

STAGE 4 CONTEXTUAL INFLUENCE



KAYA ROSA

context

Important Buildings On Site

The two main buildings of greatest importance on the site are Kaya Rosa and the Human Sciences Building. Kaya Rosa was the original class building in 1908. The very first classes were conducted in this building. Originally Kaya Rosa was located in the city. Later the university moved it to this site. By the 70th year of existence of UP the university wanted to build a replica of Kaya Rosa at the main entrance to serve as an information kiosk and to house the Alumni. Symbolically Kaya Rosa is very important on the site. It symbolizes the origins of the university. The alumni are also housed in it. Thus it suggests the beginning and end of study at the university, while the Monster implies the in-between period of studying and growing.

The other iconic building is the Human Science Building. Construction on this building started in 1976. Its main function is that of office building. Lecture rooms and labs are also housed in the building. It was used as a bridge linking West and East campus when Roper Street was still separating the two halves. In 1994 Roper Street through campus was closed, thus negating its bridging function. The Monster will take over that function by linking over the outside of campus to the inside, suggesting a transition from childhood to adulthood, through the study period. Below are some of the major rules which govern both worlds. The liminal is the space between the worlds, literally neither here nor there. Thus it should negate those rules. The major difference between the worlds is the intent of each world. The university is a place for learning. It also has a reasonability aspect. Students are somewhere between childhood and becoming professional adult. The real world is a place of responsibility and work.

RULES OF 'REAL' AND 'STUDENT' WORLDS

Student World

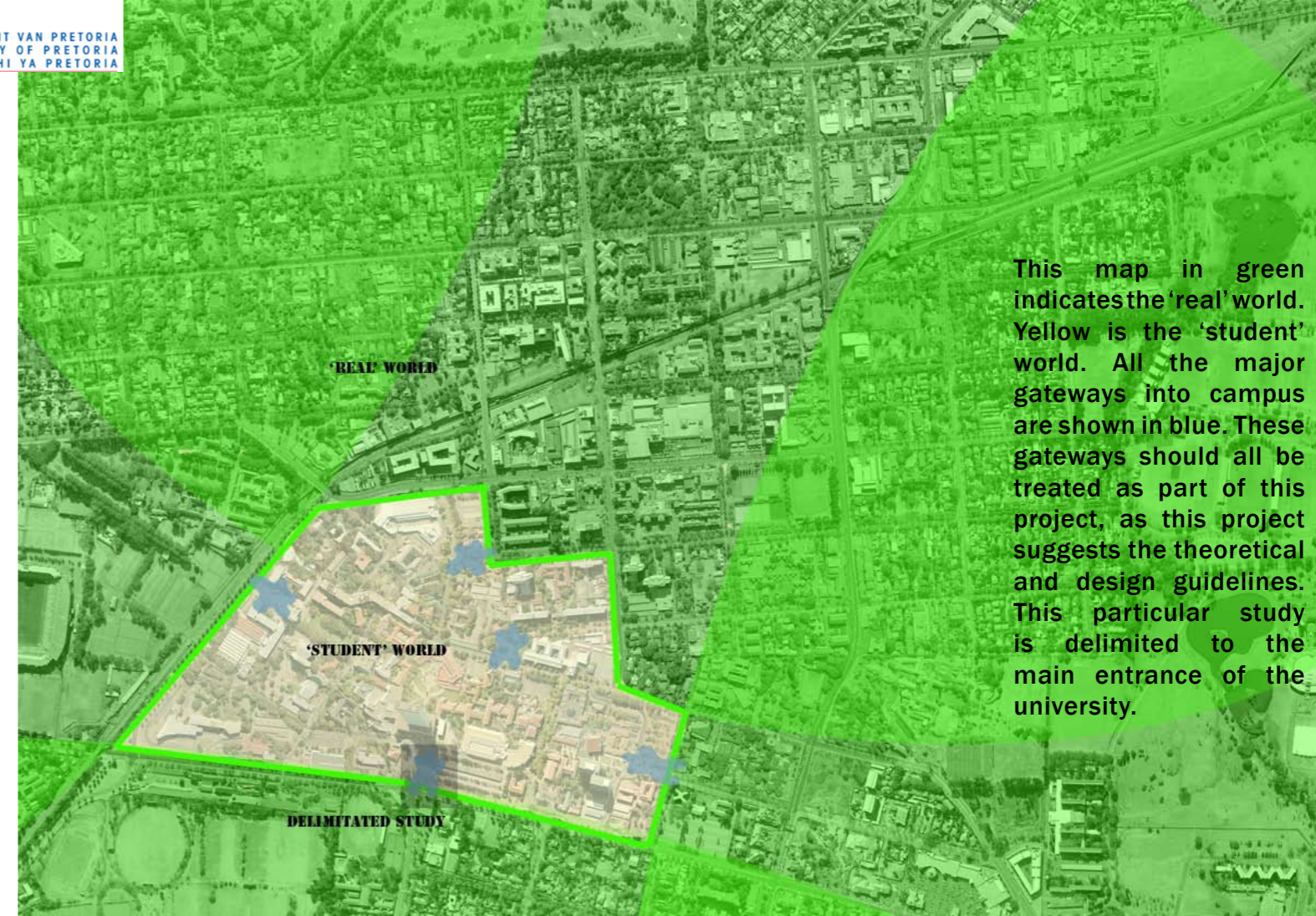
Built Environment
Sky
Horizon
Wind
Sun
Rain
Trees

Liminal

Negate Built Environment
Negate Sky
Negate Horizon
Negate Wind
Negate Sun
Negate Rain
Negate Trees

Real World

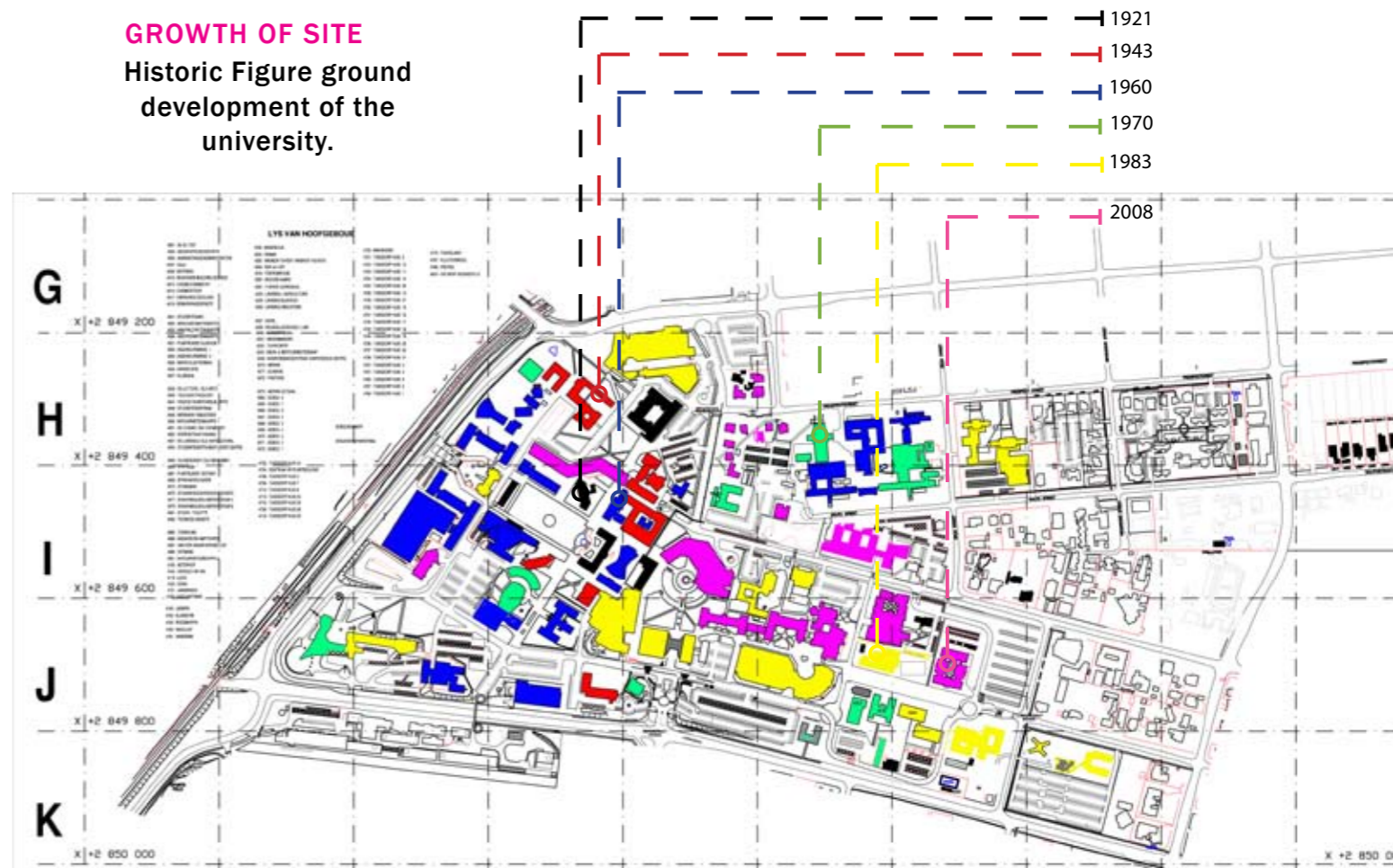
Built Environment
Sky
Horizon
Wind
Sun
Rain
Trees

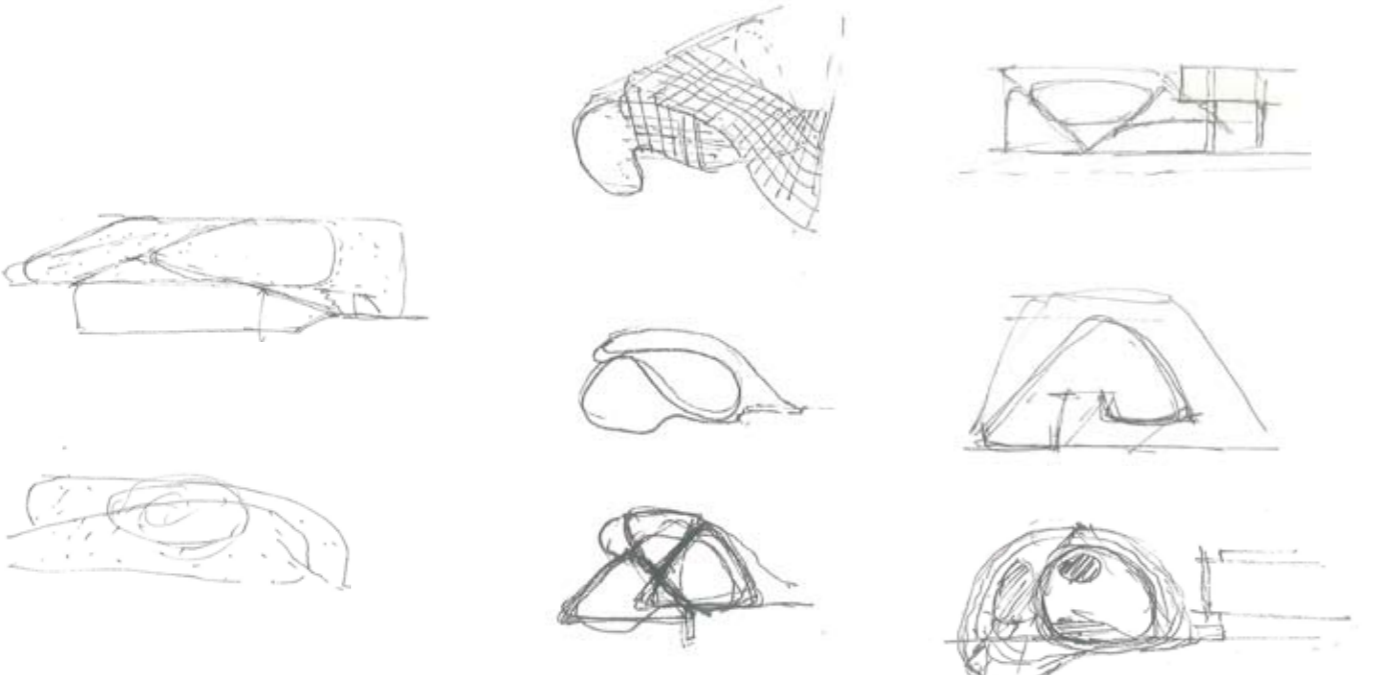
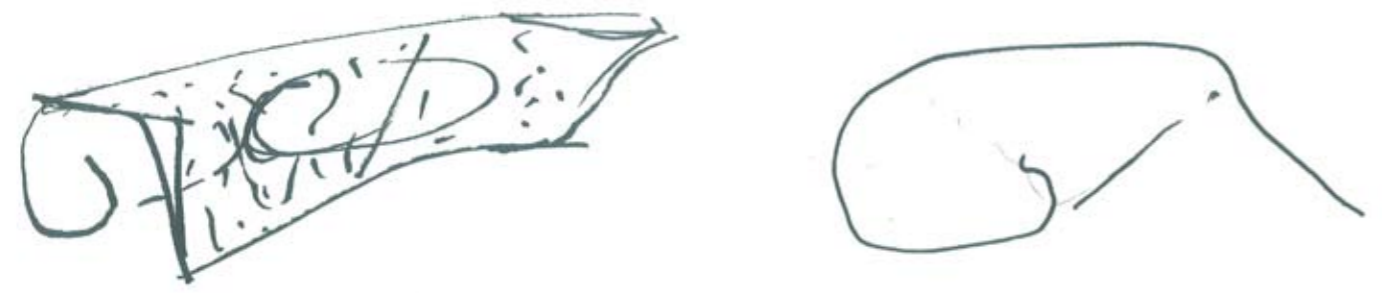


This map in green indicates the 'real' world. Yellow is the 'student' world. All the major gateways into campus are shown in blue. These gateways should all be treated as part of this project, as this project suggests the theoretical and design guidelines. This particular study is delimited to the main entrance of the university.

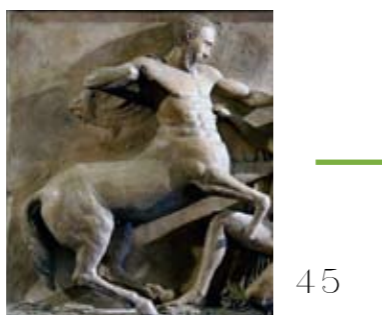
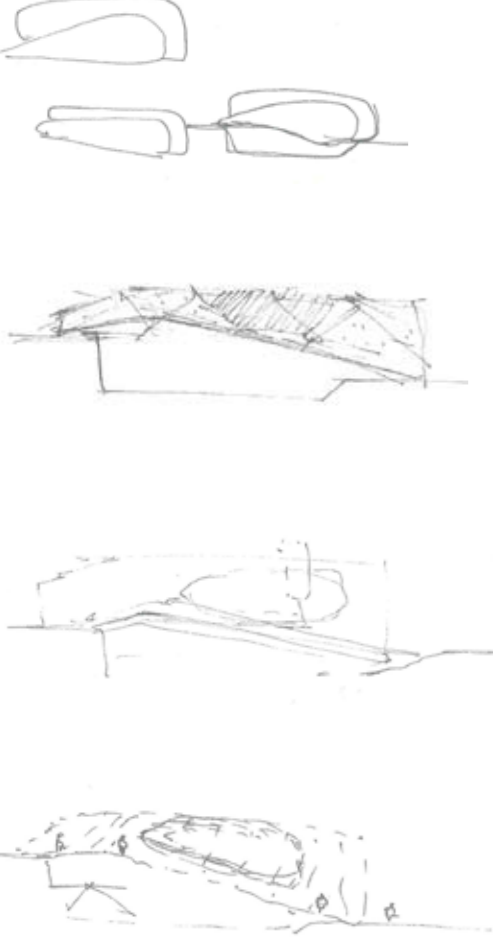
Context map

GROWTH OF SITE Historic Figure ground development of the university.

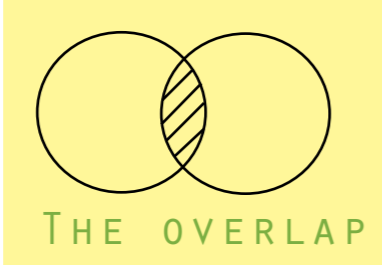




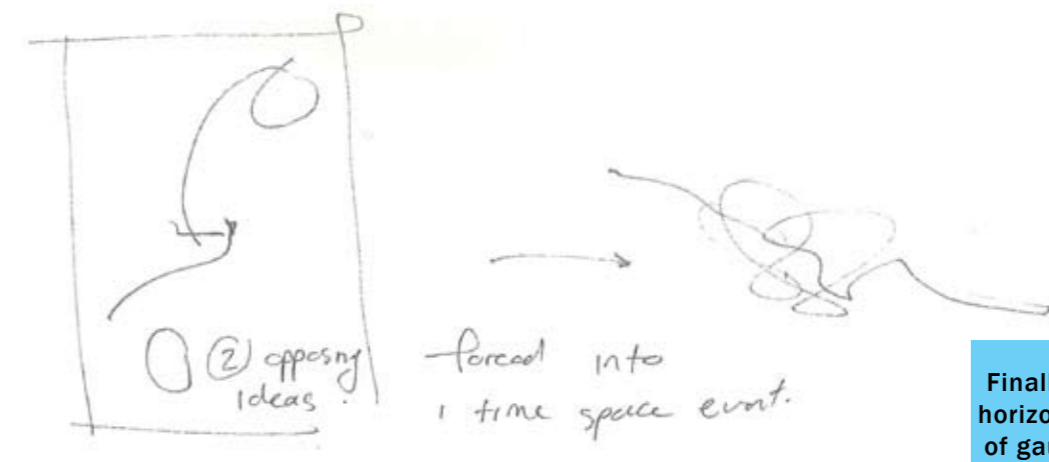
SECTIONS



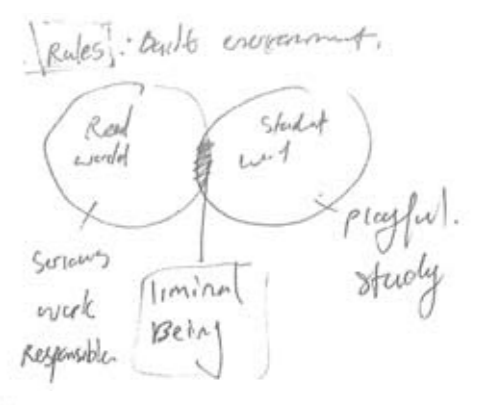
The hybrid was fully achieved by making the two typologies exist simultaneously in the same place, an overlapping. The monster was also achieved by rearranging the typologies in a way not experienced every day.



The nox son-o-house, has the theoretical notion of ethereality between 2 phases which moves between opaque and transparent. As the skin of Son-o-House [fig. 47] shows.



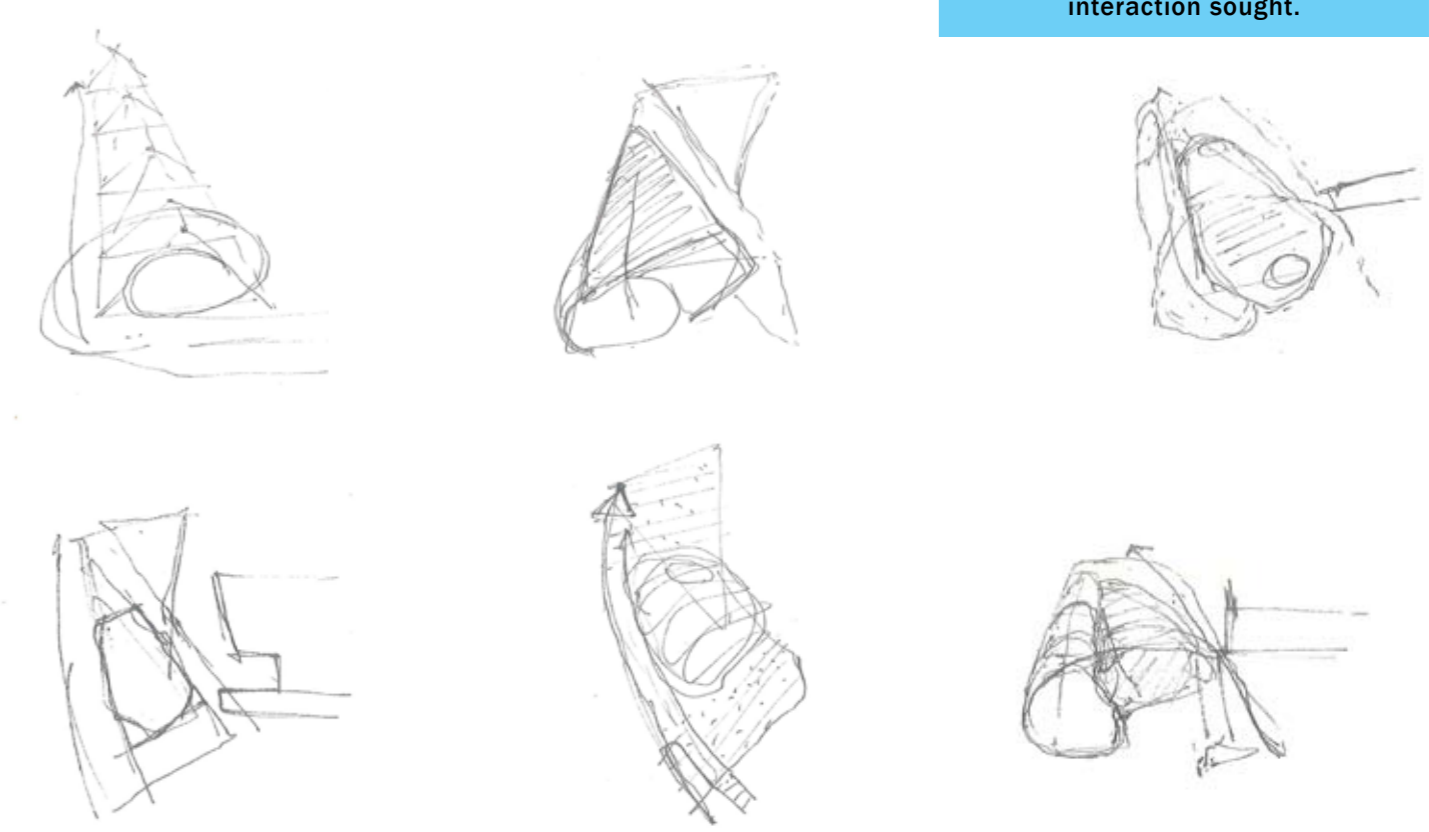
CONCEPT



design
Finally, twisting of the building in the horizontal plane was explored. A piece of gauze was used as the touchstone. This strip was twisted over itself. The places where more of the gauze twisted over itself became more opaque.

A seamless transition from ethereal to opaque was achieved. Achieving this built upon all the exploration done up to this point. The twisting made the building into one unit, rather than two distinct opposing typologically driven pieces of a building. Thus this building was neither of the two combined typologies but synthesized the qualities into a relevant hybrid.

Twisting the building horizontally forced the two opposing ideas to coexist in the same place simultaneously, thus creating the interaction sought.



PLANS

¹ Roget's Thesaurus suggest a Touchstone to be a testing agent, yardstick, gauge, litmus paper, proving ground and so on.

precedent

Cloud like form giving

The ethereality of clouds, as well as the difficulty to remember their form served as stimulus for the design.

This relates to the context, so as to remove it from the aesthetics and forms common to the context. This is done to negate the rules of the context as discussed earlier.

The design evolved: viewing the building as a cloud, which has a form very difficult to remember. Moreover, it should provide a fitting spacial experience which is removed from the two worlds.

This idea is supported by the NOX H2O Expo [fig. 50]. The interior looks like what a cloud is expected to look like inside, removing the horizon, and changes the experience from walking to the feeling of falling.



48
MASSIMILIANO FUKSAS: CONGRESS CENTRE, MILAN



49
ATELIER HAPSITUS - THE CLOUD, DUBAI



50



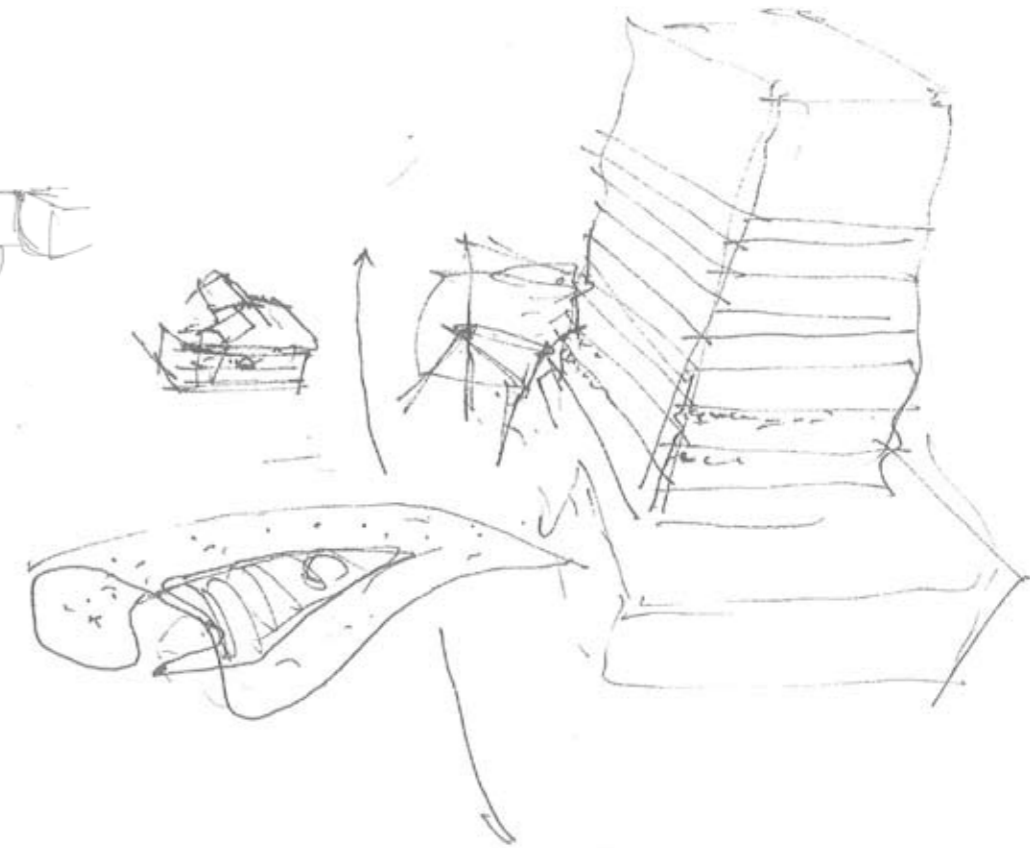
MASSIMILIANO FUKSAS



THE CLOUD

formal precedents

MASSIMILIANO FUKSAS



THE MONSTER



design

Monster

The design has clearly been influenced by Fuksas and Gehry. The form is intended not to be similar to any formal geometry in the context of the university.

