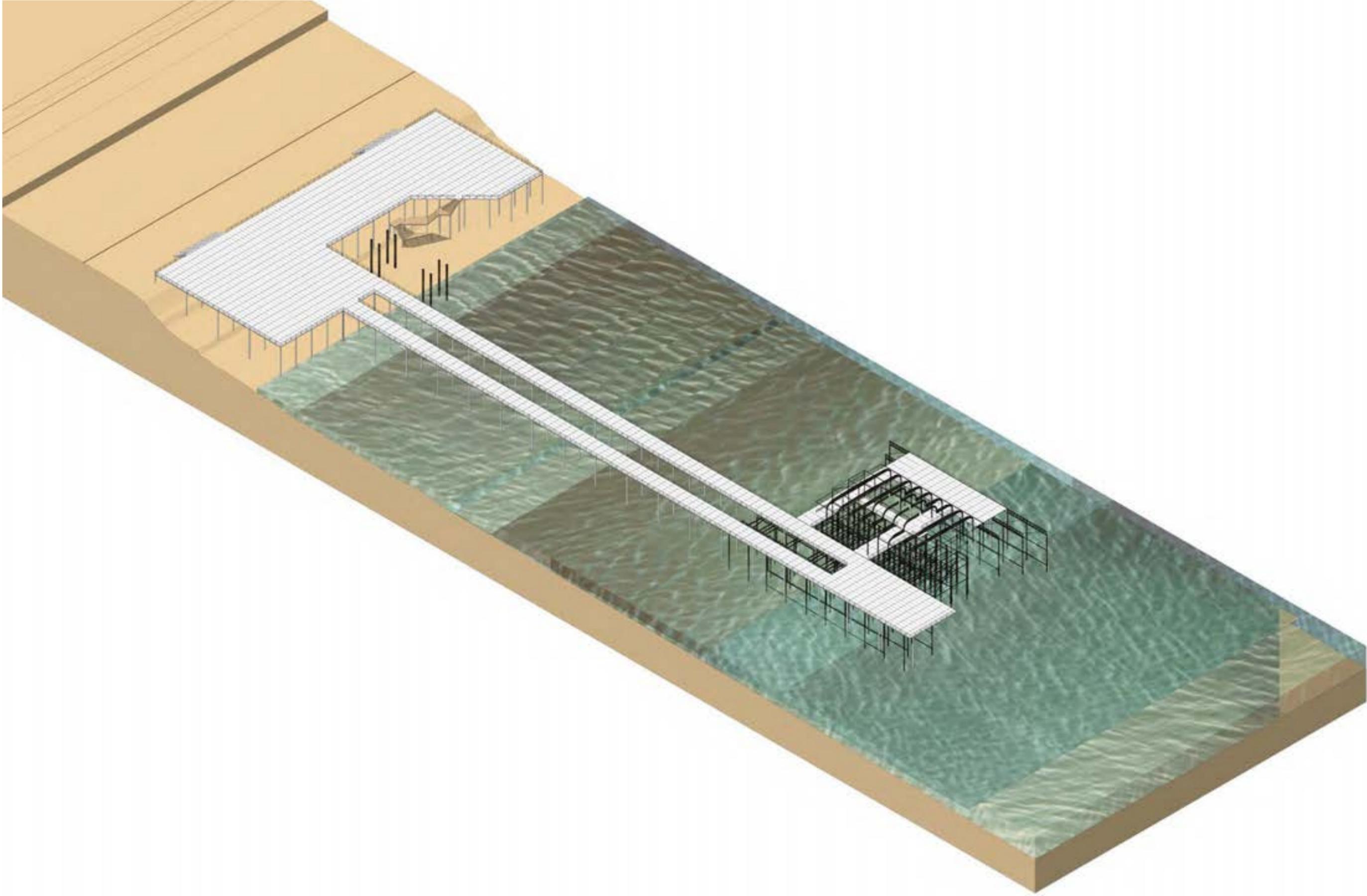
When it came to the design of the entrance steps, there was exploration of different ways people could get on to the pier, but because of ease of access and understanding where to enter and where to exit, it made most sense to have the stairs face perpendicular to the pier.

This Vectorworks drawing is showing how the stairs sit inside the steel framework.



