

## PART 2 \_ CONSENSUS



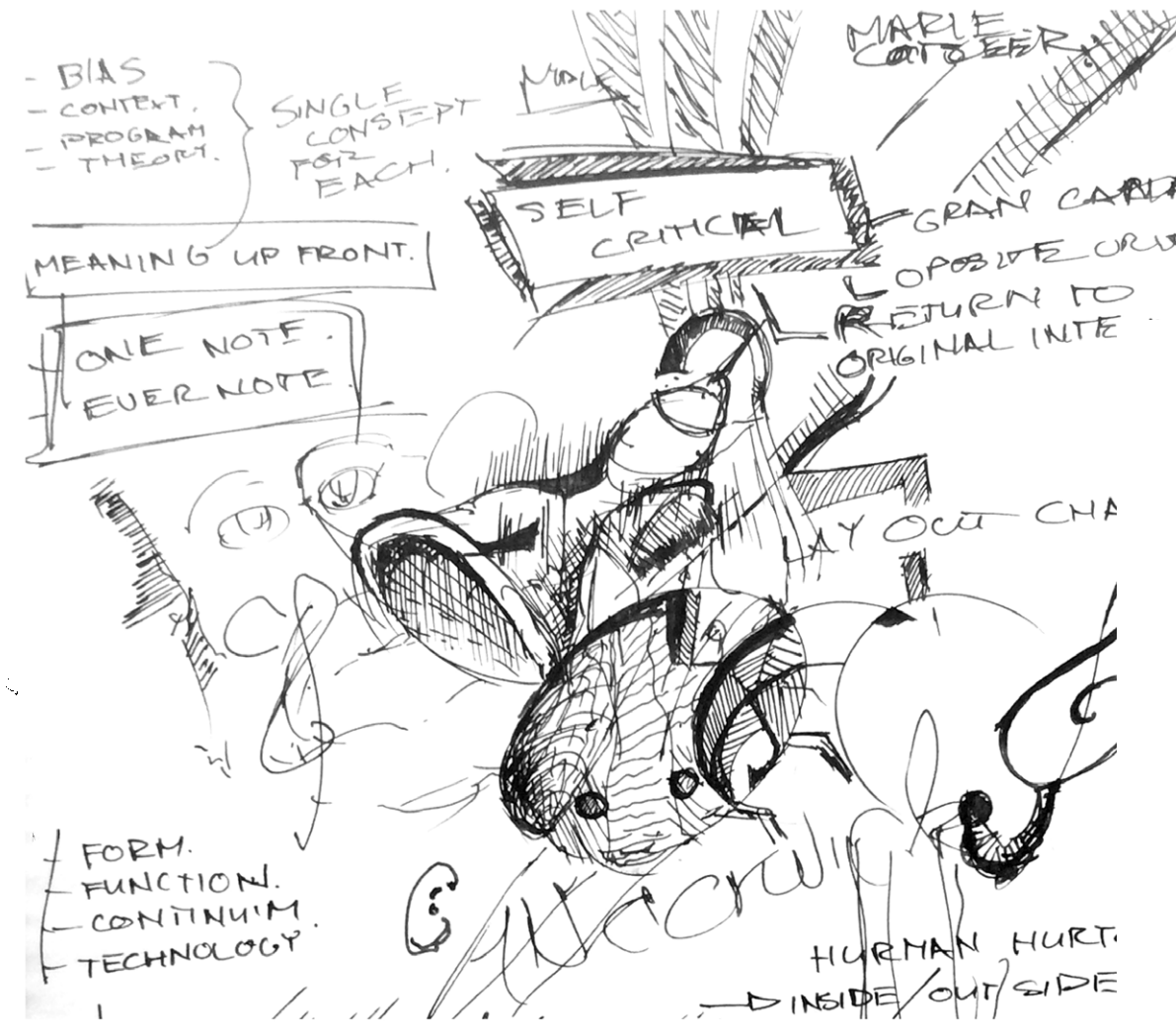
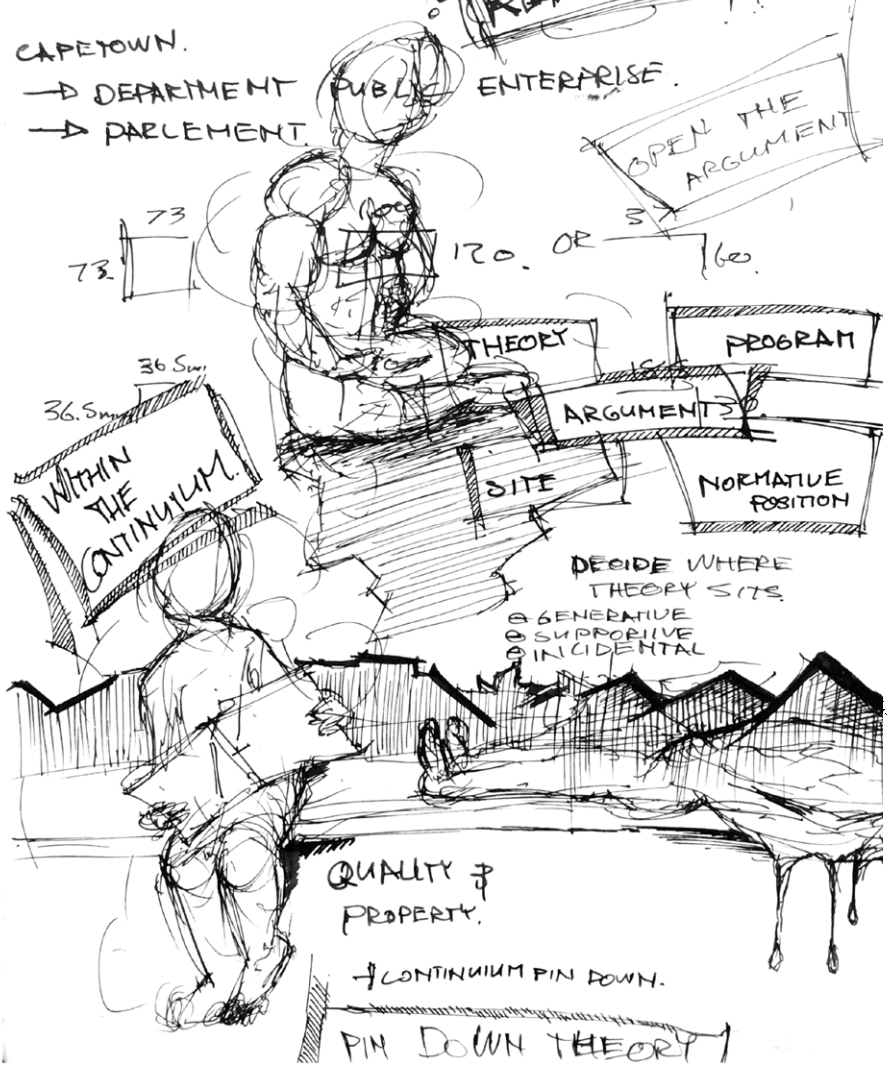
A hand-drawn rectangular box with a question mark inside. The box is drawn with a simple black line, and the text "WHAT AM I DESIGNING?" is written inside in a casual, hand-drawn font. The box has a small circle on the left side, possibly representing a fastener or a hole. The text is written in all caps and is centered within the box.

WHAT AM I  
DESIGNING?

JHB  
 → COMMERCE & INDUSTRY.  
 → ARTS COUNCIL OF [NATIONAL]

BLOEM.  
 → YOUTH DEVELOPMENT AGENCY  
 → COURT OF APPEAL.

CAPETOWN.  
 → DEPARTMENT PUBLIC ENTERPRISE.  
 → PARLEMENT.



Notes from the authors journal after a module class presented by Dr Barker.

## PROCESS AND ITERATIONS





Figure 47 Image 41. Documenting the city edges noting the opportunistic nature of the user and the relationship to manipulating edges which allow interaction



Figure 49 Edge

Edge-less



Figure 48 A Shifting edge, negotiating between two conditions.

# SITE AND CONTEXT

Edward Chambers Building. 1943. Retained heritage. Currently a computer training centre.

Department of Labour.

Pollies Arcade. SAPS Office.

St Albans Cathedral.

Residential/  
Ground level Commercial

Demolished building built in the late 90's.

Residential Building

**SITE**

Tswana Multiplicity offices.

PAUL KRUGER RD

BRT STATION

NANA-SITA RD

Parking space converted to public park with underground parking.

Proposed mixed use building. Corner anchor building as per proposed urban framework.

South African Museum of Science.

Residential Building

Residential building

Google Earth. 9/1/2015 25o45'.00"S 28o11'21.64E Elev 1328 Eye Alt 1.52Km

**Figure 50** Site and context shown looking north.

# EXPLORING EDGE AND PUBLIC SPACE

The following explorations investigate the treatment of edges as a response to the analysis and theory, through different architectural elements which create different condition for the city user. The exercise also considers early massing responses to the site with regards to the urban surroundings and the placement along the protest rout.

## A Horizontal surfaces

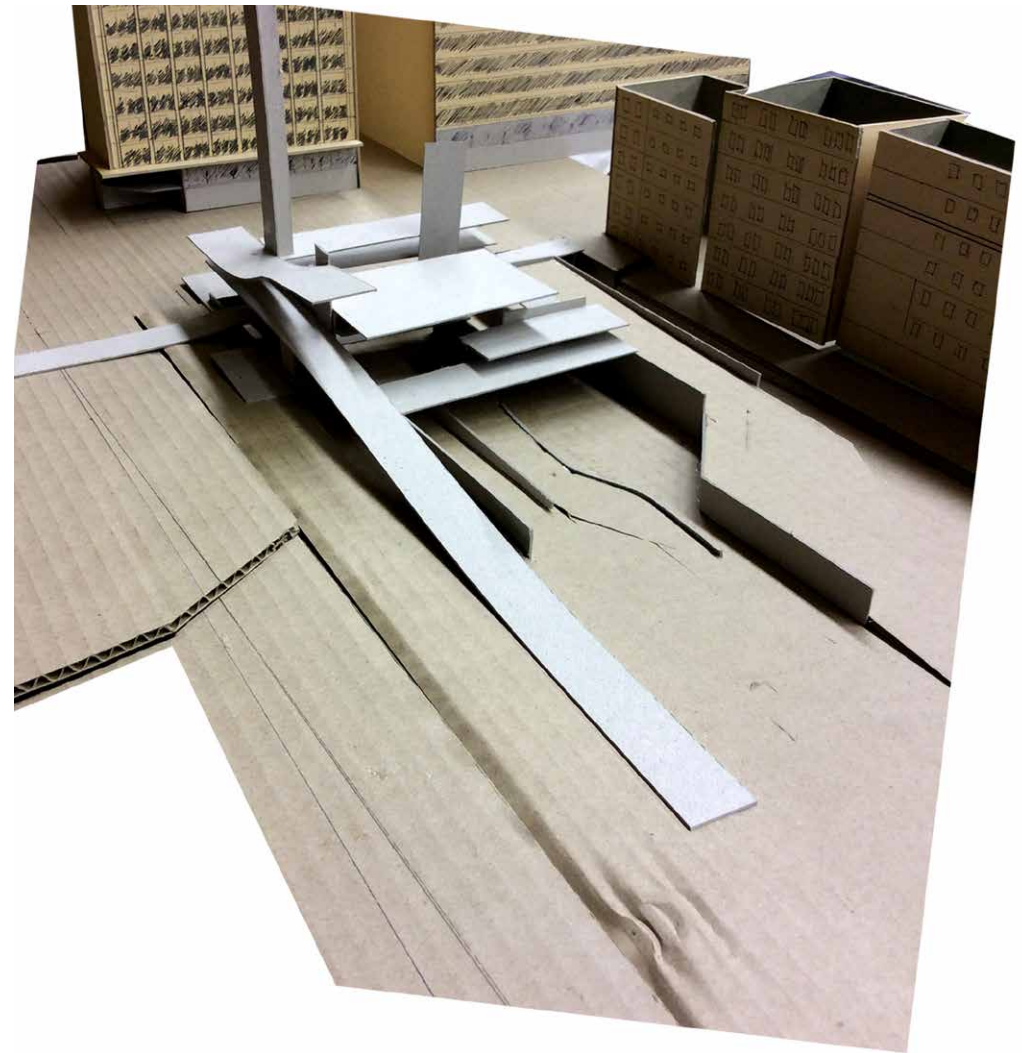
This model explores manipulating the horizontal surfaces. There is a clear relationship between building and site, as if the street itself is lifted into or under the building. These thresholds are far less clear, and no entry point is explicit.

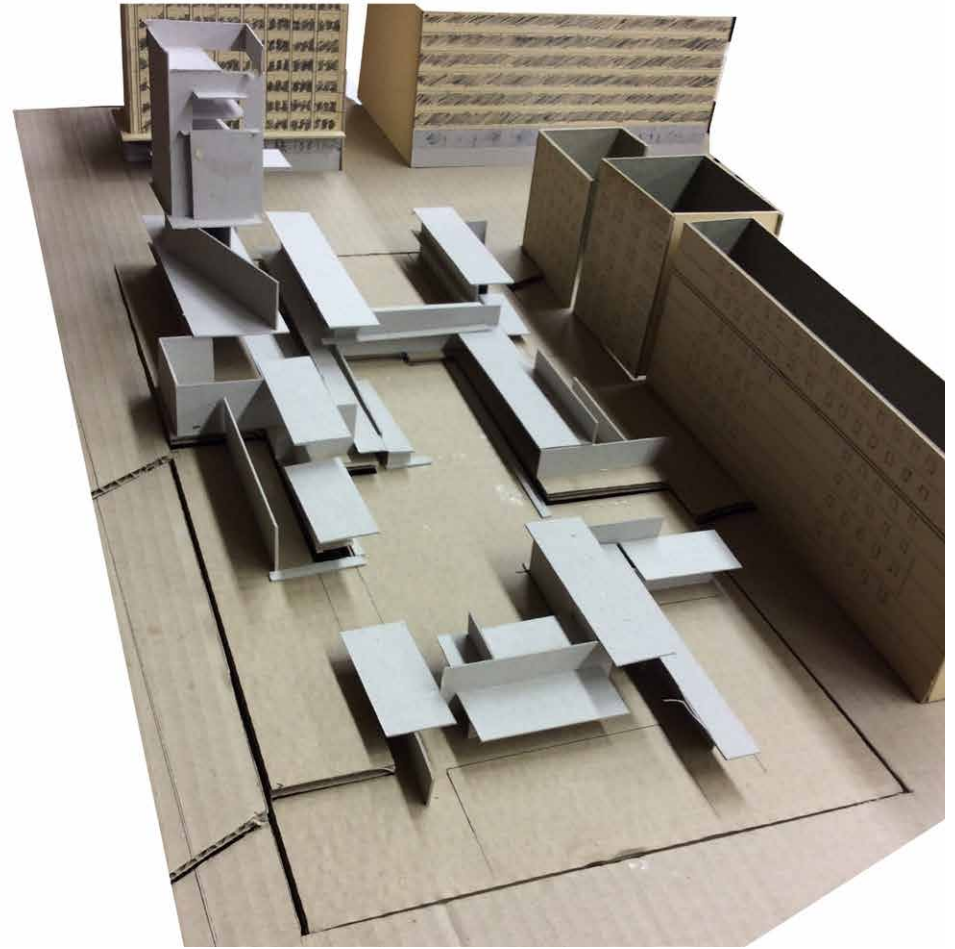
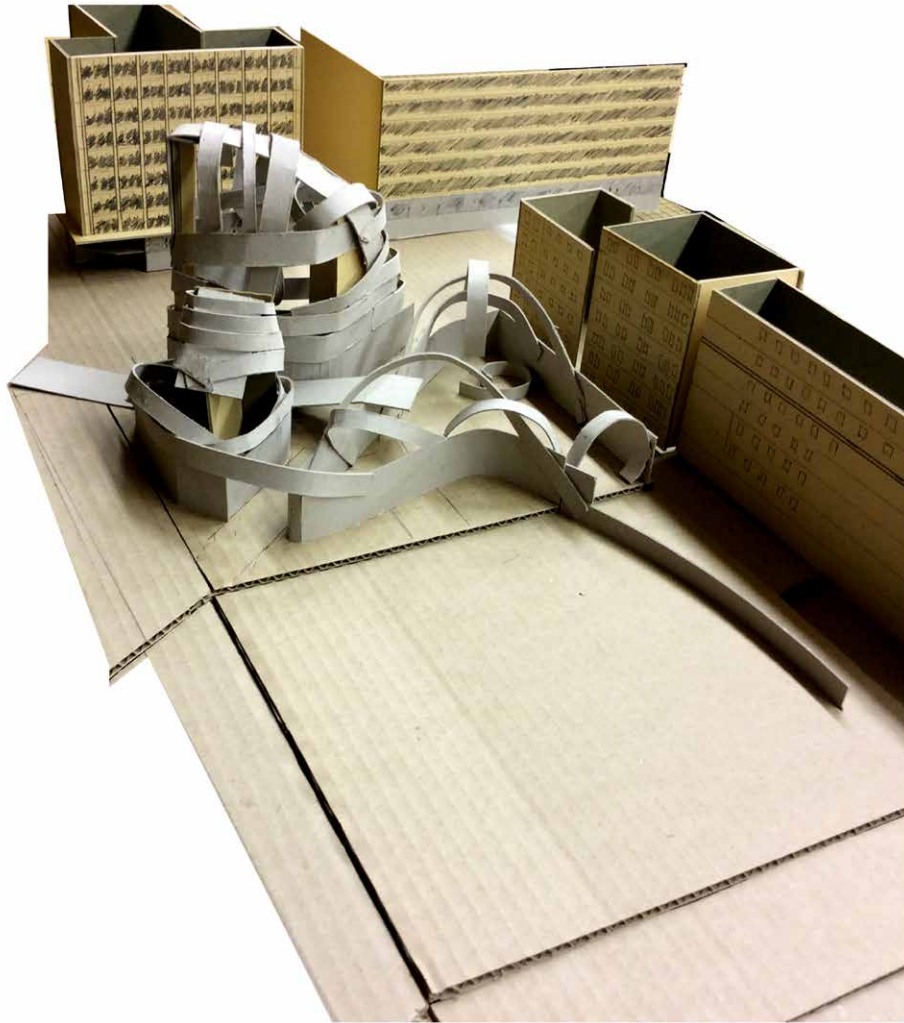
## B Vertical Surfaces

This model explores manipulating the vertical plane. The user is drawn in from the street where the edge lifts up and a divide between ground and building is formed. The entrance points are clear and thresholds fairly abrupt.

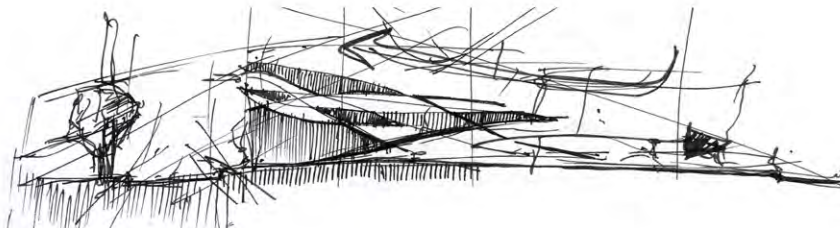
## C Manipulating Scales

This model explores changing the scale of the edges between building and street, focusing on the ground level interaction with a building. The street building relationship- private vs public- becomes a manageable condition, where walls create spaces for opportunity.





B



C





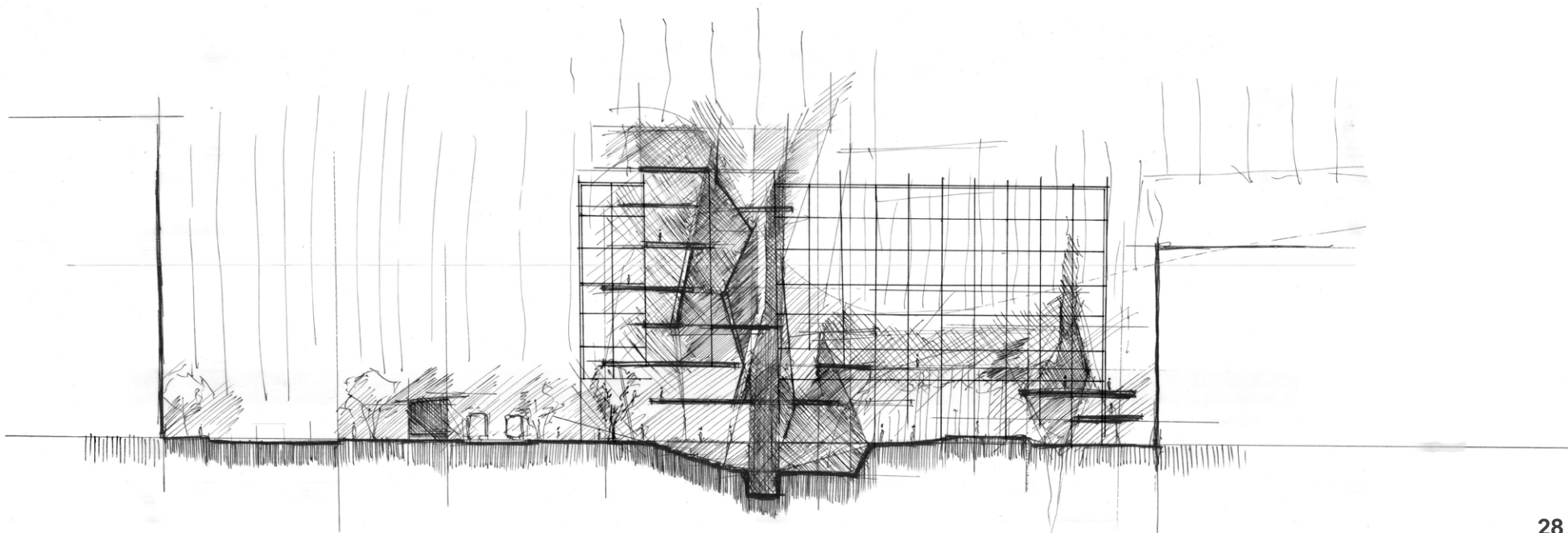
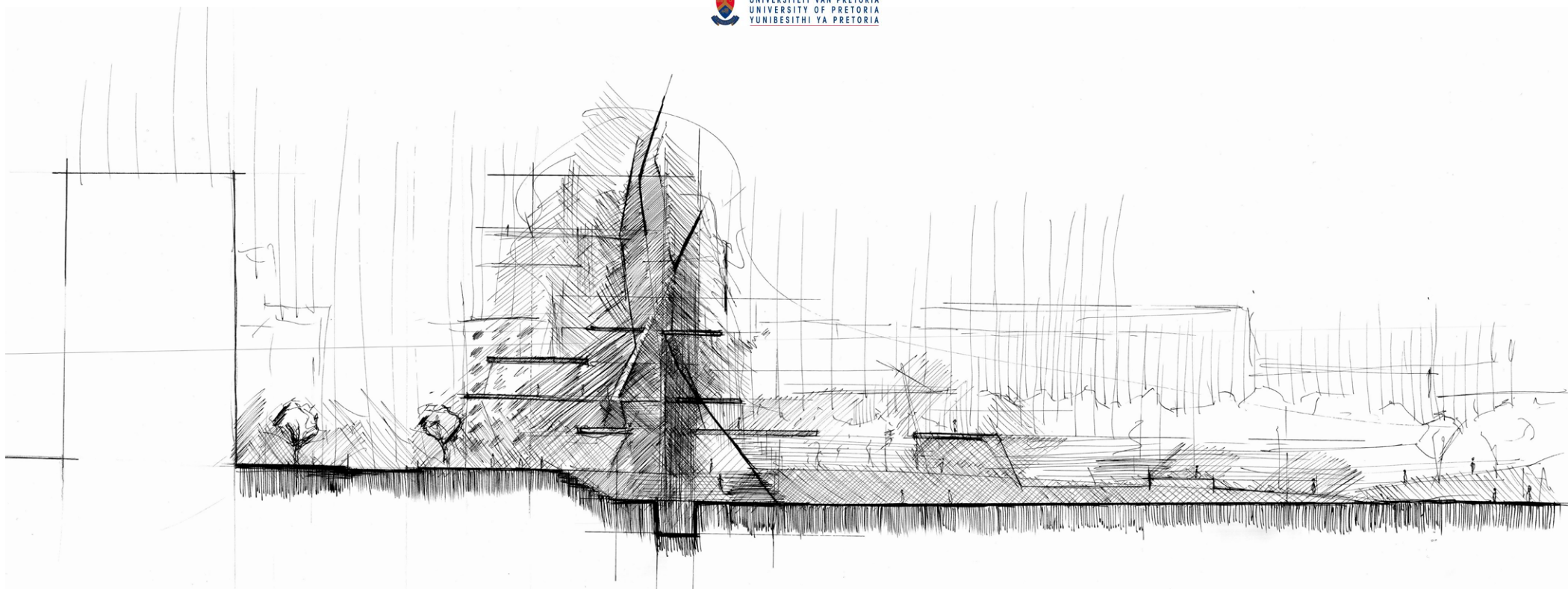
Right: 'Madness in Making'

(Image 46) A follow on of the previous models, the idea for this model was to explore a process of making that forces an enquiry beyond an intuitive understanding due to the complexities of the construction material. When sticking cardboard together, one knows that they will be held by glue and be of a consistent thickness. What if the model building process forced design decisions to accrue because of the effort required to cut and join? Every element is unknown before it is thought through and discovered. This, an enquiry into design explored through the process of making.

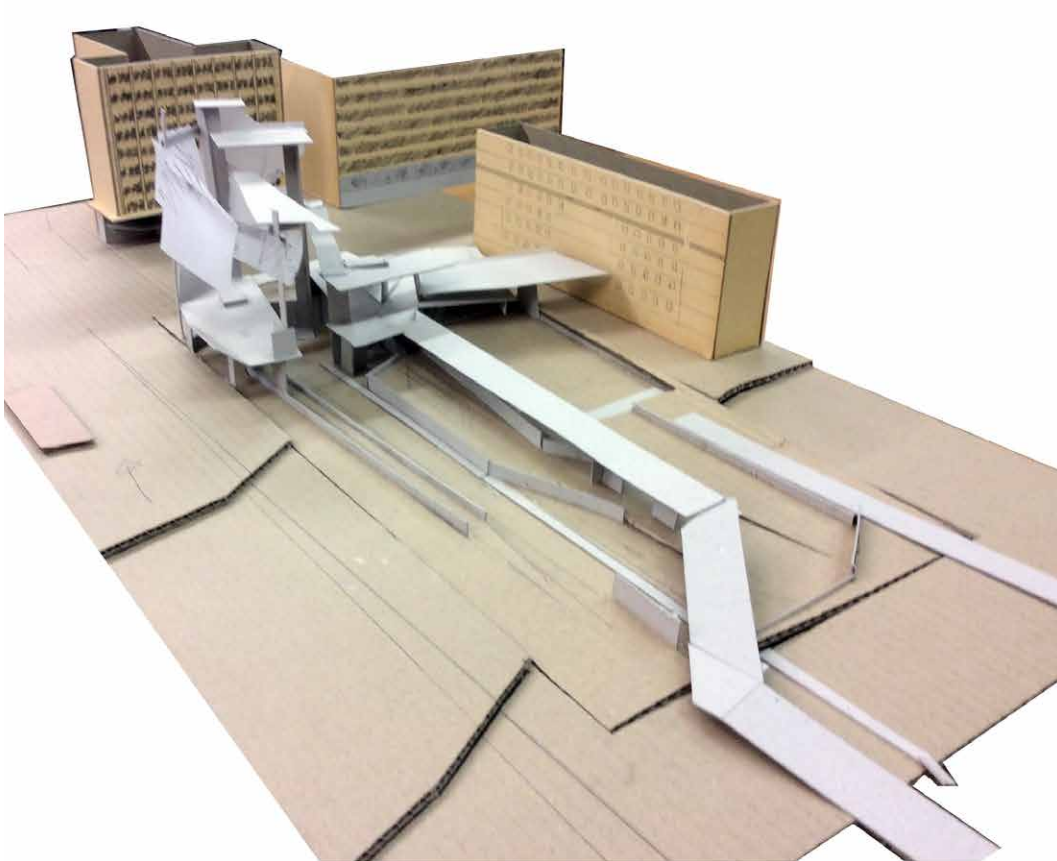
Overleaf: 'Edge-less Sections'

This intuitive drawing exercise investigates the massing explored in the model investigation through section. Using drawing as a process tool, the aim is to consider the connection of the urban to the park; how the building may mediate spaces through scales as well as indefinite edges. Furthermore, it considers how one may invite public activity on the upper levels of the building through space and movement.





## ITERATION 1\_March



The initial exploration focuses on how the streetscape as a public condition could be drawn up into built form, noted as a private condition.

The exploration considers public stairs -an urban atrium- as a link and threshold between the street condition and building condition. The staircase exploration attempts to draw people to elevated public levels which are specifically programmed to public recreational activity, functioning as elevated platforms of public/park space. The stairs criss-cross, demarcating thresholds and areas, linking horizontal street activity to the vertical nature of the building. Ascending up the building, a subtle play between screens (building) and stair (street) draws the users into the progressively private spaces on higher levels, serving as an extended threshold as regarded through the notions of Herzberger. Herzberger's (Hertzberger, 2005) principles of thresholds and public/private space has a noticeable influence on initial design explorations as the author found much similarity in the desired outcome of this scheme.

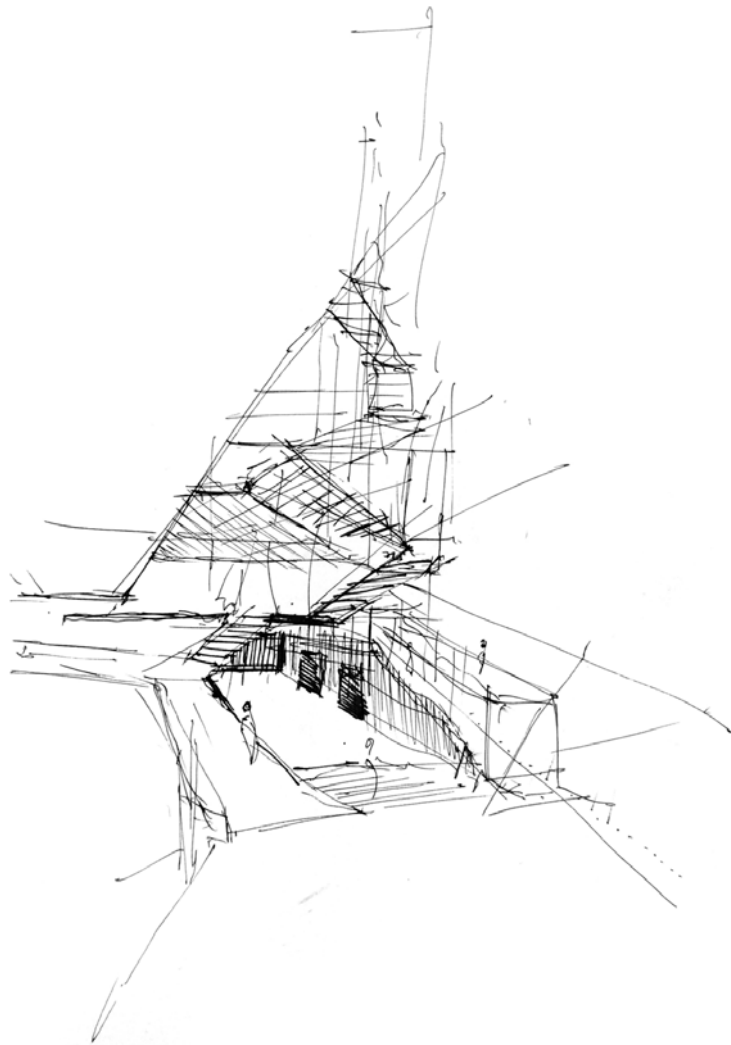


Figure 51 Stairs drawn as a link between the street and the building conditions.