The form is determined by the spaces inside. These are intended to be something which is not experienced every day.



FRANK GEHRY



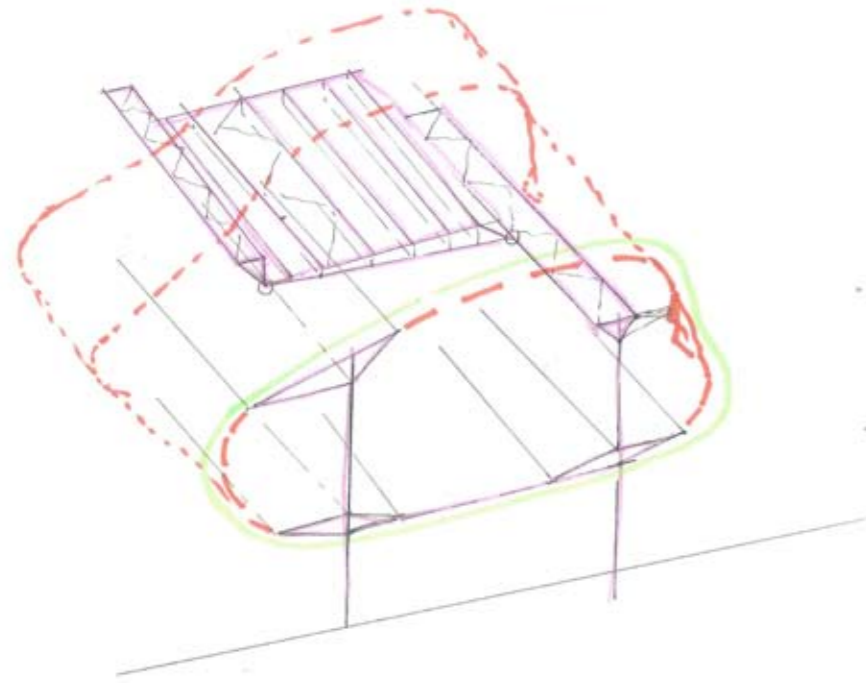
51
52
MASSIMILIANO FUKSAS

precedent

Frank Gehry

Uses Catia for the modelling and file-to-factory fabrication of the curves in his buildings.

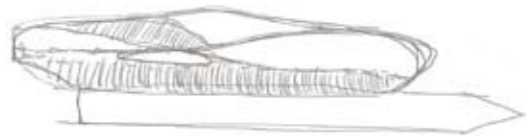
My interest in his work is how the fabrication works: from computer model to factory.



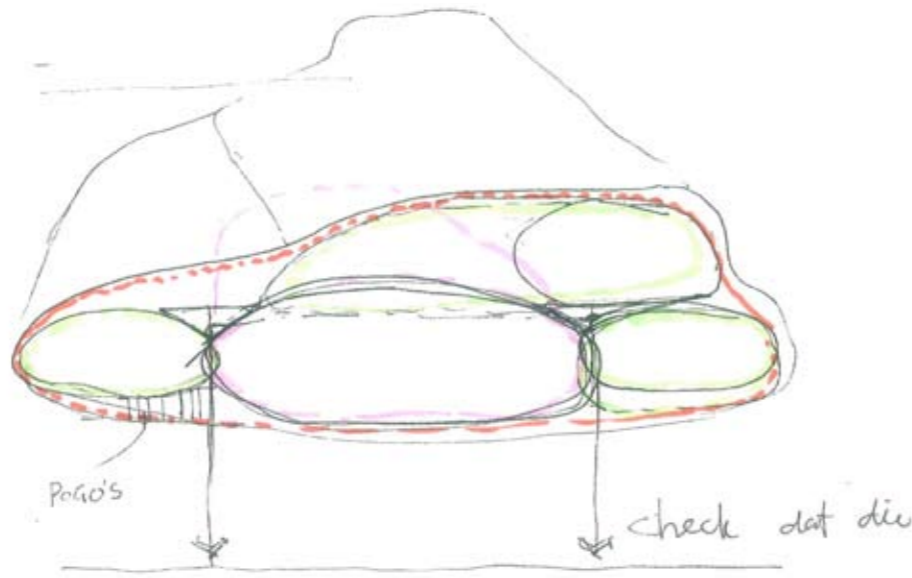
AXO OF STRUCTURE



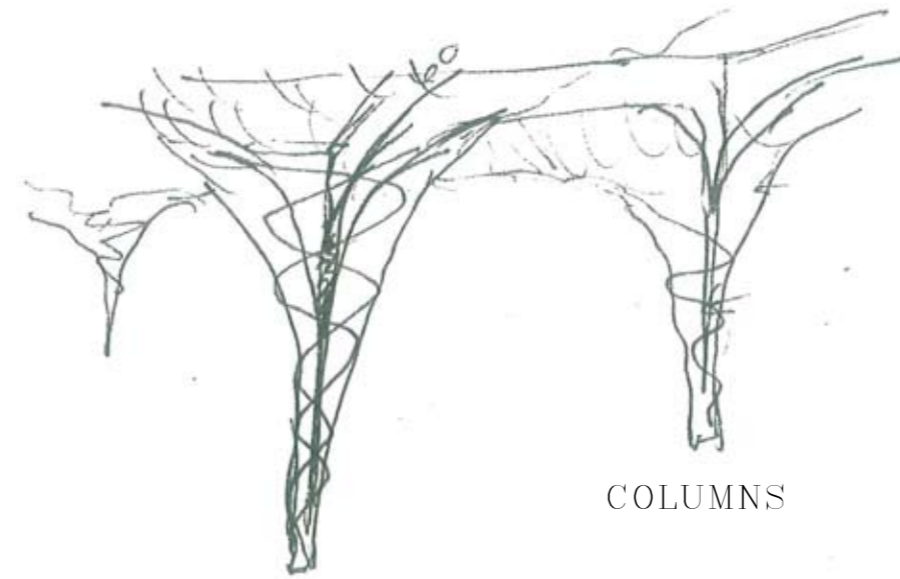
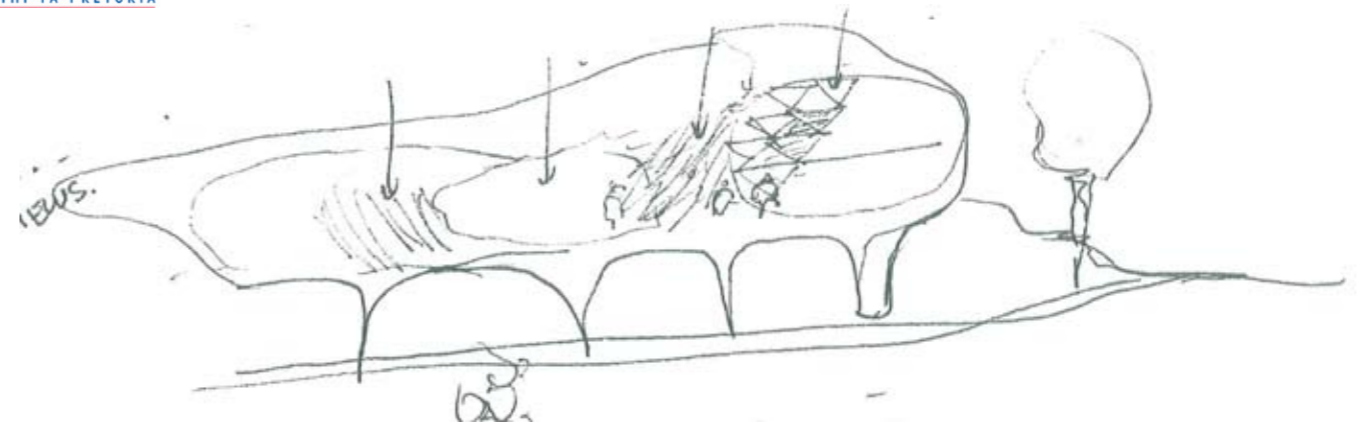
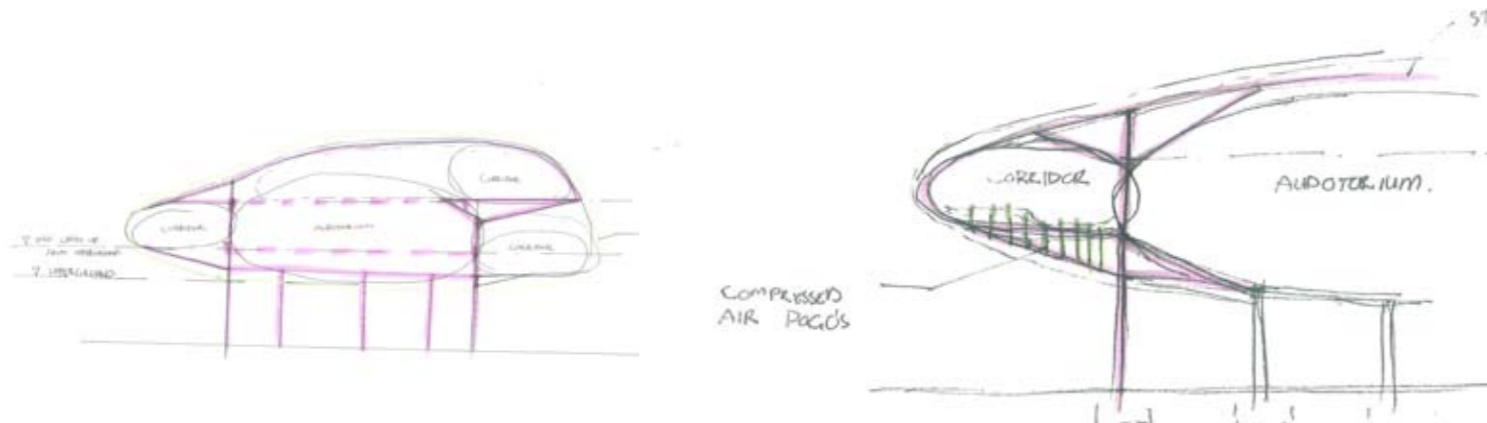
PLAN



design
From the start it was quite apparent that the structure of the building should be simple. The structure should support the free form shape, thereby contributing to making it possible and not restrict it in any way. The structure is limited by how it can touch the ground. Columns are the only option, between lower ground and upper ground floor.



CROSS SECTION WITH STRUCTURE



COLUMNS

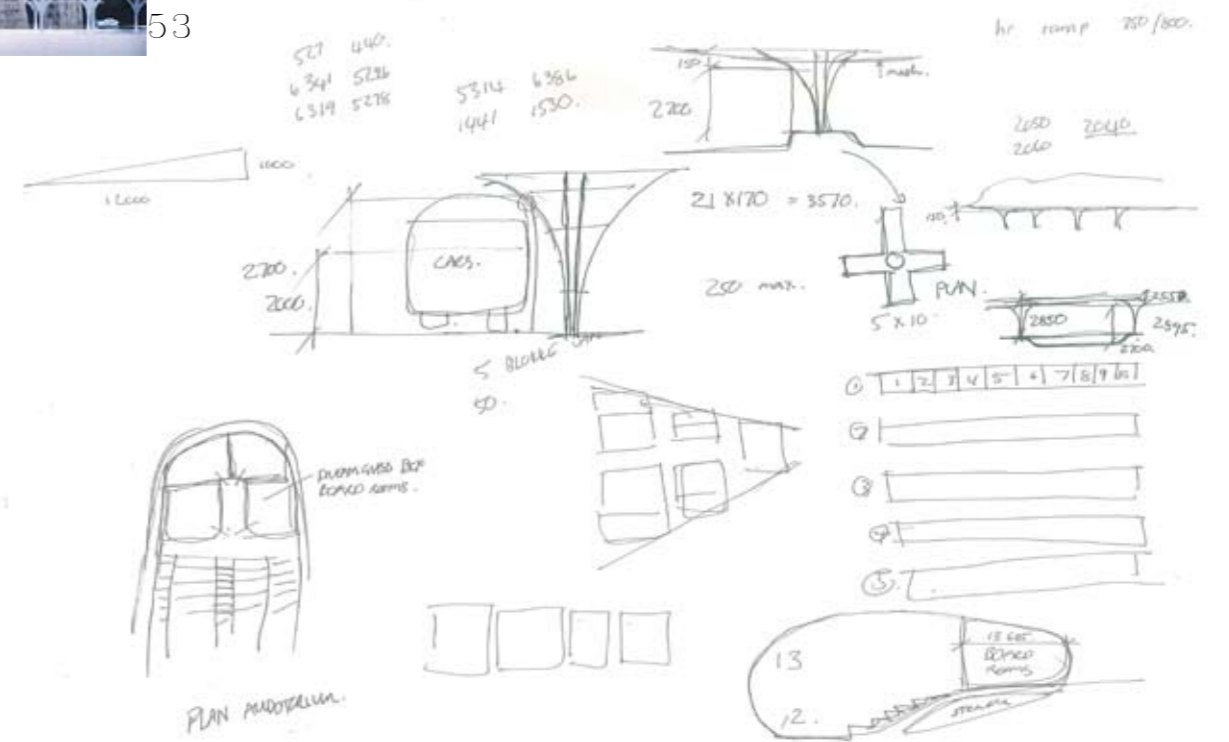
design
The reason why the building has to stand on columns is a result of accepting ARC Architects proposal. The existing ground level is dropped by 1,5m. There is a bridging platform envisaged 3m above the new ground level, where the Monster is situated.

The design language of the building must be carried through to the columns, as well as how they touch the ground.

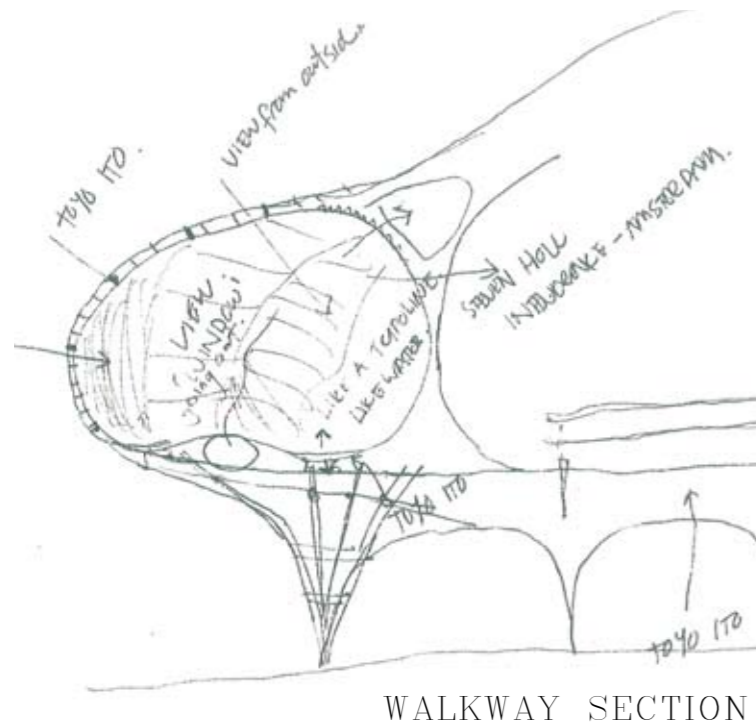


TRANSPARENT STRUCTURE

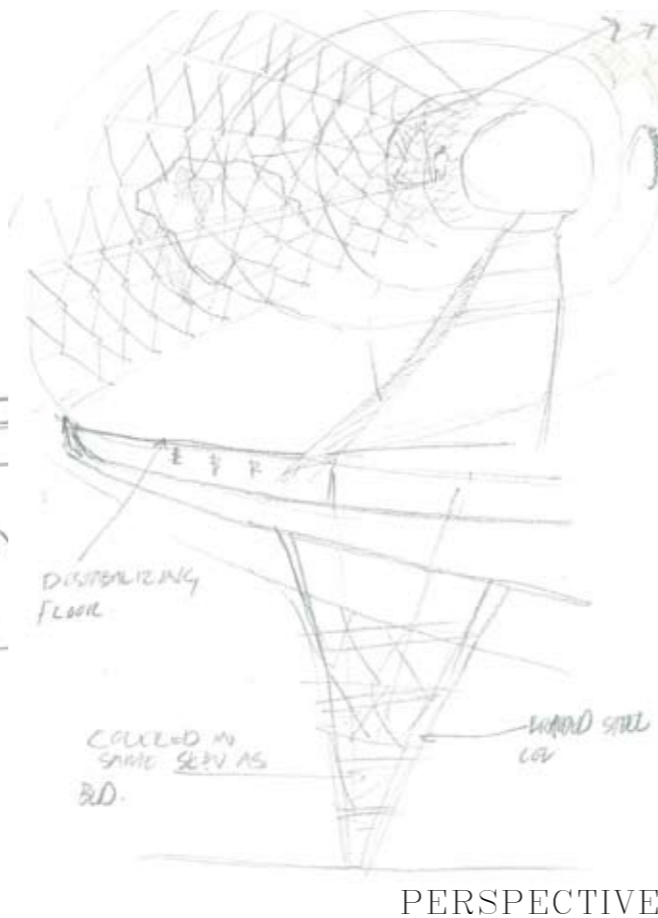
Toyo Ito Library



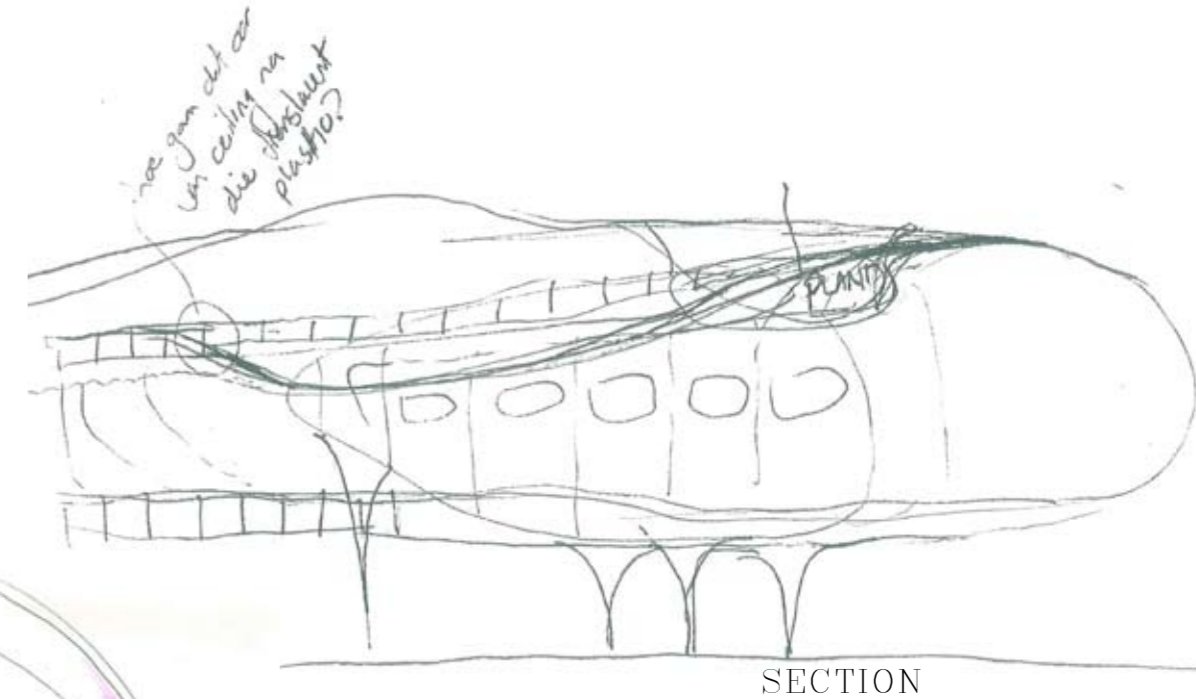
SIZING OF COLUMN



WALKWAY SECTION



PERSPECTIVE



SECTION



54

Nox Water expo [fig. 54, 55]

The precedent has influenced the design in the way you walk through the space. The building conveys people from the outside to the inside. The rules of the two worlds should be negated, to be neither here nor there. The spatial experience should not be an everyday one, raising the level of sensorial stimulation and then communicating information about both sides.

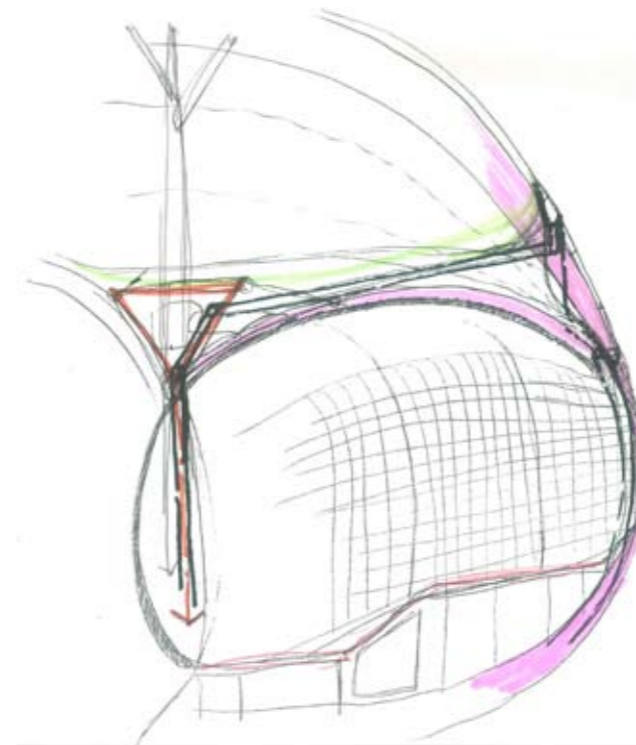
Student World
Built Environment
Sky
Horizon
Wind
Sun
Rain
Trees

Liminal
Negate Built Environment
Negate Sky
Negate Horizon
Negate Wind
Negate Sun
Negate Rain
Negate Trees

Real World
Built Environment
Sky
Horizon
Wind
Sun
Rain
Trees

The NOX H2O Expo was very influential in the design. The expo negates the horizon. Walking becomes an experience in itself, which relates to the way you experience the space. Experiencing the building like this is dislocated from the context. Therefore it would heighten your awareness of the context once you have exited.

This walkway becomes the embodiment of the procession which communicates the intent of the "world" you are entering. It reintroduces an idea explored earlier: through linear movement and projection media this exhibition of intent can be manifested.