Vectorworks model  
Author  
2020





## BIBLIOGRAPHY

Architectural Record

Architectural Record

Architectural Record

Ball bearing diagram. https://www.researchgate.net/figure/The-geometric-sizes-of-damaged-ball-bearing-6206\_fig5\_317570537

Bandsaw. https://www.craigmoreonline.co.uk/sjp-8-swivel-metal-cutting-bandsaw?gclid=CjwKCAjwnlr1BRAWEiwA6GpwNRUg4zzmyRjL2FAd3z5bNVh5WRZ4KkrNBh-gtR\_zmsJrWMqrO6pKBoCSYUQAvD\_BwE

Best weapon. A As Architecture. 2019. New York. https://www.un.org/disarmament/fr/update/unveiling-of-the-best-weapon-displayed-at-un-hq-through-september-2019/

Birdhide/Wind shelter. Fylkesmennen i Finnmark. 2011. Hornoya. https://www.biotope.cloud/2011/10/hornoya-wind-shelter-and-birdhide.html Photographer, Tormod Amundsen.

Bird-watching pavilion. Plant Architect. 2016. https://www.dezeen.com/2016/05/16/bird-watching-pavilions-plant-architect-perforated-weathering-steel-corten-architecture-toronto-canada/ Photographer, Steven Evans.

Blackpool pier. Eugenius Birch. 1863. Blackpool. https://www.dailymail.co.uk/news/article-2992584/Blackpool-Central-Pier-sale-5million.html

BRC Burning Man. Rod Garrett. 2015. Black Rock Desert. http://www.dpwbrc.com/evolution

Building Bridges. Lorenzo Quinn. 2017. https://www.thisiscolossal.com/2019/05/building-bridges-lorenzo-quinn/ Photographer, David M. Bennett.

Burning man. Larry Harvey. 2018. Black Rock Desert. https://www.architectural-review.com/essays/burning-intensity-an-overwhelming-collective-energy-fills-the-empty-plain-of-the-nevada-desert/10030451.article

Cedarwood cladding. https://architecturaltimbercladding.co.uk

Chain block. https://www.bishopliftingequipment.co.uk/lifting-equipment/manual-and-electric-hoists/chain-block-manual-chain-hoist/yale-vsiii-chain-block/#tab-custom\_1

Chalk and milk. Tessa Silva. 2019. https://www.dezeen.com/2019/12/10/tessa-silva-chalk-cheese-homeware-design/

Chalcraft, Emilie. "Oscar Medley-Whitfield and Harry Trimble at Designers in Residence 2012" Dezeen. https://www.dezeen.com/2012/11/18/oscar-medley-whitfield-and-harry-trimble-at-designers-in-residence-2012/ (accessed 2020).

Coastal erosion. http://thebritishgeographer.weebly.com/coasts-of-erosion-and-coasts-of-deposition.html

Coastal erosion map. 2004 https://www.researchgate.net/figure/Distribution-of-coastal-erosion-risk-in-England-and-Wales-After-Foresight-2004\_fig2\_266473337

Concrete mixture. https://www.concrete2you.com/products/#/

Cooking kiln. https://www.ebay.co.uk/itm/Alfa-Pizza-E-Brace-pizza-oven-gas/274067342543?\_trkparms=aid%3D1110007%26algo%3DHOMESPLICE.

Copper tubing. https://www.luvata.com/products/hollow-conductors

Corten steel structure. Reiulf Ramstad Arkitekter. 2019. Rosheim, France. https://www.archdaily.com/929935/chemin-des-carrieres-park-walk-reiulf-ramstad-arkitekter. Photographer, Florent Michel.

Covered Walkway. November 10, 2010. Dos Lago's centre in Corona. https://ranchoreubidoux.com/2010/11/10/linear-movement/

Cromer pier. George Skipper. 1896. Norfolk. https://www.explorenorfolkuk.co.uk/cromer-pier.html

Cromer pier front. George Skipper. 1896. Norfolk. https://www.cromerpier.co.uk/bbc-antiques-roadshow-is-coming/

Cutty Sark Pavilion. BAKOKO. 2013. London. https://www10.aecface.com/blogs/arch-showcase/2013/01/15/cutty-sark-pavilion-in-london-united-kingdom-by-bakoko/. Photographer, BAKOKO.

Distribution of aquifers. 2006. https://qj.egh.lyellcollection.org/content/40/4/335/tab-figures-data

Decking layers. https://www.gardenbuilders.co.uk/index?jsCart=5bb17d59427f5451dffce8563094d95e

Earth House. David Adjaye. 2019. Venice Biennale. https://www.dezeen.com/2019/05/13/david-adjaye-ghana-pavilion-venice-art-biennale/. Photographer, David Levene.

Fitch beam drawing. https://www.researchgate.net/figure/FIitch-beam-arrangement-using-18-gage-steel-by-Coleman-Hurst-71-cited-in-Alam-68\_fig36\_331355241

Glacier Skywalk. Sturgess Architecture. 2014. Canada. https://www.architectmagazine.com/technology/take-in-a-deep-breath-with-the-view-on-the-glacier-skywalks-glass-floor\_o

Glamping pod. Fuselage. https://treetents.co.uk/products/fuselage/.