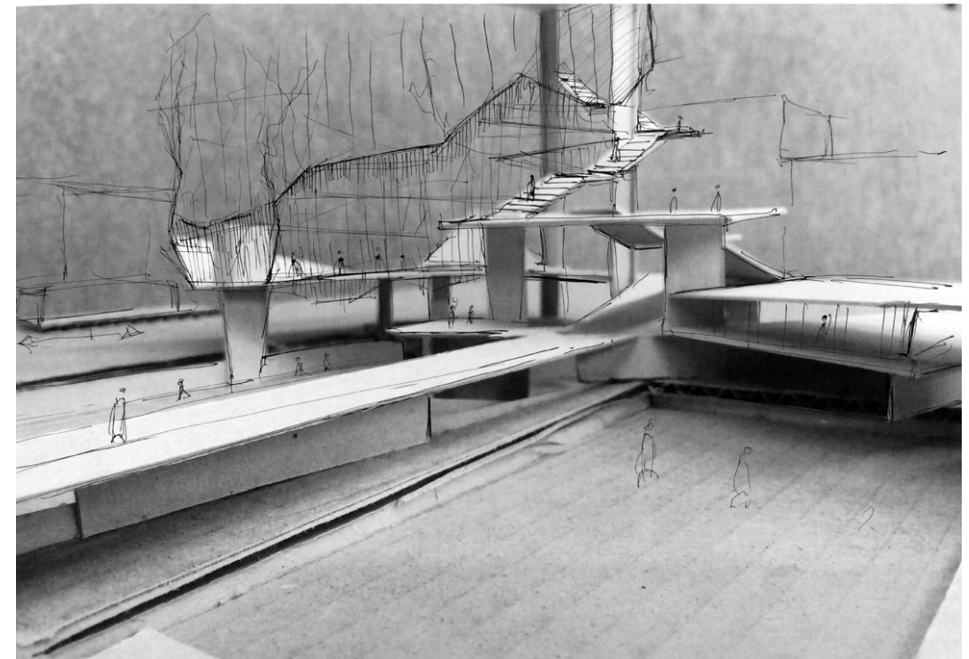
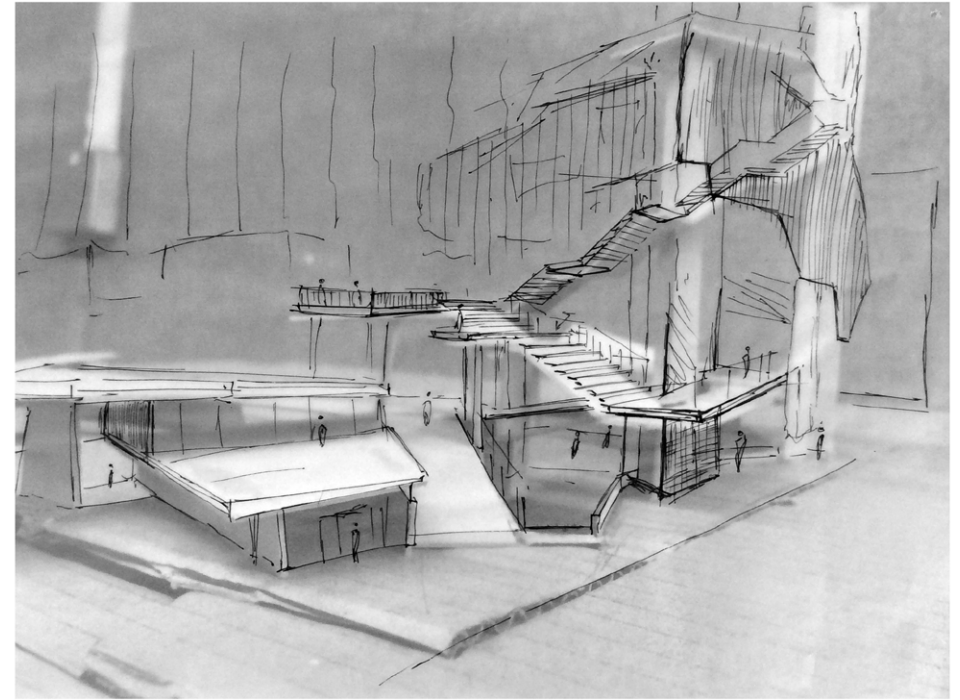
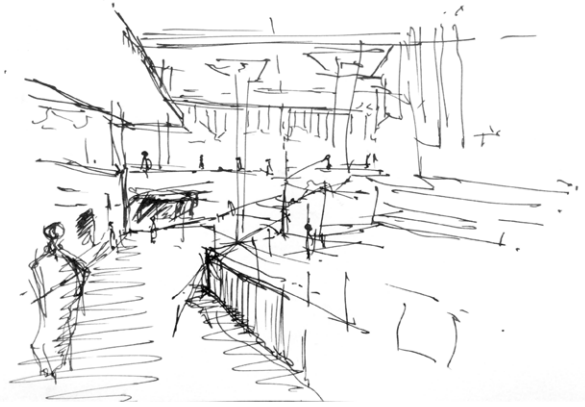


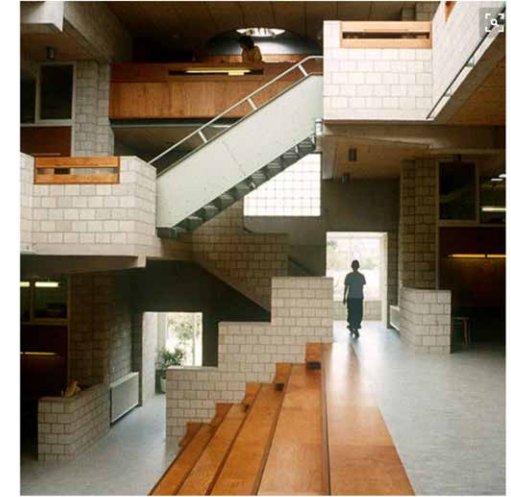
Figure 52 Photos of physical model, sketched over exploring skin as building and stair as street.



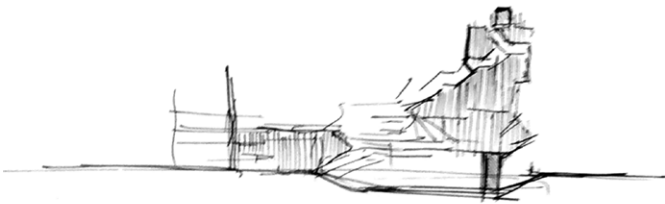
**Figure 55** Elevated building allows street to pass under it.



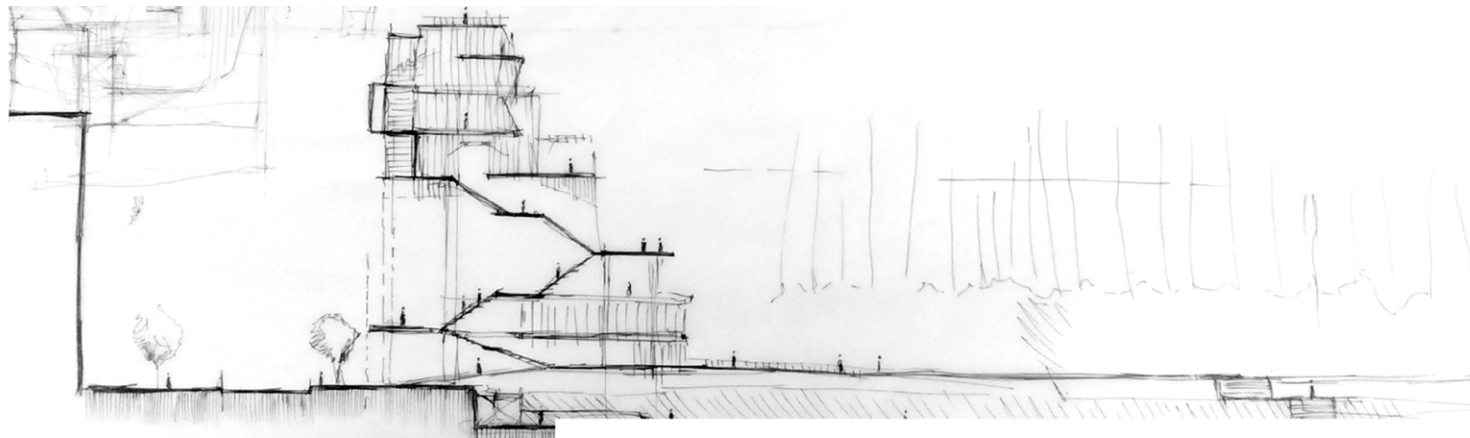
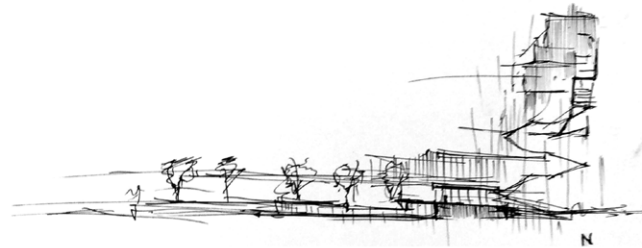
**Figure 56** Considerations of a running track and sport activity from the park to enter under the building.



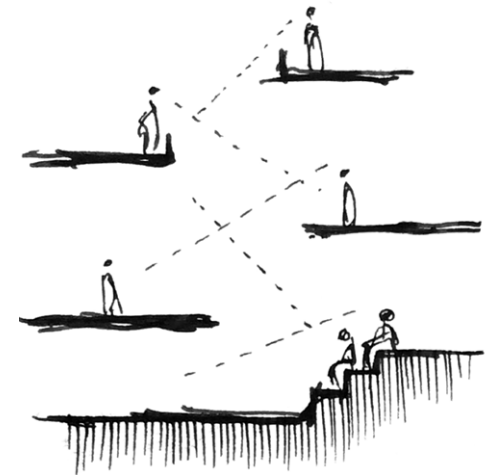
**Figure 57** Herman Hertzberger. Montesorios school. (Hertzberger, 1991)



**Figure 53** Sketch elevation looking at the interplay between the street (stairs) and the building (screen)

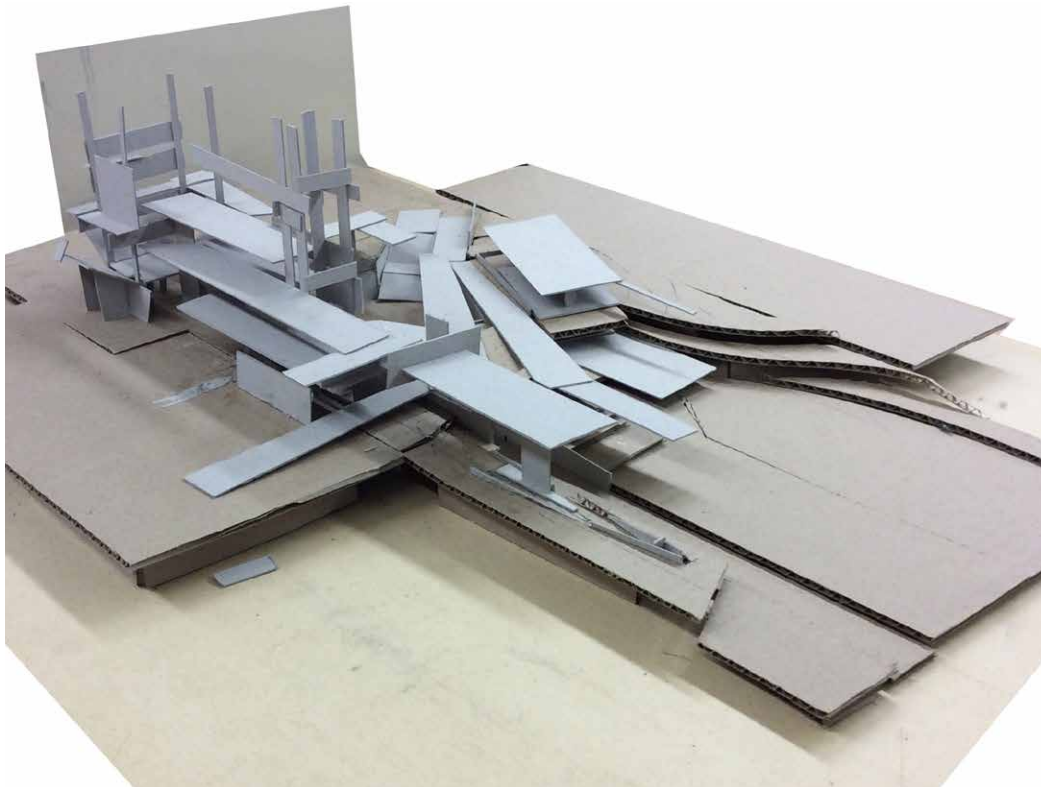


**Figure 54** Scaled section questioning the feasibility of stairs regarding volumes and regulations.



**Figure 58** Diagram by Herman Hertzberger of Montesorios school redrawn by Author.

## ITERATION 2 \_April



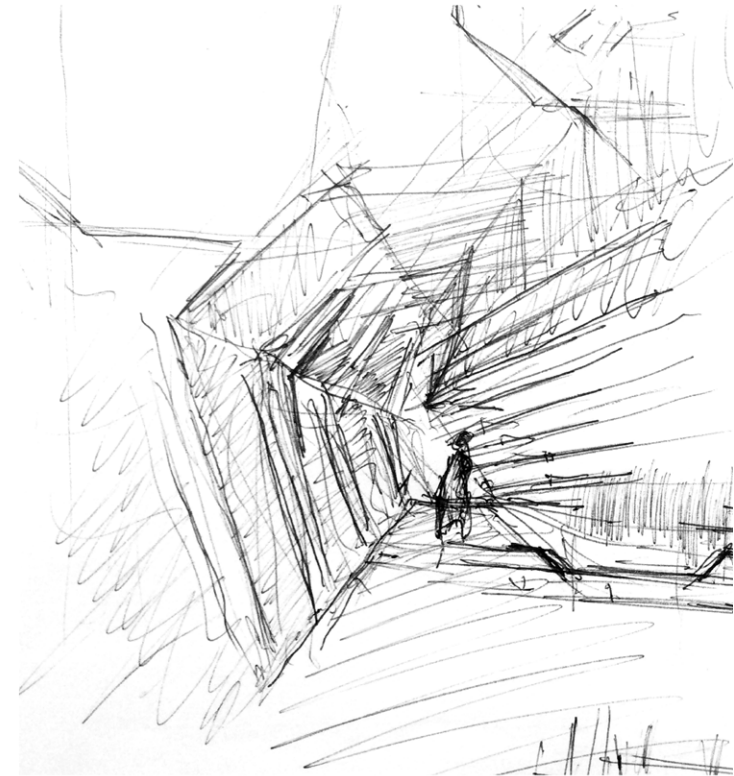
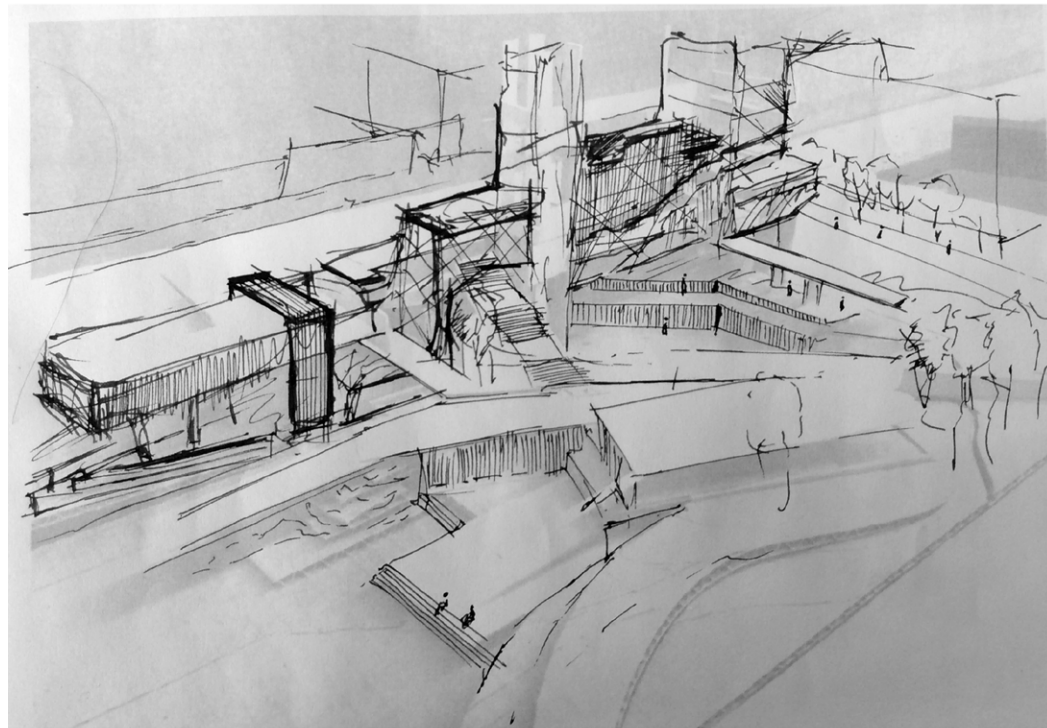
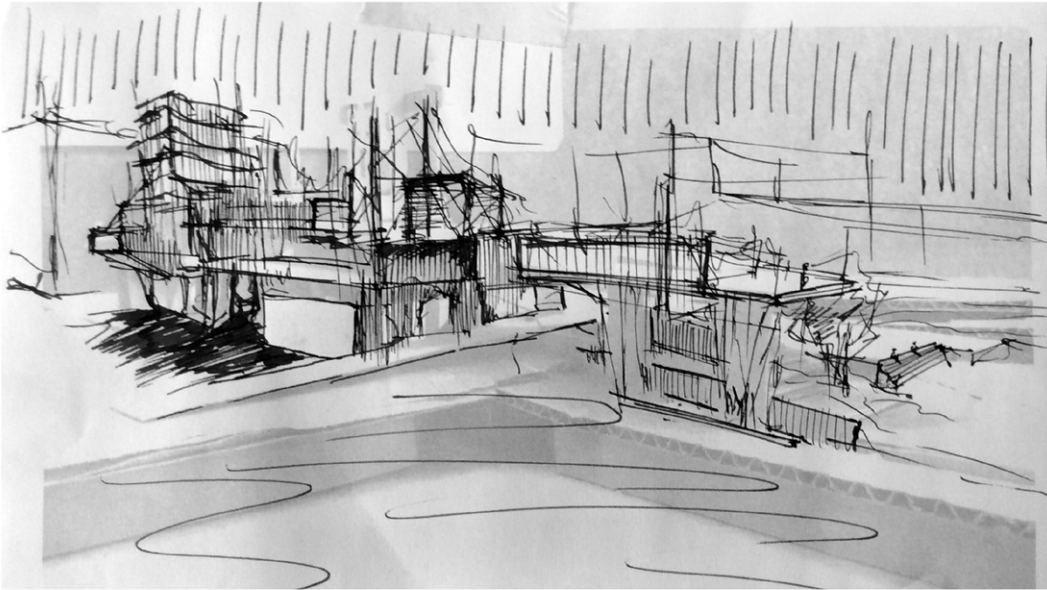
The edges of the building, and the relationship to the urban street scape are further considered.

Focusing on ground level, the building is considered through its use of edges, as if the structure is a skin or container to the public space it defines. The building is pushed back on the site and is orientated east-west along its long axis. The manipulation of edge is considered by intended user's interaction with the edge.

Each designed edge condition responds to how a user would be required to interact with the building. For instance, in a protest scenario, the edge attempts to exclude activity. In an everyday scenario, the intention is to include the user. This interaction is broken down into design categories, namely: pass-by, pass-through, screen, enter and integrate.

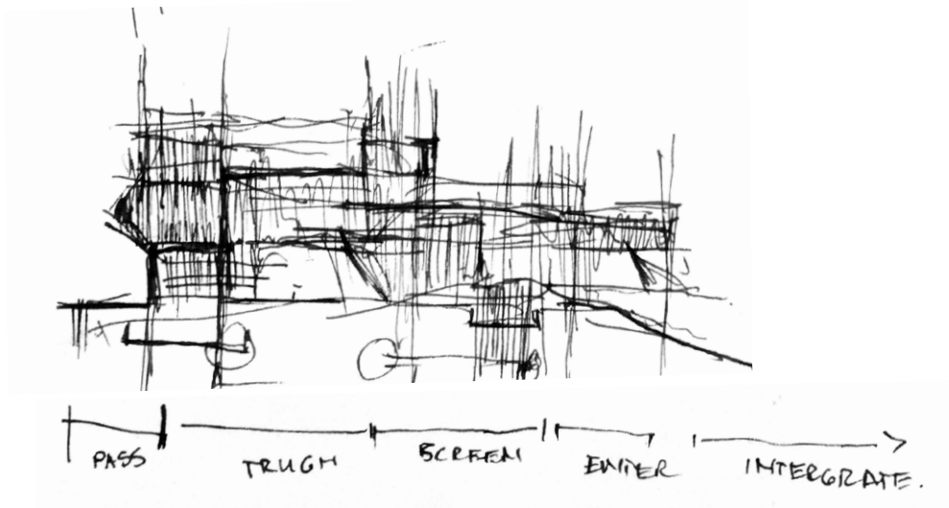
An urban 'Ha-Ha' is investigated, as a way to control masses of people in and around the site. The visual connection with the civic activity is maintained, however, to partake in the civic activity suggests a commitment to entering the space. The entry points are intentionally narrow, disarming large crowds but adequately accommodating everyday activity.

The urban atrium faces the public Ha-ha space as opposed to the street in an attempt to highlight the created street condition of the new civic space. Emphasis is diverted from the roads, and the building acts as a buffer between the existing inhuman road and the new proposed public space. Specific programmatic typologies are introduced in attempting to investigate how the 'skin' can be occupied. Very specific forms for singular functions are introduced, such as the boxing ring and theatre. Exploring these forms gives direction to the form making, however, are limited in adapting to secondary programmes. It is realised that in order for the building to be both generic and specific in function, form needs to be considered on a scale from typology (specific form for a function) to autonym (generic form for any function). It should be neither too prescriptive to a singular activity nor so generic that it contains no specific value to any activity.

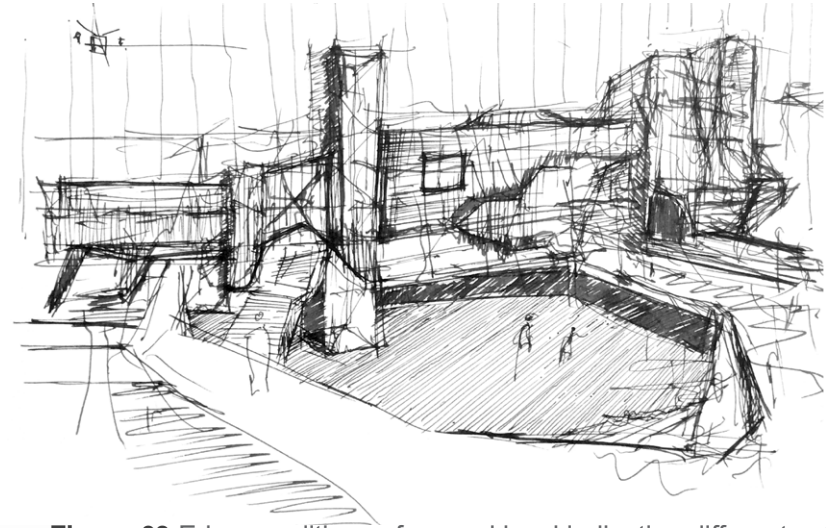


**Figure 59** Making function out of form.  
Investigating passages behind the boxing arena.

**Figure 60** Above and below. Photo of physical model, sketched over. Exploring the skin and form of the building.



**Figure 62** Sketched elevation showing different edge condition categories.

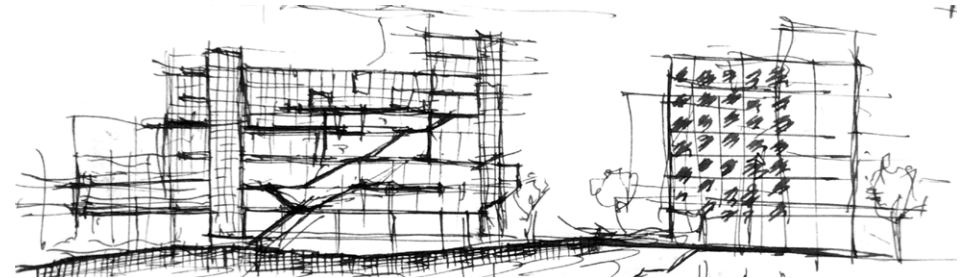


**Figure 63** Edge conditions of ground level indicating different activities.

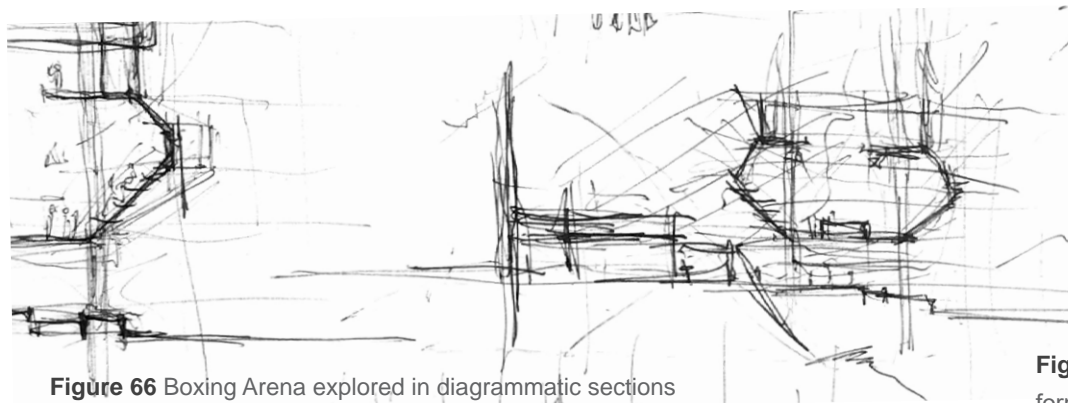
**Figure 64** Exploring the potential for the urban Ha-ha.



**Figure 61** Investigating an urban Ha-Ha the relationship between ground and building.



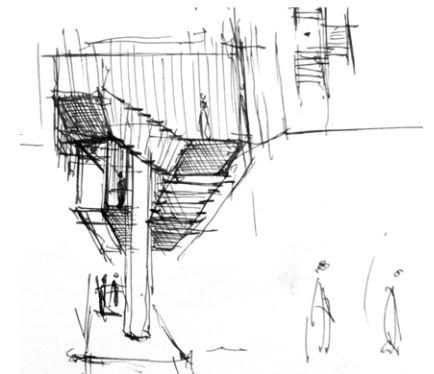
**Figure 68** Elevation exploring staircase connecting elevated levels of public space.



**Figure 66** Boxing Arena explored in diagrammatic sections

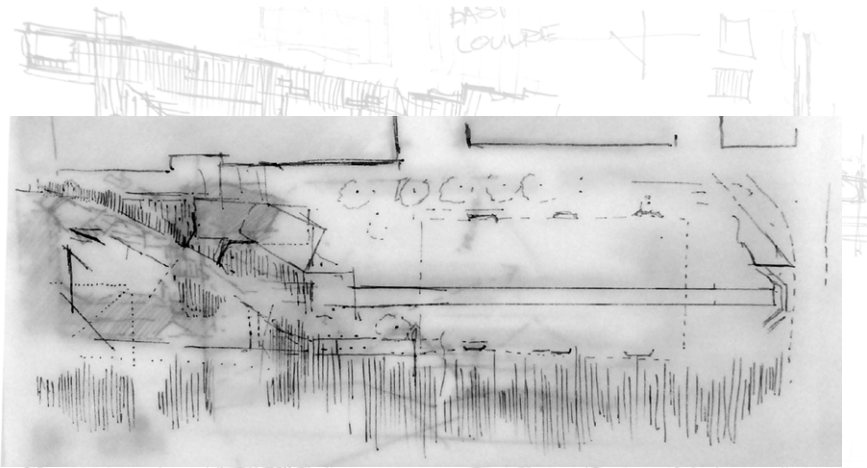


**Figure 67** Building turning the corner through form derived from specific typology.

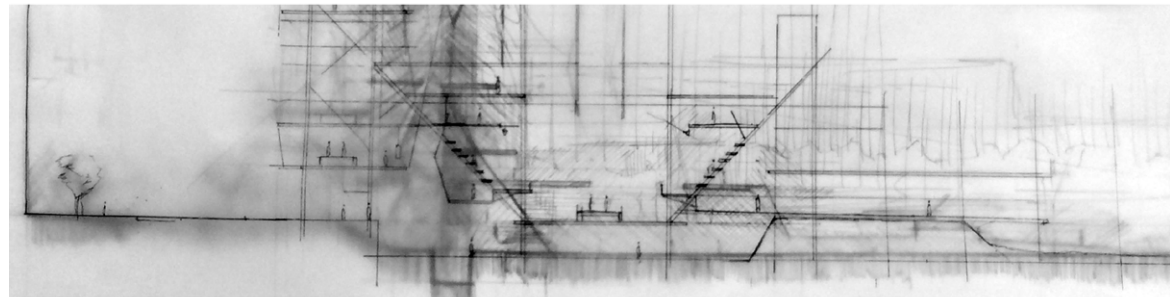
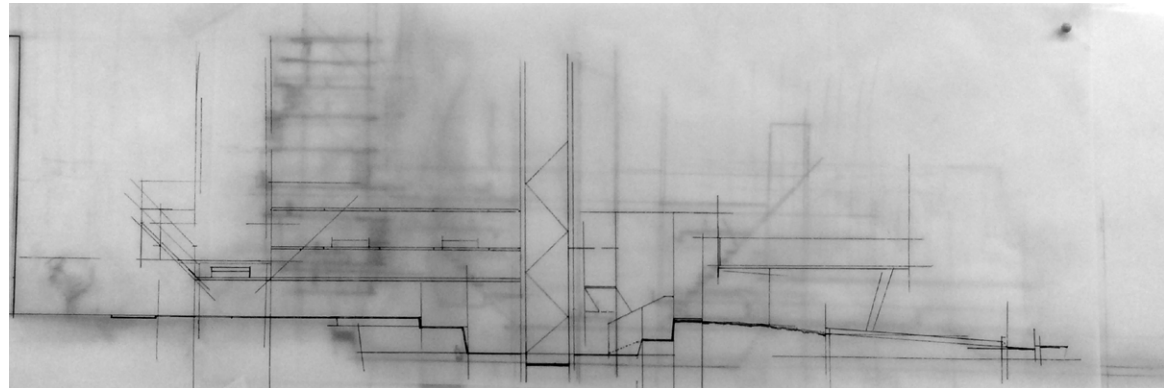


**Figure 65** Designing with various typology's.

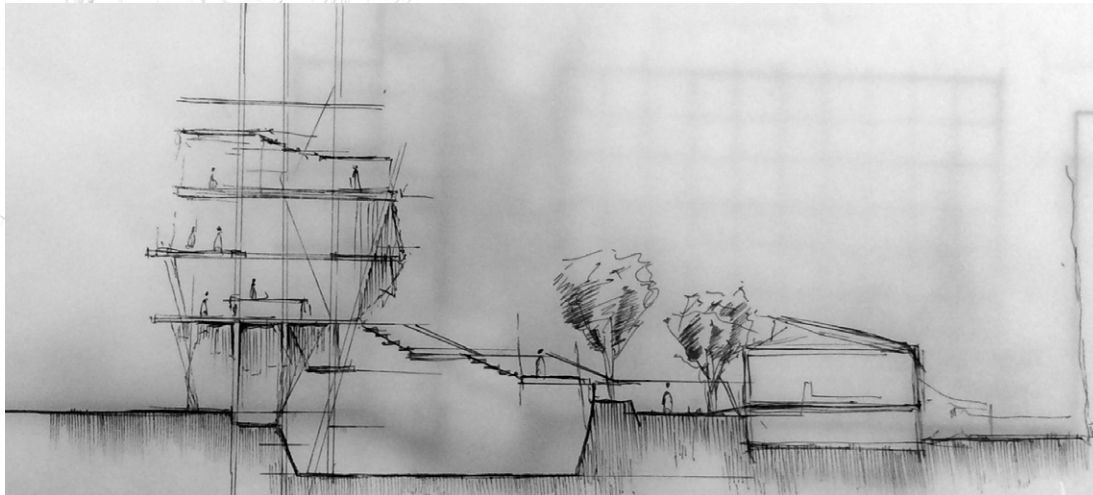




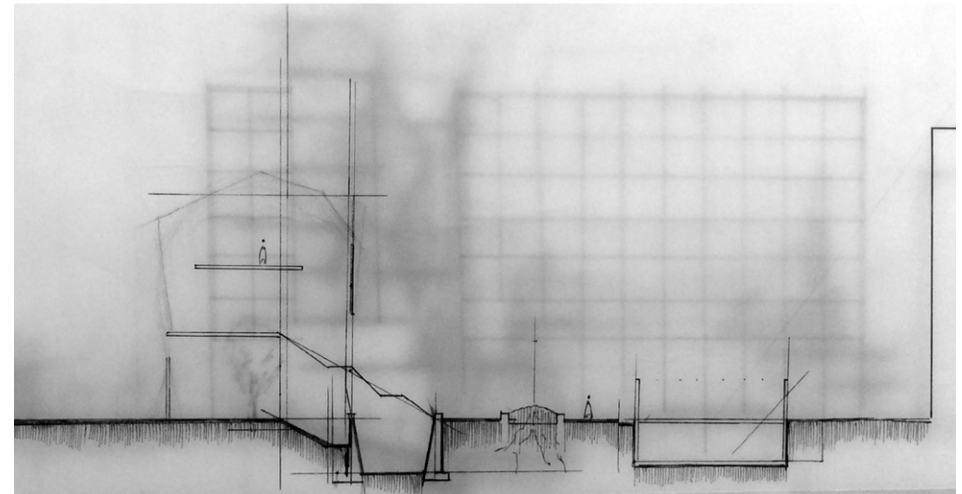
**Figure 71** Image. Defining the park. Early site plan with the 150m running track into the civic space.



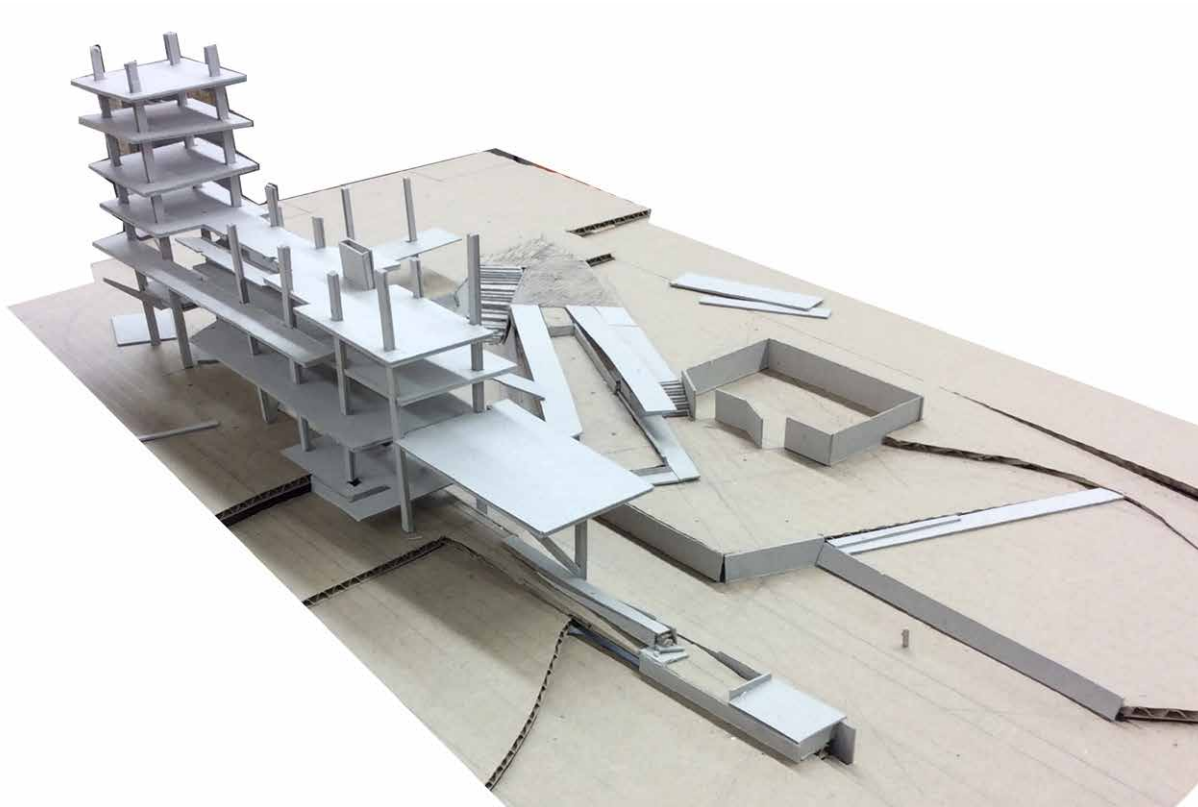
**Figure 69** Image. Above and below. Exploring typology and form through section. With focus on the relationship between building and ground and how each can articulate threshold and function. A boxing stadium.



**Figure 70** Exploring the threshold between street and building over the urban Ha-Ha.



## ITERATION 3 \_April



The form and space of the design is invested further terms of a structural system.