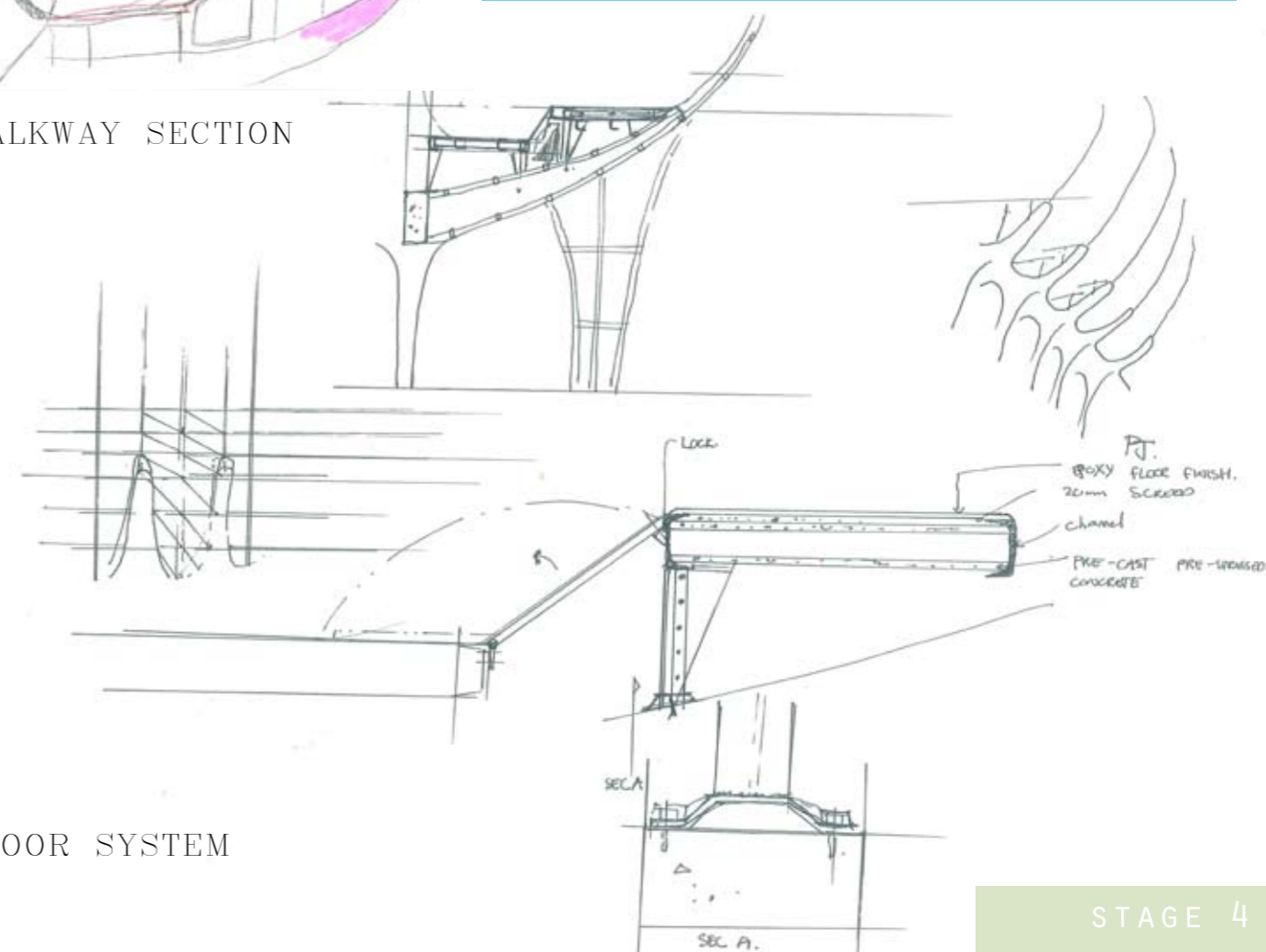


WALKWAY SECTION



NOX H2O EXPO

55



FLOOR SYSTEM

ELEVATION

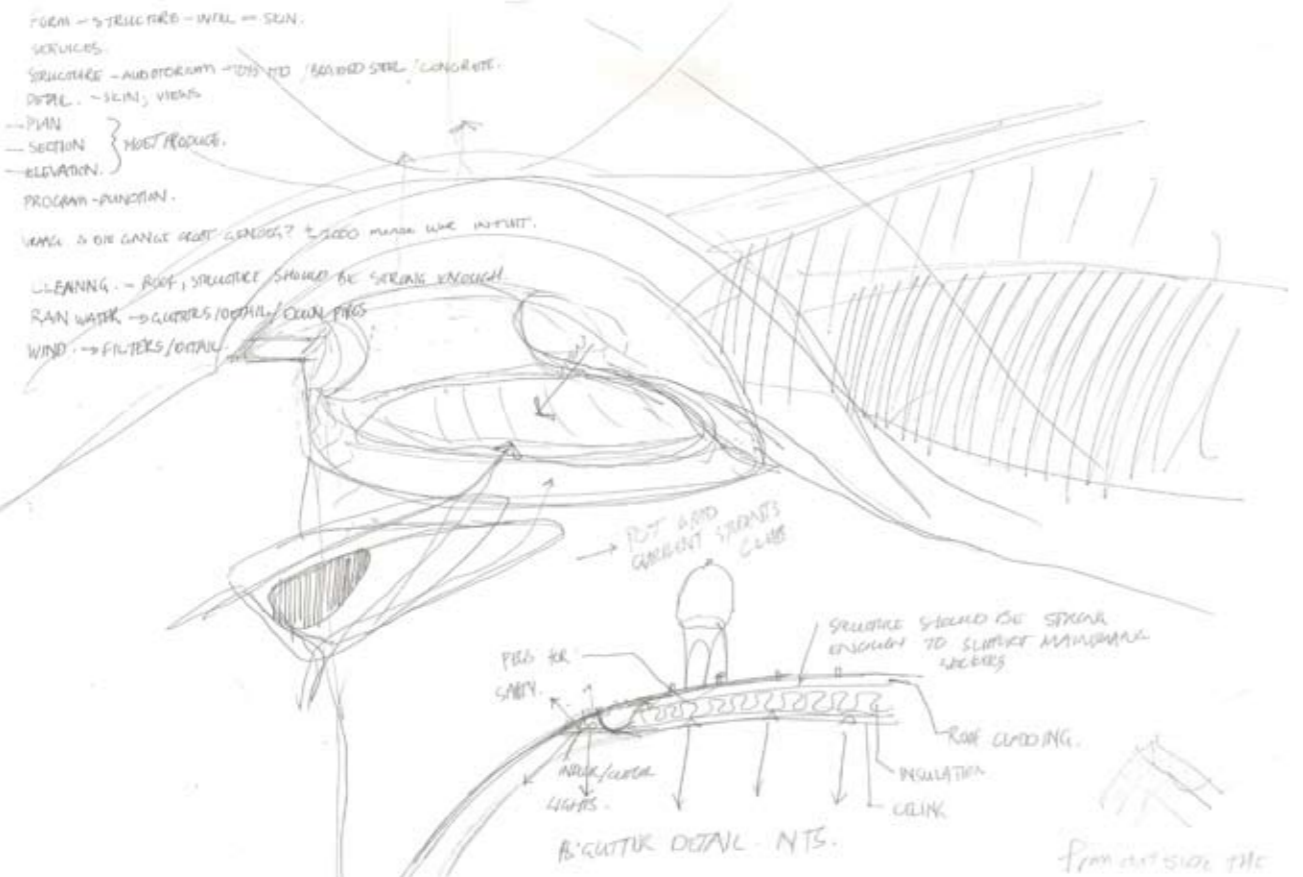
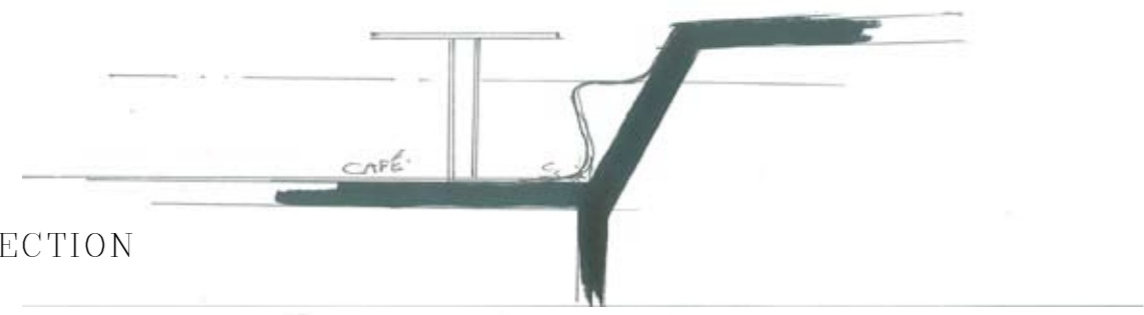
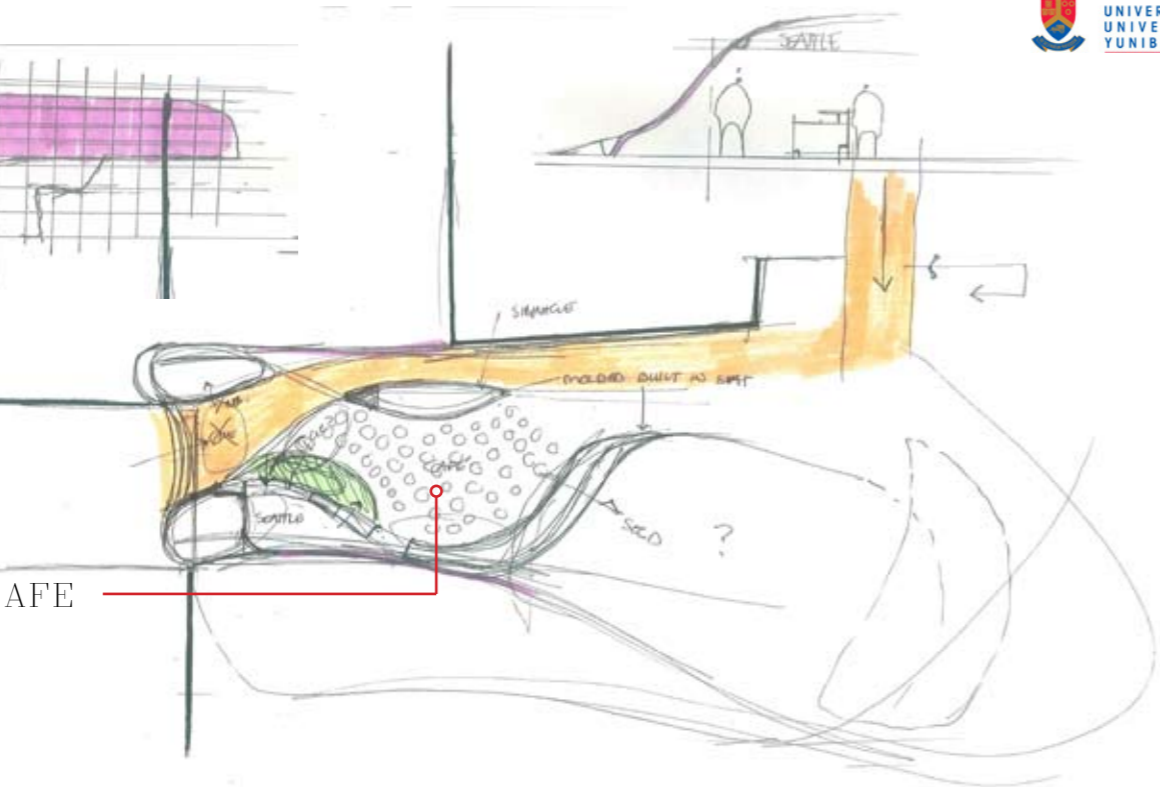
design
First floor. The post graduate club gradually evolved into a cafe. The cafe is situated next to the walkway connecting the parkade to HSB. This introduces a new circulation connection.

From the HSB there are ramps and staircases down to ground floor campus level, allowing disabled people access to campus through this route.

CAFE

FIRST FLOOR

SECTION



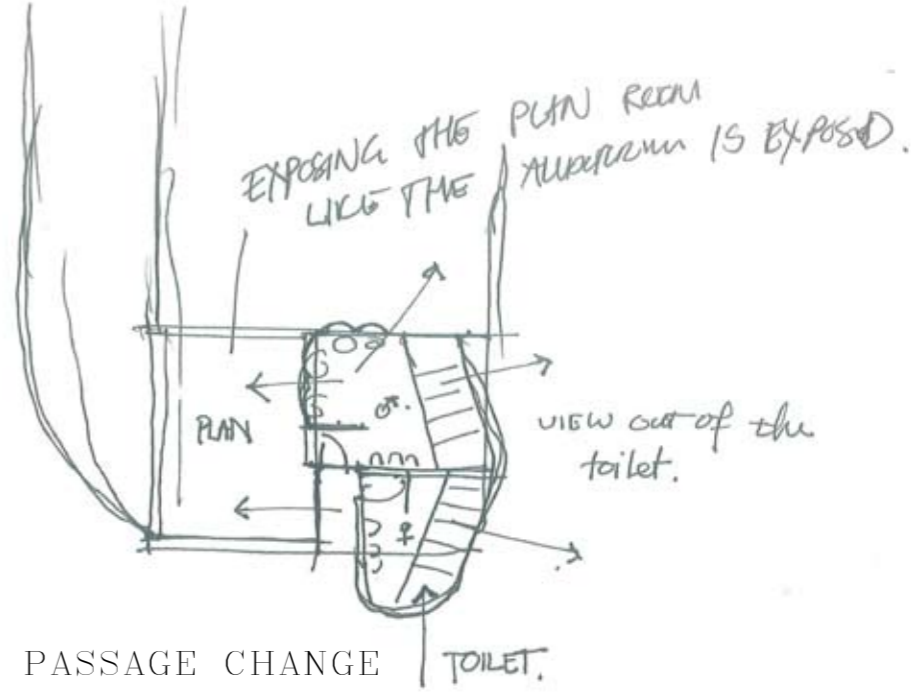
SECTION SHOWING INSULATION IN ROOF AND MAINTENANCE WORKERS ON THE OUTSIDE

PLAN

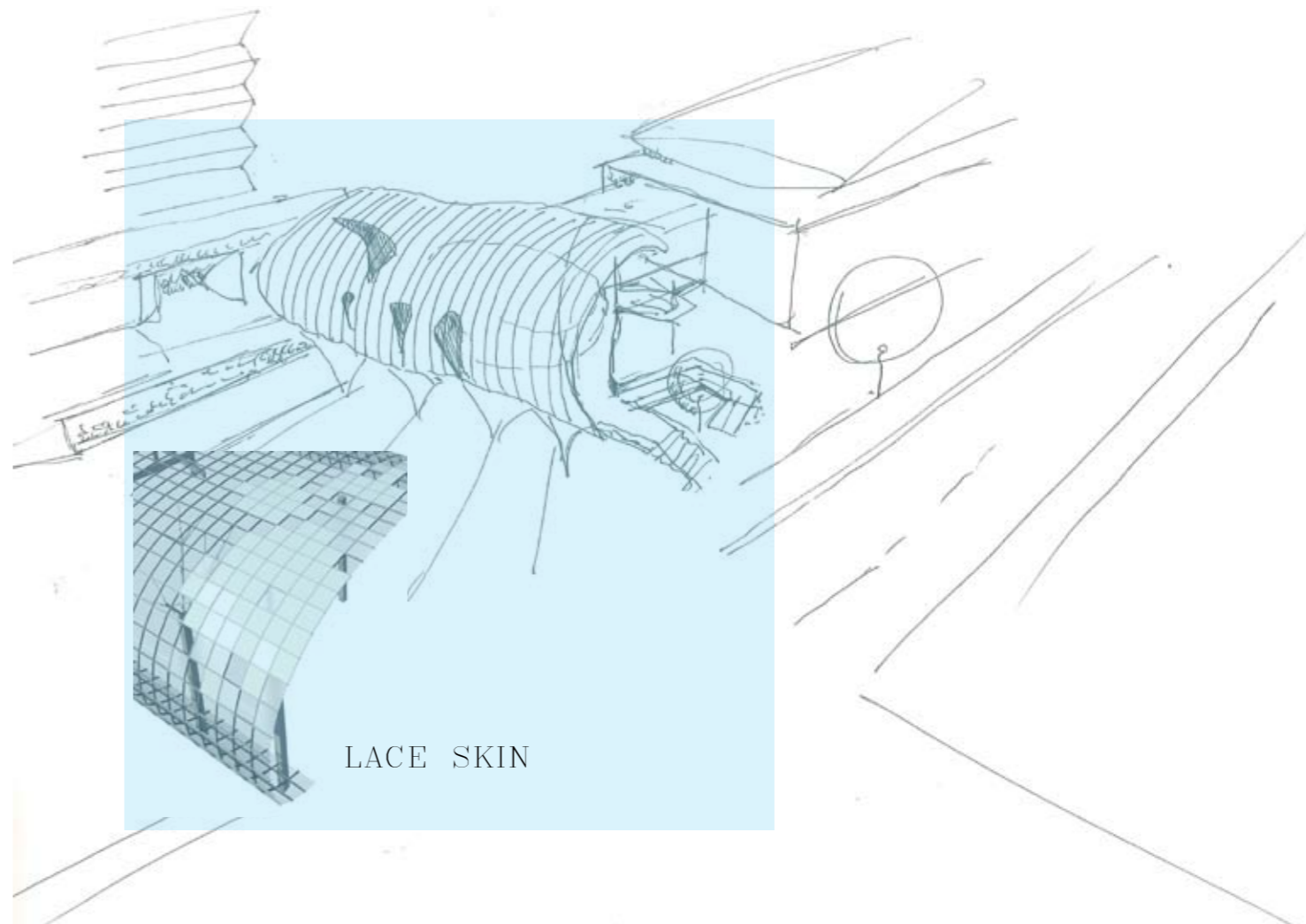
PASSAGE CHANGE

TOILET

design
Planning to integrate the public toilets into the existing HSB, to create threshold spaces interlocking the toilet into the interactive space.



CONTEXTUAL PERSPECTIVE

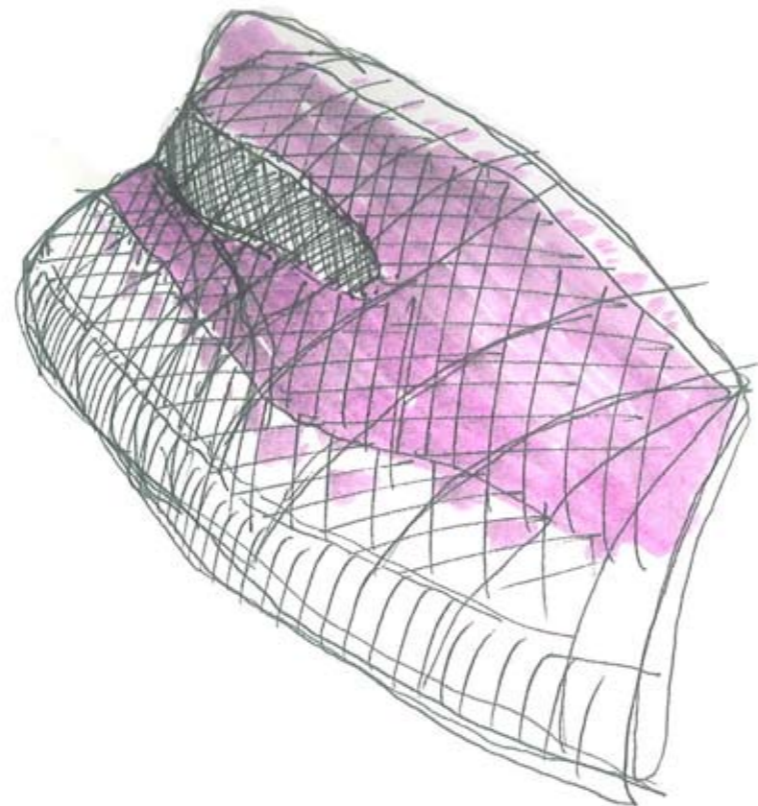


LACE SKIN

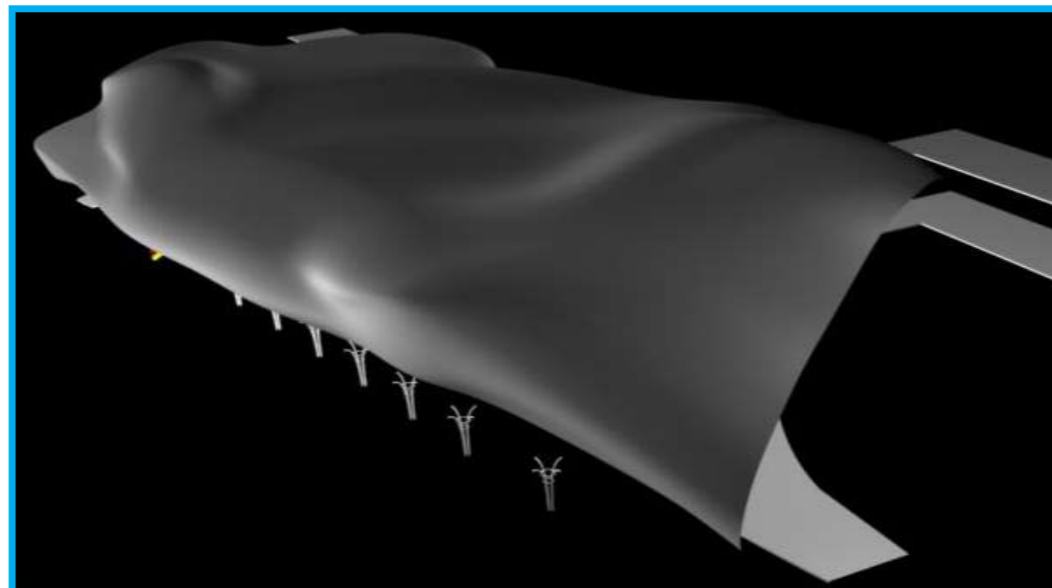
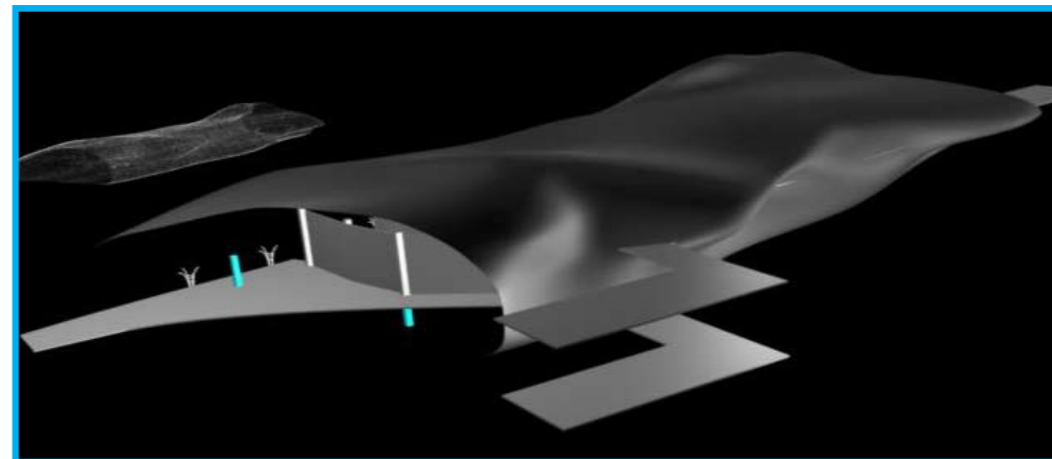
design

The design of the skin was further refined so as to achieve a gradual transition from opaque to transparent. This opposes the Son-o-House way of randomly placing opaque elements in the ethereal skin.

The skin serves not only to clad the structure but it also articulates spatial qualities of the interior. Opacity represents inhabitable space, while transparency alludes to open-conceptual possibilities.



PERSPECTIVE OF THE MONSTER



EARLIER VERSIONS OF THE SKIN EXPLORING THE FREE FORM QUALITIES

precedent



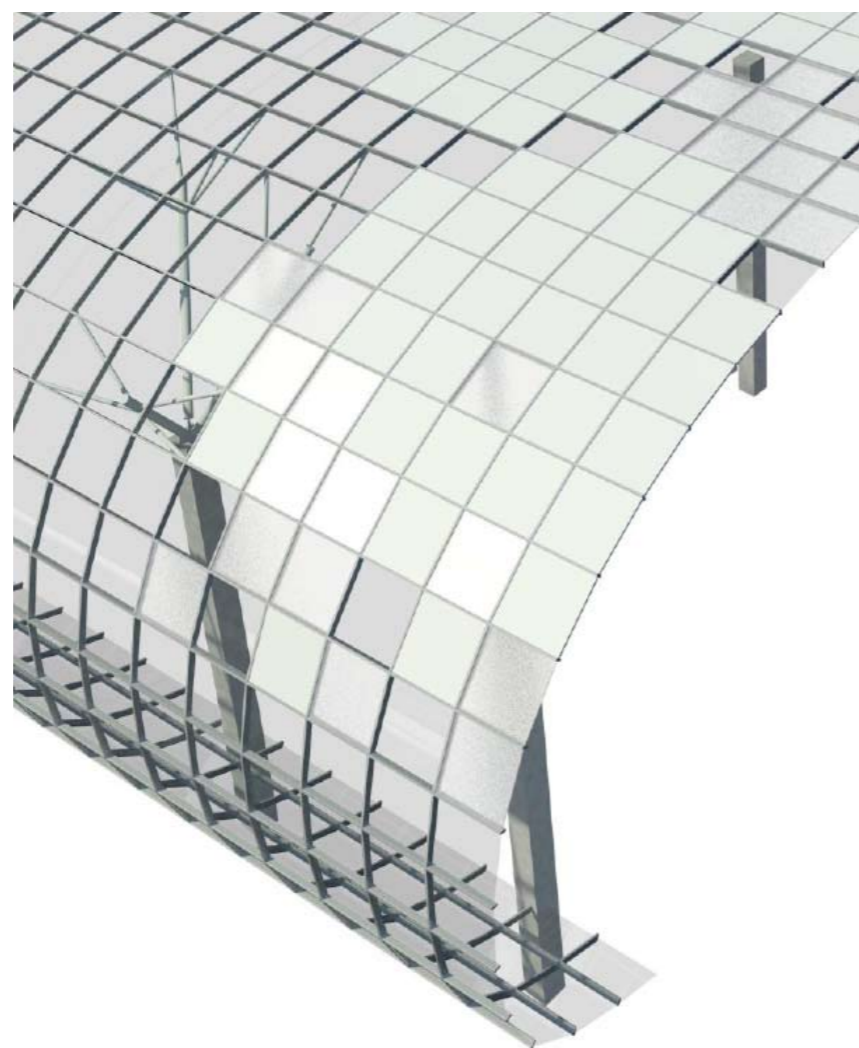
NOX
SON-O-HOUSE

56

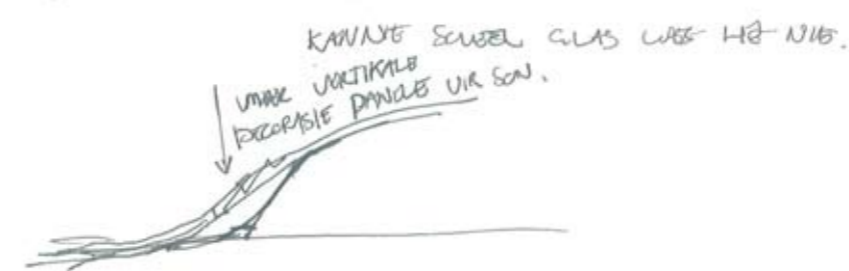


LACE

57



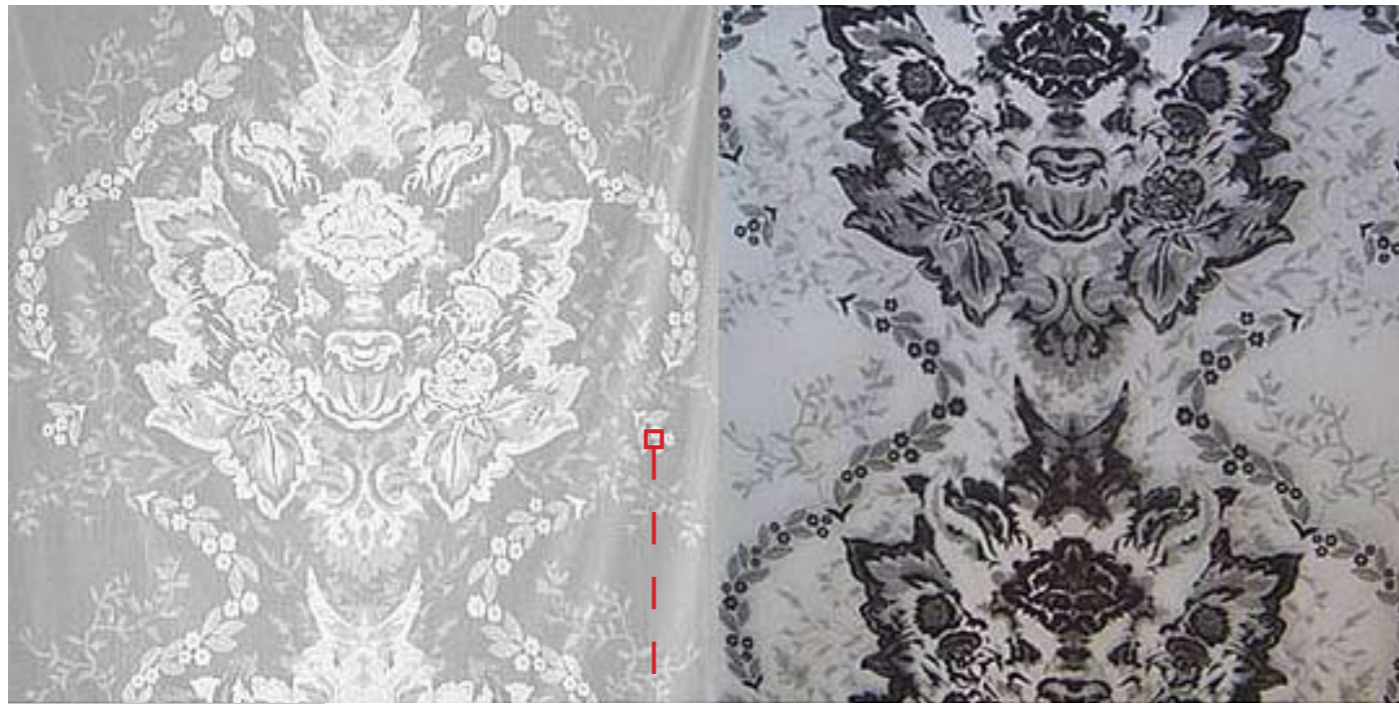
SKIN OF THE MONSTER



WESTERN SUN BREAKS

Die huidige dink Breek sol. produksie plaas.