Glastonbury Festival. 2010. Glastonbury. https://www.wired.co.uk/article/glastonbury-data-usage-5g

Glastonbury Map. Michael Eavis. 2019. Glastonbury. https://glastoaddict.co.uk/news/the-second-edition-of-news-roundup-part-2/

Handmade kiln. http://www.handprintpress.com/wp-content/uploads/2013/12/ahiasunfactory.jpg

Happisburgh. https://www.google.co.uk/maps/place/Happisburgh,+Norwich/@52.8243095,15140307,14Z/

"Hello Wood at Mood for Wood 2015" Hello Wood. https://hellowood.eu/education/project/hello-wood-mood-wood-2015. (Accessed 2020).

I beam clamps. https://www.lnasolutions.com/connection-solutions/boxsok-rapid-assembly-tool.

I beam ton clamp. https://www.toolfetch.com/media/catalog/product/cache/1/image/1024x/gdf78eab33525d08d6e5fb8d27136e95/O/Z/OZ1BC\_000.jpg

Architectural Record

Jesmonite casting workshop. Phil Cuttance. 2019. https://www.barbican.org.uk/whats-on/2019/event/jesmonite-casting-workshop-with-phil-cuttance

Jesmonite furniture. Malgorzata Bany. 2018. https://www.dezeen.com/2018/09/16/london-design-festival-malgorzata-banys-jesmonite-furniture-the-new-craftsmen-exhibition/

Layers of chalk cliff. http://www.southampton.ac.uk/~imw/Beer.htm

Linseed oil. https://ardec.ca/en/blog/22/linseed-oil-a-natural-solution-for-wood-finishing

Margate caves. 2013. https://theisleofthanetnews.com/2019/03/07/stunning-photos-show-the-progress-being-made-at-margate-caves/

Map. Rod Garrett. 2010. Black Rock Desert. https://journal.burningman.org/2010/04/black-rock-city/building-brc/designing-black-rock-city/

Mini Parks. 2015. China. https://inhabitat.com/12-inspiring-mini-parks-created-in-street-parking-spaces/1-dsc\_0290-002/

Olympic Map. Rod Sheard. 2020. London. https://www.queenelizabetholympicpark.co.uk/the-park/plan-your-visit/park-map

Orthogonal drawings of Brighton West pier. 1891. Brighton. The Keep.

Palace Pier. Richard. St George Moore. 2020. http://brightonpier.co.uk/?ref=xranks

Architectural Record

Pivoting door. Olson Kundig. 2014. Spain. https://www.dezeen.com/2014/01/21/studio-sitges-by-olson-kundig-architects/

Prime Matter, chalk and resin. Olivia Aspinall. 2014. https://www.frameweb.com/news/prime-matter-by-olivia-aspinall

Architectural Record

Architectural Record

Architectural Record

Sauna. JKMM Architects. 2019. Burning Man. https://www.archdaily.com/924996/steam-of-life-pavilion-jkmm-architects. Photographer, Hannu Rytky.

Serpentine Pavilion. Smilijan Radic. 2014. London. https://www.serpentinegalleries.org/exhibitions-events/serpentine-galleries-pavilion-2014-smiljan-radic.

Serpentine pavilion. Junya Ishigami. 2019. London. https://www.standard.co.uk/go/london/arts/junya-ishigami-serpentine-pavilion-commentary-a4169776.html

Scaffold fitting. https://www.indiamart.com/proddetail/scaffolding-beam-clamps-8805015548.html

Scaffold foot. https://constructionproductsdirect.co.uk/collections/scaffolding/products/scaffold-base-plate

Shade sails. https://superiorawning.com/shade-sails-tension-structures/

Shopfronts in E17. Sean and Stephen. Walthamstow. https://seanandstephen.com/projects/shopfronts-e17/

Singh, Vineet. "Experimental studies on replacement of cement with chalk powder and coconut fiber in conventional concrete" 2016. Page 308.

Steel L plate. https://www.amazon.co.uk/Rolled-Steel-Angle-Holes-Bolts/dp/B075Y3X4YQ

Steel sheet. https://jooinn.com/metal-4.html

Steel suppliers. Hove. https://www.google.co.uk/maps/search/steel+supplier+brighton/@50.8887482,-0.3742199,10z/data=!3m1!4b1

Steel track. https://www.adctracks.com/1700bl-track-channel

Steel tubing. https://rotaxmetals.net/what-makes-square-metal-tubing-suitable-for-a-variety-of-applications/

Stone 27. Benjamin Langholz. 2019. Burning Man. https://stonetwentyseven.com

Southend pier. White Arkitekter. 1830. https://moovitapp.com/index/en-gb/public\_transportation-Southend\_Pier-London\_and\_South\_East-site\_56641578-2122

Sun Path. https://www.suncalc.org/#/40.1789,-3.5156,3/2020.04.26/1116/1/3 (Accessed March 2020).