This results in the building losing the spatial quality evident in previous explorations, where the design becomes spatially constrained by the grid imposed onto it. The edges which negotiate the street and building conditions become too rigid. The building represents the existing condition of a private object in public space, where the thresholds are too implicit and sudden. The skin, which defines the public space is more of a wall, with a staircase that ascends its facades. As a result, screens are introduced which help dissolve the edges of the building. The use of screens, as noted in Jean Novell's building (precedent) introduces a third condition, somewhere between the building and the street.

Screens begin to define one public space to another. The urban atrium developed into a series of thresholds before the stairs draw users up the vertical public space. The public space is considered as a mix of both street and building condition. Passing through the screen, one is neither inside the building nor on the street.

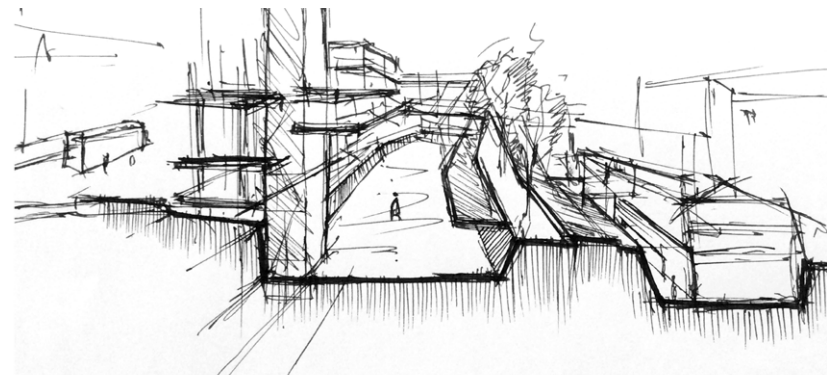
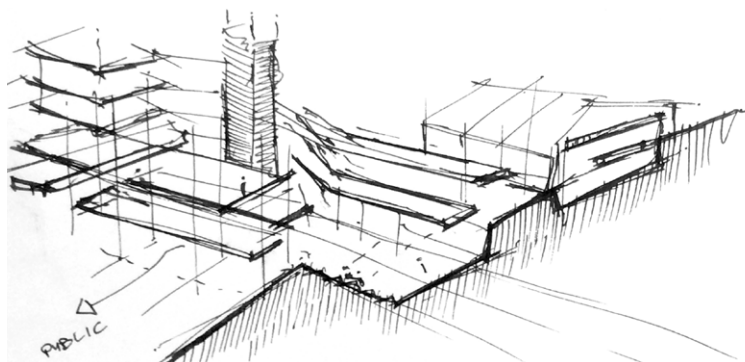
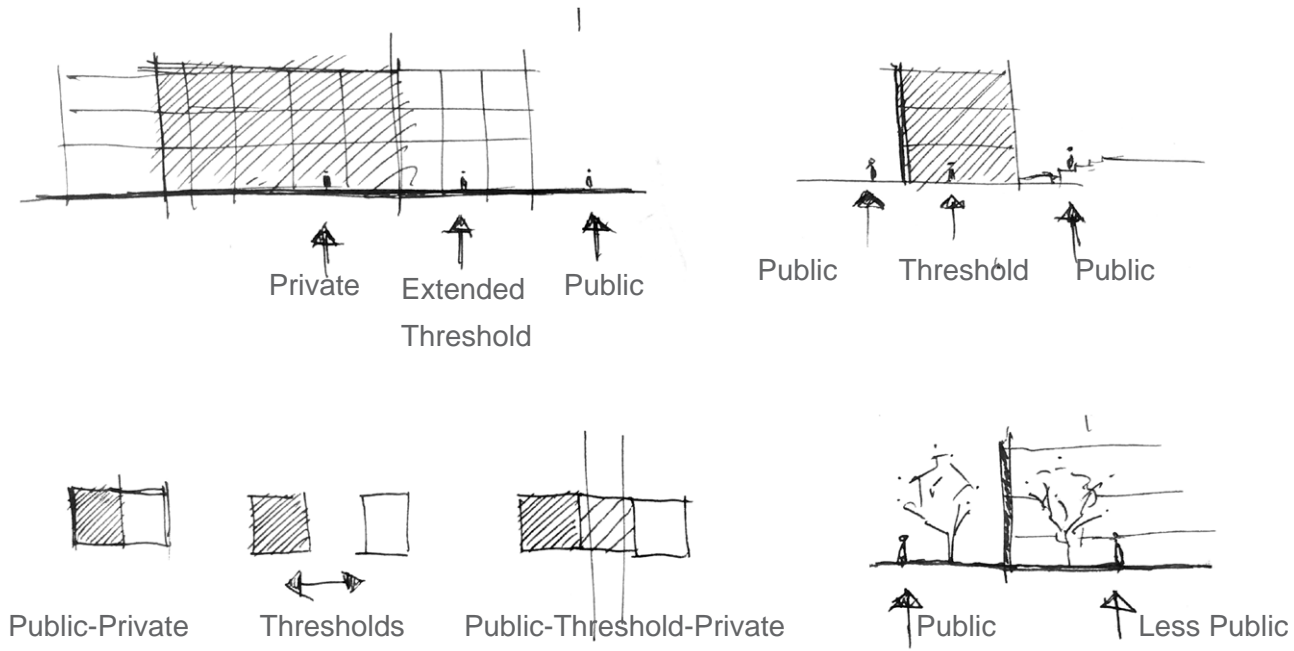


Figure 72 Sketches investigating horizontal relationships between ground plane and building as an occupied skin to the public space.

# PRECEDENT

Jean Nouville. Fondation Cartier pour l'Art Contemporain.  
Screens creating secondary thresholds of outside space.



**Figure 76** Diagrams elaborating on the concepts of screens to extend threshold.



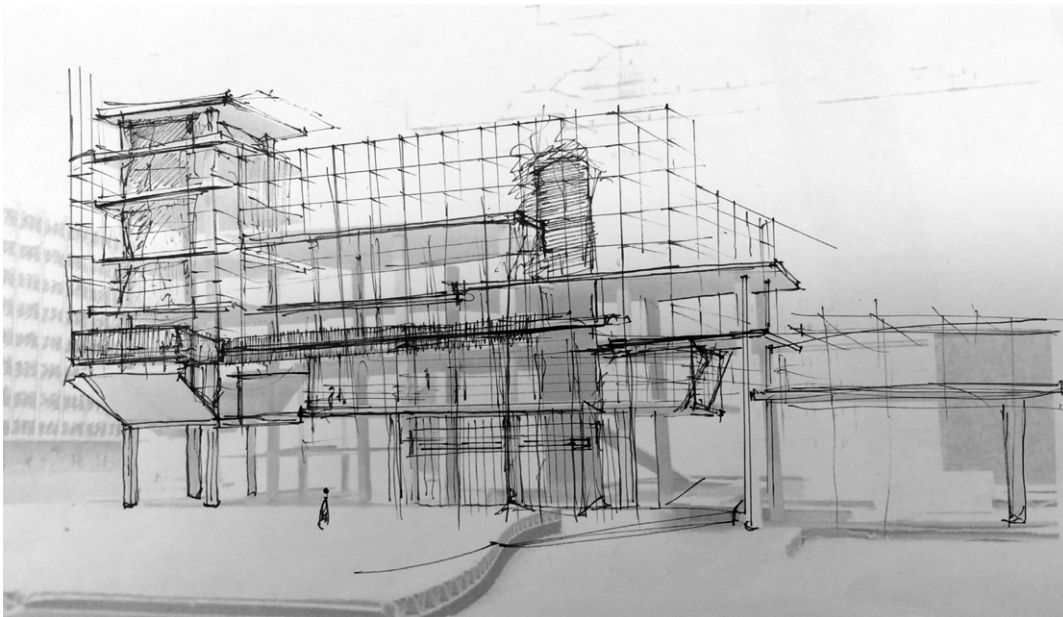
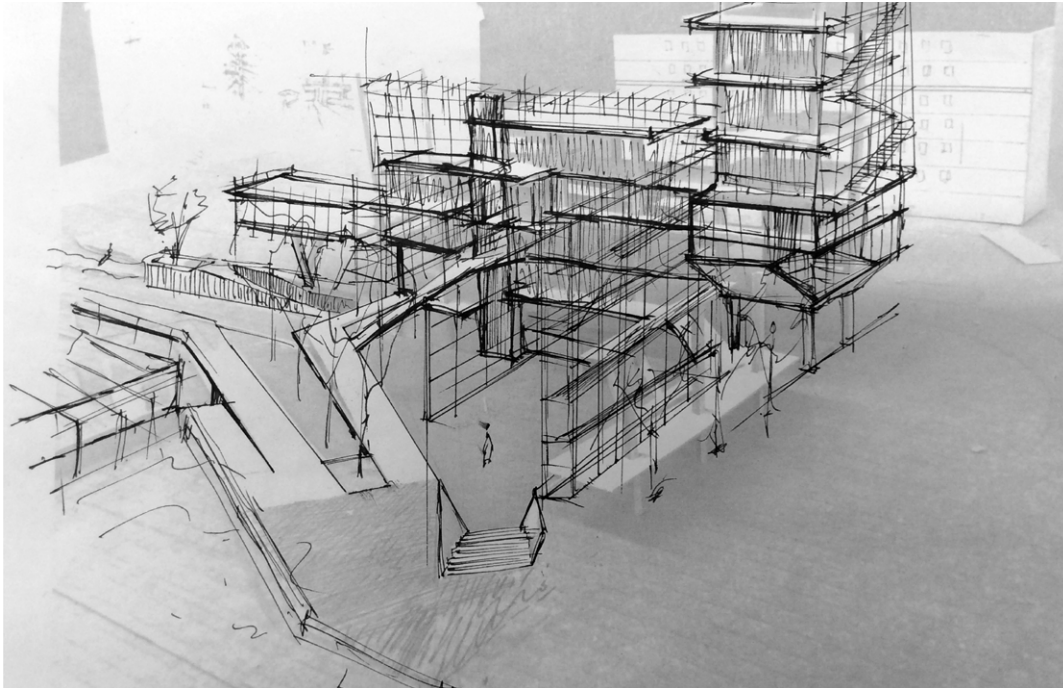
**Figure 73** Image (Nouvel, n.d.).



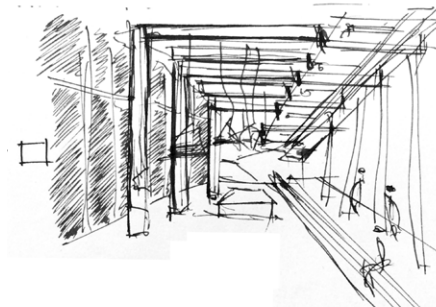
**Figure 74** Image. (Ruault, 2010)



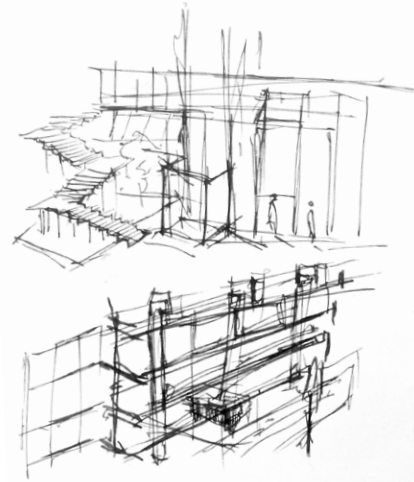
**Figure 75** Image. (Glynn, 2001)



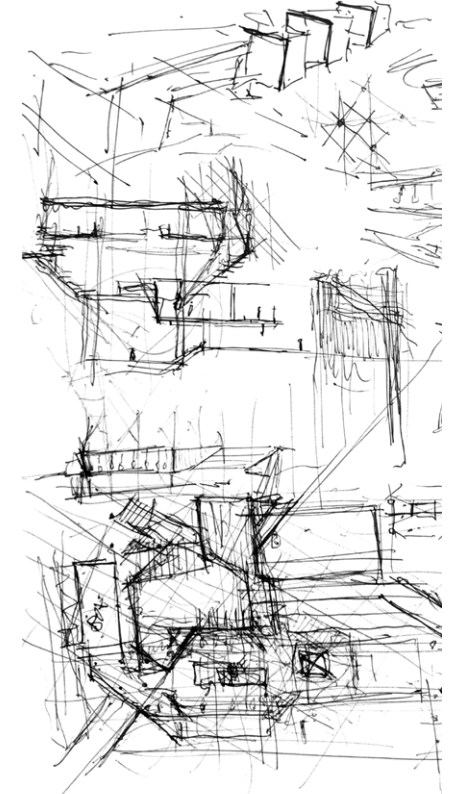
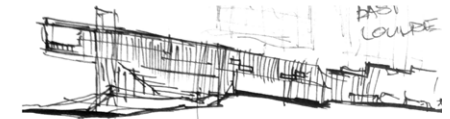
**Figure 77** Above and below. Photo of physical model, sketched over exploring using screens as extend the thresholds and blur the edge of the building.



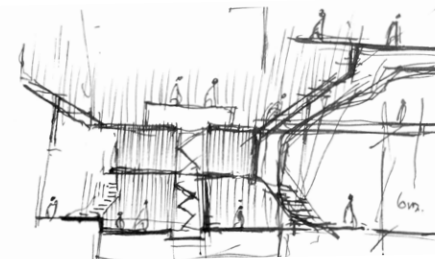
**Figure 78** Structure informing space.



**Figure 79** The building occupying space between the screen.

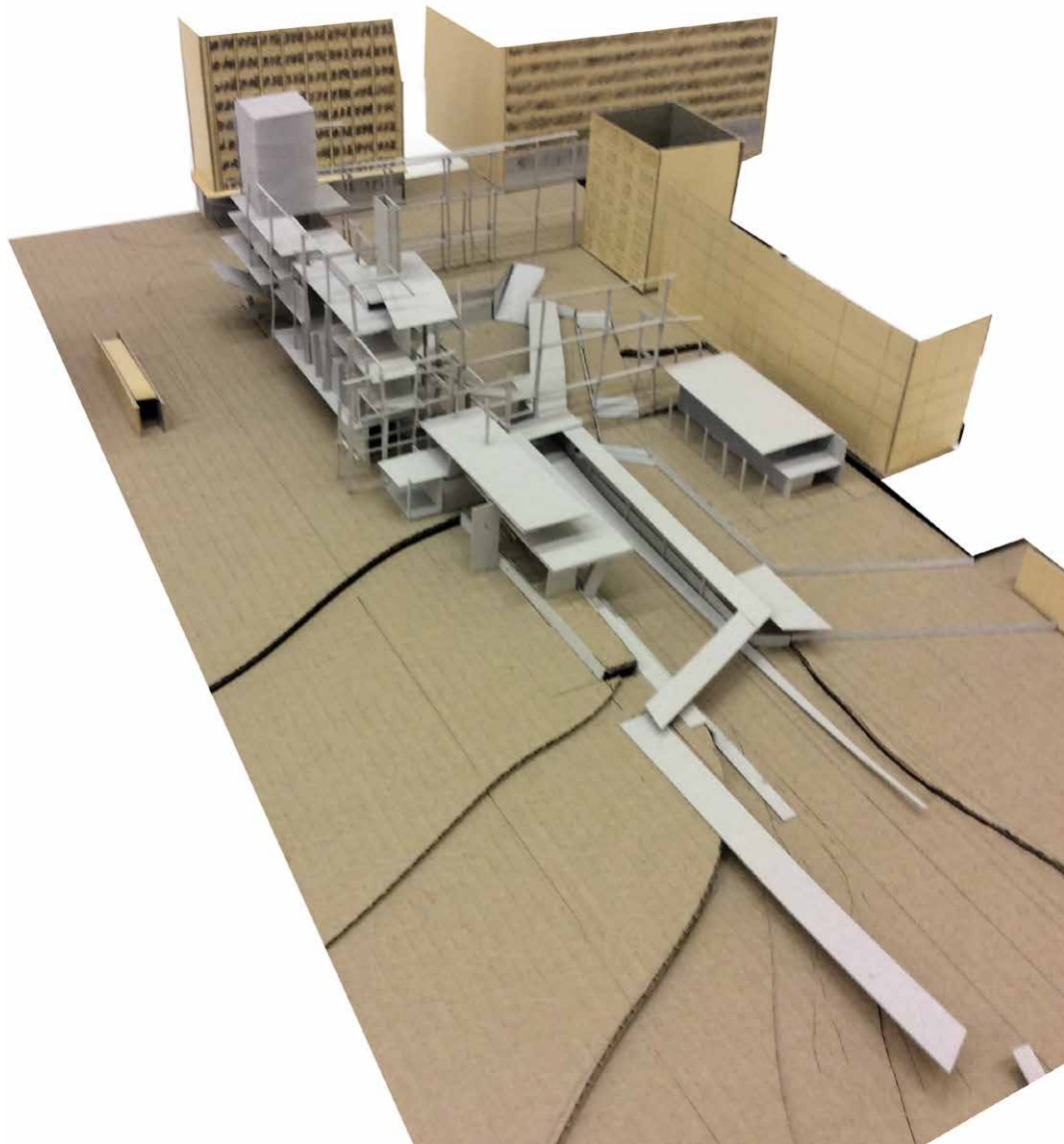


**Figure 81** Elevation, section, plan.



**Figure 80** Typology explored with structure.

## ITERATION 4 \_June



**Figure 82** Model showing the relationship between building and park and growth of scale mediating the street scape and building scape.

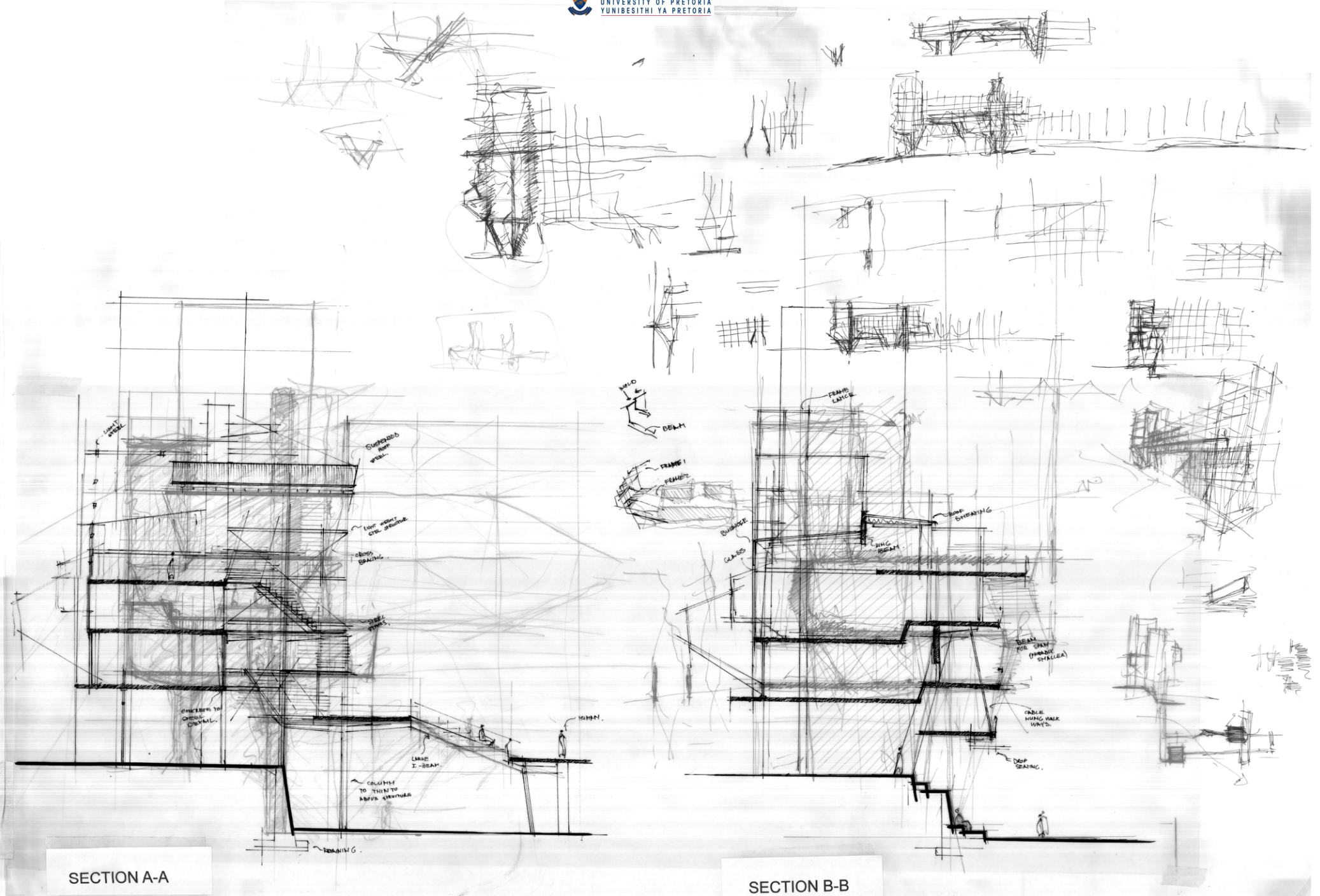
The façade exploration investigates the use of screens.

The screens are used to articulate thresholds and entrances, as well as break down the massing and dissolve the edge of the building. The building occupies space between screens which inform the building edge conditions.

The gesture of the building emerging from, and becoming an extension of the public park space is managed in a more gradual manner using the dissolved edges as well as reconsidered massing.

The massing of the building articulates the progression from public to private. Public is represented as light screen, where private is represented as closed massing. This progression is expressed in the tectonic resolution, playing with light and heavy both vertically and horizontally.



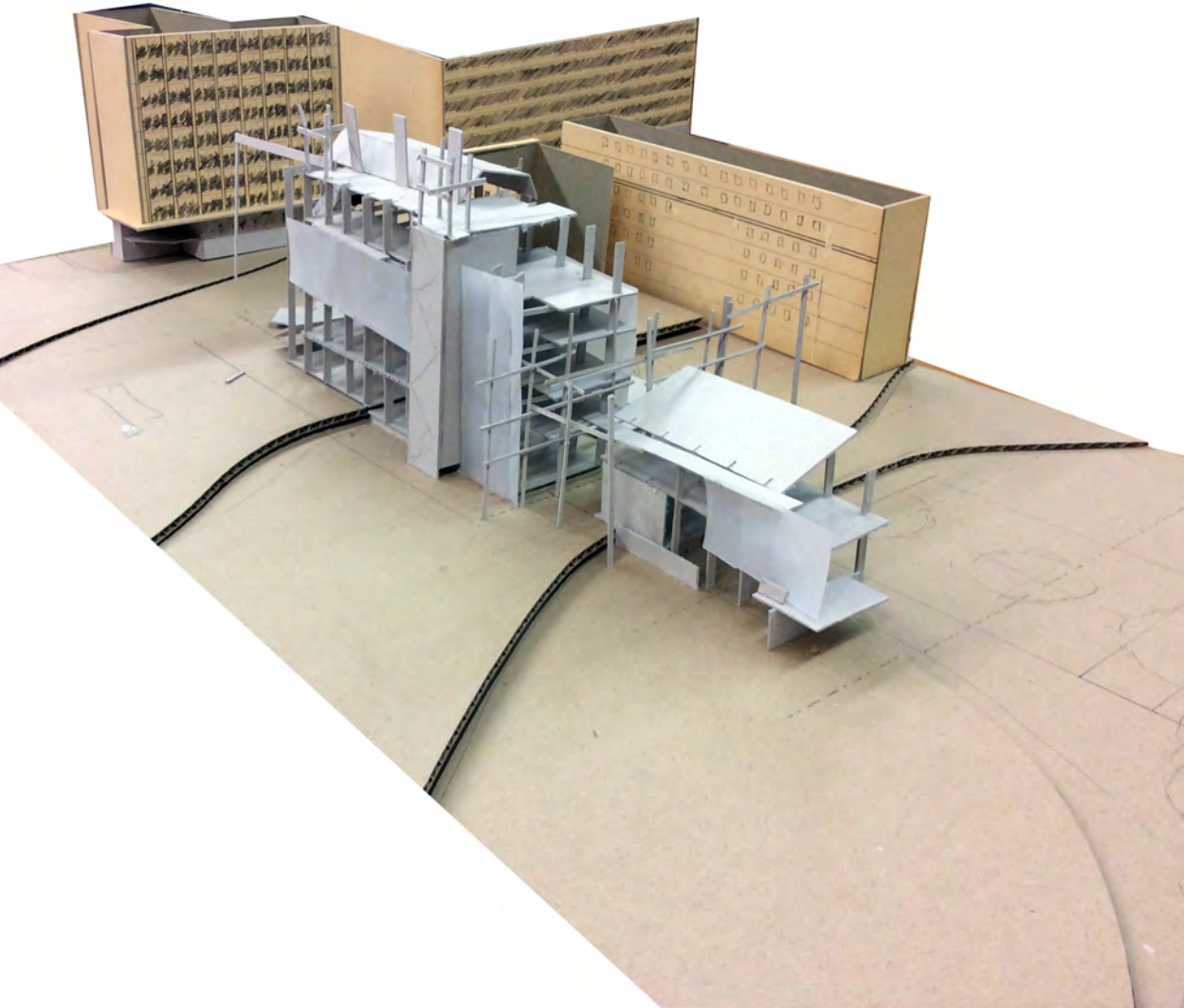


SECTION A-A

SECTION B-B

Figure 83 Working explorations in section, investigating the internal space of the occupied skin.

## ITERATION 5 \_August



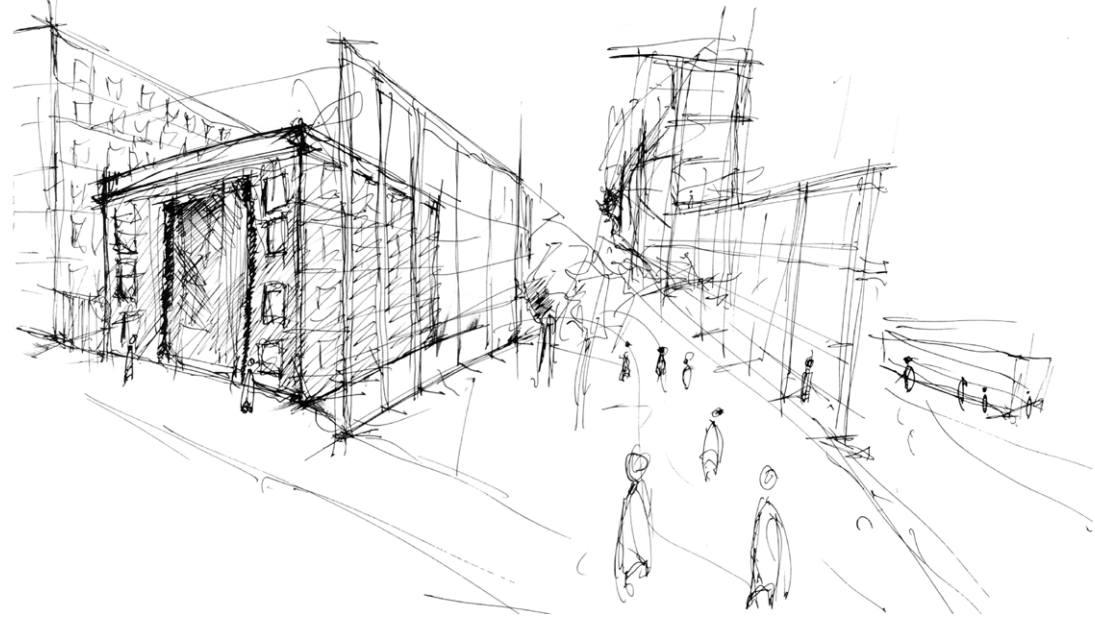
Reintroducing the heritage building on the site leads to a different approach of dealing with how the building occupies the corner.

The building is pushed back from the corner into the park, going against the urban framework, which states that each corner should have a tall building that defines the urban edges. Instead, the corner is opened up to become a public space, as a response to the existing perception that open space is public space. A screen is then used to occupy the space the building would have, as a response to urban condition and framework. Entering the open space, one passes under the screen, becoming the first threshold into the building.

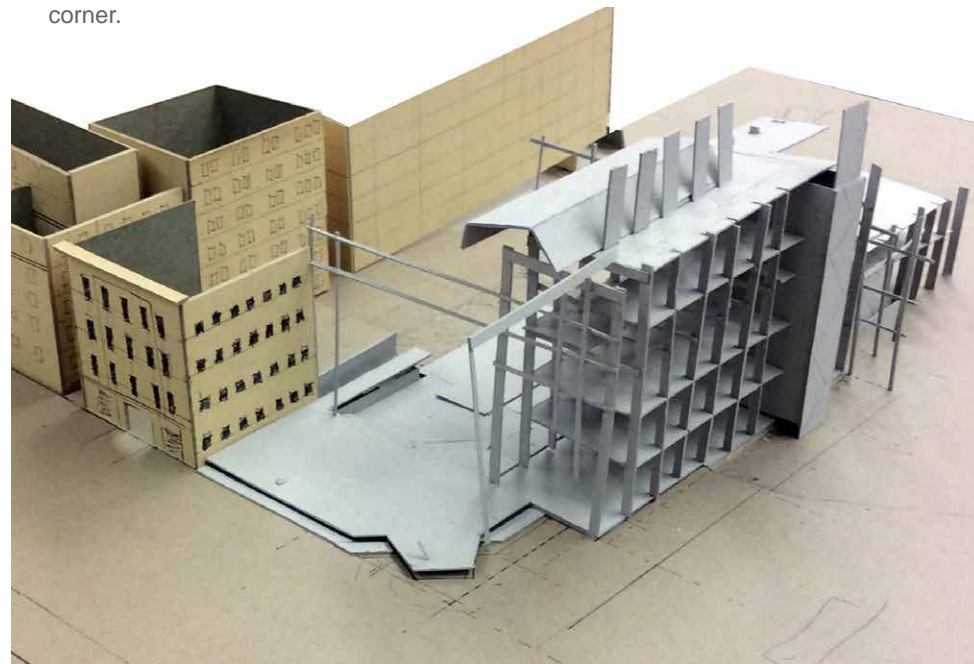
The urban atrium is moved back to the street edge as a public entrance. A second staircase is introduced as the public staircase. The programmatic concept of contesting the building space is introduced, where the public and private uses of the building continually change and challenge each other.

The urban Ha-Ha is reconsidered in a critical response to its function during public protest and its practicalities for the everyday and sporting activities. Instead, a plinth is introduced mimicking the plinth portico entrance noted in the existing surrounding buildings. The form of the plinth responds to conflict in protest, allowing a platform for conflicting notions to be presented to protesters along the protest route. The size of each step restricts masses moving into the civic space. The plinth creates hierarchy and encourages activity for the everyday users at different points. Reverting to the original use of the stairs, as a link between street and building conditions, the urban atrium is placed on the corner and grows from the plinth as a heavily defined public staircase into the contested floor spaces within the building.

The programmatic requirements and zoning of the building are established; internal use of the building is considered further.

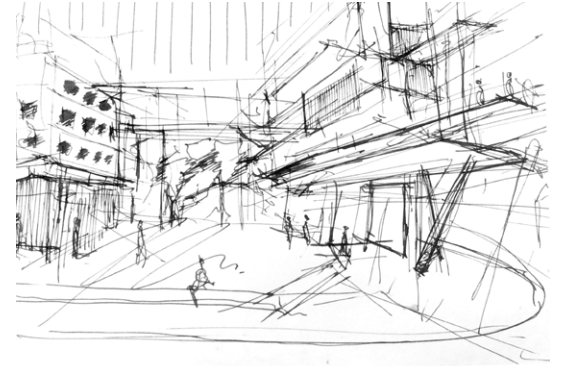
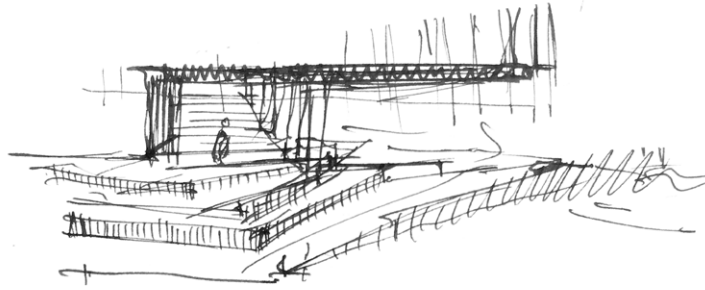
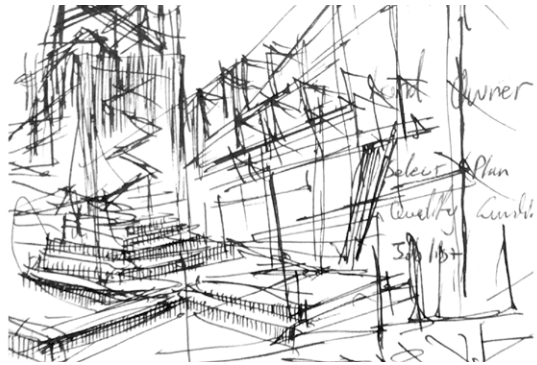


**Figure 84** Initial concept sketch for including the heritage building and pushing the proposed building back from the corner.

