



BACKGROUND ○

The emergence of an **idea**...

The reason behind the choice of my thesis...

REALISATION

WHAT & HOW

HUMAN / SPACE

URBAN SPACE
STUDY

PRECEDENT
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SITE

URBAN DESIGN

ARCHITECTURAL
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DESIGN

0.0

BACKGROUND

During my trip to Tokyo at the end of 2008, the municipality that attracted my attention the most was Akihabara. Just like any other large interchange train station in Tokyo (**fig.0.0.1**), Akihabara too has a series of public spaces with pedestrian friendly designs and a complete system of architecture interacting with its urban environment.

Experiencing the **space** as I go...

After being in the train carriage for two hours, I finally arrived at the station of Akihabara. The train ride was not a pleasant experience, as I was squashed like a sardine in the carriage for more than an hour. Arriving at the station, I have experienced the **tightness** of its space (**fig.0.0.2**) (mainly due to the large crowd of people at the station), yet the public square just outside was another spatial experience...

Public Square just outside the station

The public square immediately outside the station was an astonishing experience of space for me, as the square holds a unique spatial quality (**fig.0.0.3**). The square that acts like an **oasis** in the desert was surrounded by high-rise and high density buildings. Standing out from its context, the public square has given me a sense of **orientation** and **direction**, helping me in the search of the next desired destination. The square also holds a vibrant energy of people's **activity** which automatically draws my attention towards its center.

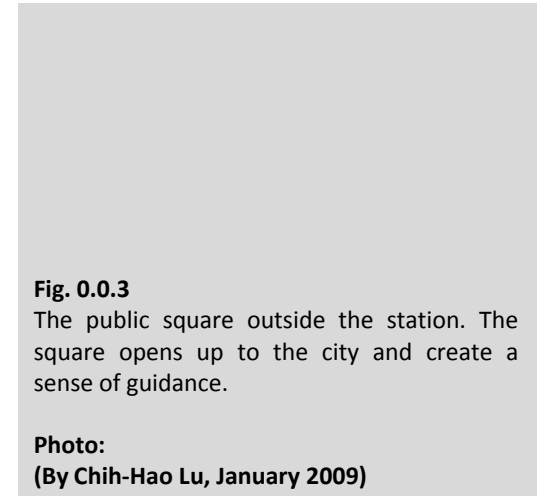


Fig. 0.0.3

The public square outside the station. The square opens up to the city and create a sense of guidance.

Photo:

(By Chih-Hao Lu, January 2009)



Fig. 0.0.2

Inside the station of Akihabara. The space is packed with people during rush hours...

Photo:

(By Chih-Hao Lu, January 2009)

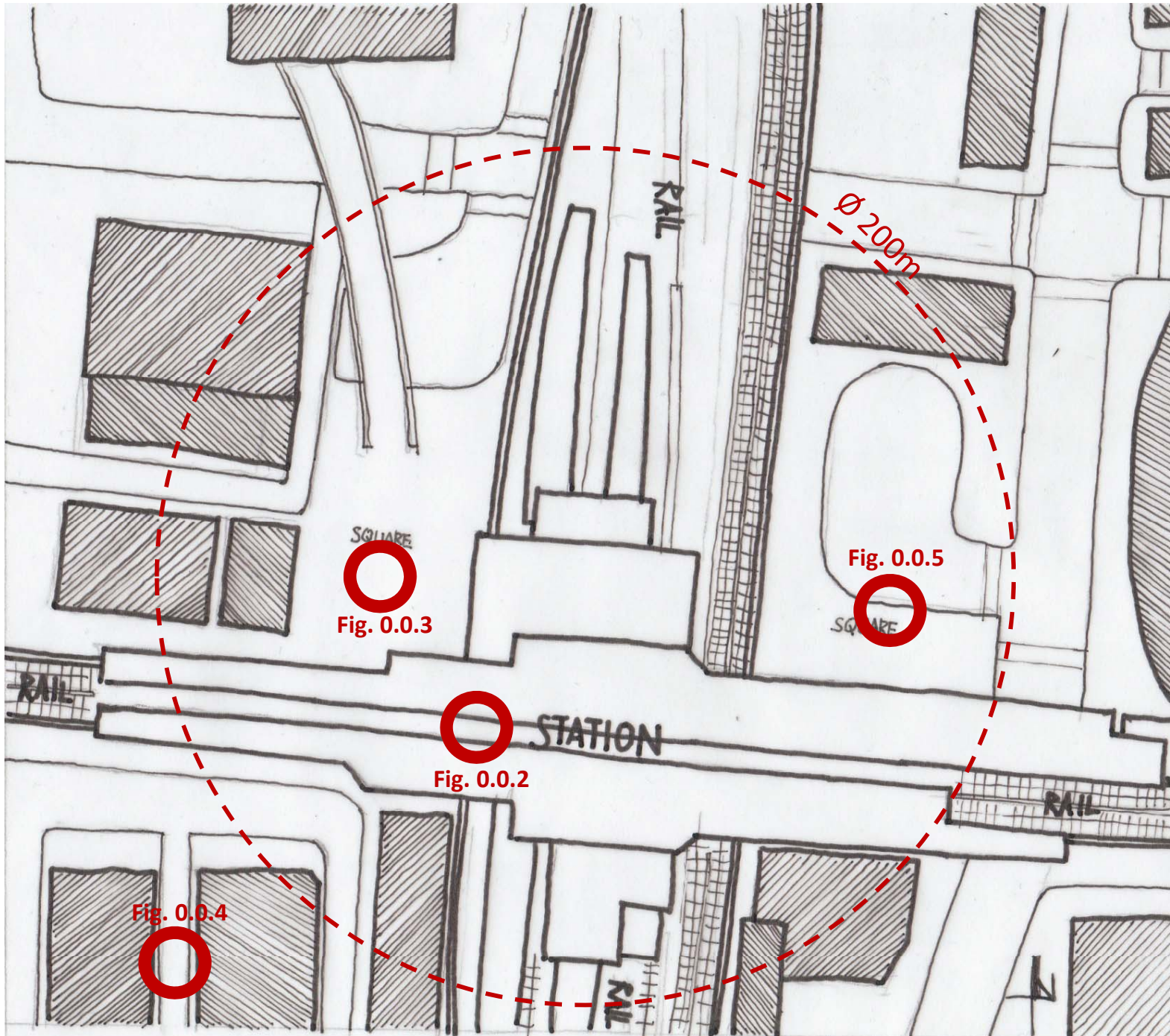


Fig. 0.0.1

A sketch of the analysis of the urban environment of Akihabara. It also locates where I'm at each stage of my travelling experience.

Sketch:

(By Chih-Hao Lu, April 2009)

Pedestrian streets

Acting like a **connector**, this one street has attracted my attention towards it. I'm not sure if it's the vibrant atmosphere of the street or the vivid retail activity. Likewise, I ended up like the others on the street, going through each shop that is full of electronic goods (**fig.0.0.4**). It's a **slow space**, people stop every now and then for the bargains offered at each shop. In this space, there is a close relationship between the street and people.

Interaction between architecture

The station plays a major role in the **connection** of the surrounding buildings (**fig.0.0.5**). Department stores and office blocks are directly connected to the train station, **linking** the entire urban environment into one system. As I walked mindlessly inside the station, I sometimes get drawn into a department store before I can realise it.

Fig. 0.0.4

The vibrant commercial activity along the street of Akihabara. It provides an attraction force for its viewer which includes myself.

Photo:

(By Chih-Hao Lu, January 2009)



Fig. 0.0.5

The linking nature of the station with its urban environment. It links and separates its urban fabric

Photo:

(By Chih-Hao Lu, January 2009)



Fig. 0.0.6

The retails along the main street of Akihabara. The pedestrian walk way is designed in its width and texture to suit human comfort.

Photo:

(By Chih-Hao Lu, January 2009)





Fig. 0.0.7

Some of the street leads into a building and forms an arcade.

Photo:

(By Chih-Hao Lu, January 2009)



Fig. 0.0.8

Space is precious in Japan, therefore spaces are used to its maximum possibility. It is quite often to see architecture been designed under a bridge.

Photo:

(By Chih-Hao Lu, January 2009)



While sitting in a restaurant having my coffee, I suddenly came to the realisation on how closely these urban elements play amongst each other. The **public spaces, streets, architecture** and **transportation system**. The efficiencies of these urban elements react and support one another. As for example, the department store may not be that well accepted by the public if placed further away and isolated from the train station. Furthermore, the civic square would probably not work if not placed next to the station and utilised by the travellers from of the station.

This urban municipal encouraged me to design an urban environment that has the ability to **adopt its transportation system and blend it into a single system**. These urban elements should be designed within a **single system**, and the relationship between these elements should be carefully linked and translated so all the elements can share the same urban language.

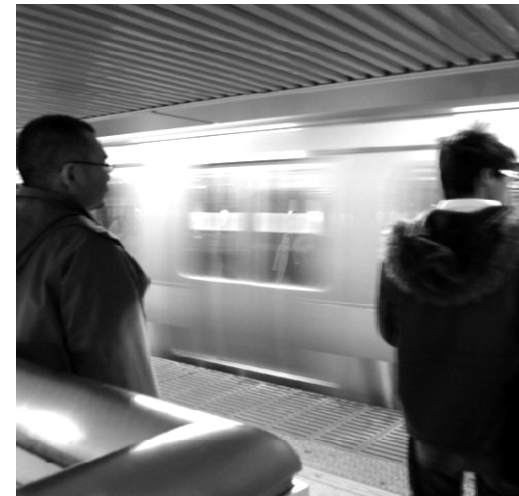


Fig. 0.0.9

At the station waiting for the train to arrive..

Photo:

(By Chih-Hao Lu, January 2009)

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ABOUT THE THESIS

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1.1 METHODOLOGY

Introduction

For a design to be fully understood in its context, its design theory must **communicate** in the same language as the design itself. In order to link the design and its design theory in a single continuous spine, the design theory must be derived according to the needs of the design. As such the methodology of this thesis enables the problems to emerge themselves out of the context. These problems are then translated into theatrical study, which will be used to assist the development of the design.

Design and design theory is a stepping back and forward process. Furthermore, it is a trial and error process. When the design clashes with its context, the designer then should step back to the site analysis and design theory for the evaluation of the clashes. Thereafter, he/she should then come up with a new design solution.

The process of design development and the evaluation of theory can be divided into the following stages (**fig.1.1.1**):

Stage 1. **Describing** the design

Firstly is what exactly a designer wishes to design. **Why** choose such topic and **what** does the design mean to the designer and its end user. **How** will the design affect its user and what it wished to achieve and improve? These questions should be asked constantly during development of the design and its theory. The design must have meaning in its context. If the above questions cannot be fully resolved, then it's pointless to continue the design procedure.



Fig. 1.1.2
Developing the thesis

Photo:
(By Chih-Hao Lu, March 2009)

Fig. 1.1.1
The methodology of the approach of my thesis. My thesis is a looping process, the stepping forward of the theory and the stepping back process of the design will be looped until a final solution is realised...

Image:
(By Chih-Hao Lu, May 2009)

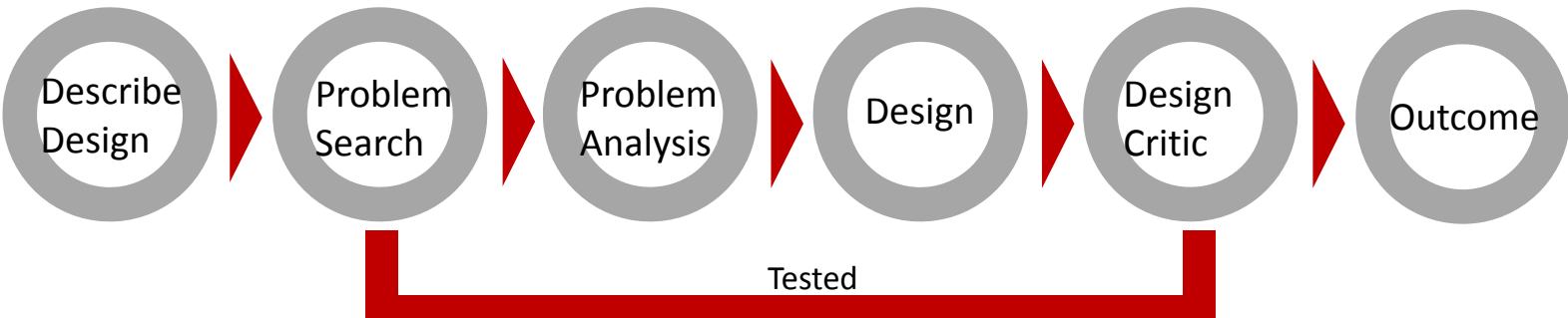


Fig. 1.1.3

Assistance is required from the critics and supervisor in order to evolve the theory and its design.

Photo:

(By Chih-Hao Lu, May 2009)



Stage 2. Searching for problems

Second phase is the searching of problems. The emergence of problems can be developed via **site analysis**, **mapping** of the site and local **surveying**. Problems discovered can then be used as valuable information for the development of the design. Lastly, solutions to the problems discovered are the elements that people desire for that area and the design should therefore be able to fulfil such desires.

Stage 3. Problem analysis

In order to translate the problems into design elements, analysis is required of those problems. This is therefore the step where the problems become theoretical studies. Theory of the solutions for problems is studied in order to develop a design that is capable of solving the problems of the area.

Stage 4. Relating the problem to the design

Using theoretical studies as a spine, design is then developed aiming at solving the problems of the area. Sketch design is developed constantly throughout the entire thesis in order to solve possible problems.

Stage 5. Step back to the searching of the problem

The design is then inserted into its context to be tested. This step requires the assistance of supervisors and critics (**fig.1.1.3**). If additional problems are discovered during the design development, the designer will have to **revisit stage 2** for more analysis of the problem.

Conclusion

This continuous loop allows the design and its theory to be developed simultaneously and is able to achieve the most suitable design for the area and its user.

END OF 1.1



1.2

INTRODUCTION, SEARCHING FOR THE PROBLEM

Introduction

Before starting on the theoretical study and the design development, I require to ask myself the following questions:

Why I choose this design and theory to be my thesis?

What is the project and who is it for?

How will the design benefit its end user, and what is the design trying to achieve and improve?

My design and its theory would be able to provide a meaning for its user (and myself) only when the questions above were resolved and evaluated. By establishing a strong argument of why this design is significant. This argument then should then be used as a driving force behind my design thesis.

Why?

The reason behind my design thesis is the desire of providing improvement for a declining urban center. Due to my cultural and social background, I'm used to urban living, and urban public space has become part of my lifestyle. As for example, instead of driving a personal vehicle to school, I would rather walk or take a train. However, major cities in South Africa have forbid me from utilising them. This is mainly due to fear of crime and the long distance to the destination desired. The informal urban planning, its lack of sense of place, and high crime rate has pushed me away from the vibrant activities that a city should be providing. Therefore, my goal is to find an urban environment that has the potential for improvement and then redesign / restructure it to make it user-friendly and attractive.

Fig. 1.2.2

The office blocks / park stood isolated in its context. I have found difficult to approach it due to the over sized road.

Photo:

(By Chih-Hao Lu, March 2009)



The **Randburg** municipal was selected for the following reasons:

The first is the desire to **upgrade a declining urban center** that has potential for improvement. The Randburg municipal began to decline since the 1980's because of the development of the:

enclosed shopping malls that made the urban space less attractive. **(fig.1.2.1)**

office parks that isolated commercial activities away from its urban fabric. **(fig.1.2.2)**

taxi rank industry that informalised its urban environment. **(fig.1.2.3, on page 15)**

fragmented urban space.

missing connections between space.

inhabitable urban edges. **(fig.1.2.4, on page 15)**

horizontal architectural language. **(fig.1.2.5, on page 16)**

The informalisation of the urban space after the apartheid period

Furthermore, being one of the transportation and commercial nodes of Johannesburg, Randburg has the potential to improve into a world class city.



Fig. 1.2.1

People in Randburg prefer a controlled environment such as the shopping mall. This has impacted the flow of movement within the urban environment

Photo:

(By Chih-Hao Lu, March 2009)

The second is the introduction of the **BRT system** by the Johannesburg city council to Randburg (**fig.1.2.6, on page 17**) The BRT will be able to provide more efficiency to the Randburg municipal. In other words, the BRT system will enable opportunities for improvement of Randburg. It will also enable connectivity and communication between Randburg and the other major cities in Johannesburg, thus making Randburg an important commercial and transportation node. Furthermore, by linking the BRT with the **taxi rank system**, a total transportation system is then formed.

What is it about?

The design thesis is for the re-development of **Randburg’s urban environment**. Using the BRT system together with the taxi rank system as a driving force, the urban environment should be designed around this new system. However the design cannot process itself before an understanding of its theory. Therefore, how does the theory define itself?

Firstly, the **problems** of the existing urban environment should be identified and then studied as the design theory of the thesis. I will be studying these problems as part of my theoretical study and come up with possible improving solutions. After evaluating the problems, the outcome should be used as design elements for the improvement of Randburg.

Using the theoretical studies, I will be designing the following:

Re-developing the Randburg urban environment. Aspects such creating a sense of place, creating a pedestrian comfortable environment and negative spaces design in an urban environment, will have to be focused as the theoretical studies and evaluated into design elements that drive the design. A framework will be provided and designed for the placing of its architecture.

Fig. 1.2.3
The taxi rank stood hard in its contexts, breaking the link between the movement in the Randburg urban environment.

Photo:
(By Chih-Hao Lu, March 2009)



Fig. 1.2.4
Inhabitable urban edges.

Photo:
(By Chih-Hao Lu, March 2009)

After the framework has been established, a block from the site will then be selected for an **architectural design**. The design must obtain the notion of **continuity and connectivity**. Therefore, the connection between the urban space and the space of the architecture will need to be established. How should the architecture be designed to fit into this new context and user; and how should the urban space respond back to the design?

Conclusion

How will it affect the end user?

The urban redevelopment is aimed **at improving the lifestyle** and urban public environment in Randburg. The design is aimed at benefiting the commercial activities and transportation industries in Randburg. Furthermore, the design is also aimed at utilised the public spaces rather than just the internal streets of the shopping malls. With this urban environment being redesigned, hopefully it will be able to attract people to its facilities.

What type lifestyle is aimed at?

I'm designing a **space of connection** rather than a space for living. It is aimed at **improving efficiency** and **productivity** of urban life. In other word, this urban space is like a gear in a machine, as it drives and completes the entire system (**fig.1.2.7**). Furthermore, I also desire to **increase the density** of this urban space via linking the transportation and commercial activity efficiently.



Fig. 1.2.5
Horizontal architectural language.

Photo:
(By Chih-Hao Lu, March 2009)

Fig. 1.2.7

The complete system of urban design, urban life style and the entire city.

Image:
(By Chih-Hao Lu, October 2009)

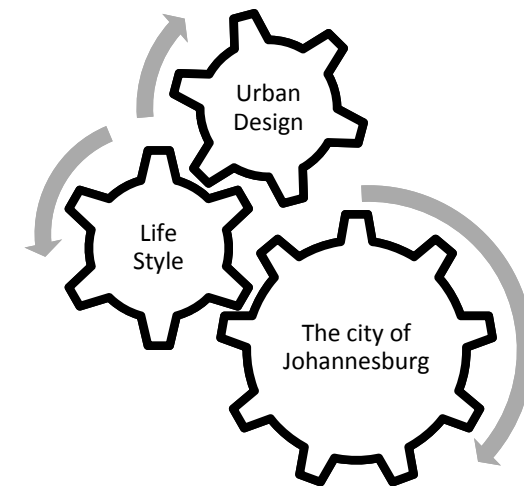




Fig. 1.2.6
The BRT system

Image:
(Rea Vaya website, www.reavaya.org.za ,
the BRT route map)



UNDERSTAND HOW PEOPLE USE SPACE

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2.1 SPACE / PEOPLE RELATIONSHIP

Introduction

Before the searching of problem and the discussion of the theoretical study of human space may begin, one must first understand **how people use his/her space** and how does people's behavior creates and shapes a space. Thus in this section, the relationship between human behavior and the physical environment should be focused.

What is a city? "City is the ultimate creation of human being." (KRUPAT E, 1985, p.3) The form and function of the city is based on our behavior and lifestyle. However, **space forming and people behavior is a two-way process**. Since we can alternate our space, in contrast, the space has a determining influence upon human behavior.

When designing a space, it should hold a "law and order" based on people's need, yet obtain enough flexibility allowing people to alternate the space for personal need. Furthermore, space design is about creating "**space potential**" rather than "**make**" space. Therefore, human behavior and needs are than studied in order to produce an appropriate space.

The city is a place of multiple contrasting realities. Thus it obtains and provides elements that contrasted the extreme, the city:

- has the potential to pull people apart or pushing them together
- consists of people with contrasting life style and social status
- can either bring stress to its user or act as a stress reliever
- provides constrains and opportunities

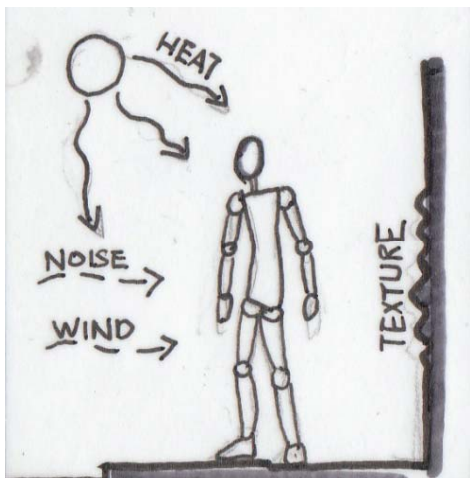
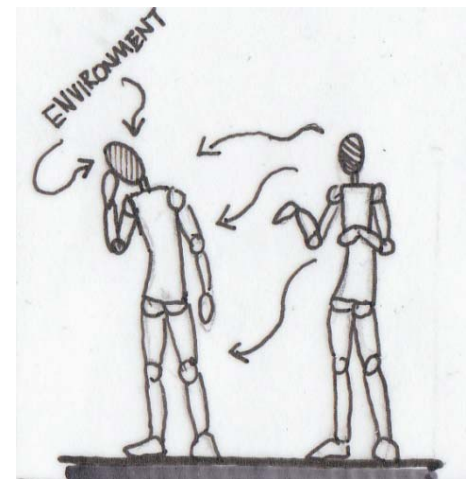


Fig. 2.1.1
Actual influence of the environment,. It is capable of influencing out physical condition

Sketch:
(By Chih-Hao Lu, May 2009)

Fig. 2.1.2
Perceived influence is capable of altering our mental condition. The contacting with the other people will too influence on out mental status.

Sketch:
(By Chih-Hao Lu, May 2009)



The relationship between people and the urban environment

There are two types of relationship between people and urban environment, actual and perceived. These two relationships are the driving force behind people's decision on the way they behave in an environment.

Actual (fig.2.1.1)

This type of relationship is on the physical level. It influences people the way they feel about the urban environment. The aspects such as the climate, temperature and hardware of the urban environment, thus are effecting to our lifestyle physically.

Perceived (fig.2.1.2)

This type of relationship affects our behavior and the way we act in an urban environment. It's on a mental level. It alternates the way we use a city. However, different to the actual relationship, where people act in a similar manner under certain condition, (for example, people will ware less clothing when the environment gets too hot) the perceived relationship between human and space varies from person to person. The variation of people/ environment relationship depends on:

Social groups

Culture groups

Age groups

Religious believe

Personality

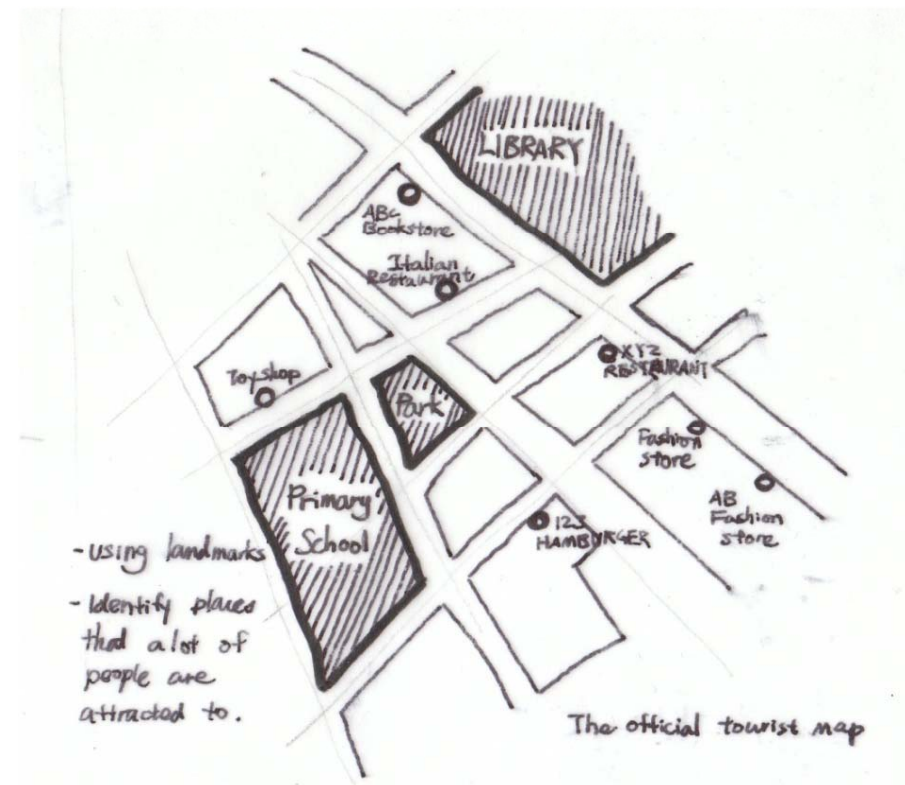
Therefore, According to the above differences above, people may behave and experience the space differently. (fig.2.1.3)

Fig. 2.1.3

The map drawn up for the tourist guidance is based on the general publics social behavior.

Sketch:

(By Chih-Hao Lu, May 2009)



Basic design concept

1. Human needs

There are six needs people require:

Security (fig.2.1.4)

People must feel **safe** in the environment where he/she belongs.

Clarity (fig.2.1.5)

The city must be **legible** to its user. The clarity of an environment will allow a closer relationship between people and the space.

Privacy (fig.2.1.6)

All people have this desire of regulating the amount of contact with the others. Therefore, the city should provide some sense of privacy for this action to perform.

Social interaction (fig.2.1.7)

People will also desire a **sense of communication** with the others. Therefore a platform is required for such activity to take place.

Convenience (fig.2.1.8)

The city must be **easy to use**. Thus, aspects such as user-comfort and user-friendly devices are required in an urban environment.

Identity (fig.2.1.9)

Part of the person's identity is derived from the place he/she comes from. Therefore the urban environment should provide a **sense of identity** for its user to relate to.

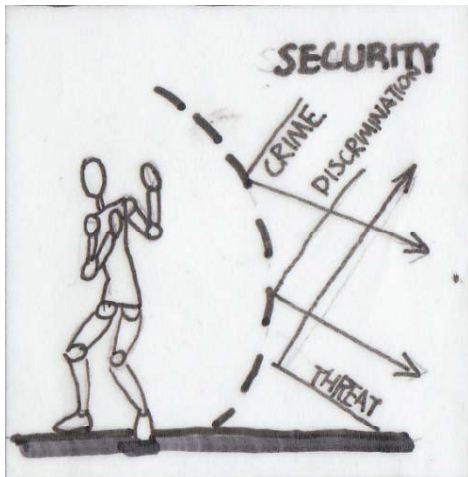


Fig. 2.1.4

People need to be protected from harmful elements.

Sketch:

(By Chih-Hao Lu, May 2009)

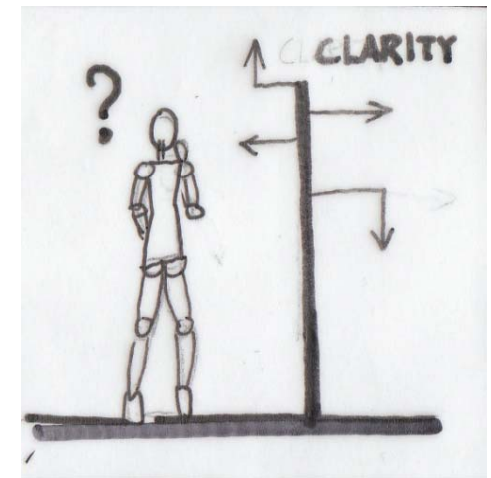
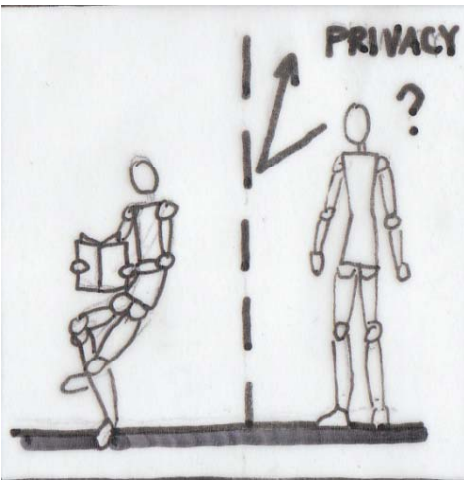


Fig. 2.1.5

People need to be guided within a space.

Sketch:

(By Chih-Hao Lu, May 2009)

**Fig. 2.1.6**

Some activities of people need to be kept private.

Sketch:

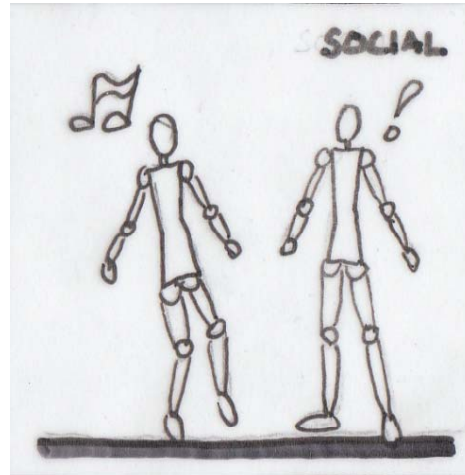
(By Chih-Hao Lu, May 2009)

Fig. 2.1.7

People require to have social interaction with the others.

Sketch:

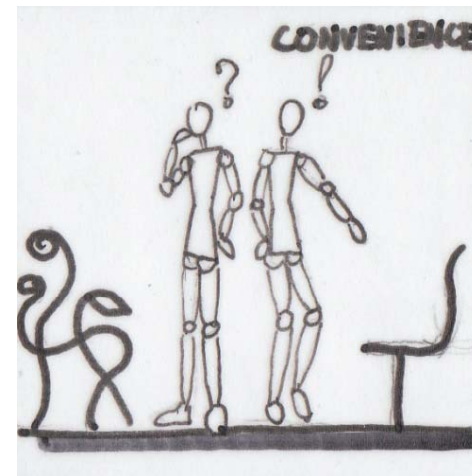
(By Chih-Hao Lu, May 2009)

**Fig. 2.1.8**

The elements provided for people need to be clear in its uses in order for a person to understand its function in the shortest period.

Sketch:

(By Chih-Hao Lu, May 2009)

**Fig. 2.1.9**

Each person is special in one way or another, the space should provide a medium in order to express that uniqueness,

Sketch:

(By Chih-Hao Lu, May 2009)



2. Human activity (CARMONA M, HEATH T, OC T, TIESDELL S, 2003, p.107)

There are three type of human activity:

Necessary activity (fig.2.1.10)

This is the activity that people have to perform. For example, the need to go to the bathroom.

Optional activity (fig.2.1.11)

This is the activity that people can choose whether or not to perform. For example, a person can choose whether or not he/she go to the shop.

Social activity (fig.2.1.12)

This is the activity that happens between people.

Only after the human needs and activities were interpreted, than the space can be provided.



Fig. 2.1.10
This is the activity that people have to perform

Sketch:
(By Chih-Hao Lu, May 2009)

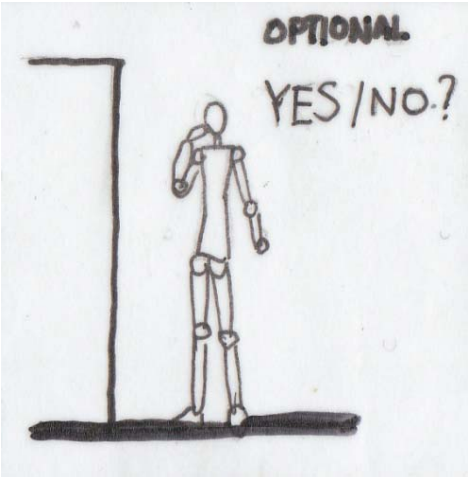
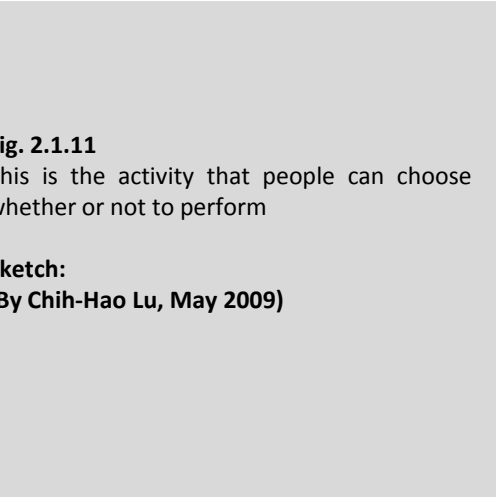


Fig. 2.1.11
This is the activity that people can choose whether or not to perform

Sketch:
(By Chih-Hao Lu, May 2009)

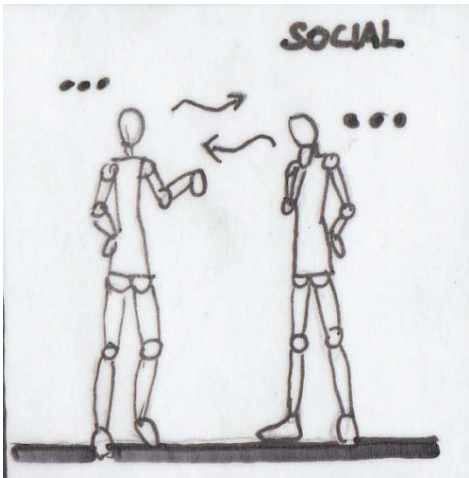


Fig. 2.1.12
This is the activity that happens between people

Sketch:
(By Chih-Hao Lu, May 2009)

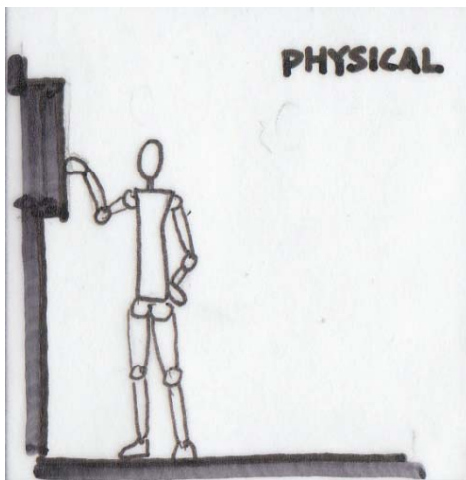


Fig. 2.1.13

The user should be able to make physical contact with the space.

Sketch:

(By Chih-Hao Lu, May 2009)

3. What a space needs to provide

Physical (fig.2.1.13)

The **physical contact** is the first connection between people and space. Therefore the urban environment should provide a platform for such activity to take place. For instance, the detail and texture of the urban environment will affect the way people behave.

Functional (fig.2.1.14)

The city should **support on people's behavior**, enabling the physical interaction between people and urban environment.

Cognitive (fig.2.1.15, on page 27)

The city should provide a sense of **clarity**. It has to be understood by its user. Therefore, it is critical to develop a same set of language between the urban environment and the user. For example, street signs are often used for the communication between the space and its user.

Affective (fig.2.1.16, on page 27)

The city should provide some **sense of belonging**, thus allows the user to develop a sense of relationship between him/her and the space.

Social interaction (fig.2.1.17, on page 27)

The city should provide a platform for people **interaction**.

Conclusion

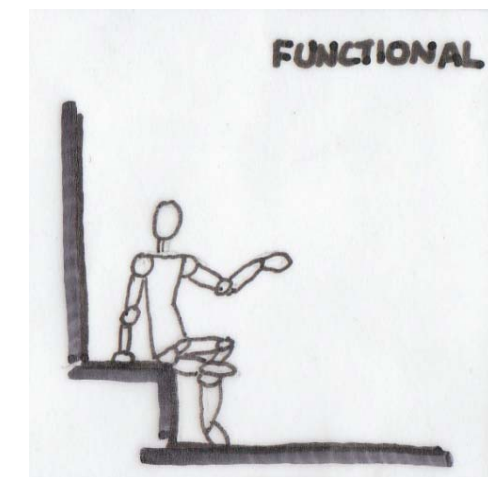
"An environment must be suited to the species; if it isn't, the organism dies or goes elsewhere." (SANFORD N, 1962, p727) In conclusion, a city must be designed to suit the needs of its user, at the same time, provide a level of flexibility. If it fails to achieve the required task, people will be pushed away from the city and thus resulting a declining urban environment. Furthermore, from the above analysis, the aspect of **social interaction** appears rapidly, therefore, this has emphasised the importance of creating a space that allows people to interact.

Fig. 2.1.14

The space needs to provide certain type of functions required.

Sketch:

(By Chih-Hao Lu, May 2009)



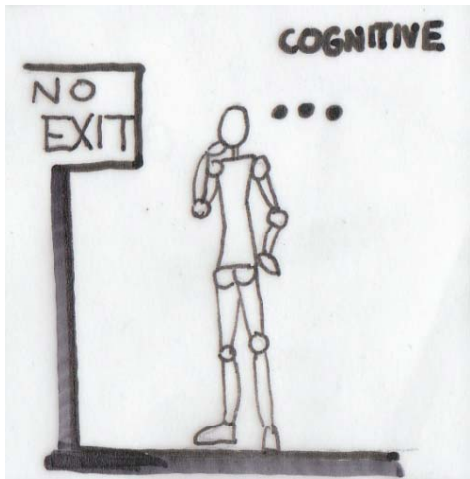


Fig. 2.1.15
The space need to be clear what it is trying to achieve.

Sketch:
(By Chih-Hao Lu, May 2009)

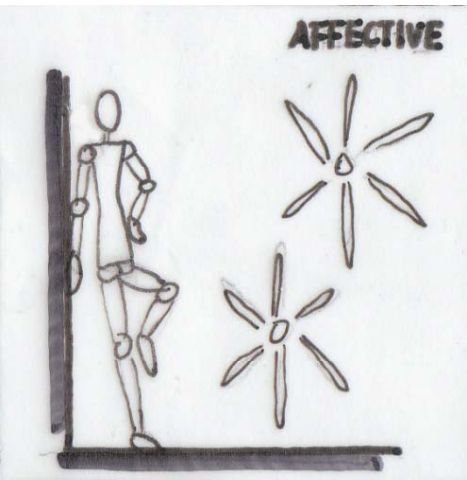


Fig. 2.1.16
The space should provide identity of its user.

Sketch:
(By Chih-Hao Lu, May 2009)

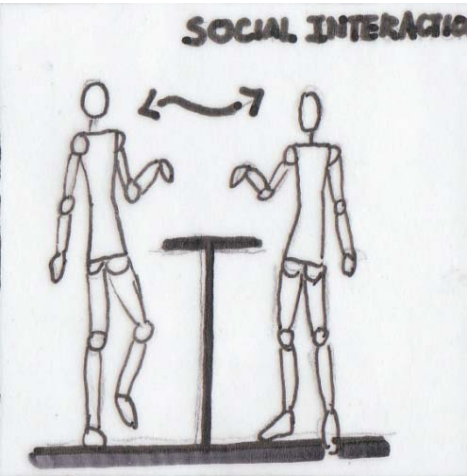


Fig. 2.1.17
The space should provide some kind of social contact.

Sketch:
(By Chih-Hao Lu, May 2009)

URBAN DESIGN ANALYSIS

The urban space is to be compelled to be all types of spaces between buildings in an urban space (KRIER B, 1979, P.15). Furthermore, it acts as the connection and communication tool between architectures and functions within an urban environment.

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3.1

NEGATIVE SPACE



Fig. 3.1.3

Open space allows the architecture to be appreciated

Image:

(MOUGHTIN C (1992), Urban Design Street and Square, London, Cliff Moughtin 1992, p.119)

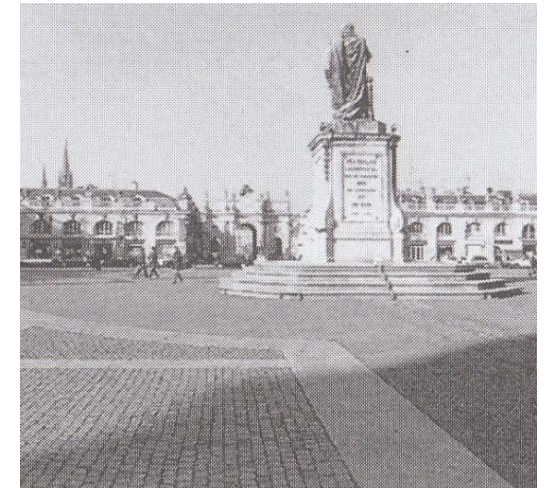


Fig. 3.1.0

The negative space in an urban environment is the urban element that organises space and architecture.

CAD Sketch:

(By Chih-Hao Lu, March 2009)

Introduction

The structuring and forming of the negative space can be found in element as small as an electron molecule (**fig.3.1.1**) to element as large as the solar system (**fig.3.1.2**). Hence the negative space is a **universal component** that **links** and **connects** the isolated spaces and functions into a complete system.

The negative space has and always been an important urban element. Ever since early Roman period of the B.C, the negative space operates as an important catalyst between architectures, allowing the architecture to be appreciated (**fig.3.1.3**). Furthermore, the negative space is seemed **sacred** as most of the human activity takes place on a public square or on street (**fig.3.1.4**).

As time passes by, architects seem to lose some of the knowledge regarding the importance of the negative space. While we focus all our design on the architecture, the negative space that surrounds and forms the architectural element is often ignored or treated as a minor design decision.

Fig. 3.1.1

The structure of the electron molecule

Sketch:

(By Chih-Hao Lu, October 2009)

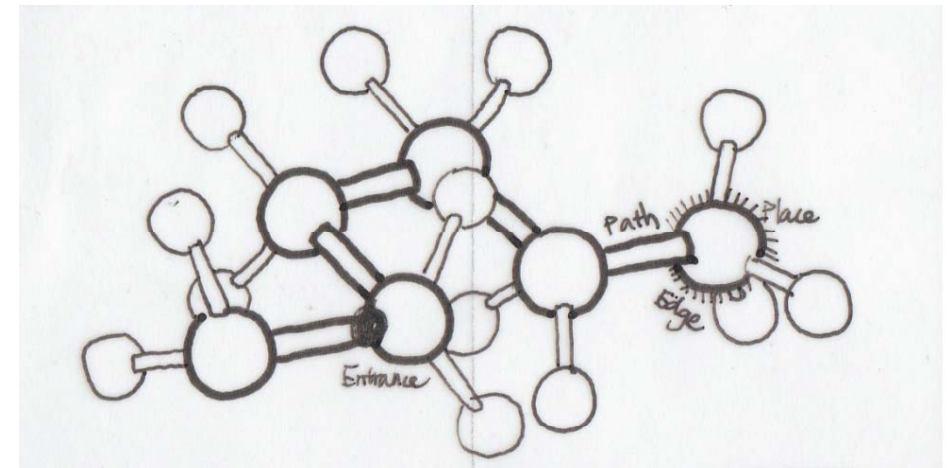
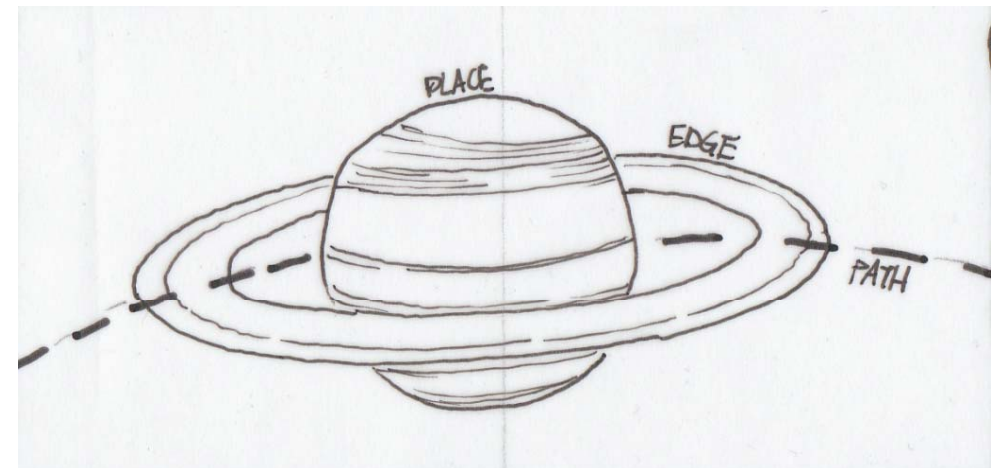


Fig. 3.1.2

The structure around the planet

Sketch:

(By Chih-Hao Lu, October 2009)



Forms of negative space

The negative spaces are the voids between architectural elements in an urban environment. It is the un-build space in an urban environment. Negative space can translate into the following urban elements: parking lots, streets, empty sites, sport fields, back yards and public square .

A negative space can either be a public or private, accessible or inaccessible. Therefore, a negative space without the existence of activities within an urban environment is to be identified as a meaningless and a wasted space. Therefore, the aim of the design is to give every space its importance and utilise them in a way so they can **interact with its context and architectures**.

Functions of negative space

Since the Middle Age Europe, negative space is to be seemed as an important space for human activities. As large events such as street festivals and announcement often take place in those spaces. The negative space is also treated sacredly since it often is the threshold of a chapel (**fig.3.1.5**). This quality of publicity then therefore draws the gathering of people and other minor human event such as **trading, meeting, communicating and resting**.

In addition, the negative space is a critical element for the appreciation of the urban space and architecture. The size, form and atmosphere of the negative space will affect the adjacent architecture as well as the image of a city. For example, enough urban space should be provided for a skyscraper, as it may cause pressure on to the pedestrian below.



Fig. 3.1.4

Human activity often takes place on a public square or on street

Image:

(MOUGHTIN C (1992), *Urban Design Street and Square*, London, Cliff Moughtin 1992, p.115)



Fig. 3.1.5

Acts as the threshold of a chapel

Image:

(MOUGHTIN C (1992), *Urban Design Street and Square*, London, Cliff Moughtin 1992, p.119)

Elements that form a space

An urban space often consists of the following elements (**fig.3.1.6**) (**fig.3.1.7**):

- Edge;
- Place, space, centre;
- Entrance;
- Path;
- Landmark;
- and surrounding / context

Edge

The element that *separates and defines* space (**fig.3.1.8**)

Edge is the element that defines and separates different spaces. When edge is translated architecturally, it can vary from stronger elements such as wall and fence to softer elements such as colonnade, landscaping, tree, furniture and paving. Furthermore, the form and design of the edge can define and characterise the function and activity a space that is enclosed within.

Edge is a critical urban design element, as it separates the design from the rest of the city.