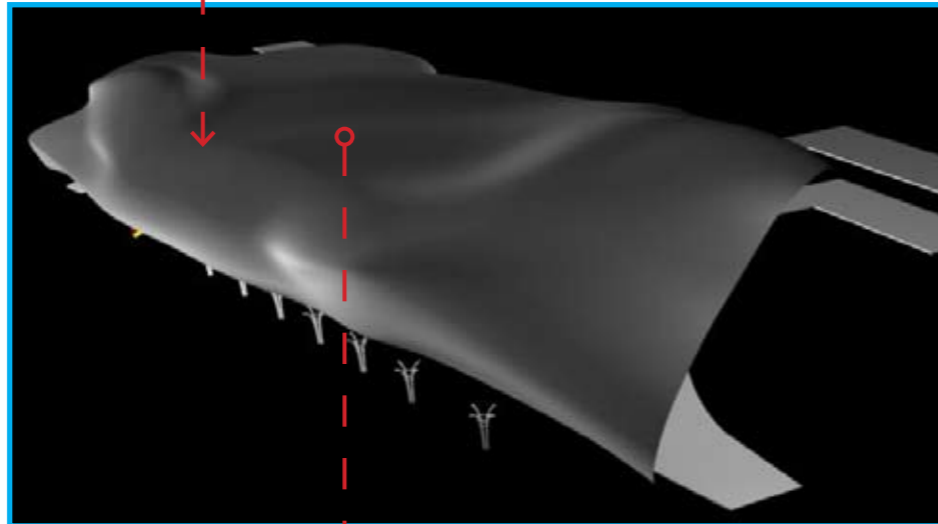
58

Lace

precedent

Lace [fig. 58] is a material which contains all the qualities of the skin that will clad the Monster. Lace consists of patterns resulting in opaque and translucent areas. Usually it is one colour. Lace is the most relevant concept to base the system of the skin on and it is ethereal and delicate.

The image below shows light qualities as a result of the skin design. It is similar to Jean Nouvel [fig. 59].

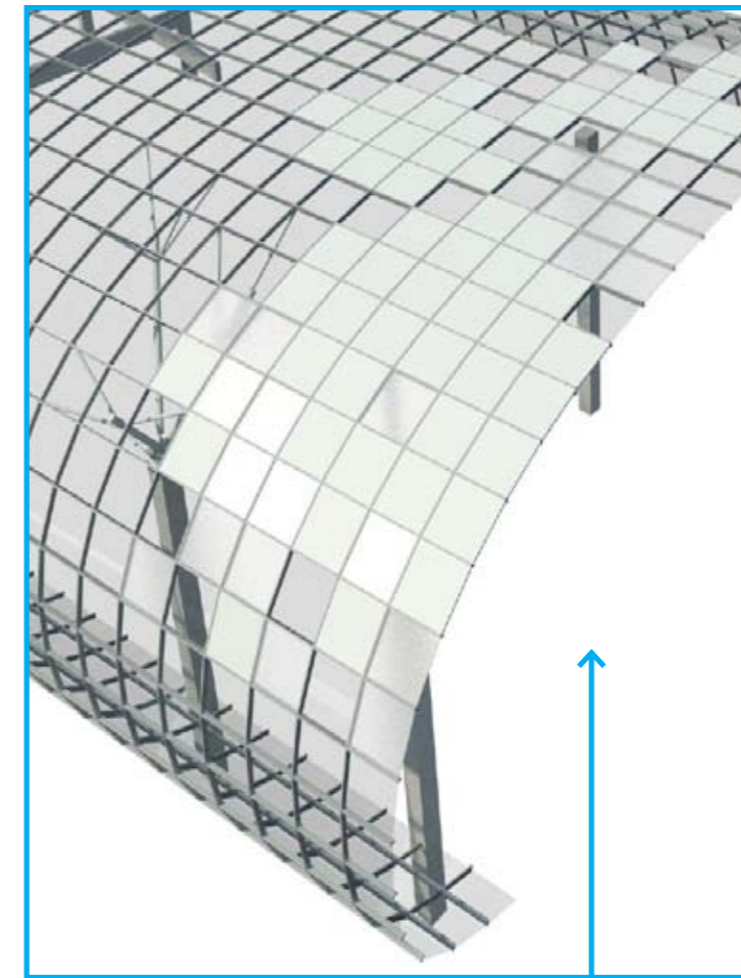


Lace applied to skin



59

Possible light quality due to lace skin

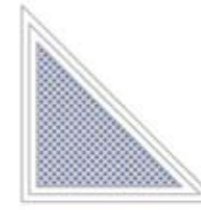


RESULTANT LACE SKIN

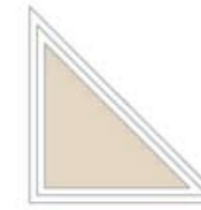
Lace
4 panels in-fill system:
(a) Lattice
(b) Glass
(c) Translucent Glass
(d) Opaque



(a)
lattice



(b)
double glazing
with lattice print



(c)
translucent glass



(b)
solid panel



INTERIOR VIEW OF LACE SKIN

design

A thin skin (1) was envisioned to encapsulate the entire building. (1) With a uniform mesh of regular sized members. It is based on the process followed during the design of Zlote Tarasy. Arup engineers attempted to solve a similar problem which "proved extraordinarily difficult, and was achieved only through Arup fine-tuning the mesh design and its supports". (Arup Journal, 2008: 42) The mesh for my design will be clad with a variety of panels. Ranging from solid to transparent, expressing the building as a unique entity. The arrangement of the panels could deliberately create differentiating climatic conditions inside for specific needs like passive ventilation.

Colour is very important: the building skin will be clad with 4 distinct triangular panels. The structural elements will be powder coated white, and aluminium anodizing will also be white - 15 microns thick. Conceptually this system will communicate the spatial qualities, from opaque to clear panels.

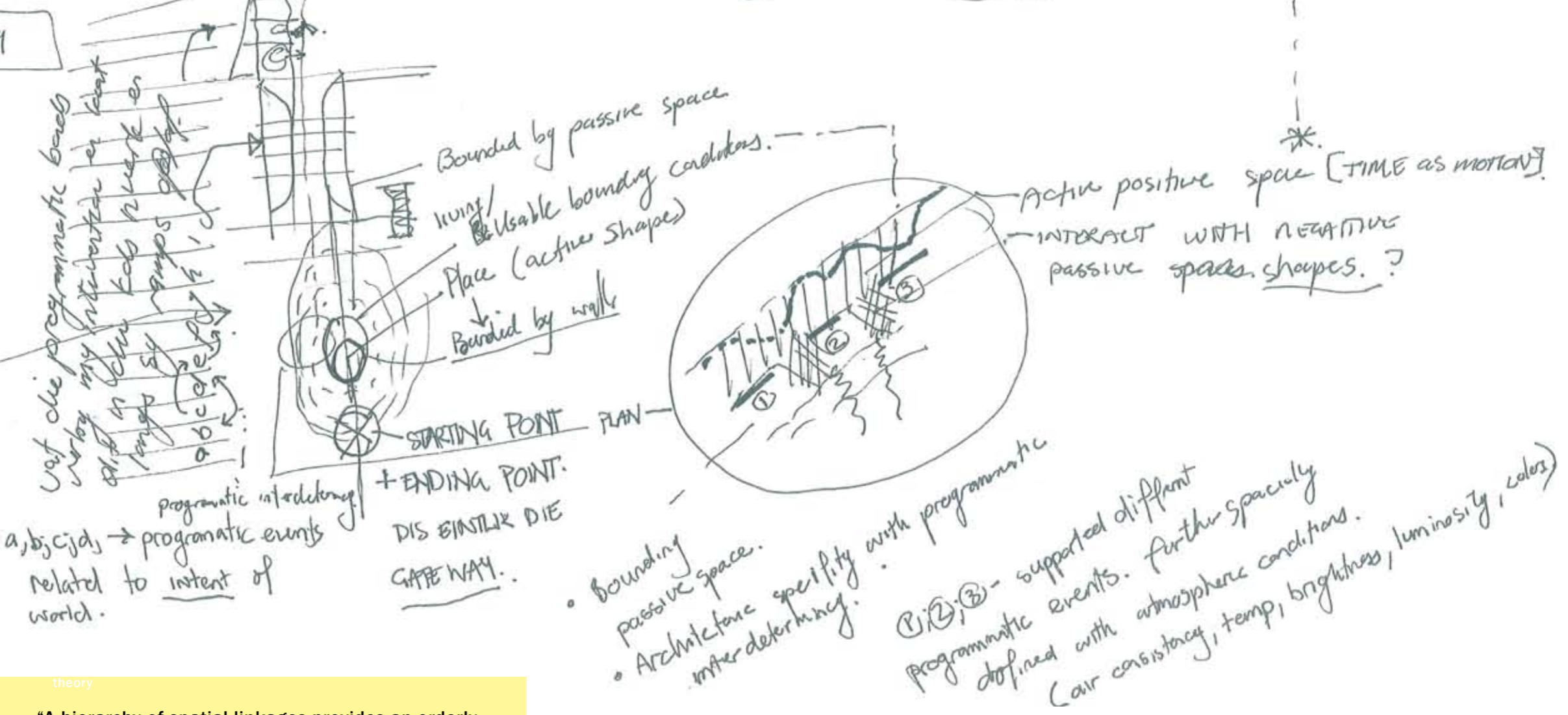
technical

The end result is a continuous triangulated grid of steel rectangular hollow section, (RHS) of constant size, 150 mm deep by 100 mm wide, with wall thicknesses probably in the range of 5mm-15mm depending on the forces in the members. This will be stressed with a finite element grid analysis.

experiences based on number and geometry. → spatial experience.
Rhythm in Time NB p 19

Harmonic Order p 89

- INTENT of university -
- INSTRUMENTALIZING RESPONSIBILITY.
- Learning Jargon.
- specific field.



“Decosterd and Rahm use atmospheric conditions as building materials. Air consistency, temperature, brightness, luminosity, colour. These are the physical variables that define the spatial and functional organization of their controlled environments.” (Verb. 2005: 128) These atmospheric conditions will further enhance the linear succession and contribute to the definition of the programmatic bands, which is expressed as a ramp with folly like pods arranged in a sequential manner.

The pods “combines architectural specificity with programmatic inter-determining.” (Koolhaas, R. 1997: 921) These programmatic bands specific to this design will communicate the intent of the world you are moving to.

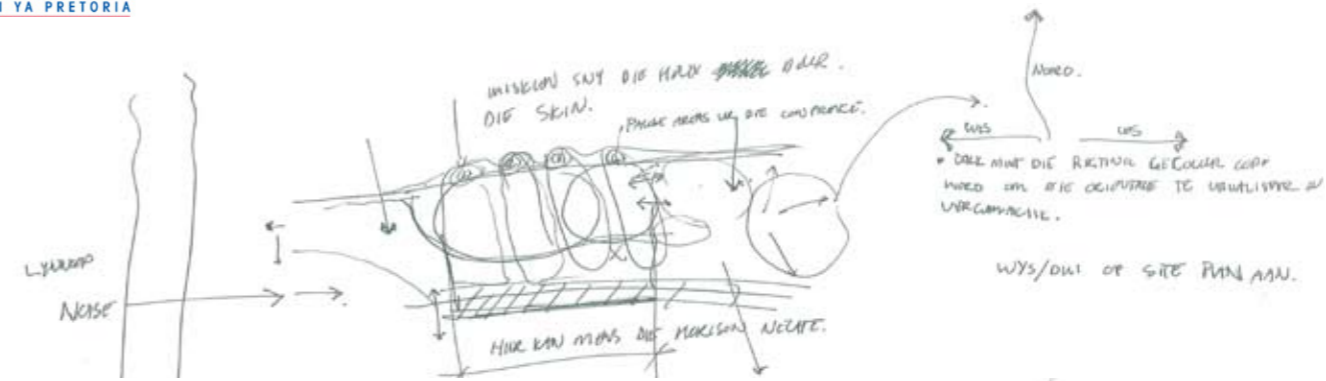
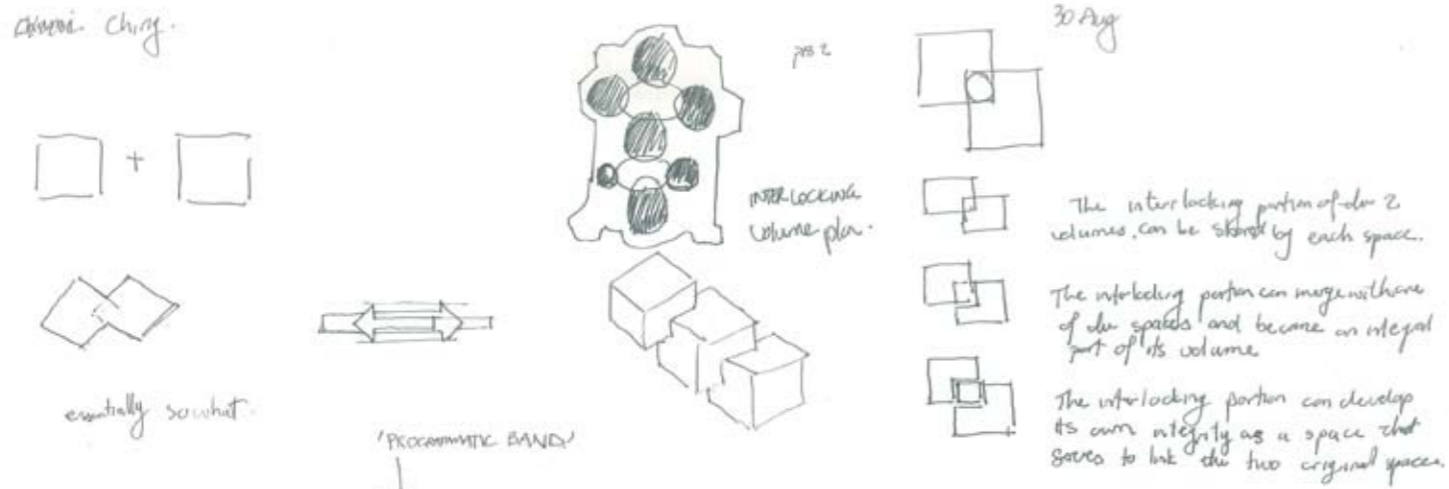
“A hierarchy of spatial linkages provides an orderly system that allows for both consistency and change”. “In conception of ‘place’ a central space is created by enveloping it in walls. These boundary conditions may in time become ‘usable’ or ‘living’ wall... The city, as previously mentioned, is viewed as an active shape bounded by passive space. Moving within the three dimensional mass of the city, active, positive spaces interact with negative passive shapes.” (Ardalan, N. 1973: 17) The auditorium is the central space bound by circulation. From the beginning these boundary conditions are usable as spatial experiences.

Time / Form simultaneity
“Space contains both active and passive possibilities. It is in relation to the active aspects of space that the idea of time as motion occurs. Concurrently, the passive possibilities are manifested in matter of form which is directly a product of this movement. Thus the locus of time and form is space, which simultaneously manifests its active and passive aspects through motion.” (Ardalan, N. 1973: 19) Movement is also an important aspect to experience the building.

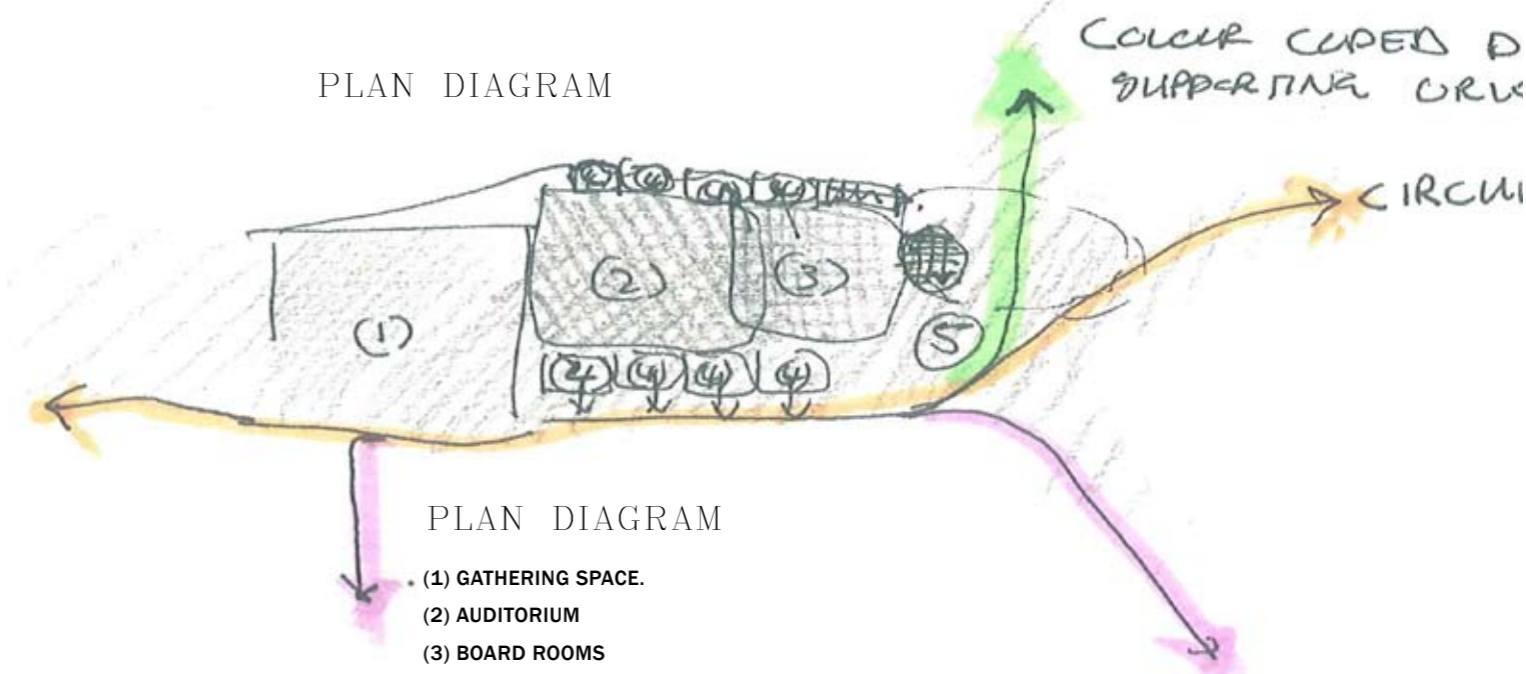
“The project marries the desire for initial effect with the functionalist notion of the exterior as a reflection of the interior program, deepening the skin to allow program itself to become ornament”. (Verb. 2005: 64) This notion is applied in the Monster to the border conditions surrounding the auditorium.

A path is continuous, linear succession. Norberg-Shultz (1974: 22) states “Primarily it is a direction to be followed towards a goal, but during the journey events happen and the path is also experienced as having a character of its own.”

This diagram shows all these elements just in terms of spatial experience, as a result liminality is experienced spatially.