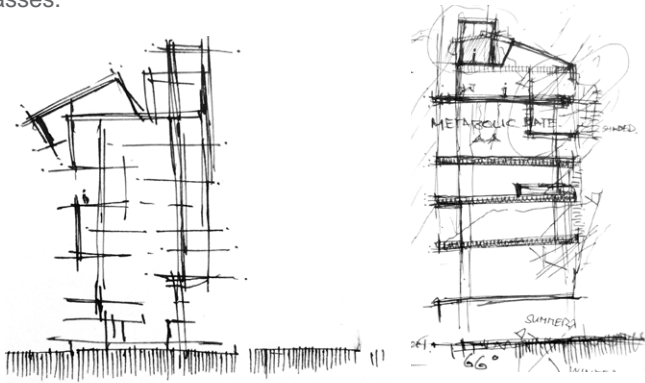


**Figure 85** Model showing the relationship between heritage and new.

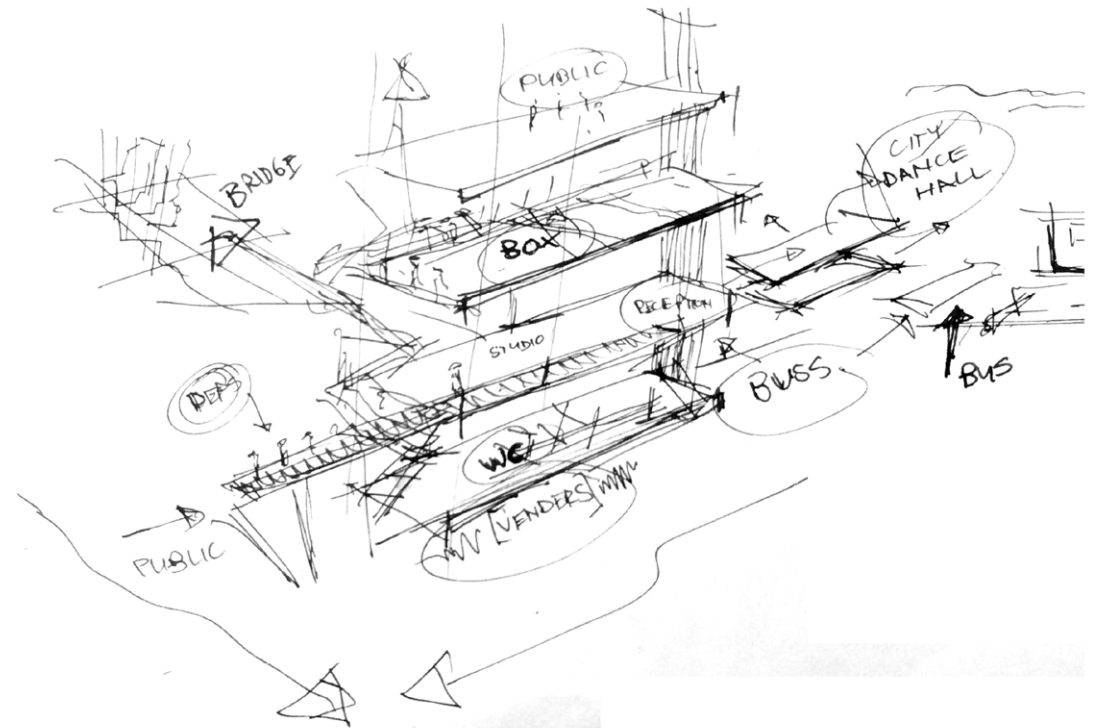




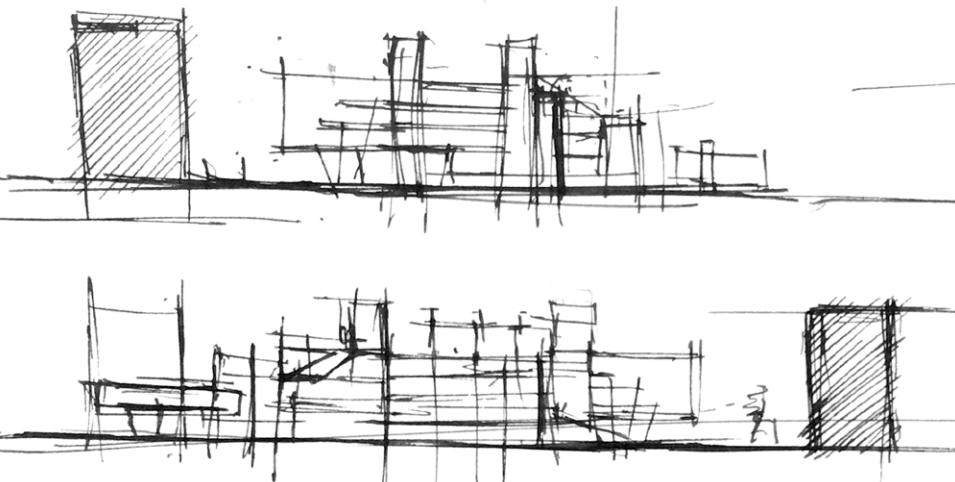
**Figure 88** Sketches exploring plinth as threshold and element to control protest masses.



**Figure 89** Diagrammatic section considering technology and volumes.



**Figure 87** Sketch showing the program of internal space in the building considering fixed functions and possibilities for other functions.



**Figure 86** Exploring through elevation the possibility of moving the building away from the corner.

# ITERATION SUMMERY

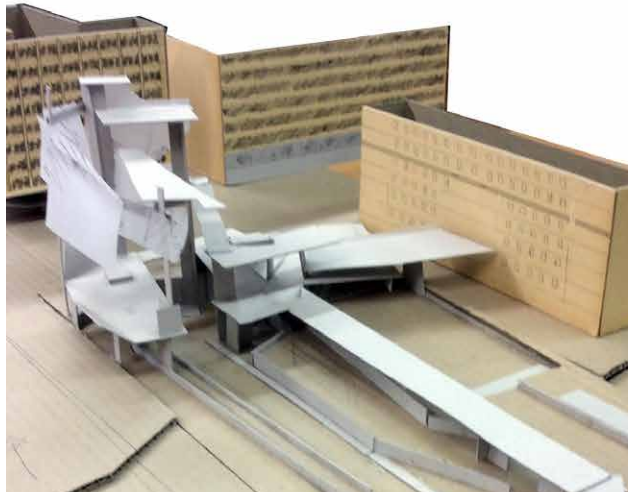


Figure 90 Iteration 1

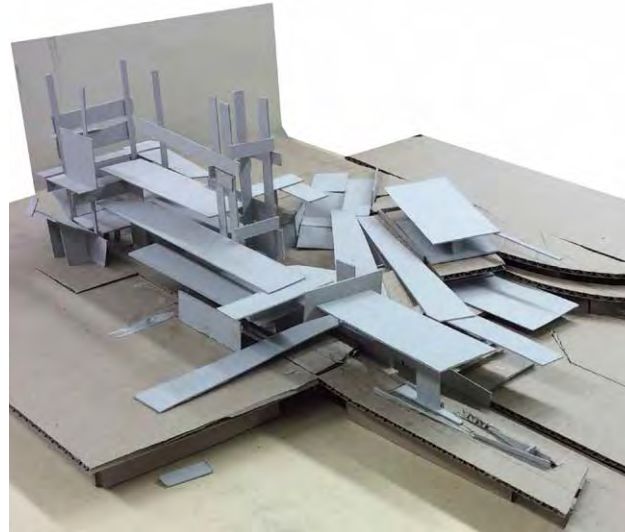


Figure 91 Iteration 2

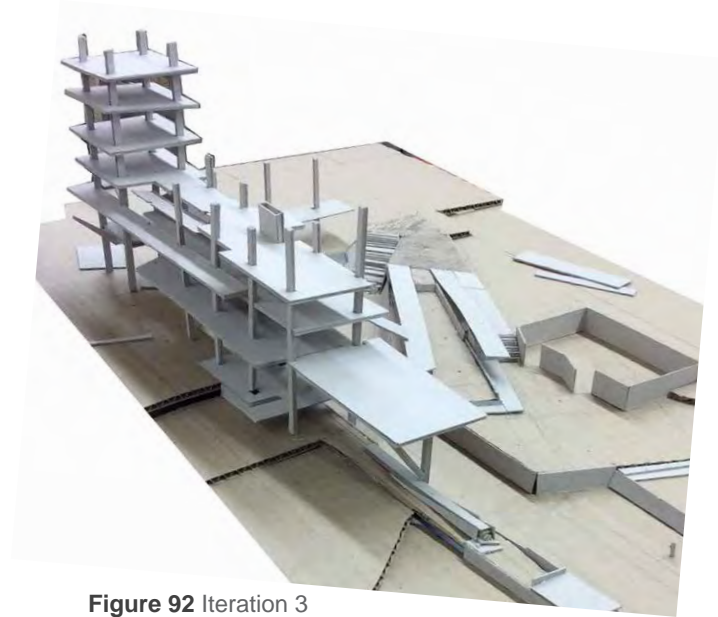


Figure 92 Iteration 3

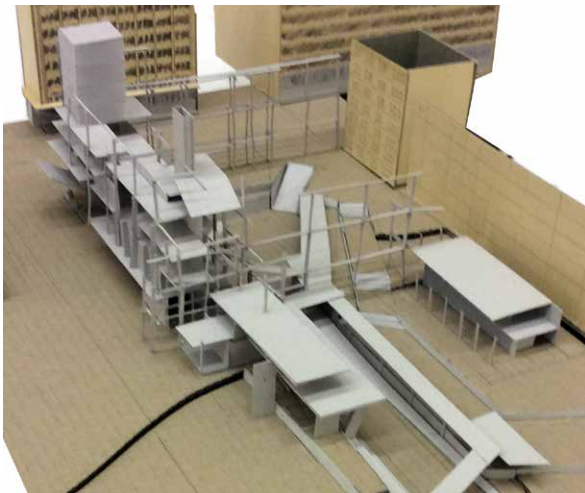


Figure 93 Iteration 4



Figure 94 Iteration 5

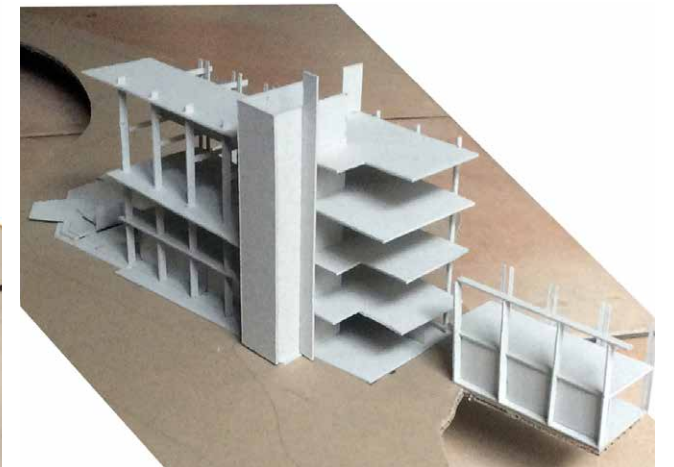


Figure 95 Preview of final design model

## ATTITUDE TO HERITAGE

The Edward building (Image 97) was built in 1942. It was originally designed and used as a hotel, owned and run by Mr. Edward. Currently, the building is used as a private computer college.

The response to heritage reflects that of the argument of *agon* and space. The building is used to represent a single point in space where conflicting elements collide: the old and the new, identity of the past with identity of the present; built urban and open park space, the public and the private. The new addition cuts into the old as an aggressive gesture of the contest for space. Looking at the building from the street, the urban identity of the existing remains completely intact (Figure 99). On the back elevation, the public identity of the imagined park space dominates (Figure 101). From the public space 'Courtyard' each condition can be viewed (Figure 100), and the single point where they crash expressed as a conflicting consensus (Figure 102).

The structure is concrete with brick infill. Where the new language takes over the building, the existing brick is removed and reused as pavers in the public space. The new infill, or skin, gives the new identity matching the language of the new proposed building next to it.

The building's use remains a computer learning centre, as this is a good example of permanent built form needing to adapt to that of the societal. The current function of the building did not exist when the building was built, reinforcing the investigation to a freely contested and adaptable building.



Figure 96 Existing heritage building on site.

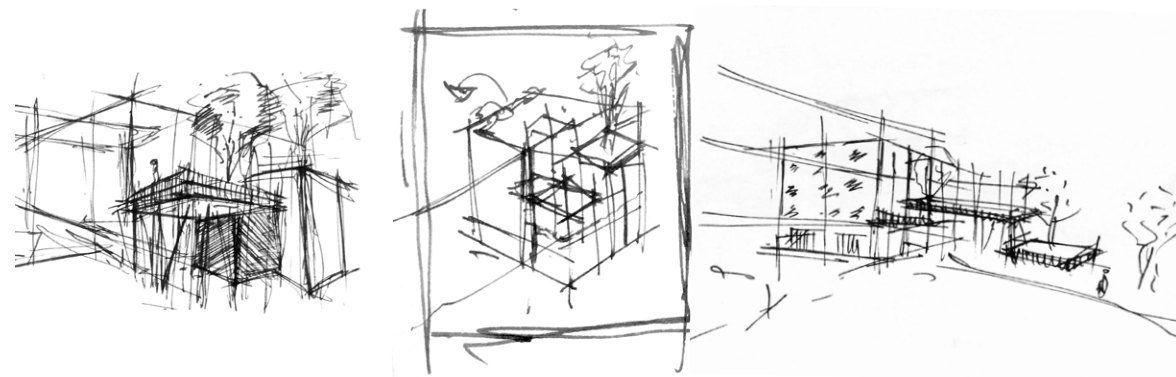


Figure 97 Exploration sketches of the heritage building with the new language attached.

A response to heritage in the design manipulates design principles of the existing surrounding buildings. The structure of these buildings is reflected on the outside of the building creating rhythm on the facades. The gable side of the buildings (Figure 103) have exposed concrete structures and are infilled with brick. In a similar manner, the new buildings structure is reflected on the outside, articulating the facades. The structure and services are exposed as if to be honest in its construction, hiding nothing, expressing each building element in its own right. The structure and infill are considered in a new complexity with modern technologies and materials. The adaption of the building relates to the structure and infill established from the heritage response.



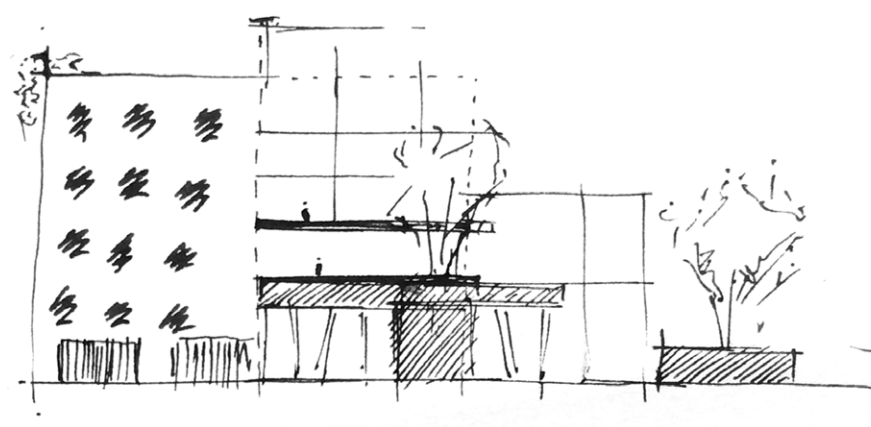
**Figure 101** President used as an example of a heritage response to contrast old and new. (Tham & videgard Arkitekter- Moderna Museet Malmö) (LINDMAN, 2010)



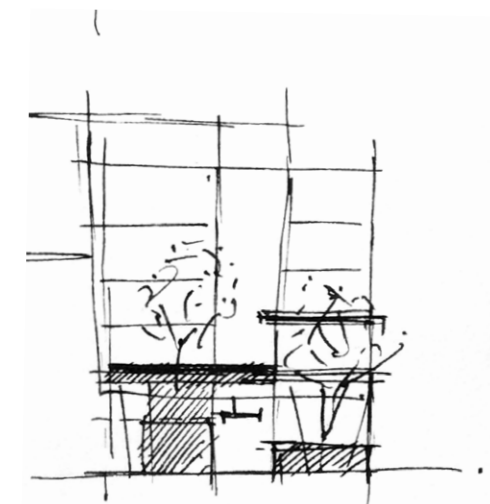
**Figure 102** Building opposite site used as an example to show structure as an expressed element on the façade and the gabion wall in-filled with brick.



**Figure 98** Retained Heritage.



**Figure 99** Contest for space each between old and new.



**Figure 100** New public identity expressed.

# PROGRAMME

When the gym closes, the building opens.

The concept for the building use is twofold. As an extension of the sports facility of the proposed park, a boxing gym, dance studio and fitness centre is suggested. When the facility is less busy, or closed, adaptable floor spaces allow the building to be shared, enabling other functions to occur in the building. Figure 104 shows the potential other use of the building.

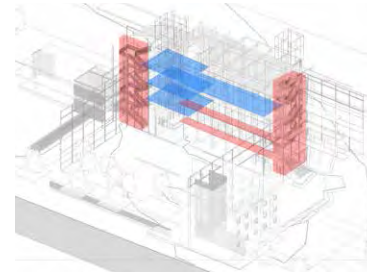
Allowing programmable adaption of the building allows for the people to define its use. However, the flexibility is within a rigid structure, allowing a specific everyday function as well as general function.

A public staircase and a private staircase carry different users into the building (Figure 104). The floor spaces between the two stairways are considered as contested floor space as an extension of a streetscape on elevated levels (figure 106). The gym may occupy the floor spaces through private use activities, such as boxing and dancing. If unused, other civic activities are free to claim the space. In this manner, the threshold between the street condition and the building condition continually shifts through use. At times, it is exclusive, at other times it is inclusive.

The relationship between space and use reflect the dualities of conditions as experienced in *agon-* flexibility and structure, everyday and specific, typology and autonomy, public and private.



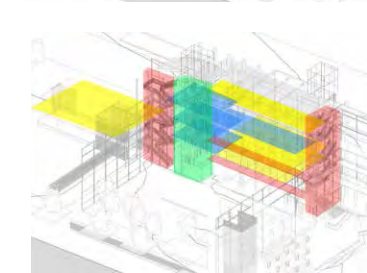
**Figure 103** Circulation- Public and Private.



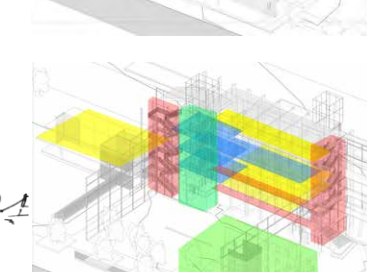
**Figure 104** Fixes- Permanent gym spaces.



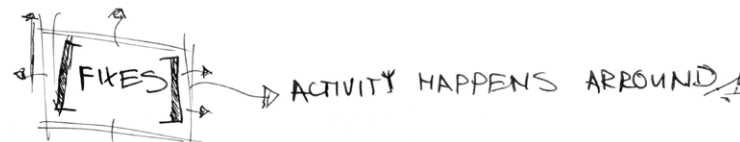
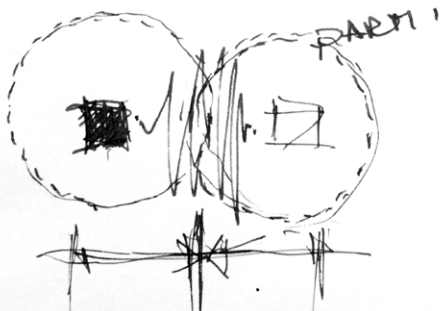
**Figure 105** Variable- Contested spaces used for Gym functions as well as Other.

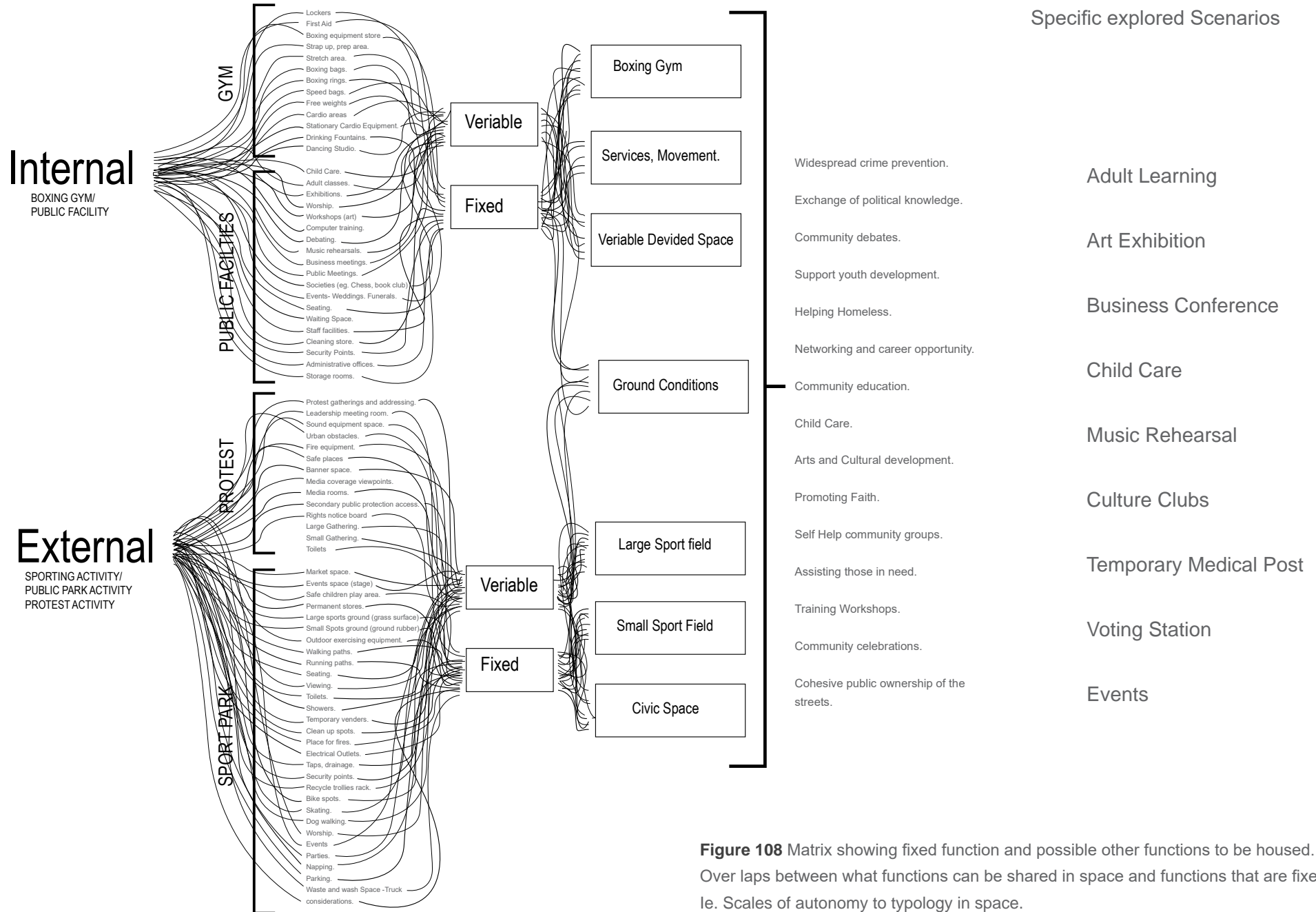


**Figure 106** Shared Services.



**Figure 107** Relationship to Heritage





**Figure 108** Matrix showing fixed function and possible other functions to be housed. Over laps between what functions can be shared in space and functions that are fixed. I.e. Scales of autonomy to typology in space.

# PRECEDENT

Mixed use zoning based on user activity.

The Watershed in Cape Town by Wolf Architects is helpful to this dissertation in understanding how the building is zoned based on the many different functions its houses.

There are layers of public to private which progresses from the ground floor vertically. The ground floor is treated as a main movement space from the road to the waterfront, similar to promenades found in Pretoria. A visual link connects the different zones with utilising large volume atrium-like space (Figure 112).

The fastest moving activities are on the ground (Figure 110), where shoppers pass through. The top level is mixed-use office space, where businesses can rent meeting rooms or work desk space. The level in between mediates the two spaces through programme, with coffee shops and relaxation areas, where people may spend a few hours.

Organising activity through the nature of the duration that each activity takes, and recognising the link to public and private space is admirable.

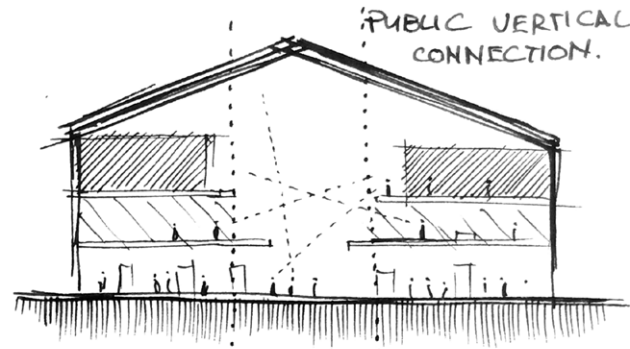


Figure 111 Vertical relationship.

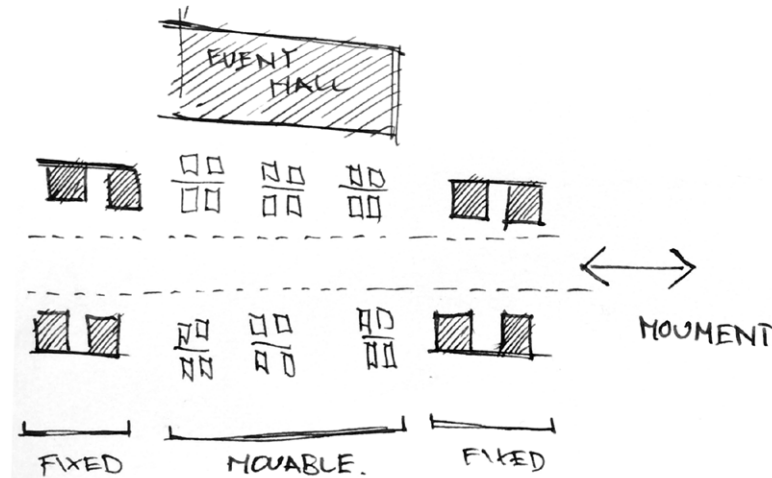


Figure 110 Relationship between fixed and movable. Permenet and temporary.

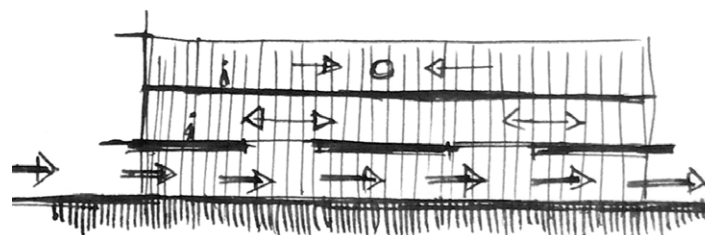


Figure 109 Relationship between use and time occupancy.



Figure 115 (Wolff, n.d.)



Figure 114 (Wolff, n.d.)



Figure 113 (Wolff, n.d.)

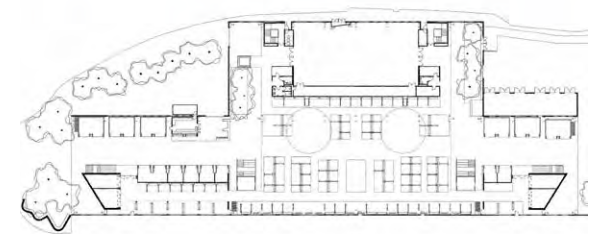


Figure 112 Plan from Architects. (Wolff, n.d.)



**Figure 116** The user in space and the user as space.



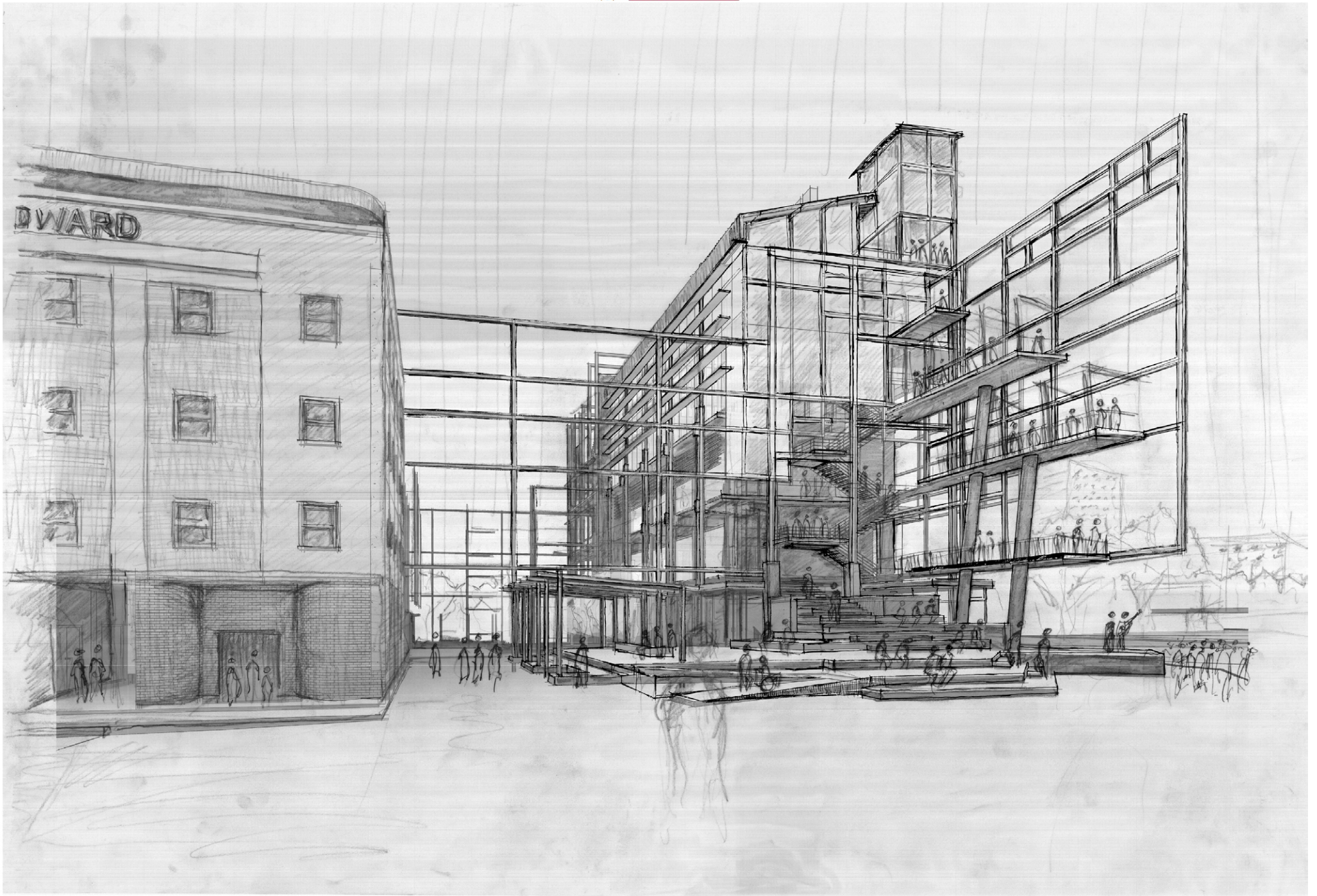
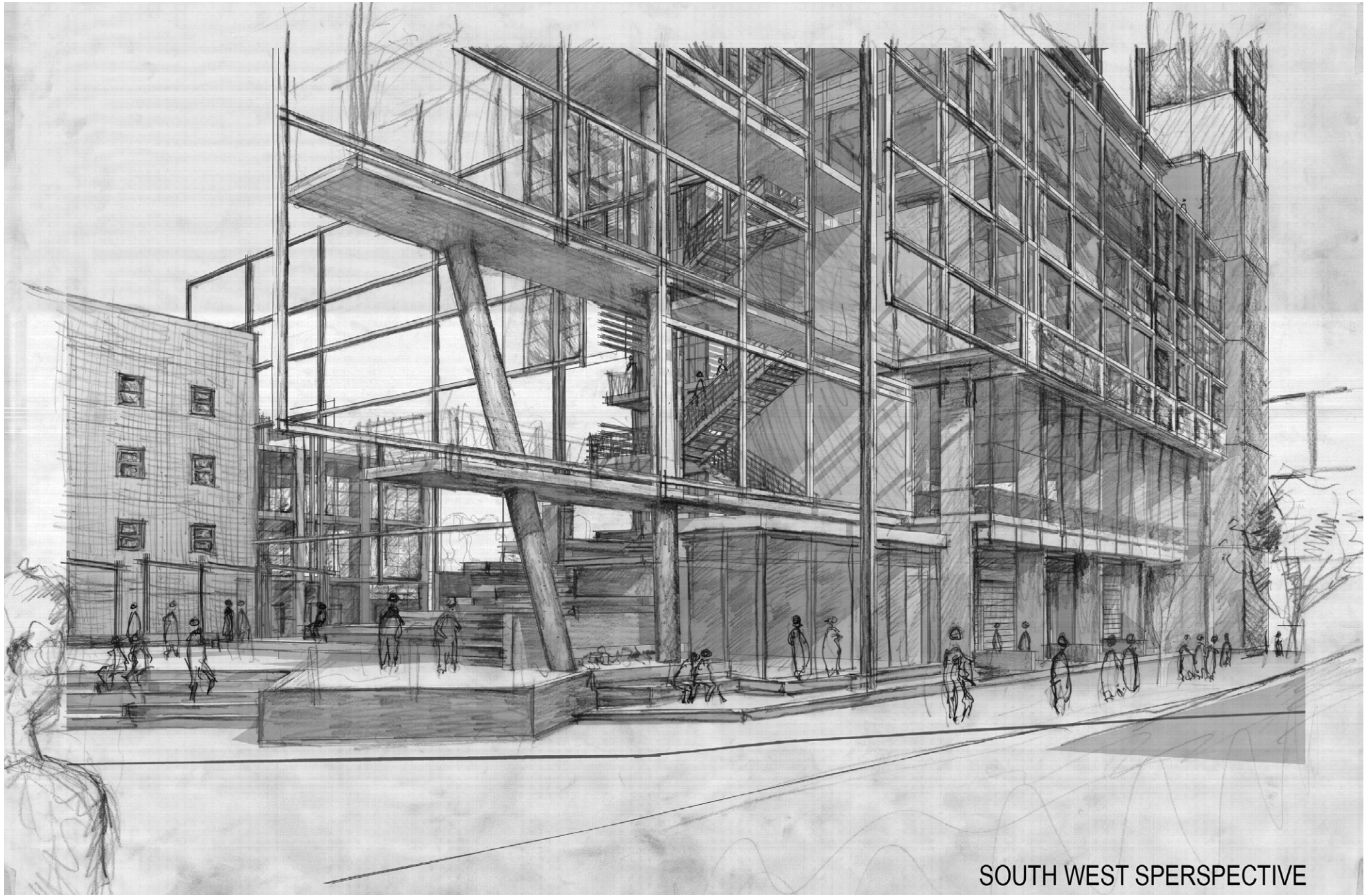


Figure 117 The urban atrium, south west perspective.



SOUTH EAST PERSPECTIVE

Figure 118 South east perspective



SOUTH WEST SPERSPECTIVE

Figure 119 Protest platform, north west perspective.