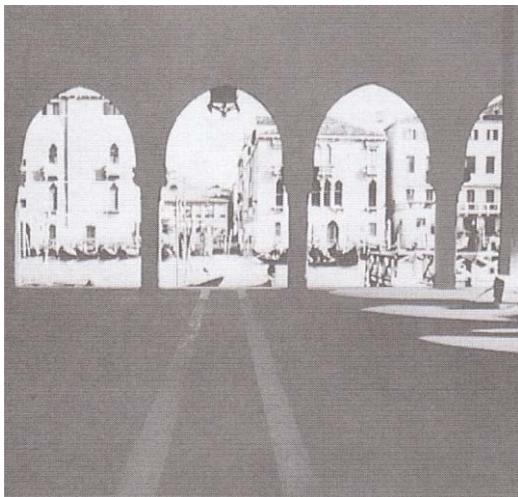


Fig. 3.1.8
The colonnades defines the edge

Image:
(SHIMIZA H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p .16)

Fig. 3.1.7
A diagrammatic sketch of the garden feature

Sketch:
(By Chih-Hao Lu, October 2009)

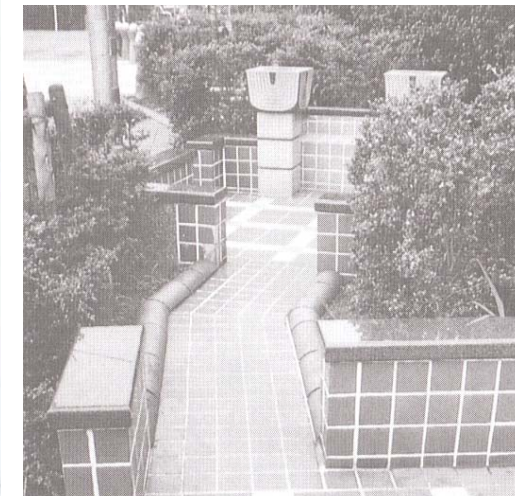
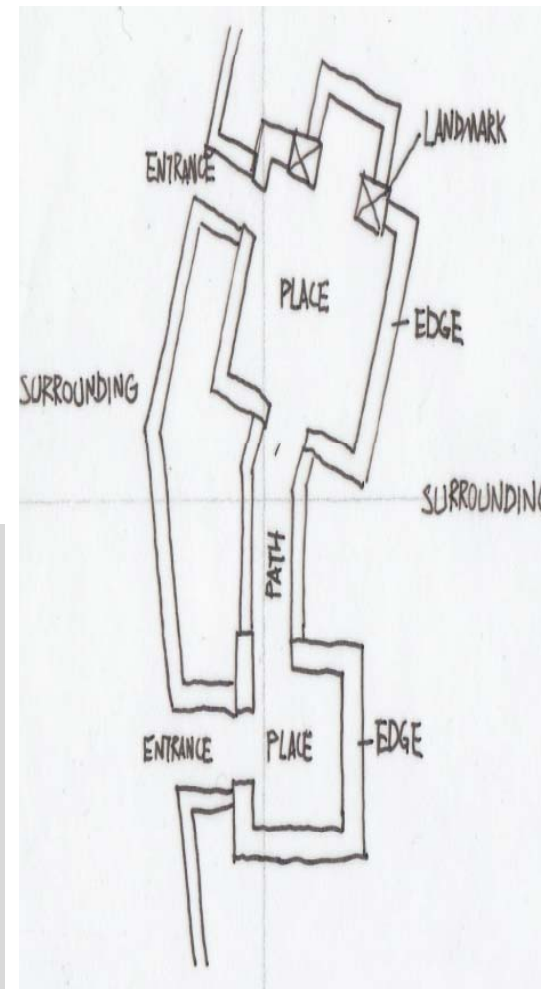


Fig. 3.1.6
A garden feature that contains all elements of a space

Image:
(SHIMIZA H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p .14)

Fig. 3.1.9

A central space that is enclosed by edges

Image:

(SHIMIZU H(1988), *The Exterior Space of Architecture*, Tokyo, Ichigaya Publishing Co., Ltd. p .17)



Place, space, center

A central space that is *enclosed* by edges (**fig.3.1.9**)

Place is not an isolated element, as it is defined by the form of other elements such as edge, context and landmark. Furthermore, if a space does not hold an enclosed quality, then it cannot be considered as a place. In other word, it is the relationship between the place and other elements together with the interaction of human activity is what makes it a place. Furthermore, the place must always have a center and an edge, as it makes the place feels enclosed and protected.

There are two scenarios how a place functions:

1. Activity *revolves around* a central element or landmark, and all attention is attracted towards the center (**fig.3.1.10**)
2. Activity happens and *defines the edges*. Furthermore, the quality of “in” and “out” of the place is established by the edges (**fig.3.1.11**).

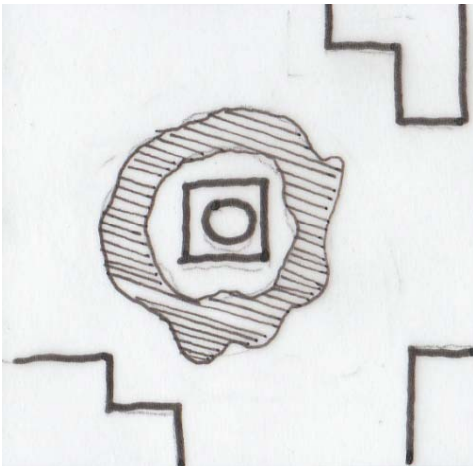


Fig. 3.1.10

Activity revolves around a central element or landmark

Sketch:

(By Chih-Hao Lu, October 2009)

Entrance

Connects spaces and defines a *threshold* of a place (**fig.3.1.12**)

A space is never isolated, as it is always linked to other spaces. Therefore, an entrance is established in order to declare the arrival and exit of a space. Entrance is often grouped as part of the edge, since they both share the same property of defining spaces. However, there are still differences between the edge and entrance. As edge cuts a space and separates it into different functions and places, the entrance also creates portal between spaces. Furthermore, an entrance can often give an initial spatial experience of the place that it holds within.

Fig. 3.1.11

Activity happens and defines the edges

Sketch:

(By Chih-Hao Lu, October 2009)

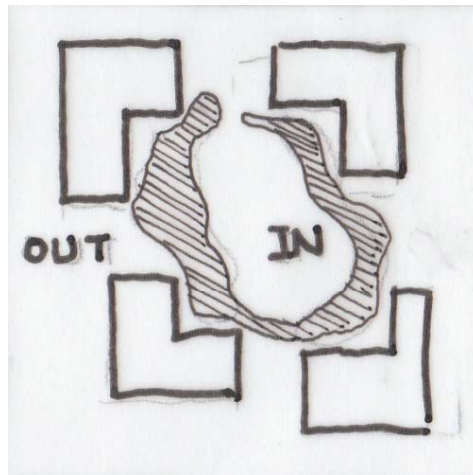




Fig. 3.1.12

A sculptural entrance. It is also capable to be a landmark

Image:

(SHIMIZU H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p .19)

Path

*A linking element that **connects** between spaces (fig.3.1.13)*

The path uses entrance as a catalyst in order to connect from one space to another. A path must provide the following spatial quality:

- Sense of direction;
- Destination;
- and arrival & exit

Furthermore, a path can enhance the spatial quality of a place. As for example, a narrow path will allow a wider place to be appreciated.

Landmark

*An **iconic** element that marks a place/space (fig3.1.14, on page 37)*

Landmark is a multi-functional element. It is capable of providing the following:

- Creating a beacon for a space;
- Creates a sense of direction;
- and is used as a central element to creates place

Therefore, judging from its purpose, landmark is often high-rise allowing it to be seen at multiple locations.

Landmark can also create an image if a place. Furthermore, judging from its flexibility, a landmark can be positioned freely in an urban space:

- It can be used to demarcate an entrance;
- To be used to define the edges;
- A guide along the path;
- or to be positioned in the middle of a place

Fig. 3.1.13

A linking element that connects between spaces

Image:

(SHIMIZU H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p .20)



Surrounding

*The surrounding is the **context** of the place*

The definition of the surrounding can be unclear and vague. It can either be the architecture that surrounds and defines the place (**fig.3.1.15**), and infinitive space that surrounds the place (**fig.3.1.16**). As a metaphor, the surrounding can be seen as a page of white paper, and the place, landmark, edge, entrance and path are the drawing on that page. In other word, the surrounding is the context.

The following section will be exploiting the two most important negative spaces in an urban environment: Public Square and street. As the public square and street both holds the same spatial quality, the following section will be focusing on the function, form, design and type of **squares and streets**.

Fig. 3.1.14

An iconic element that marks a place/space

Image:

(SHIMIZA H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p .22)

Fig. 3.1.16

The village space is defined by the infinitive space

Image:

(SHIMIZA H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p .23)





Fig. 3.1.15
The context of the square

Image:
(SHIMIZU H(1988), *The Exterior Space of Architecture*, Tokyo, Ichigaya Publishing Co., Ltd. p .23)

3.1.1
Square



Fig. 3.1.1.0B
The site is fenced off. A boundary is created for the disabling of activities.

Photo:
(By Chih-Hao Lu, March 2009)

Fig. 3.1.1.0A
The red hatching represents the open sites that haven't been utilised.

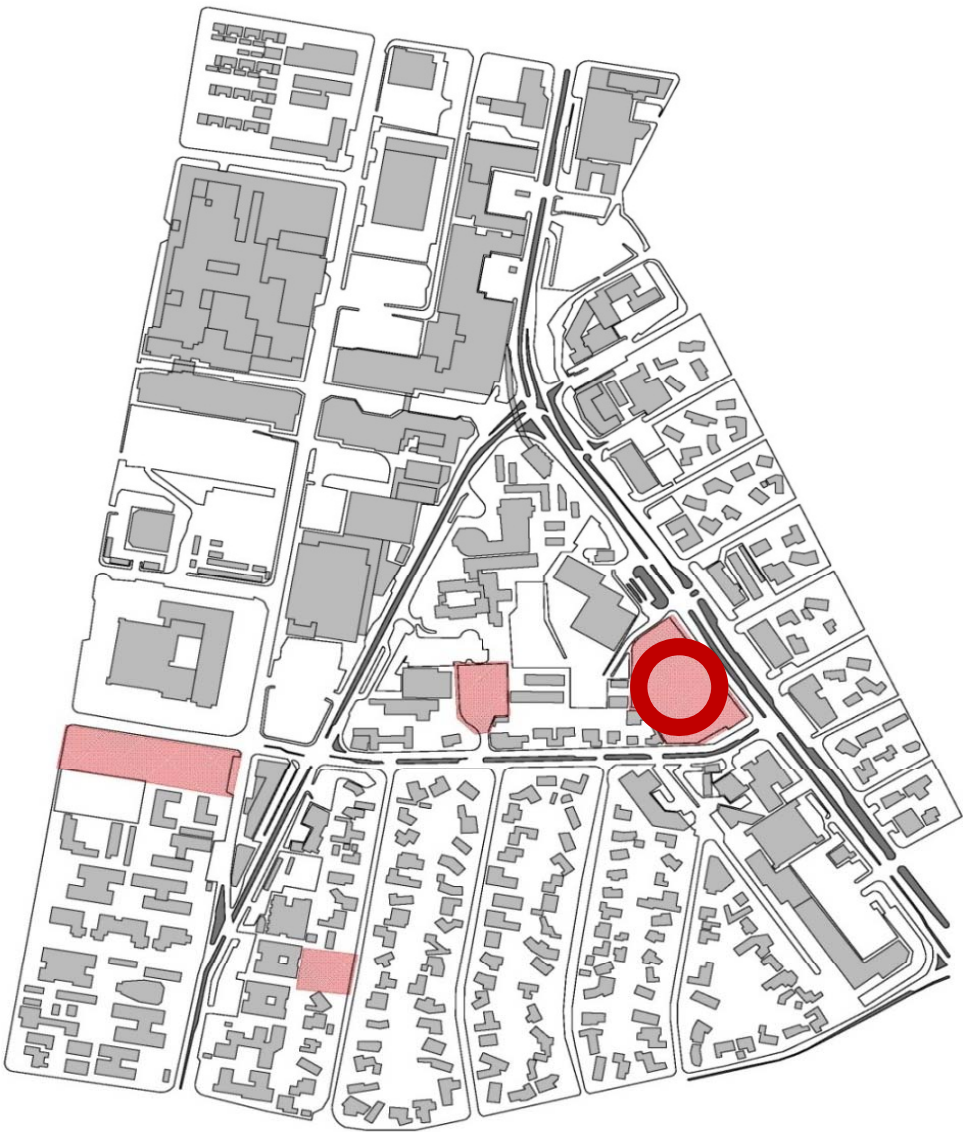
CAD Sketch:
(By Chih-Hao Lu, March 2009)

Took place outside the taxi rank, during site analysis. We found an empty site. (fig. 3.1.1.0A)

“What a **wasted of space** (fig. 3.1.1.0B), and its fenced away from the public, they even have a security gaud guarding this meaningless space.

“Ya, and from the condition of site, you can see this site has been vacant for a long time.”

March 20, 2009



Introduction

How is a public square different to an open space? First of all, a public square is the center of the city (**fig. 3.1.1.1**). Thus, by providing appropriate activities and functions to the public square, the public square will be able to act as a hub **enabling connectivity** between other spaces and the architecture around it. It's also more than a breathing space for the city, it enables the following:

- the performance of various activities
- allows the user to dominant the space
- provides a sense of place and time
- provides a sense of orientation
- social exchange between people
- communication and organisation between architectures and spaces
- a better visual appearance for the city

Due to the **diversity and variety** of the public square, it can therefore be assured that a public square is the most important negative space element in an urban environment.

In the designing of the Randburg precinct, it is important to create **a center that organises the spaces** and architecture. In addition, this center should provide activities and a sense of place. As the result, being the center of the world, the function and form of the space should be carefully designed to suit the need of the inhabitants.

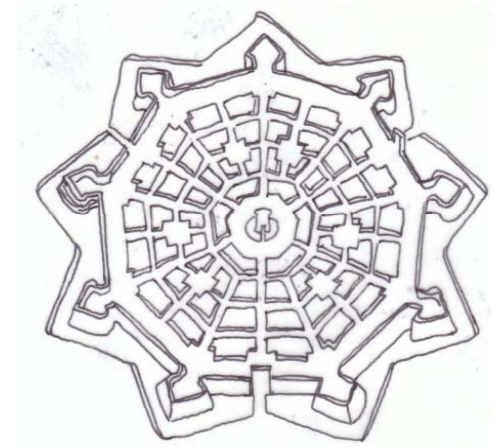


Fig. 3.1.1

The city of "Plama Nova" has illustrated clearly that the square is the center of urban living.

Sketch:

(By Chih-Hao Lu, May 2009)

How to design a square

1. *The activity and edge condition of a square*

The first thing comes to mind is the function that a square provides. The public square will require **activities** to keep it alive. Thus, without the existence of activity and function, the public square is nothing more than a meaningless open space. However, the activity within the square is often generated by the **edge** of the square, as the form and activity of the edge will vary the function that the square holds within.

It is now obvious that a successful public square should provide some sort of activity with an appropriate edge condition. But too much functions and activity can result to a confusing and unusable space. Therefore a **dominate function** should be determined, as other “**sub-activities**” are used to strengthen the dominate quality. The following are the functions and edge condition that can be utilised to generate the function of a public square:

Civic (fig.3.1.1.2)

This type of square is designed for the **communication** between spaces and architecture in an urban environment. Thus this is the type that is most often used. The space is also the most flexible in terms of its function. The edge of a civic square often provides public functions such as retails, entertaining, resting and social activity, as it draws the attention of the pedestrians into the space. The space must have an enclosed quality in order for the space to work.

Scenery (fig.3.1.1.3)

The main function of this type of square is **to emphasis the scenery** of either a natural landscape or the view of the city. However, it can still provide the same functions as provided in the civic square, but is more focused on the scenery it is trying to capture. The edge of this type of square will have one side open to the scenery, making it unclear and hard to identify.

Fig. 3.1.1.3

The square that provide the scenery of the ocean

Image:

(TEIN E (2001), Urban Space & Architecture Design, The active Function of Architecture in a city, Taipei, Ein-Kai Publishing Co. p.54)



Fig. 3.1.1.2

Restaurant and retail activities happen at the edge of the square

Image:

(SHIMIZU H(1988), The Exterior Space of Architecture, Tokyo, Ichigaya Publishing Co., Ltd. p.24)

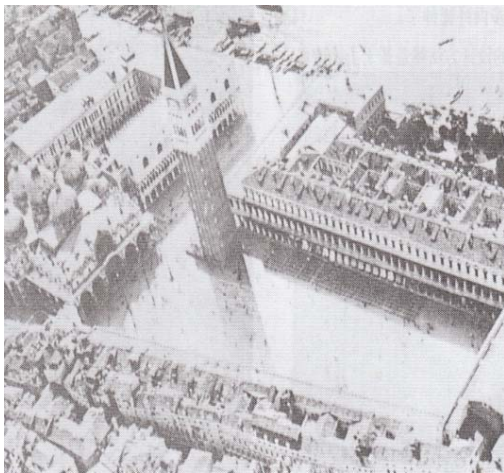


Fig. 3.1.1.4

The Vietnam war memorial in Washington DC. The space is seen as sacred.

Image:

(TEIN E (2001), Urban Space & Architecture Design, The active Function of Architecture in a city, Taipei, Ein-Kai Publishing Co. p.51)



Monumental (fig.3.1.1.4)

Being a monumental space it is crucial to keep the space sacred. Therefore the monumental function should be the only function that exists in the space. Furthermore, in a monumental square, a central **landmark** is often more critical than the edge condition, as human activity will be drawn towards the landmark.

Cultural (fig. 3.1.1.5)

This function is often **religious**. It's a space people gather before or for a religious event. The example is the San Marco Square in Venice. It is a unique case, as the square was designed for cultural gathering. But as time passes by, the place has become a tourist attraction spot and the visitors were often attracted not because of its religious activity, but due to the fame of the square.

As was discussed before, the concept of a square is to act as a center for the city. It attracts people's attention and enables them to utilize this space. Therefore, it is also crucial to create a space that is user-friendly and comfortable. It should provide clarity in the understanding of its function via creating strong images. Furthermore, social interaction should also be promoted in this space. Using the activity and edge condition provided, the gap between people's differences is to be narrowed.

Fig. 3.1.1.5

Culture space often used for culture event, but square such as the San Marco square has become rather a tourist attraction space due to its fame rather than its cultural activity.

Image:

(TEIN E (2001), Urban Space & Architecture Design, The active Function of Architecture in a city, Taipei, Ein-Kai Publishing Co. p.41)



2. The form of a square

The form and the edge of the square will create a different atmosphere within it. According to the writing by Paul Zacker, there are 5 types of geometry (WEBB M, 1990, p.99):

Enclosed square (fig.3.1.1.6)

The square is **surrounded** by structures and the entrance of the square is emphasised. Therefore, the buildings that enclosed the square are closely related to the space.

Dominated square (fig.3.1.1.7)

The square provides a **dominated** landmark for the space to be directed to. The examples are the squares in front of a cathedral in Europe.

Nuclear square (fig.3.1.1.8)

The space is formed around a **central element**. The edge condition in this square can be vague since all attention is attracted towards the landmark.

Grouped square (fig.3.1.1.9)

The squares are scattered around but **connected** with some kind of linkage to form a single entity.

Amorphous square (fig.3.1.1.10)

The square has an **unlimited spatial** quality. A square that is more focused on scenery often takes this type of form.

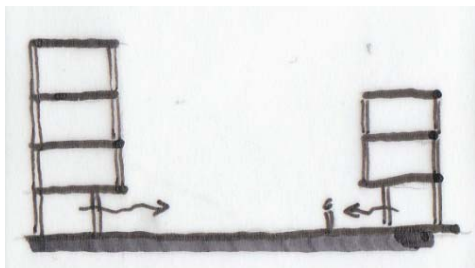
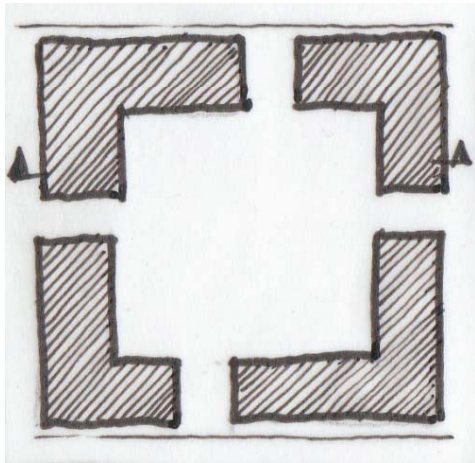
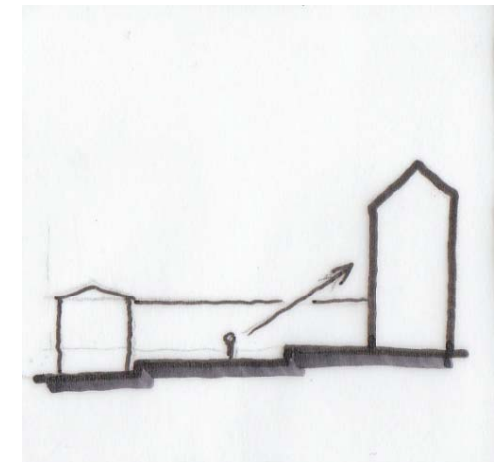
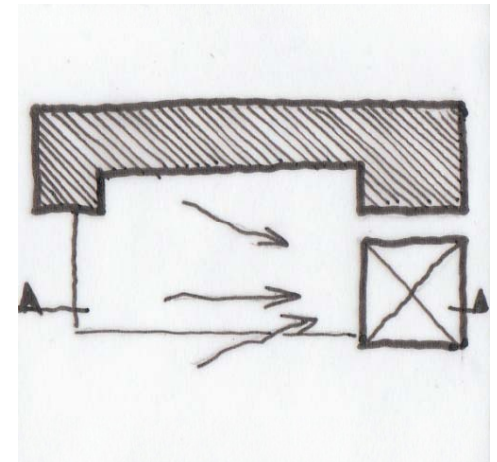


Fig. 3.1.1.6
Enclosed square.

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 3.1.1.7
Dominate square

Sketch:
(By Chih-Hao Lu, October 2009)



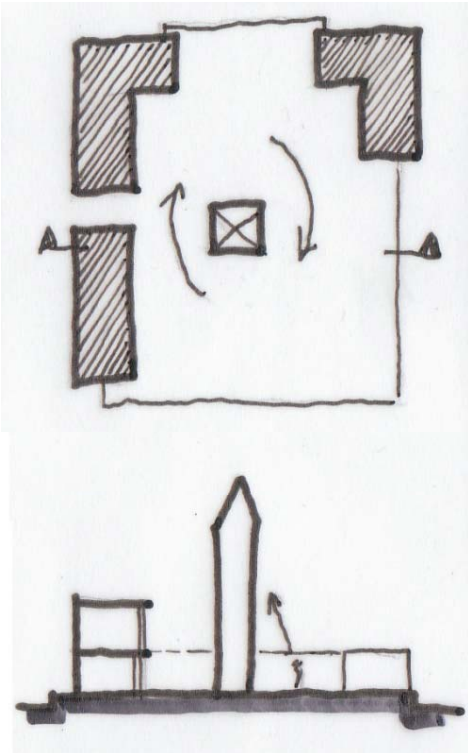


Fig. 3.1.1.8
Nuclear square

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 3.1.1.9
Grouped square

Sketch:
(By Chih-Hao Lu, October 2009)

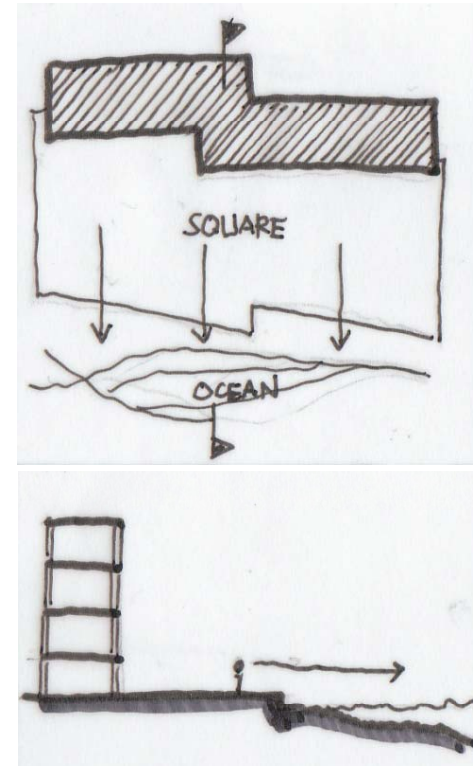
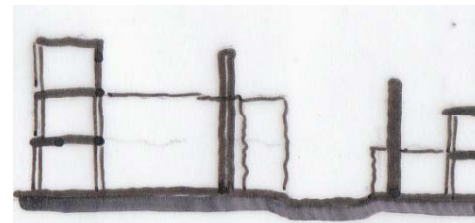
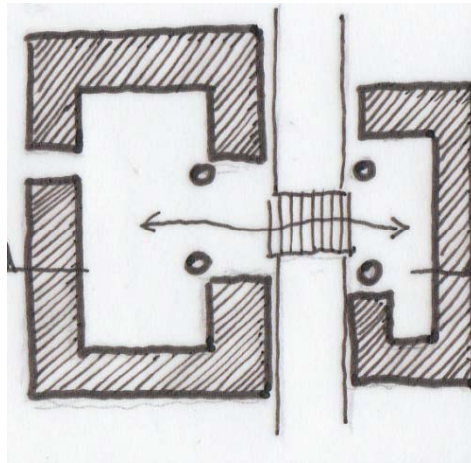


Fig. 3.1.1.10
Amorphous square

Sketch:
(By Chih-Hao Lu, October 2009)

3.1.2
Street



Fig. 3.1.2.0.B
The over scaled street act as a boundary between spaces.

Photo:
(By Chih-Hao Lu, March 2009)

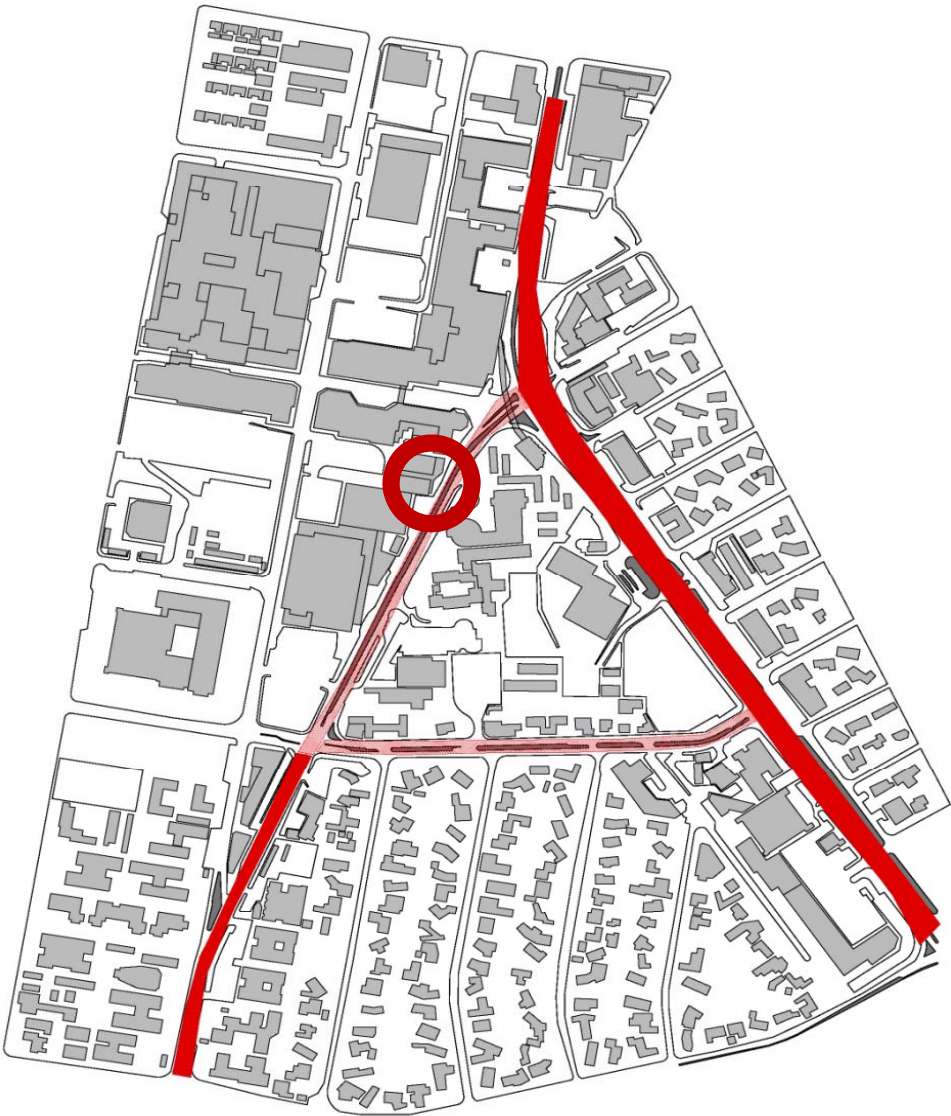
Fig. 3.1.2.0A
The mapping of the street

CAD Sketch:
(By Chih-Hao Lu, March 2009)

Took place on Hendrick Verwied Drive, trying to get across the street (fig. 3.1.2.0A)

“Let’s go across the street.”
“Hey, there is no traffic signal here. Is it safe for us to cross the street like this?”
We crossed the street anyway...
“The planters in the middle of the road are blocking (fig. 3.1.2.0B) my way.”
“I don’t think the spaces communicate well in this area...”

March 20, 2009



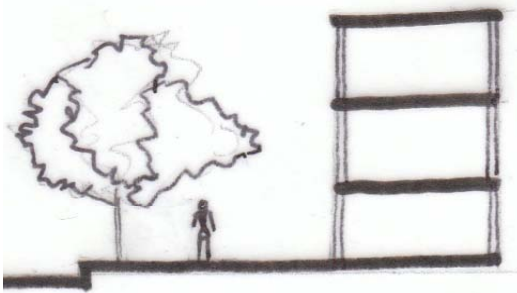


Fig. 3.1.2.2
Pedestrian street

Sketch:
(By Chih-Hao Lu, May 2009)

Introduction

The main function of a street is to link spaces, yet it holds a similar spatial quality as the square (they both have to be enclosed). The street can be translated into a path, avenue, way, highway and route. Likewise it's a traffic street (**fig.3.1.2.1**), pedestrian path (**fig.3.1.2.2**) and a semi public space (**fig.3.1.2.3**). The street is there to emphasize the movement between two spaces. Like a public square, street is important urban element. It is because a city's **communication** is based on its mobility and will require the street to act as a communicator between the spaces. Furthermore, the street is also a **social** space. As a result it can then state that a street is the extension and a form of a public square (**fig.3.1.2.4, on page 47**).

The street is crucial element to the design of the Randburg precinct. It is because in order for the spaces to function, a well communicated connection will have to be established between spots. The entire Randburg precinct must flow in terms of its communication. Furthermore, a street is also a social element, so its design should be treated the same as the design of the square.

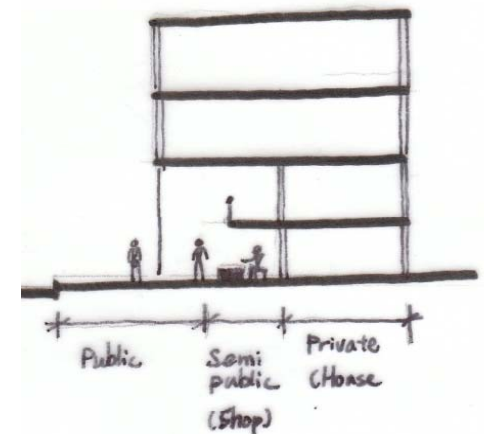


Fig. 3.1.2.3
Semi-public space

Sketch:
(By Chih-Hao Lu, May 2009)



Fig. 3.1.2.1
Traffic street

Sketch:
(By Chih-Hao Lu, May 2009)

How to design a street

1. Functions and edge of a street

The street plays two major roles in an urban environment, the first being a linking element (**fig.3.1.2.5**), and the second being the social interaction element. Therefore, when comes to the designing of the street, beside from creating a space only for movement, activities will also have to be introduce into the street space like a public square.

The **first** role that a street plays is the form of **communication** tool. The main function of the street is there to connect spaces and activities. It should:

- Link between buildings and spaces
- Link the movement of people and vehicle
- Facilitate communication and interaction between people and space

The linking of spaces and activities enables the precinct to work as a single entity. Thus the street provides a route for people to get around places, it also guide them to the places desired. Therefore, sense of direction and destination is the key element in the design of the street.

The **second** role that a street plays is a **social** reactor, and this is where the **edge** condition of the street becomes critical (**fig.3.1.2.6**) as commercial activity and social interaction often take place on a street. For example, fruit stands are placed at the edge of the street, enabling commercial activity between them and the pedestrians. Furthermore, the edge condition will have to relate closely to human scale and should obtain **vertical** feature in order to eases and slows the movement of people (**fig.3.1.2.7**). Without a sense of place and a vivid activity, this space will not be utilised. Furthermore, as the activities increases, so will the variety of the activities, and the attractive quality the density of the city.

Fig. 3.1.2.5
Street as a linking device.

Sketch:
(By Chih-Hao Lu, May 2009)

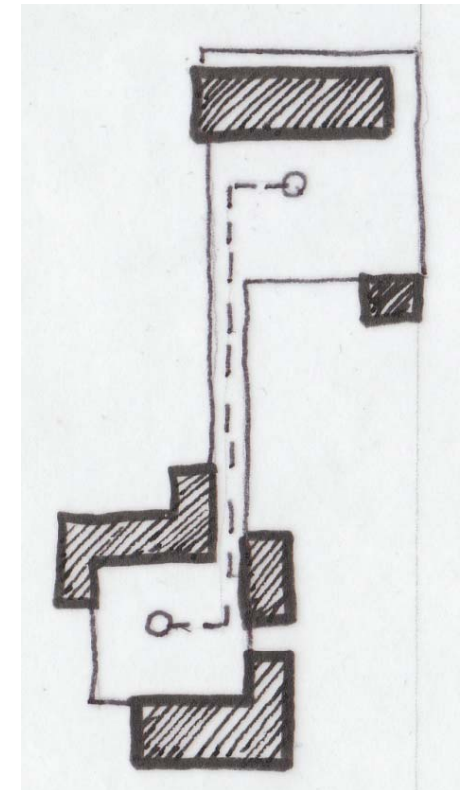
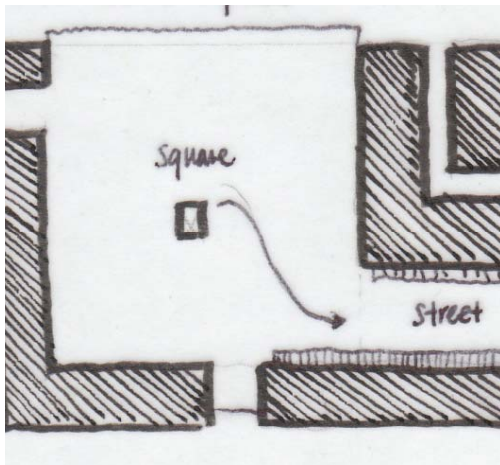


Fig. 3.1.2.4
Street as the extension of the square.

Sketch:
(By Chih-Hao Lu, May 2009)



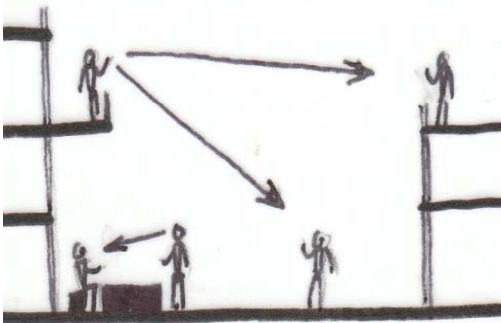


Fig. 3.1.2.6

Street as a social device.

Sketch:

(By Chih-Hao Lu, May 2009)

2. Form of the street

The street can take many forms. Its property varies from long/short; straight/curve; wide/narrow; enclosed/open and formal/informal (**fig.3.1.2.8, on page 49**). The following geometries of the edge and its space are critical when one comes to the design of the street:

Length (fig.3.1.2.9, on page 49)

The length of the street is critical, if too long, it will create boredom and tiredness; and too short will cause congestion. Therefore, by creating **terminals** at certain intervals will enable the street to break up into segments. Furthermore, the placing of the **terminals** will suggest to its user regarding the end and starting point of the street. The terminal can be translated into: a curve, a junction, a difference in the changing of texture and landmark that indicates the end of the street.

Width of street and its proportion to the height of the adjacent building (fig.3.1.2.10, on page 49)

The **ratio between the height** of the building (edges) and the **width** of the street is crucial, as for it will bring a different feeling to the space. For example, in a hotter climate, it will be better to increase the height and decrease the width of the street, as it enables to bring more shade to the pedestrian space (**fig.3.1.2.11, on page 50**). Furthermore, the height / width ratio can also provide a different of sense of place. As the space widens, the sense of enclosure fades. Therefore it is critical to get the perfect ratio between the height of the edge and the width of the space in order for the street space to function both as a communication element as well as a social element.

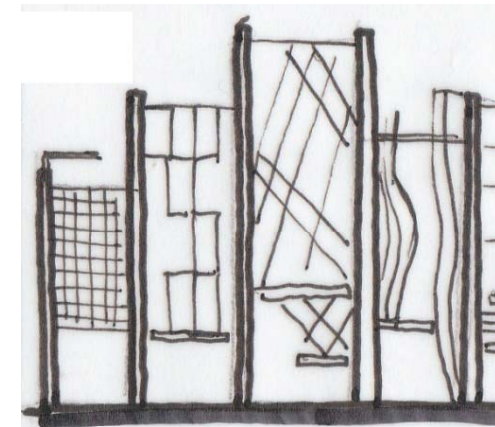


Fig. 3.1.2.7

Vertical language of the edge

Sketch:

(By Chih-Hao Lu, October 2009)

The experience for a person of a street will vary according to the above combinations, as was mentioned earlier that a street space can also be treated as a public square. Therefore when one comes to the design of a pedestrian street, it will have to take the same design property that a public square takes in terms of its form. For a pedestrian street to be successful, it will have to be a **closed entity** (fig.3.1.2.13), so the user will have a sense of space and security. Furthermore, as the pedestrian is exposed to more architectural detail comparing to motor vehicle driver and passenger, the surrounding architecture will have to be treated carefully it terms of its surface and texture. In other word, the designing of surface and texture of an architecture is more important than its shape and form when comes to designing architecture around a pedestrian street.

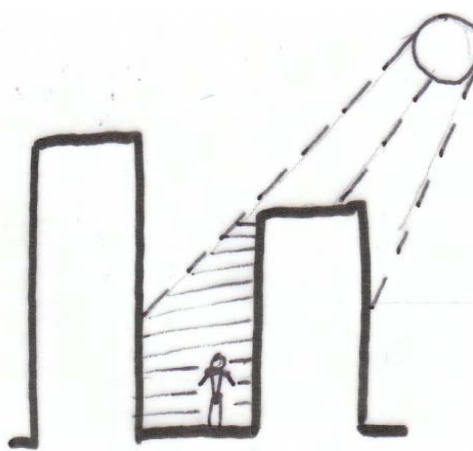


Fig. 3.1.2.11
The ratio of the street width and the height of building can create comfort for the pedestrian street.

Sketch:
(By Chih-Hao Lu, May 2009)

Fig. 3.1.2.8
Street can be both formal and informal in shape. Both of the form can contain space within,

Sketch:
(By Chih-Hao Lu, May 2009)

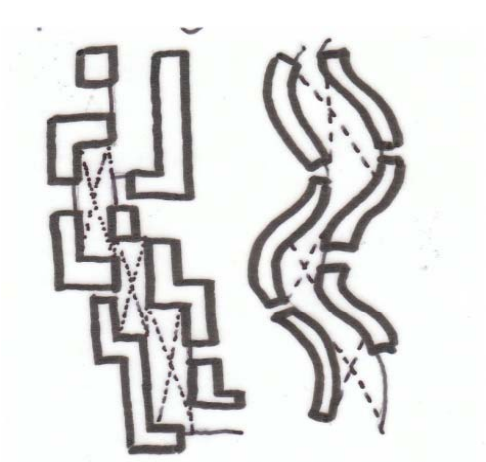
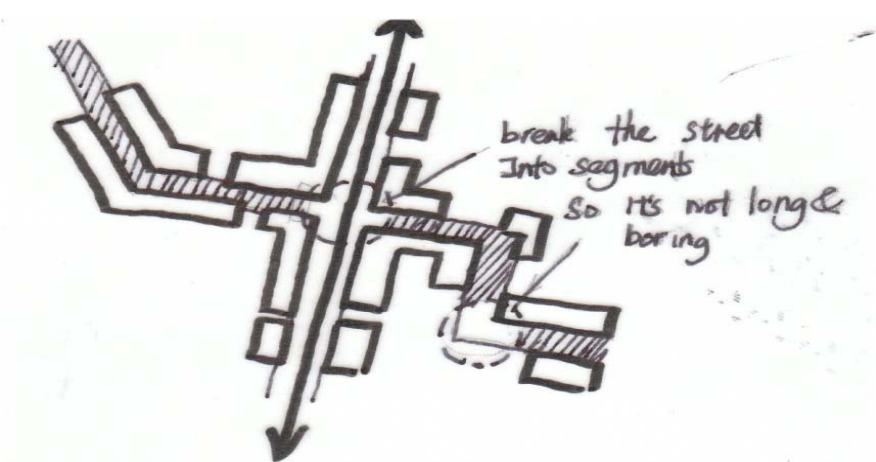


Fig. 3.1.2.9
Street need to be broken into segments in order to reduce tiredness.

Sketch:
(By Chih-Hao Lu, May 2009)



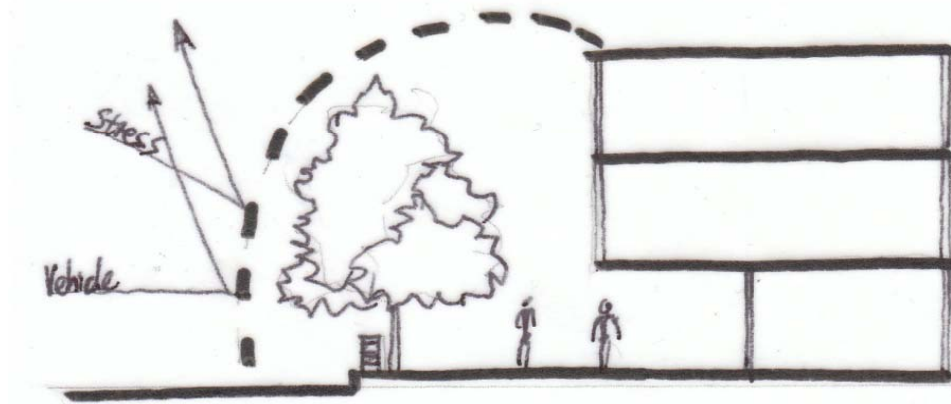


Fig. 3.1.2.13
The street should be a closed property

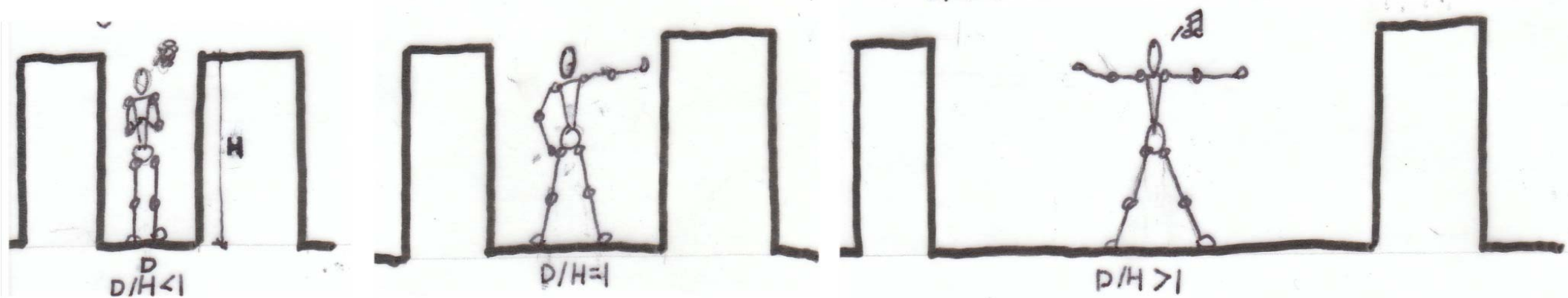
Sketch:
(By Chih-Hao Lu, May 2009)

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END OF 3.1.2

Fig. 3.1.1.10
The ratio of the width of the street and surrounding structure height

Sketch:
(By Chih-Hao Lu, May 2009)



3.2 CREATING SENSE OF PLACE

Fig. 3.2.1.0A

Took place inside the informal market

CAD Sketch:

(By Chih-Hao Lu, March 2009)

**Took place inside the informal market
(fig.3.2.1.0A)**

"I think we are **lost**, I can't find the way out of this market."

"All these shop outlet in this market space looks the same..." (**fig.3.2.1.0B**)

"Hey, there is a tall building over there. Maybe if we follow it, we will be able to find our way out."

March 20, 2009

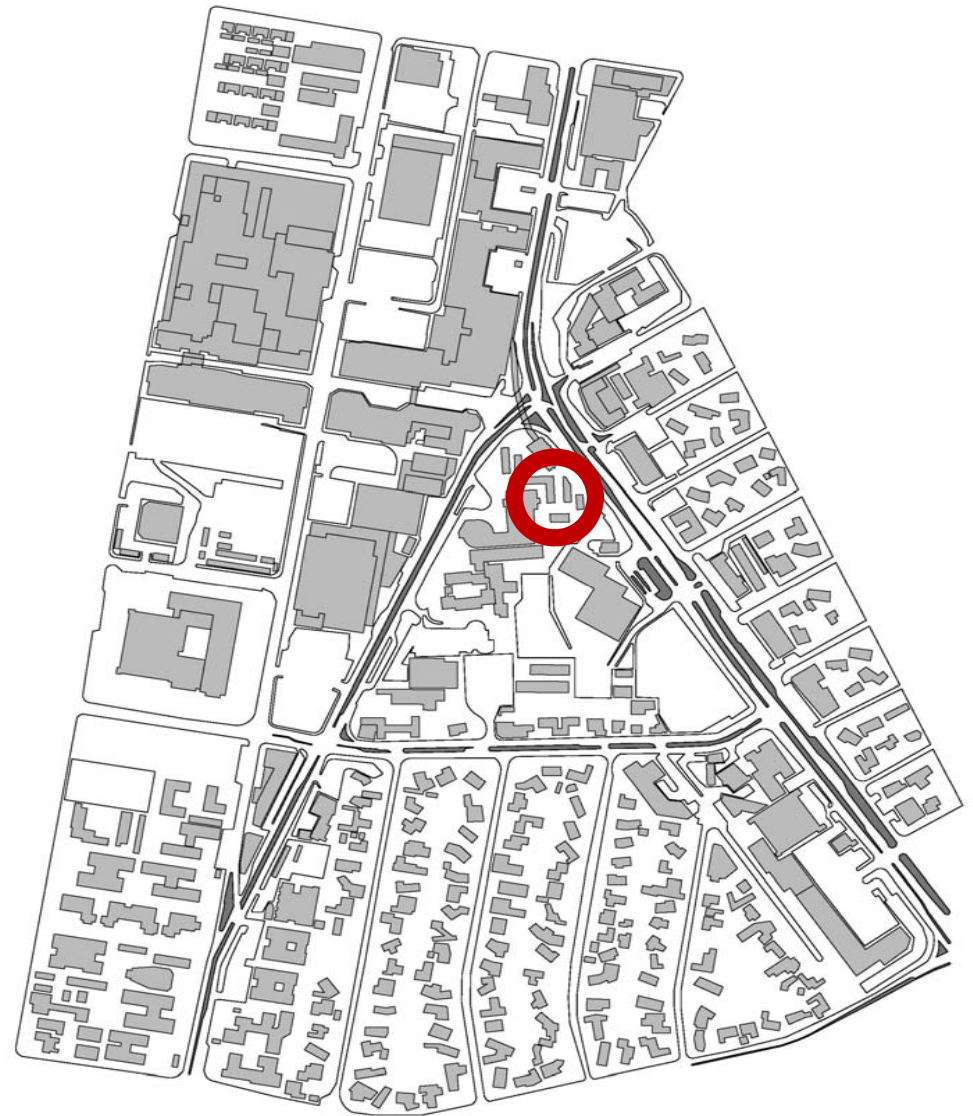


Fig. 3.2.1.0B

The elements provided for people need to be clear in its uses in order for a person to understand its function in the shortest period.