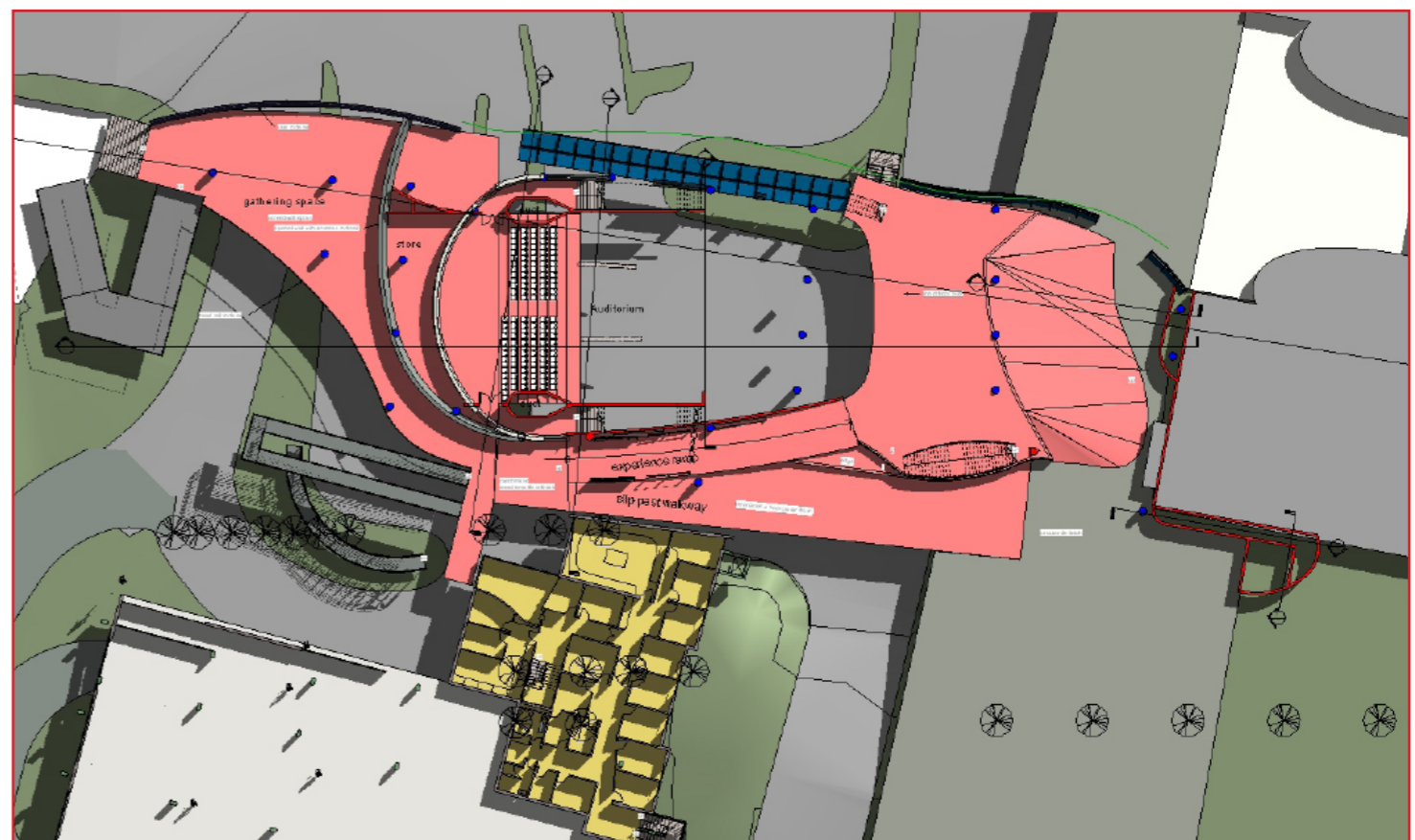
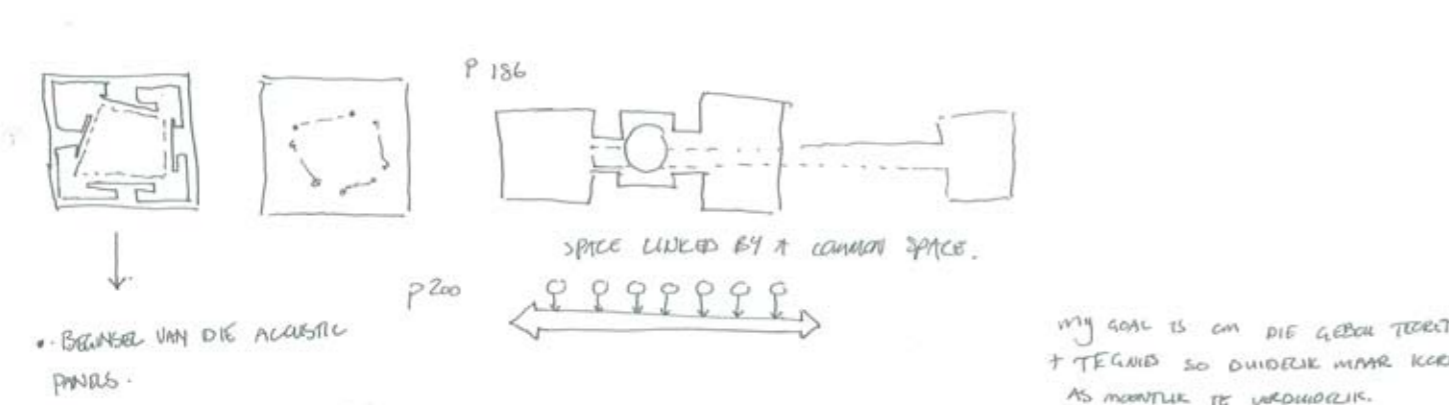
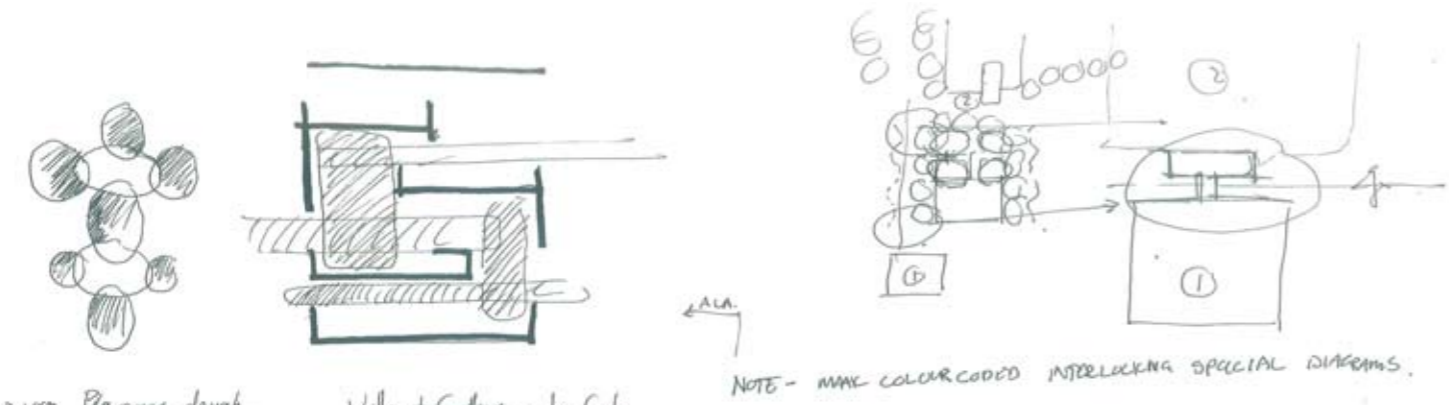
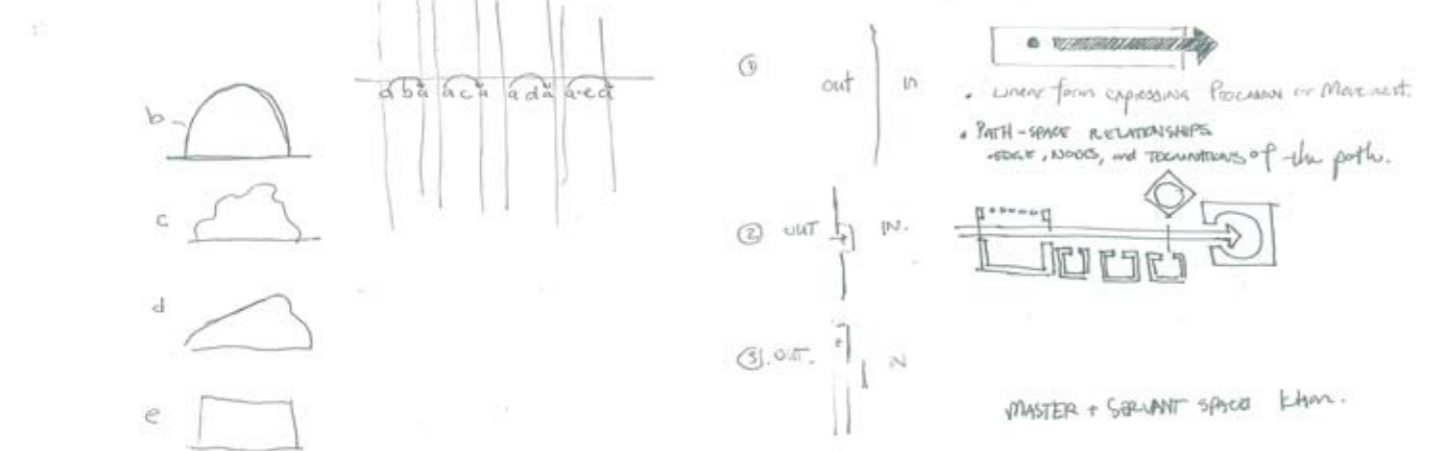


PLAN DIAGRAM



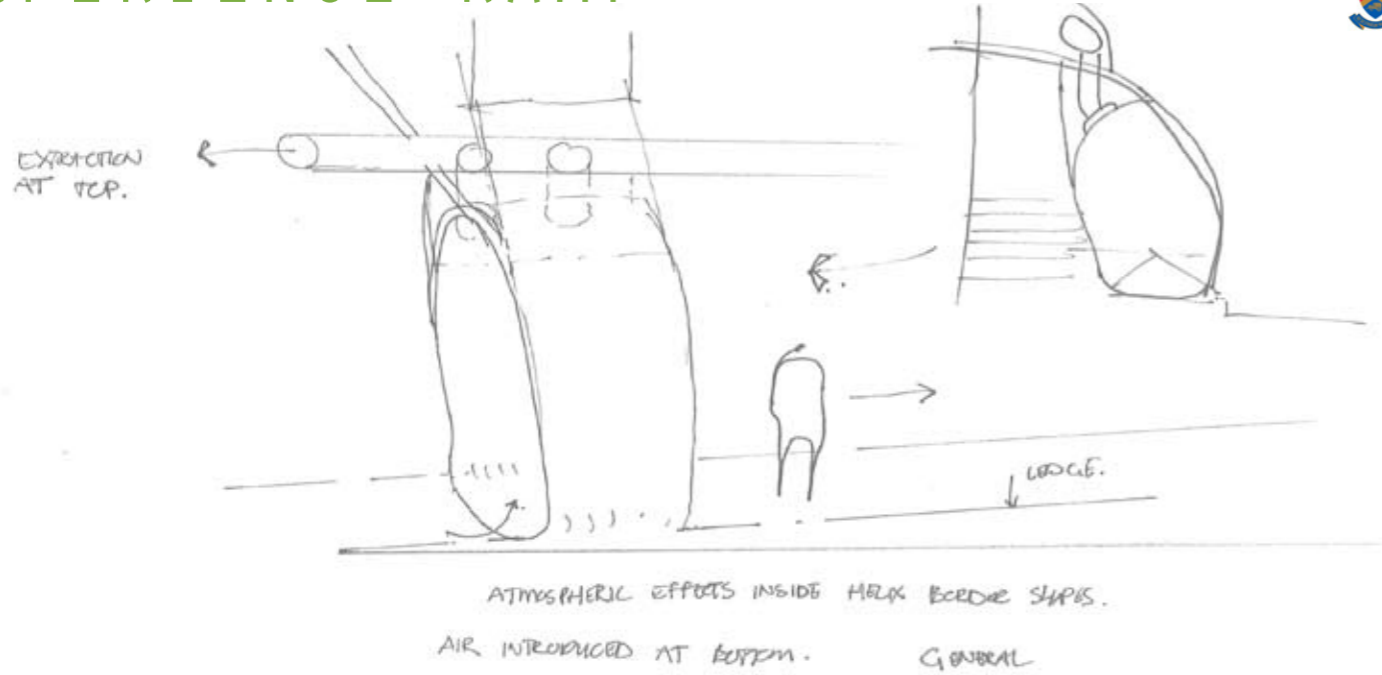
PLAN DIAGRAM

- (1) GATHERING SPACE.
- (2) AUDITORIUM
- (3) BOARD ROOMS
- (4) BORDER CONDITIONS, SPACIAL EXPERIENCES, PROGRAMMATIC BANDS.
- (5) INTERACTIVE SPACE, ADA, PERSON-SPACE RELATIONS

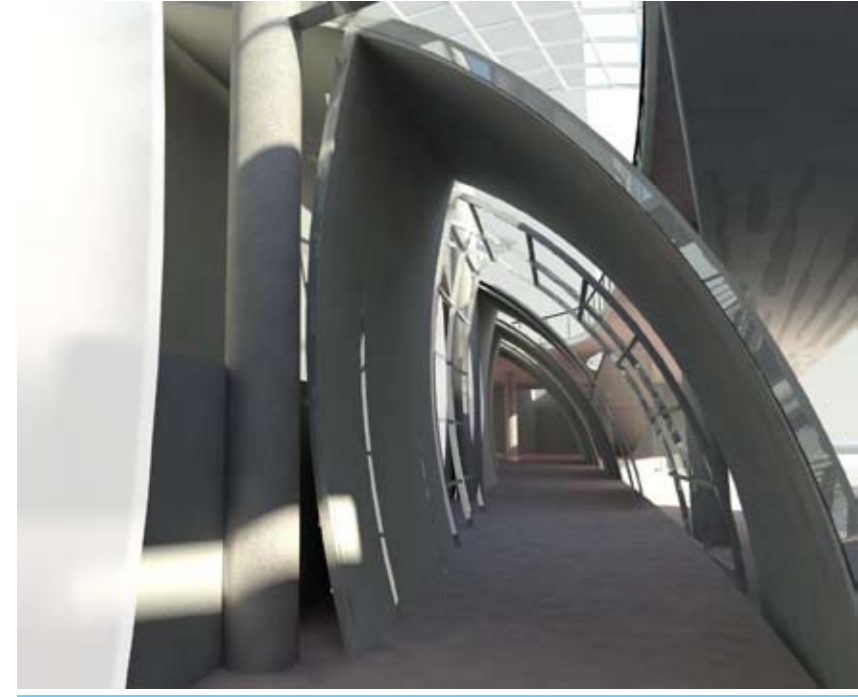


UPPER GROUND FLOOR

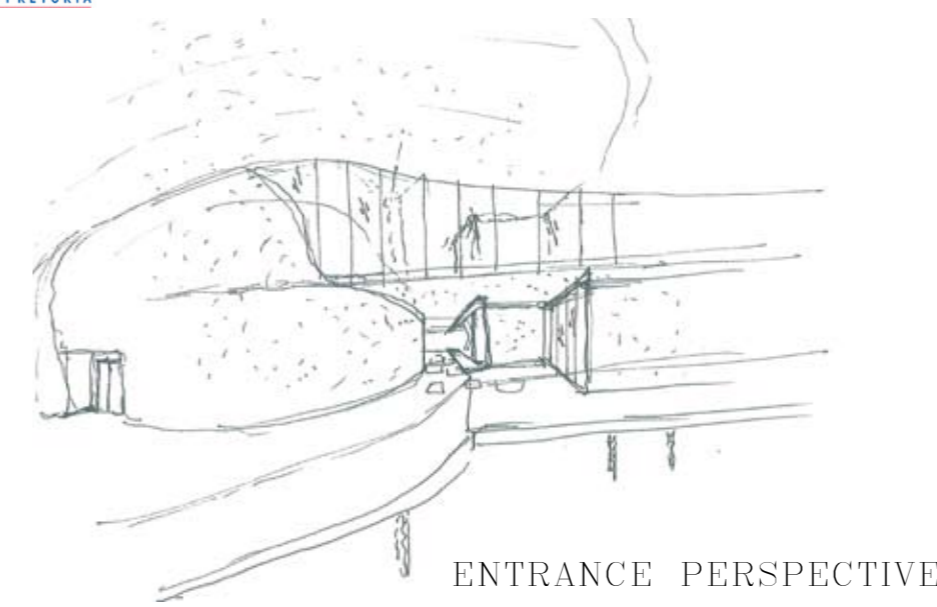
REDRAWN FROM CHING (1973: 182, 183, 186)



EXPERIENCE POD



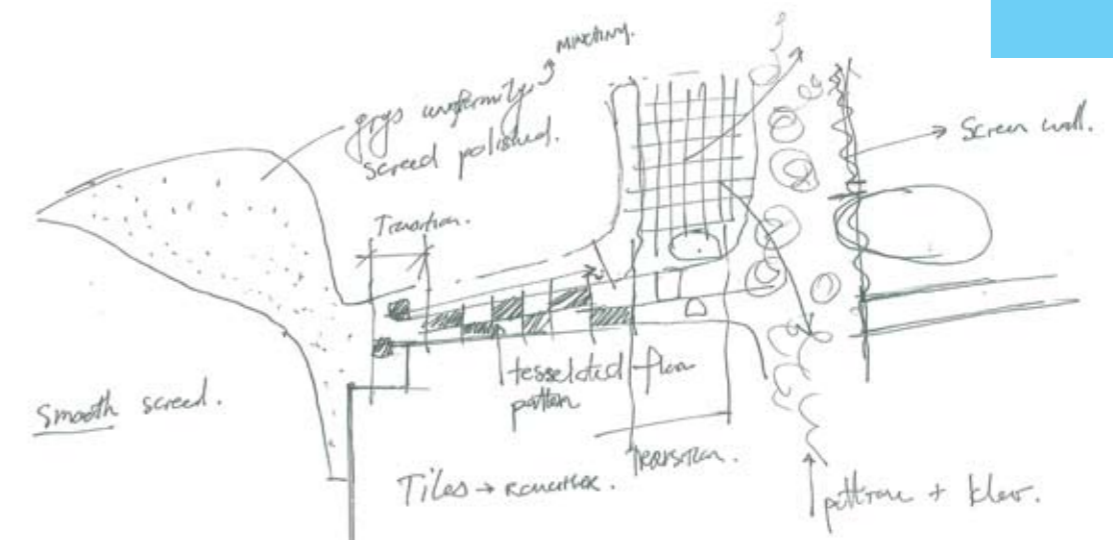
RENDERING OF EXPERIENCE RAMP



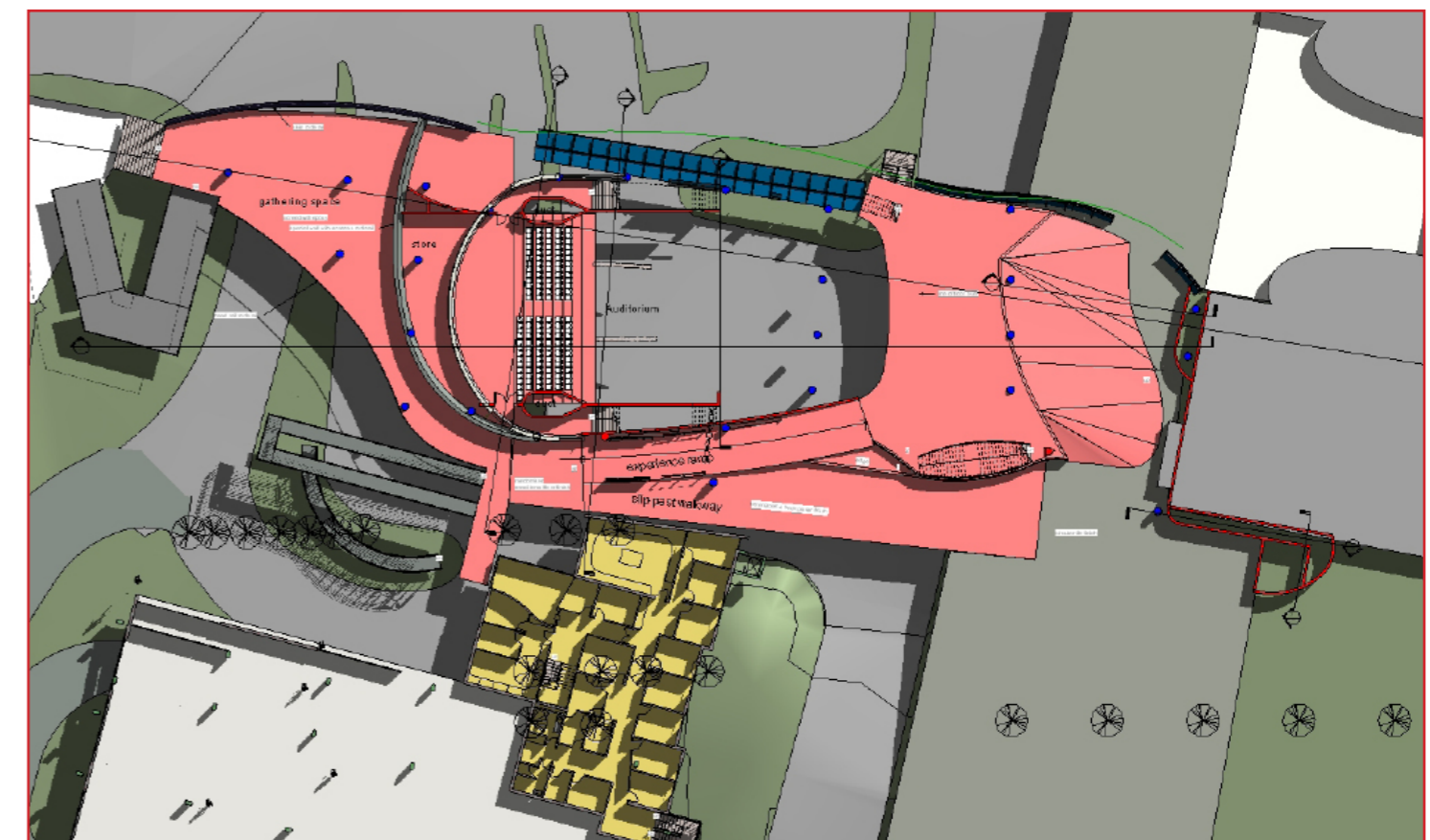
ENTRANCE PERSPECTIVE

technical
Acoustic absorbing materials dealing with the noise of Lynwood Road.

design
Floor finish
The floor finish further contributes to the spacial experience. The planning was influenced by the progression from outside to inside.



FLOOR FINISH DIAGRAM



UPPER GROUND FLOOR

design

The experience pods are derived from the NOX H2O Expo. These pods are the border conditions around the Auditorium. They are situated on a ramp.

These pods are equipped with projectors and screens which communicate the intent of the world you are going into.

A further element which is used to define these spaces is atmospheric effects, in the same way Decosted and Rahm suggested using atmospheric effects as building materials.

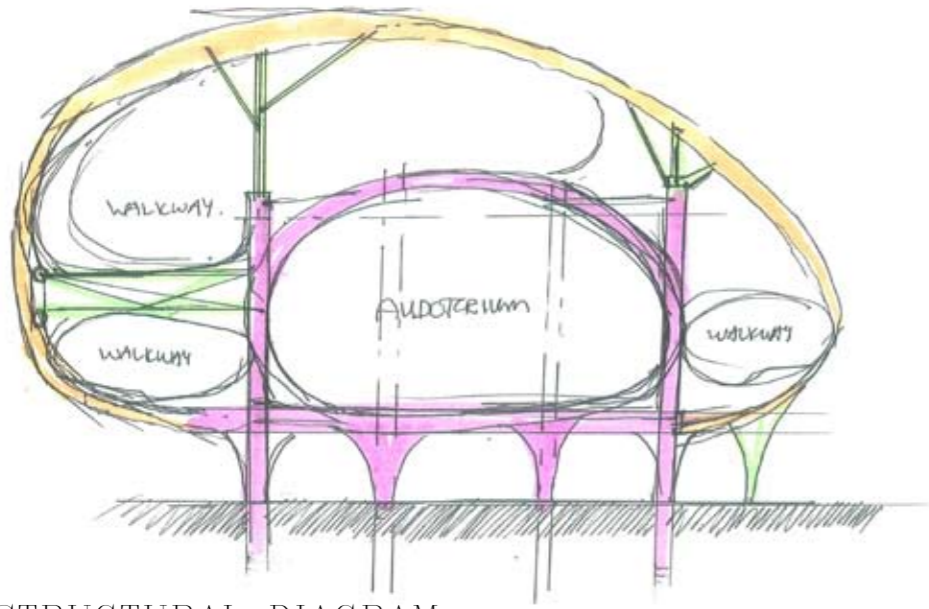
Each pod would get a specific atmospheric effect to define it as a space. The experience ramp creates a sequential contextual based path similar to Norberg-Schultz's notion of path. All the pods would be designed specifically but with flexibility to change its content, similar to a folly. This relates to Tschumi's Parc de la Villette and its programmatic bands. These programmatic bands are essential in determining the pod sizes.

They are superimposed perpendicular to the linear movement. This in turn is related to positive space systems in which "a hierarchy of spatial linkages provides an orderly system that allows for both consistency and change". (Ardalan, N. 1973: 17) This ramp forms a procession, the procession leads up to the most female part of the space: the interactive intelligent ADA influenced space. This space is where the person-environment relation is realized to its fullest. From this space there is the greatest variety of choice to the user in terms of paths into university grounds.

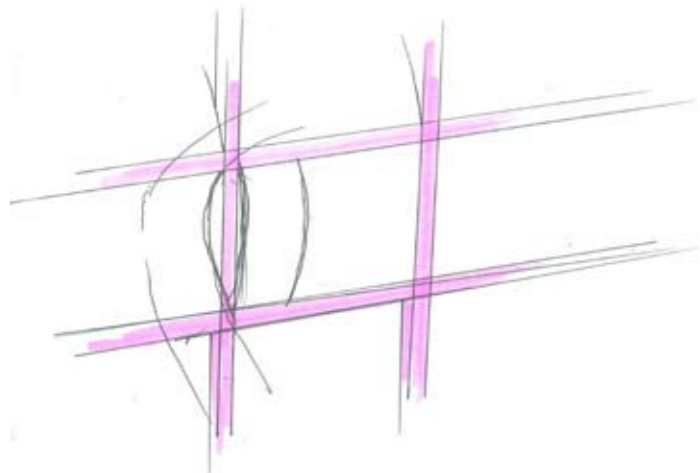
technical

Structural diagrams
The different parts of the structure are coded with colours. It also shows the materials used. The solid materials in the middle indicates the construction of the auditorium. Around the auditorium the female-open conceptual possibilities type space is wrapped. The two opposing phenomena are forced into one space. Creating one entity which is a hybrid spatially and materially.