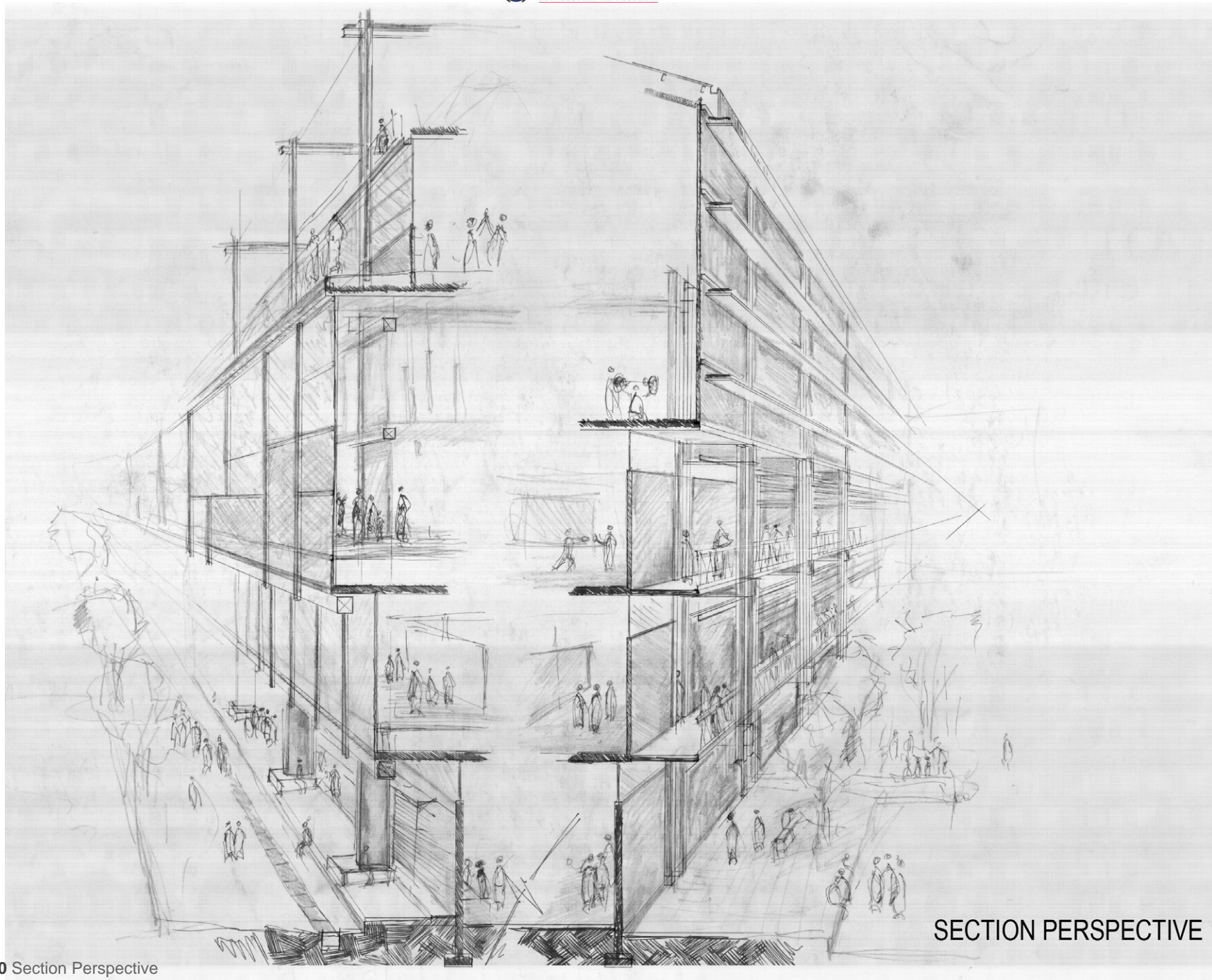
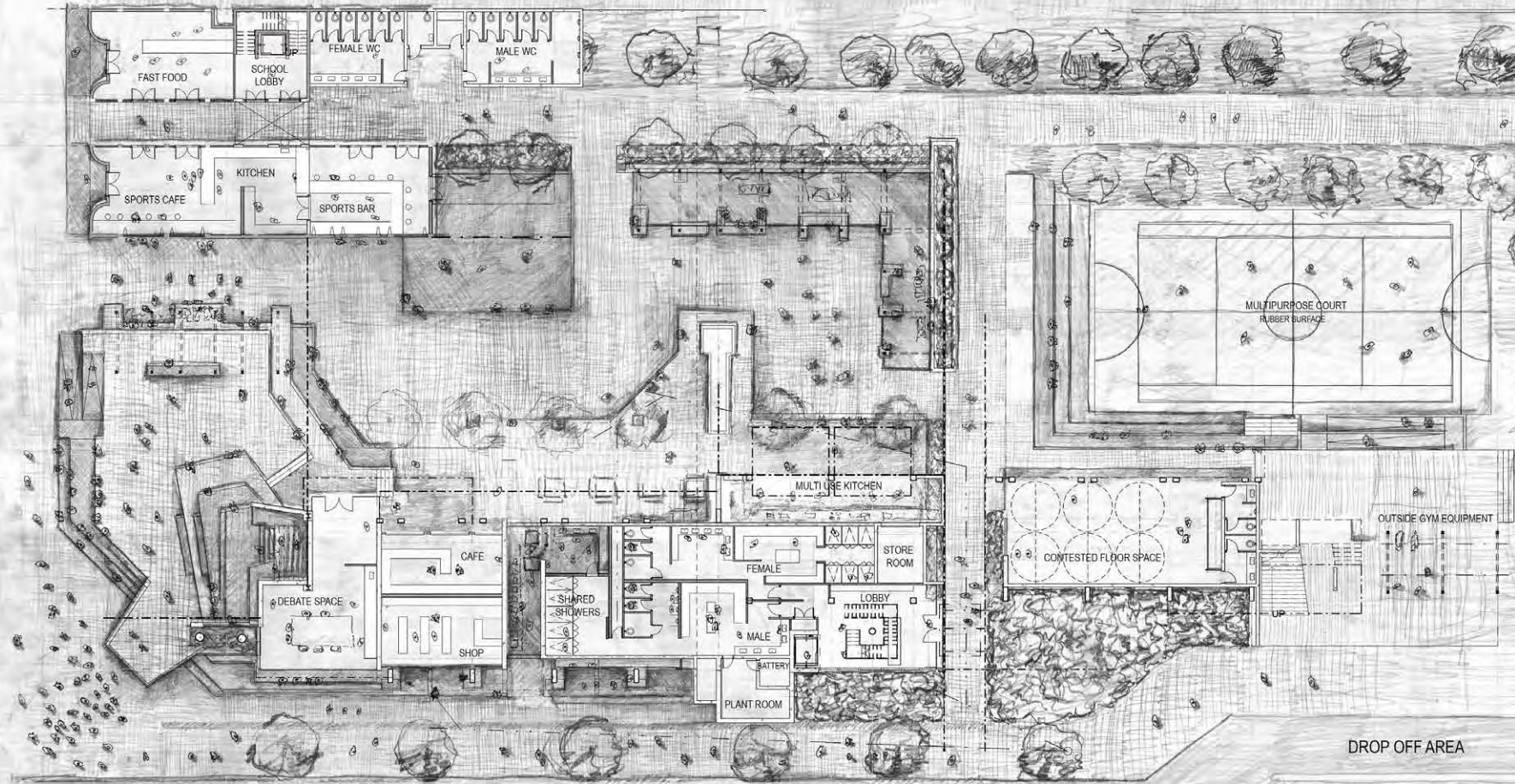


Figure 120 Section Perspective

PAUL KRUGER PEDESTRIAN PROMENADE



NANA SITA ROAD

BUS RAPID TRANSPORT

BUS RAPID TRANSPORT

Figure 121 Site plan



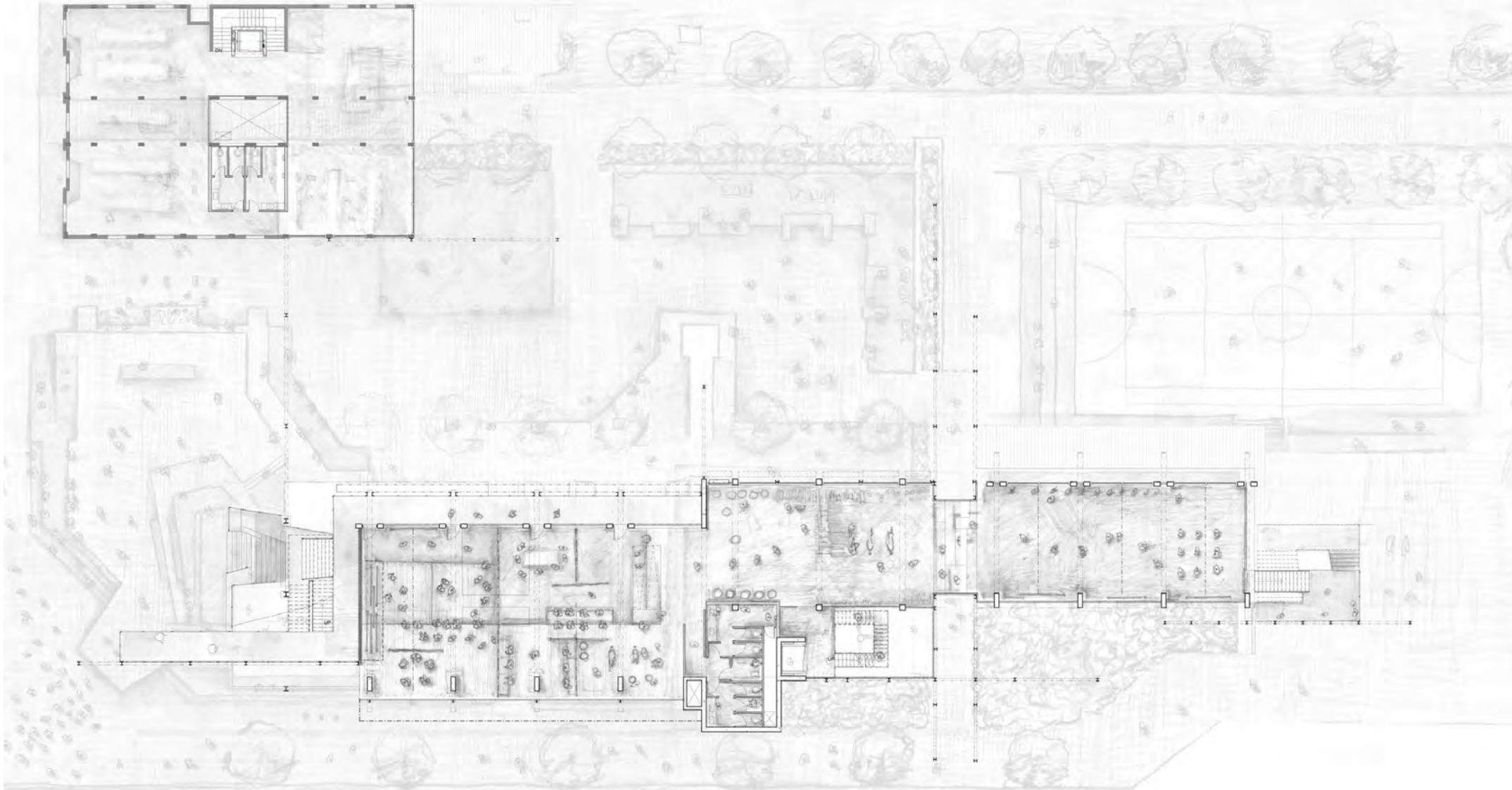


Figure 122 A shifting threshold, first floor plan.

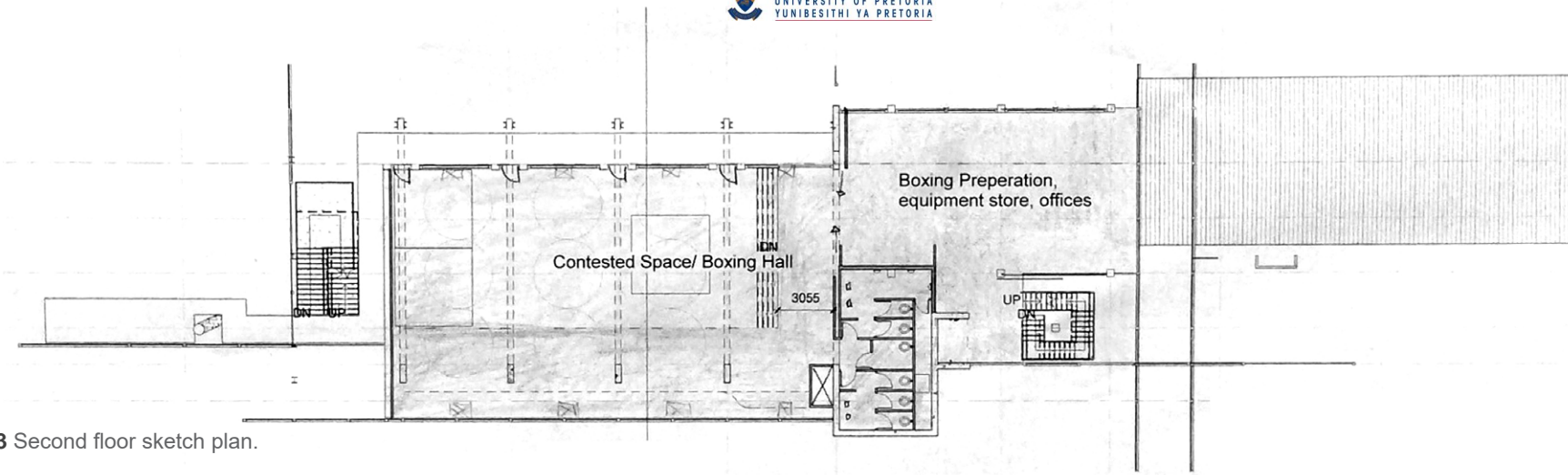


Figure 123 Second floor sketch plan.

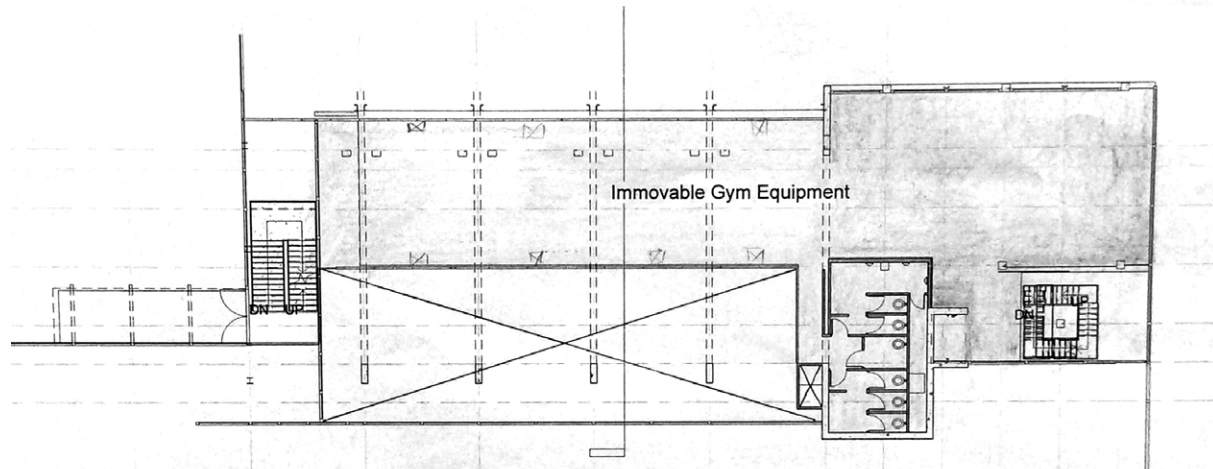


Figure 124 Third floor sketch plan

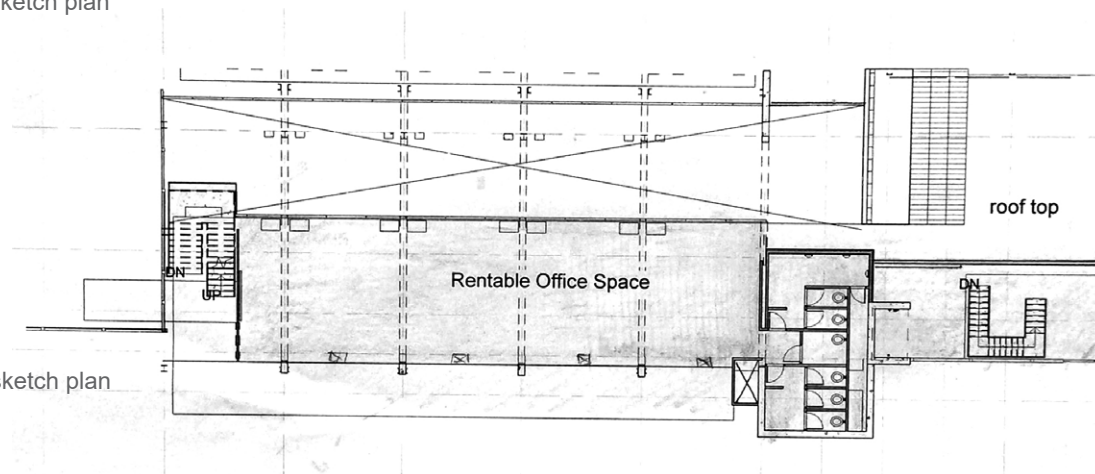
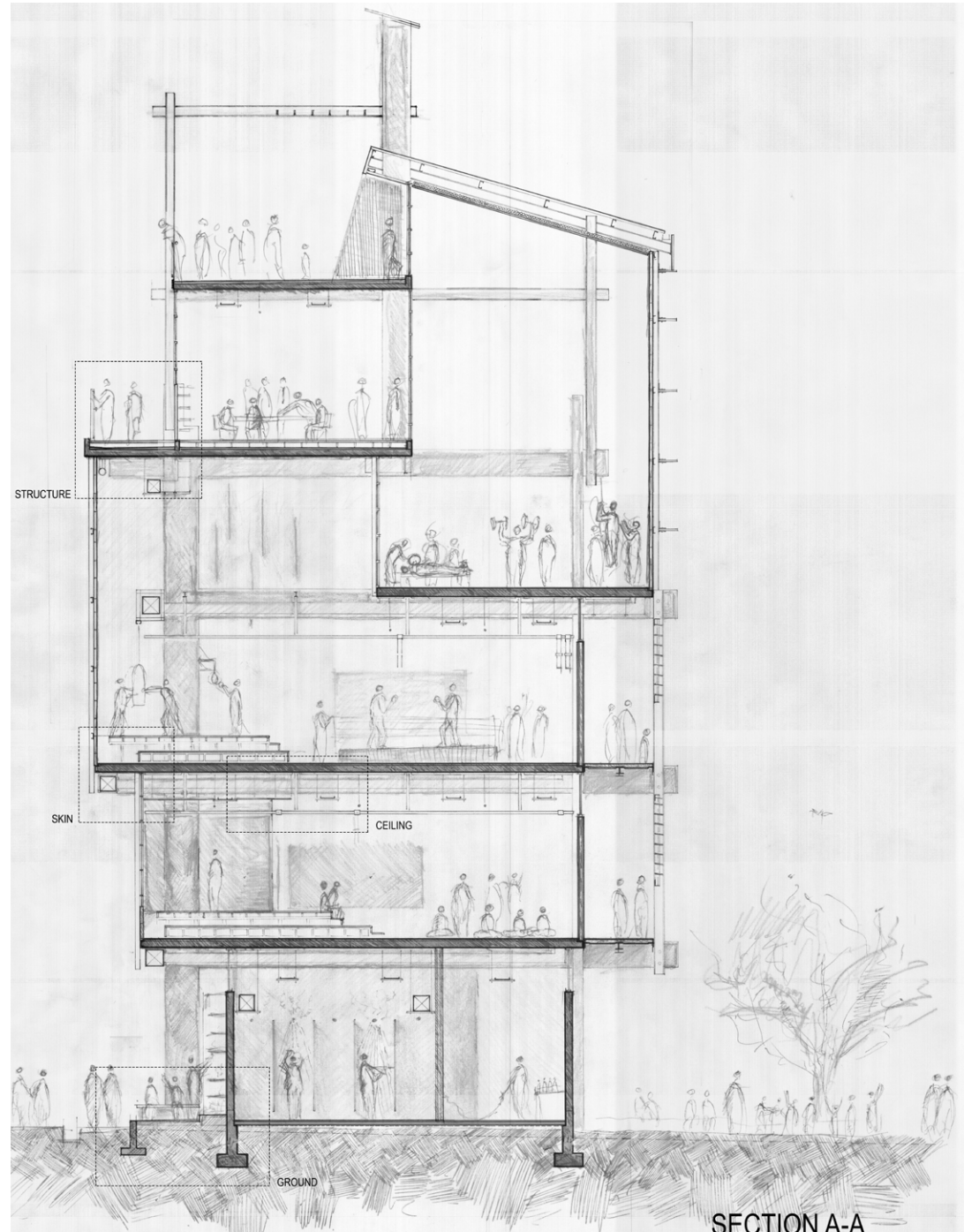


Figure 125 Forth floor sketch plan





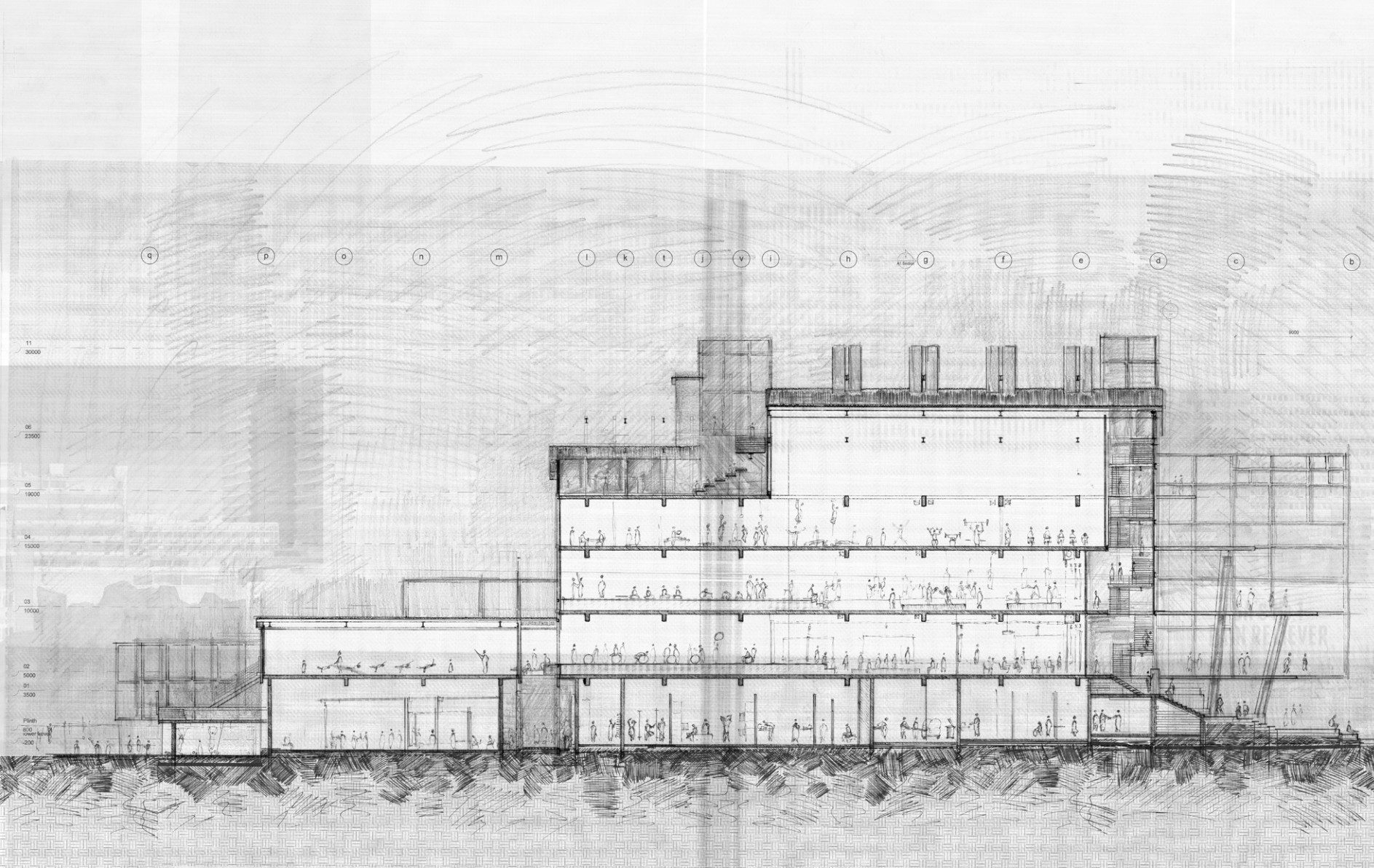
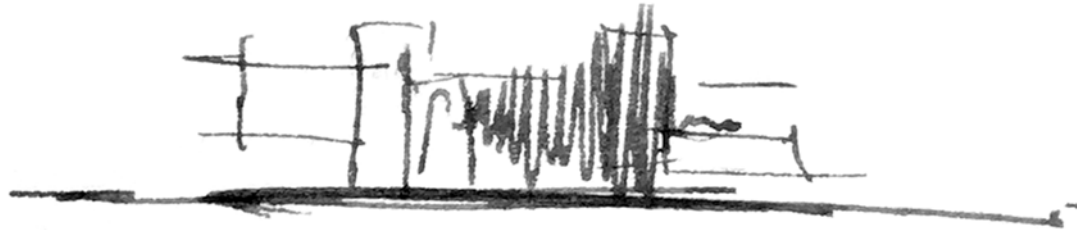


Figure 127 Section B-B

## TECTONIC CONCEPT.

Shifting threshold between the street condition and the building condition.



# TECHNICAL INVESTIGATION



# CONFLICTING CONSENSUS

Life cycle adaption from space-use conflicts over time.

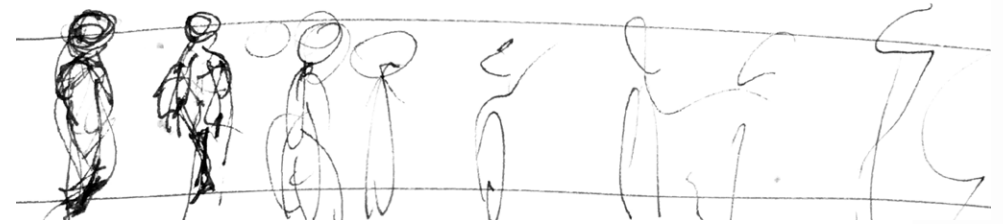
The adaptable nature of the building captures the notions of a temporality consensus, where each use and user may change how the building is perceived. Through this connection with the different users, identity is not captured in the building itself, but the user of the building at a point in time. The continual shifting of the use of space through different time cycles results in a temporary conflicting consensus always enabled to be challenged.

The everyday life cycle of the building makes use of screens and doors, which are easily manipulated, changing space in minutes (Figure 119, Figure 123 overleaf).

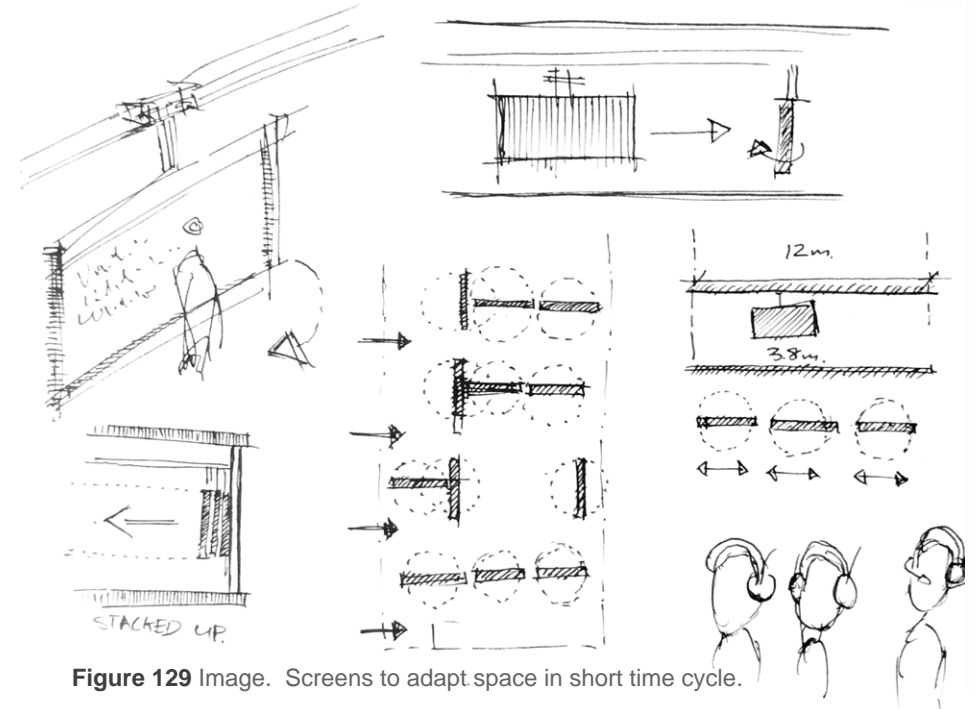
A week long life cycle change makes use of moveable furniture and partitions to be assembled (Figure 124, overleaf). The required time from the users is higher, but the spaces can be more specifically created for specific functions.

In the ten-year life cycle, the walls of the building are designed to allow for potential change over time. However, this sort of change is labour intensive, costly and disruptive to the everyday use of the building. The skin of the building is connected from the inside of the building, allowing changes to it without needing scaffolding (Figure 120). The skin is supported by a secondary steel structure which can also be changed by bolting or disassembling more or less supports as required which connect to pre-drilled and threaded bolts.

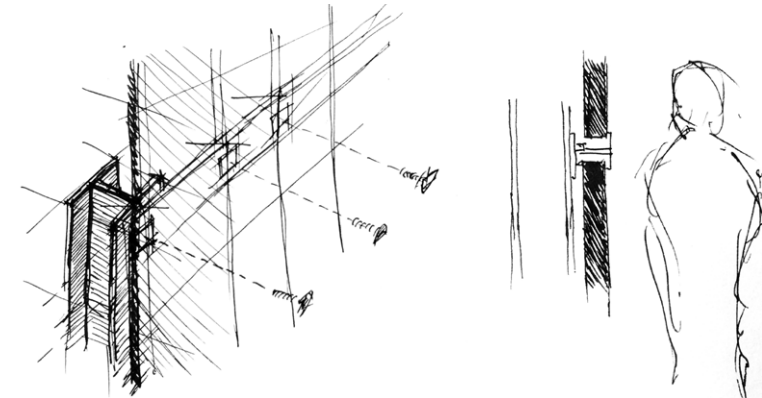
The primary structure of the building is concrete, regarded as the permanent structure and ordering system the adaptability occurs around. Making use of a grid system, the internal workings of the building reflect that of the urban resilience expressed previously through the city grid.



**Figure 128** Image. Fast changing effect on space nature of people in space.

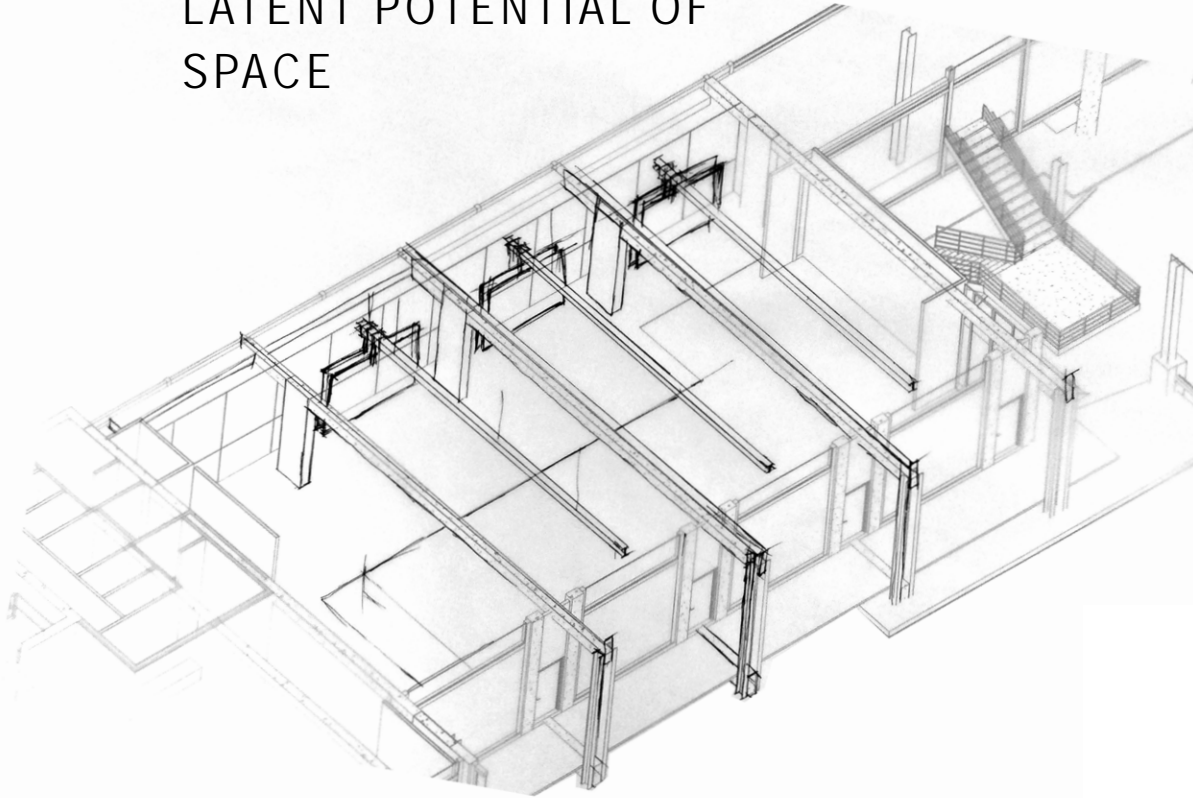


**Figure 129** Image. Screens to adapt space in short time cycle.



**Figure 130** Image. Building skin that can be disassembled from the inside without

## LATENT POTENTIAL OF SPACE



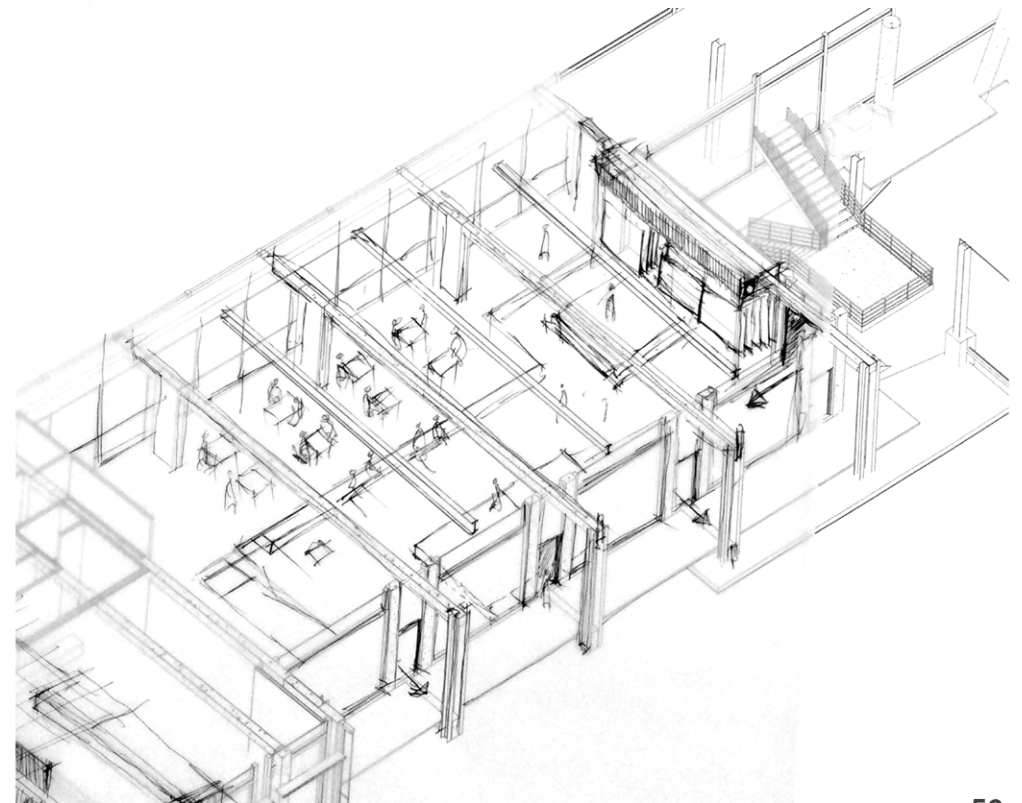
**Figure 131** ABOVE. Empty space with latent potential.