Photo:

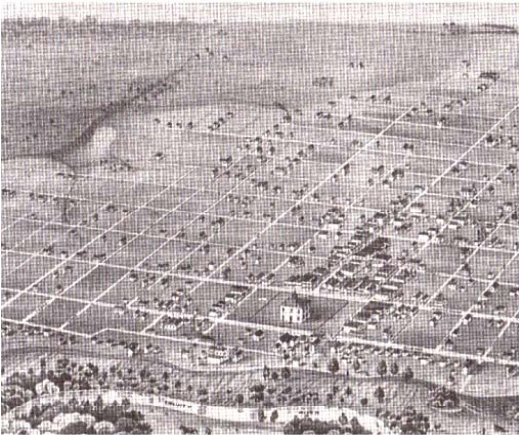
(By Chih-Hao Lu, March 2009)

Fig. 3.2.1

A confusing landscape with no sense of identity.

Image:

(JACKSON J ,(1994), A Sense of place, a Sense of time, USA, Yale University, p.153)



Introduction

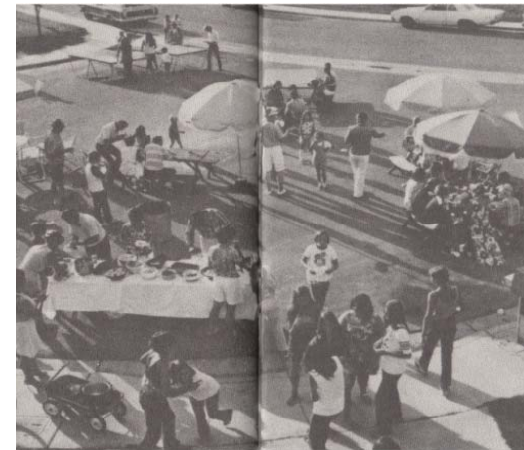
What is sense of place? When a space is known by people, it becomes a place. Therefore, a place is a centre of meaning constructed out of living experience by **embracing the space with meaning**, individuals, groups or society. Furthermore, a place must contain a sense of belonging, which is the emotional attachment to a place (CARMONA M, HEATH T, OCT, TIESDELL S, 2003, p.97).

South African suburban landscape today is known for its complexity and difficulty in its understanding (fig.3.2.1). The lack of architectural diversity and landmark in the suburban area has made the travelers (even for the locals) hard to locate themselves within the context. The question then rises, how should a designer go about creating an environment that people can relate to?

There are two opposing voices for the creation of sense of place. The first is use activities to define a place. In the book "Sense of Place, Sense of Time", Jackson stated that "A sense of place is something we create in the course of time. It is the activity that defines a place." (Jackson J, 1994. P.151) In other word, if a space is able to provide some sort of **activity** (fig. 3.2.2) within its existence, even an empty site in the blankest context can offer a sense of place. The second is voice that in order, to create a sense of place, **unique architecture** and space is required. Thus, it is the beautiful architecture and landscape that attracts people's attention and draws them into the space.

I believed that both of the above ideas should be composed and compromised with each other in order to design a unique space. Like a fish cannot survive without water. In an urban context, activities will not happen without an appropriate place provided.

After introducing the framework of the place, the other critical element of sense of place is for people to create a visual map of their own. There are three steps on how a person understands a space: **perception**, **cognition** and **evaluation**. Therefore, depending on the culture, age group, social group, interest and gender of a person, a different map will be evaluated.

**Fig. 3.2.2**

By providing activities onto a space, the space automatically becomes a landmark without the presence of architecture.

Image:

(JACKSON J ,(1994), A Sense of place, a Sense of time, USA, Yale University, p.148)

The analysis of how to create a sense of place is critical to the design of an urban center in Randburg. It is important to create a unique precinct with its own unique sense of place. The method begins with creating a sense of place using architectural element, activities are then placed in the space provided. Finally, with establishment of the framework of architecture and activity, it is then for the inhabitant to create a visual map of their own.

Overall, it is critical to create a perceptual urban space that has embraced the notion of sense of place.

How to create a sense of place

1. *Via architectural design:*

In the previous chapter, the **six elements** that made a space have been discussed (chapter 3.1- Negative Spaces, the urban connection points). Furthermore, each of the element's function and positioning also has been studied. In this section, five elements that dealt with the making of sense of place have been extracted and discussed accordingly, as these elements are critical when comes to design a space with its own unique sense of place at both local and city scale (**fig.3.2.3**):

Edges (fig.3.2.4)

The edge represents the **boarder** of a district or a space. It represents the ending of the district and anything outside this boarder will obtain a different activity and architectural language. The edge represents the **"face"** of a space or district, as it is sometime the **first impression** of the space before entering. Furthermore, it attracts people's attention into the space, as it may represent the **activity** that a space might obtain within. Therefore, in relation to sense of place, edge is a critical element as it is the element that attracts people's attention before they enter a space.

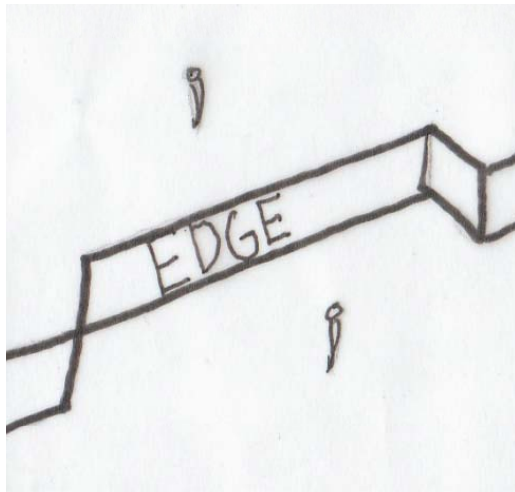


Fig. 3.2.4

The edge defined the precinct by "fencing" it away from the rest of the city.

Sketch:

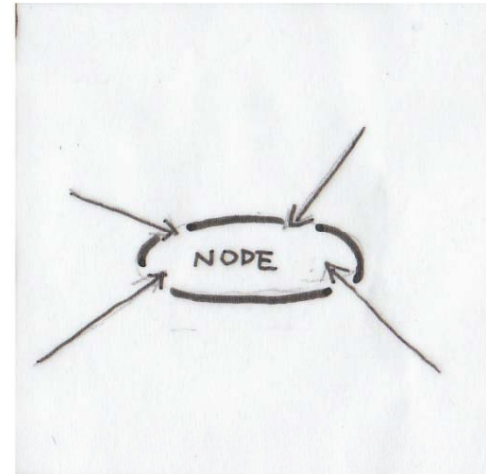
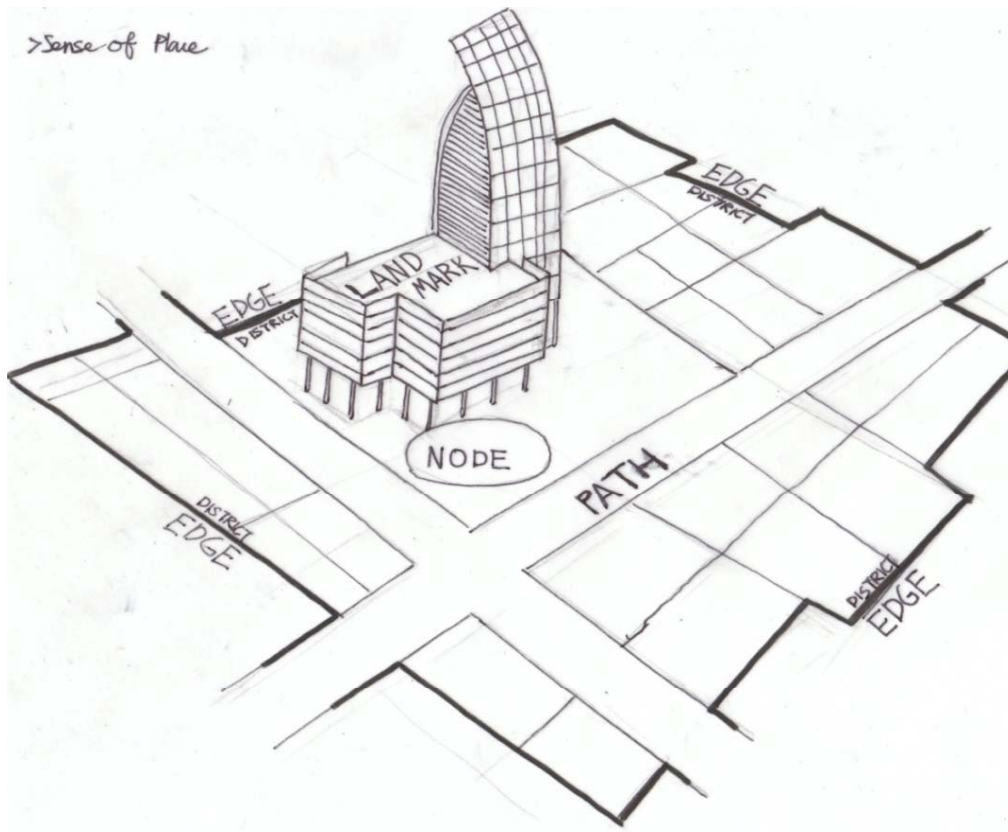
(By Chih-Hao Lu, October 2009)

Fig. 3.2.3

Elements a precinct requires to have for the creating of sense of place.

Sketch:

(By Chih-Hao Lu, May 2009)

**Fig. 3.2.5**

A node is where all activities and movement gathers. Its often represented as a public square or a building.

Sketch:

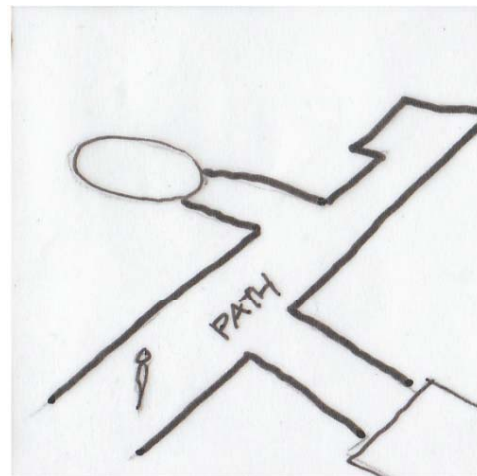
(By Chih-Hao Lu, October 2009)

Fig. 3.2.6

Path is designed to connect different spaces.

Sketch:

(By Chih-Hao Lu, October 2009)



Place / Node (fig.3.2.5, on page 54)

A node can be either a building or a public space that is anchored to the path. It defines a space for gathering. It represents a **terminal** or departure of a path, and furthermore, it is where all communication points connect. Therefore a node can be evaluated as a center of a city. Being the center, its design is critical. The sense of place and the activity that it provides will be the main attracting force for this space. Furthermore, the activity happens within is sometimes more **memorable** than the architecture and form of the space.

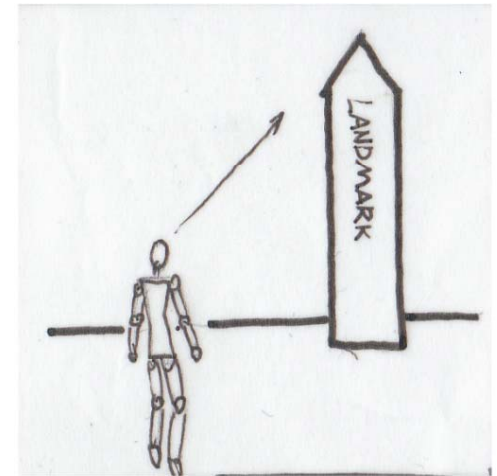
Path (fig.3.2.6, on page 54)

A path is **communication** device between spaces. It can be redefined as a street, road, avenue, route, highway and sidewalk. However, if the path is designed for the pedestrians, then creating a sense of place is important. Pedestrians tend to experience a lot more architectural details than drivers and passengers of vehicle. Therefore the treatment of the pedestrian paths is essential. In addition, the paving details, wall cladding, street furniture and canopy details will heavily influence the mood and activity that will take place in the space (**fig. 3.2.7**).

Landmark (fig.3.2.8)

A landmark can be either a sculptural element or a building that stand out of its context. Thus a landmark not only provides a signal for people to locate themselves within the context, it can also give the precinct a sense of identity to the precinct. Therefore, it is capable of taking its form at **local** and **regional** scale. Taking Sandton as an example (**fig.3.2.9**), the element that defines the Sandton municipal is its skyline and towers. It's a landmark at a regional scale. With the **Michelangelo tower** stood tall from its context, one can position themselves within the context using the tower as a lighthouse. Furthermore, the Michelangelo Tower also represents the wealth of Sandton and advertisers often use it to symbolise luxury.

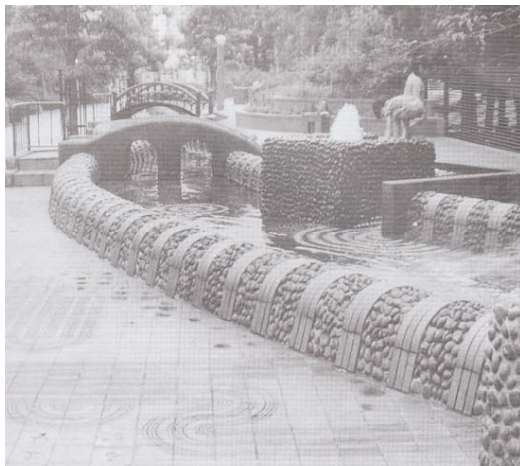
Landmark at a regional scale will have to represent and **locate the precinct** (such as the Michelangelo tower), as the landmark at a local scale happens within the precinct and is there to **direct** people within (**fig.3.2.10**).

**Fig. 3.2.8**

A landmark is provided not only for the sense of orientation, but also for sense of identity.

Sketch:

(By Chih-Hao Lu, October 2009)

**Fig. 3.2.7**

Path with playful details

Image:

(SHIMIZU H(1988), *The Exterior Space of Architecture*, Tokyo, Ichigaya Publishing Co., Ltd. p .116)



Fig. 3.2.9
Skyline of Sandton is defined by its high-rise towers.

Image:
(By Chih-Hao Lu, May 2009)

District (fig.3.2.11)

A district is an area that shares the **same urban purpose**. For example, Melrose Arch. This district is fenced and heavily patrolled. Its general urban function is commercial activities. Within the district, streets are paved in a similar finishes and all the architecture contains a similar language. As a result, it allows the district to be unified. Furthermore, the inhabitant will be able to **identify** the difference between this precinct and the others.

The five above elements are not to be treated in isolation, as they work with each other in order to **create an overall image** (CARMONA M, HEATH T, OC T, TIESDELL S, 2003, p.90)



Fig. 3.2.10
Landmark at local scale

Photo:
(By Chih-Hao Lu, December 2008)

Fig. 3.2.11
The district defines the uses of a precinct.

Sketch:
(By Chih-Hao Lu, October 2009)

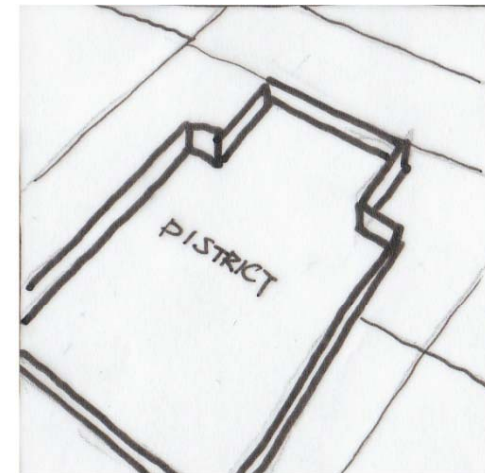


Fig. 3.2.12

The aero photograph of Taipei Main station. This image has identified all the buildings within the urban environment, but has excluded the activities.

Image:
(From Google earth)



2. *Via activities:*

The architectural and urban design is there to provide a framework for the activities to be located. For example, by providing a public square, activities such as flea market and social event can be placed within this space. In addition, the placement of the activity can also represent as an attracting force for the city as well as acting as a landmark. Therefore, it can then be argued that a space without the existence of activity is just an open space. The activities should provide the following:

Atmosphere

Atmosphere must be created in conjunction with its activities. Since the **atmosphere** for a market space is different to the atmosphere produced in a live concert. The correct atmosphere must be produce to suit its purpose.

Sense of belonging

People won't be able to feel **comfortable** within a space if they feel they don't belong to the space. This could happen due to the difference between the activity within the space and its user. Therefore, a total harmony should be bridged between the user and activity. Hence the importance of site analysis, the study of the people who occupies the space will help with the placing of an appropriate activity.

Vivid/ Vibrant

The activity must be **vibrant**. The vibe will allow the scale of the activity to increase and is then visible for people to seen. In order words, it's capable to become a landmark and an attraction spot.

3. Creation of a visual mind map:

After using the architectural elements and the activities, the designer has now established a framework, as people is now able to create a visual map of their own in their mind (**fig.3.2.12**) (**fig.3.2.13**). There are 2 methods on the making of visual map by its user: first being the use of **senses** and second being the use of **perceptions**. The sense is collaborated into vision, hearing, smell and touch; while the perceptions are collaborated into cognitive, affective, interpretive and evaluative (**CARMONA M, HEATH T, OC T, TIESDELL S, 2003, p.87-88**).

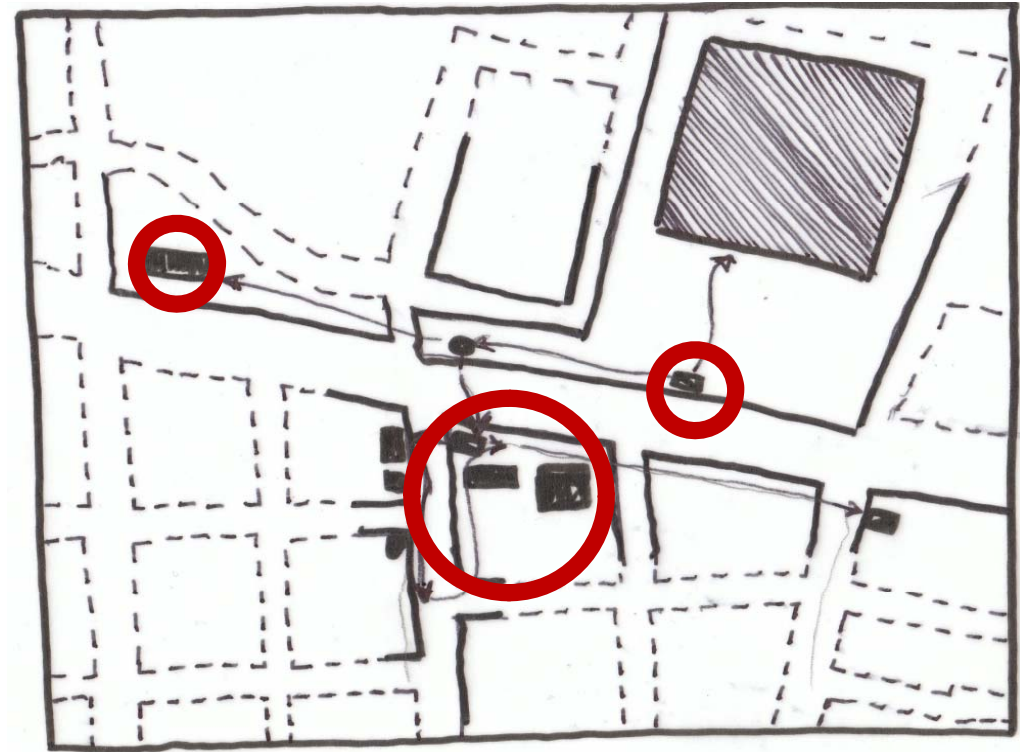
As a result, depending on the difference in social group, age, culture, interest and gender, people are able to produce a set of map different to the others, thus made the map unique to them.

Fig. 3.2.13

This map represents my activities in this urban environment. The **bigger circle** is where all the electronic stores are. Therefore my activity is mainly based on that. The **smaller circles** are the transportation method for me to arrive at the site. The **solid edge** is the edge that I encounter the most. The **dotted edge** is the space I don't find attractive or seldom approach.

Sketch:

(By Chih-Hao Lu, May 2009)



3.3 HUMAN COMFORT

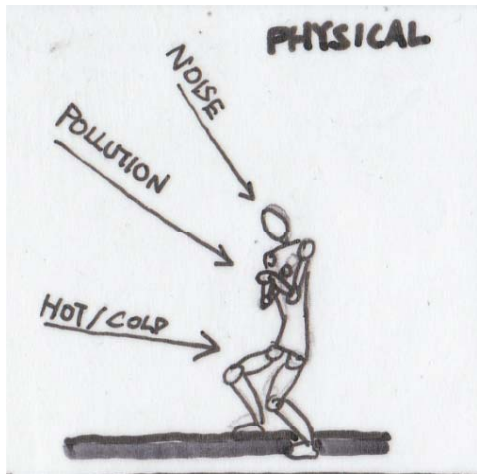


Fig. 3.3.1
Physical stress

Sketch:
(By Chih-Hao Lu, October 2009)

City is the development of **stress**. The aim for an architect when designing an urban space is to minimise the stress level through the use of architectural elements. There are two types of stress, physical and mental:

Physical

The physical stress (**fig.3.3.1**) includes **environmental** aspects such as being too hot/too cold; crowded urban space; pollution; noise level; too bright/too dark.

Mental

The **mental** stress (**fig.3.3.2**) includes the concern of high crime level and personal safety; sense of isolation; loss in human contact between people.

The following sections will be dealing with some of the architectural element that enables the reducing of stress level in a city:

City elements, city furniture

Tree

Design against crime

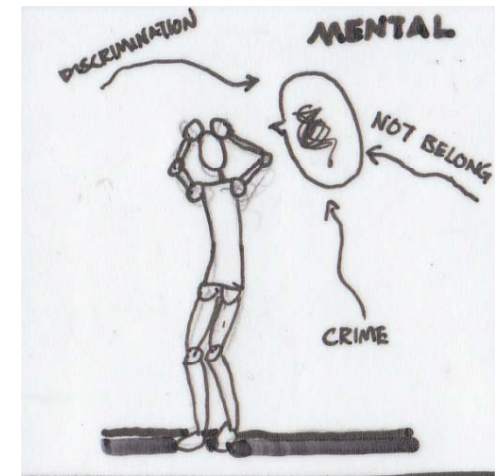


Fig. 3.3.2
Mental stress

Sketch:
(By Chih-Hao Lu, October 2009)

3.3.1

Urban Furniture



Fig. 3.3.1.0B
Seats are provided on the site, but its not user-friendly.

Photo:
(By Chih-Hao Lu, March 2009)

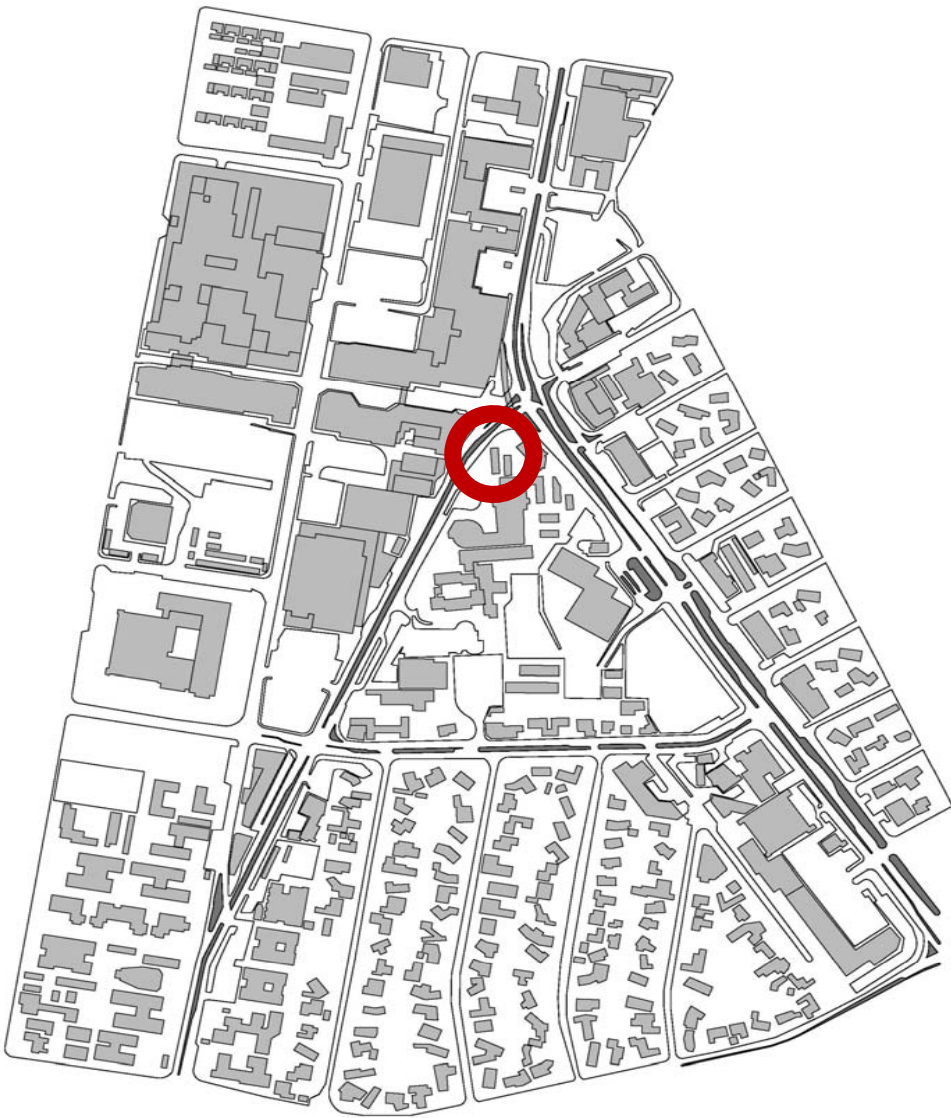
Fig. 3.3.1.0A
Street furniture must be provided on site for human comfort.

CAD Sketch:
(By Chih-Hao Lu, March 2009)

Walking on the sidewalk in Randburg (fig.3.3.1.0A)

“Lets take a break. I’m a bit **tired** from all the walking.”
“There are benches over there, let’s go there.”
At the benches (**fig.3.3.1.0B**)
“There’s **no shading** at all, I don’t think I can sit here under this heat for too long...”

March 20, 2009



Introduction

The planning of a public space defines a city. The public space is defined by its function. In other word, a space will only be functional and **user-friendly** after introducing the street furniture into the space. The urban furniture is capable of enabling the following:

completes the design and function of a public space

it makes the space more **user-friendly** and provides user comfort

provides a **sense of place**

connects the **interaction** between people and the public space

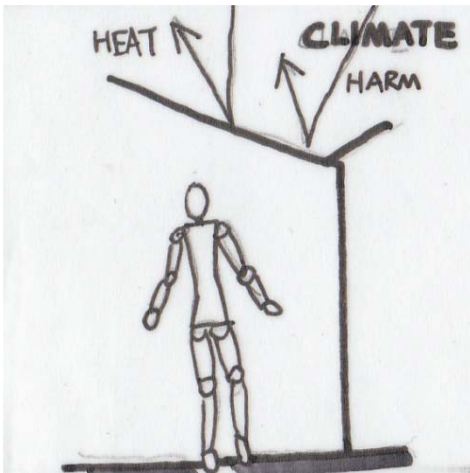


Fig. 3.3.1.1

Climate control device

Sketch:

(By Chih-Hao Lu, October 2009)

The designer must give some thoughts about how the furniture fits and its purpose in the urban environment. After all, the basic concept of the urban furniture is its **uses, integration** and **comprehension**.

The furniture is capable of improving the **appearance** of the city. Since a pedestrian has the ability to see more details in an urban environment in comparison to the driver and passenger of a vehicle. Therefore the designing of the furniture must be designed to its finest detail. Moreover, the design of these elements must be visually attractive and legible in its uses.

The public space is just like an interior space. They both require furniture to **complete its function** and purpose. The installation of the furniture will add to the space and creates a unique space of its own, likewise make the space usable.

The furniture has many factors that enable human comfort and the interaction between the people and the space. Some of these factors cannot achieve via architecture element, but only through urban furniture:

Climate control (**fig.3.3.1.1**)

Boundaries (**fig.3.3.1.2**)

Lighting (**fig.3.3.1.3**)

Communication (**fig.3.3.1.4**)

Resting (**fig.3.3.1.5**)

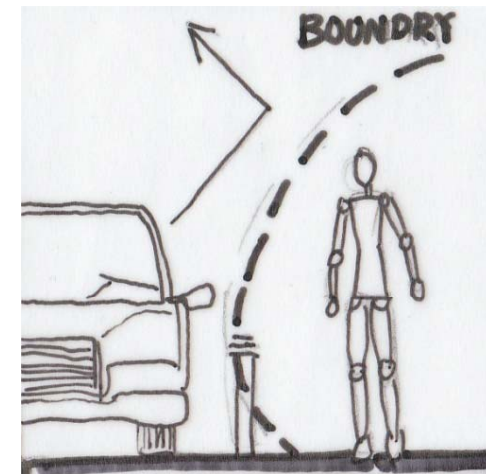
Improving urban appearance (**fig.3.3.1.6**)

Fig. 3.3.1.2

Boundary

Sketch:

(By Chih-Hao Lu, October 2009)



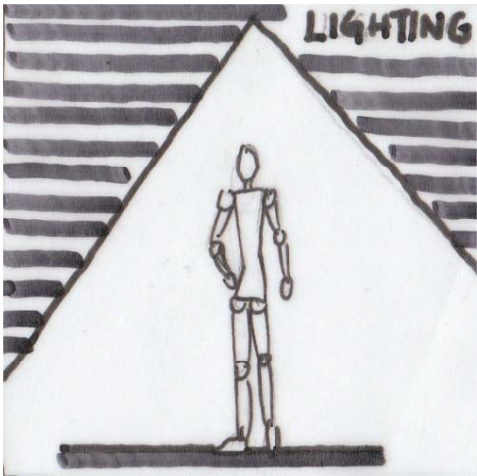


Fig. 3.3.1.3
Street lighting

Sketch:
(By Chih-Hao Lu, October 2009)

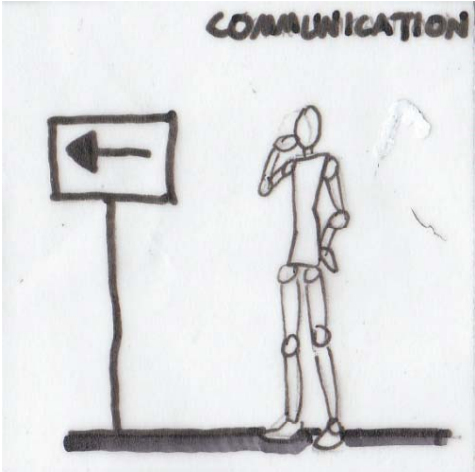


Fig. 3.3.1.4
Communication device

Sketch:
(By Chih-Hao Lu, October 2009)

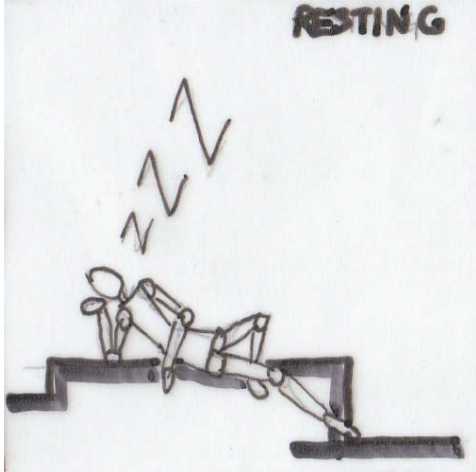


Fig. 3.3.1.5
Resting

Sketch:
(By Chih-Hao Lu, October 2009)

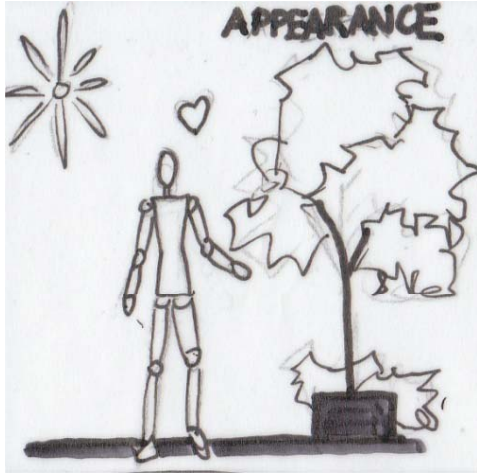


Fig. 3.3.1.6
Urban appearance improvement

Sketch:
(By Chih-Hao Lu, October 2009)

How to find an appropriate type of furniture for to public space

1. The decision that helping design in the choosing a street furniture

There are three interrelated design requirement of the decision making for the insertion of urban furniture: functionality, rationality and emotivity:

Functionality

The element is required to **fulfil certain basic human needs**. Ineffective furniture design will take up and waste precious spaces in an urban environment. Furthermore, the element must also be simple in design and provide some degree of clarity in its functions in order to be understood by its user in the shortest period of time. The furniture is also an advertising element. It is capable of attracting attentions of people and encourages them to use such designed element.

Rationality

After providing a function to the element, just like a building, it will have to **make sense in its context**. Like how a building affects its context, the wrong choice of furniture will affect the context negatively. Therefore, the design of the furniture must be carefully chosen to suit its urban environment.

Emotivity

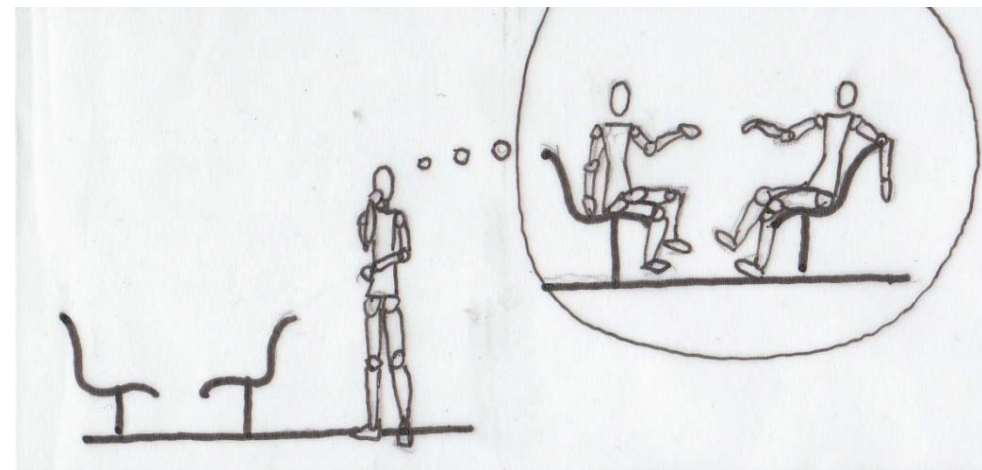
The design of the furniture should **improve the appearance** of the city. Furthermore, the placing of the furniture also hints the existence of people. As for example, chairs in an empty site will be able to hint its viewer that people were once here and were occupying this space. Even without its user, the positioning of the chair will suggest the life style of the people and how they have once used the space (**fig.3.3.1.7**).

Fig. 3.3.1.7

The viewer will be able to tell the existence of people just by seeing the furniture.

Sketch:

(By Chih-Hao Lu, October 2009)



2. The type of furniture:

Urban layout (fig.3.3.1.8)

This urban element **completes the flow** of the city. The elements are such as: the ramp up to the kerb and boundaries that separates the vehicle movement away from the pedestrian movement. Therefore, this type of urban element suggested the movement in a city by either create constrains or possibilities.



Fig. 3.3.1.10
Lighting

Image:
(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.116)

Fig. 3.3.1.8

Railing, used as boundary for street edge.

Image:

(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.30)



Resting (fig.3.3.1.9)

This urban element includes the chairs and benches that are able to provide **relaxation** for the pedestrians. This element must be easy to use, appropriate in size and long lasting in terms of its structure, as it is the most occupied street furniture.

Lighting (fig.3.3.1.10)

The lighting is more often used at night time. It lights up certain areas in a city at night, making the city **safe** to approach. Furthermore, the light can be used as a highlighting element. As for example, an urban element can be emphasised by creating a spot light effect onto the element.

Gardening (fig.3.3.1.11)

It provides visual **improvement for the city appearance**. This includes planter and trees.

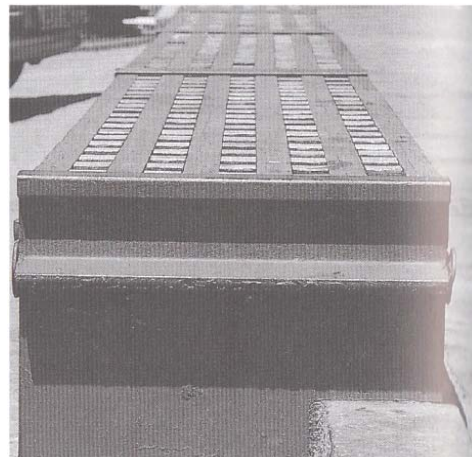


Fig. 3.3.1.9

Timber bench

Image:

(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.58)

Fig. 3.3.1.11

Tree-well Surround

Image:

(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.170)



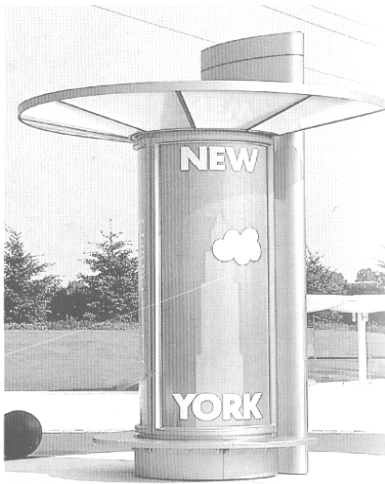


Fig. 3.3.1.12
Announcement column

Image:
(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.196)

Communication (fig.3.3.1.12)

The communication furniture ranged from street signal to advertising board. The function of the communication furniture is there to provide a **better understanding** of the city for the people.

Public services (fig.3.3.1.13)

The furniture of public service has no specific form and order. However, the furniture is there to provide a **better service** for the people. The function varies between: transportation, telephone, bicycle parking, info desk, police booth, public toilets.

Commercial (fig.3.3.1.14)

This type of furniture has the ability to **attract attention** of people. The most popular form is a kiosk. The attraction force of this element is not its form and uses, but rather the service and goods it provides.

Cleaning (fig.3.3.1.15)

This furniture is there in order to keep the city **clean**. The most common form is a dustbin.

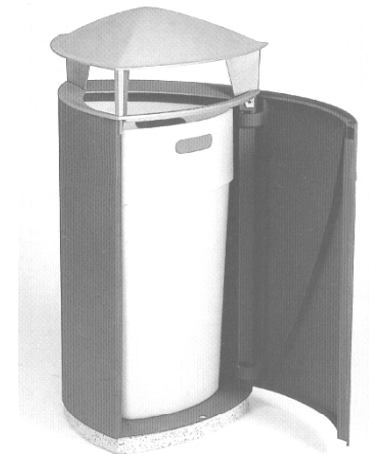


Fig. 3.3.1.15
Litter bin

Image:
(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.282)

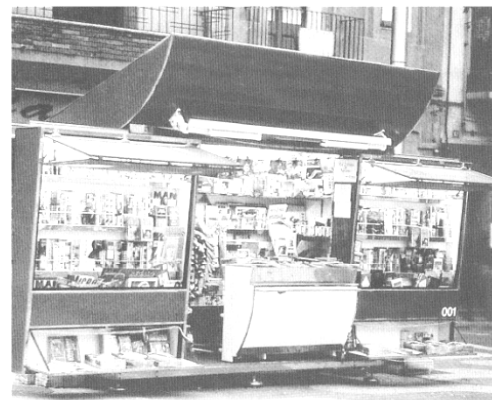
Fig. 3.3.1.14
Magazine kiosk

Image:
(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.260)



Fig. 3.3.1.13
Information Booth

Image:
(SERRA JM (1996), Urban Elements, Furniture and microarchitecture, Spain, Editorial Gustavo Gili S.A. p.216)



3.3.2
Tree



Fig. 3.3.2.0B
Trees are not used to their full potential in Randburg.

Photo:
(By Chih-Hao Lu, March 2009)

Fig. 3.3.2.0A
The tree decrease in number when it reaches closer to the triangular site

CAD Sketch:
(By Chih-Hao Lu, March 2009)

Inside the informal market (fig. 3.3.2.0A)

“Its quite hot today and there’s **no shade** (fig. 3.3.2.0B) in this market space.”
“I think all the **trees are removed** because of the taxi rank and parking lots in Randburg.”
“You can see they have started planting new trees to this place.”
“But, they are tiny and are hardly providing any shades for the space.”

March 20, 2009

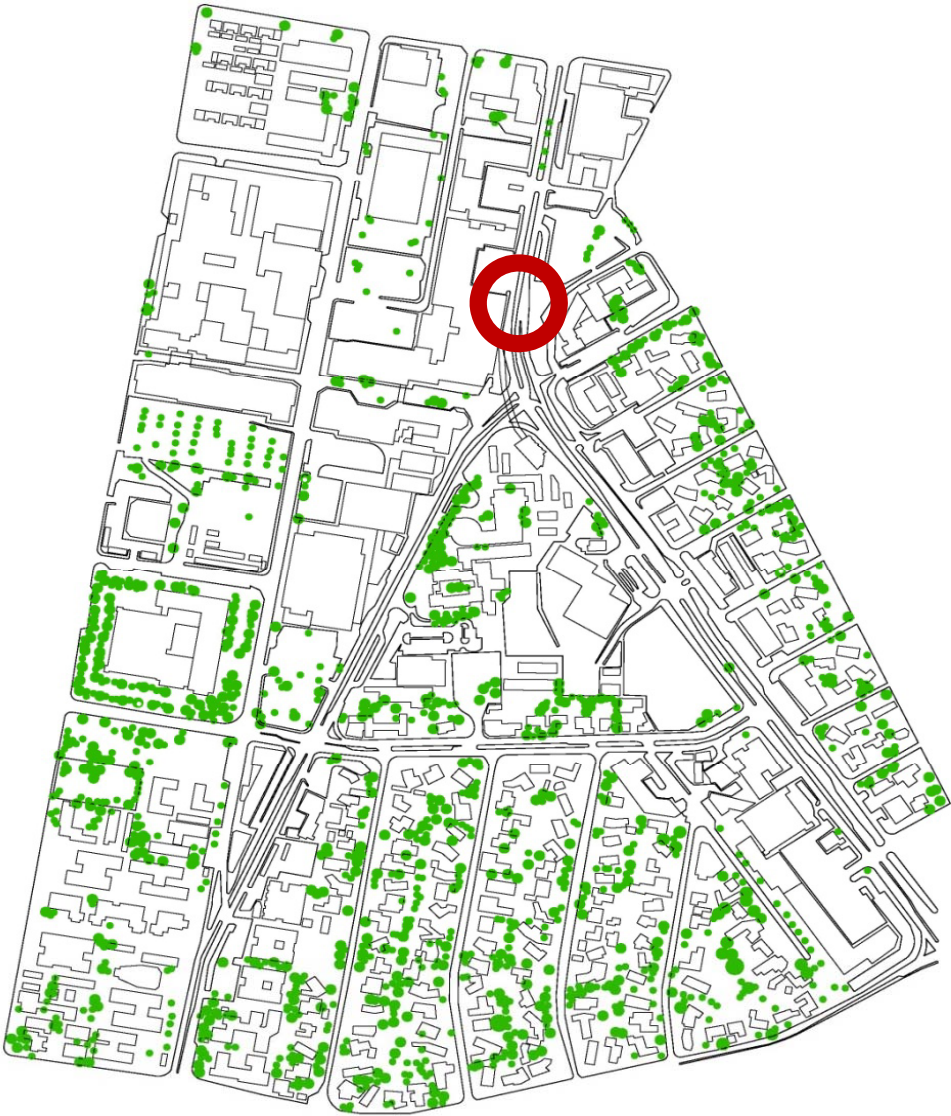


Fig. 3.3.2.2

An artist illustration of utilising a tree as a fantasy home.

Image:

(JACKSON J ,(1994), A Sense of place, a Sense of time, USA, Yale University, p.92)



Introduction

Human habitation began in **nature**. The trees were our shelter and caves were our home. It is because of this ancient source, people are fond of trees and nature. **(fig.3.3.2.1)** However, people are fond to single tree, ordered trees, and trees in public parks; but strangely enough dislike a jungle of trees. This might be the reason that human has this passion among organised elements and feels uncomfortable around unpredictable elements.

The value of trees is high. Long before modern city were formed. Trees are our main source of food, shelter and activity. The tree provides:

- Beauty** and **appearance** for an urban environment.
- **shade** for comfort and a cleaner climate.
- **sense of place**.
- sense of **responsibility** and **parental pride**.

The study of trees provides more understanding on the effect of trees in an urban environment. In order to improve human comfort in a city, tree is one of the major elements that required to be introduced into an urban environment. Differ to the street furniture, tree is a living element, therefore the placing of tree will have to be dealt differently to the urban furniture.

Fig. 3.3.2.1

People's activity often involve the existence of trees. Trees act as our shelter and protection.

Image:

(JACKSON J ,(1994), A Sense of place, a Sense of time, USA, Yale University, p.103)



How to plan for trees:

1. *The need for tree and its function*

Tree is our source of living. It provides us food, shelter and construction material. In ancient time, tree was a representation of wealth and power. Thus the meaning of a tree has been translated into a different language in the present day urban environment. The functions of a tree are as follows:

- It is the **celebration of home**.
- **shade** and **comfort**.
- **appearance** for a city.
- a living **protector** for human kind.
- act as a **boundary**, blocking the view from the unwanted eye. It creates a sense of privacy.
- It's an **event space**, where rituals and activities can perform under a tree.

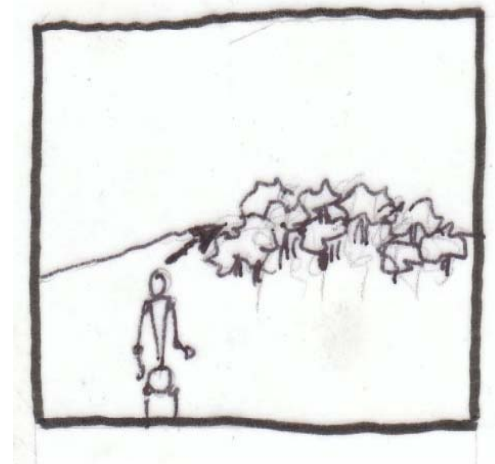


Fig. 3.3.2.3

Trees can be used as a orientation device.

Sketch:

(By Chih-Hao Lu, May 2009)

2. The positioning of tree and its effect

Other than providing shades for the people, trees are often used as barriers. They are used as barriers between the vehicle and pedestrian sidewalk, as well barrier between buildings and streets. In other word, the positioning of the tree allows it to function differently in its context:

Group of trees in a distance (fig.3.3.2.3)

It functions as a **landmark** and sense of orientation. Furthermore, trees placed on a high ground make the space visually attractive and automatically draw people's attention and interest.

Typical strip system (fig.3.3.2.4)

This pattern has place trees at the edge of the kerb. The trees here act as a **boundary** between the vehicle and people. Furthermore, the trees are also used as shading device for the pedestrians on the sidewalk.

Split boulevard pattern (fig.3.3.2.5)

The positioning of the trees in this case are to hide the high speed vehicle movement away from people, and draw the **slower vehicle movement** towards people. This pattern enables the blending of the pedestrian movement and the vehicle movement, making the space more appropriate for pedestrian.

Rear pedestrian / cycle path (fig.3.3.2.6)

This pattern has totally separated the people away from the vehicle movement. The trees now belong to the people and the **nature** environment, making the trees more attractive.

Sequential form (fig.3.3.2.7)

The positioning of the trees in this case are used as a **landmark** and an award in order to guide a person through a landscape.