Tangential dreams. Arthur Mamou-Mani. 2016. Burning Man. https://www.thecoolist.com/burning-man-works-of-art/tangential-dreams-by-arthur-mamou-mani-art-of-burning-man-2016/

Theatrum Mundi. Nicolai Bo Anderson. 2020. http://www.nicolaibo.dk/TheatrumMundi.html (Accessed 2020).

The Blue Carpet Project. Thomas Heatherwick. 2010. Newcastle. http://lynseybarr.blogspot.com/2010/10/blue-carpet-project-uses-innovative.html

The Column. Adrian Paci. 2013. Tirana. https://artdesign.unsw.edu.au/unsw-galleries/adrian-paci-column.

The Majjishan Grottoes. Gansu Province. https://viola.bz/the-majjishan-grottoes-masterpiece-of-cave-architecture/

Architectural Record

The Plaza. Landscape Architects. 2013. Stoss USA. https://worldlandscapearchitect.com/the-plaza-at-harvard-university-cambridge-usa-stoss-landscape-urbanism/#XqVuGi-ZMWo

Tool set. https://www.toolden.co.uk/power-tools/cordless-kits/makita-dlx6044pf3-6-piece-18v-combo-kit-lxt-3-x-3-0ah/?gclid=CjwKCAjwv4\_1BRAhEiwAtMDLskiOE6R-v8M2ODLtcf1K7WKSrVCbgf8tOfqymjqUHWGf6OgA2DRBmRoCN58QAvD\_BwE

Timber suppliers. Brighton. https://www.google.co.uk/maps/search/timber+supplier+brighton/@50.9369253,-0.424875,10z/data=!3m1!4b1

Reactor Films installation. Brooks + Scarpa. 2012. Santa Monica. https://www.archdaily.com/233676/reactor-films-brooks-scarpa-architects. Photographer, Marvin Rand.

Resin jewellery. https://dinosaurdesigns.co.uk/products/resin-block-ring-black-dot-on-chalk

Vatican Chapel. Javier Corvalan. 2018. Venice. https://divisare.com/projects/386723-javier-corvalan-laboratorio-de-arquitectura-alessandra-chemollo-vatican-chapel. Photographer, Alessandra Chemollo.

Venice's Art. Alejandro Aravena. 2016. Venice Biennale. https://www.widewalls.ch/what-is-recycled-art-meaning/

Architectural Record

Venice's Art. Alejandro Aravena. 2016. Venice Biennale. http://new.rushi.net/Home/Works/detail/id/137919.html

Vernieuwde Peir. ZJA architects. 2015. Scheveningen. https://commons.wikimedia.org/wiki/File:Den\_Haag\_Scheveningen\_Pier\_13.jpg

Architectural Record

Architectural Record

Architectural Record

Vernieuwde Peir. 1959. Scheveningen. https://nl.wikipedia.org/wiki/Bestand:Pier\_van\_Scheveningen\_(1959).jpg

Architectural Record

Vernieuwde Peir. ZJA architects. 2013. Scheveningen. http://www.nederlandinfoblog.nl/pier-in-scheveningen/

Architectural Record

Vernieuwde Peir. ZJA architects. 2018. Scheveningen. https://www.turistadimestiere.com/2018/07/le-spiagge-olanda-scheveningen.html

Vice. https://www.dwtoolshop.com/armorgard-ev6-6-engineers-vice?gclid=CjwKCAjwv4\_1BRAhEiwAtMDLsmjp1E8qbz1m0VYLVpml3yKDVJZbg6rjOwsgg-8qfK5PxyaSdMBJEBoCDogQAvD\_BwE

Welder https://www.machinemart.co.uk/p/010110125/?da=1&TC=GS-010110125&gclid=CjwKCAjwnlr1BRAWEiwA6GpwNWo8wbOnl6XjvmJrWqUGUK-Z7bezmkMWYEkEB3z3X6HxmKcpM3fw\_RoCaj8QAvD\_BwE

Architectural Record

Wind shelter. McChesney Architects. 2008. Blackpool. https://pro.magnumphotos.com/image/LON106393.html Photographer, Peter Marlow.

"Wind, waves and weather forecast." Windfinder. https://www.windfinder.com/forecast/brighton\_beach (Accessed March 2020)

Zero Cement block. Taj Easton. 2015. Handmade kiln. http://www.handprintpress.com/wp-content/uploads/2013/12/ahiasunfactory.jpg