The internal floor space is designed to allow easy adaption to fit the many potential uses. The floor is an adaptable surface to manipulate horizontal space. Different screen systems allow manipulation of vertical space. The Ceiling is considered as fixed, where the services may function despite the configuration of the spaces below. Pictured left is the space without any additional configuration.

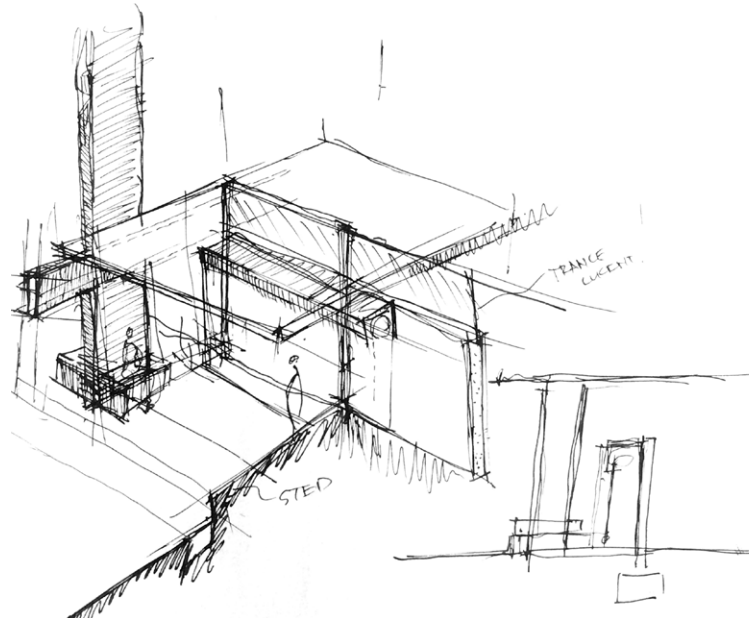
## OCCUPIED SPACE

Movable, foldable furniture is stored in the west end of the space and allow the space to function like a large hall. Pictured right is an example of the whole space being occupied without divisions.

**Figure 132** BELOW. Movable furniture stored and store.



## HOURLY SCREEN ADAPTABILITY

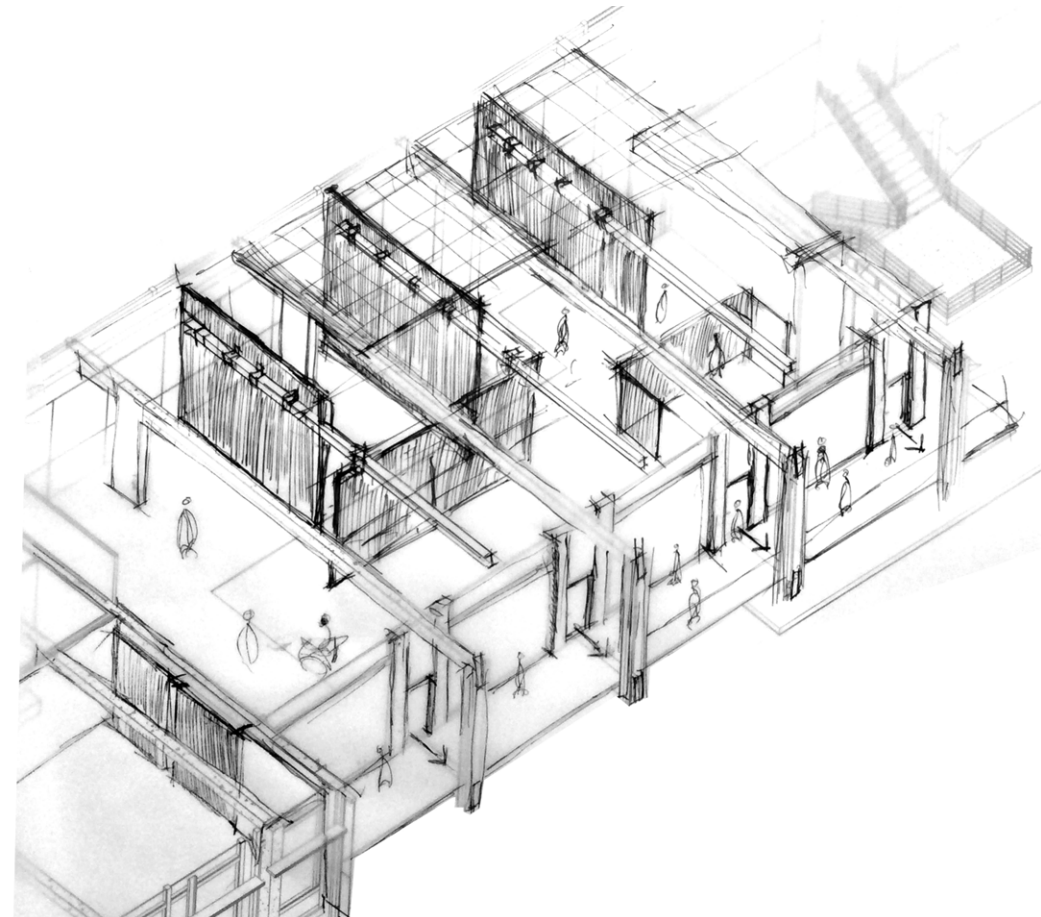


**Figure 134** ABOVE. Screen system running along rails.

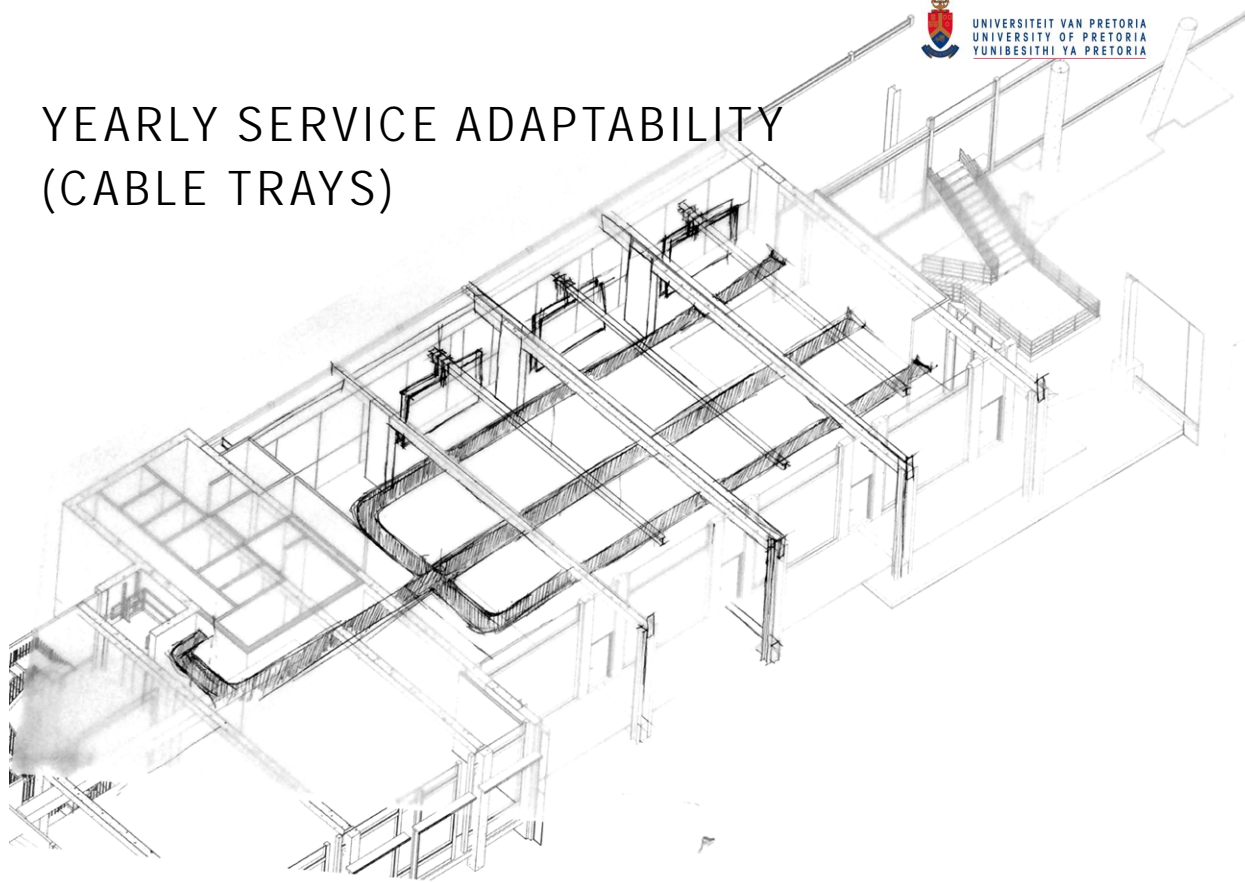
Temporary screens run along beams in the ceiling space, and swivel, to create visually divided spaces. They can be manipulated in seconds and different configurations are numerous. Screens may be added or removed from the rail and stored in the storing hanger on the west end. Where uses require further acoustic divisions, such as two classes occurring at the same time, wireless head phones are proposed, where many different classes may occur simultaneously on different channels.

## WEEKLY SCREEN ADAPTABILITY

Where room like private spaces are required, panels may be fastened onto the ceiling rails. Where necessary additional acoustic ceiling panels can also be added. However, the time investment to assemble and disassemble the desired spaces would be longer. These spaces are considered for couple-day-long conference or exhibition type requirements.



## YEARLY SERVICE ADAPTABILITY (CABLE TRAYS)



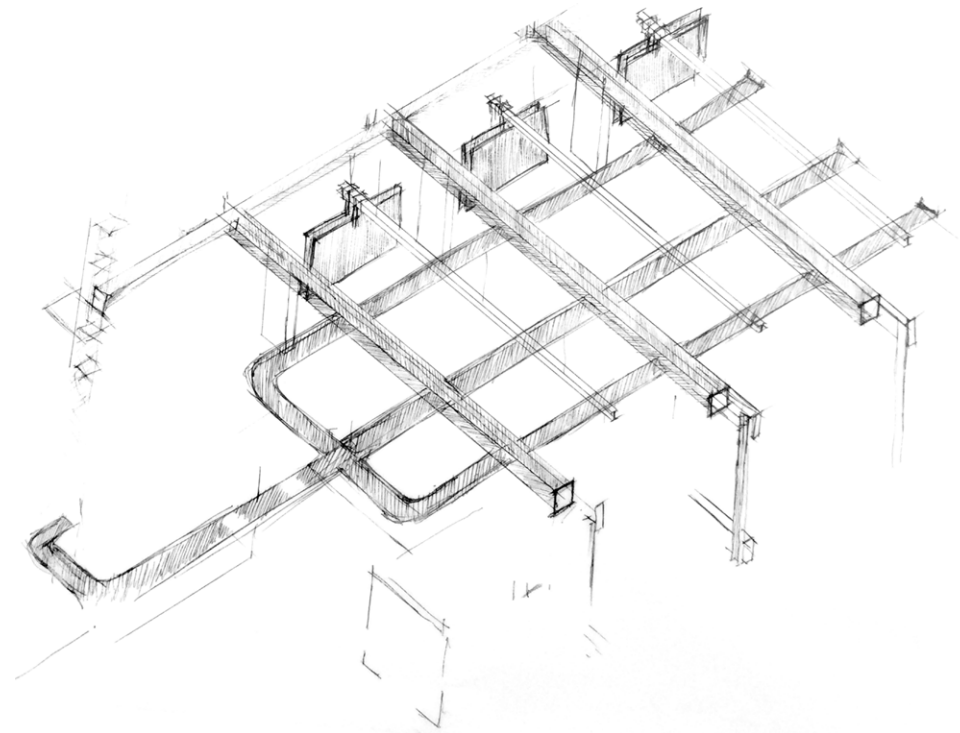
**Figure 135 ABOVE.** Ceiling space containing cable trays.

Services that run in the ceiling space are considered in long life cycles, where fire sprinklers, lighting and electrics, and air ducts will remain consistent despite the configuration of the space. Acoustic panneling can also be assembled and disassembled without hindering any of the other services.

## YEARLY SERVICE ADAPTABILITY (DUCTING)

Manipulating the services would take time, skills and money. The services are all exposed making them accessible for adding or removing should there be different user requirements.

**Figure 136 BELOW.** Ceiling space with ducting.





# SYSTEM DESIGN FOR VARIABLE OCCUPANCY

The different possible functions in the building are zoned as a result of the required ventilation rate based on the number of users and the heat given off from each user in different activities. The table below (Figure 129) explains the maximum capacity of the airflow systems noting that high anabolic rate activities require more space and low anabolic activity requires less ie. dancing verses studding. The relationship between activity and space required is inversely proportional. The ventilation strategies and technologies are explained in Figure 130 overleaf.

## Air Flow Principle

Adaptive capacity to air flow requirements

Different air flow rate to function requirements		
Function	L/s per Person	Max Occupant Density Per 100m <sup>2</sup>
Classroom	5	65
Conference	2.5	50
Cafeteria	3.8	100
Sleeping Areas	3.8	35
Waiting Area	2.5	80
Galleries	3.8	20
Spectator Areas	3.8	150
Barbour Shop	3.8	25
Beauty Salon	10	25
Stages	5	70
Court Room	2.5	70
Dance	10	35
Health Club	10	40
MAX	10	150
MIN	2.5	20

$$\text{Quantity of Air (l/s)} = \frac{\text{Floor Area (m}^2\text{)} \times \text{Air flow rate per person}}{\text{Floor Area per Person (m}^2\text{)}}$$

Example of inversely proportional air change requirements and occupancy.

$$\text{Quantity of Air (l/s)} = \frac{400(\text{m}^2) \times [10 \text{ or } 5]}{[1 \text{ or } 2]}$$

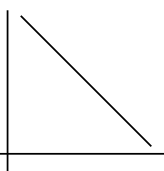
High anabolic rate (10l/s) and large space (2m<sup>2</sup>) requirement.

$$\text{Quantity of Air (L/s)} = \frac{400(\text{m}^2) \times 10}{2} = 2000 \text{ l/s}$$

Low anabolic rate (5l/s) and small space requirement (1m<sup>2</sup>).

$$\text{Quantity of Air (L/s)} = \frac{400(\text{m}^2) \times 5}{1} = 2000 \text{ l/s}$$

Occupant density (m<sup>2</sup>)



- Higher required Air Change Rates activity require more space.
- Lower Required Air change rate activity require less space.
- Anabolic rate and Air change is inversely proportional.

Air Change (l/s)

Figure 139 Table showing relationship between occupancy use and air change rates.

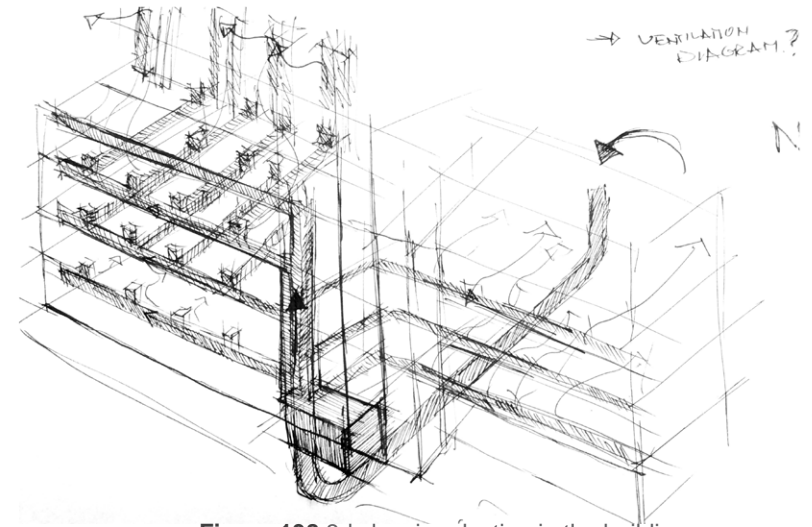


Figure 138 3d showing ducting in the building

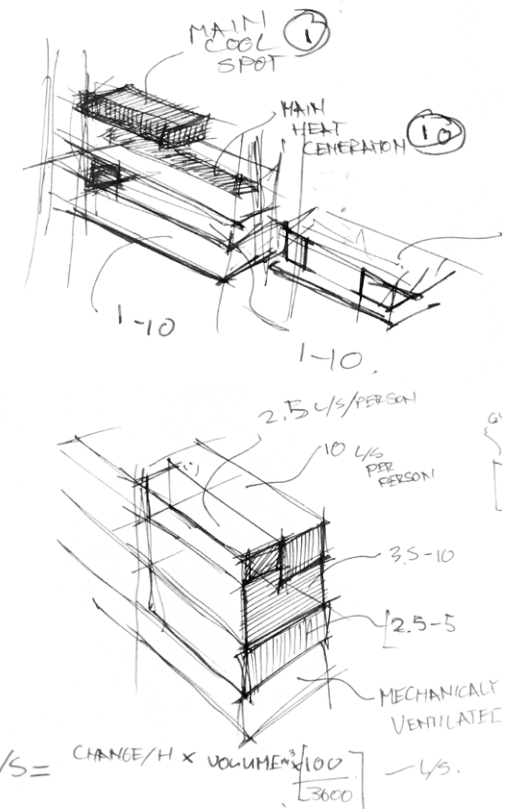
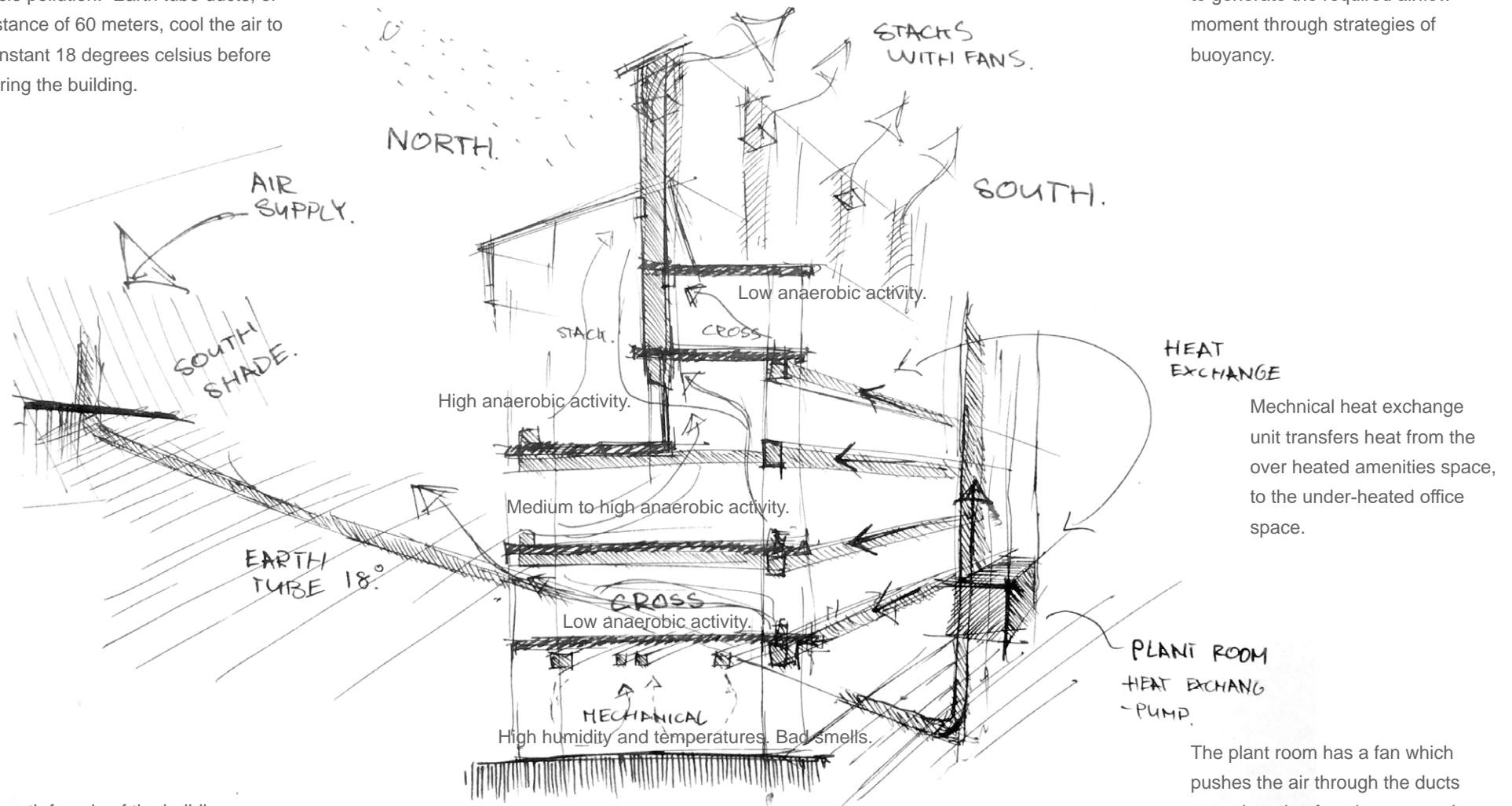


Figure 137 Zoning different activities based on the amount of heat is produced using the activity.

Air is supplied from the south side of the neighbouring building where there is no vehicle pollution. Earth tube ducts, of a distance of 60 meters, cool the air to a constant 18 degrees celsius before entering the building.

Solar chimneys are used as engines, supplemented by fans, to generate the required airflow moment through strategies of buoyancy.



The north facade of the building is heated by the sun creating a low pressure generating cross ventilation in the second floor.

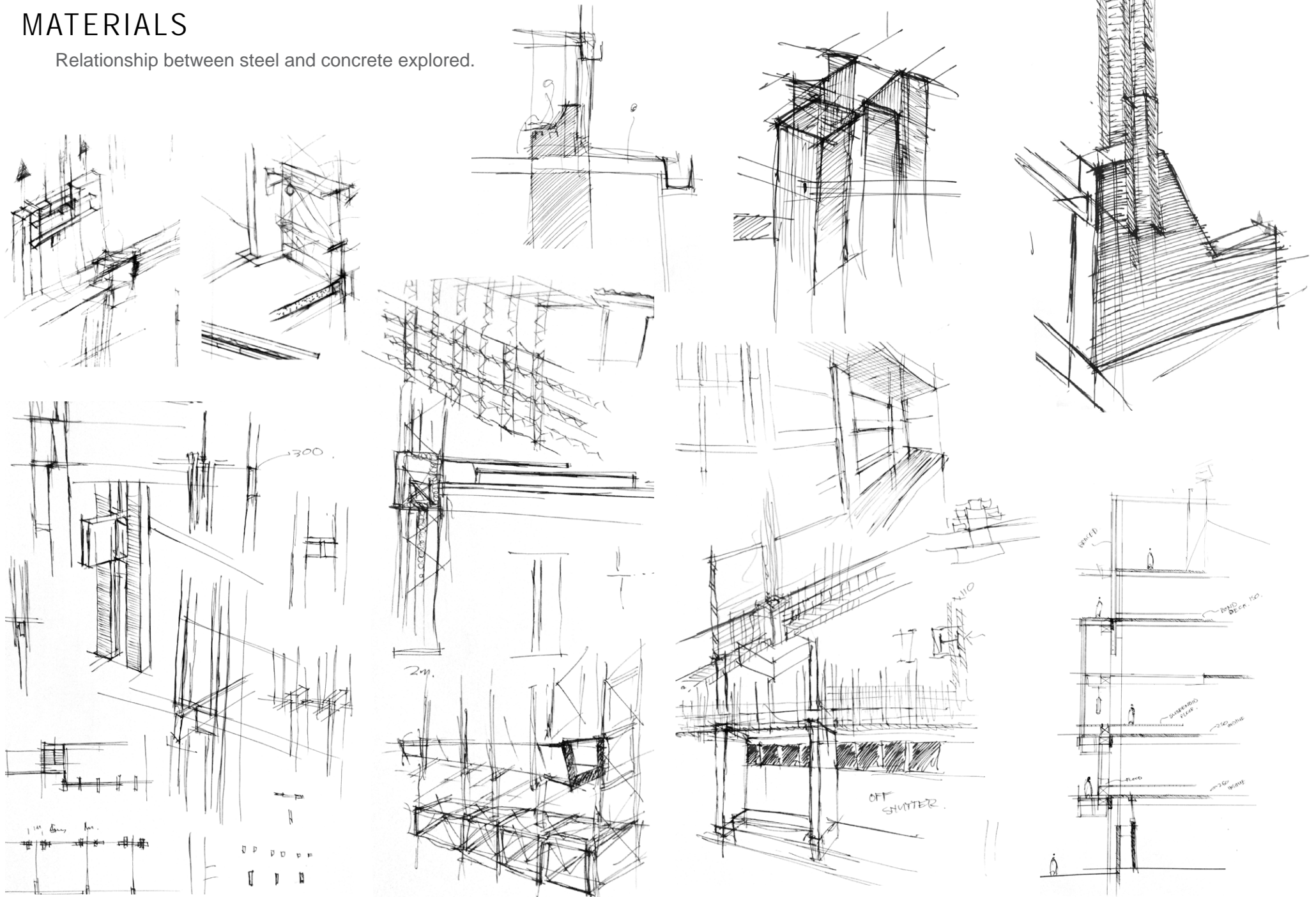
Mechanical heat exchange unit transfers heat from the over heated amenities space, to the under-heated office space.

The plant room has a fan which pushes the air through the ducts to each outlet, for where natural ventilation strategies move the air through the space. The ground floor is mechanically ventilated due to the ventilation requirements of the amenities.

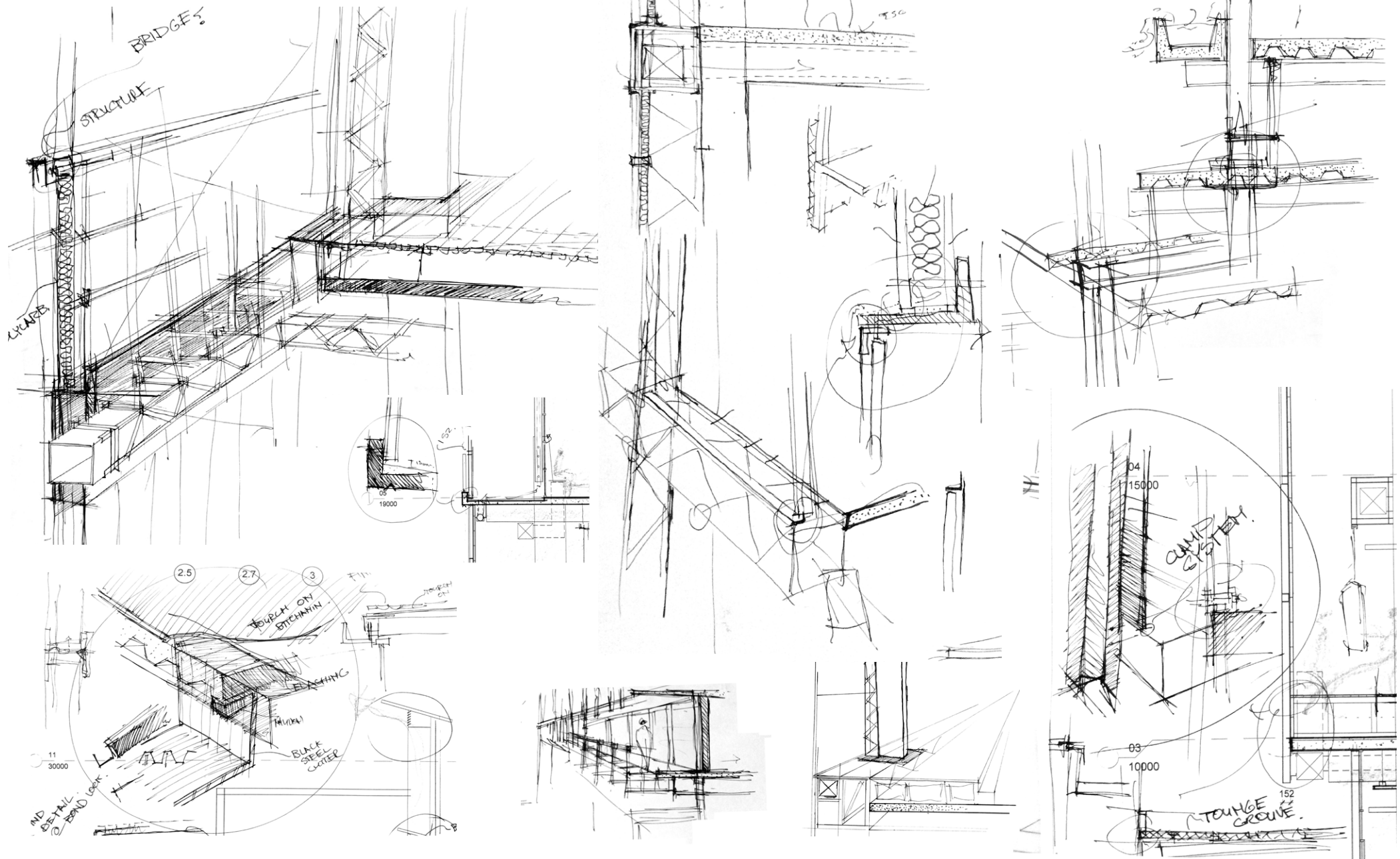
Figure 140 Diagram showing ventaltatong strategies.

# MATERIALS

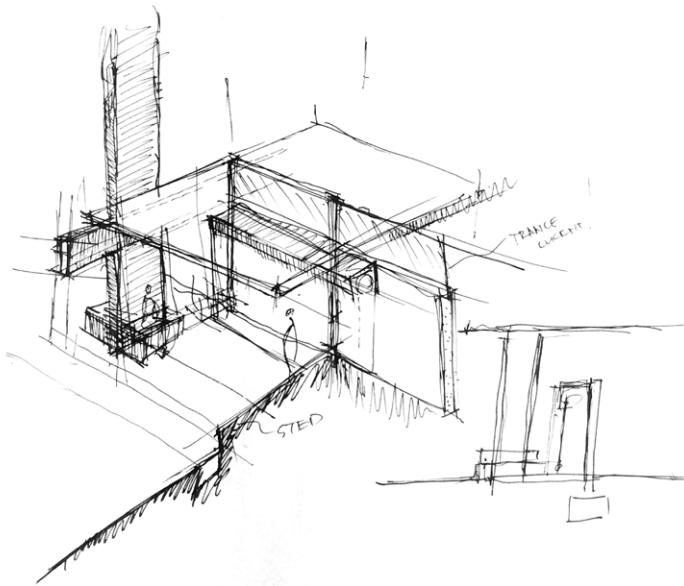
Relationship between steel and concrete explored.



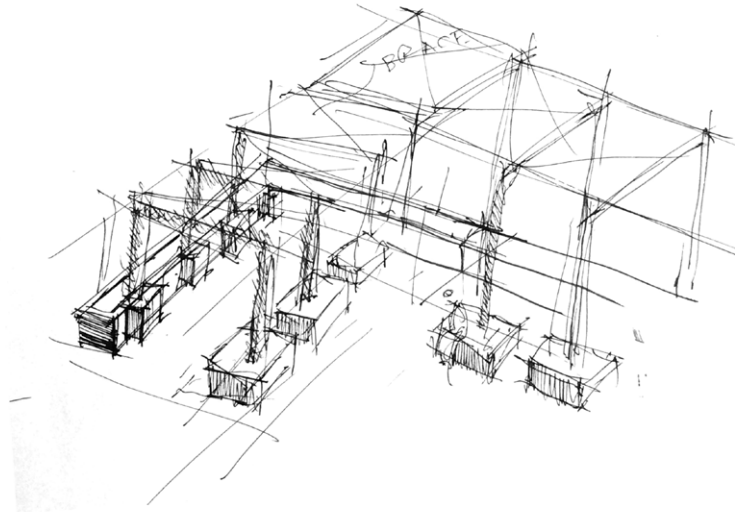
# EXPLORING THE ADAPTABLE SKIN



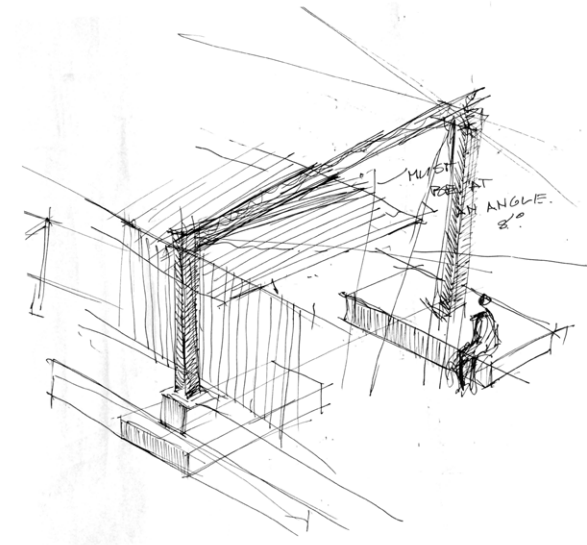
# ADAPTABLE URBAN STRUCTURES



**Figure 141** Where the building meets the ground, opportunity is created through activated edges and designed space.

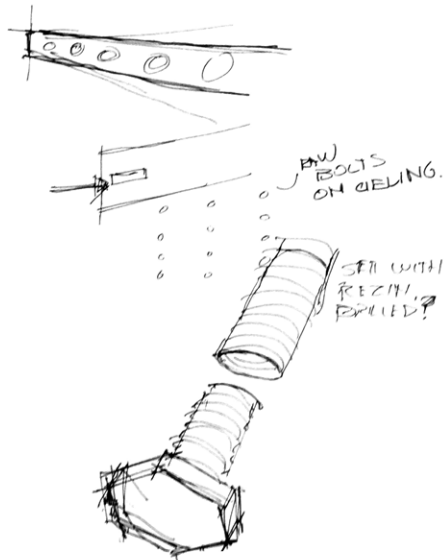


**Figure 142** Structures in public park space create hierarchy and enable various activity's to occur in space.

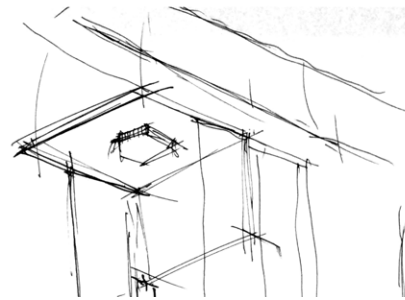


**Figure 143** Urban structures are adapted for specific needs. Cladding can be added to allow different event scenarios to play out.