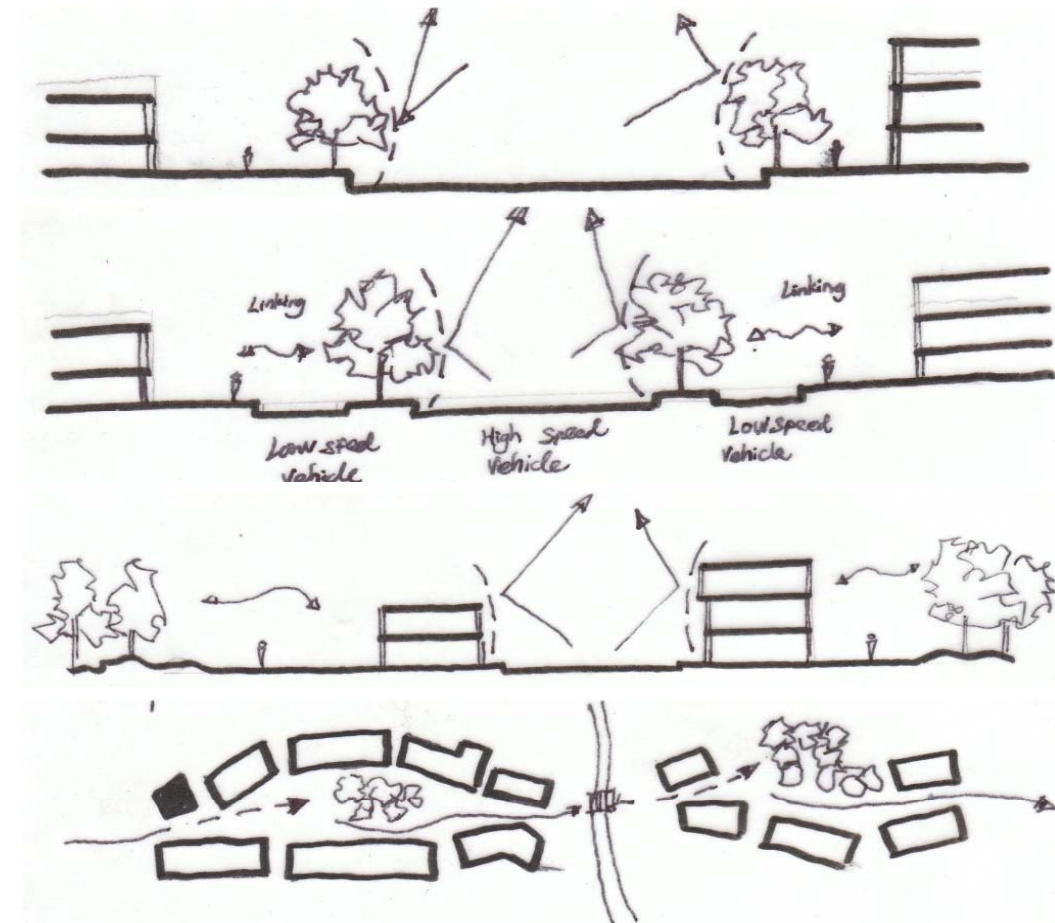
Fig. 3.3.2.4
Typical strip system

Fig. 3.3.2.5
Split boulevard pattern

Fig. 3.3.2.6
Rear pedestrian / cycle path

Fig. 3.3.2.7
Sequential form

Sketch:
(By Chih-Hao Lu, May 2009)



3.3.3
Design against Crime



Fig. 3.3.3.0B
Taxi rank

Photo:
(By Chih-Hao Lu, March 2009)

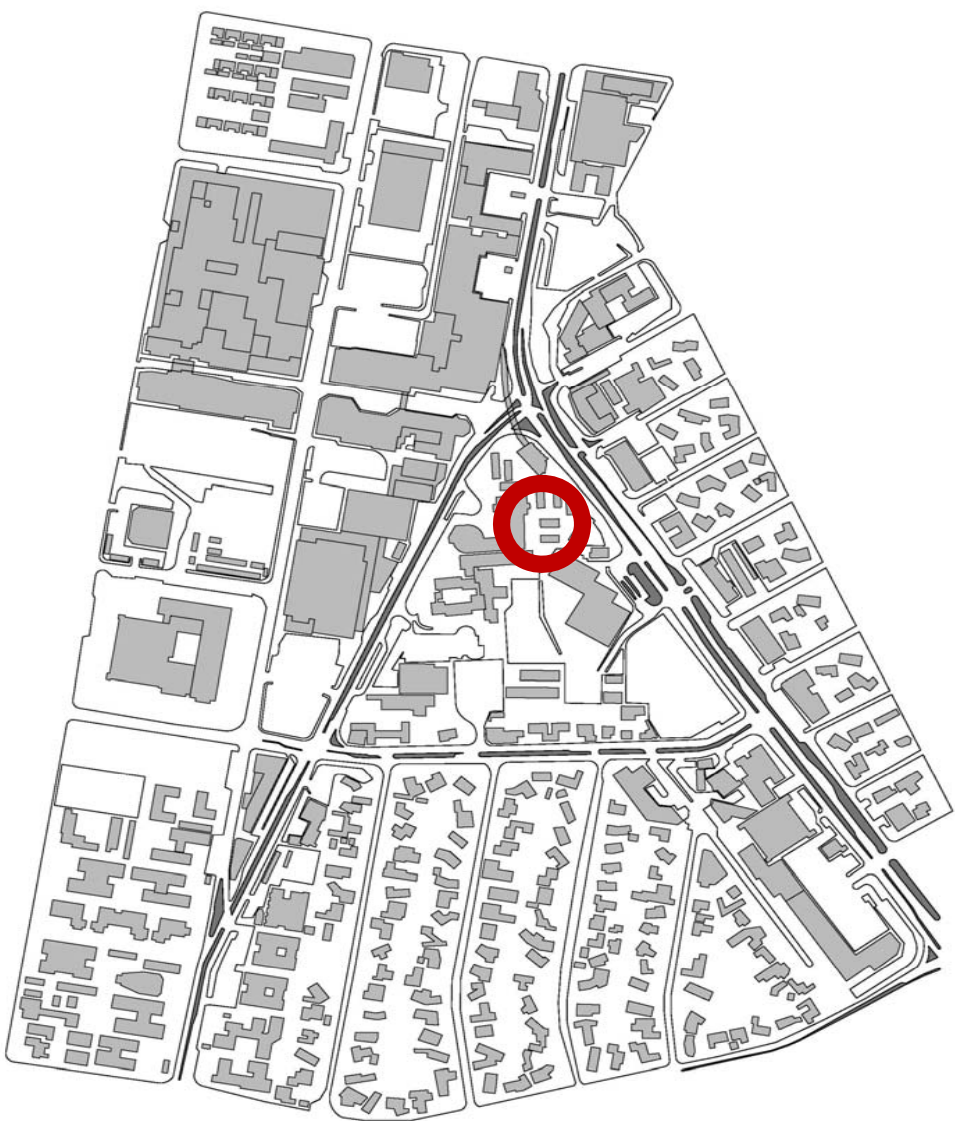
Fig. 3.3.3.0A
I felt isolated away from the space, due to the lack of understanding of the place

CAD Sketch:
(By Chih-Hao Lu, March 2009)

At the taxi rank (fig. 3.3.3.0A)

“I feel **isolated** and out of context. Let’s get out of here quickly.”
“I think it’s because I have little understanding on how taxi rank works.”

March 20, 2009



Introduction

Crime is not the main reason that kept people away from the city center in South Africa today. However, it's more of the **fear of crime** and the **unpredictable** urban environment that has driven people out of the city. Before dealing with the architecture design that enables the reduction of crime, we first need to understand the emergence of crime.

Crime is about the **offender** and **offences**. No matter how it happens and ends, there will be at least one party that will get injured, mentally or physically. There are two main categories of crime:

Crime aimed at hurting an individual

This type of crime is aimed at **hurting an individual**. However, this can be done either mentally or physically. It's done mentally by putting pressure on to a person's mental status. This can vary from threats to discrimination on an individual. Different from mental pressure, physical injury is done via attacking an individual, and is aimed at injuring or murdering an individual.

Crime aimed at personal property

This type of crime is often not planned and is the most happens to occur in an urban environment. Even though this type of crime is aimed at **personal property**, quite often it can develop into personal injury.

Likewise, a crime can also be divided into the crime that is committed secretly, or the crime that is done openly.

Crime committed secretly

This type of crime often takes place **without victim's awareness**. Therefore it is the type of crime that will do the least damage to an image of a city, often because it's not known by the general public.

Crime committed openly

This type of crime will **attract** not only the victim's **attention**, but also the entire group of people what were in the same area. This is the crime that is able to do the most damage to the image of a city. Not only will the public notice about the commitment of such crime, but may sometimes involved into a national or international awareness. The emerging of crime also happens because of the incivility of the public. The lack of education and the lack of the moral value are the main cause for incivility. Therefore, without the understanding of the consequences after committing a crime, people are more likely to commit a crime without the fear of its consequences.

With the high crime rate and the fear of city in South Africa today, the aim of the design is to reduce the fear of crime and reduce opportunity of the committing of a crime. Hence, the low crime rate will attract people back to the city and enables the growth of an urban environment.

How to design a crime free public space

1. *Function of the public square*

The aim is to reduce the fear of crime and prevision of crime rather than the tracing of crime after it has already committed. Therefore, the attempt is to reduce the fear level by inserting **civic-ness** into a space (**fig.3.3.3.1**). The presence of the large number of people with differences will reduce the fear level because people believed that even if something does happen, others will at least come and assist on the situation.



Fig. 3.3.3.1
A civic space

Image:
(CARMONA M, HEATH T, OC T, TIESDELL S
(2003), Public Space, Urban Space- the
Dimensions of Urban Design, Britain,
Architectural Press, p.169)

2. Design approach

There are mainly three design approaches to the reduction of crime level in an urban environment. However, all these approaches are applied in different situation, and not all of them are suitable for the public space design.

Fortress approach

This approach is the least suitable for a public space design, but is often used for a public design. It is aimed to create a **defensive space** by creating boundaries and segregations between spaces and people. It actually deflects on the idea of a public space, yet it's the favorite approach used in South Africa today. An example is the Nelson Mandela Square. (fig.3.3.3.2, on page 75) The Square is isolated away from its urban context with its entrance being controlled.

Panoptic approach (fig.3.3.3.3)

The most common tool used in this approach is **CCTV**. It's putting the public space under the surveillance of the selected eyes. CCTV is more used for the tracing of the crime rather than the prevision of crime, yet it's the mostly favorite tool used today.

Animated approach (fig.3.3.3.4)

This may be the most appropriate approach to be used in a public space. It's using the "**public surveillance**" as a crime deduction device. Furthermore, the "public surveillance" has also got the ability to **prevent crime** from happening. The appearance of people also makes the public feel safer in an urban environment. Therefore, by using an appropriate architecture element, the "public surveillance" can be maximised to its full potential.



Fig. 3.3.3.3

The space is been watched by a selected eye via CCTV.

Image:

(GOLD J R, REVILL G (2000), Landscapes of Defense, London, Pearson education Limited 2000, p.196)

Fig. 3.3.3.2

The Nelson Mandela square is isolated away from its urban environment..

Sketch:
(By Chih-Hao Lu, May 2009)

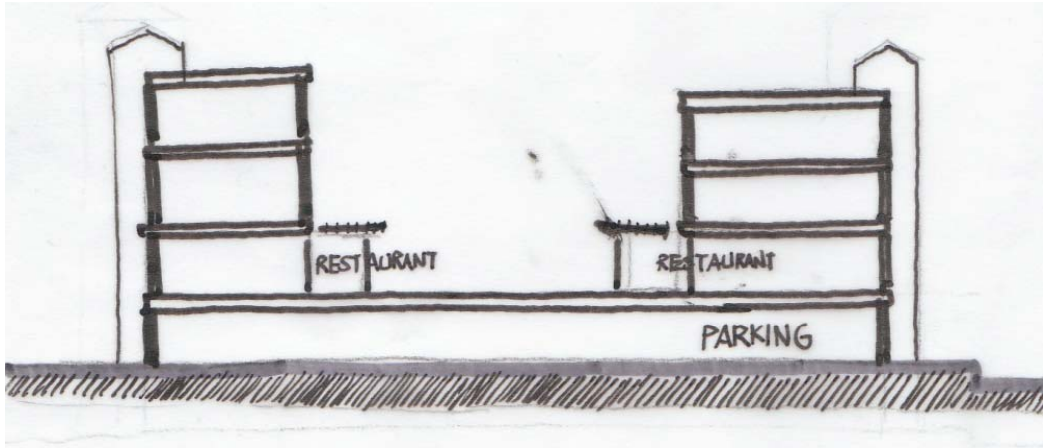
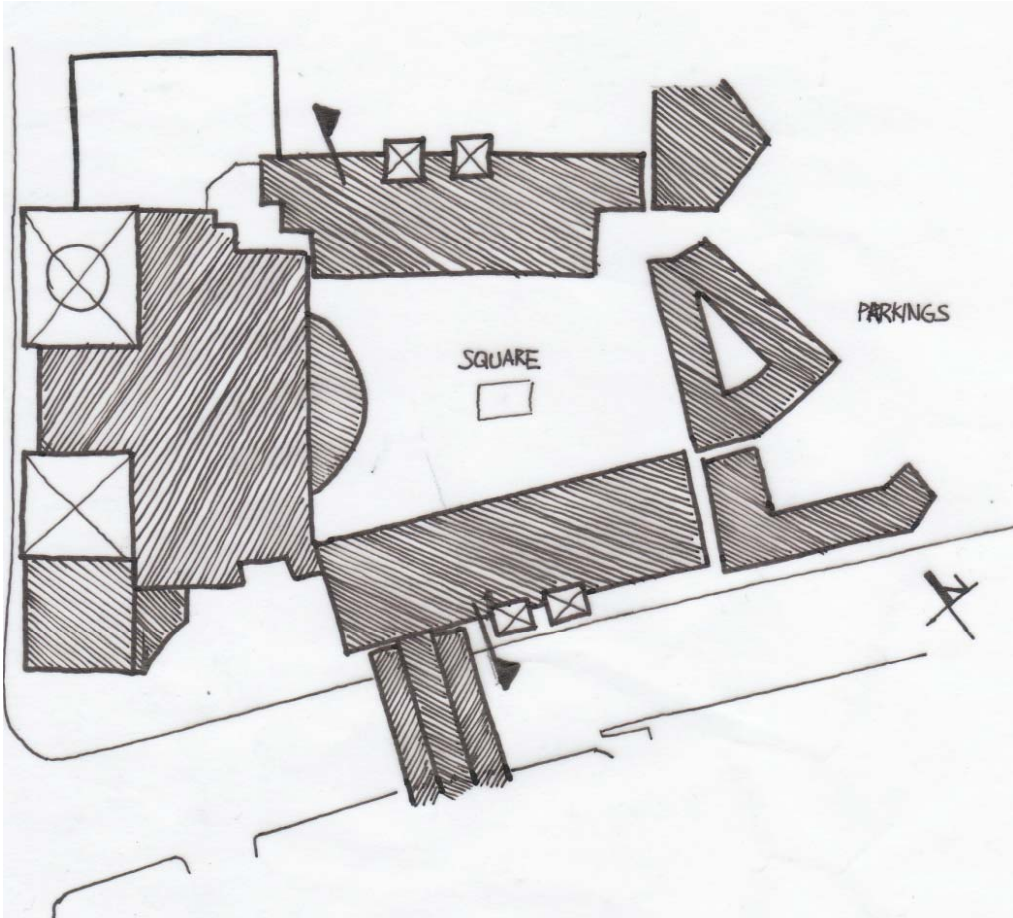
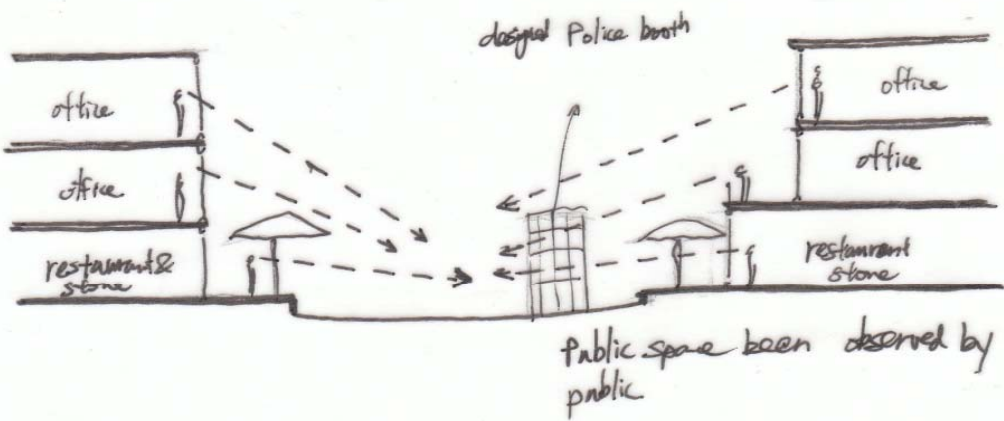


Fig. 3.3.3.4

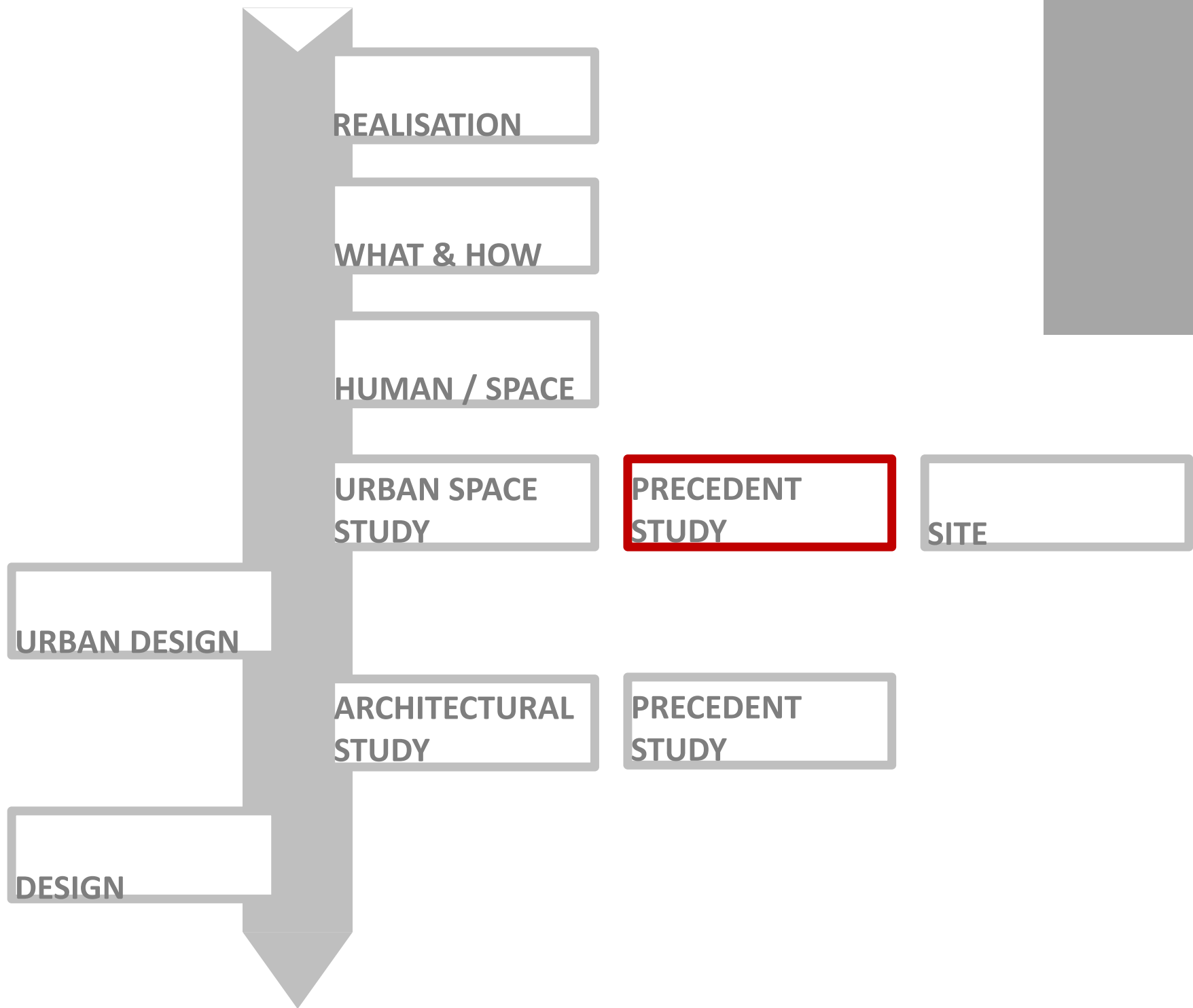
Using the eye of the public to put the space under surveillance.

Sketch:
(By Chih-Hao Lu, May 2009)



3.4

PRECEDENT STUDIES



Melrose Arch, Johannesburg, SA:

Master planning by Urban Solution and Paul Murrain, 2002

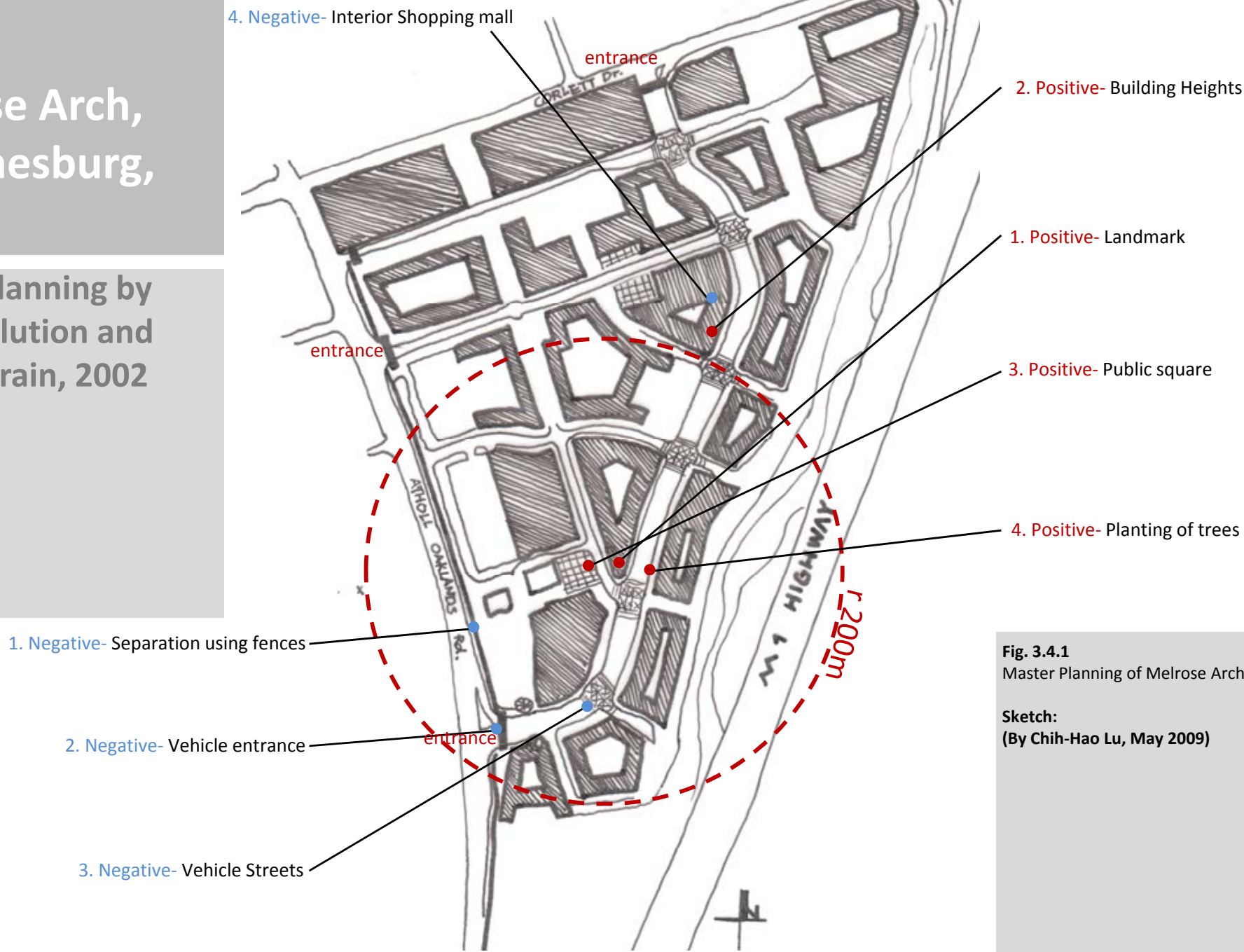


Fig. 3.4.1
Master Planning of Melrose Arch

Sketch:
(By Chih-Hao Lu, May 2009)

Introduction

Melrose Arch (**fig.3.4.1**) is located at the heart of the premier northern Johannesburg, as it sits in between Rosebank and Sandton. It is to be designed as a **high class working, living and entertaining environment**. The main concept is to design a **city within a city**, and furthermore to promote the interaction between pedestrian and architecture.



Fig. 3.4.3
Building height

Image:
(‘Melrose Arch’, Architect and Builder, vol.53, March/April 2002 p. 51)

What to take as lesson from the design:

1. The use of **landmark** and **iconic buildings** (**fig.3.4.2**). Even though the architecture within the master planning shares a common language, some of the structures still outstand themselves out of the context. These structures are used as a guidance tool around the urban space. Furthermore, some of the structures have also represented the image of Melrose Arch.
2. The **building heights** (**fig.3.4.3**). The height of the architecture in this urban space ranged between **three** to **six floors**. The height used can be easily related to human scale, therefore making in a “pedestrian urban space”.
3. The **introducing of public squares** (**fig.3.4.4, on page 81**). Sitting at the heart of Melrose Arch, a public square is introduced to the master plan. It is designed as a civic square where people can eat, entertain, rest, dance and enjoy the vibrant social interaction. The square is surrounded by commercial and entertaining activities such as restaurants and shop fronts.
4. **Introducing of trees** (**fig.3.4.5, on page 81**). The insert of trees allow the space for be softens. Furthermore, it provides a better pedestrian environment.

Fig. 3.4.2

The landmark of Melrose Arch

Image:
(‘Melrose Arch’, Architect and Builder, vol.53, March/April 2002 p. 43)



What to avoid from the design:

1. The use of **walls to separate** Melrose Arch from the rest of the city (fig.3.4.6). Melrose Arch is separated away from the rest of the city by using fences and heavy walls. This has alienated the urban space from the rest of the city, furthermore, making it hard to approach.
2. The use of **vehicle entrance** (fig. 3.4.7). The entrances are dedicated for both vehicles and pedestrians, yet the scales of the entrances are not appropriate for pedestrians. Furthermore, the lack of connection between the entrance and urban space (no shading is provided between the entrance and the nearest building) has made it un-user friendly for the pedestrians.
3. It's an urban space for **vehicles** (fig. 3.4.8). The urban plan claims to be pedestrian friendly, yet the majority of the street are designed for vehicle movements as pedestrians are pushed to the sidewalks.
4. **Interior** lifestyle (fig. 3.4.9). The urban space is to promote an outdoor lifestyle by introducing pedestrian friendly elements. Yet the introducing of an indoor shopping mall has gone against the initial concept.



Fig. 3.4.6
Heavy walls as boundary

Image:
(**'Melrose Arch', Architect and Builder,**
vol.53, March/April 2002 p. 54

Conclusion

Melrose Arch represents a typical problem we are having in South Africa today, which is the separation of urban space. As Melrose Arch been fenced away from the rest of the city, it has announced itself to be a defensive urban space very much like the castles of the Middle Age.



Fig. 3.4.5
Planting of trees

Image:
(**'Melrose Arch', Architect and Builder,**
vol.53, March/April 2002 p. 54



Fig. 3.4.4
Public Square

Image:
(**'Melrose Arch', Architect and Builder,**
vol.53, March/April 2002 p. 50)



Fig. 3.4.7
Vehicle entrance

Image:
(*'Melrose Arch'*, Architect and Builder,
vol.53, March/April 2002 p. 44)

Fig. 3.4.8
Vehicle street

Image:
(*'Melrose Arch'*, Architect and Builder,
vol.53, March/April 2002 p. 4)



Fig. 3.4.9
Indoor Shopping mall

Image:
(*'Melrose Arch'*,
www.supermarket.co.za/news_detail.asp?ID=1297)



Ginza, Tokyo, Japan

1. Negative- Lack of street furniture

2. Negative- Building heights

2. Positive- Train Station connected to the urban space

1. Positive- Variety of elevations

3. Positive- Pedestrian street during weekends

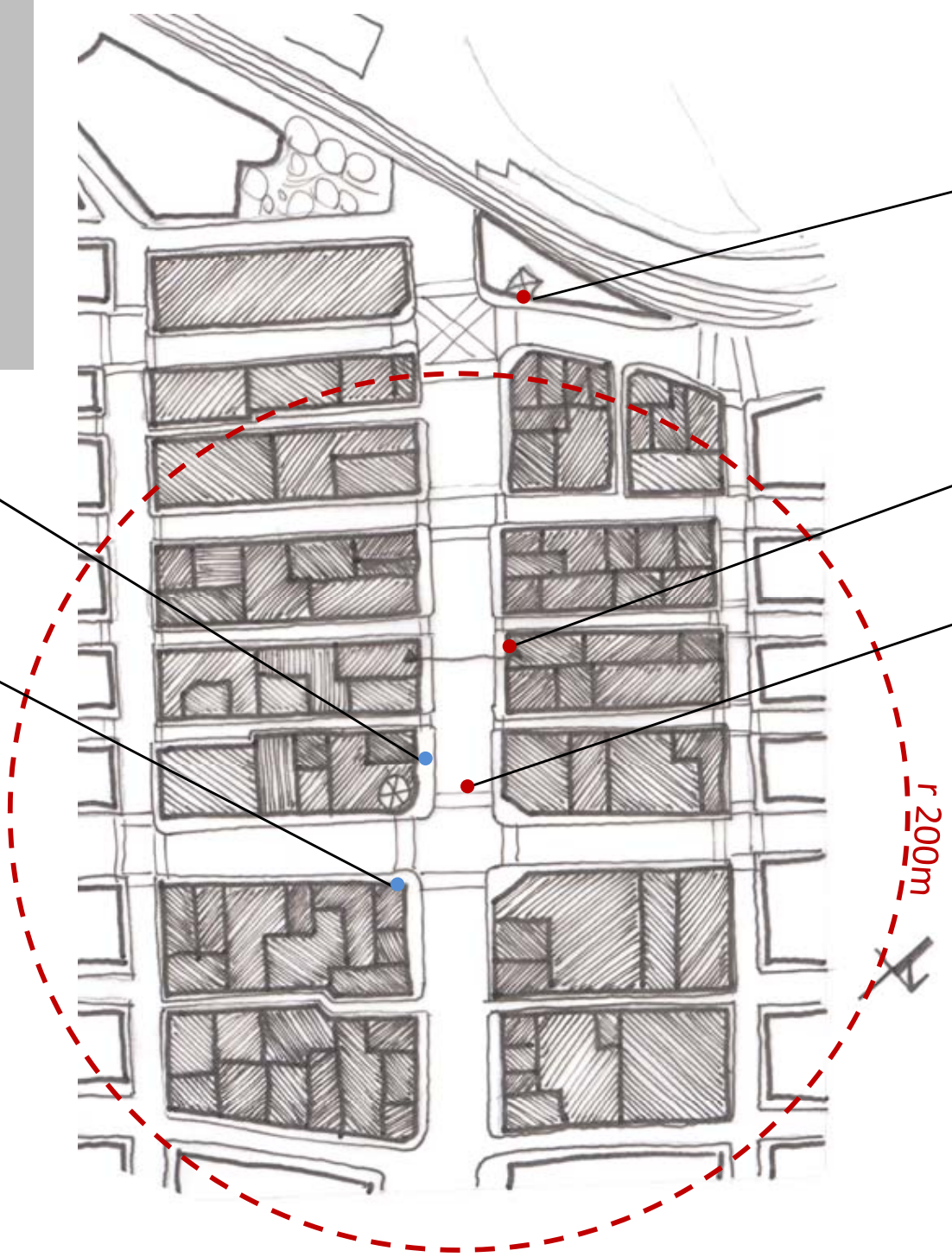


Fig. 3.4.10
Ginza street plan

Sketch:
(By Chih-Hao Lu, October 2009)

Introduction

Sitting not very far away from the busiest railway station in the world, the Tokyo Station, Ginza is dedicated as a **high class commercial area (fig. 3.4.10)**. The architectural language in this urban space is vibrant, as all the best architects around the world are trying their experiment of form on the **elevations** of the architectures in Ginza.



Fig. 3.4.11
Variety of elevations

Photo:
(By Chih-Hao Lu, January 2009)

What to take as lesson from the design:

1. *The **variety of the elevations** (fig. 3.4.11).* The sense of **vertical rhythm** is strong in this urban space as all the stands are divided into narrow stripes. With the limited amount of buildable land, the architects then therefore find it important to make use of all possible land by making them high rise. Furthermore, since it is a high class commercial zone with high class brandings such as Hermes (fig. 3.4.12), Dior (fig. 3.4.13, on page 85), etc; the architects find it necessary to express the elevation that is uniquely to that brand. This has made Ginza a vibrant urban space.
2. *The connection with the **transportation system**.* The urban design has a direct link with its local railway system, making this urban space accessible to all classes of people. Therefore, it has creates a civic urban space with a great variety of people.
3. ***Pedestrian only street** (fig. 3.4.14).* During weekends, the street is closed for pedestrians, as seats and tables been pulled on to the street. The street is also paved for such purpose.

Fig. 3.4.14

Vehicle street becomes a pedestrian street during weekends

Image:
(‘Ginza’
www.panoramio.com/photos/original/1281988.jpg)



Fig. 3.4.12
Hermes

Photo:
(By Chih-Hao Lu, January 2009)



What to avoid from the design:

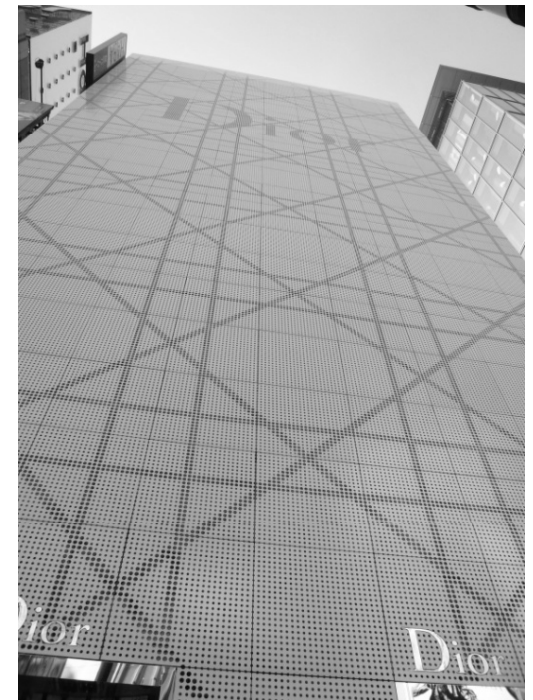
1. *The lack of pedestrian friendly design (fig. 3.4.15).* The lack of continuous corridor and shading devices has exposed the pedestrians to the harsh weather of Japan during summer and raining season. Furthermore, the lack of street furniture for resting has forced the pedestrians to walk continuously without able take a break.
2. *The building heights (fig. 3.4.16).* The buildings are over scaled. Therefore it has cast a deep shadow onto the pedestrian street. Furthermore, the full image of the building is not visible due to its height. Therefore, pedestrians are required to cross the street for the full view of the buildings.
3. *The lack of public square.* The lack of public square has made Ginza a confused and busy space, as there is no space to ease the flow of pedestrian traffic.

Conclusion

What should be taken as a lesson are the variety of the elevations, and the connection between the urban spaces with the transportation system. However, this urban design is not suitable for the South African context due to the scale of the buildings and the high density of pedestrians the urban space holds within.

Fig. 3.4.13
Dior

Photo:
(By Chih-Hao Lu, January 2009)



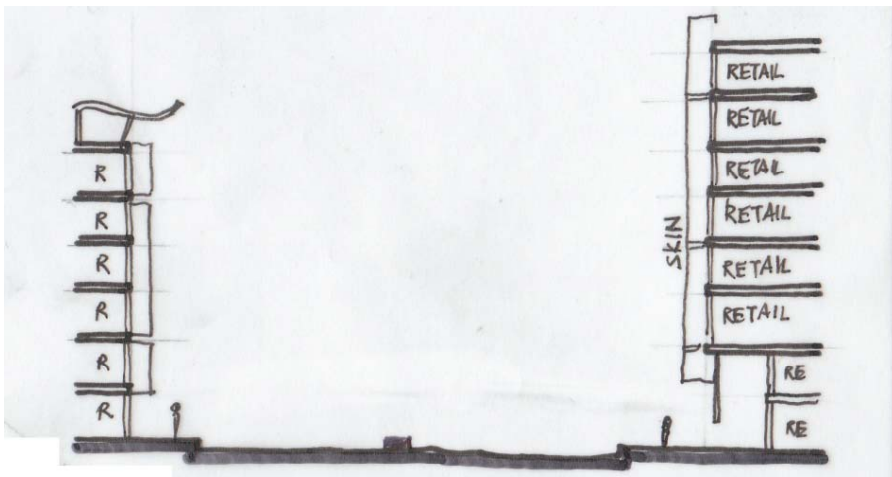


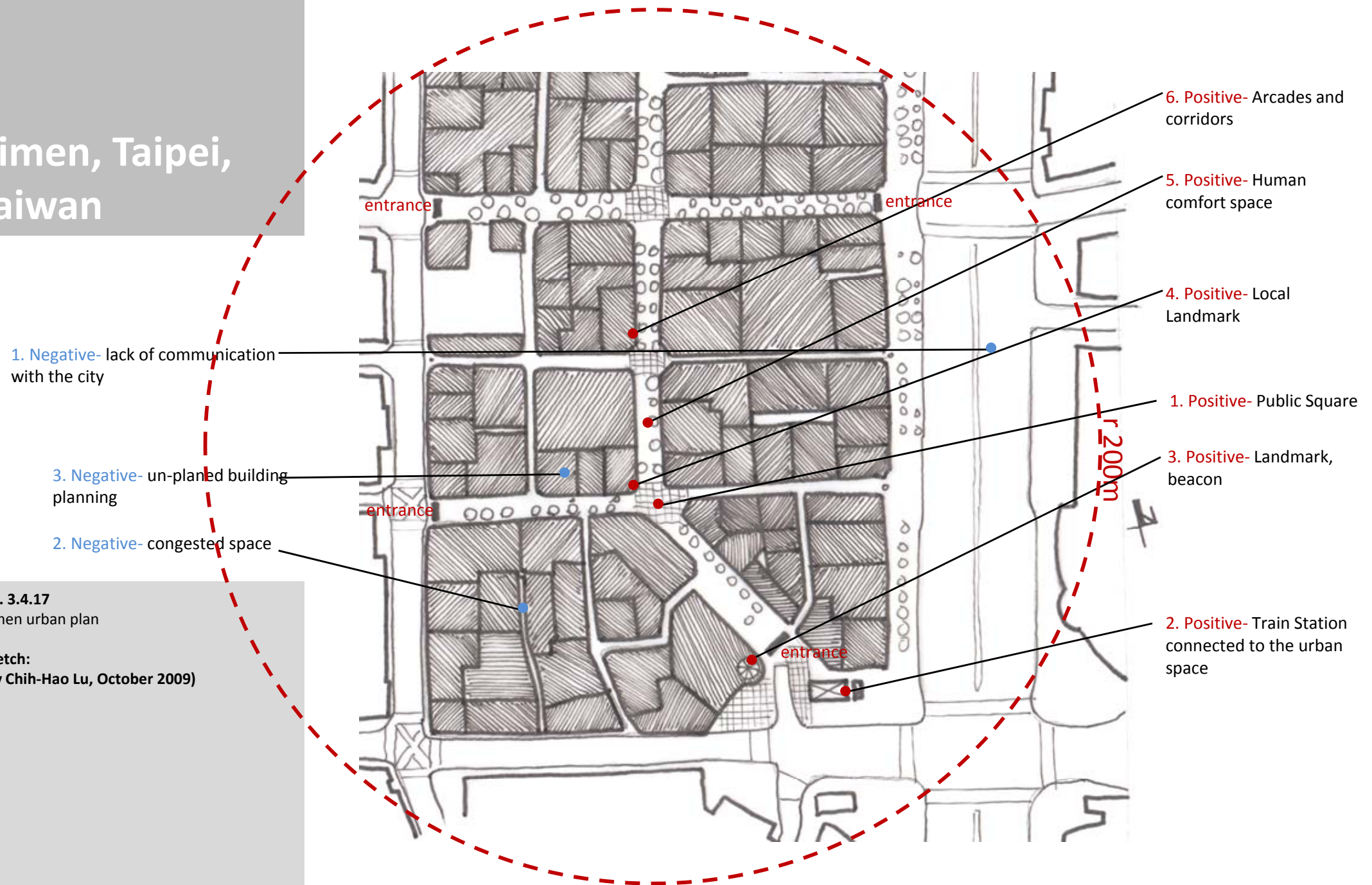
Fig. 3.4.15
Typical section showing the height of buildings

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 3.4.16
Lack of Urban Furniture

Photo:
(By Chih-Hao Lu, January 2009)





Sketch:
(By Chih-Hao Lu, October 2009)



Fig. 3.4.18
Public square

Photo:
(By Chih-Hao Lu, December 2008)

Introduction

Ximen is located in the busiest part of Taipei (**fig. 3.4.17**), as this is the space where the youngster gathers and entertains. This urban space emerges during the 20's and was known as the "movie street". Then in the year 1949, commercial activities began to be introduced to Ximen. Today, Ximen is to be known as the leader of fashion as well as the guardian of history, therefore satisfying the people at different age group.

What to take as lesson from the design:

1. *The use of the **public square** as a connection tool (**fig. 3.4.18**).* The pedestrian streets are all connected toward the center; therefore a public square is introduced to ease the flow of pedestrian traffic. Furthermore, this square is also used for events as concert often take place in this square.
2. *Direct linked with the **transportation system** (**fig. 3.4.19**).* The urban space is directly linked with the space. In addition, a square is introduced at the exit of the square to ease the traffic.
3. *The use of **landmark** to identify the entrance to the square (**fig. 3.4.20, on page 89**).* A large display screen is to be the main feature that identifies the entrance to the urban space. Furthermore, it is also capable of displaying necessary information to the pedestrians
4. *Use of **landmark to bring sense of direction** within in the urban space (**fig. 3.4.21, on page 89**).* Landmarks at local scale are also introduced within the urban space, as they guide the pedestrians to the destination they desired.
5. *Buildings are designed at **human scale** (**fig. 3.4.22, on page 89**)(**fig. 3.4.23, on page 90**).* The buildings are ranging between **two** to **five storeys**. Therefore making the pedestrian easier to relate to.
6. *The urban space is **user friendly** (**fig. 3.4.24, on page 90**).* Arcades and corridors are introduced to the urban design. Furthermore, the comfort is enhanced by the placing of trees and seats.

Fig. 3.4.19
Exit of a train station

Photo:
(By Chih-Hao Lu, December 2008)



What to avoid from the design:

- 1. The **lack of communication** between the urban space and the rest of the city. The urban space of Ximen has weakens its link from the rest of the city due to the width of the main road.
- 2. *The width of the **internal pedestrian street is to be too narrow** (fig.3.4.25).* Even through the ratio between the height of the surrounding building and the street seems to be correct, and enough space seems to have been provided. However, due to the high population of Taipei, this pedestrian street is incapable for the amount of people.

Fig. 3.4.20
Beacon of the urban space

Photo:
(By Chih-Hao Lu, December 2008)



Conclusion

This space is successful because the urban elements are well communicated. However, there is still a problem hidden in this urban design, and it is the difficulty of expansion. Due to the small size of the stands, the urban space is inflexible for expansion, therefore making it incapable for the future population.