- STEEL STRUCTURE.
- CONCRETE STRUCTURE
- SKIN - FACETED STEEL STRUCTURE



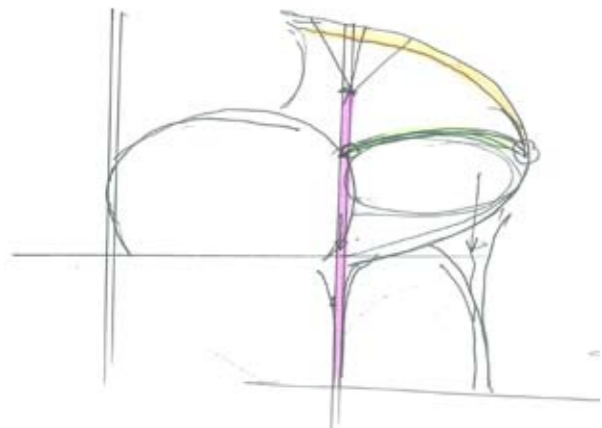
STRUCTURAL DIAGRAM



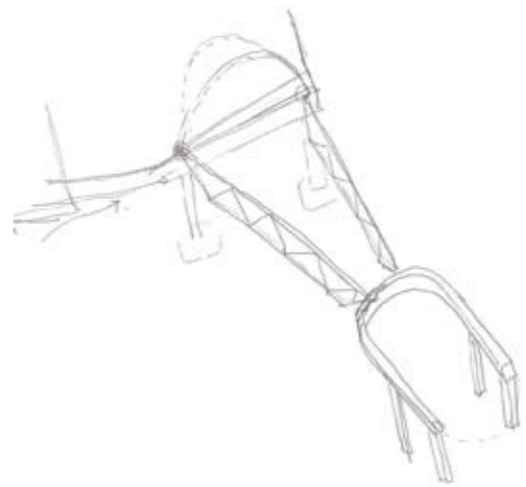
CONCRETE COLUMNS



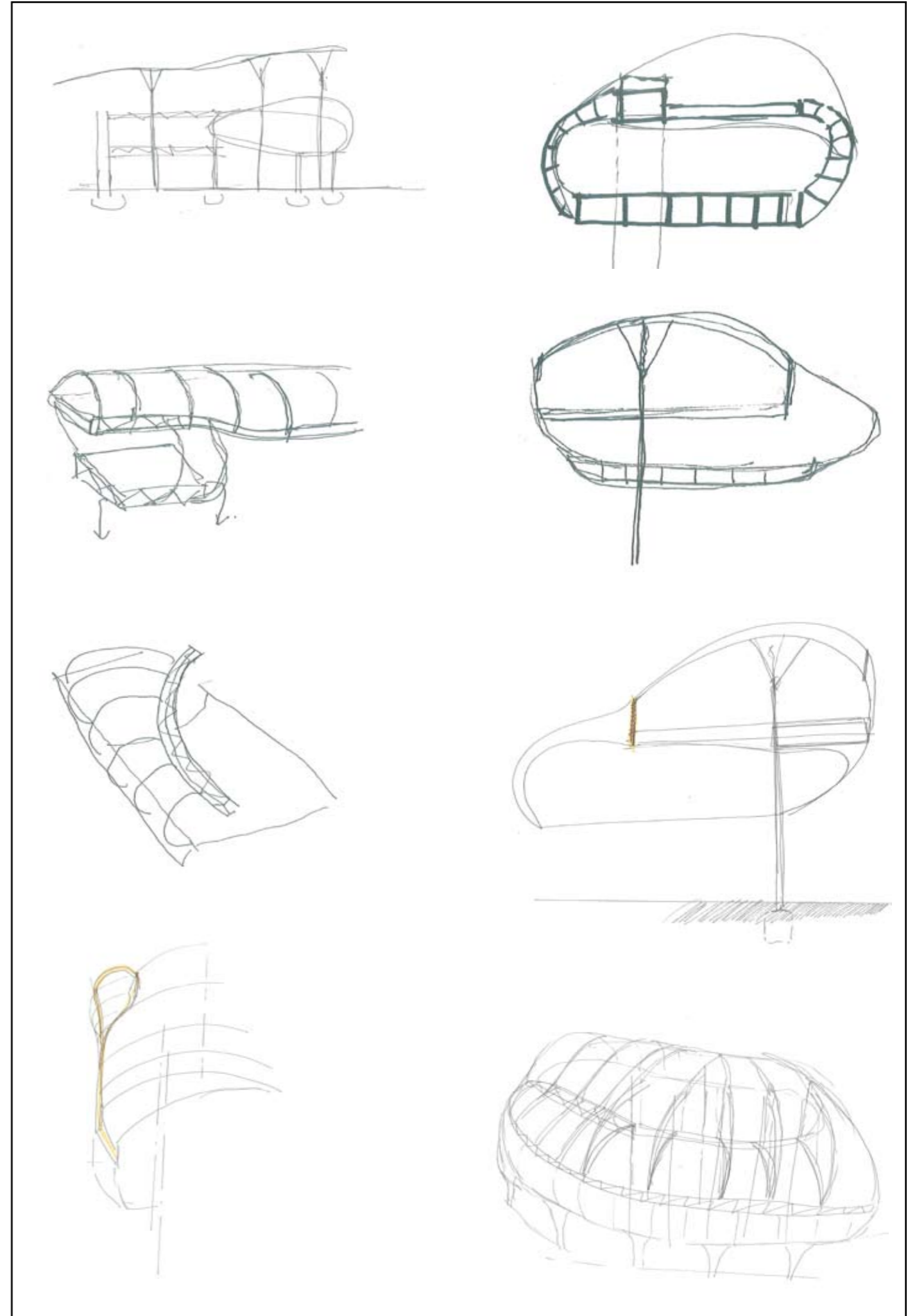
COLUMNS AND BEAM

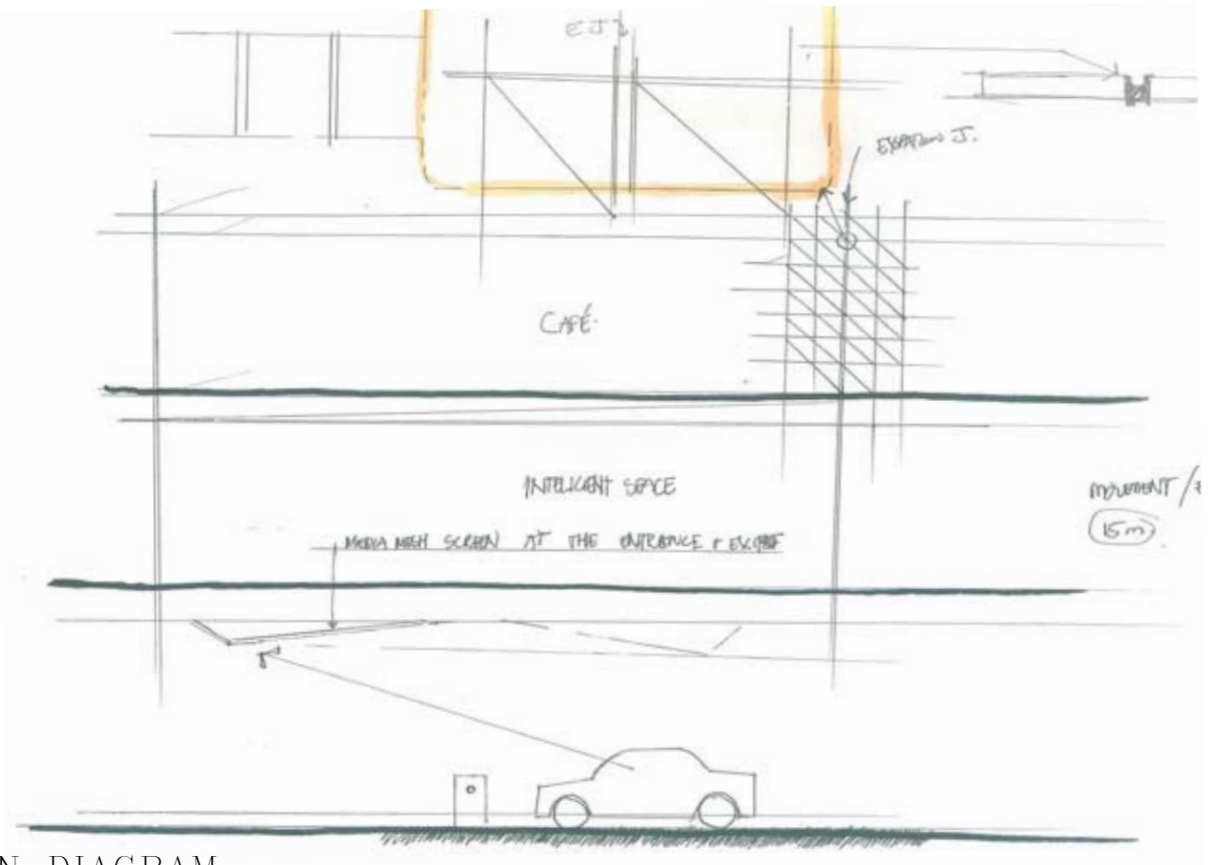


COLUMN AND TREE



LATTICE GIRDER BETWEEN AUDITORIUM AND EXISTING CONTEXT



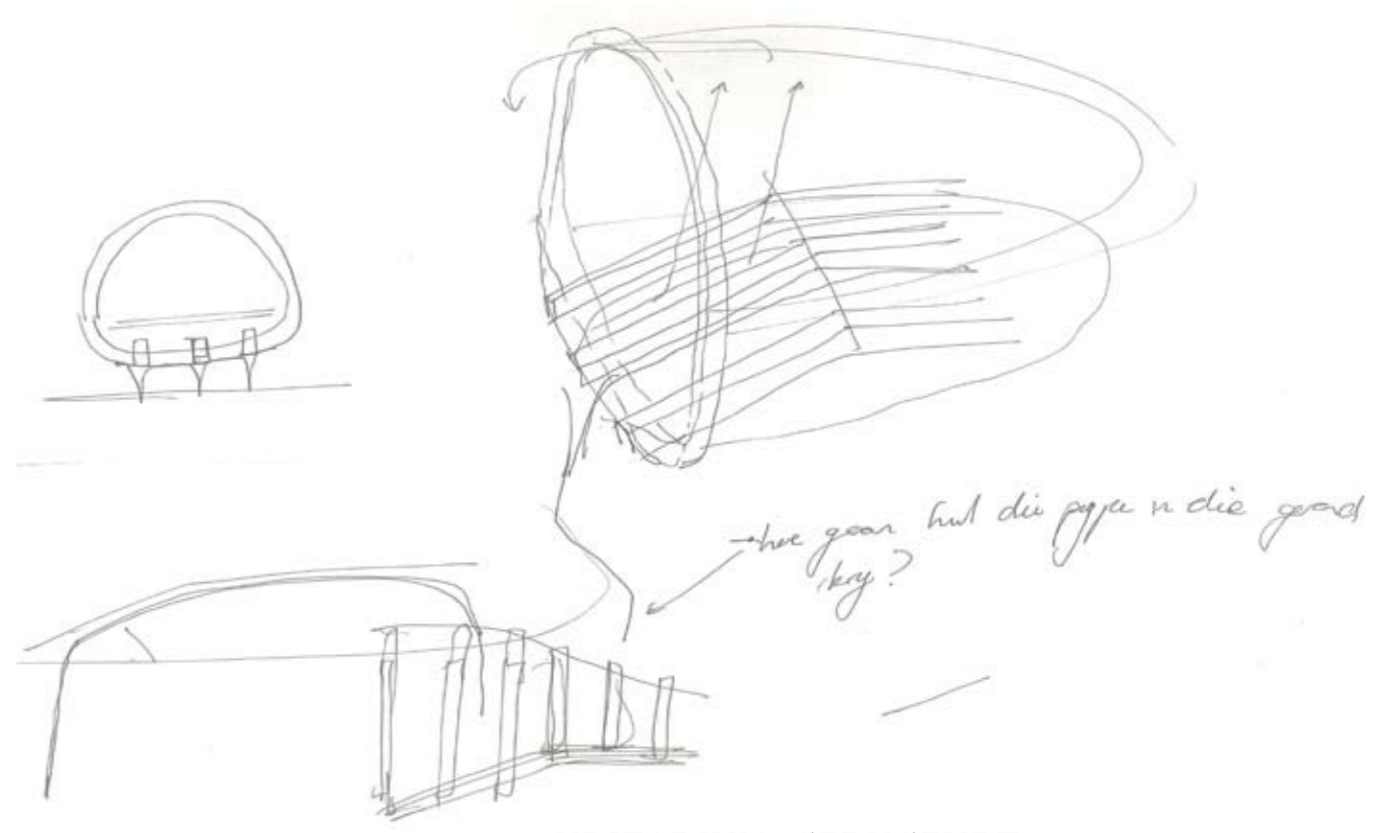


PLAN DIAGRAM

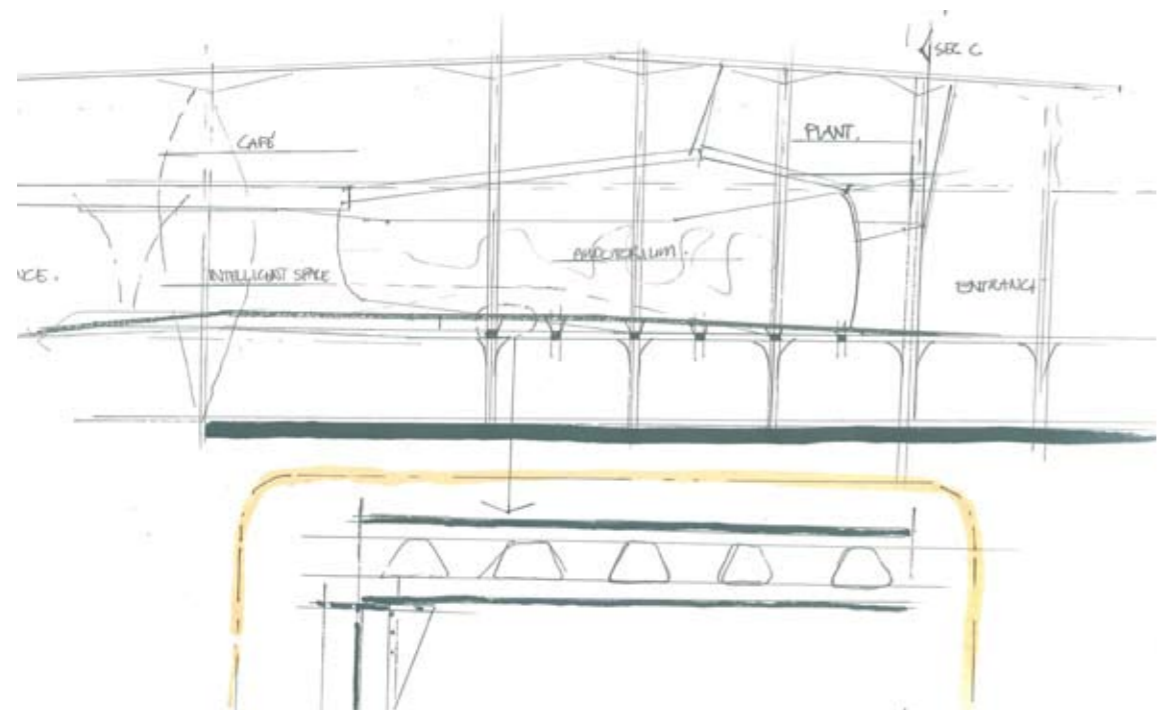
design

The notion explored earlier of making the building transparent from underneath as well, is reiterated, by suggesting overhead LED screens where the cars enter and exit into the university grounds.

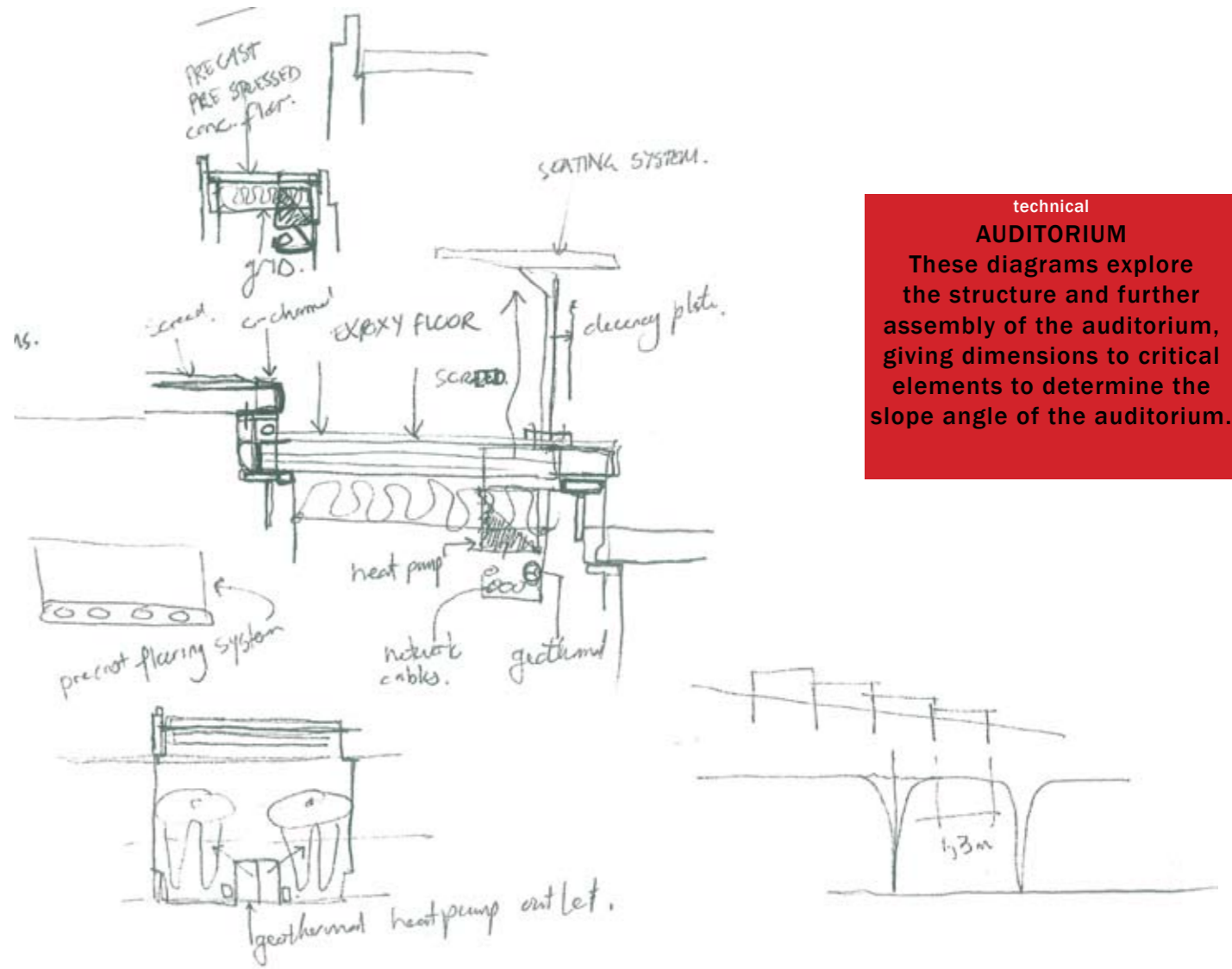
Similar to the experience ramp which communicates the intent of the realm you are travelling to, these screens will also communicate the intent to the people in the vehicles.



AUDITORIUM STRUCTURE



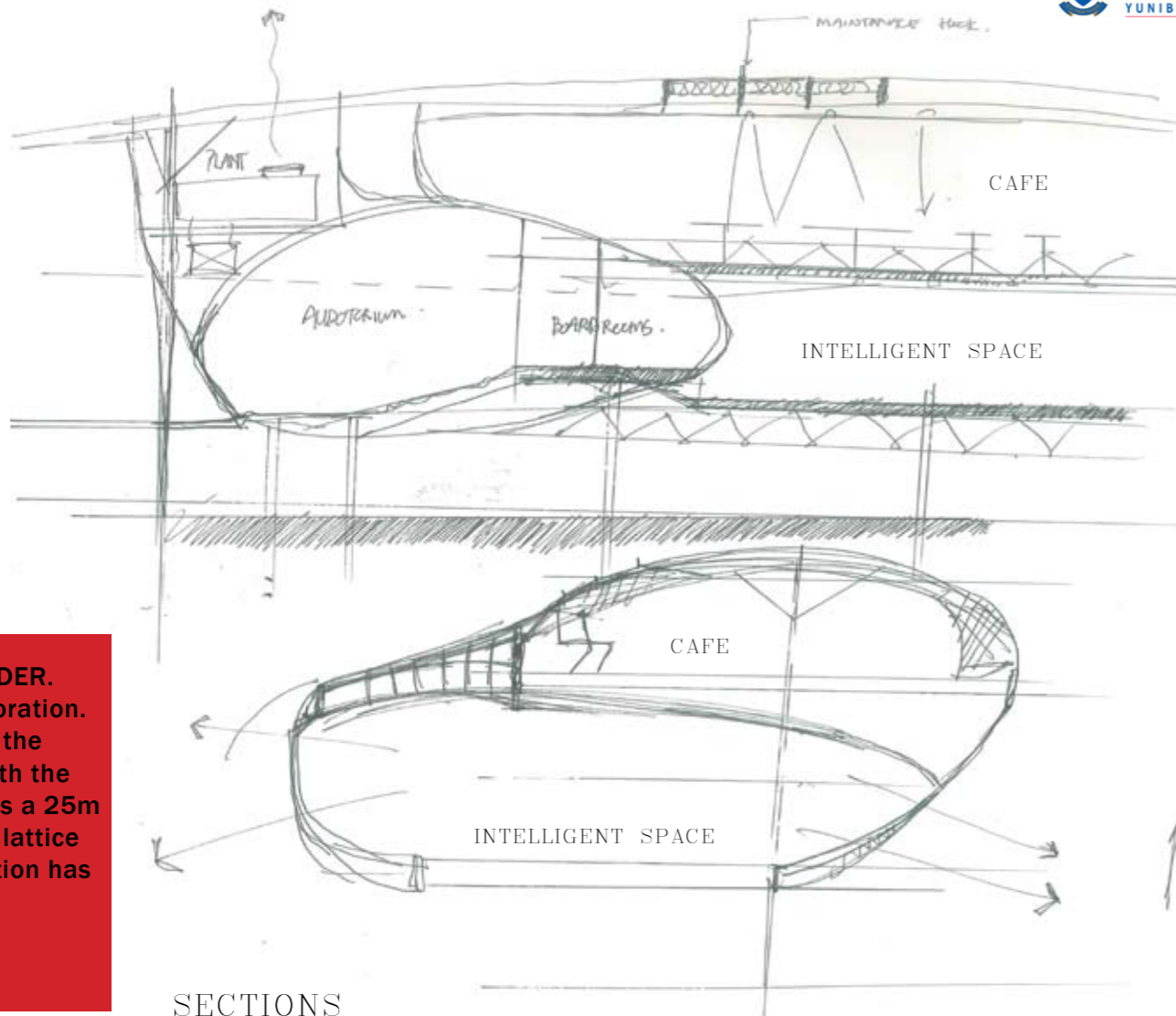
AUDITORIUM WITH SURROUNDING SPACES



technical

AUDITORIUM

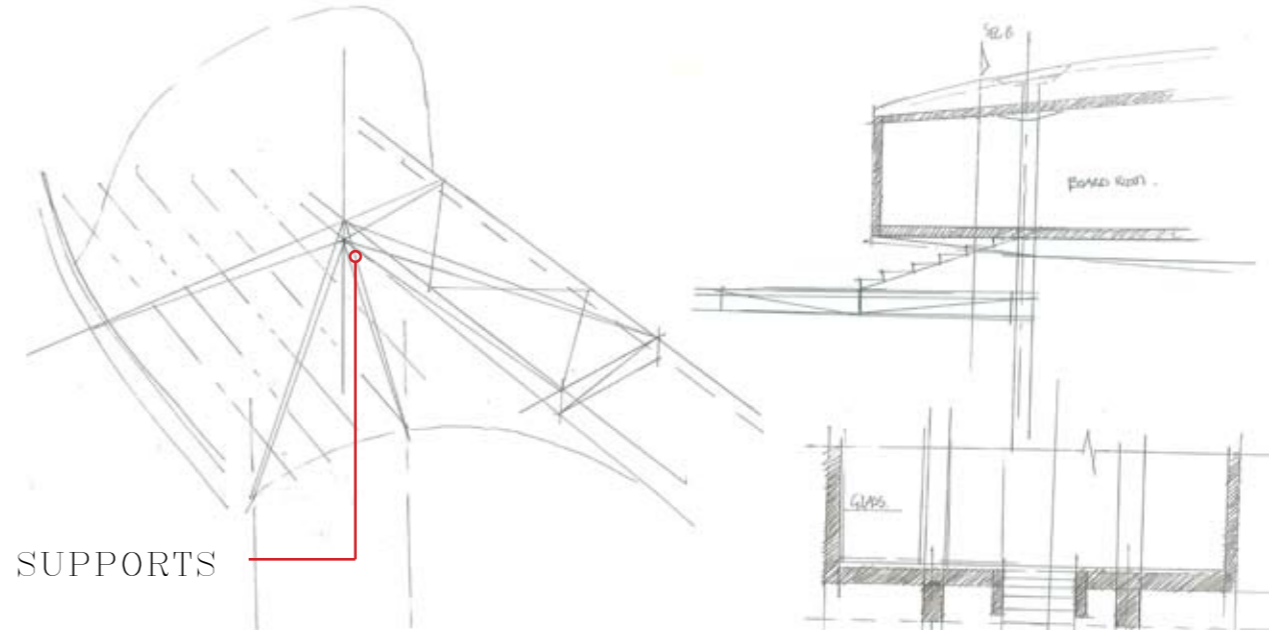
These diagrams explore the structure and further assembly of the auditorium, giving dimensions to critical elements to determine the slope angle of the auditorium.



technical
LATTICE GIRDER.
Structural exploration. Connecting the auditorium with the existing HSB. It is a 25m span, thus the lattice girder construction has chosen.