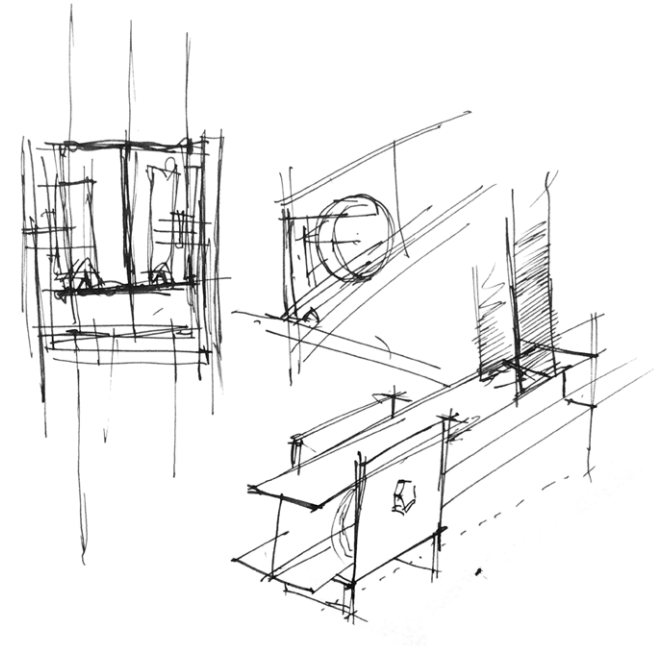
# ADAPTABLE BUILDING STRUCTURES



**Figure 144** A bolting system placed on the concrete slabs allows adding and removing steel within a fixed system.

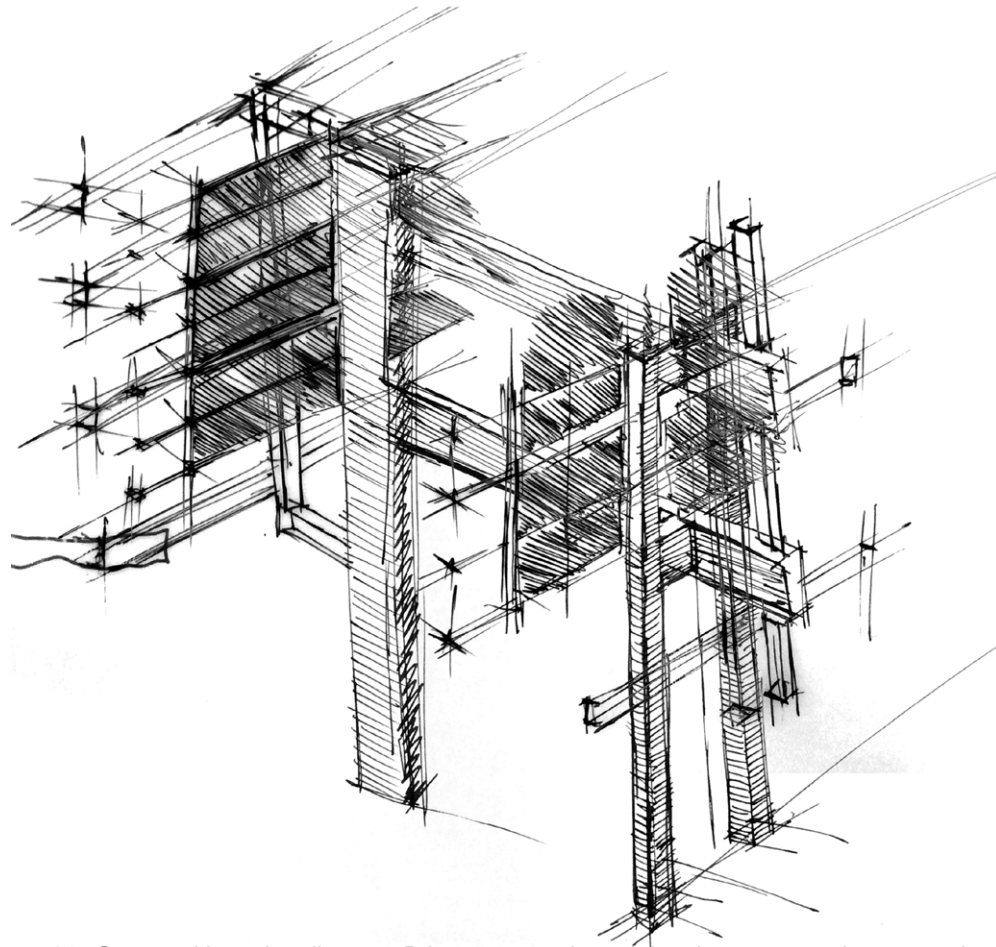


**Figure 145** Steel members can be assembled around the permanent concrete slab allowing easier alterations to the structure.



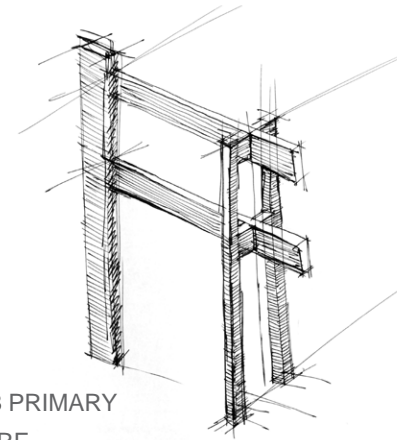
**Figure 146** Robust steel movable parts enable a quick manipulation of space.

# STRUCTURAL INTENTION

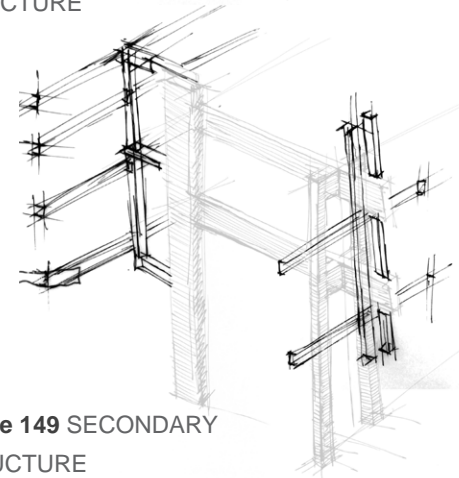


**Figure 147** Structural intention diagram. Primary, secondary and tertiary structure in structural consensus.

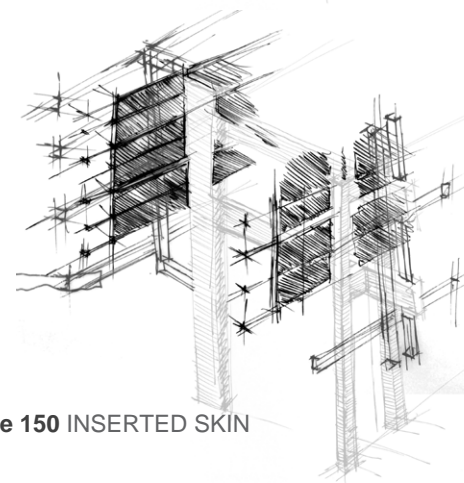
The dissertation's theme of contested space is reflected in the tectonic development. A play between the contrasting properties of concrete and steel reinforce the notions of a conflicting consensus- Light and heavy; compression and tension; wet and dry; pre-fabricated and insitu- however, the one relies on the other, as there must be a structural consensus. These dualities are expressed throughout, as if each has material has an equal right to be represented in space.



**Figure 148** PRIMARY STRUCTURE



**Figure 149** SECONDARY STRUCTURE



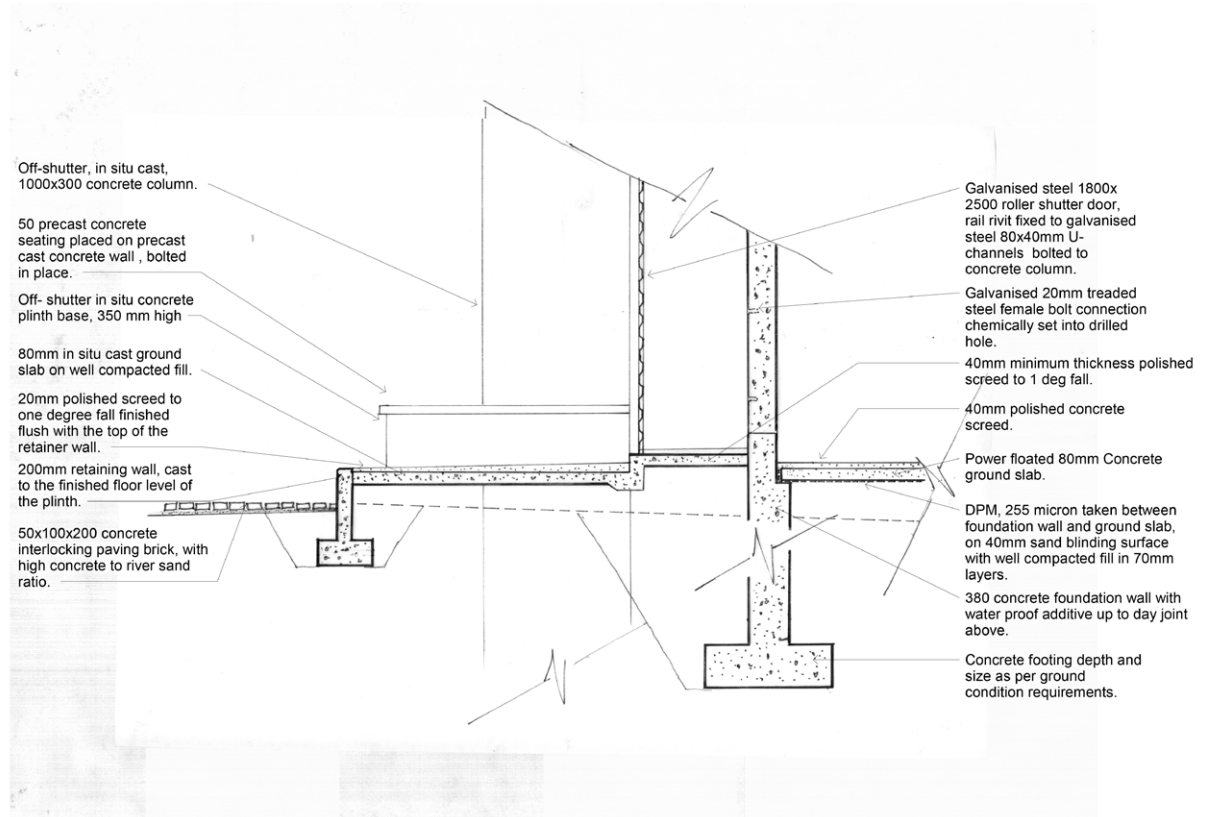
**Figure 150** INSERTED SKIN



## DETAIL- GROUND

Intention.

Display the robustness of dealing with protests on ground level as permanent building that does not allow adapting or disassembly as a considered fix from which change accrues around it. Show how the vendors can easily shut and protect their belonging, and the quality of the space when there are no vendors. Show storm water drainage channel collecting run off.



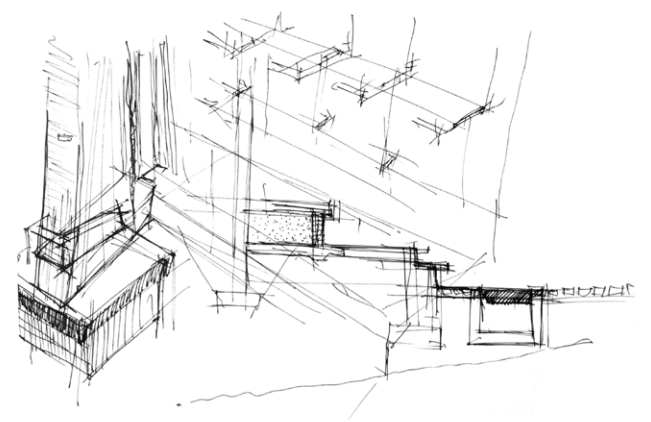
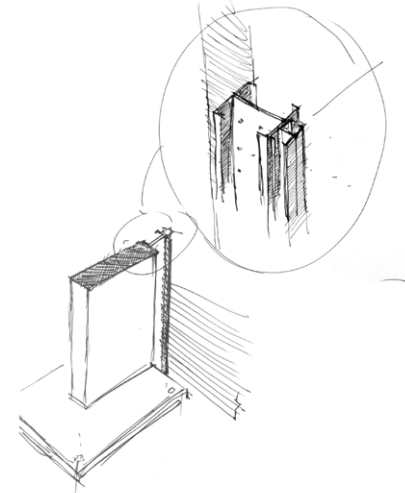
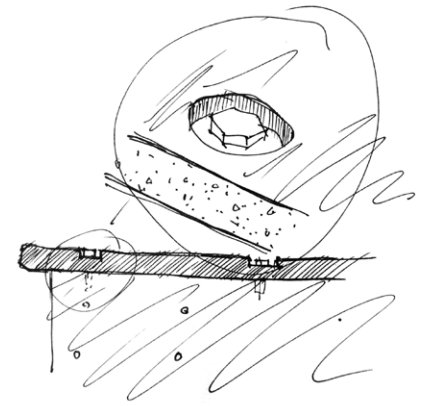
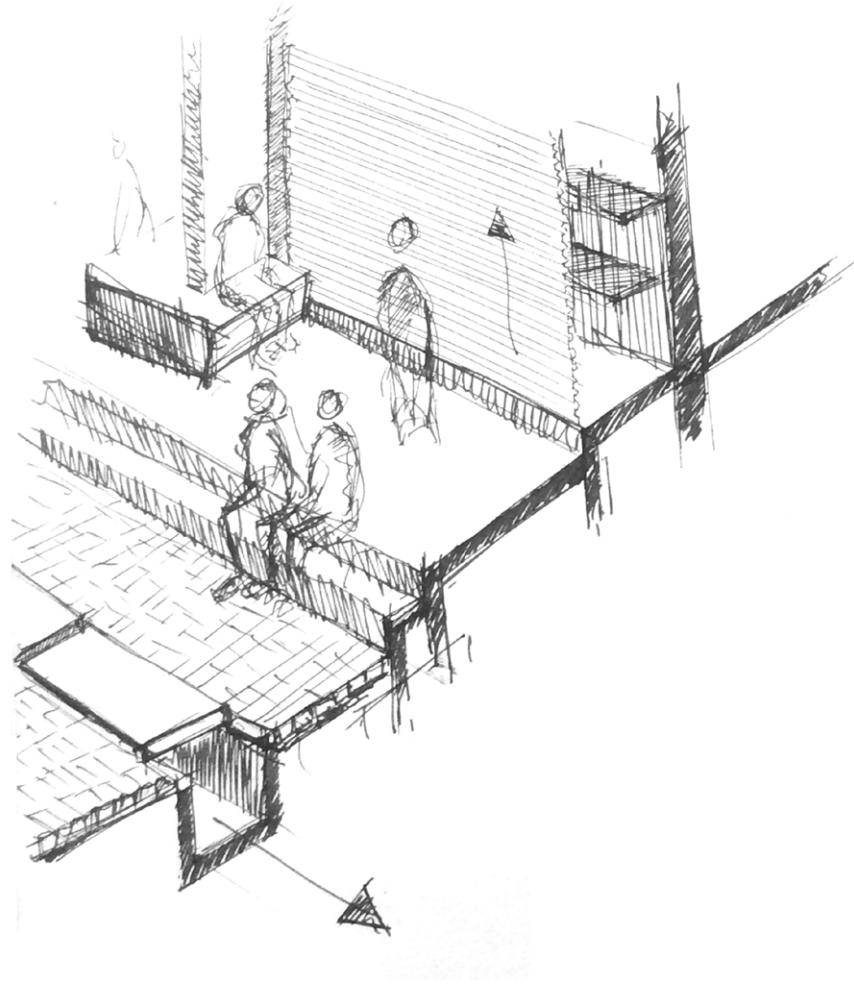
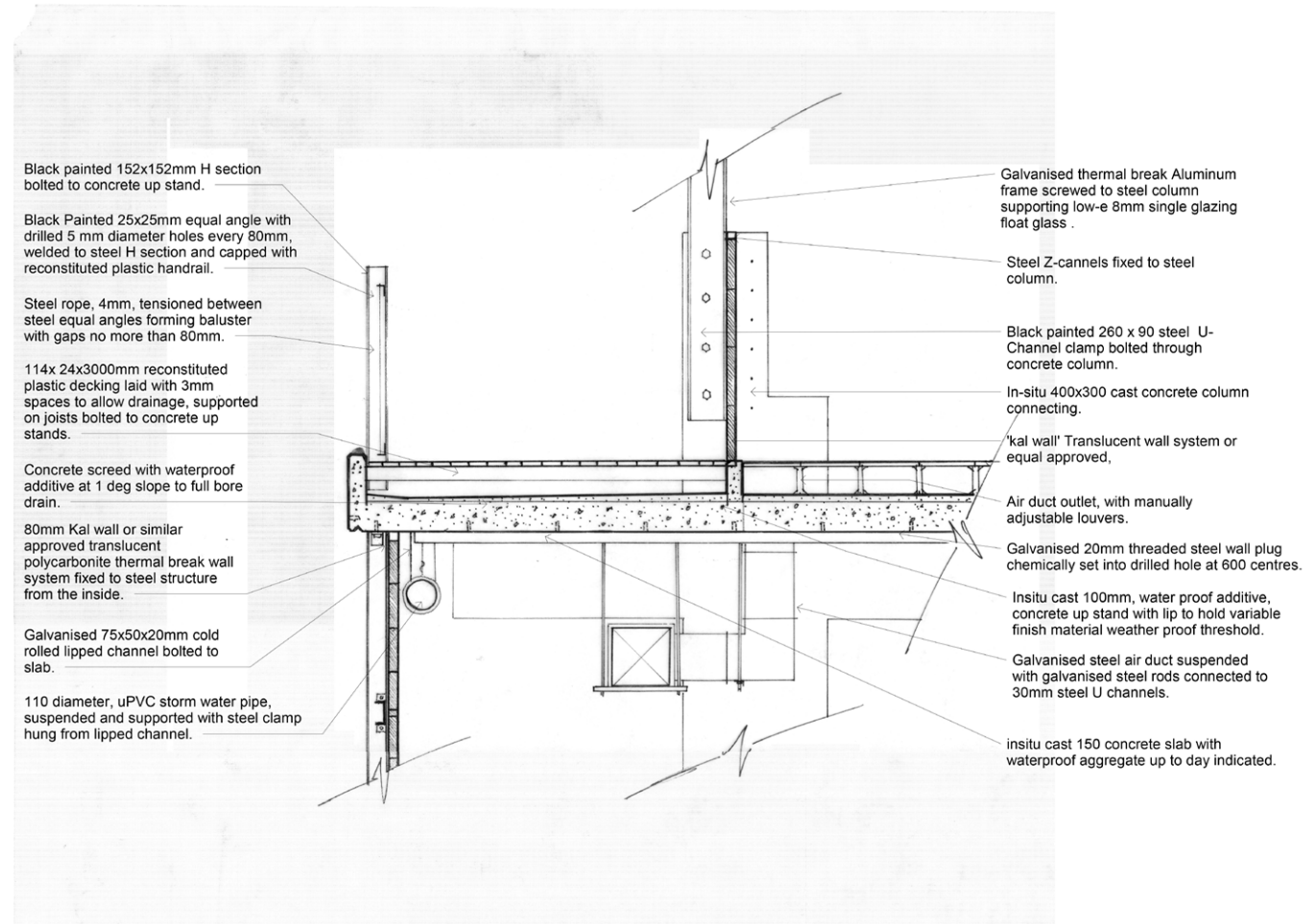


Figure 151 Ground detail sketch

## DETAIL- STRUCTURE.

Intention.

Expressing the join where primary structure changes from concrete to steel supporting the last floor and roof. Concrete regarded as a permanent structure (century) and the steel regarded as that which could be disassembled (Yearly). Each meet at different planes, as an expression of each material's right to be represented in space.



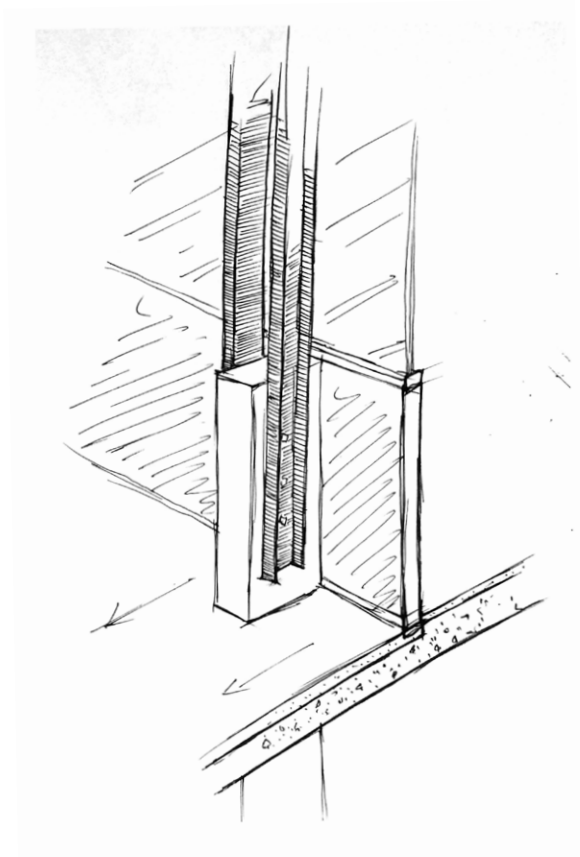
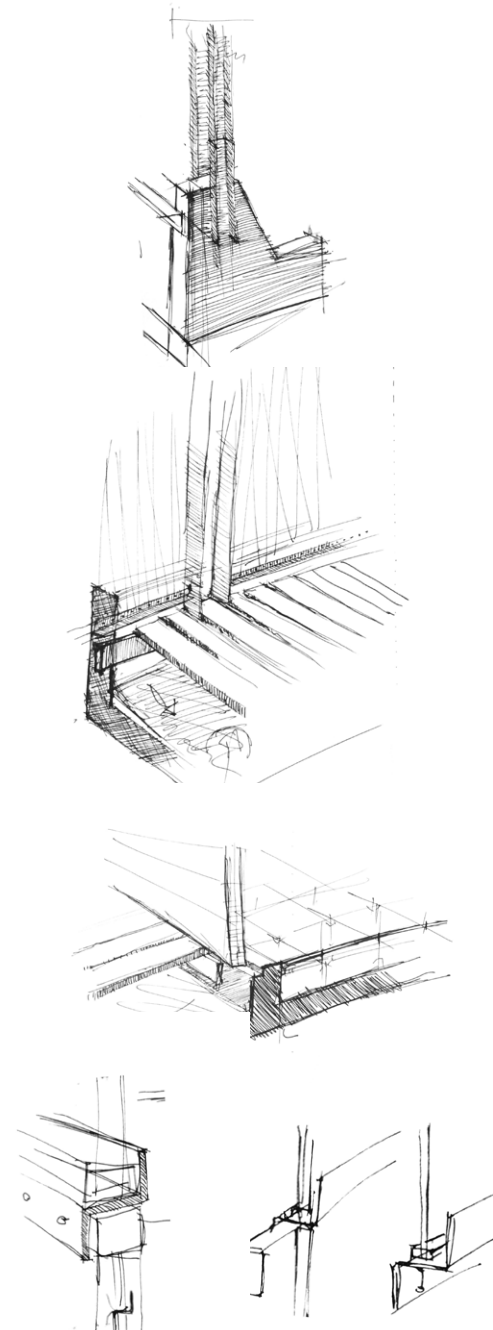
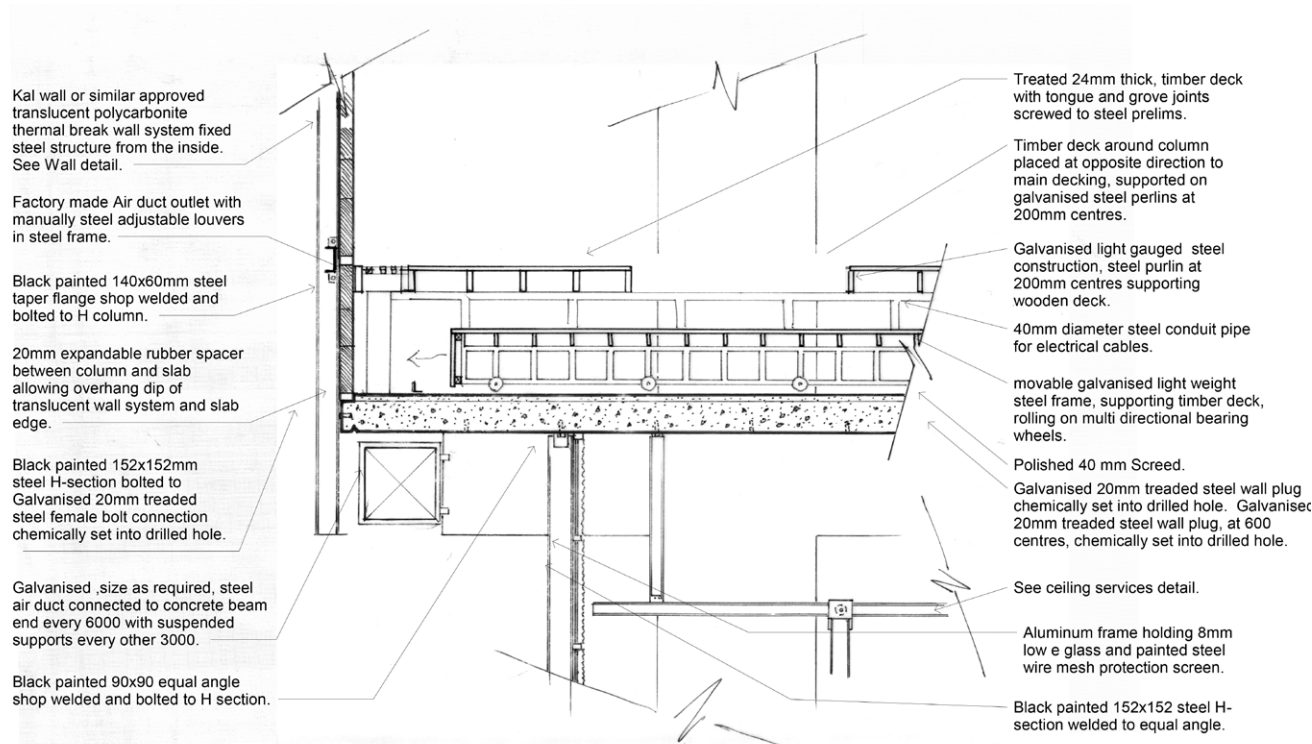


Figure 152 Structure detail sketch





## DETAIL- SKIN

Intention.

Join between floor slab, access floor, and ventilation duct. Show the concrete, how the steel can be joined in many different places through how the concrete is cast. Show the waterproofing of the changeable skin and how the 'Kal Wal' is assembled from the inside. Show the access floor and how floor space may be changed as well as services added. Express the ability for the ventilation system to be adapted, as the reasoning for the ducts to be exposed.

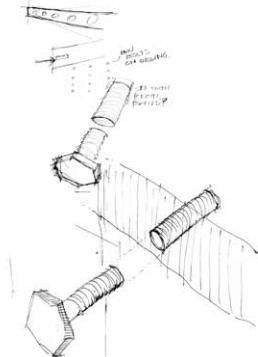
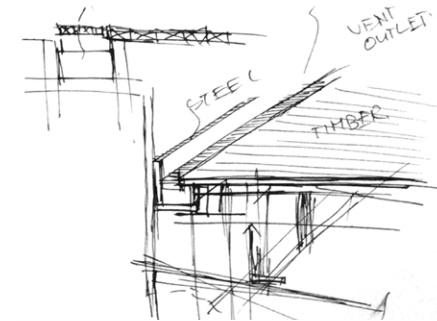
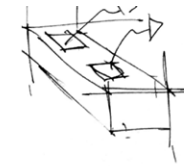
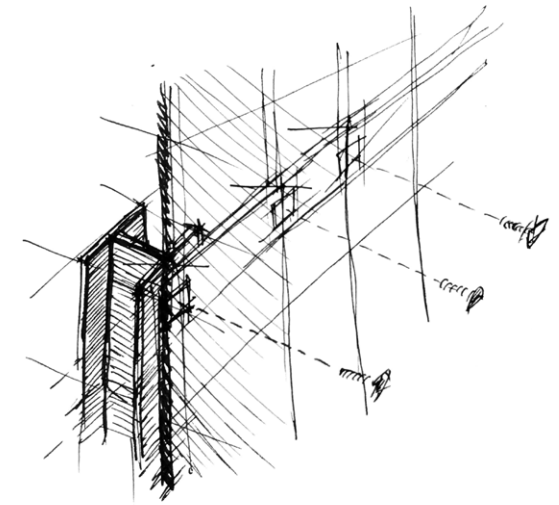
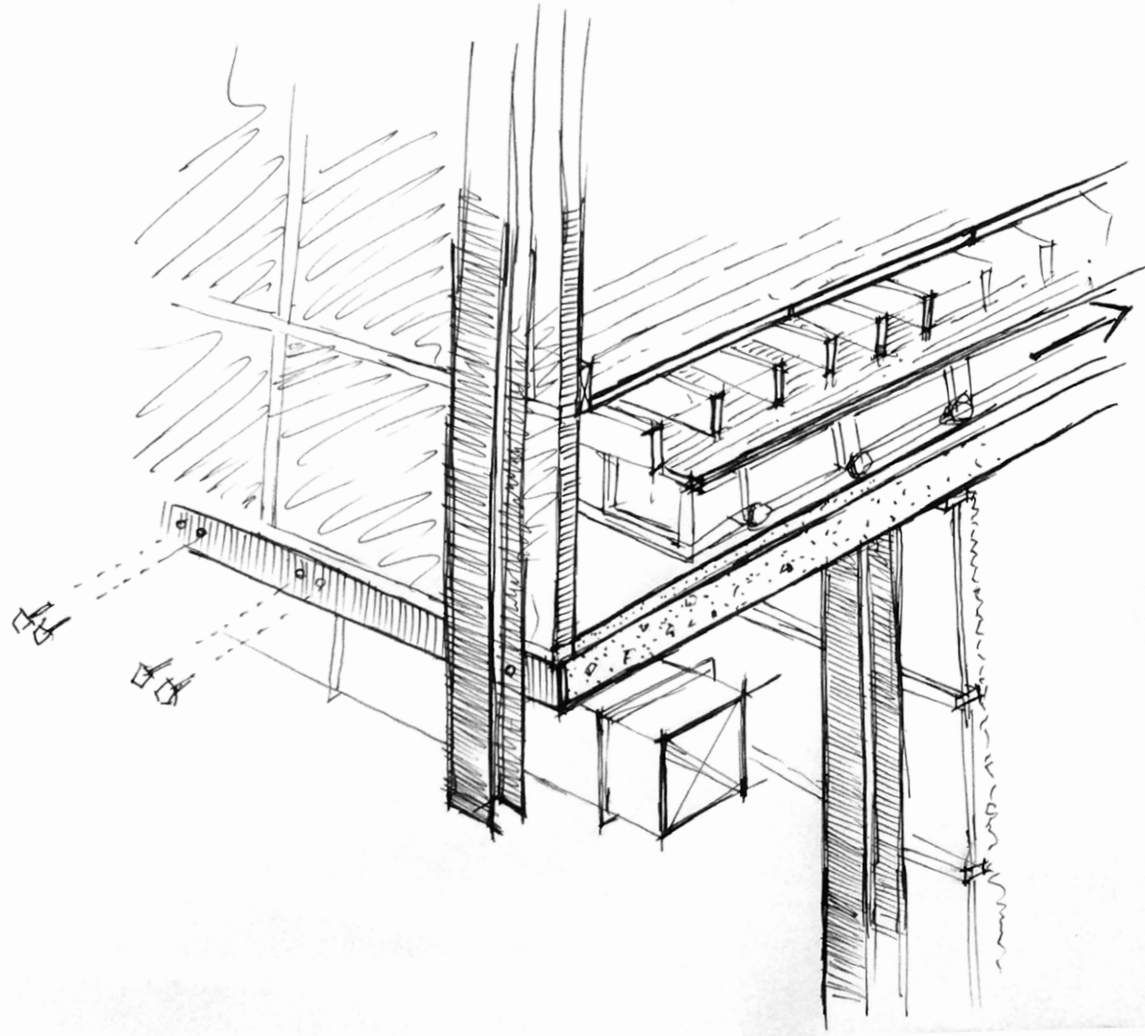
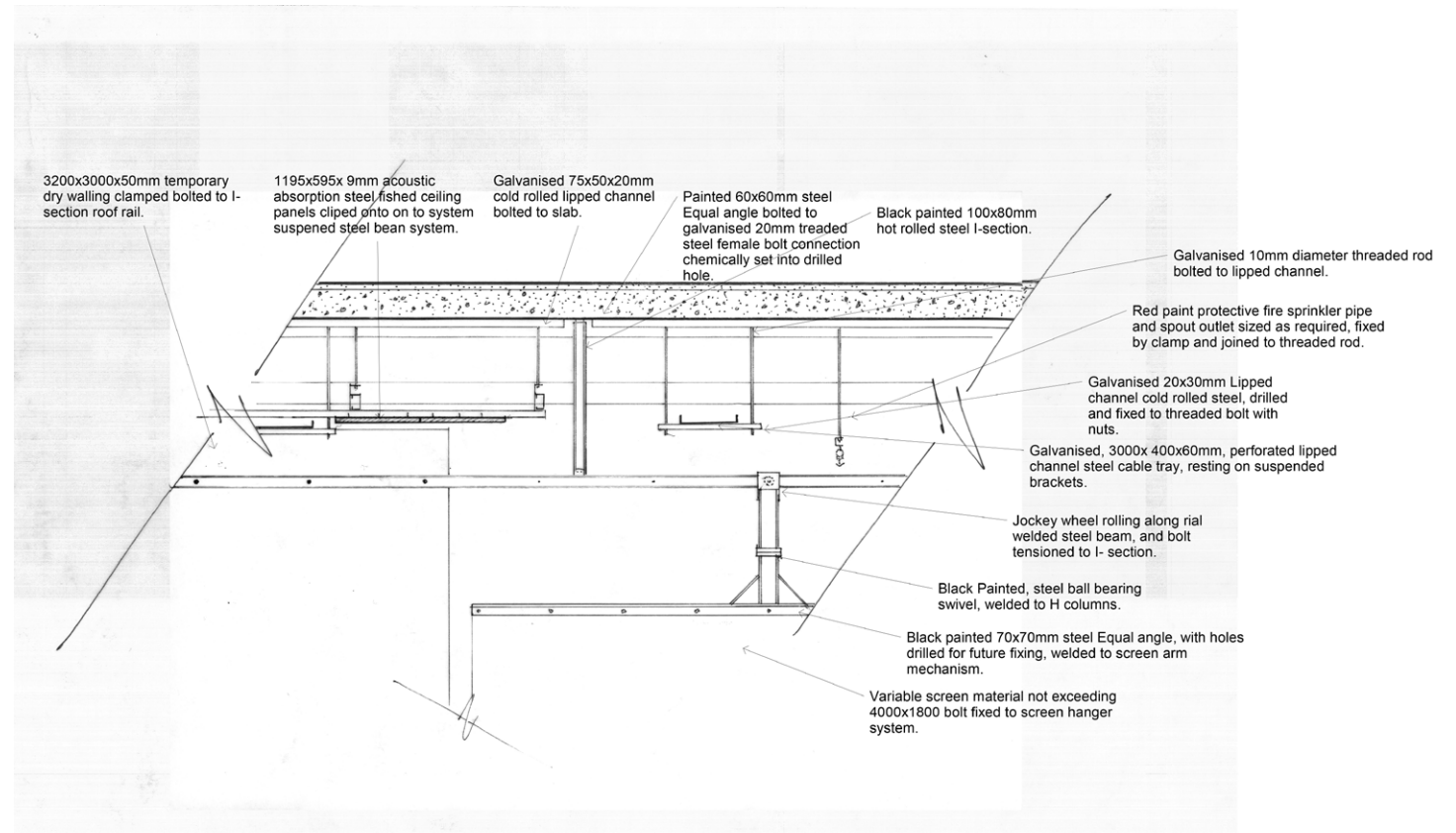


Figure 153 Skin detail sketch

## DETAIL- CEILING

Intention.