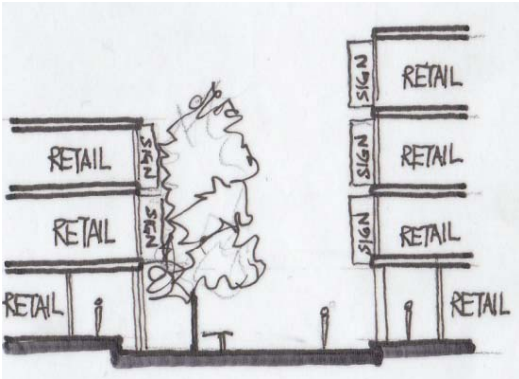


Fig. 3.4.22
Typical section showing the height of buildings

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 3.4.21
Landmark within the urban space

Photo:
(By Chih-Hao Lu, December 2008)





Fig. 3.4.23
Street designed at human scale

Photo:
(By Chih-Hao Lu, December 2008)



Fig. 3.4.24
Corridors

Photo:
(By Chih-Hao Lu, December 2008)

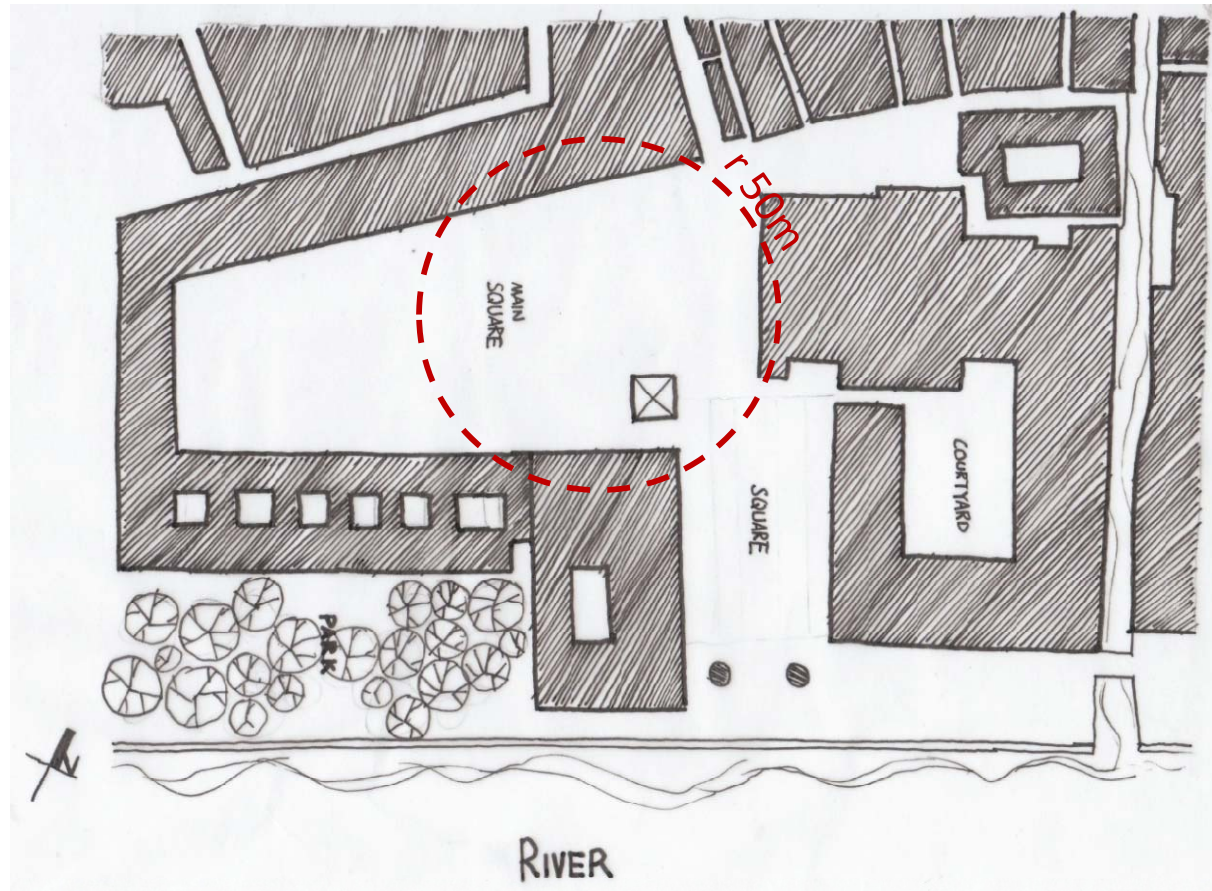


Fig. 3.4.25
Some pedestrian are too narrow of the large population of the area

Photo:
(By Chih-Hao Lu, December 2008)

PRECEDENT STUDIES OF PUBLIC SQUARES

San Marco Square,
Venice, Italy



Lesson to take:

1. The **enclose** quality of the square
2. The **size** of the public square
3. Use of **landmark**
4. **Commercial** and **restaurant activity** happens at the **edge** of the square
5. The **dominate energy** that draws the attention of pedestrian (the Chapel)

1. 'Tower in San Marco',
<http://www.panoramio.com/photo/520143>
2. 'The square',
<http://www.panoramio.com/photo/428700>
3. 'The Chapel the square faces',
<http://www.panoramio.com/photo/82922>

Fig. 3.4.26
San Marco Square

Sketch:
(By Chih-Hao Lu, October 2009)



4



5

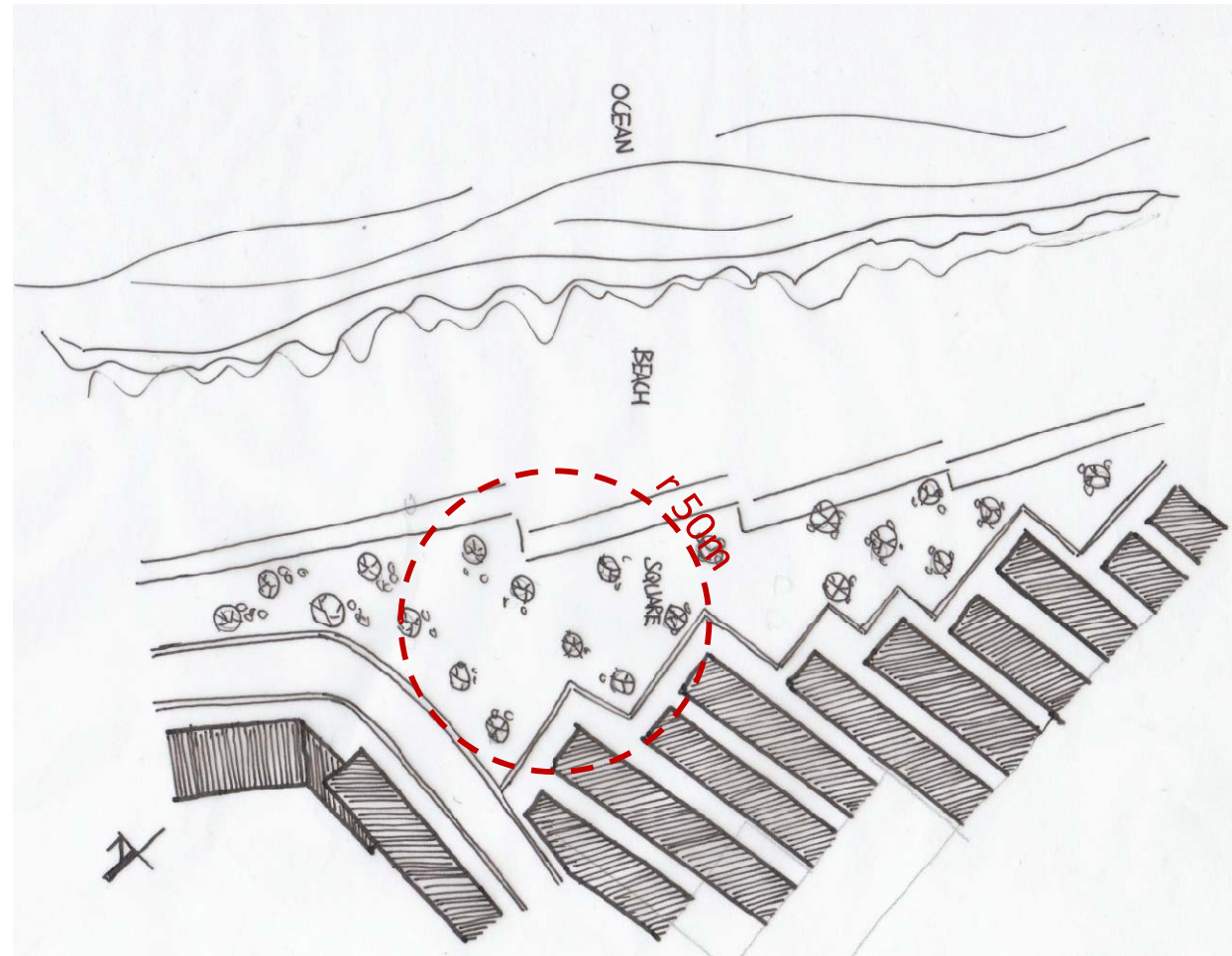


6

Sea Front Promenade in La Barceloneta, Barcelona, Spain

Lesson to take:

1. The square faces the **ocean**, making it the **dominate** feature. Therefore, the dominate function of the square is to **capture the view** of the ocean
2. The use of urban furniture in the defining of its **edge** between the beach and square
3. Use of sculptural elements as **landmark**
4. The introducing of **trees** onto the square



4. 'Sea front Promenade in La Barceloneta',
(CERVER F C (2003), the world of
contemporary architecture, Spain,
Konemann, p.143)

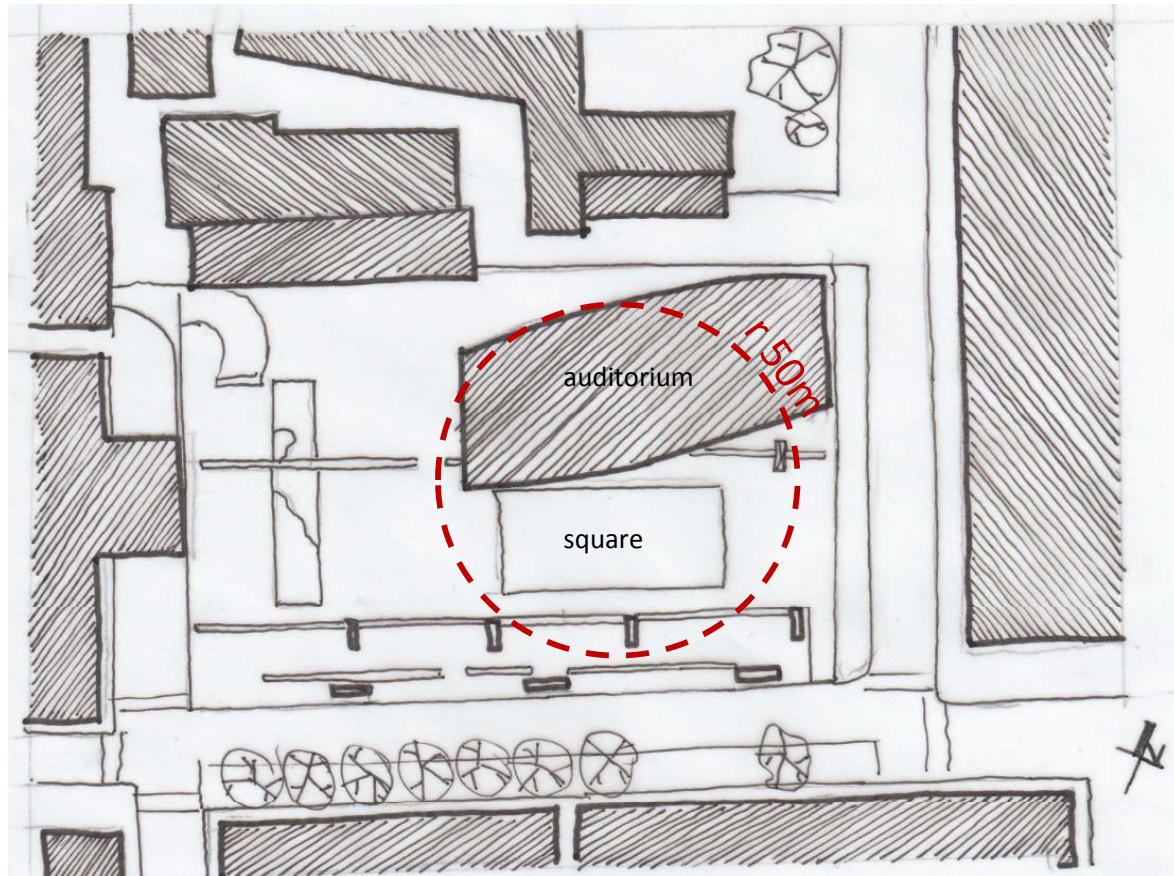
5. 'Use of urban furniture',
<http://www.panoramio.com/photo/6189676>

6. 'landmark feature',
<http://www.panoramio.com/photo/1285732>

Fig. 3.4.27
Sea front Promenade in La Barceloneta

Sketch:
(By Chih-Hao Lu, October 2009)

Schouwburgplein, Rotterdam, Netherland



Lesson to take:

1. Use of **sculpture landmarks** to define its **edge**
2. The square create a **breathing space** for the rather congested urban environment
3. The urban **furniture** has becomes the **architectural element** of the square, and is used in the defining of **edge**
4. The **auditorium** act as a **dominant element** of the square
5. The use of **paving pattern** for the defining of space

7. 'Sculptural landmark',
<http://www.panoramio.com/photo/3386295>

8. 'the square space',
<http://www.panoramio.com/photo/204210>

9. 'urban furniture defines the edge',
(CERVER F C (2003), the world of contemporary architecture, Spain, Konemann, p.116)

Fig. 3.4.28
Schouwburgplein

Sketch:
(By Chih-Hao Lu, October 2009)



10



11



12

Nelson Mandela Square, Johannesburg, South Africa

END OF 3.4

Lesson to take:

1. The **enclose** quality of the square
2. The statue of Nelson Mandela is used as a **local landmark**
3. The tower of Michelangelo is used as a **regional landmark**
4. **Commercial** and **restaurant activity** happens at the **edge** of the square
5. The **fountain** at the center creates **another attracting element** of the square

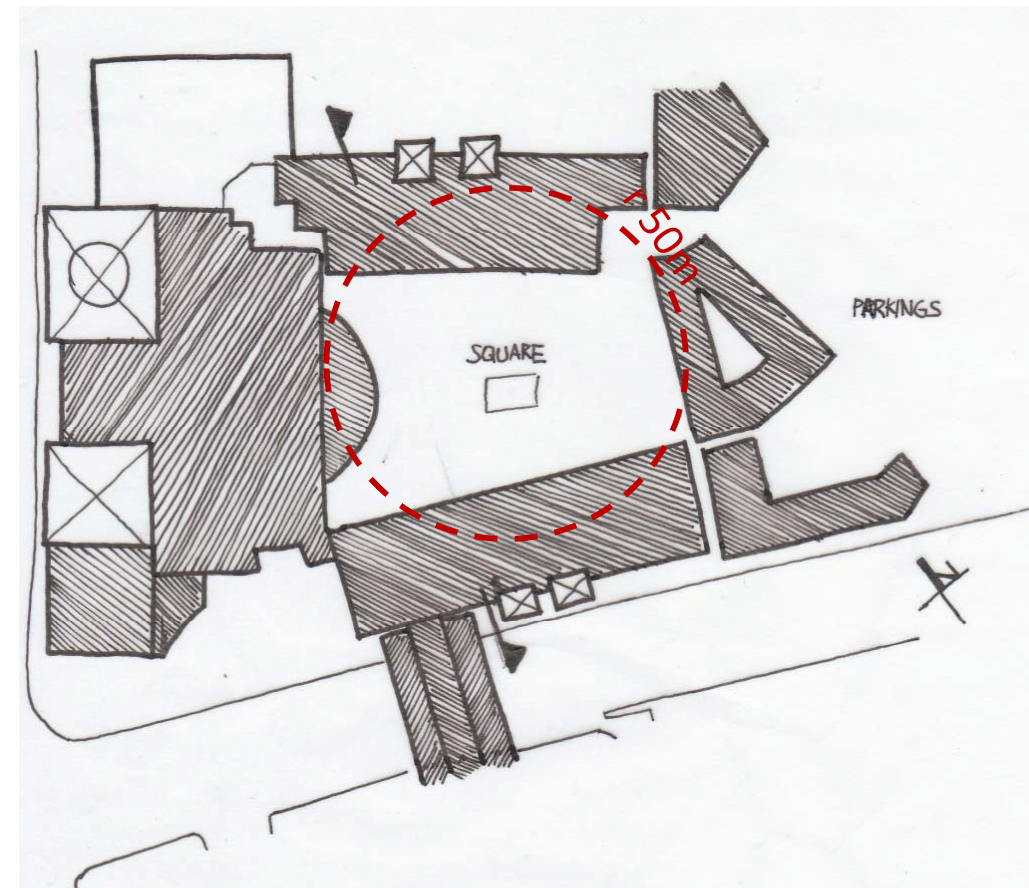
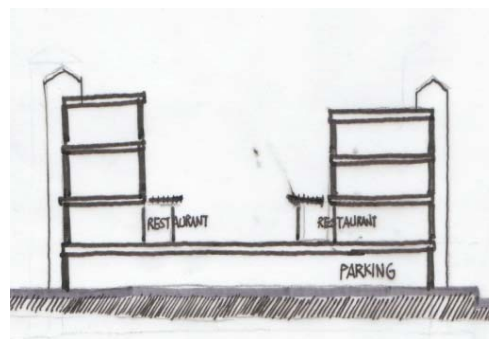
10. 'restaurant and commercial activity defines the edge',
<http://www.panoramio.com/photo/20315132>

11. 'the statue of Nelson Mandela is used as a local landmark',
<http://www.panoramio.com/photo/5711767>

12. 'Michelangelo tower used as a regional landmark',
<http://www.panoramio.com/photo/15183059>

Fig. 3.4.29
Nelson Mandela Square

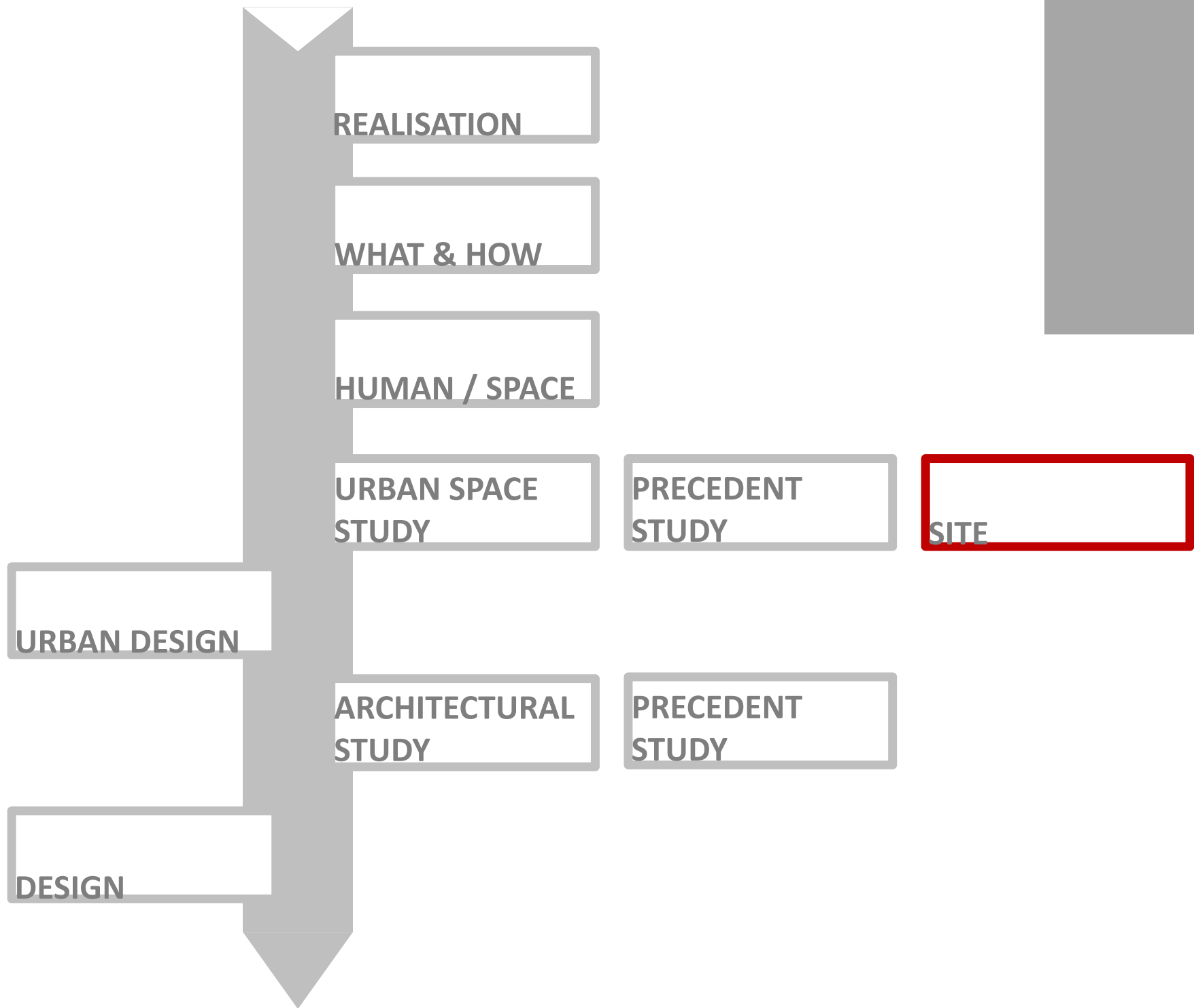
Sketch:
 (By Chih-Hao Lu, October 2009)



> 095

4.0

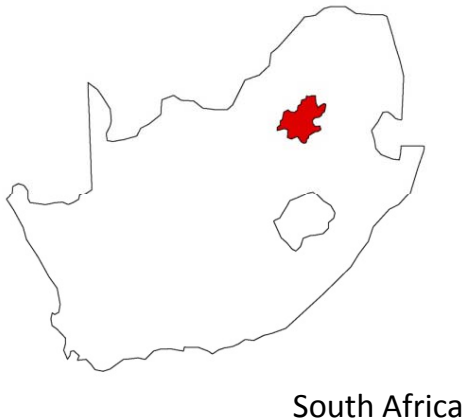
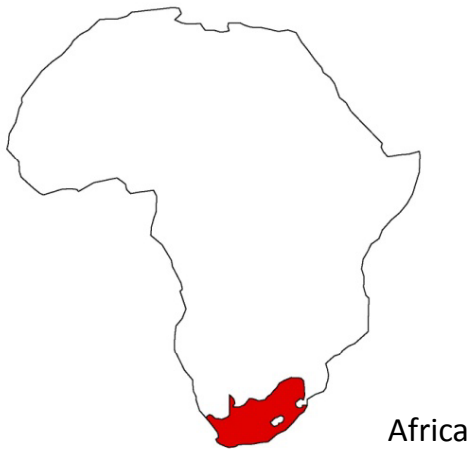
SITE 



4.1
SITE-
INTRODUCTION

Randburg CBD

Fig. 4.1.0
Randburg CBD
Image:
(Google Earth)



Location

Randburg is located in the **north-western** part of the City of Johannesburg. It's situated between **Sandton** in the east, **Fourways** in the north, **Rosebank** in the south and **Cresta** in the west (**fig.4.1.1**). The site of my choice is Randburg CBD, which is located between Jan Smuts Avenue and Selkirk Avenue.

Being the center of the major suburbs, it has gains its advantage from its locality. However, Randburg CBD is seemed as a part of the town that many people are trying to avoid. Due to the informality of the urban space, Randburg has now become a declining centre.

History

1950's

Randburg is first known as a **low density residential** area, with the majority of the population been Afrikaans. With retail activity been introduced in the mid 50's, then the growth of Randburg began to emerge.

1960's

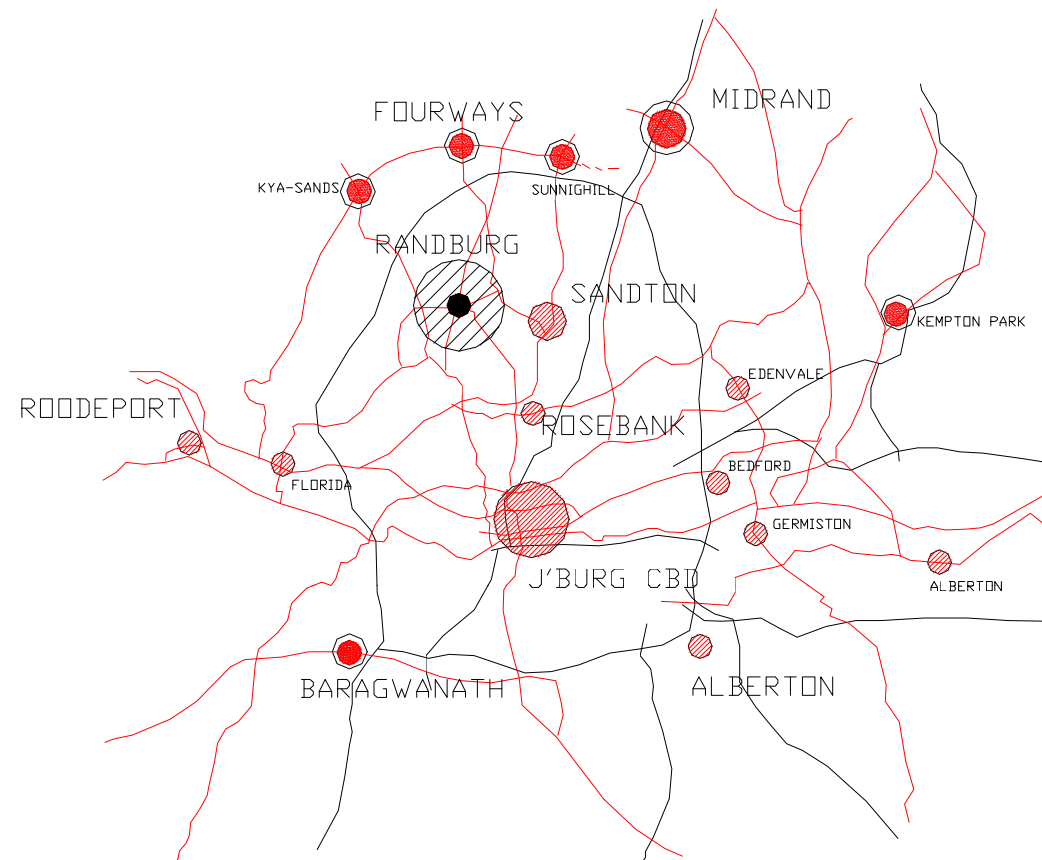
The request by the Randburg residents for an independent municipality was granted by the Transvaal Provincial Administration in Pretoria. This was a political move by the National Party. The desire was to introduce a satellite outside of Johannesburg which was thought to be dangerously "progressive" (**Michael Hart architects and Urban designers, 2004, p.4**). Soon a plan was drawn up for the development of a "**central business district**" with retail, civic and office.

1970's

The most important innovation of the urban planning was the introduction of the **outdoor shopping mall** (**fig.4.1.2, on page 99**). Soon after, Randburg has begun to develop rapidly from its centre as more **commercial buildings** began to emerge. Furthermore, new civic center was introduced as a high rise building for the accommodation of the municipality of Randburg (**fig.4.1.3, on page 99**). Randburg has now begun "to go high rise".

Fig. 4.1.1
The locality of Randburg

Image:
(IKEMELING architects, (2009), BRT Urban Design Guidelines, p.10)



1980's

As quickly as it began to pick up, the **declining** of the urban space has soon impacted the municipal of Randburg. It was negatively affected by: the indoor shopping mall, office parks and taxi rank (**Michael Hart architects and Urban designers, 2004, p.6**).

1. **The indoor shopping mall (fig.4.1.4)**. This innovation has made the outdoor shopping mall less desirable. Furthermore, the bulkiness of the shopping mall has impacted the flow of movement within the urban space, as the indoor shopping mall acted as a heavy boundary, blocking the movement within the urban space.
2. **Office parks (fig.4.1.5)**. The office park has cause segregation of the urban environment as it has isolated itself away from rest of the urban context
3. **Taxi rank (fig.4.1.6)**. The informal and often illegal ranking and holding facility of the taxi rank began to **informalised** the urban context of Randburg. Furthermore, the introducing of the taxi rank has also began promote the growth of inform retail activity, which was isolated away from the formal retail activity of Randburg. These two facilities of the taxi rank and the informal market began to alienate themselves away from the rest of the urban context.

1990's

In 1994, a new democratic government was established. Randburg had now acquired sufficient critical mass to be considered an **important node** within greater Johannesburg, **but not** a fully developed **"central business district"** (**Michael Hart architects and Urban designers, 2004, p.7**).

2000's

The Johannesburg Property Company has recognised the problem that Randburg is facing today, therefore has begun to commission designers for the improvement of the district.



Fig. 4.1.2
The outdoor shopping mall

Photo:
(By Chih-Hao Lu, March 2009)



Fig. 4.1.3
High-Rise in Randburg

Photo:
(By Chih-Hao Lu, March 2009)





Fig. 4.1.4
In-door shopping mall

Image:
(IKEMELEN architects, (2009), BRT Urban Design Guidelines, p.36)

What is aimed at for the improving of the district (Michael Hart architects and Urban designers, 2004, p.8)?

- Promoting the use **public** space
- The promotion of a **pedestrian friendly** district
- Reintroduce **civic-ness** to the area
- Address on the issue of **crime**
- **Improve business** confidence
- The introduction of **new administrative** and service functions to be accommodated in **new buildings**
- The restructuring of the site to ensure a **better communication** between urban space and architectures
- The **upgrade** of the status of the district.

Fig. 4.1.6
Taxi Rank

Photo:
(By Chih-Hao Lu, March 2009)



Fig. 4.1.5
Office parks

Photo:
(By Chih-Hao Lu, March 2009)

Fig. 4.1.7
Randburg 1969

Image:
(By Chih-Hao Lu)
1969



1972
Fig. 4.1.8
Randburg 1972

Image:
(By Chih-Hao Lu)



1985

Fig. 4.1.9
Randburg 1985

Image:
(By Chih-Hao Lu)

4.2 SITE ANALYSIS

MAPPING-
GENERAL

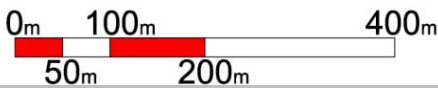


Fig. 4.2.1
Randburg CBD

Image:
(Google Earth)



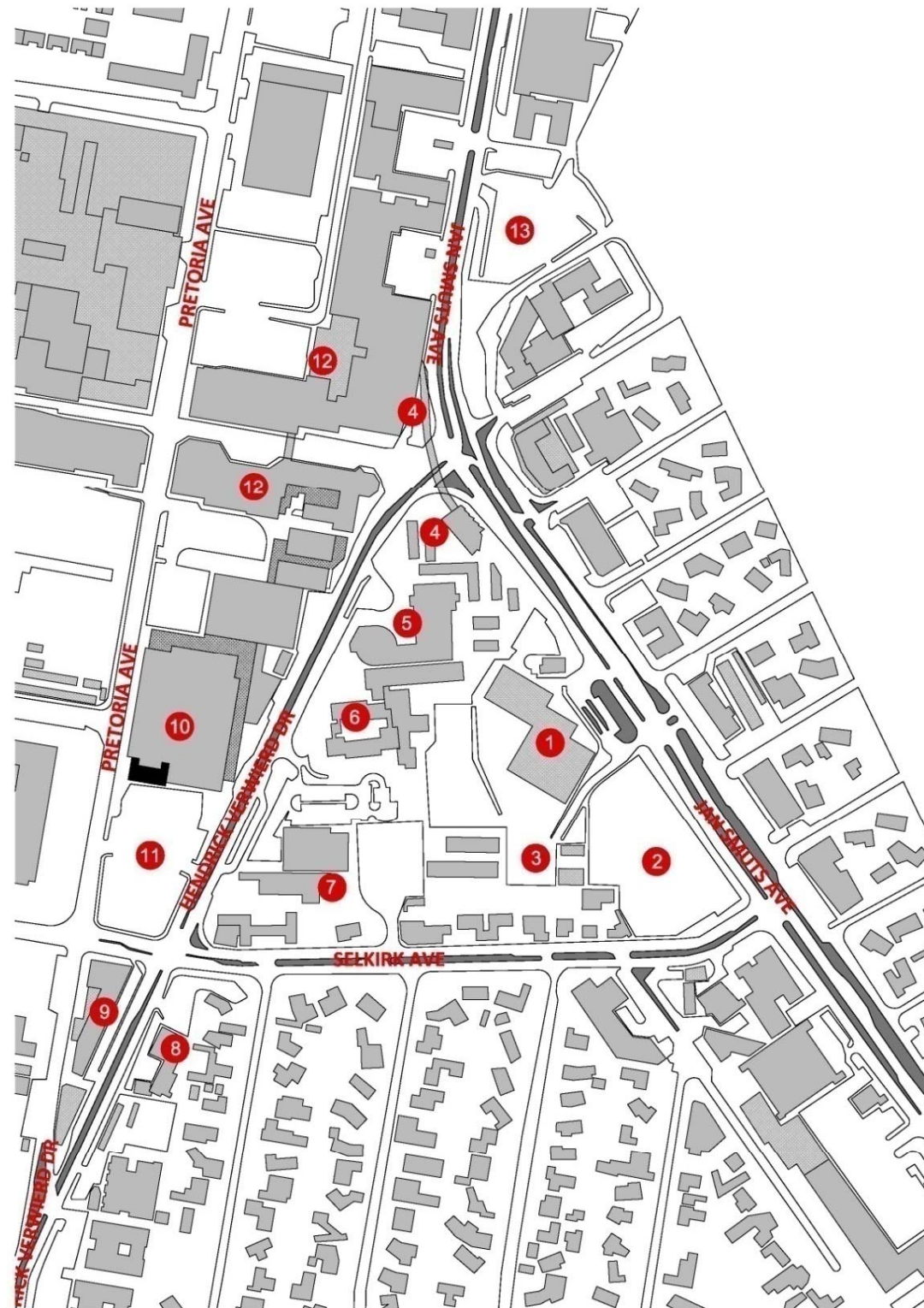


Taxi rank



Informal market

1- RANDBURG TAXI RAN, 2-OPEN VACANT SITE, 3- TAXI MAINTENANCE FACILITY, 4-INFORMAL MARKET, 5- COMMUNITY CENTRE, 6-RNADBURG TRAFFIC DEPARTMENT, 7- RANDBURG LIBRARY, 8- CALTEX GARAGE, 9- COMMERCIAL + RESIDENTIAL MIX USE BUILDING, 10- COMMUNITY SPACE FOR CHURCH EVENT, 11-PARKING LOTS, 12- SHOPPING MALL, 13-RANDBURG DRIVING SCHOOL

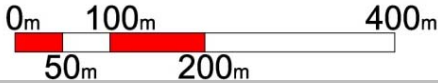
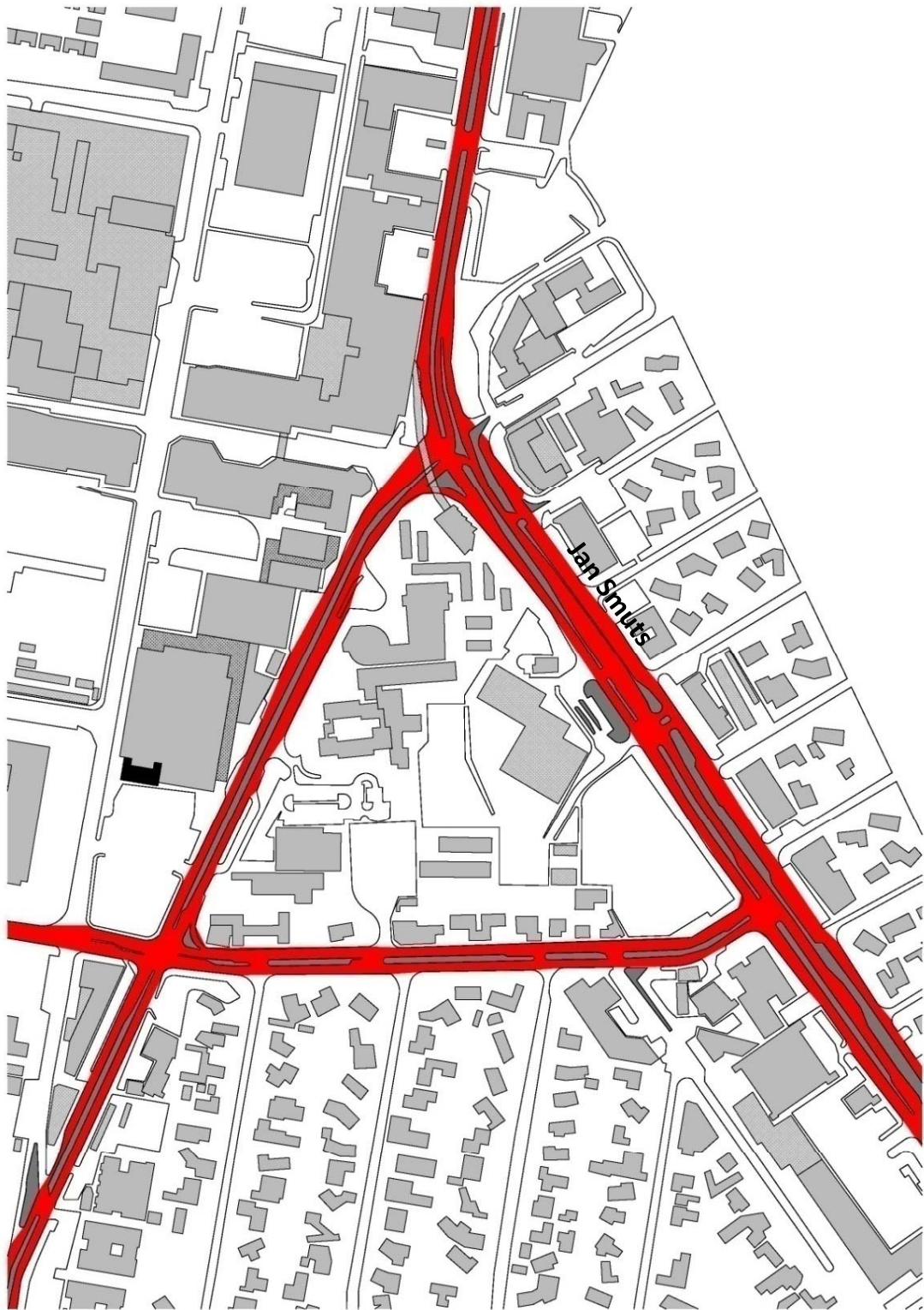


0m 100m 400m
50m 200m

Street names and
important buildings
/ spaces

Photo's & Images by
Chih-Hao Lu





Major Roads

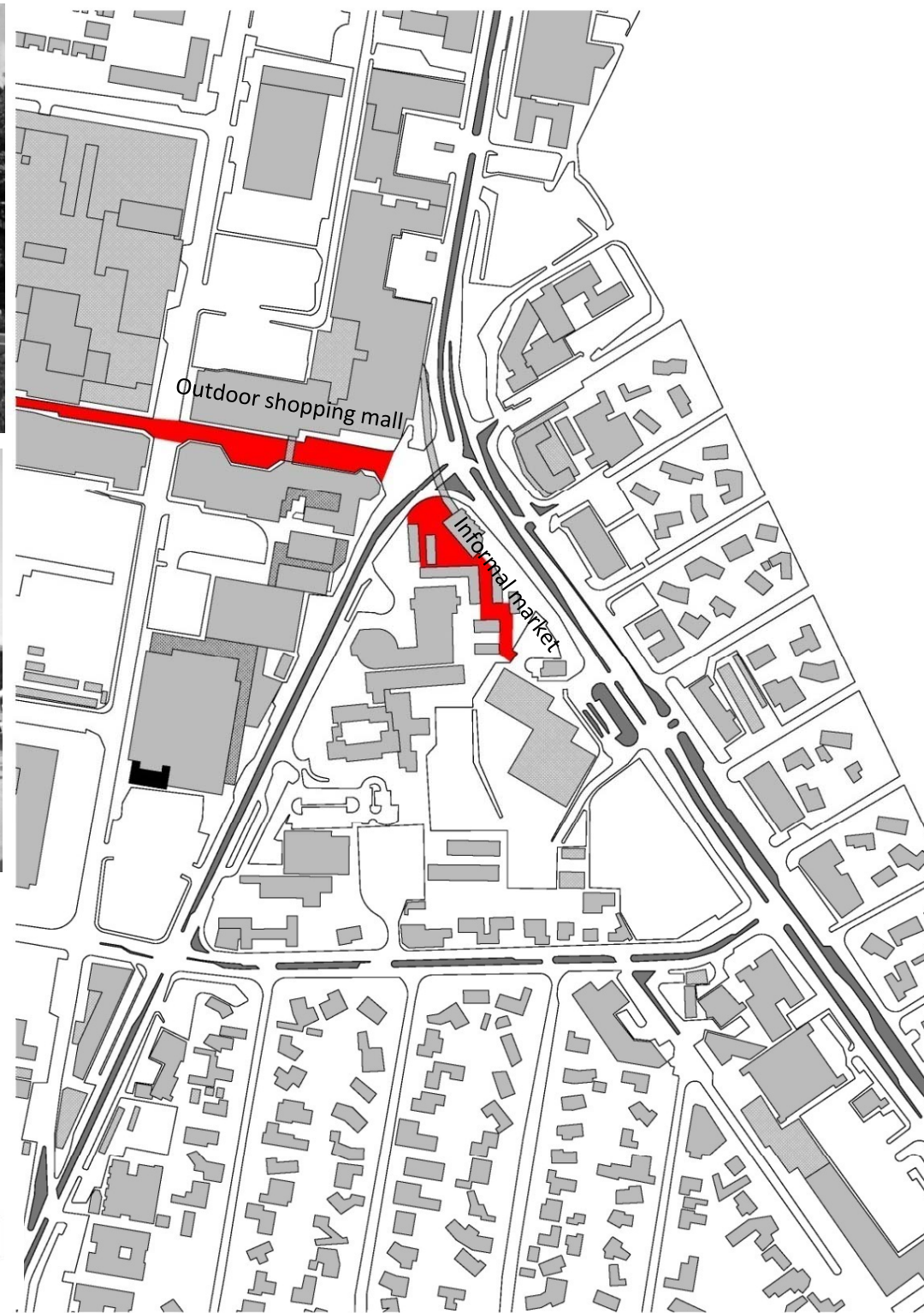


Jan Smuts



Looking onto Jan Smuts

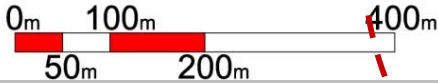




0m 100m 400m
50m 200m

Pedestrian streets

Proposed BRT
route and stations



Stations are at 500m radius
walking distance

Road closed for BRT and
pedestrian only





Sanlam Centre

Sanlam Centre, the tallest structure in Randburg



Building Heights

Photo's & Images by
Chih-Hao Lu



Zoning- Retails



Medical Centre



Zoning- Public Services



Zoning- Offices



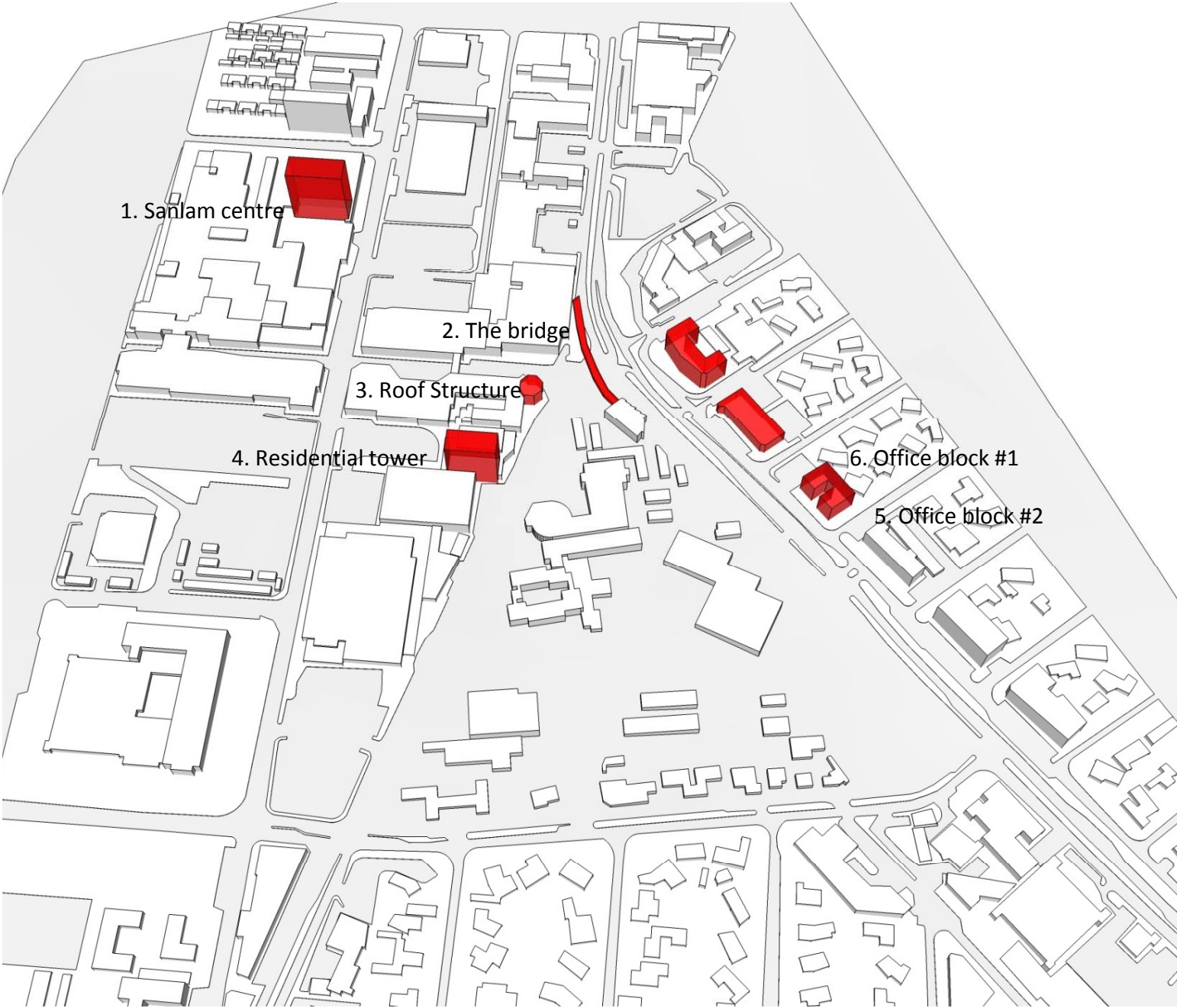


Zoning- Residential



1. Sanlam centre

Iconic Landmarks





2. The bridge



3. Roof Structure



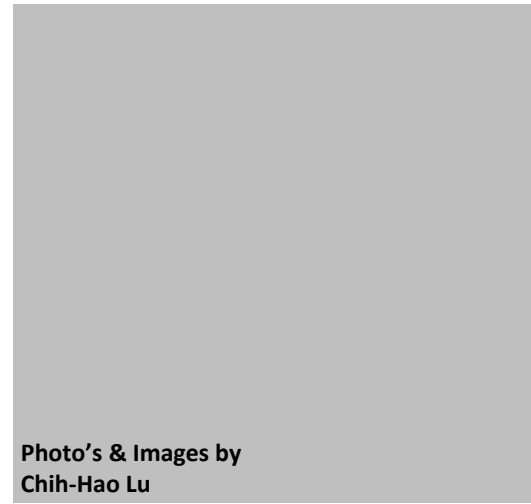
6. Office block #1



5. Office block #2

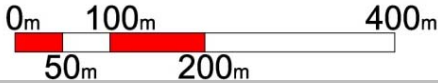


4. Residential tower



Photo's & Images by
Chih-Hao Lu

MAPPING-
PEDESTRIAN RELATED



Paving condition



Paving condition (poor)



Soil paved

 Paving condition (fine)

 Paving condition (poor)

 Soil paved

 Tar paved





Preferred side walks



0m 100m 400m
50m 200m

Preferred
Sidewalks

Photo's & Images by
Chih-Hao Lu



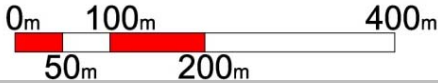
Pedestrian
Movement



Pedestrian Activities

Photo's & Images by
Chih-Hao Lu

MAPPING-
BOUNDARIES

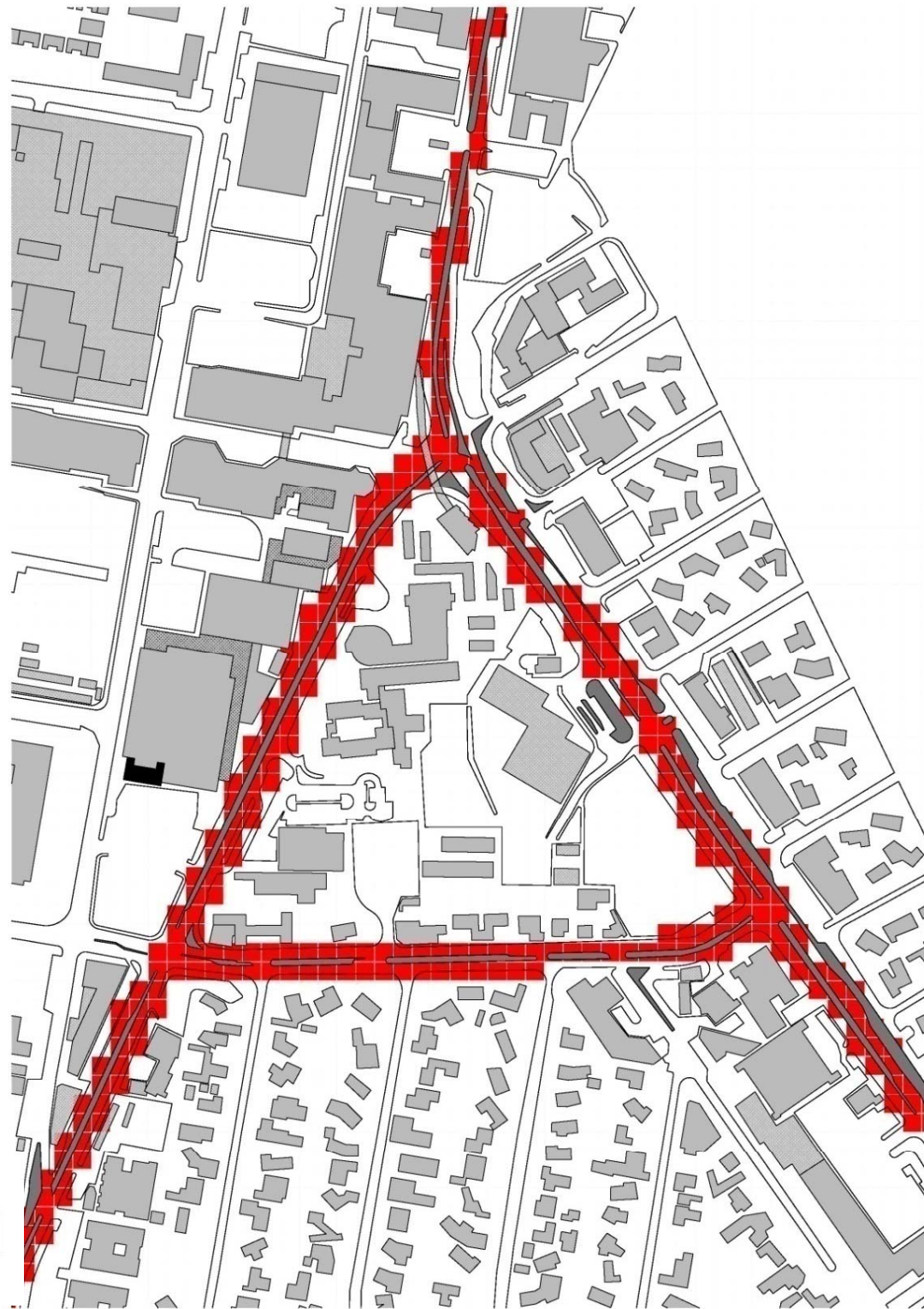


Boundaries-
Physical walls /
Barriers



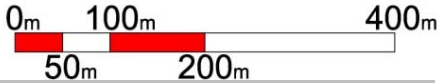


Street that is difficult to cross



0m 100m 400m
50m 200m

Boundaries-
streets



Boundaries-
Over scaled open
space



Over scaled vacant space





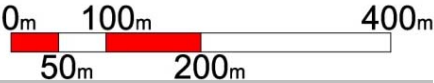
The negative effect of the boundaries on Randburg urban space:

- Cause of discontinuity
- Blocking the movement of people
- Fragmentise the urban fabric
- Restrain Movement

0m 100m 400m
50m 200m

Boundaries-
Barriers + streets +
open spaces

This diagram shows the current situation on how people move around in Randburg CBD due to the discontinuity and boundaries of Randburg.