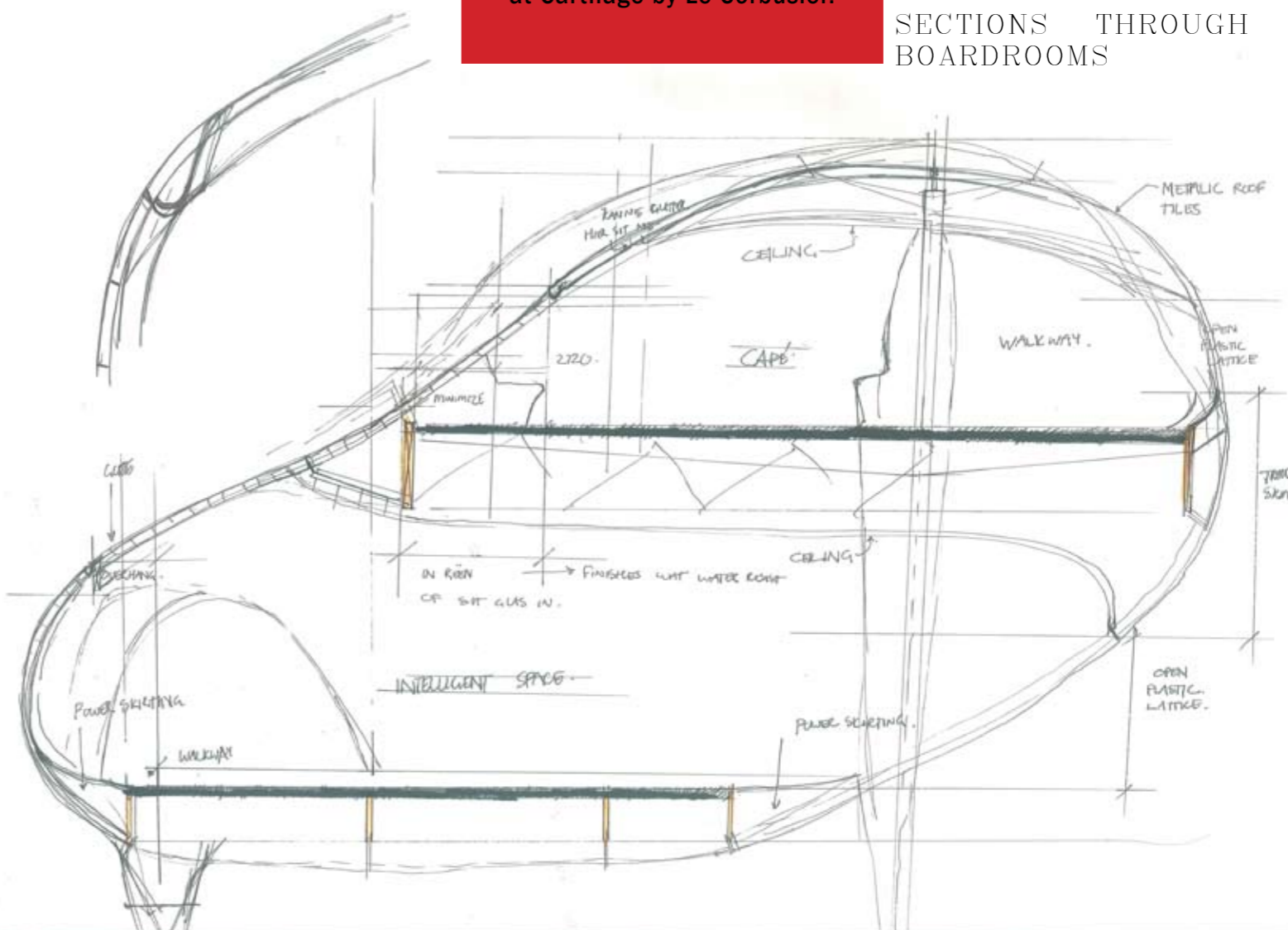
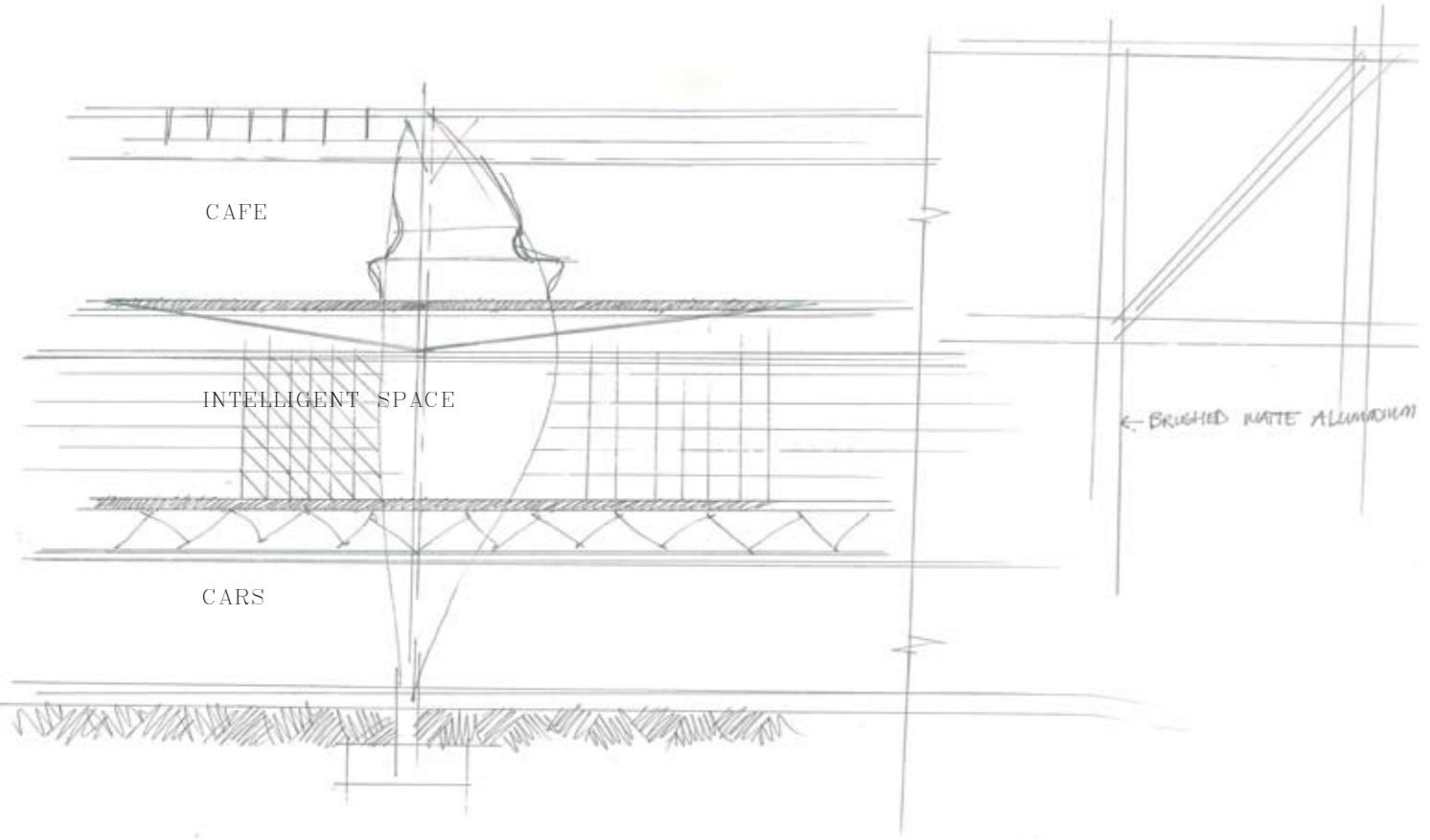
SECTIONS

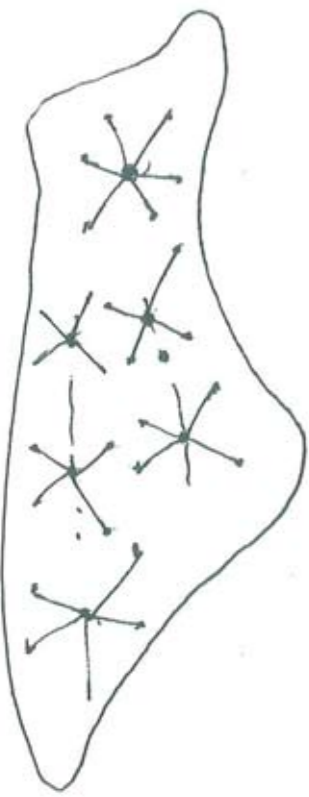
CAFE SUPPORTS



technical
Radial structural concept.
The first floor is still touching the skin. Later the section will also interlock the spaces between the ground and first floors like the Villa at Carthage by Le Corbusier.

SECTIONS THROUGH BOARDROOMS

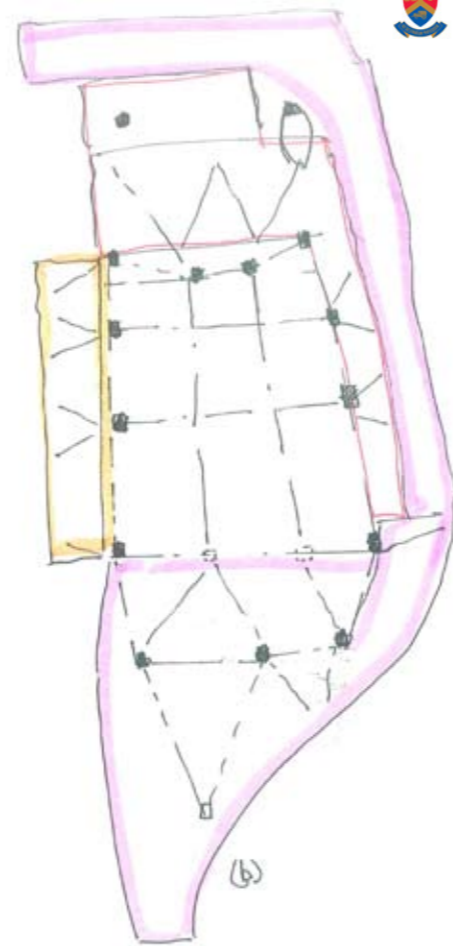




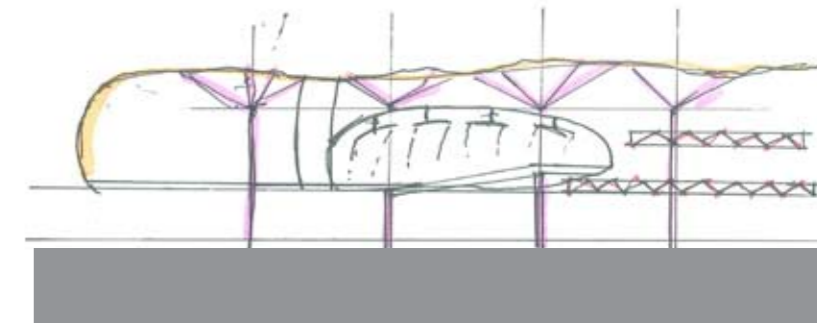
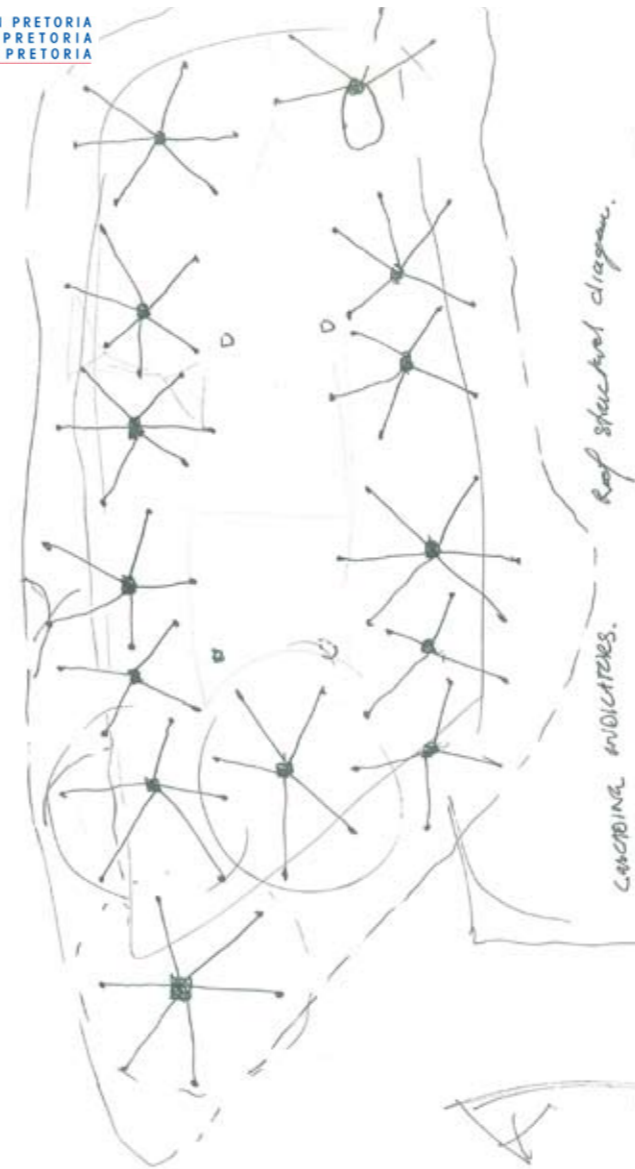
ROOF DIAGRAM



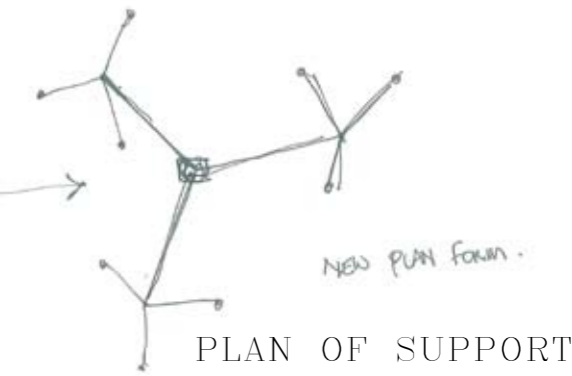
BASIC COLUMN GRID



COLUMN GRID WITH FLOORS



COLUMN GRID WITH TREE SUPPORTS



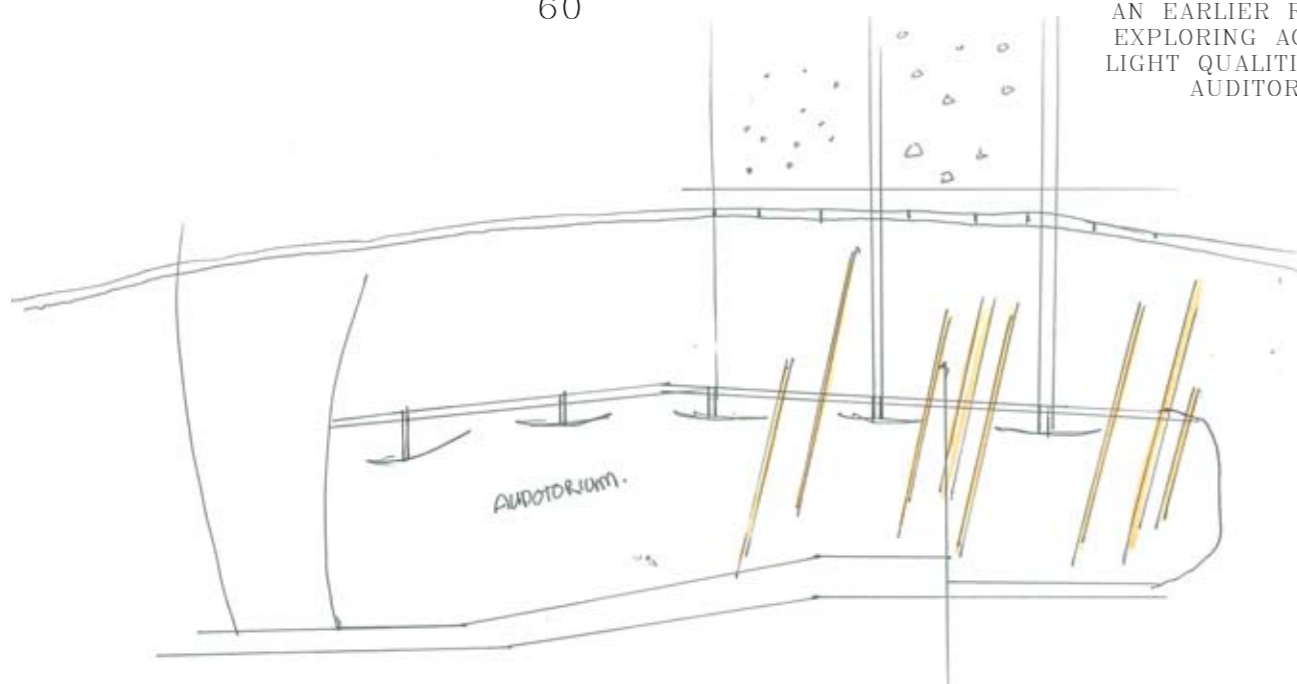
technical
STRUCTURAL DIAGRAMS SHOWING THE DIFFERENT LAYERS OF THE STRUCTURAL ARRANGEMENT ON PLAN.



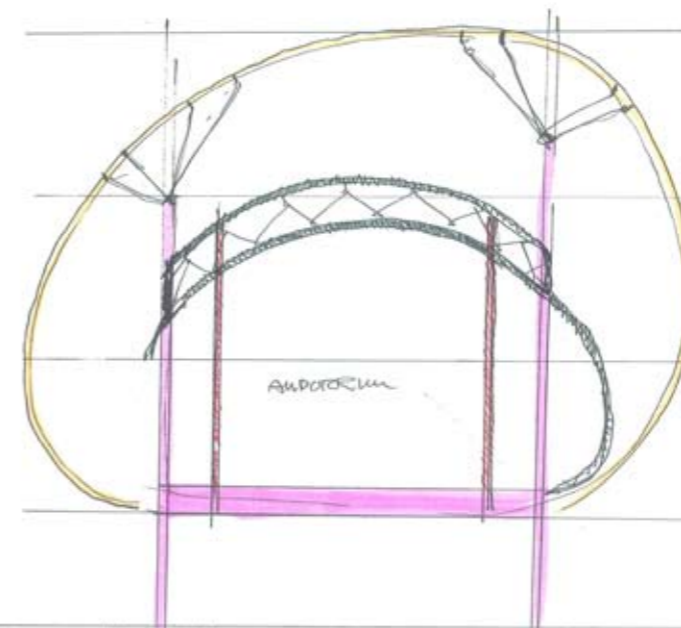
60



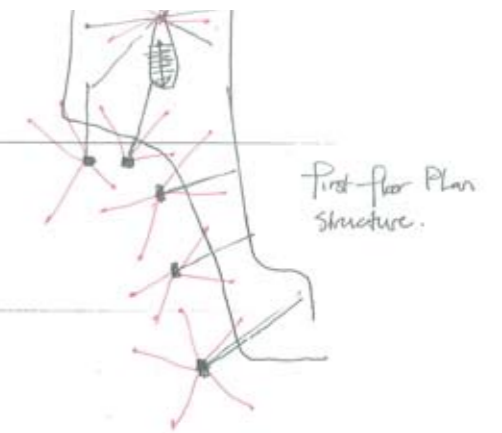
AN EARLIER RENDERING EXPLORING ACHIEVABLE LIGHT QUALITIES IN THE AUDITORIUM.