Ceiling system in the ceiling space. Show the exposed services, cable trays, lighting and fire sprinklers which are spate from the quickly adapting screens, acoustic panels and assess floor. Make clear which systems fit into which life cycles (Daily, weekly, yearly, century)



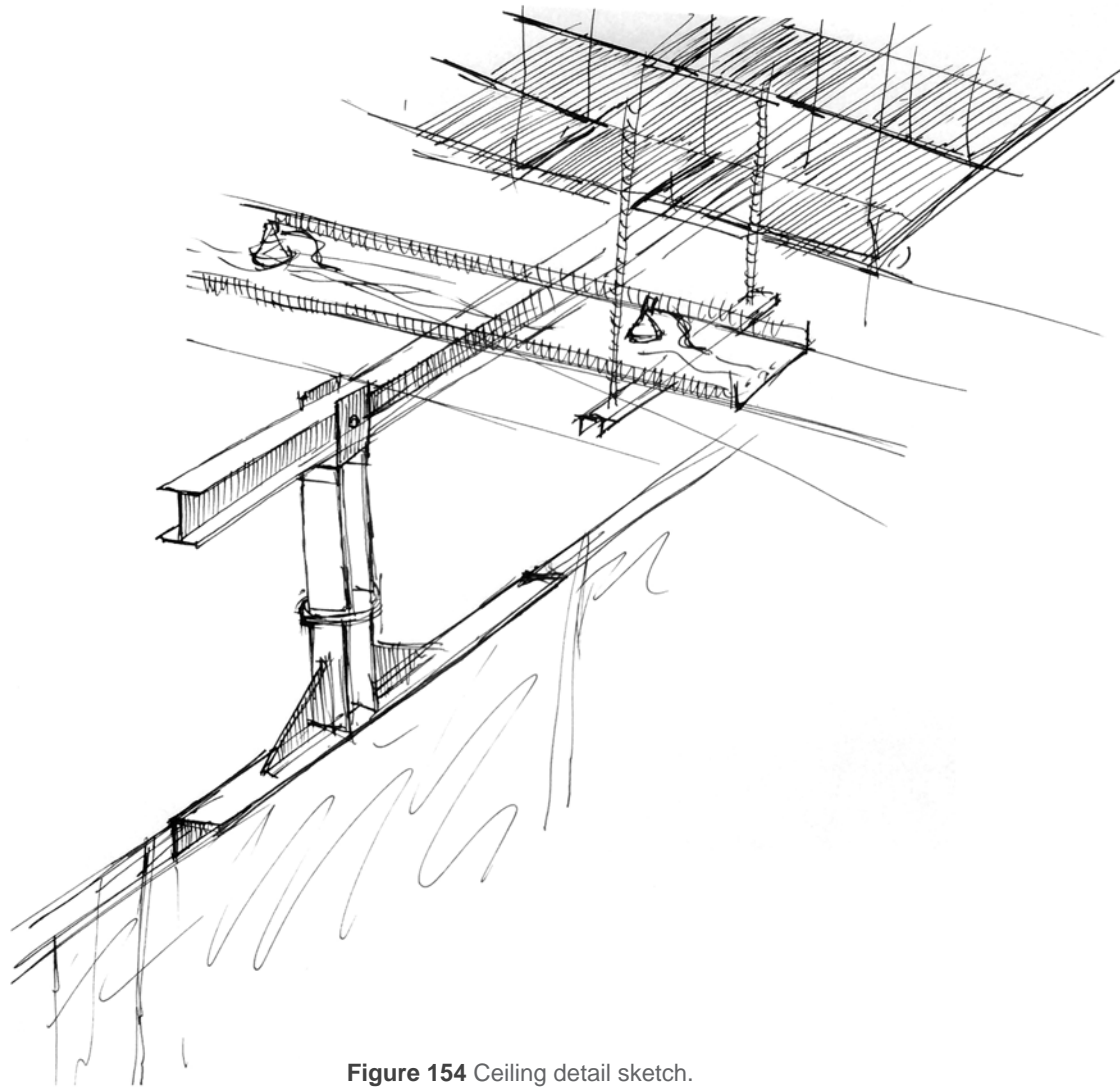
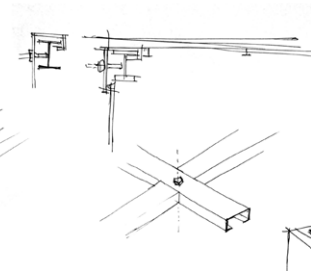
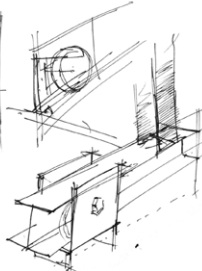
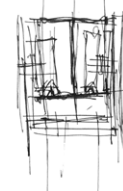
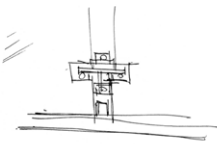
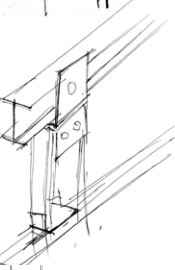
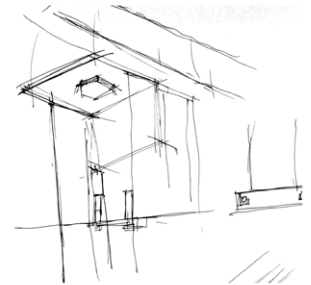
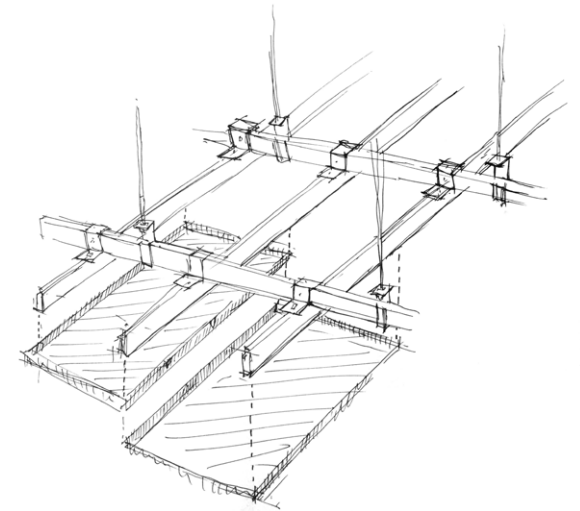


Figure 154 Ceiling detail sketch.





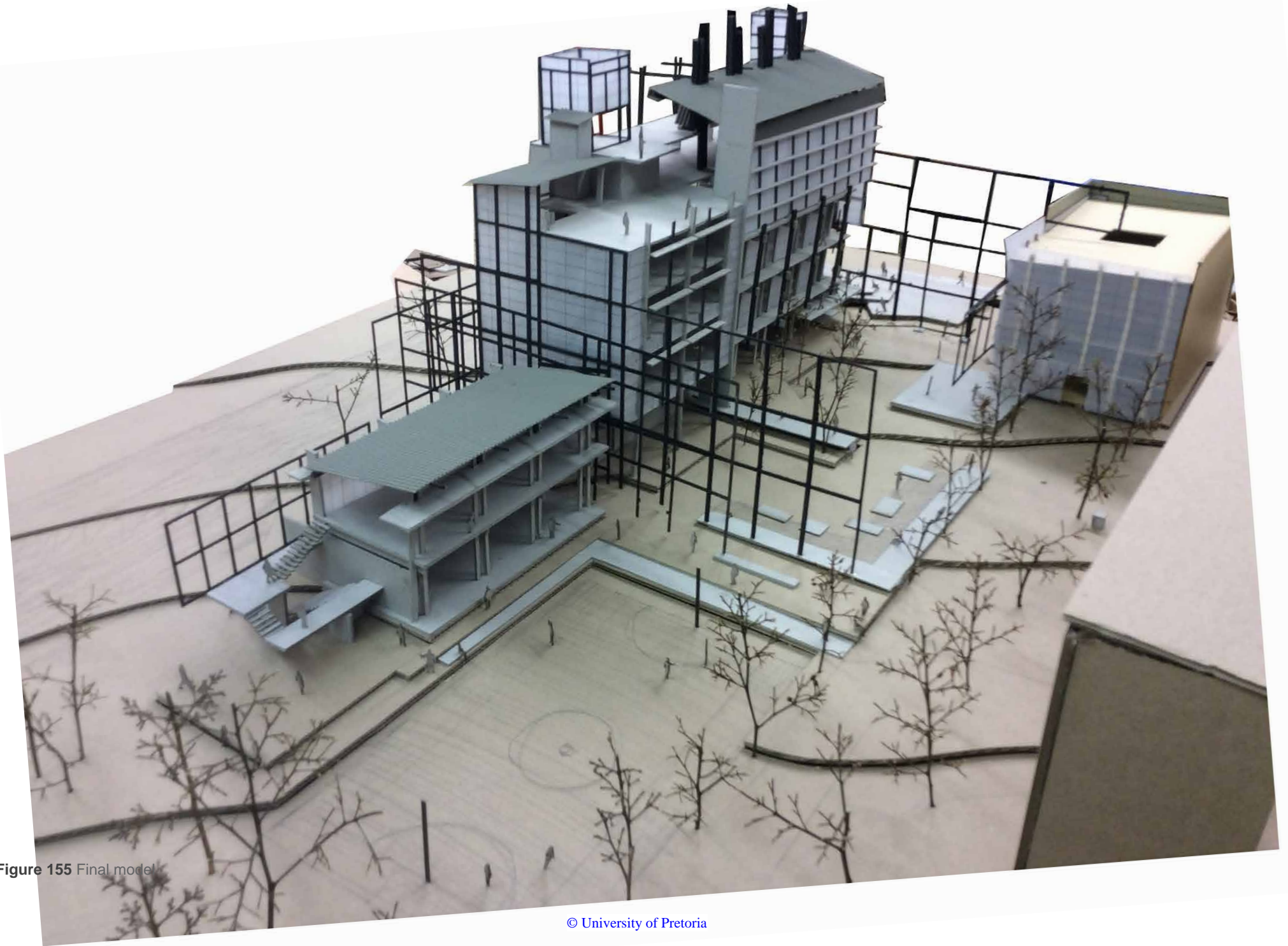


Figure 155 Final model

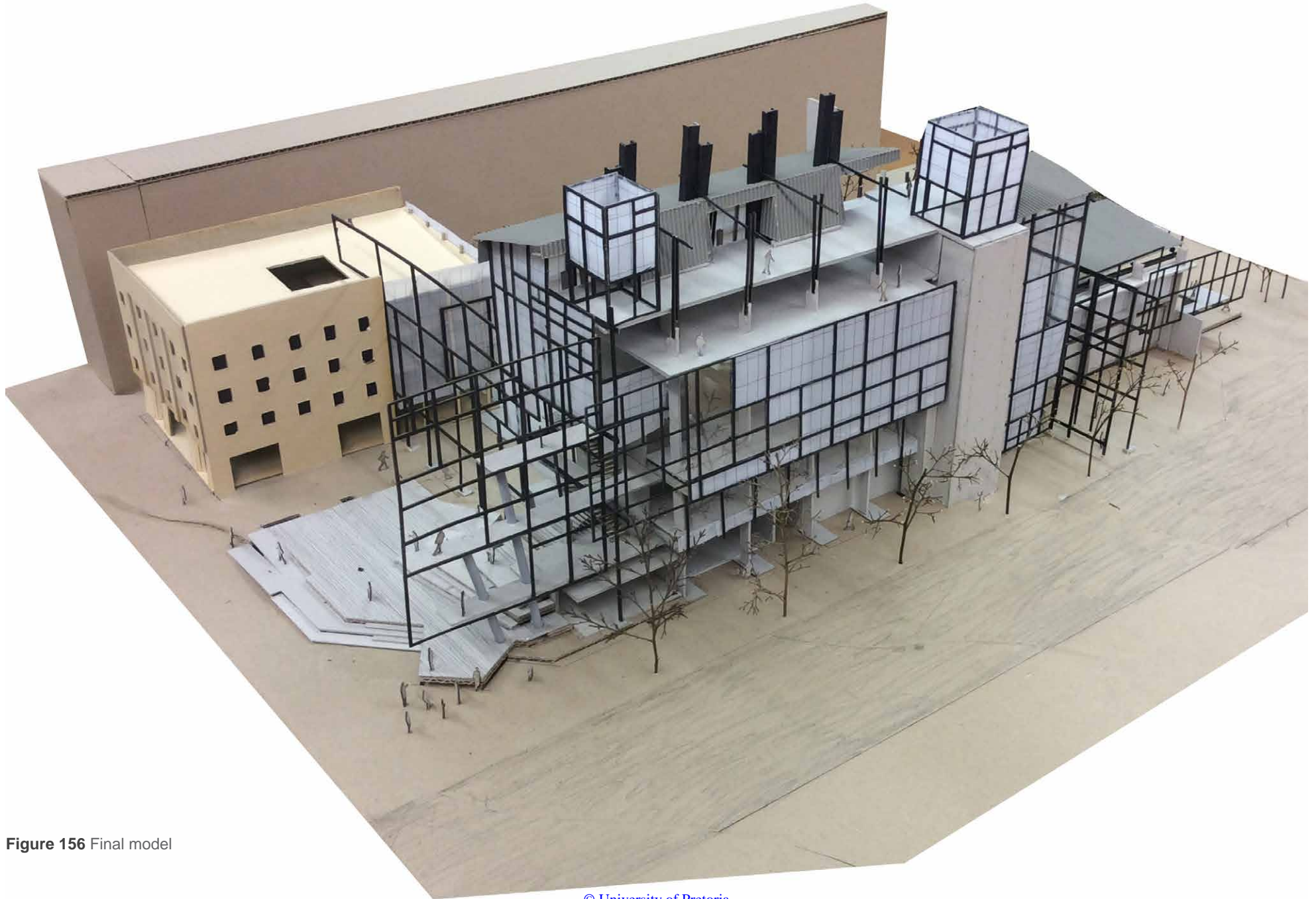


Figure 156 Final model



Figure 157 Presentation



Figure 158 Presentation

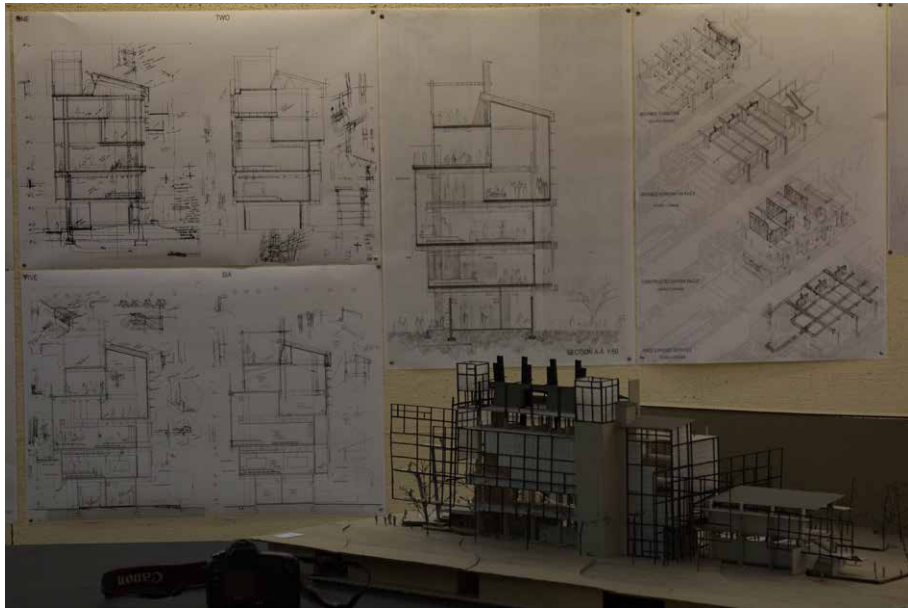


Figure 159 Presentation



Figure 160 Presentation



## CONCLUSION

Considering space through the political theory of agonistic pluralism, the architecture is regarded as a temporary stabilisation within an order of domination. As a result, the building is a system of fixed function which allows different uses to accrue in and around the structure. Form and space is not determined by the activities proposed for the inhabitants but rather through a contextually responsive design approach. The manipulation of thresholds between the street condition and the building condition makes an inclusive, democratic, built form plausible.

List Of figures

Figure 1 Paul Kruger statue in church square protected from protesters in early 2016.	11	spaces and government function buildings lack of inclusive edges. These are functions and spaces that, at least symbolical, represent the collective. 30
Figure 2 Student protests in Pretoria 2015 (AFP, 2015)	16	Figure 35 Investigating a public built form. Designing a building as an internal public space. 31
Figure 3 Diagram depicting Political Agonism.	17	Figure 36 Showing the edge of street and building as a generator of opportunity. 31
Figure 4 Student Protests at Wits, October 2016 (Balliah, 2016)	17	Figure 38 Mapping edge conditions in the Pretoria CBD. 32
Figure 5 Student Protests in Cape Town 2015 (Balliah, 2016)	17	Figure 37 Documenting the urban condition. Streets as public space and built form as private in Pretoria CBD. 32
Figure 7 ANC woman's march at union building in 1956 (Schadeberg, 1955).	18	Figure 40 The city block drawn to include a public street condition through blurring the edge. 33
Figure 8 Display of the body of Nelson Mandela, 2013. (Reuters, 2013)	18	19 Figure 39 Relationship between use and space. 33
Figure 9 Student fees must fall protests in 2015. (Unknown, 2015)	18	Figure 41 Concept diagram investigating a building which holds the identity of the user. 34
Figure 6 The relationship between city and user through space.	18	Figure 42 Taddeo Ando. (Mabel, 2007) 35
Figure 11 Time line showing specific relevant political events with the city of Pretoria	19	Figure 43 Oscar Niemeyer. (Viramonte, 2016) 35
Figure 10 A political lens.	19	Figure 44 Luis Barragan . (Press, 2015) 35
Figure 13 Development of Pretoria	21	Figure 45 Diagrams showing different orders of domination on a space highlighting the design requirements to facilitate each scenario. 36
Figure 12 Historical native imposed onto a city creating spatial complexities.	21	Figure 46 February journal entry. Pretoria mosque as an example of a building typology specifically designed for its unchanging user. 37
Figure 14 Urban layers	22	Figure 47 Image 41. Documenting the city edges noting the opportunistic nature of the user and the relationship to manipulating edges which allow interaction 42
Figure 15 The exclusive cityscape	22	Figure 49 Edge 42
Figure 16 Image 16. Pretoria coincided as inclusive and exclusive.	22	Figure 48 A Shifting edge, negotiating between two conditions. 42
Figure 17 Image 17. URBAN SCAR	23	Figure 50 Site and context shown looking north. 43
Figure 18 URBAN STITCH	23	Figure 51 Stairs drawn as a link between the street and the building conditions. 49
Figure 20 Diagram showing space and process within a political city.	24	Figure 52 Photos of physical model, sketched over exploring skin as building and stair as street. 49
Figure 21 The Pretoria Cardo.	24	Figure 55 Elevated building allows street to pass under it. 50
Figure 19 Making Pretoria the single capital city of South Africa. The new government functions are to be housed along the protest rout.	24	Figure 53 Sketch elevation looking at the interplay between the street (stairs) and the building (screen) 50
Figure 22 Figure 22. Imagined Promenade	25	Figure 54 Scaled section questioning the feasibility of stairs regarding volumes and regulations. 50
Figure 24 Grouping building based on the proposed street level interaction.	25	Figure 56 Considerations of a running track and sport activity from the park to enter under the building. 50
Figure 23 Table showing spatial coding adapted from of Duany Plater Zyberk & Company's 'smart coding' (DMZ, 2009. p5)	25	Figure 57 Herman Hertzberger. Montesorios school. (Hertzberger, 1991) 50
Figure 28 Greater site context, walking distances, and urban barriers along the Cardo.	26	Figure 58 Diagram by Herman Hertzberger of Montesorios school redrawn by Author. 50
Figure 27 Image 26. Urban boundaries through roads	26	
Figure 26 Image 27. A green network in the urban structure	26	
Figure 25 Two typologies of space in conflict conflicting at the site.	26	
Figure 30 Mapping of Existing open spaces	27	
Figure 29 Open space within the city blocks highlighted as potential to develop an urban park space network.	27	
Figure 31 Figure ground study of the Cardo.	29	
Figure 32 Nolie Map study of the Cardo .	29	
Figure 33 The street drawn as a margin of space between the building and road.	29	
Figure 34 Map showing the relationship between building use and edge condition. Note civic	50	

Figure 60 Above and below. Photo of physical model, sketched over. Exploring the skin and skin.	59	Figure 85 Model showing the relationship between heritage and new.	61
form of the building.	52	Figure 84 Initial concept sketch for including the heritage building and pushing the proposed building back from the corner.	61
Figure 59 Making function out of form. Investigating passages behind the boxing arena.	52	Figure 86 Exploring through elevation the possibility of moving the building away from the corner.	62
Figure 62 Sketched elevation showing different edge condition categories.	53	Figure 88 Sketches exploring plinth as threshold and element to control protest masses.	62
Figure 61 Investigating an urban Ha-Ha the relationship between ground and building.	53	Figure 89 Diagrammatic section considering technology and volumes.	62
Figure 66 Boxing Arena explored in diagrammatic sections	53	Figure 87 Sketch showing the program of internal space in the building considering fixed functions and possibilities for other functions.	62
Figure 67 Building turning the corner through form derived from specific typology.	53	Figure 90 Iteration 1	63
Figure 63 Edge conditions of ground level indicating different activities.	53	Figure 93 Iteration 4	63
Figure 64 Exploring the potential for the urban Ha-ha.	53	Figure 91 Iteration 2	63
Figure 68 Elevation exploring staircase connecting elevated levels of public space.	53	Figure 94 Iteration 5	63
Figure 65 Designing with various typology's.	53	Figure 92 Iteration 3	63
Figure 71 Image. Defining the park. Early site plan with the 150m running track into the civic space.	54	Figure 95 Preview of final design model	63
Figure 70 Exploring the threshold between street and building over the urban Ha-Ha.	54	Figure 96 Existing heritage building on site.	64
Figure 69 Image. Above and below. Exploring typology and form through section. With focus on the relationship between building and ground and how each can articulate threshold and function. A boxing stadium.	54	Figure 97 Exploration sketches of the heritage building with the new language attached.	64
Figure 72 Sketches investigating horizontal relationships between ground plane and building as an occupied skin to the public space.	55	Figure 98 Retained Heritage.	65
Figure 73 Image (Nouvel, n.d.).	56	Figure 99 Contest for space each between old and new.	65
Figure 76 Diagrams elaborating on the concepts of screens to extend threshold.	56	Figure 101 President used as an example of a heritage response to contrast old and new. (Tham & vidgard Arkitekter- Moderna Museet Malmö) (LINDMAN, 2010)	65
Figure 74 Image. (Ruault, 2010)	56	Figure 102 Building opposite site used as an example to show structure as an expressed element on the façade and the gabion wall in-filled with brick.	65
Figure 75 Image. (Glynn, 2001)	56	Figure 100 New public identity expressed.	65
Figure 77 Above and below. Photo of physical model, sketched over exploring using screens as extend the thresholds and blur the edge of the building.	57	Figure 103 Circulation-Public and Private.	66
Figure 78 Structure informing space.	57	Figure 104 Fixes- Permanent gym spaces.	66
Figure 79 The building occupying space between the screen.	57	Figure 105 Variable- Contested spaces used for Gym functions as well as Other.	66
Figure 80 Typology explored with structure.	57	Figure 106 Shared Services.	66
Figure 81 Elevation, section, plan.	57	Figure 107 Relationship to Heritage	66
Figure 82 Model showing the relationship between building and park and growth of scale mediating the street scape and building scape.	58	Figure 108 Matrix showing fixed function and possible other functions to be housed. Over laps between what functions can be shared in space and functions that are fixed. Ie. Scales of autonomy to typology in space.	67
Figure 83 Working explorations in section, investigating the internal space of the occupied		Figure 111 Vertical relationship.	68
		Figure 110 Relationship between fixed and movable. Permanent and temporary.	68
		Figure 109 Relationship between use and time occupancy.	68
		Figure 115 (Wolff, n.d.)	68



Figure 114 (Wolff, n.d.)	68
Figure 113 (Wolff, n.d.)	68
Figure 112 Plan from Architects. (Wolff, n.d.)	68
Figure 116 The user in space and the user as space.	69
Figure 117 The urban atrium, south west perspective.	70
Figure 118 South east perspective	71
Figure 119 Protest platform, north west perspective.	72
Figure 120 Section Perspective	73
Figure 121 Site plan	74
Figure 122 A shifting threshold, first floor plan.	76
Figure 123 Second floor sketch plan.	77
Figure 124 Third floor sketch plan	77
Figure 125 Fourth floor sketch plan	77
Figure 126 Section A-A	78
Figure 127 Section B-B	79
Figure 128 Image. Fast changing effect on space nature of people in space.	82
Figure 129 Image. Screens to adapt space in short time cycle.	82
Figure 130 Image. Building skin that can be disassembled from the inside without scaffolding.	82
Figure 131 ABOVE. Empty space with latent potential.	83
Figure 132 BELOW. Movable furniture stored and store.	83
Figure 134 ABOVE. Screen system running along rails.	84
Figure 135 ABOVE. Ceiling space containing cable trays.	85
Figure 136 BELOW. Ceiling space with ducting.	85
Figure 139 Table showing relationship between occupancy use and air change rates.	86
Figure 138 3d showing ducting in the building	86
Figure 137 Zoning different activities based on the amount of heat is produced using the activity.	86
Figure 140 Diagram showing ventilation strategies.	87
Figure 141 Where the building meets the ground, opportunity is created through activated edges and designed space.	90
Figure 142 Structures in public park space create hierarchy and enable various activities to occur in space.	90
Figure 143 Urban structures are adapted for specific needs. Cladding can be added to allow different event scenarios to play out.	90
Figure 144 A bolting system placed on the concrete slabs allows adding and removing	

steel within a fixed system.	91
Figure 145 Steel members can be assembled around the permanent concrete slab allowing easier alterations to the structure.	91
Figure 146 Robust steel movable parts enable a quick manipulation of space.	91
Figure 147 Structural intention diagram. Primary, secondary and tertiary structure in structural consensus.	92
Figure 148 PRIMARY STRUCTURE	93
Figure 149 SECONDARY STRUCTURE	93
Figure 150 INSERTED SKIN	93
Figure 151 Ground detail sketch	95
Figure 152 Structure detail sketch	97
Figure 153 Skin detail sketch	99
Figure 154 Ceiling detail sketch.	101
Figure 155 Final model	102
Figure 156 Final model	103
Figure 157 Presentation	104
Figure 158 Presentation	104
Figure 159 Presentation	105
Figure 160 Presentation	105



# BIBLIOGRAPHY

- Africa, G. o. S., 2015. South African Government. [Online]  
Available at: <http://www.gov.za/state-nation-address-2015>  
[Accessed 15 May 2016].
- Borden, I. & Rendell, J., 2000. *Intersections: Architectural History and Critical Theory*. London: Routledge.
- Bryant, J., 1963. *The consideration of a Plan for Central Pretoria within the Framework of the Pretoria Traffic Plan*, Pretoria.: University of Pretoria..
- Clark, N. & Corten, J.-P., 2009. *Regenerating Pretoria's Historical Core*, Pretoria: ICOMOS.
- Corten, J.-P. & von Dun, P., 2009. *HISTORY IN PROGRESS Future Perspectives of Pretoria's Historical Core*, Pretoria: Cultural Heritage Agency.
- Davis, D., 1999. Agonizing [with] Chantal Mouffe. *JAC*, 19(3), pp. 465-476.
- Eggenger, K. L., 2002. Placing Resistance: A Critique of Critical Regionalism. *Journal of Architectural Education*, 55(4), pp. 228-237.
- Frampton, K., 1985. *Modern Architecture: A Critical History*. 2nd ed. London : Thames and Hudson.
- Habermas, J., 1989. *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. Cambridge Massachusetts: MIT Press.
- Hertzberger, H., 2005. *Lessons for Students in Architecture*. Illustrated ed. Rotterdam : 010 Publishers.
- Jacobs, J., 1961. *The life and death of great american cities*. New York: Random House.
- Jordaan, G. & Roux, L., 1990. Pretoria se suid- oos quadrant- bewaar en ontwikkel. In: *Plekke en Geboue van Pretoria, n oorsig van hulle argitektonese se stedelike belang*. . Pretoria : Stadsraad Van Pretoria.
- Krier, L., 1980. *Urban Spatial Hierarchy [Public Space]*. 1st ed. Berlin: Architectural Design Profile.
- Lefebvre, H., 1996. Rights to the city. In: E. Kofman & E. Lebas, eds. *Writings on cities*. Oxford: Blackwell, p. p139.
- Mitchell, D., 2003. *The Right to the City- Social injustice and the right to public space*. 8 ed. New York: The Guilford Press.
- Mouffe, c., 1999. Deliberative Democracy or Agnostic Plurilism. *Social Research*, 66(3), pp. 745-758.
- Mouffe, C., n.d. Democratic Citizenship and the Political Community. *Return of the Political*, pp. 65-66.
- Mumford, L., 1941. *The South in Architecture*. New York : Harcourt, Brace and Company.
- Ricoeur, P., 1965. Universal Civilization and National Cultures. In: C. Kelbley, ed. *History and Truth* . Evanston : Northwestern University Press , p. 276.
- Simmel, G., 1997. *Sociology of Space*. London: Sage.
- Tschumi, B., 1997. *Architecture and Disjunction*. 3rd ed. Massachusetts: MIT Press.

# IMAGES

- Colli, MG 2009, Bilbao\_6 Guggenheim Museum Bilbao, photograph, viewed January 2012, <<http://www.flickr.com/photos/52355315@N08/5757476385/>>.
- AFP. 2015. Police face off against protesting students on the south lawn of the Union Buildings in Pretoria during the Fees Must Fall march, photograph, viewed 17 July 2016, < <http://ewn.co.za/2015/10/23/Running-battles-continue-between-cops-students-at-Union-Buildings>>AFP, 2015. EWN. [Online] Available at: <http://ewn.co.za/2015/10/23/Running-battles-continue-between-cops-students-at-Union-Buildings> [Accessed 8 July 2016].
- Balliah, D., 2016. Wits Vuvuzela. [Online] Available at: <https://www.facebook.com/WitsVuvuzela/photos/pb.267205666706209.-2207520000.1477126644./1184887711604662/?type=3&heater> [Accessed 22 October 2016].
- Balliah, D., 2016. Wits Vuvuzela. [Online] Available at: <https://www.facebook.com/WitsVuvuzela/photos/pb.267205666706209.-2207520000.1477126644./1184887281604705/?type=3&heater> [Accessed 22 October 2016].
- Burri, R., 2013. New York Times. [Online] Available at: [http://www.nytimes.com/2013/11/04/arts/design/luis-barragan-homage-tweaks-vitra-the-copyright-owners.html?\\_r=0](http://www.nytimes.com/2013/11/04/arts/design/luis-barragan-homage-tweaks-vitra-the-copyright-owners.html?_r=0) [Accessed 22 October 2016].
- Glynn, S., 2001. Galinsky. [Online] Available at: <http://www.galinsky.com/buildings/cartier/> [Accessed 22 October 2016].
- Hertzberger, H., 1991. E-Architect. [Online] Available at: <http://www.e-architect.co.uk/architects/herman-hertzberger> [Accessed 22 October 2016].
- LINDMAN, Å. E., 2010. Divisare. [Online] Available at: <https://divisare.com/projects/129616-tham-videgard-arkitekter-ake-e-son-lindman-moderna-museet-malmo> [Accessed 22 October 2016].
- Mabel, J., 2007. Wikipedia. [Online] Available at: [https://en.wikipedia.org/wiki/Tadao\\_Ando#/media/File:Ft\\_Worth\\_Modern\\_02.jpg](https://en.wikipedia.org/wiki/Tadao_Ando#/media/File:Ft_Worth_Modern_02.jpg) [Accessed 22 October 2016].
- Nouvel, J., n.d. Jean Nouvel. [Online] Available at: <http://www.jeannouvel.com/> [Accessed 22 October 2016]. Press, A., 2015. Gizmodo. [Online] Available at: <http://gizmodo.com/5966130/here-are-architect-oscar-niemeyers-most-beautiful-buildings/> [Accessed 22 October 2016].
- Reuters, P., 2013. TimesLive. [Online] Available at: <http://www.timeslive.co.za/local/2013/12/11/madiba-s-body-arrives-at-union-buildings> [Accessed 22 October 2016].
- Ruault, P., 2010. E Architect. [Online] Available at: <http://www.e-architect.co.uk/paris/cartier-foundation> [Accessed 22 October 2016].