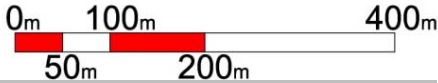


Boundaries-
Restrained
movement

Photo's & Images by
Chih-Hao Lu



MAPPING-
NEGATIVE SPACES



Negative Spaces





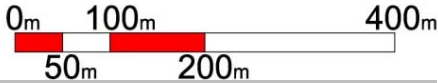
Parking for the shopping mall



0m 100m 400m
50m 200m

Negative Spaces- Parking

Photo's & Images by
Chih-Hao Lu



Negative Spaces-
Vacant Sites

Photo's & Images by
Chih-Hao Lu



Vacant site





0m 100m 400m
50m 200m

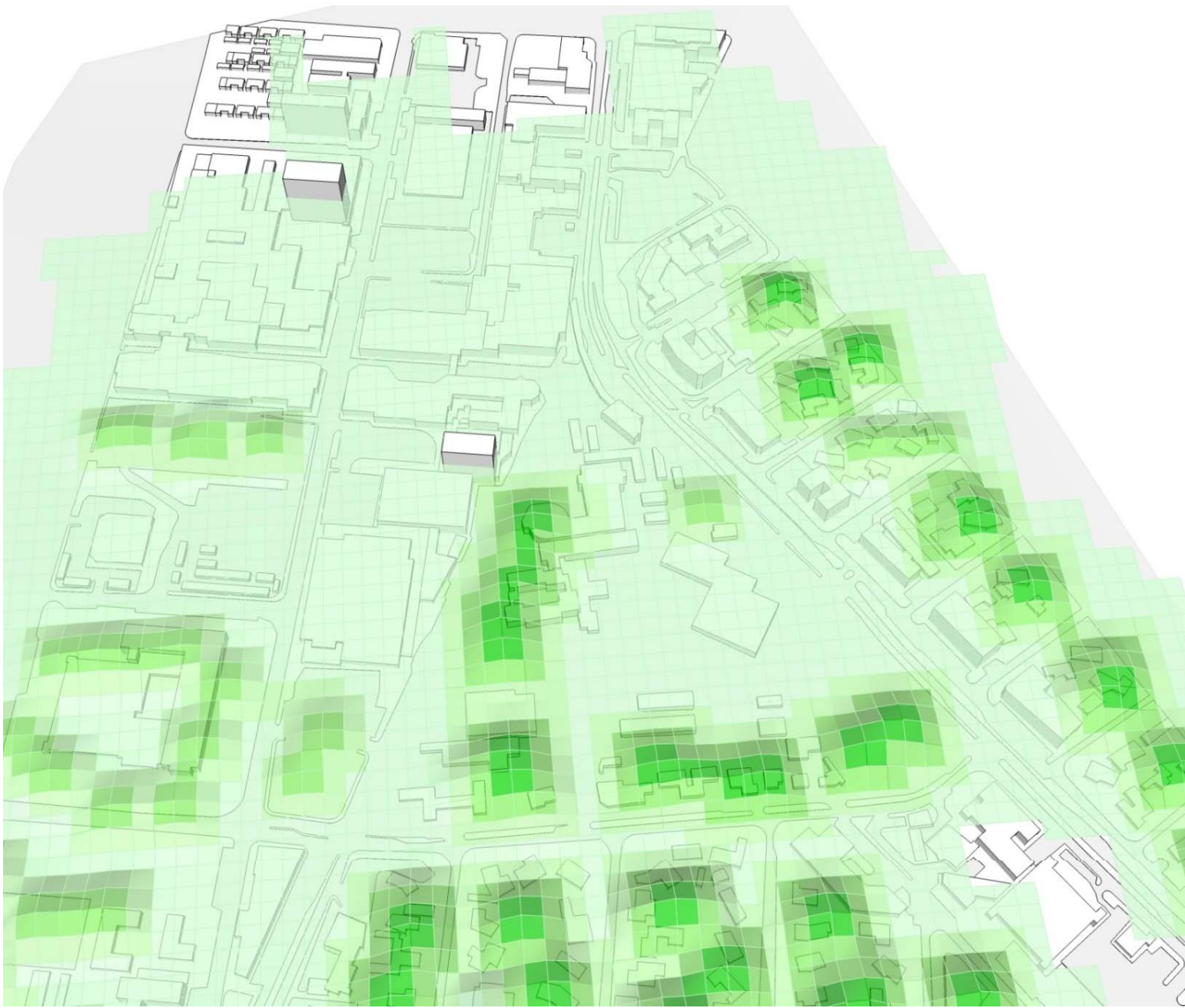
Negative Spaces-
Site with Activities

MAPPING- BIOLOGICAL

The vegetation fades away at the center of Randburg due to the development of:

- Taxi Rank
- Office Blocks
- Shopping malls

Biological- Vegetations



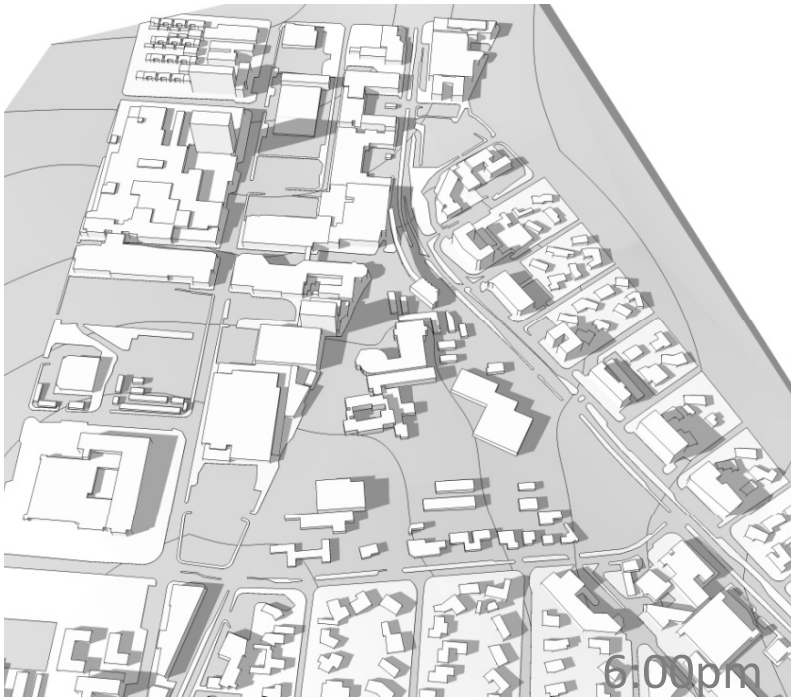


Biological-
Contour

Photo's & Images by
Chih-Hao Lu



7:00am

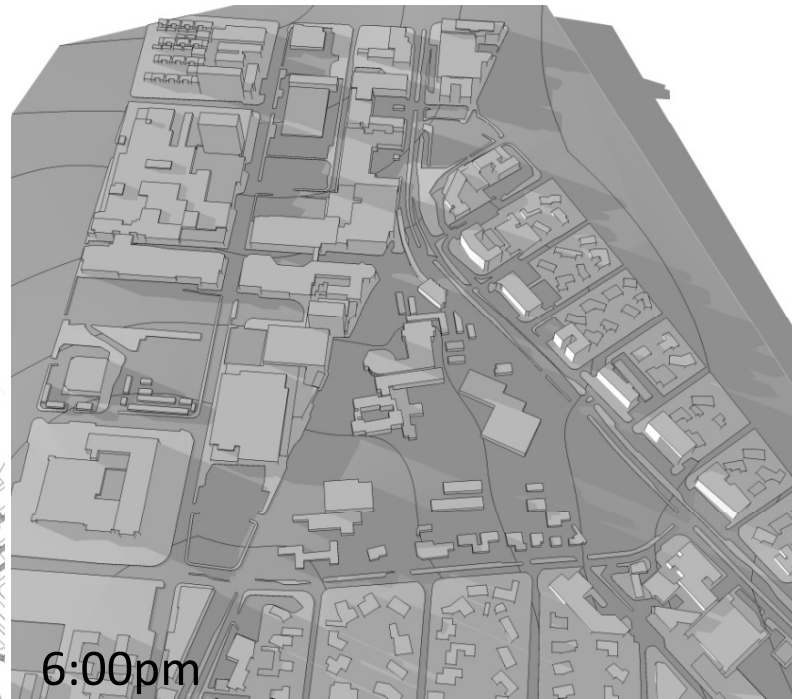


6:00pm



12:00pm

Biological-
Shadows Summer



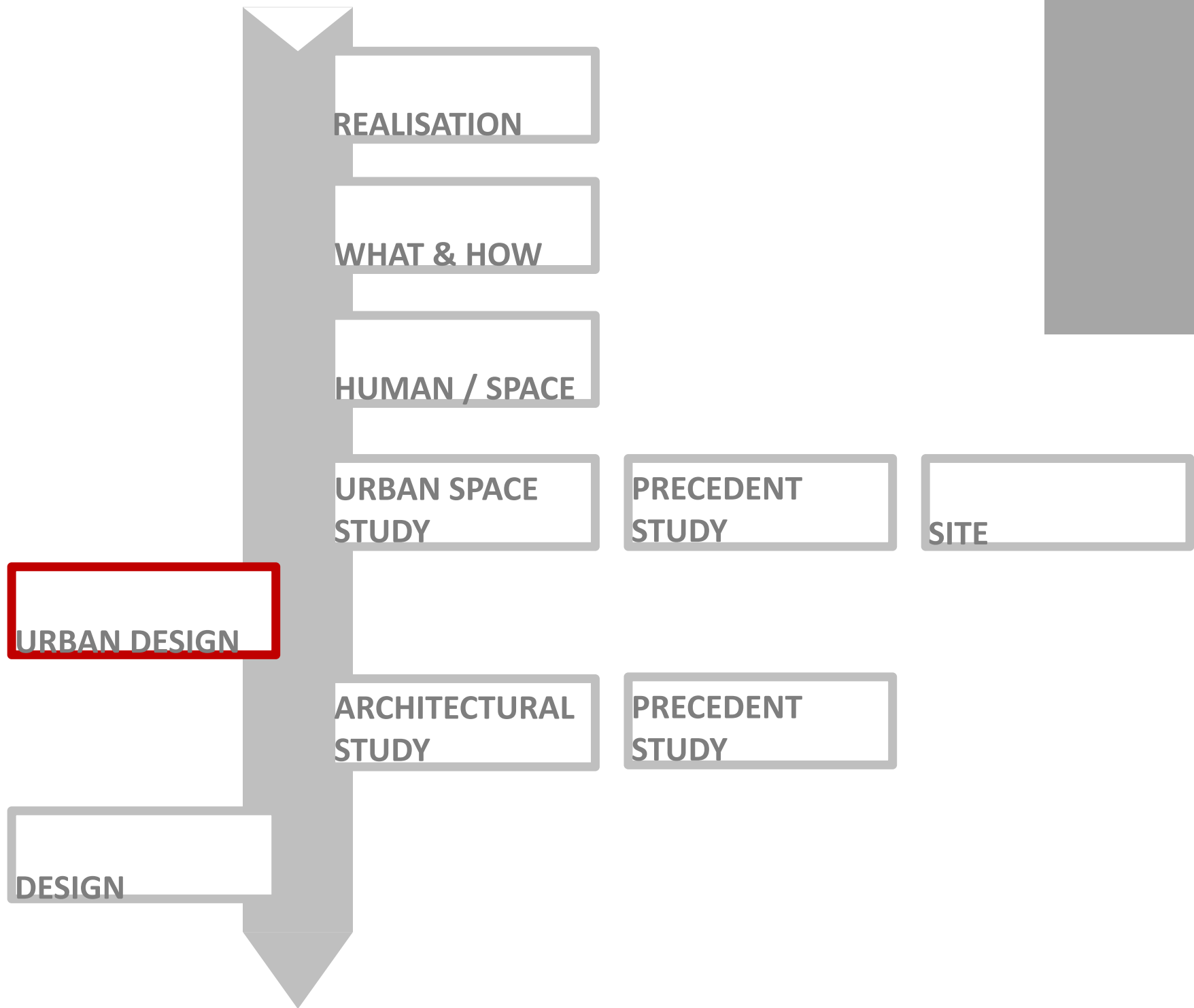
Biological-
Shadows Winter

Photo's & Images by
Chih-Hao Lu

5.0

URBAN DESIGN FRAMEWORK





5.1

DESIGN DEVELOPMENT

Urban design framework- final attempt (Model)

Before the design of the urban framework may begin, I have got to ask myself this question: What are aimed at improving?

1. Completes the *connection* between spaces within the chosen site, and to link it with the existing urban environment

Due to the discontinuity and fragmentation of Randburg urban environment, how should the urban design framework establish its *linkage within itself* and with the rest of the *urban environment*?

2. Draws a strong *connection* between the *Taxi rank* and the proposed *BRT station*

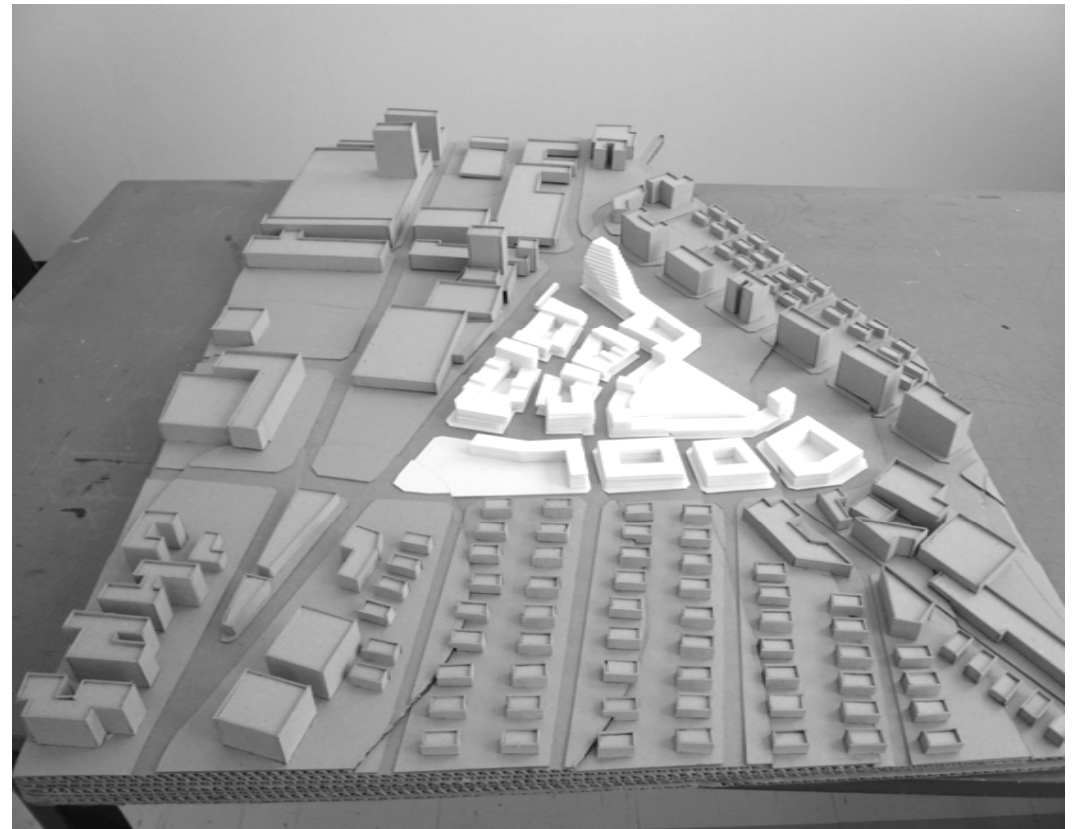
With the BRT station being introduced to the site, how will the station effect on the urban design framework? My answer is to link the BRT and the Taxi Rank system with a *strong axis*, therefore making them function as a greater system.

3. Provides a *pedestrian friendly space*

The present urban environment is not very pedestrian friendly. The missing links between spaces, the poor paving condition, the lack of urban furniture, vegetation, and shading device, has made the urban space difficult to utilise. Therefore the space should be redesigned with a better pedestrian space.

4. *Continue* the pedestrian energy from the outdoor shopping mall

From the site analysis, the strong pedestrian energy from the outdoor shopping mall and the informal market has been mapped . My aim is to continue this energy and to draw this energy amongst the rest of the site.



5. Using *public transportation* as a main *driving force* behind the design

After providing a strong connection between the taxi rank and the BRT station, the movement between these two spaces should *strengthen the activity* of the urban space in between.

6. Designing with *human scale*

The buildings within the urban space should be at a height relating to the human scale, yet providing a sense of enclosure and security.



Urban design framework-
final attempt (3-D model)

7. Designing with a *vertical rhythm*

The vertical rhythm relates better to human movement. Furthermore, the introducing of the vertical rhythm onto the elevations will enhance the overall image of the precinct, as it is able to create variety within the precinct.

8. Strengthen the idea of a “*central commercial district*” that was established in the 1960’s

By introducing commercial activities into its center; and furthermore, linking it with the transportation system, the precinct will be able to function as a system, making it a ‘*central commercial district*’ that the City of Johannesburg was trying to achieve in the late 1960’s.

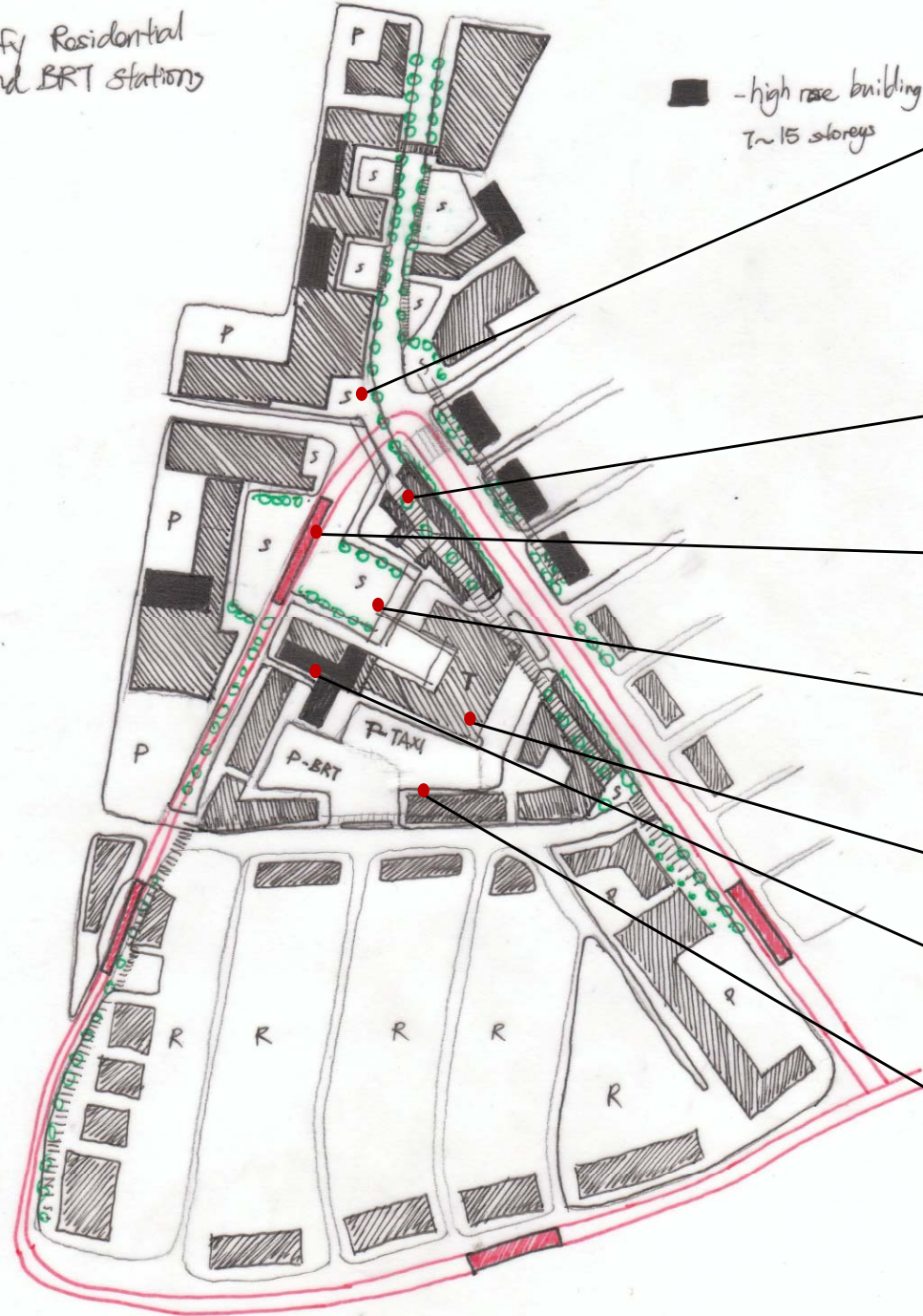
9. *Upgrade the urban space*

After achieving the above tasks, the urban space should have been upgraded. Furthermore, the urban space should be promoted to an international level.

- Moving ~~the~~ Parking & Back of house
away from Main Street (Jan Smuts)
- Density Residential
around BRT stations

Failed to Provide:

1. The pedestrian energy stopped half way into the site.
2. No sub-division is provided within the site
3. The "back of house" is to be considered as a dead space
4. The site is hidden and isolated away from the rest of the city



Provided:

The drawing of pedestrian energy from the outdoor shopping mall

The informal market is introduced with an arcade environment. It has furthermore created a boundary between the vehicle movement along Jan Smut and people movement contained within the site.

BRT station

A public square is introduced in order to draw the connection between the BRT and Taxi Rank

Taxi Rank

Civic Building with public services such as: home affair, library and community centre.

"Back of house" for the Taxi Rank



Provided:

Civic building used as a **boundary** between pedestrian and vehicle. Furthermore, the build is to be design as a high rise building, acting as a **beacon** of the site

BRT station

A **public square** is introduced in order to draw the **connection** between the BRT and Taxi Rank

Commercial buildings + informal market

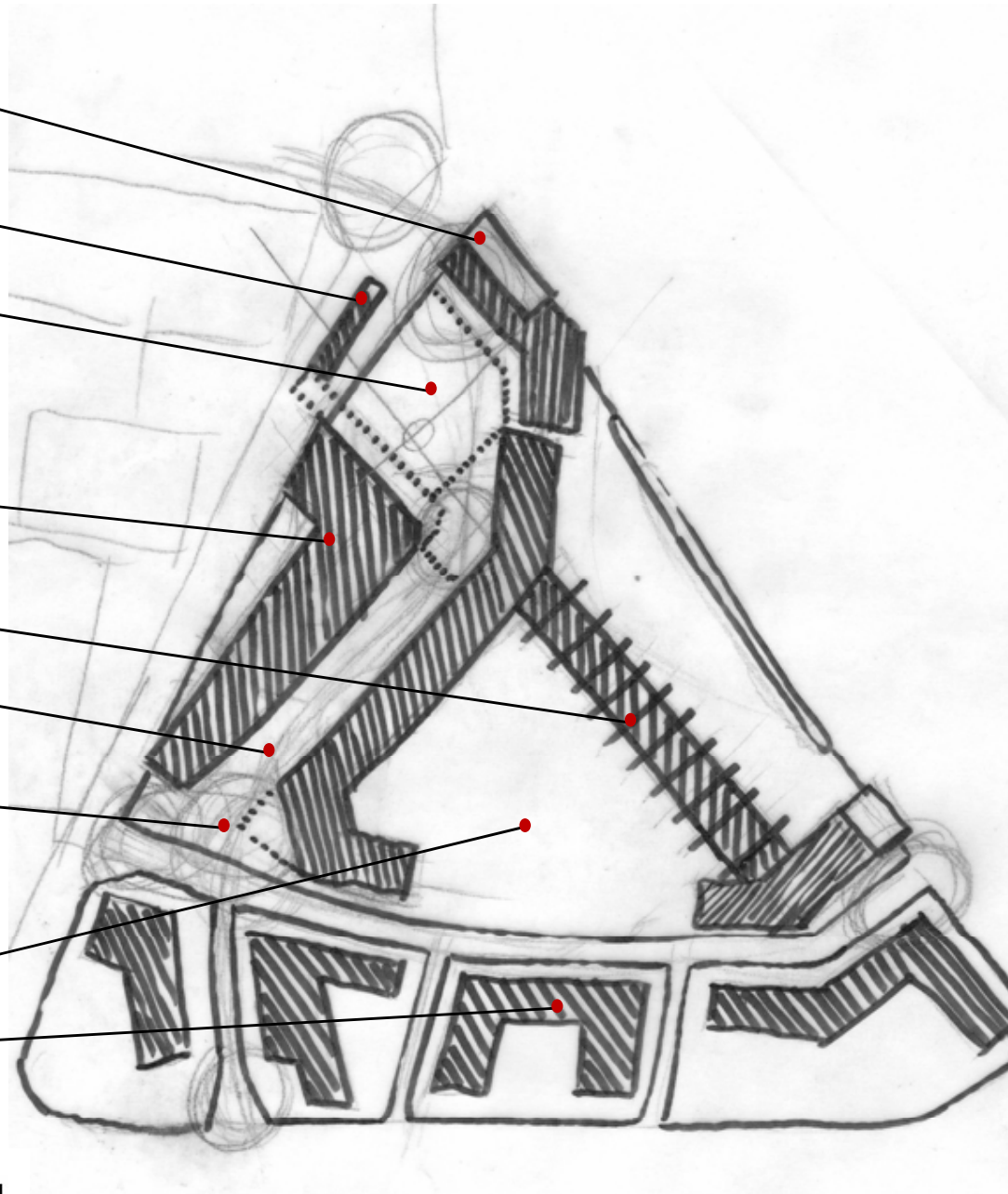
Taxi Rank

Internal pedestrian street

An entrance into the site

Taxi holding space

Office buildings used as a **buffer** between the residential area to its south and the urban design

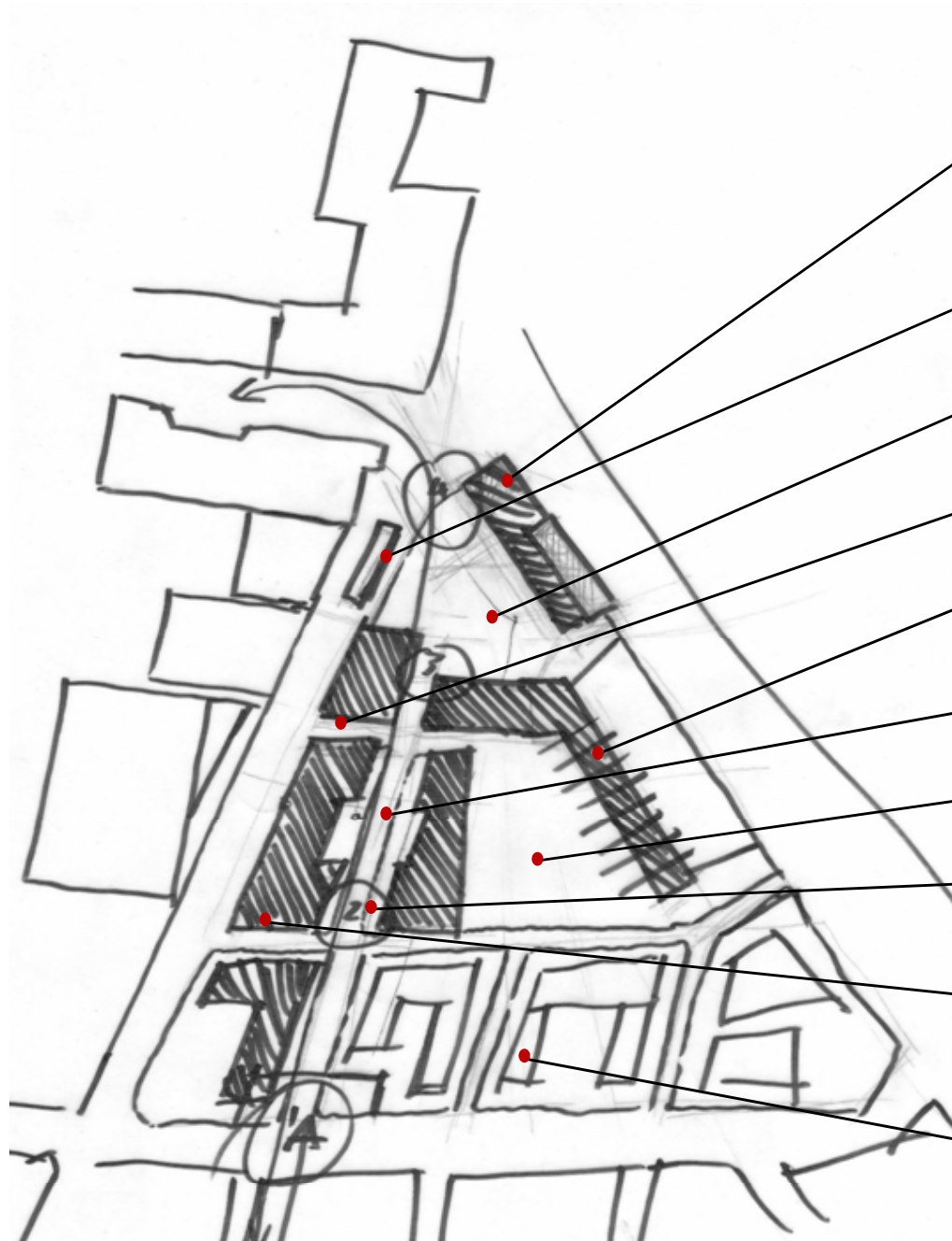


Failed to Provide:

1. The taxi holding space is a **dead space**, and large amount of space is wasted.
2. The space behind the commercials buildings are also considered as **dead spaces**.
3. **Not enough variety** is provided, as there is only one internal street
4. Instead of using **landmark** to direct people within the site, people are directed and forced into the only internal street

Failed to Provide:

1. The holding space for the taxi rank is considered to be **too large**.
2. The square is still **lacking an enclosed** quality.
3. The space behind the commercial buildings are still considered as **dead spaces**.
4. The buildings are **too long** in its length.



Provided:

Civic building used as a **boundary** between pedestrian and vehicle. Furthermore, the build is to be design as a high rise building, acting as a **beacon** of the site

BRT Station

Square is used as a **linking** device between buildings and spaces

smaller entrances are provided into the site

Taxi Rank

Secondary square is provided in order to break the long internal street into segments

Holding space for taxi rank

Secondary Entrance

Commercial + informal markets

Office buildings used as a **buffer** between the residential area to its south and the urban design



Provided:

Civic building used as a **boundary** between pedestrian and vehicle. Furthermore, the build is to be design as a high rise building, acting as a **beacon** of the site

BRT station

Public square

Axis between BRT and Taxi Rank

Local **landmarks**

The back **edge** of the commercial building is designed to link with the existing urban space

Street crossing is emphasised with paving

Secondary square provided

Internal pedestrian street with an appropriate **ratio between building height / street width**

The **informal market** is designed to wrap around the Taxi Rank. Allowing people to interact with the market before entering the taxi rank. The idea is taken from the design of the **Metro Mall** in JHB CBD

Office buildings used as a **buffer** between the residential area to its south and the urban design



Additional Street is provided under the civic building, allowing people to cross Jan Smuts from the square

Landmark that locates the entrance of the taxi rank

Taxi rank

Landmark for the taxi rank

Conclusion

This urban master planning is then taken for **further development**, as the space planning for this design seems to work. However, the lack of human scale, building heights, pedestrian environment, and building forms will be introduced in the next section.

5.2

DESIGN FINAL- URBAN DESIGN FRAMEWORK

Extending the energy from the outdoor shopping mall to the urban design framework

Civic building as beacon / regional landmark

Using square to draw strong connection between BRT and Taxi Rank

Use of local landmark

The building on the other side of the street shares the same architectural language

Secondary square

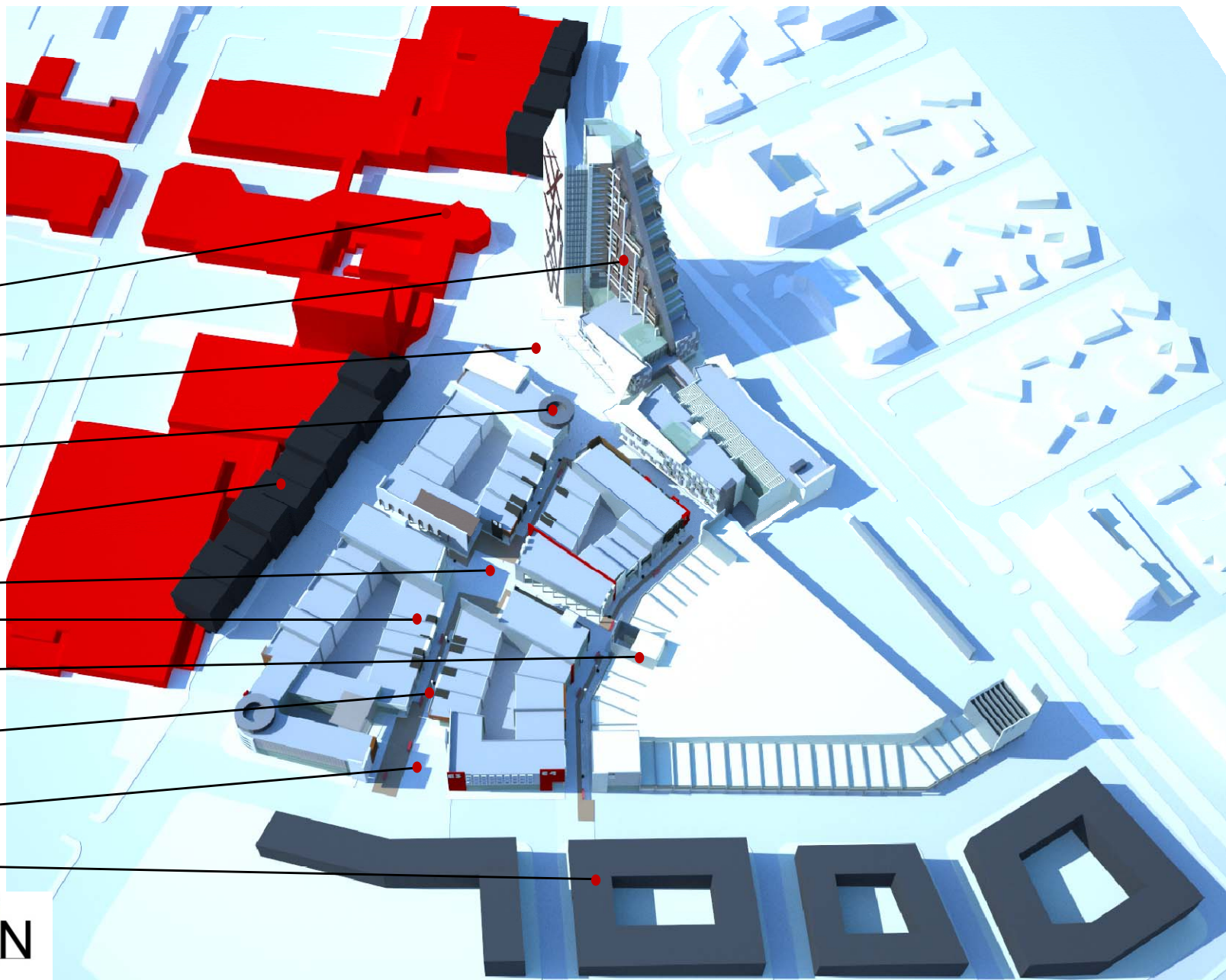
Buildings divided into vertical segments

Taxi Rank. Wrapped by informal market

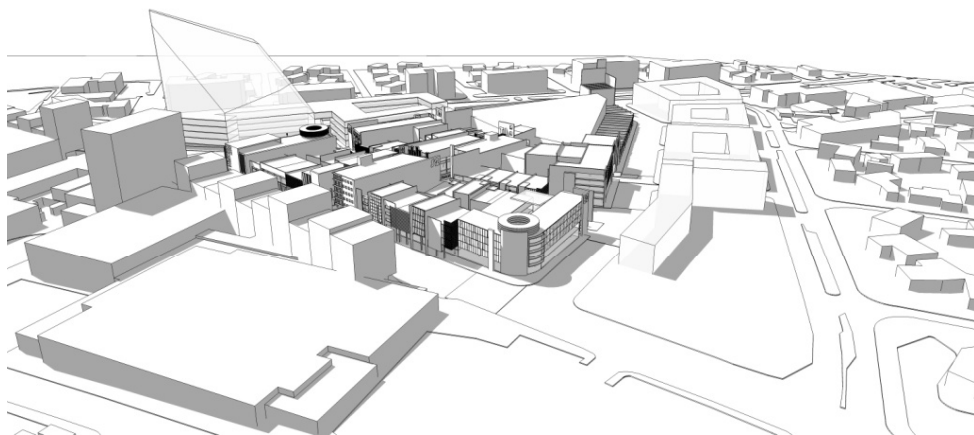
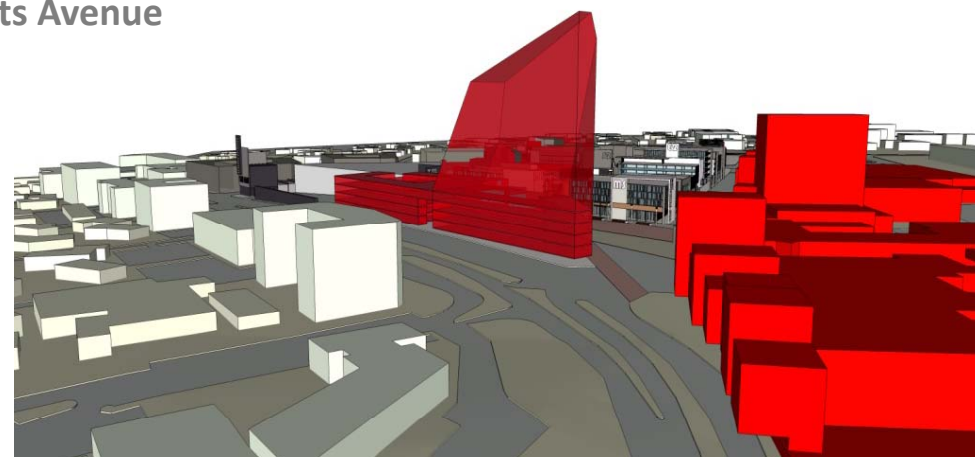
Internal street with pedestrian friendly design