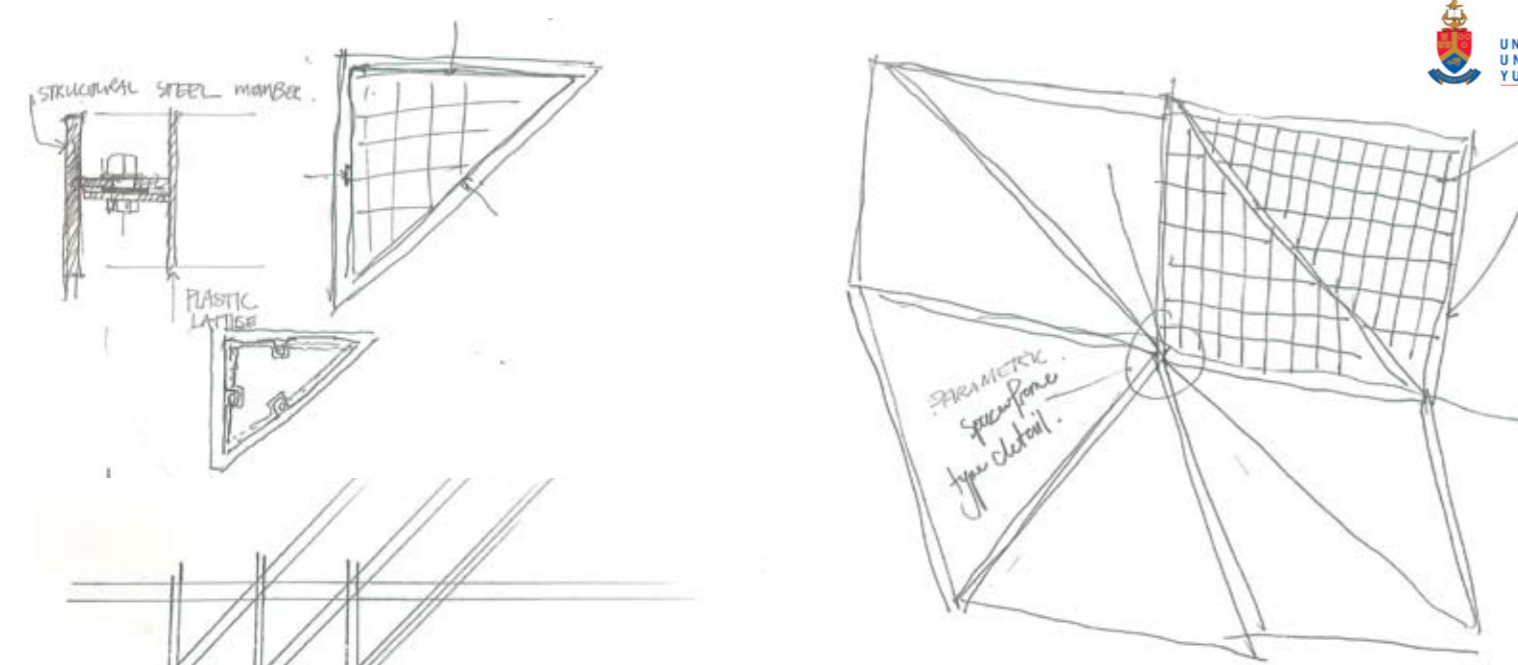


COLUMN GRID WITH TREE SUPPORTS

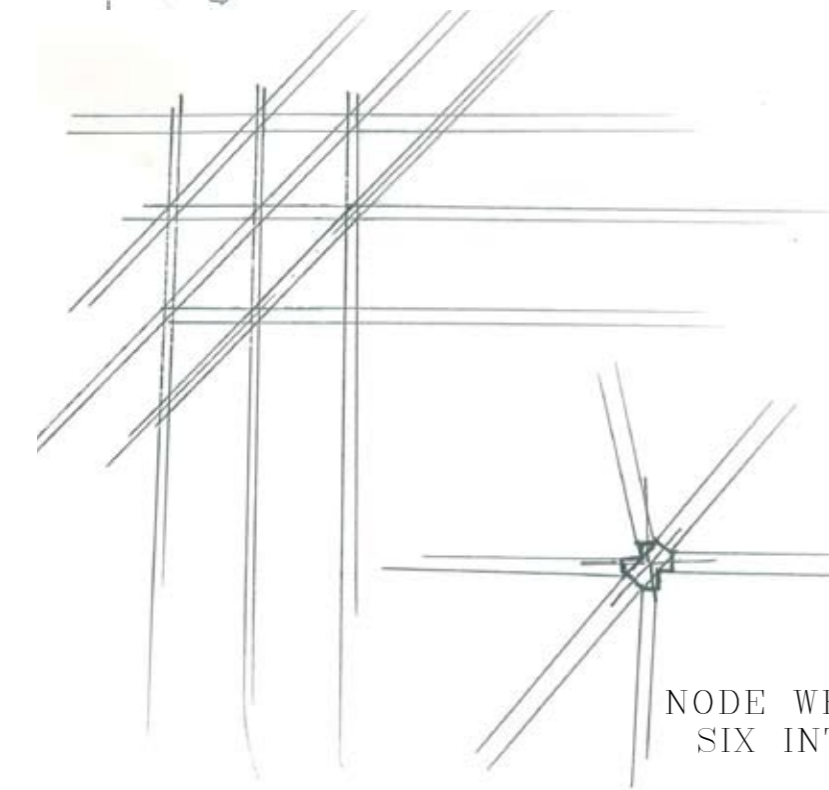


COLUMN GRID WITH TREE SUPPORTS

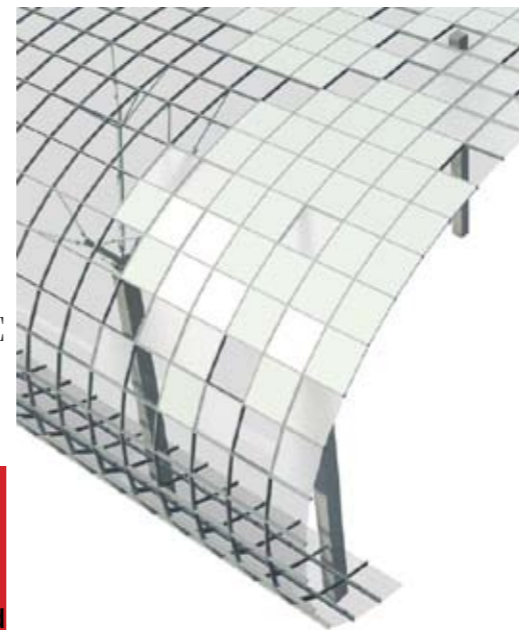




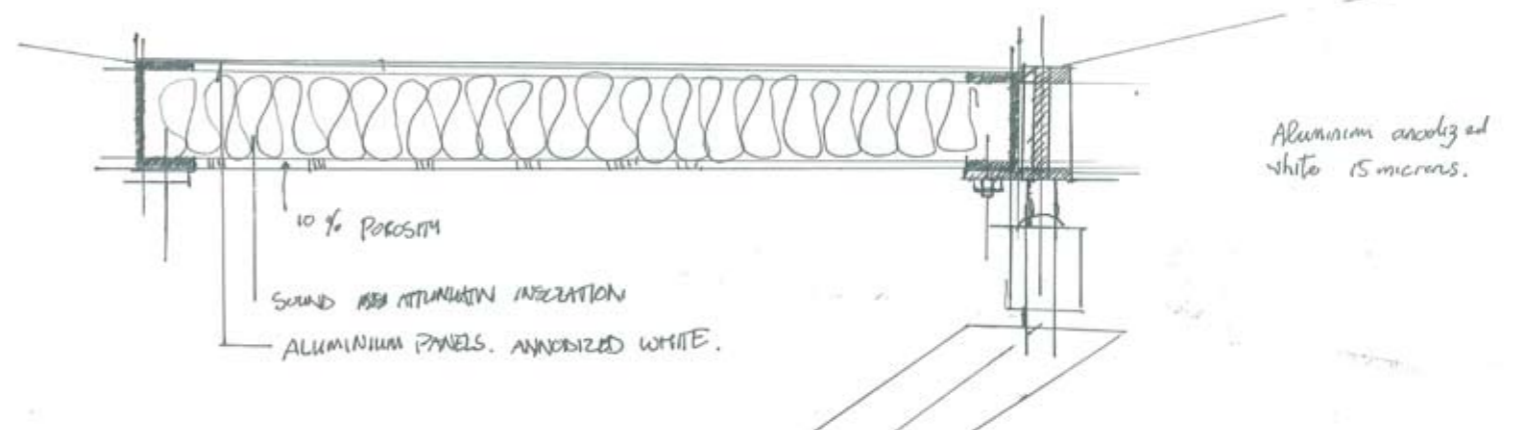
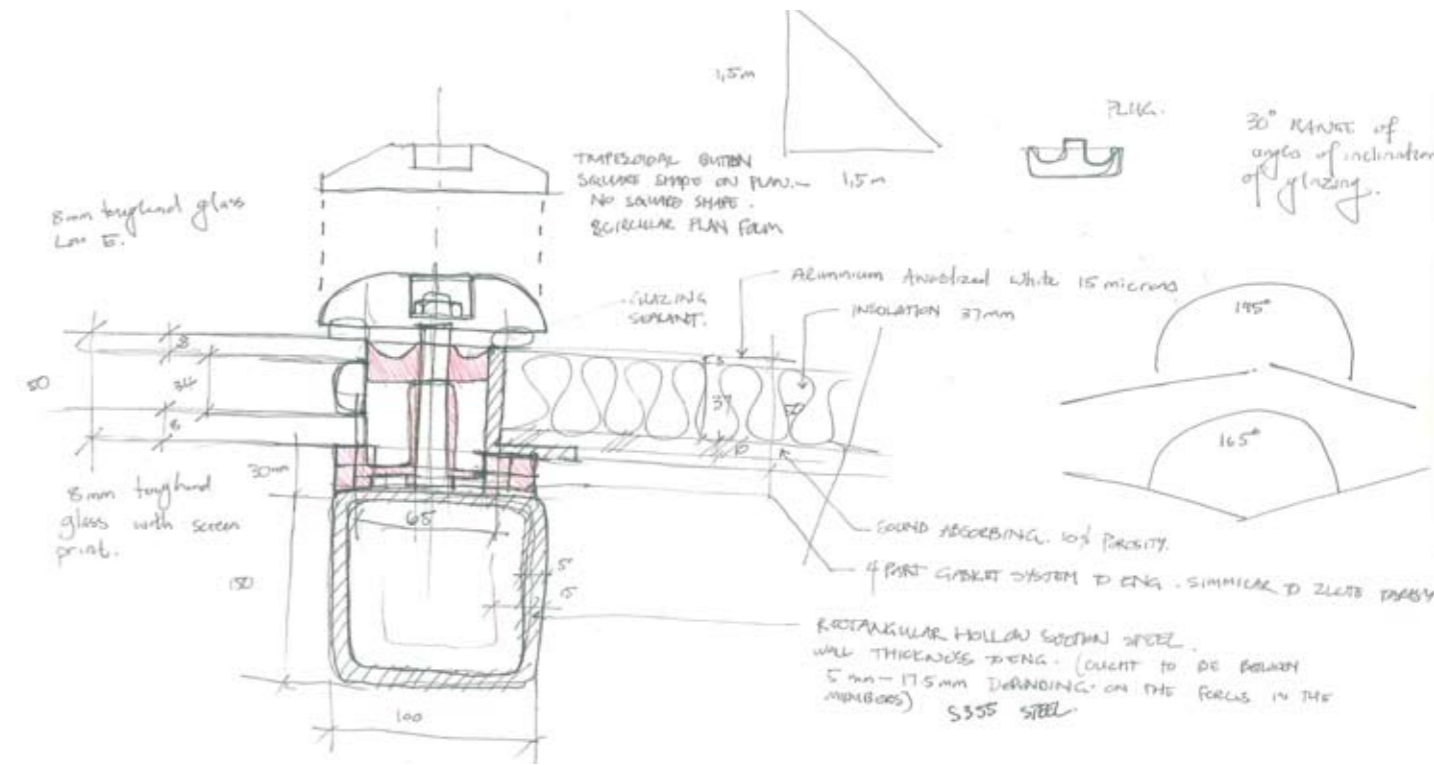
THE SIX PLANES INTERSECT AT ONE POINT.



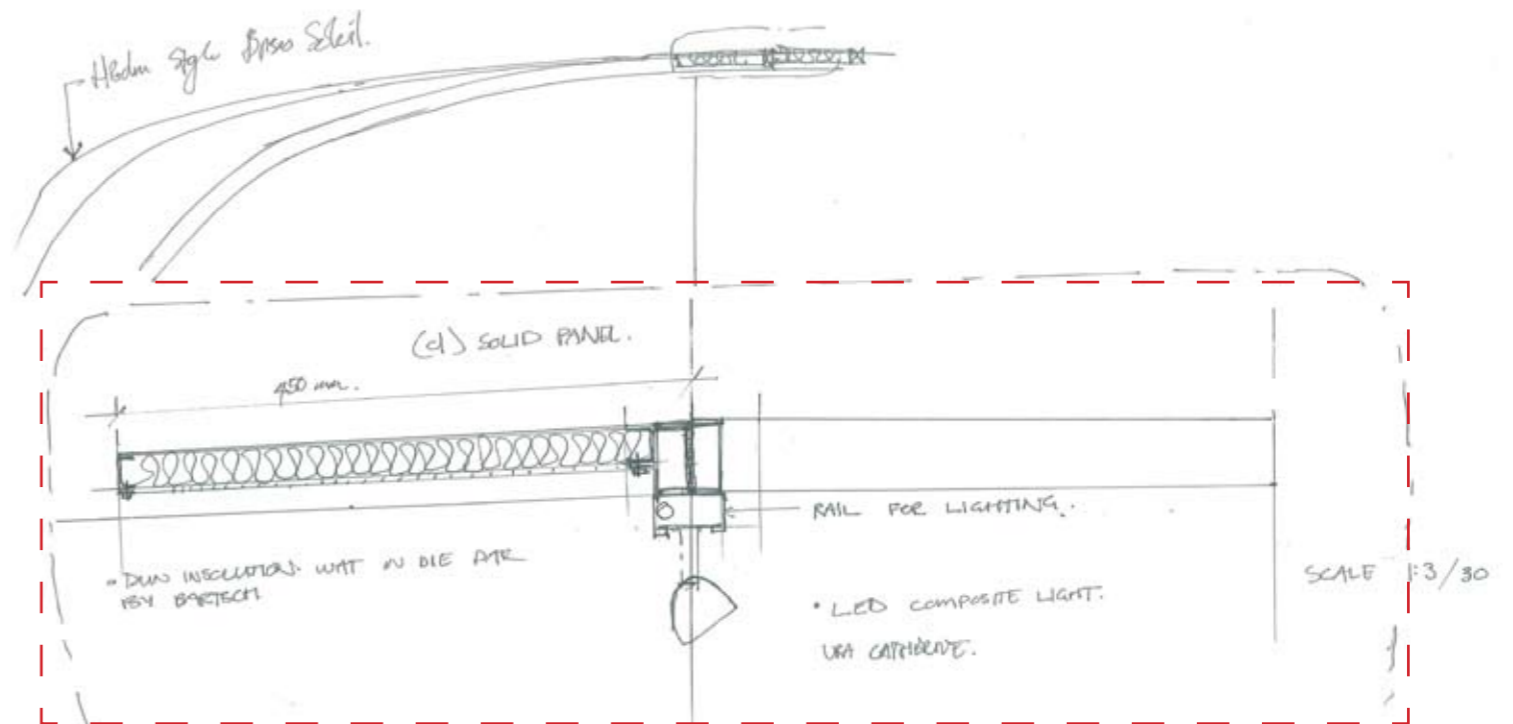
NODE WHERE THE SIX INTERSECT



WATERPROOFING DETAIL

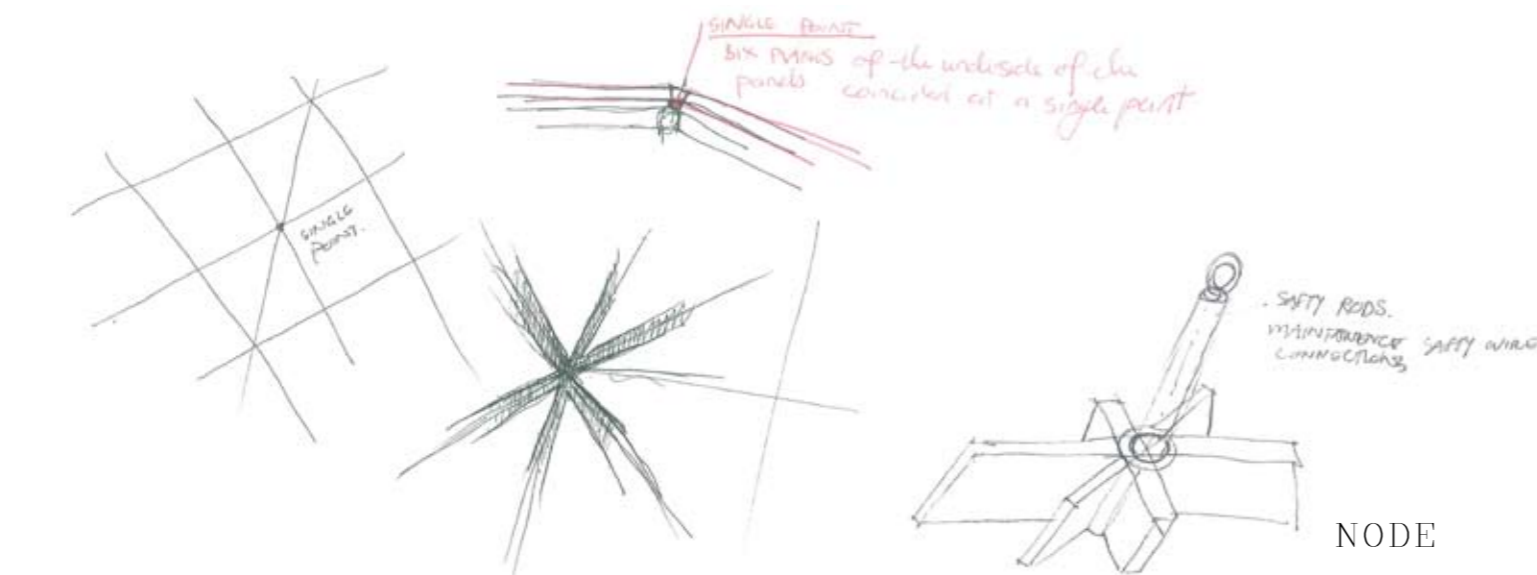


SOLID PANEL WITH INSULATION AND SOUND ABSORBING MATERIAL

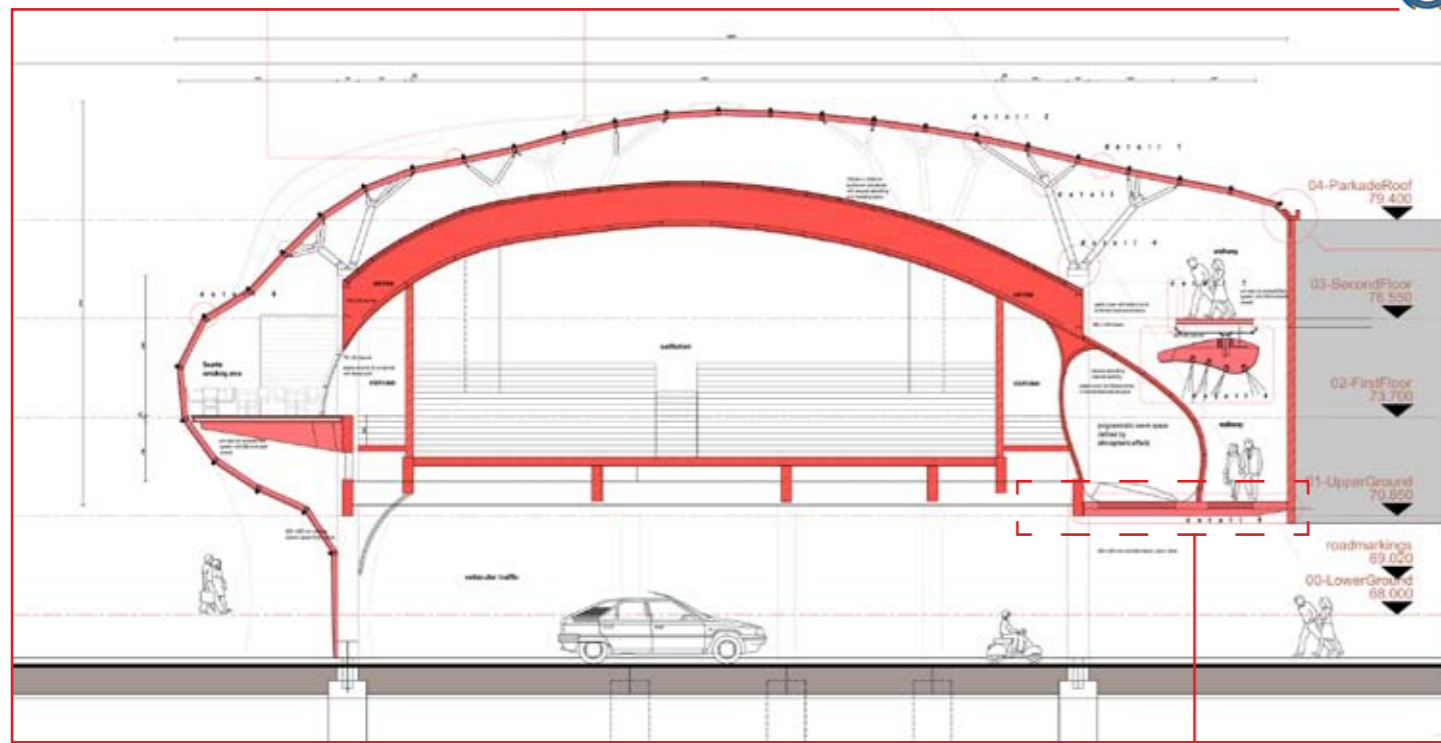


ARTIFICIAL LIGHTING, CONNECTED TO SKIN

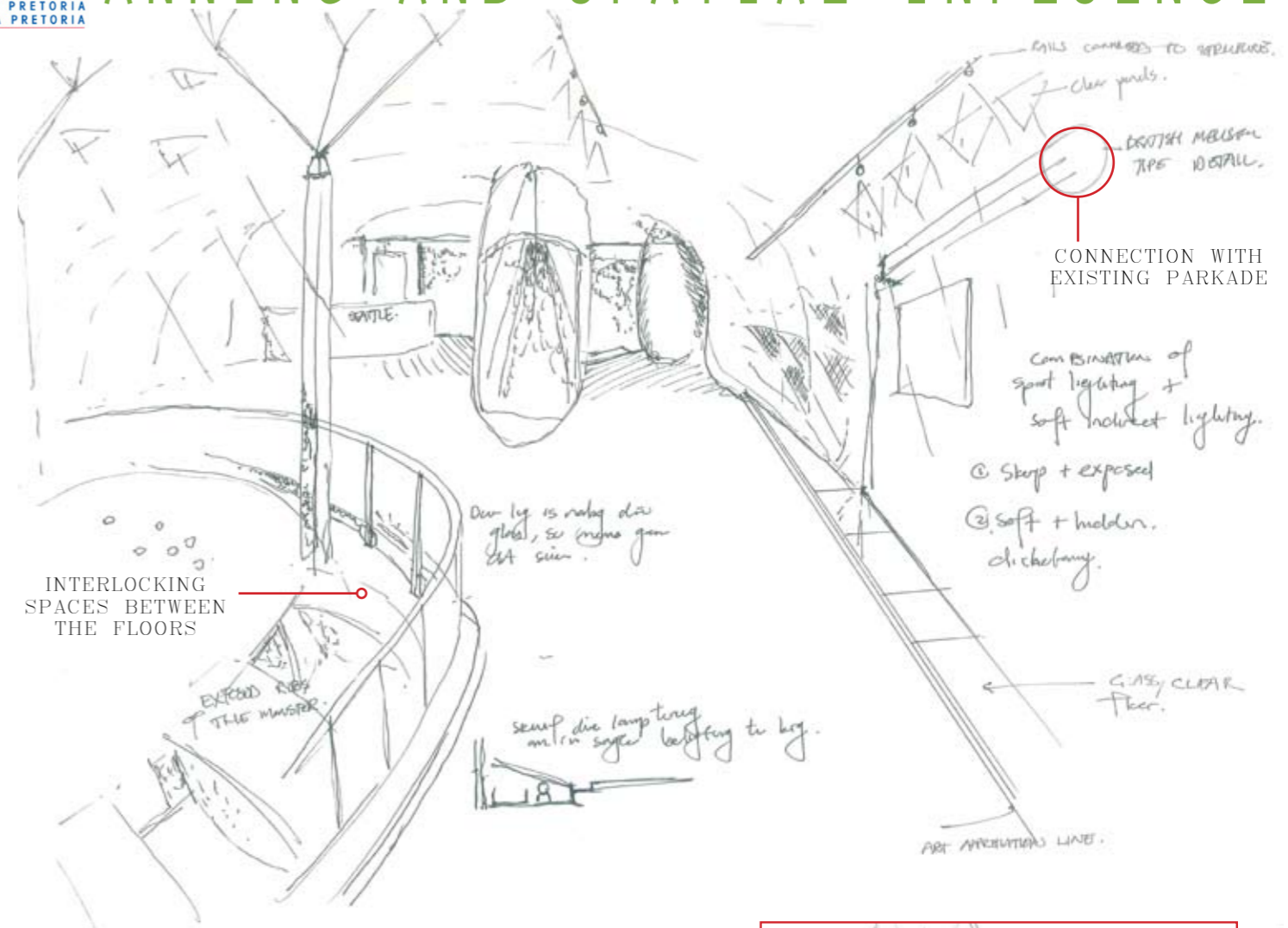
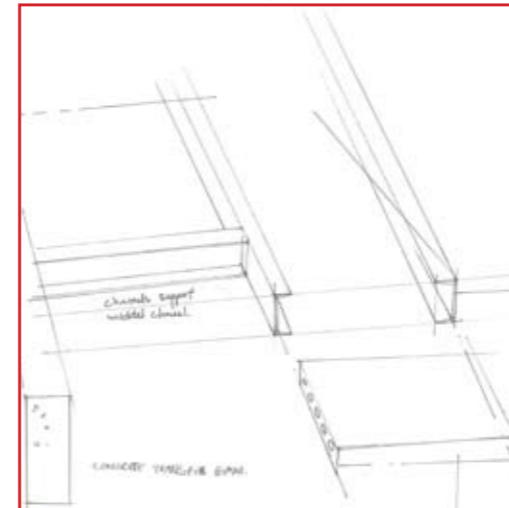
technical
The exploration of the skin featuring 4 panels to facilitate the ethereality of the building. "The geometry was subtly shifted so that at each node, the six planes of the underside of the glazing coincided at a single point." (Arup journal. 2008: 43) This is done to eliminate the problem of unwanted steps between the members and panels at the nodes, caused by making a soft free-form with hard materials.



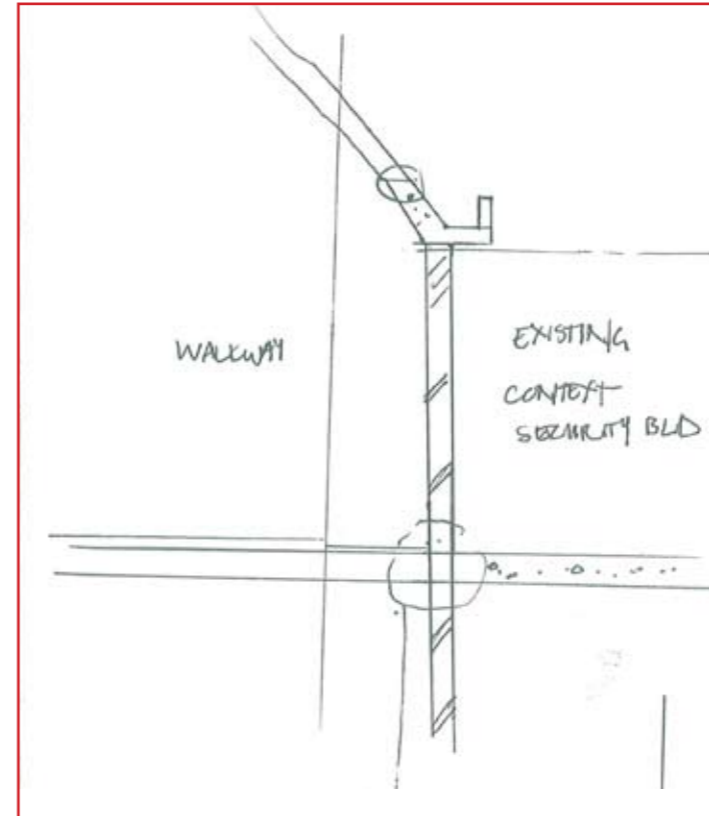
NODE



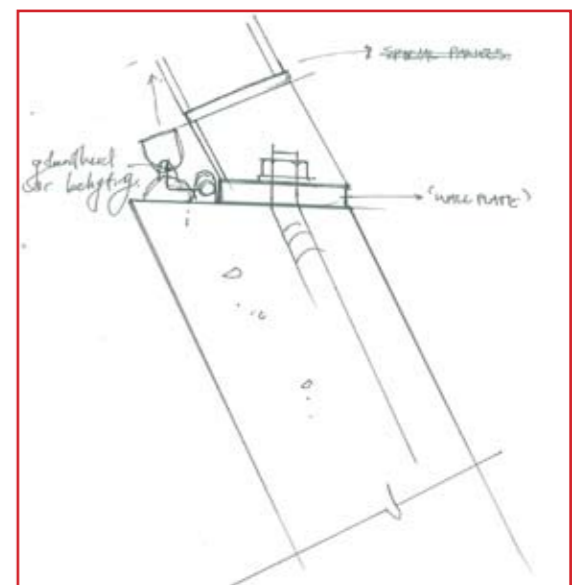
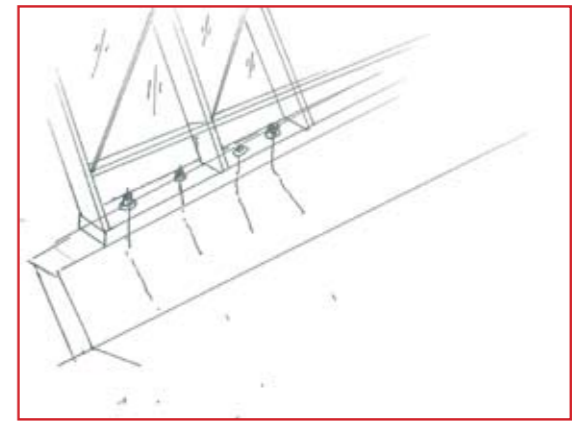
SECTION A-A



technical
SKIN CONNECTING TO PARKADE BUILDING.



SKIN DETAIL



technical

From the touchstone which suggests a seamless transition from opaque to ethereal, from inhabitation to open-conceptual possibilities, comes the need to assign programs to these spaces. The auditorium is a program taken from earlier exploration at Stage 2 where I investigated spaces that transform to accommodate different programs. One of the other programs also considered was a conference space. The final design includes both, albeit that they do not shape shift. Boardrooms are connected to the auditorium making it usable as a conference space as well.

The auditorium is the ultimate expression of the 'male' view of space, in the monster. It is built from solid heavy materials. It is functionally specific and adheres to the notion of building object. Further parts relating to this view of space is expressed by inserting solid panels into the skin.

Usually buildings built according to the 'male' view of space would grow out of the earth, and have architectural mass. In the case of the Monster that part is removed from the earth and located in a liminal place, between earth and sky.

Due to the constraints imposed by the lower ground vehicular circulation, a randomised column support system was accepted to anchor the building to the ground. It is this system which allows the auditorium to be lifted off the ground. These columns are substantial concrete columns with a diameter of 600 mm. Further, the auditorium is wrapped in 'female' space, which has an impact on the structural supports.

The heavy columns first support the auditorium, thereafter, break through into the female space to support the skin. Techniques were employed to make this part of the structure transparent. Influenced by the way Toyo Ito designs transparent structures, treelike steel supports are used in an ever decreasing section to connect to the skin above. As a result, the treelike supports seem to be aesthetic rather than structural, thereby contributing to the aesthetic quality and complexity of the space.

technical Handrail.
The handrail is twisted off-axis. Made of a composite material which suggests the interrelationship or fusion between the two materials. The composite material will be an alloy of Aluminium and silicon. It is corrosion resistant and useful in humid environments (wikipedia: Silumin). Thus ideal for a hand rail. This alloy is called Silumin and will give a fresh matt aluminium tactile feel to the hand rail. Thus taking the theory down to the materiality of the building.

technical Handrail.
The in fill panels of the handrail is also a place where the theory is translated into the technical part of the design. These panels range from obscure to clear glass. Therefore relating to the ethereality between two phases.