Secondary entrance to the urban space

Commercial buildings used as buffer between residential and urban space

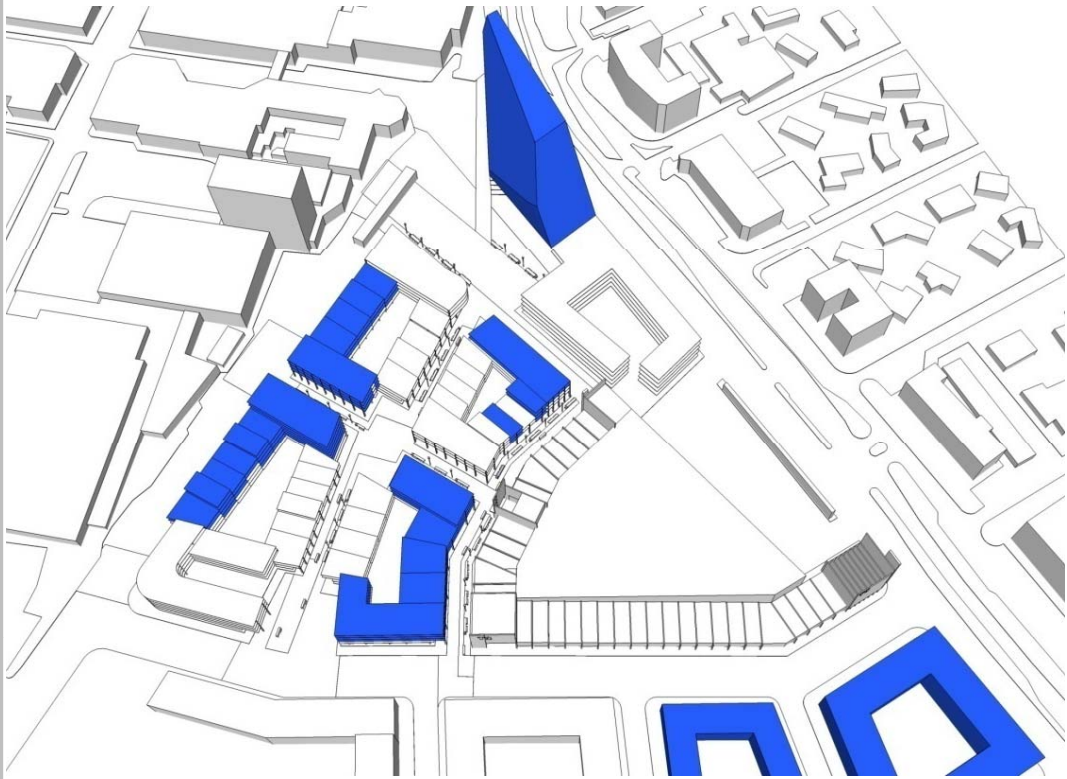


View from Jan Smuts Avenue

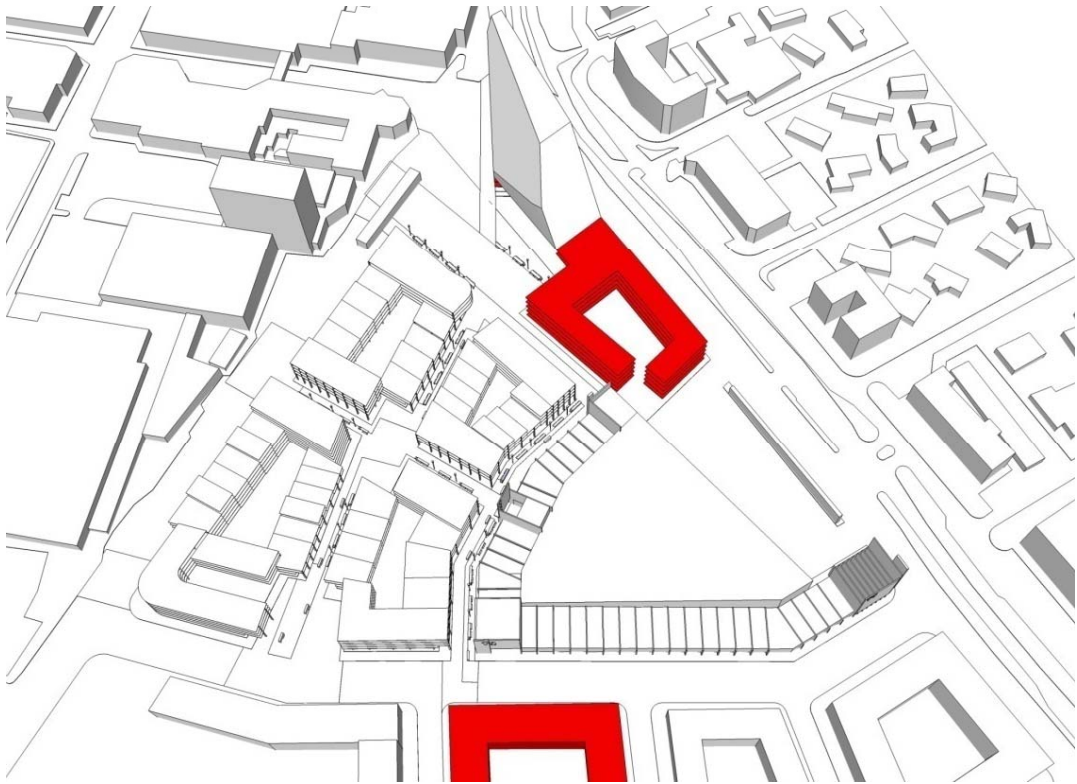


Building Use

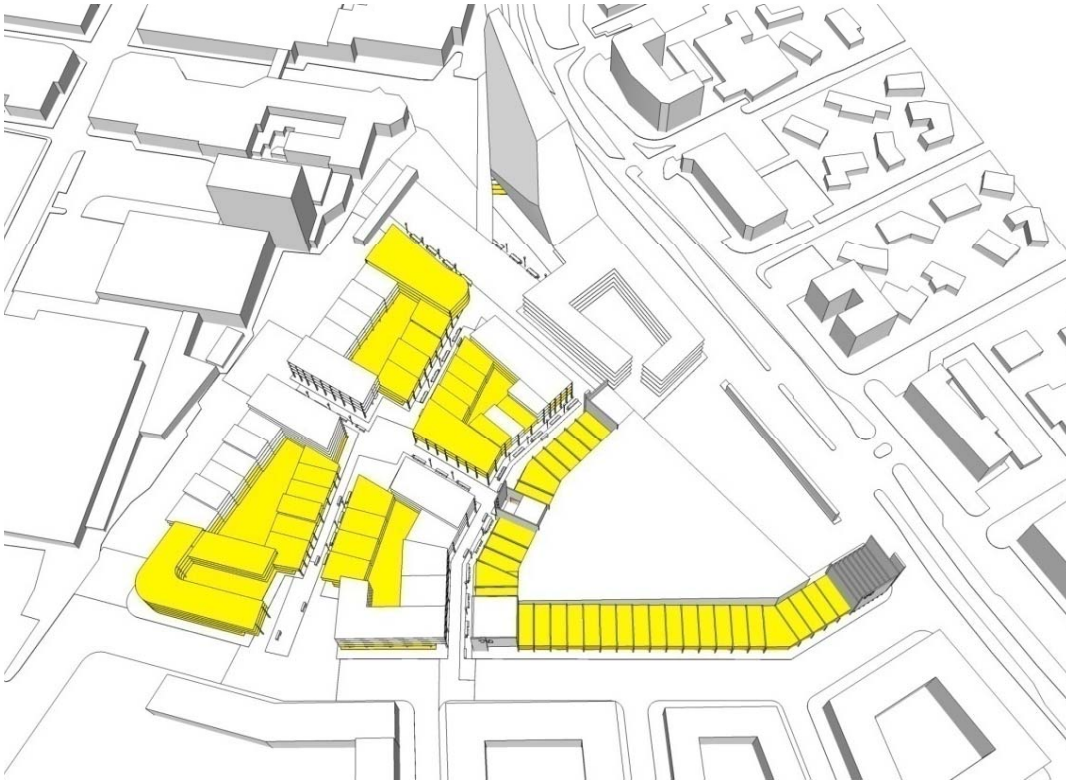
Commercial + Office



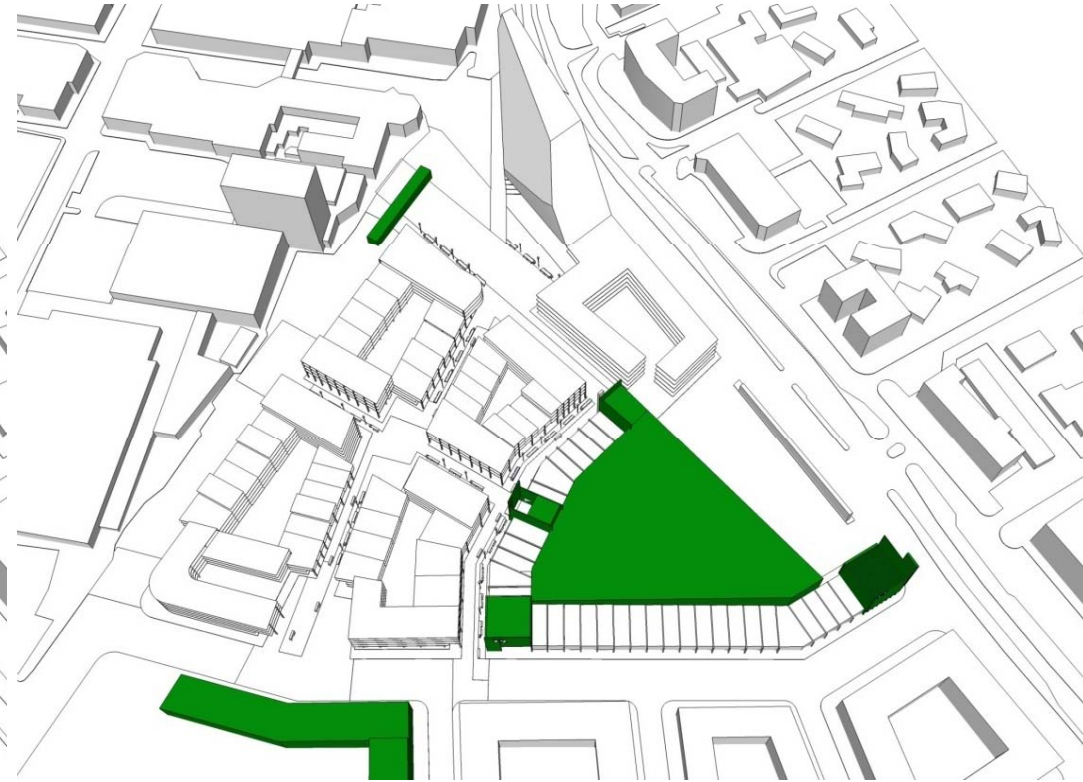
Public Service



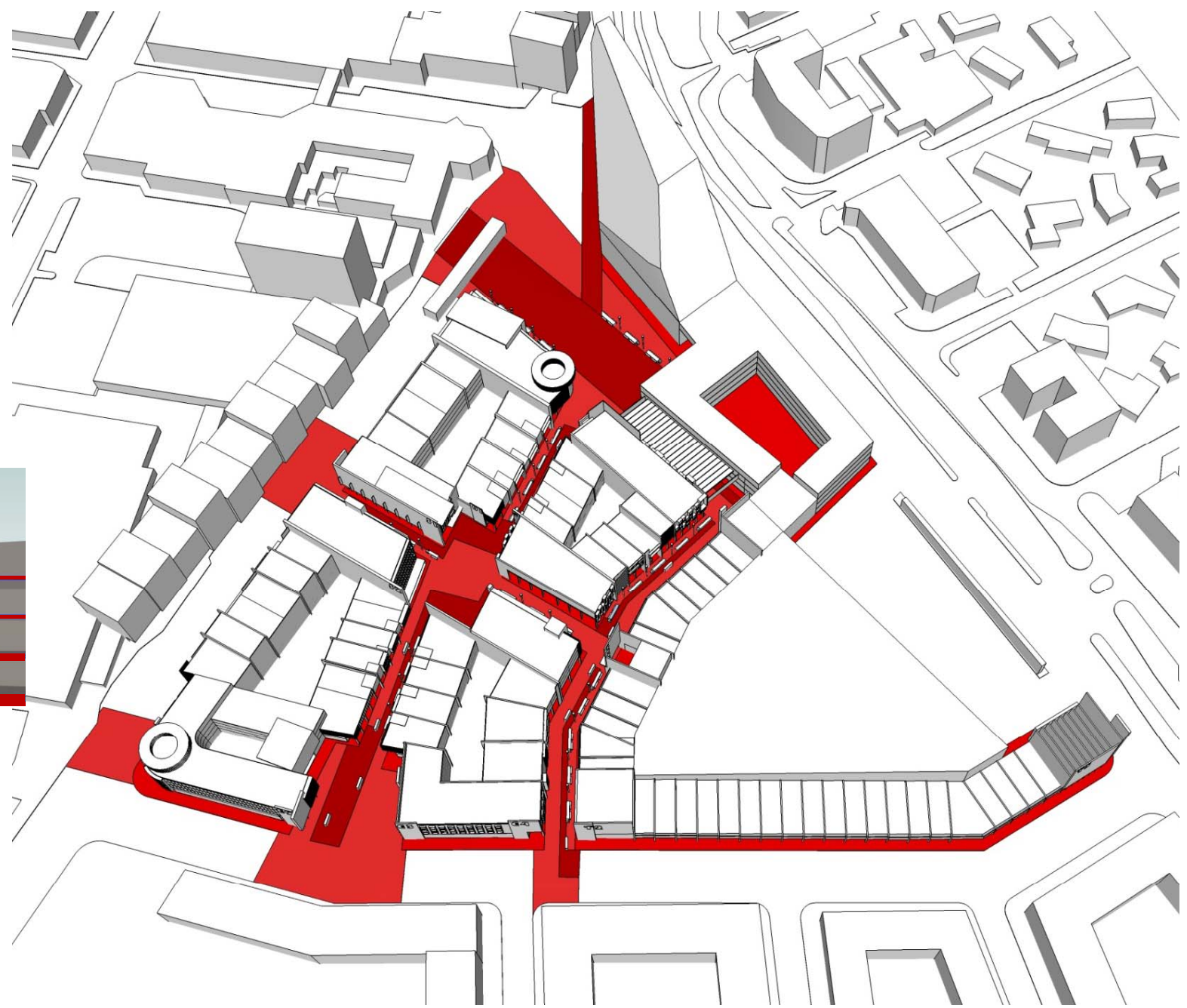
Retail + Informal Market



Transportation

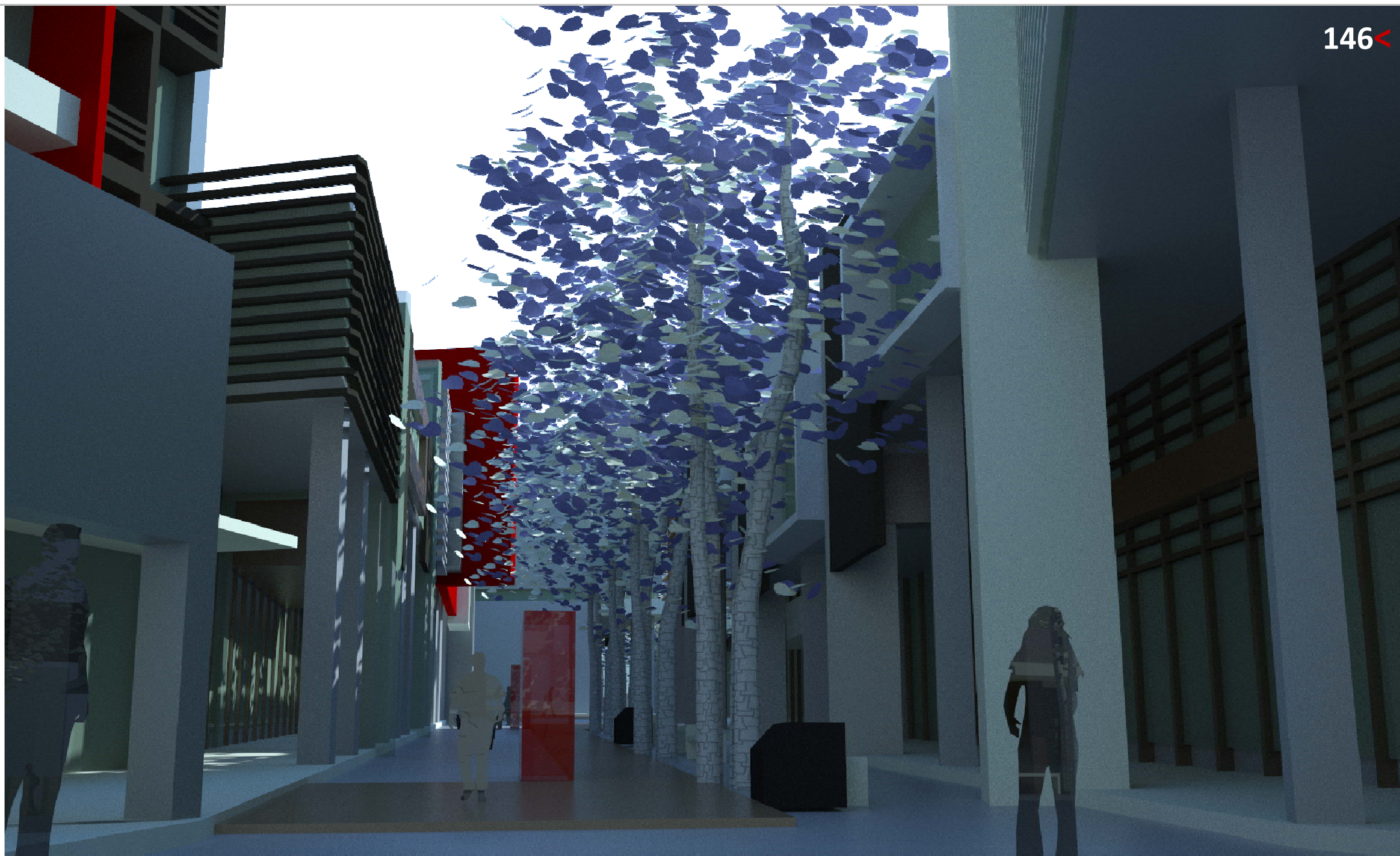


Pedestrian space

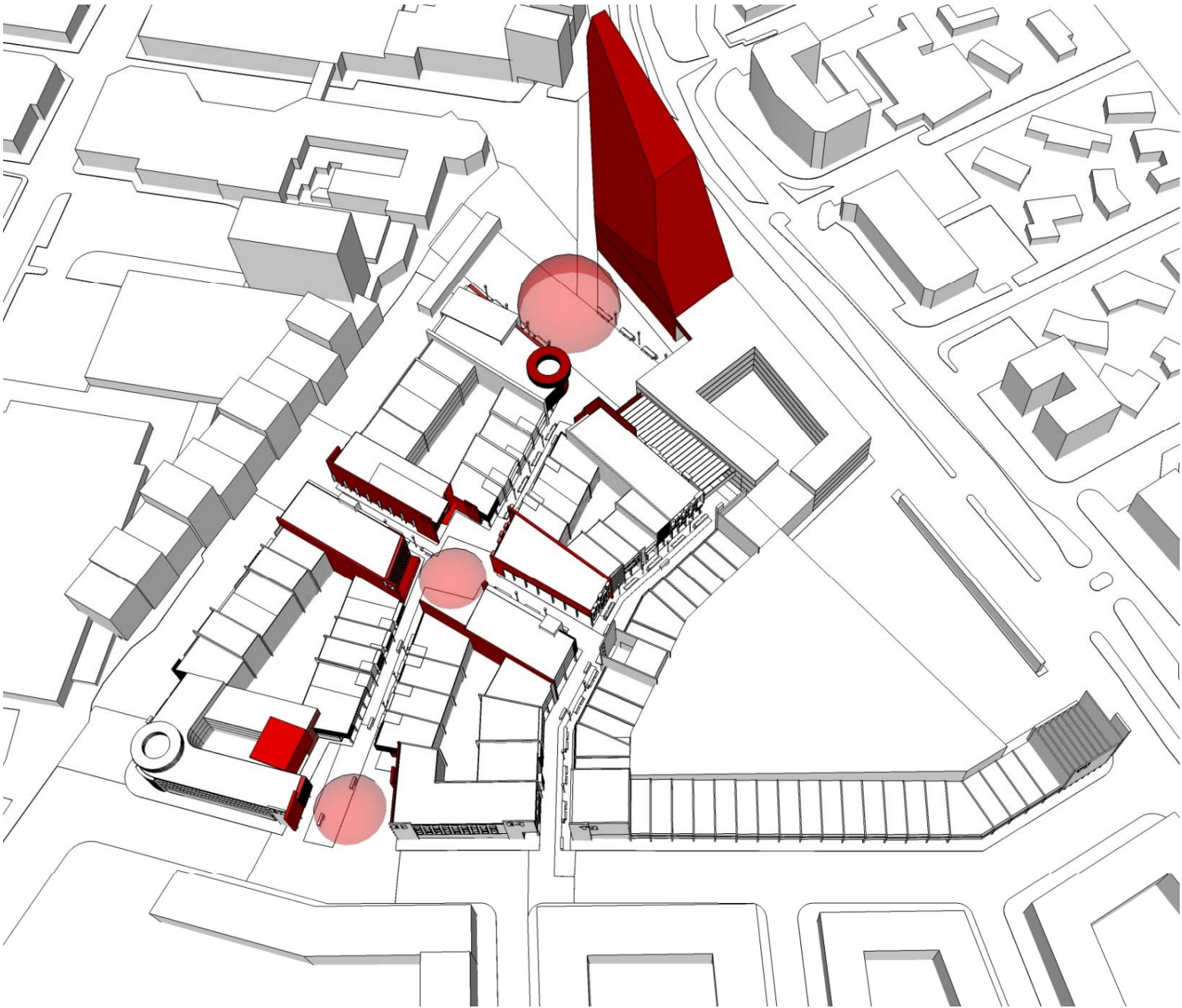


Typical section of an internal street





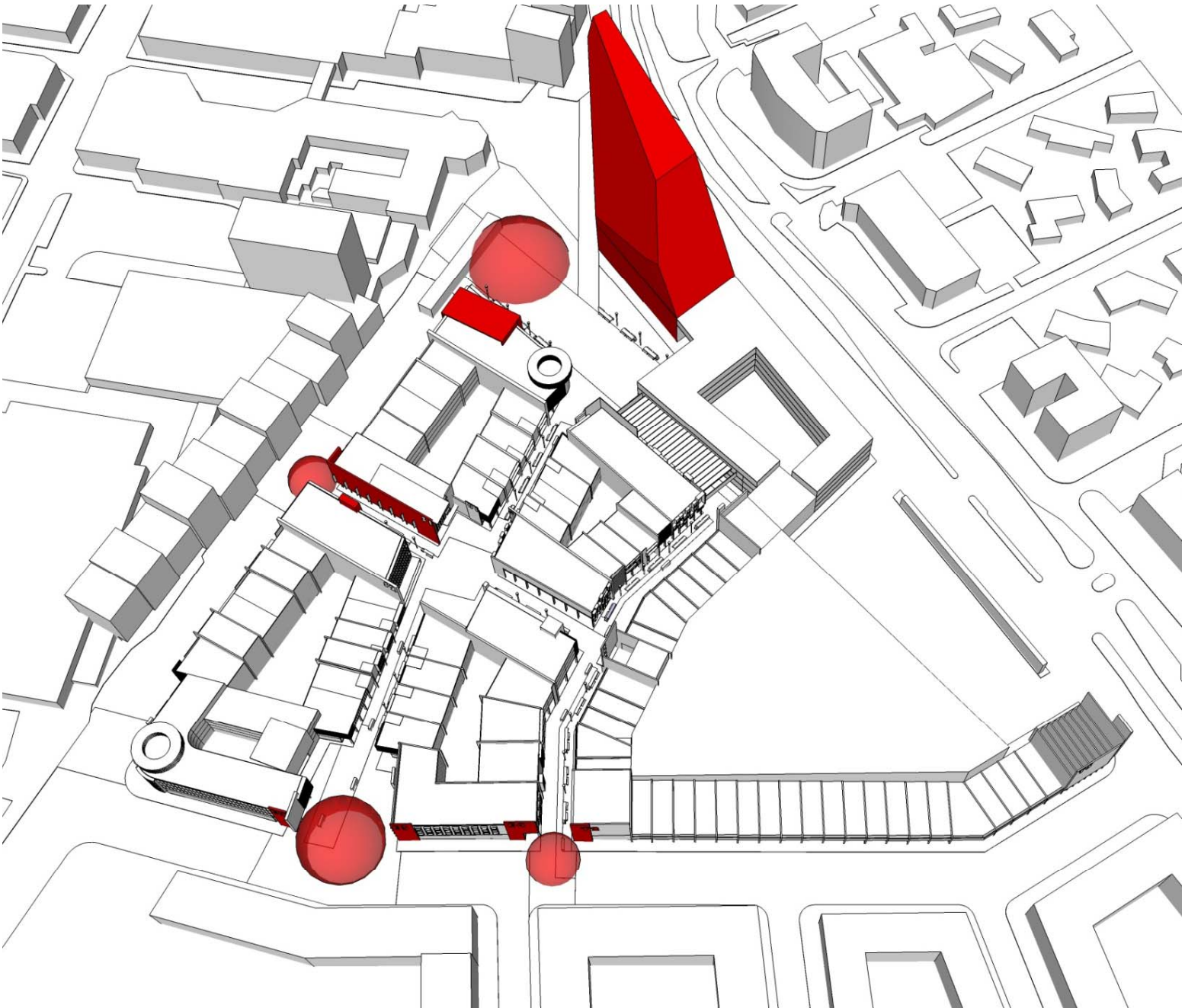
Civic Squares



Main square that links the BRT and Taxi Rank



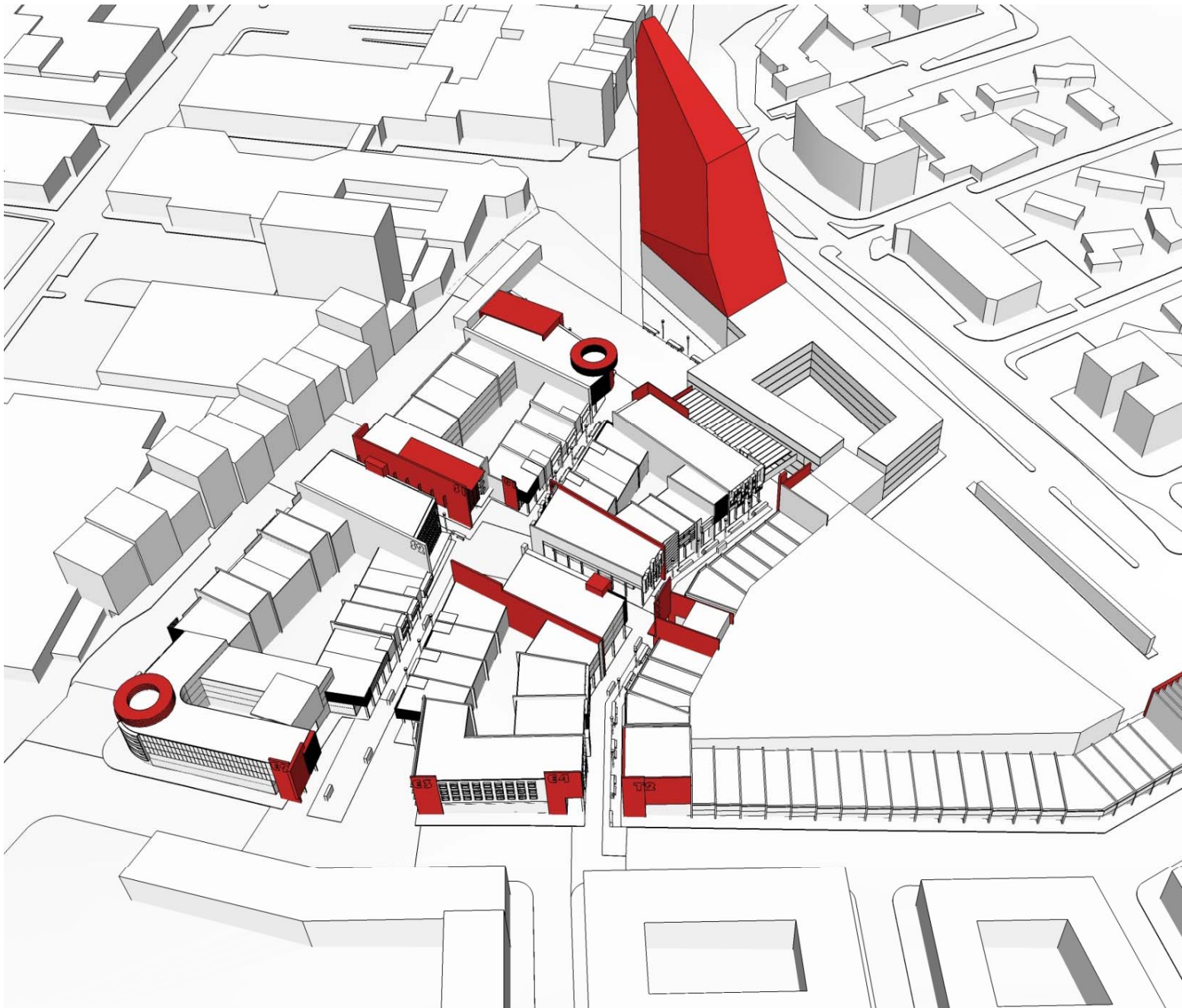
Entrances



Landmarks that marks the entrance to the
secondary entrance



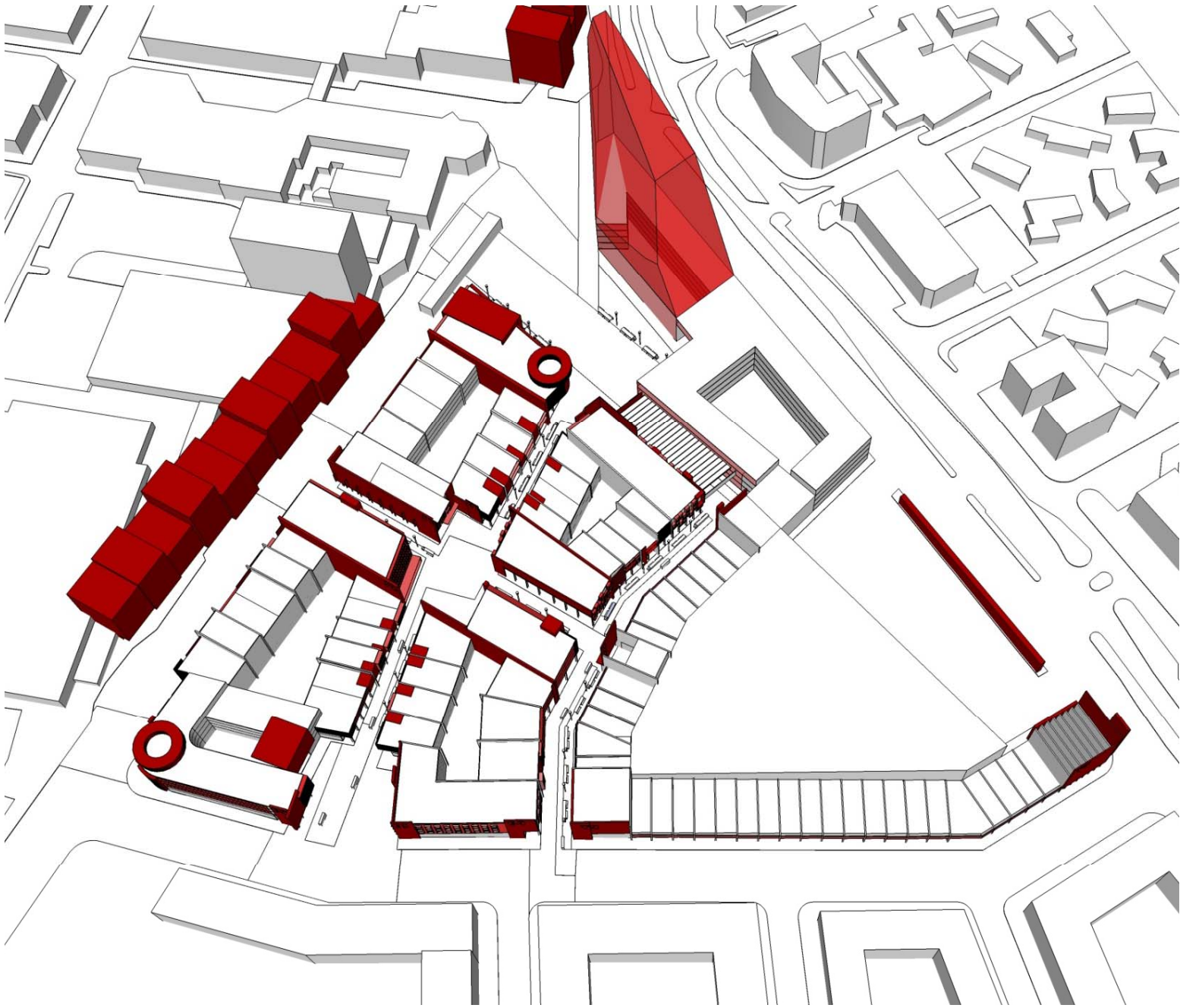
Signal Buildings

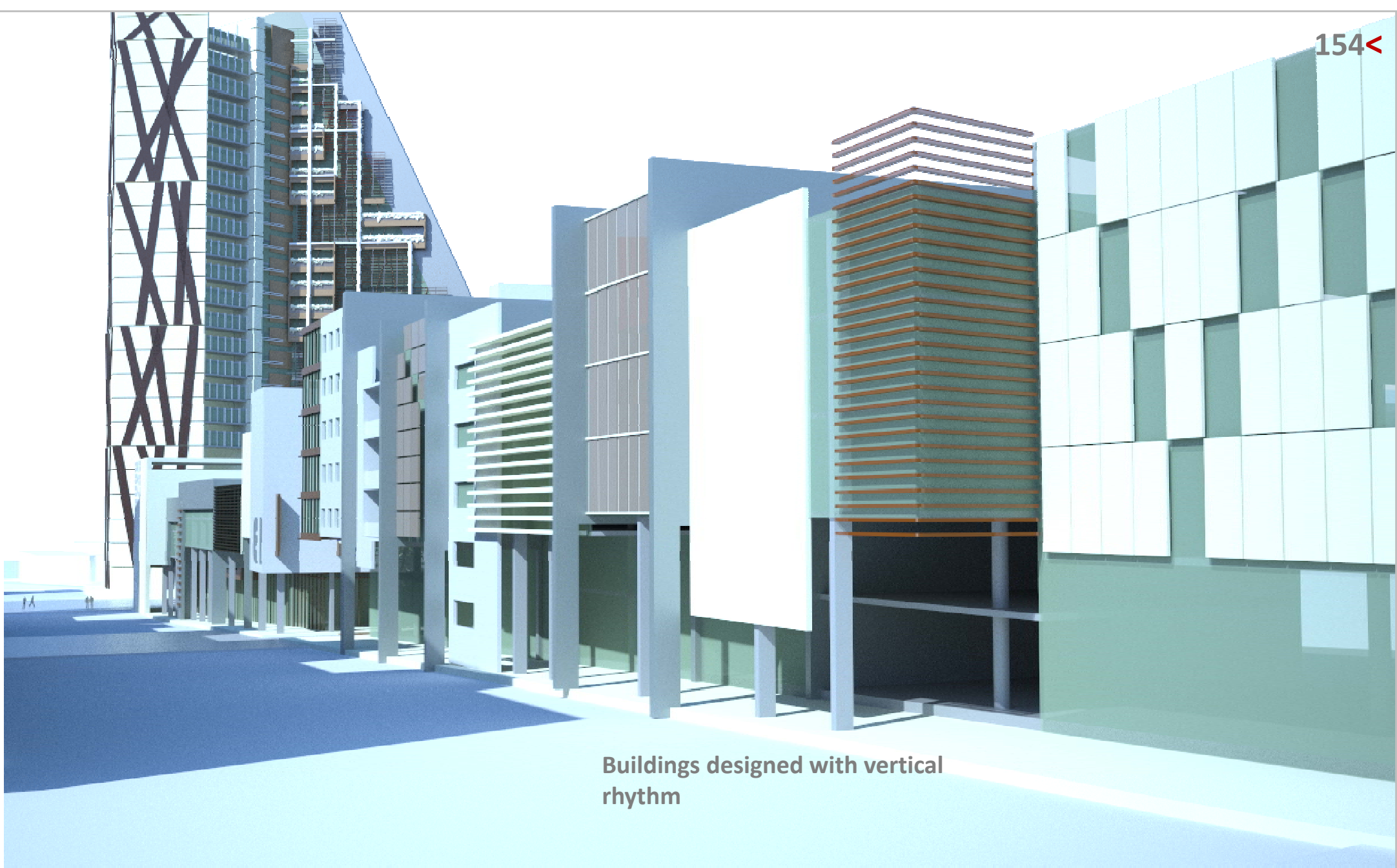


Signal building that marks one location within a site



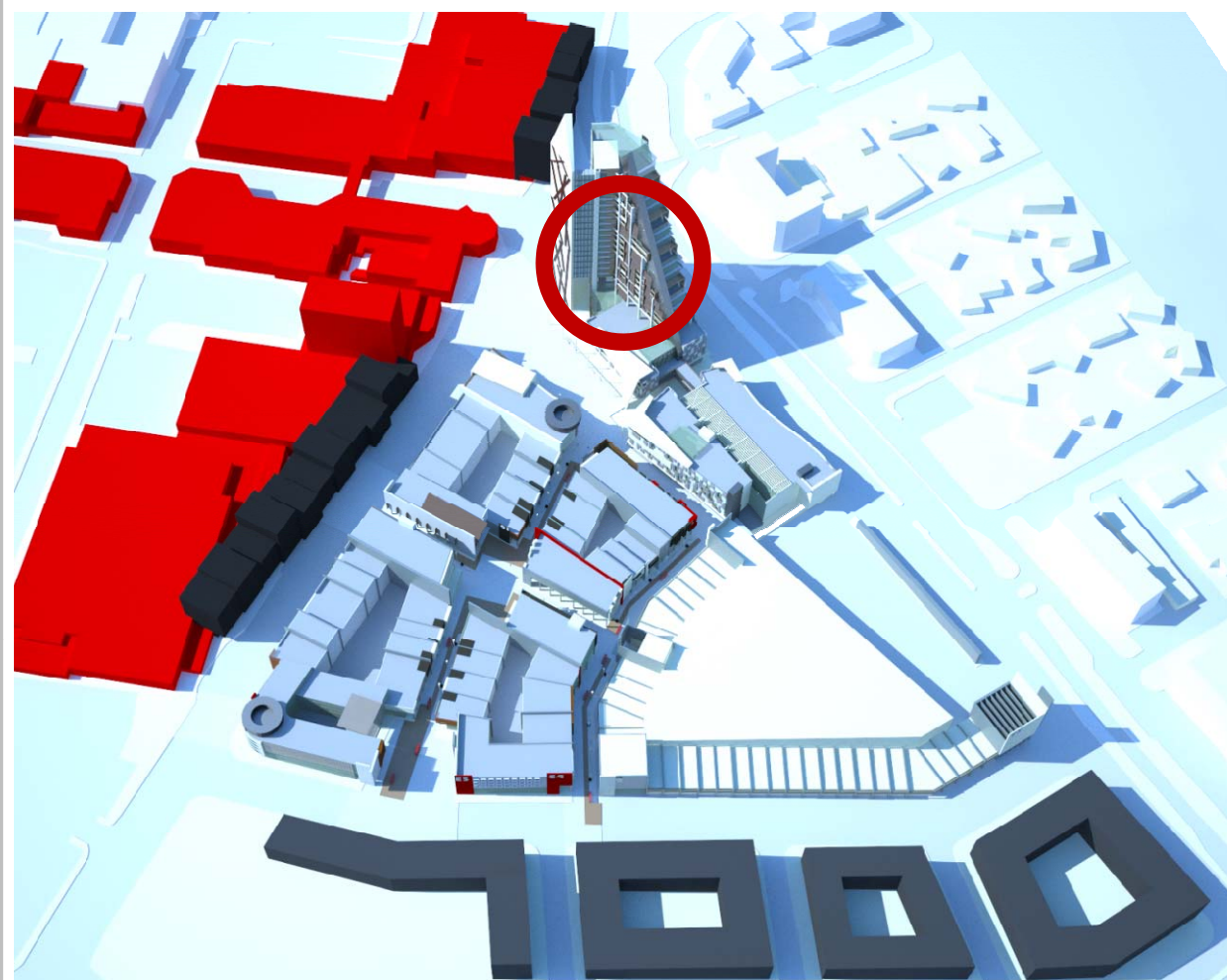
Building Elevations





Buildings designed with vertical rhythm

Conclusion



Building chosen for further development

This building is chosen for various reasons:

The building acts as a **beacon**

It locates between **Taxi Rank** and **BRT** station

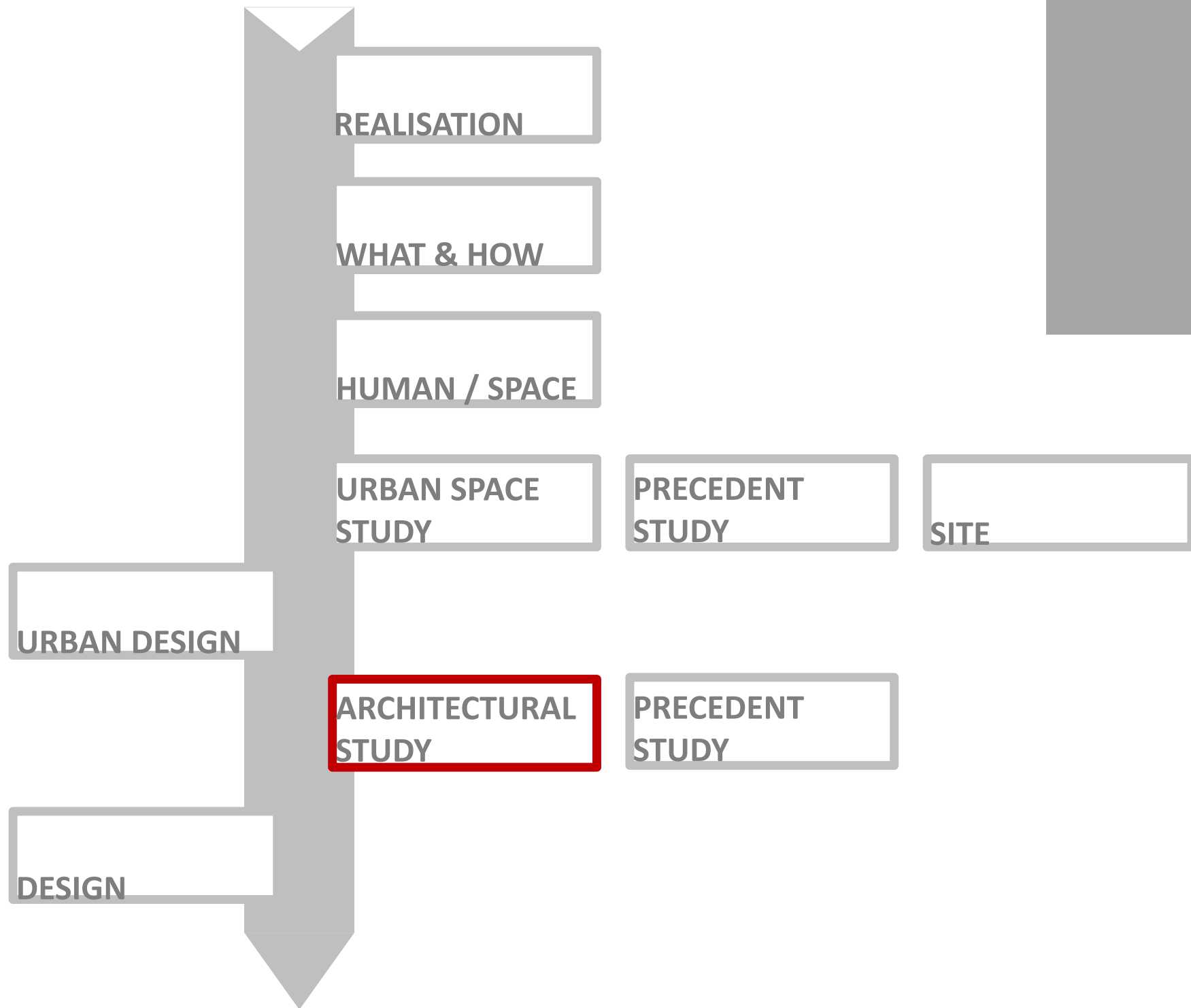
Draws the **boundary** between Jan Smuts and the pedestrian space

It's a **civic** and commercial mixed used building

Further analysis will be introduced in section 7.0

ARCHITECTURAL DESIGN ANALYSIS

It is now clear that a **high rise structure** is to be designed, but how should the design link and **co-operate with its urban space and people?**



6.1

FROM URBAN SPACE TO ARCHITECTURE

Introduction

Architecture and its urban form are not to be considered as two separated elements, but a complete **system of communication**. Should architecture be treated as a solid block of form (**fig.6.1.1**) or to be treated as a continuation of space from the urban space (**fig.6.1.2**)?

The transition of space from urban space to interior space begins with the face of the building, which is the elevation of the building. In other word, the elevation can be interpreted as the **edge** between the urban space and the interior space, as it has separated the two spaces into different functions.

As one begin to move into the interior space of architecture, how does the connection holds itself in the transition between spaces? Furthermore, how does the architecture holds it publicity at the point of approach?

How to link the architecture to its urban space

1. *The transition point, the edge*

The **edge** is the first point of arrival between the architecture and the urban space (**fig.6.1.3**). Therefore it is also the first feature to be treated in terms of the connection between urban space and architecture.

The edge between the architecture and the urban space can be translated into the elevation of a building. The elevation includes shop fronts, colonnades, entrance, balconies, corridor and the cladding of the architecture (**fig. 6.1.4**). In addition, the elevation of the architecture will have great influence upon the urban space and its pedestrian, therefore the design of its form and section is crucial.

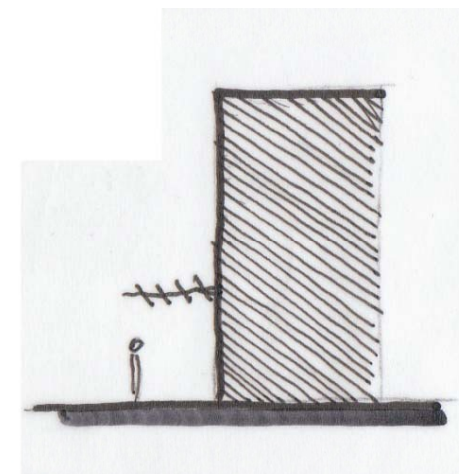


Fig. 6.1.1

Building to be treated as solid block

Sketch:

(By Chih-Hao Lu, October 2009)

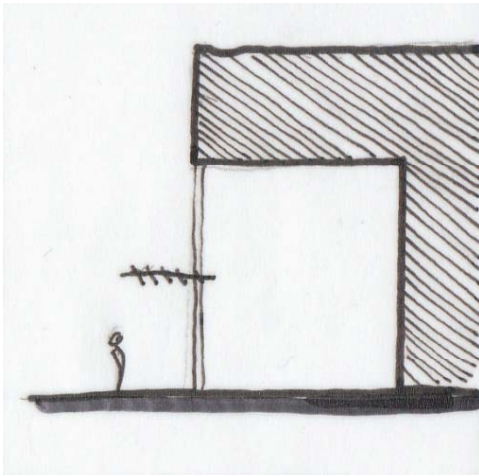


Fig. 6.1.2

Building to be treated as the continuation of urban space

Sketch:

(By Chih-Hao Lu, October 2009)

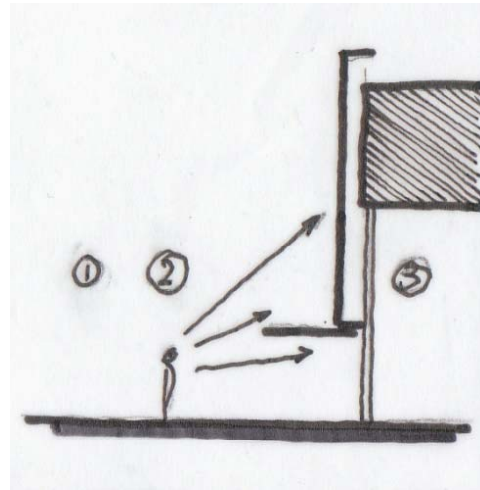


Fig. 6.1.3

The elevation is the first point of approach

Sketch:

(By Chih-Hao Lu, October 2009)

Fig. 6.1.4

The elevation can be in the form of shop fronts

Image:

(MOUGHTIN C (1992), Urban Design Street and Square, London, Cliff Moughtin 1992, p.146)



The elevation and section of the edge

The elevation that faces the pedestrian should be designed using **vertical** element, as it sets a regular **rhythm** for the pedestrian. Furthermore, due to the pace that a pedestrian is moving at, vertical element enables an urban space with great variables, as each elevation can be designed separately by different designers (**fig.6.1.5**). In addition, the advantage of dividing the elevation into vertical portions is that if one portion of the elevation is designed inappropriately, the entire elevation is still to be treated as one element therefore won't disturb the entire vertical rhythm of the space.

The affect of section on urban space:

1. Building with **plain** façade. The building acts as an edge or a wall. Furthermore, there are little communication between the building and the urban space. The main purpose is to separate space (**fig.6.1.6**).
2. The **projection** on to the **pedestrian level** in the form of an arcade or a solid structure (**KRIER B, 1979, P.24**). This form allows the real body of the building to be hidden away from the pedestrian, making the building more appropriate for human scale (**fig.6.1.7**).
3. Building with **pilotis** or **colonnades**. This enables the building to open up at its ground level, therefore allowing it to be more public (**fig.6.1.8**).
4. Building with **balconies**. The balcony creates a closer link between the pedestrian and the people who are inside the building on the balcony. Therefore, making the interaction between the architecture and urban space (**fig.6.1.9**).

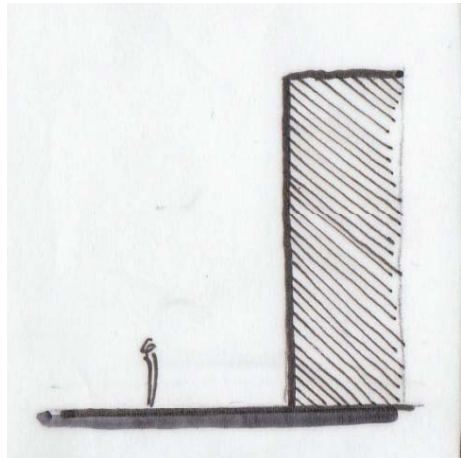


Fig. 6.1.6
Plain Facade

Sketch:
(By Chih-Hao Lu, October 2009)

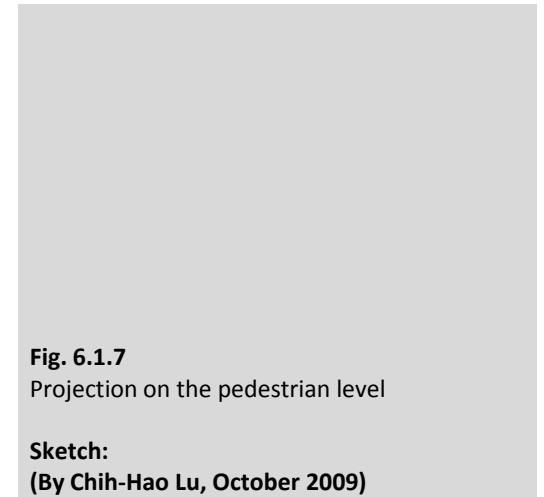
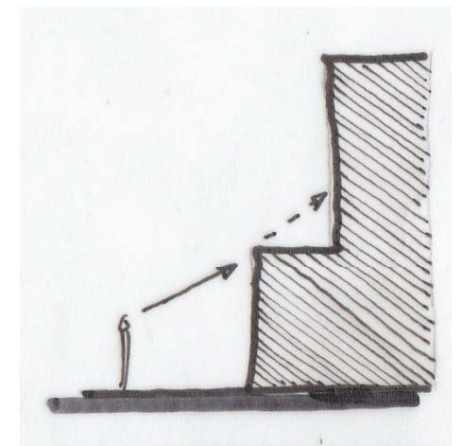


Fig. 6.1.7
Projection on the pedestrian level

Sketch:
(By Chih-Hao Lu, October 2009)



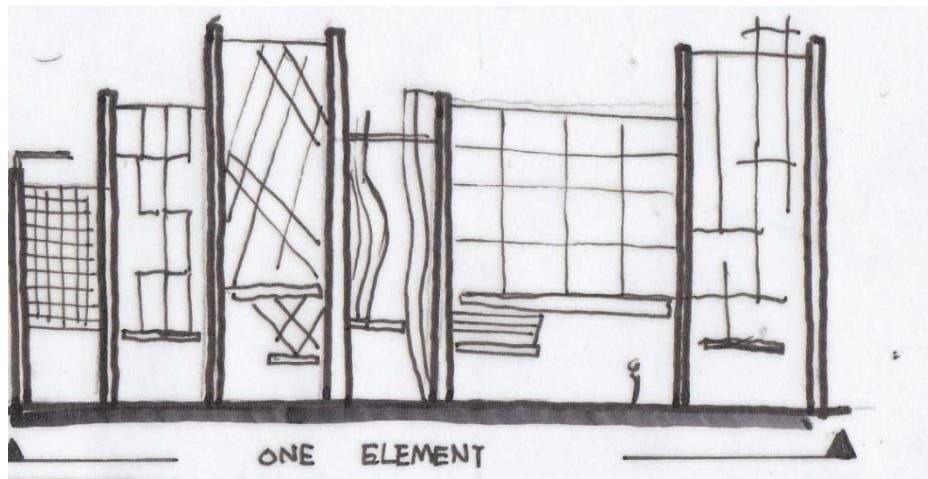


Fig. 6.1.5
Creating a vertical rhythm

Sketch:
(By Chih-Hao Lu, October 2009)

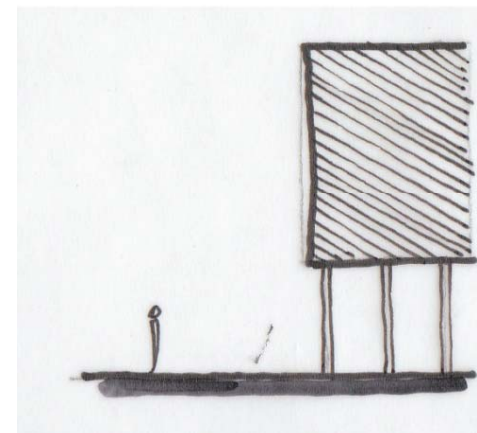
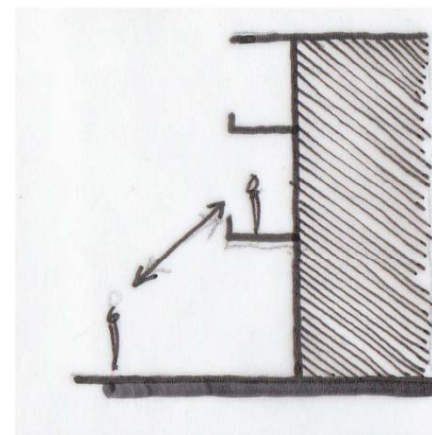


Fig. 6.1.8
With pilotis or colonnades

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 6.1.9
With balconies

Sketch:
(By Chih-Hao Lu, October 2009)



The affect of elevation on urban space:

1. **Glazed** at the **ground level**. This form of elevation enables the ground level to be more opened to public, therefore making the building more accessible and public (**fig.6.1.10**).
2. **Glazed** on an **upper level**, with solid walls on the ground level. This approach is opposite to the previous approach, as it has made the building more defensive and unwelcomed. Therefore, this design is often applied to more private interior spaces (**fig.6.1.11**).
3. Building with **colonnades** and **arcades**. It has the same property as the building with glazed ground floor, yet it is more appealing to the pedestrian as it creates a more comfortable urban environment (**fig.6.1.12**).
4. **Windowless** building. The windows are place in niches, making the building more private, as outdoor activity of the habitants are often hidden away from the urban space (**fig.6.1.13**).

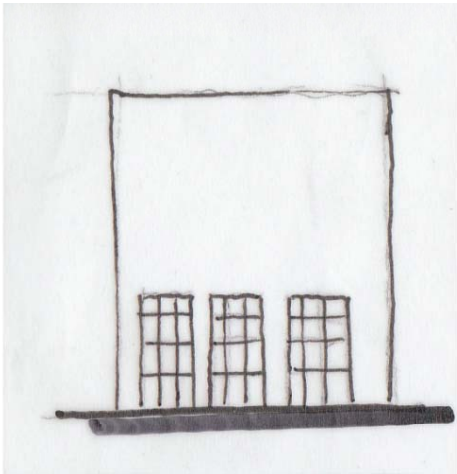


Fig. 6.1.10
Glaze on ground floor

Sketch:
(By Chih-Hao Lu, October 2009)

2. The connection between space and architecture, the lobby

The lobby space is the **destination** from the urban space, yet it is the **starting point** of the architecture. It connects the functions of the building to the urban space and makes them function as one system (**fig.6.1.14**).

The lobby should establish a clear connection between the functions of the building. Furthermore, the lobby should continue the **public-ness** of the urban space, as it is the continuation of the urban space (**fig.6.1.15**).

Fig. 6.1.11
Glaze on upper floor

Sketch:
(By Chih-Hao Lu, October 2009)

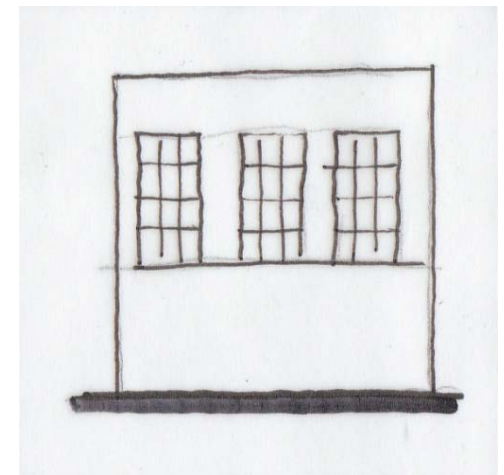
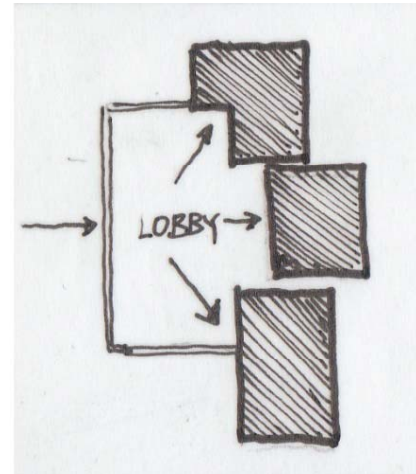


Fig. 6.1.14
Lobby as a linking element

Sketch:
(By Chih-Hao Lu, October 2009)



END OF 6.1

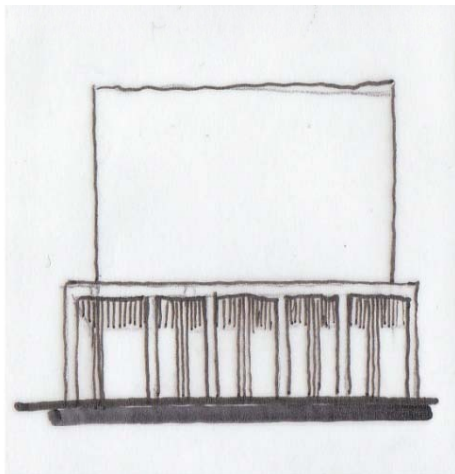


Fig. 6.1.12
Colonnades at pedestrian level

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 6.1.15
The publicity is continued in the lobby space

Image
(Lobby,
http://www.pennmedicine.org/perelman/images/proton/inside_lobby.jpg)

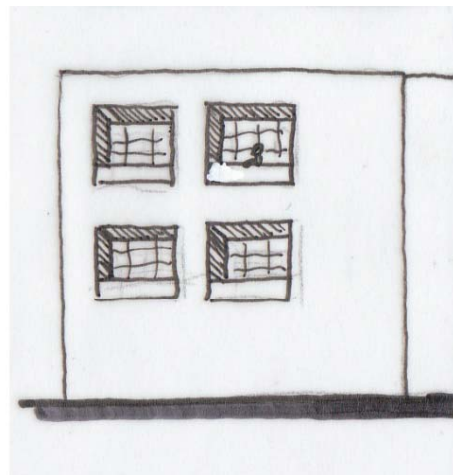


Fig. 6.1.13
The windows placed in niches

Sketch:
(By Chih-Hao Lu, October 2009)



6.2 DESIGN FORM

Introduction

The form of the architecture can be altered according to various factors: climate, context, function and pedestrian movement. Yet the form of the design should not only represent the beauty of the architecture, but should also **benefit** its **user** and **context**.

The design form

1. *Geographical, using nature in the forming of architecture*

The skyscraper that arises from its urban context is going to impact the micro-climate of the area. For example, the casting of deep shadow, the suction of wind onto the pedestrian side walk and the creation of green house effect. All these factors not only **pressurise** the environment, but also to the pedestrian. Therefore, these hazards should be carefully studied and applied to the design of the form of the architecture.

Solar path (fig.6.2.1)

An appropriate amount of sun light is healthy for people. Furthermore, it provides warmth in the cold winter days. Therefore, **sunlight** should be **introduced** to where is required. With the rising of the skyscraper, a designer should consider how the building is going to impact on the cast of shadow on to the sun-required space as well as the surrounding buildings.

By studying the sun path carefully throughout the year (**fig.6.2.2**), designer will be able to use the sun path as a cutting plan. Therefore, allowing the building form to be shaved according to sun path to reduce the impact of the cast of shadows.

Wind hazard (fig.6.2.3)

Skyscraper is the main cause of **unstable air current** within an urban environment. The wind not only creates pressure, but also creates suction upon the pedestrian. Therefore, the form of the building should be designed to channel the flow of air and to reduce the threat that it might cause.

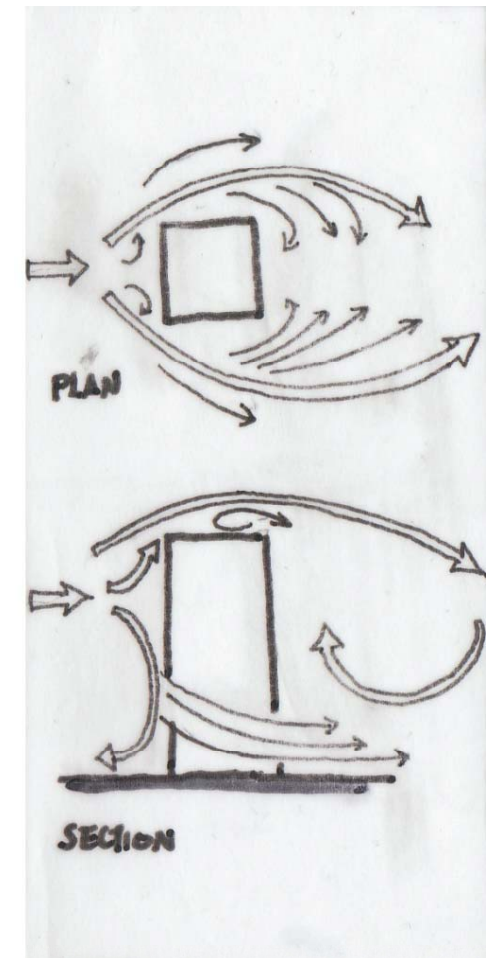


Fig. 6.2.3

The way air flows around the building

Sketch:

(By Chih-Hao Lu, October 2009)

Fig. 6.2.4
Podium

Sketch:
(By Chih-Hao Lu, October 2009)

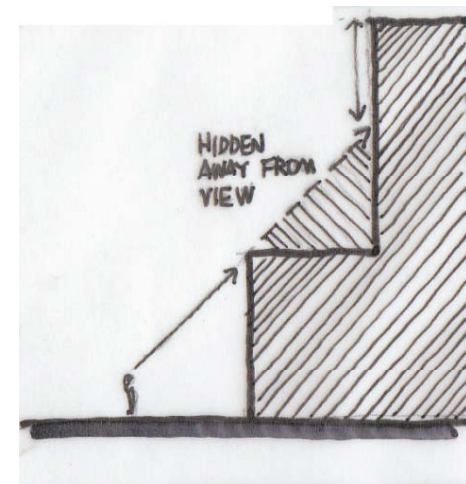
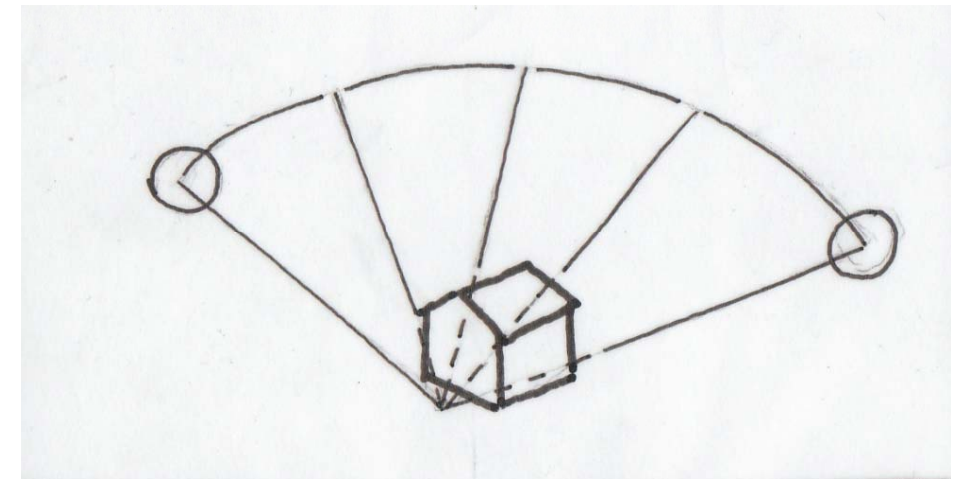


Fig. 6.2.1
Sun-path

Sketch:
(By Chih-Hao Lu, October 2009)



2. Human comfort and human scale, concept of a tree

The height and the bulkiness of the skyscraper often cause a lot of **pressure upon the pedestrians**, mentally and visually. Therefore, it is a duty for the designer to reduce these pressures, and to relate the building closer to **human scale**.

The podium

The **podium** is the lower part of the skyscraper that extrudes itself out on to the urban space. As human can only see four to five floors above eye level, the introducing of podium will allow a better relationship between the building and human. Furthermore, the designer can also set the main structure away from the pedestrian to reduce the pressure upon the pedestrians (**fig.6.2.4**).

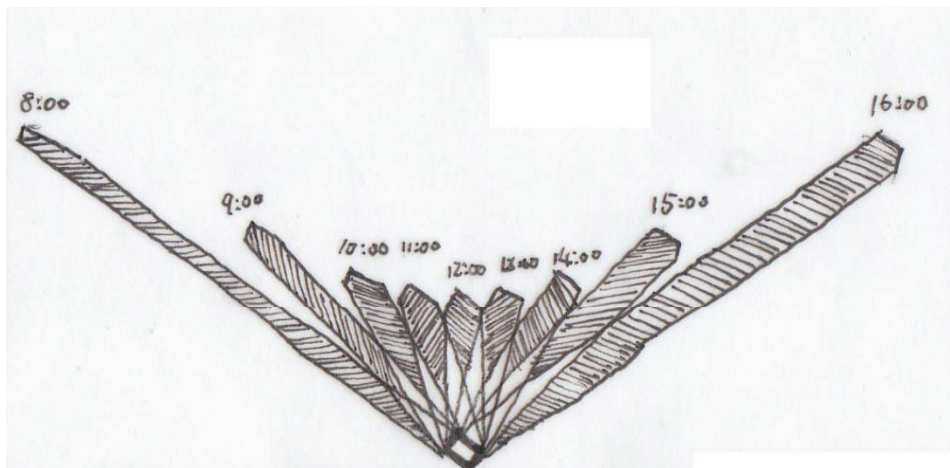


Fig. 6.2.2
The shadow that a skyscraper may cast

Sketch:
(By Chih-Hao Lu, October 2009)

The concept of tree (fig.6.2.5)

Tree is the only high-rise nature element that people can easily relate to, as people were often seen sitting, reading, resting or working underneath a tree (**fig.6.2.6**). This is due to the comfort that a tree is able to provide, as well as the visual attraction of a tree. The characteristic of a tree are:

High-rise

Visually beautiful

Provide shade

Provide comfort

Nature element

Therefore, my aim is to create a “**tree**” like **skyscraper** (**fig.6.2.7**), metaphorically and architecturally. In other word, the design must not only provide the visual metaphor of a tree, but it must also work like a tree by providing comfort to its user.

Fig. 6.2.7

Tree like skyscraper

Sketch:

(By Chih-Hao Lu, October 2009)

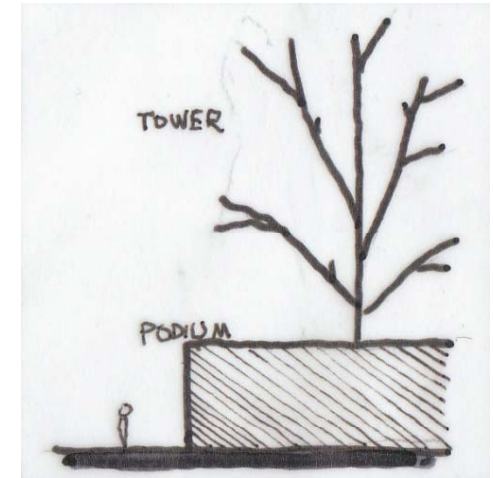


Fig. 6.2.5

Tree

Image

(Tree,
http://big5.wallcoo.com/nature/2008_Landscape_1680_Desktop_02/images/Single%20Tree%20Lake%20District%20Near%20Little%20Langdale%20England.jpg)



Fig. 6.2.6

Read under a tree

Image

(read under a tree,
<http://static.howstuffworks.com/gif/rd/tips-for-working-with-warm-weather-in-the-garden0.jpg>)

3. Curve-linear form, design with movement

The Randburg urban space holds a strong notion of **movements**. These movements include the movement of the **pedestrian** (fig.6.2.8) and the movement of the **motor vehicles** (fig.6.2.9). Therefore, my aim is to capture the vibrancy of these movements and translate them into architectural form.

Study on the translation from movement to architectural form

Eric Mendelsohn:

The modern motor vehicle is a worldwide invention in the early 18th century. The invention has changed the way people move, and furthermore, has impacted the form and function of space and architecture. Architecture is now designed to accommodate such invention. Ahead of his time, Eric Mendelsohn is the first architect that began to use the form and movement of the modern motor vehicle in the form of his architecture. In the sketches he began to illustrate in 1914, the influence of the modern vehicle can easily be spotted. The building has taken a flowing form (fig.6.2.10) that was derived from the shape and the movement of the modern vehicle. Furthermore, the sketched has also expressed a strong horizontal quality. However, because of the difficulty in constructing such form, not many of his designs were built.

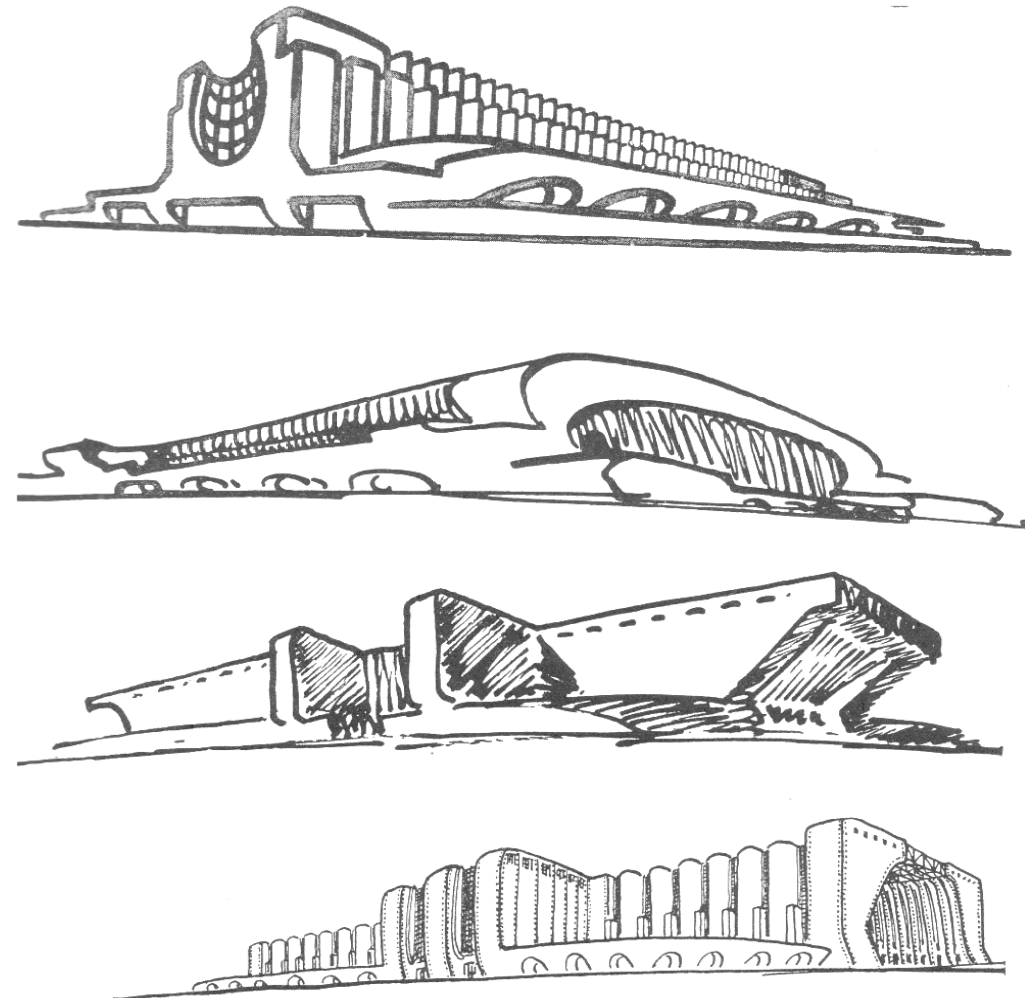


Fig.6.2.10
be Eric Mendelsohn's sketches. The flowing form is clearly expressed.

Image:
(WITTICK A ,(1964)Eric Mendelsohn, London, The University Press Glasgow, p. 47)

Fig. 6.2.12
the MAXXI National Center of Contemporary
Arts by Zaha Hadid

Image:
(SCHUMACHER P , FONTANA-GIUSTI G (2004),
Zaha Hadid Projects Documentation,
London, Thames & Hudson Ltd, p. 86)

Zaha Hadid:

Time has advanced to the 21st century, and architect of the modern era has taken the narrative element of movement to a new level. Zaha Hadid was one of the architects who wishes to capture the movement of people and translates it into form and space. This notion of movement can be best represented in the MAXXI National Center of Contemporary Arts (**fig.6.2.12**). The building is located on a very special site in the city of Wolfsburg. It is situated at the endpoint of a chain of important culture buildings and is also connected to Volkswagens' Car Town. Therefore, Hadid's aim is to express the moving notion in the architectural design. Using the multiple threads of pedestrian and vehicle movements, she began to pull the movements through the site, as it becomes the form and space of the art center. The dynamic pedestrian movement has also formed the space within the building.



6.3 BIOLOGICAL DESIGN

Introduction

The **impact** of the skyscraper on its **micro climate** has been introduced in section 6.2, yet by only changing its form accordingly with its environment is surely not enough. Other aspects such as: user comfort, reduce energy and water consumption, ventilation and the use of greenery are still required to be introduced to the design. After all, the characteristic of the “**tree**” is to **benefit** its **user** and **environment**.

Biological design for architecture

Bio-climatically considered

1. *The lift, service, fire escape and toilet **core**.*

These areas often make use of machineries and artificial lighting for its ventilation and lighting (**fig.6.3.1**). Therefore, the use natural ventilation and lighting is to be promoted, as it enables the reduction of energy consumption. Furthermore, the positioning of core is capable of blocking the unwanted sunlight away from living space (**fig.6.3.2**).

2. *The introducing of **sky court** / **sky garden***

Sky garden is a multi functional element, as it serves not only as a climate control device, but also provides an outdoor space where user can appreciate.

As a **climate control** device. It allows to ease the wind before making contact with the building façade. Furthermore, it allows fresh air to be passed into the interior space (**fig.6.3.3**). Sky garden is also capable in the capturing of sunlight.

Appreciation of the user. By providing an outdoor natural feature, the user is able to get closer to the nature by stepping out from the interior space into the sky garden (**fig.6.3.4**).

Fig. 6.3.1
Core it to be naturally ventilated and lit.

Sketch:
(By Chih-Hao Lu, October 2009)

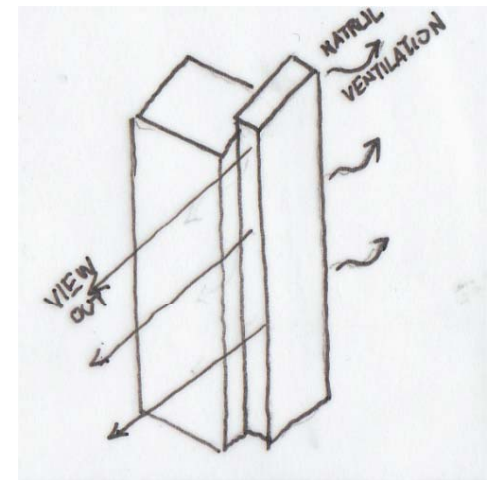
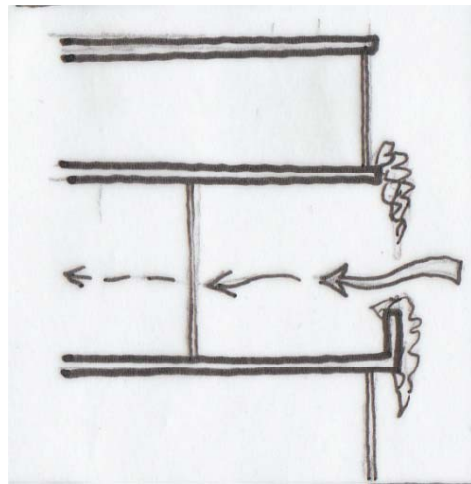
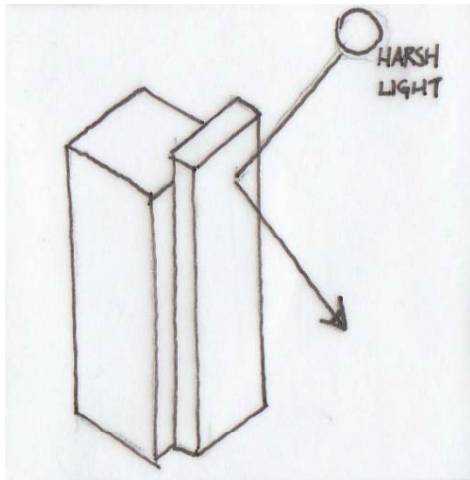


Fig. 6.3.2

Core can be use to block unwanted light.

Sketch:

(By Chih-Hao Lu, October 2009)

**Fig. 6.3.3**

Sky garden can be use for the filtering of air

Sketch:

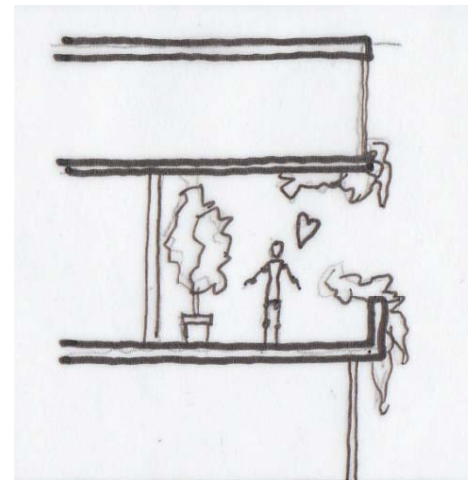
(By Chih-Hao Lu, October 2009)

Fig. 6.3.4

Sky garden allow the appreciation of exterior space

Sketch:

(By Chih-Hao Lu, October 2009)



3. The *vertical planting*.

Taking from the concept of a tree, the planting of greeneries have been taken literally onto the elevation of the building. We should see skyscraper as a possibility for the extension of vegetations in our city. As a result, the skyscraper in the near future should have greenery to cover its entire elevation (**YEANG K, 1996, p.99**). Here is a list of benefits that vertical planting enables:

Can be used as a shading device (**fig.6.3.5**)

Reducing of CO₂ and to produce fresh air for the user (**fig.6.3.6**)

Plants can be used as a sound barrier (**fig.6.3.7**)

Used as a shield against strong wind

Softens the hard skin of the skyscraper and give it more texture (**fig.6.3.8**)

Created a more comfortable and relaxing indoor environment (**fig.6.3.9**)

Provide a visual appreciation for the skyscraper

Every 10% of greenery coverage on the façade can reduce up to 8% for the air-conditioning cost (**YEANG K, 2004, p.99**)

4. The *breathing cladding*.

The cladding of a building is like the cloth that we wear, as it provides protection against climate, and sometimes provides ventilation. Like the vertical planting, it is also to be designed to **maximise** the **user comfort** interiorly. Other crucial factor should also be applied:

Energy efficient

Easy to clean. Instead of using a crane for window cleaning, the cleaner should be able to clean the windows by gaining access to the cladding manually (**fig.6.3.10**).

Provide shade and reduce glare using louvers (**fig.6.3.11**).

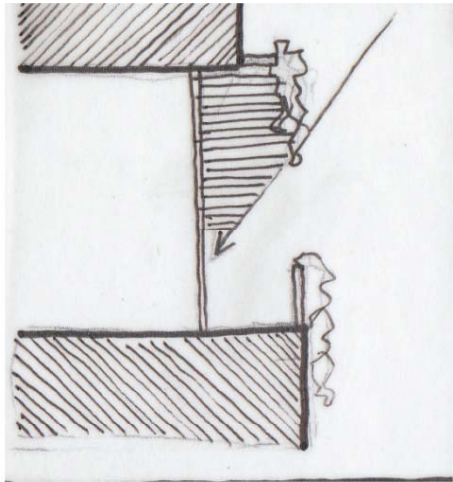


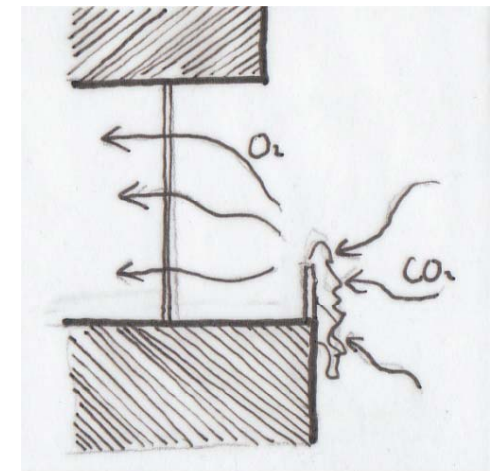
Fig. 6.3.5
Plant used shading device

Sketch:
(By Chih-Hao Lu, October 2009)



Fig. 6.3.6
Used as air filtering device

Sketch:
(By Chih-Hao Lu, October 2009)



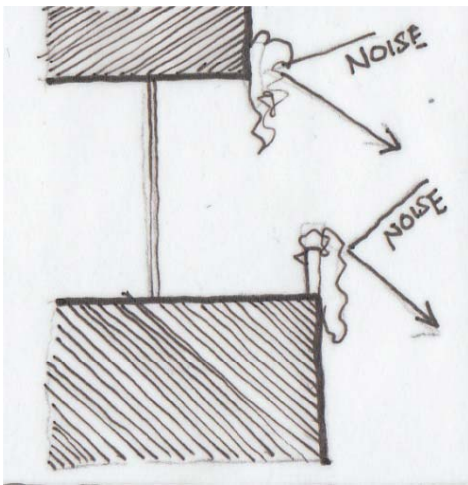


Fig. 6.3.7
Used as sound barrier

Sketch:
(By Chih-Hao Lu, October 2009)

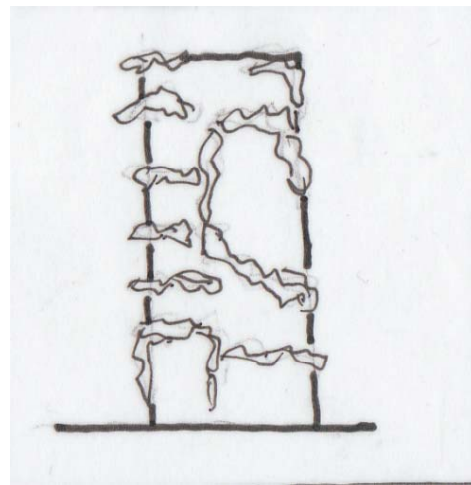


Fig. 6.3.8
Soften the facade

Sketch:
(By Chih-Hao Lu, October 2009)

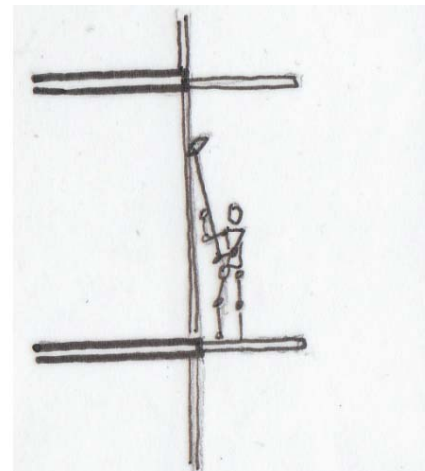


Fig. 6.3.10
Should be easy to clean

Sketch:
(By Chih-Hao Lu, October 2009)

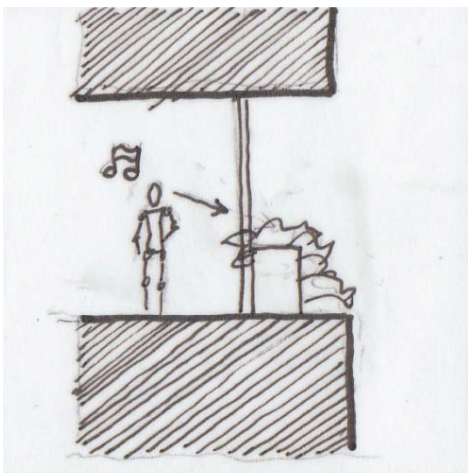
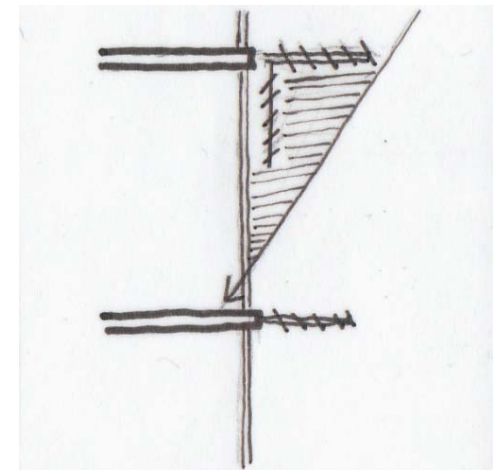


Fig. 6.3.9
Create a healthier living / working environment

Sketch:
(By Chih-Hao Lu, October 2009)

Fig. 6.3.11
Should provide comfort

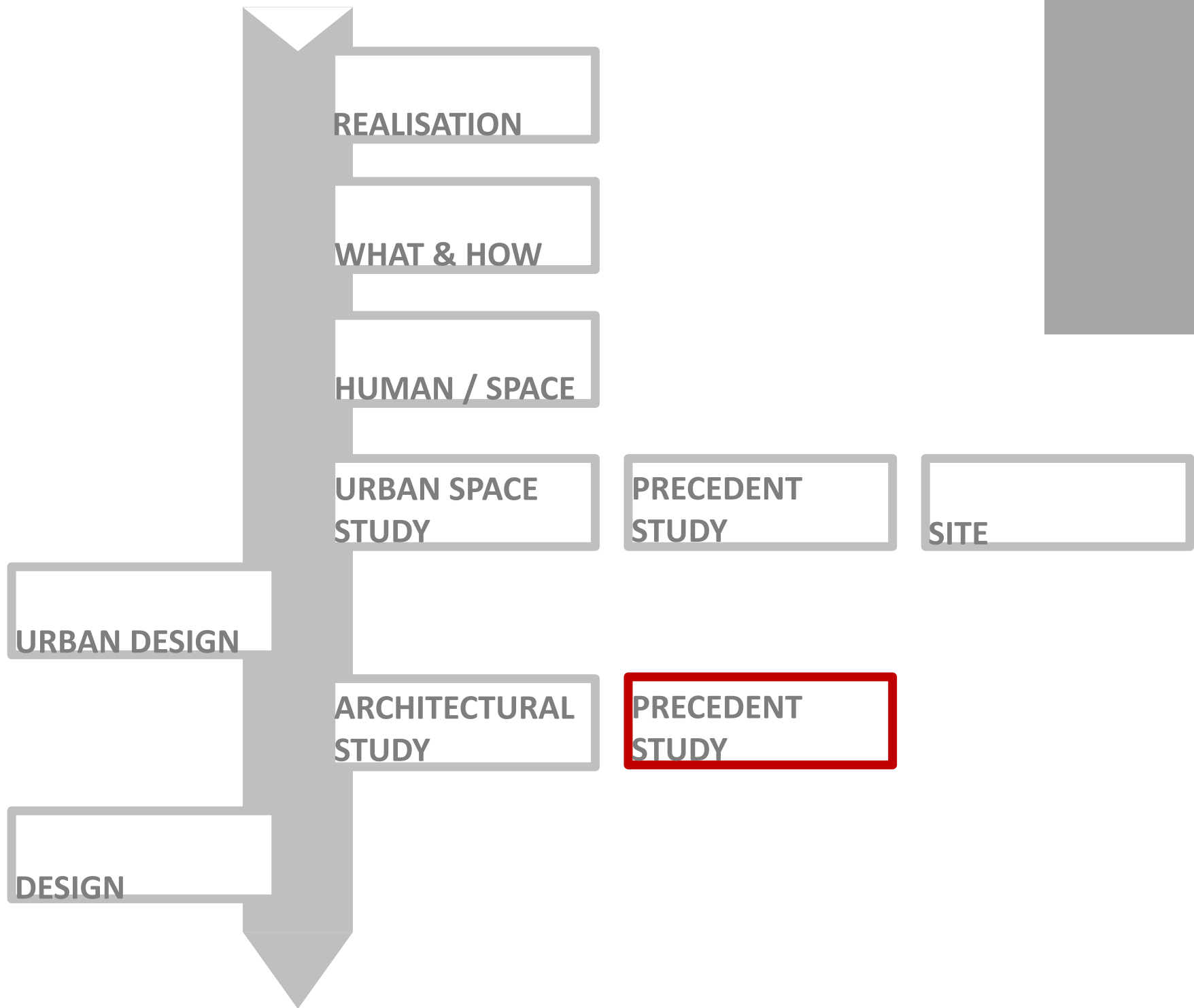
Sketch:
(By Chih-Hao Lu, October 2009)



> 175

6.4

PRECEDENT STUDIES



Menara Mesinaga, Selangor, Malaysia:

By T.R.Hamzah and
Yeang, 1992



Fig. 6.4.1
Menara Mesinaga

Image:
(GISSEN D (2005), BIG and GREEN: Towards Sustainable Architecture in the 21st Century, USA, Princeton Archi, p. 107)

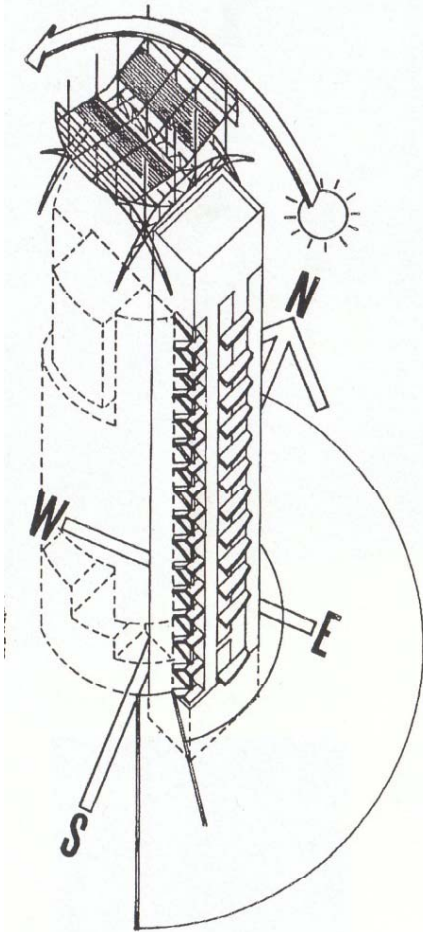


Fig. 6.4.2

The core being used as a climate control device

Image:

('Menara Mesinaga', Architect and Builder, March 1996,p.16)

Introduction

The tower of Menara Mesinaga (**fig.6.4.1**) represents the early research result of Young's **bioclimatic design**. Situated in Selangor, Malaysia, the tower is designed to suit its local climate and to minimise the energy consumption. Furthermore, the use of **vertical planting** is introduced as a climate control device as well as to create a pleasant human environment.

What to take as lesson from the design:

1. *Positioning of core (**fig.6.4.2**)*. The **core** is positioned in such way that it used as a shading device. Furthermore, the core is naturally ventilated and lit. This is able to reduce the running cost of the building.
2. *The use of louvers as the second layer of the skin (**fig.6.4.3**) (**fig.6.4.4**, on page 179)*. **Louvers** are introduced to the design for the control of natural sun light.
3. *The introducing of skin garden and vertical planting (**fig.6.4.5**, on page 179)*. **Sky gardens** (**fig.6.4.6**, on page 179) are located at every floor of the tower (**fig.6.4.7**, on page 180). The insertion of sky garden promotes a healthy working environment as an outdoor space is provided. Furthermore, the sky garden is capable for climate control as the vegetations are there for the reduction of wind, sun shading and production of oxygen

Conclusion

Ken Yeang has proved using this project and further studies, that a bioclimatically considered building is capable to draw a closer link between the architecture and the natural environment. It provides a building that is friendly to its climatic context, and furthermore has introduced a healthier working and living indoor environment.

Fig. 6.4.3

Louvers of Menara Mesinaga

Image:

('Menara Mesinaga', Architect and Builder, March 1996,p.16)

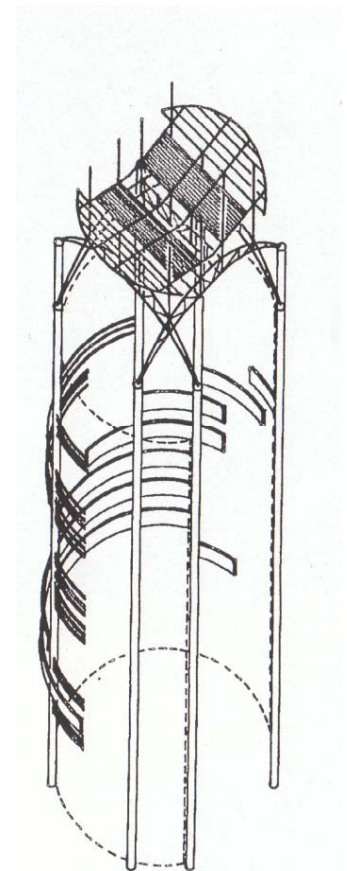




Fig. 6.4.4
Louvers of Menara Mesinaga

Image:
(‘Menara Mesinaga’, Architect and Builder,
March 1996,p.15)

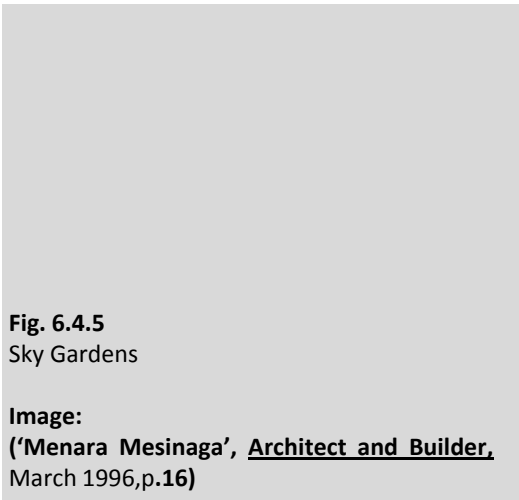


Fig. 6.4.5
Sky Gardens

Image:
(‘Menara Mesinaga’, Architect and Builder,
March 1996,p.16)

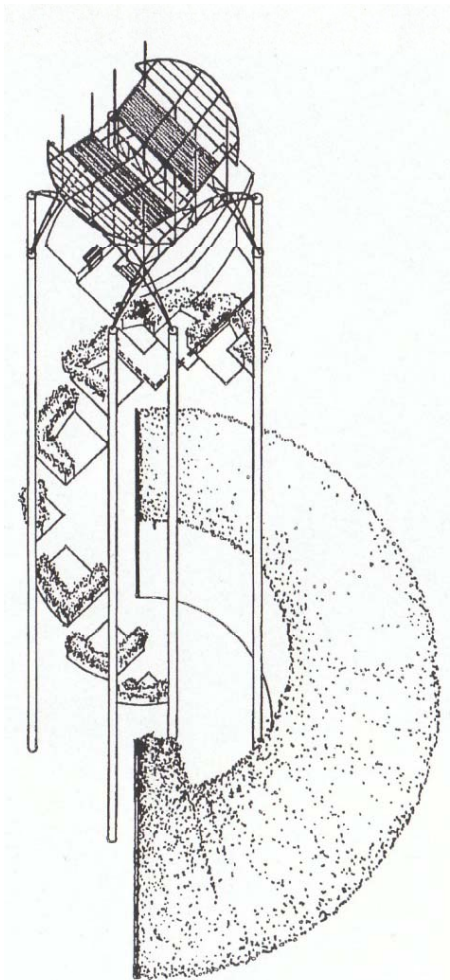


Fig. 6.4.6
Sky garden

Image:
(GISSEN D (2005), BIG and GREEN: Towards Sustainable Architecture in the 21st Century,
USA, Princeton Archi, p. 106)



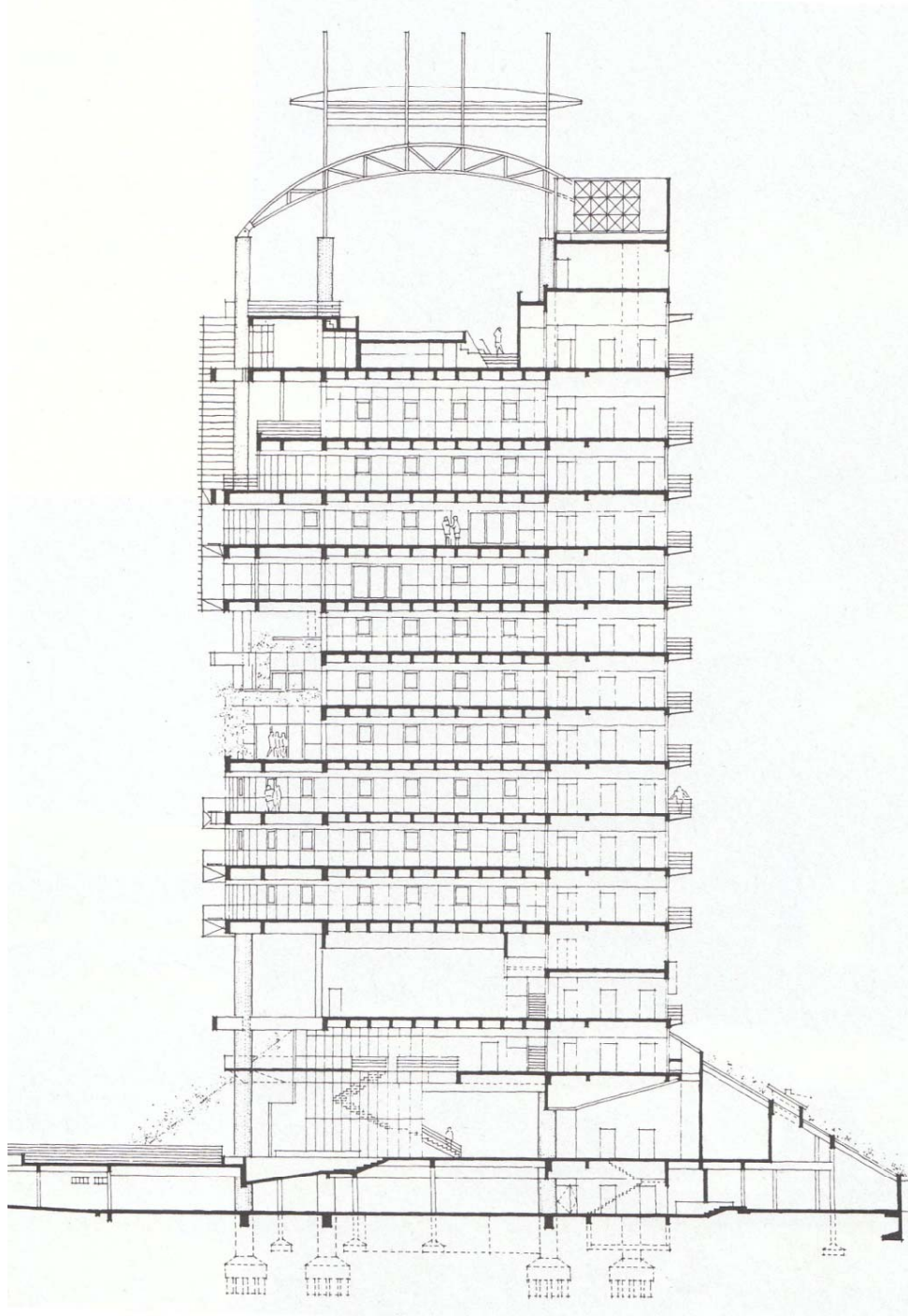
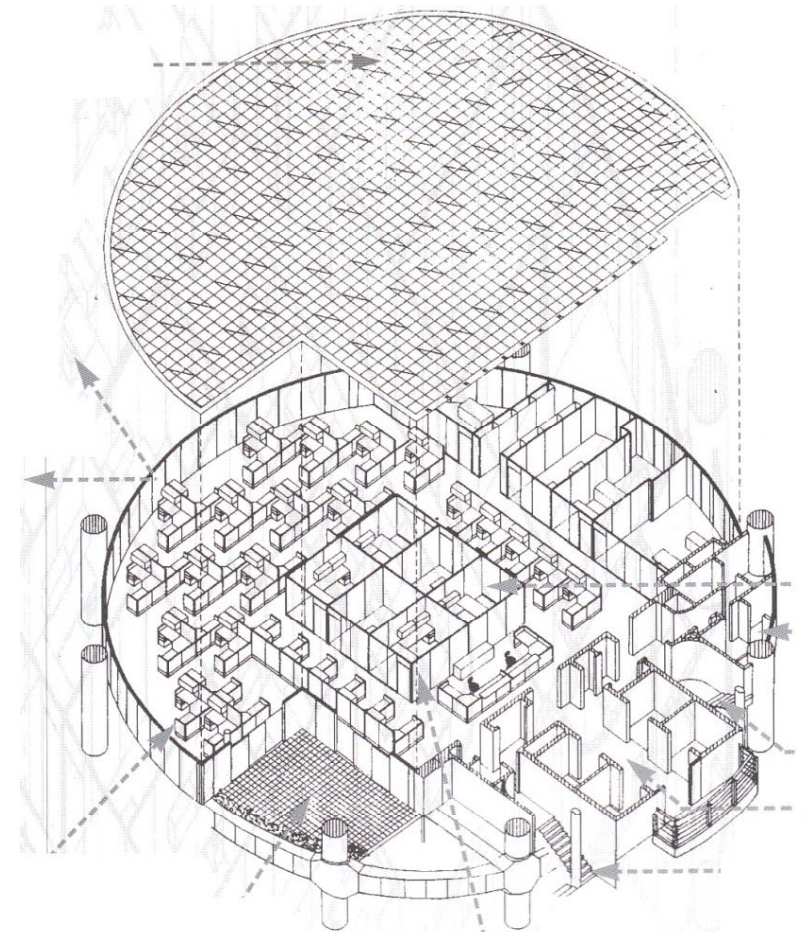


Fig. 6.4.8
Section

Image:
('Menara Mesinaga', Architect and Builder,
March 1996,p.17)

Fig. 6.4.7
Location of the sky garden

Image:
(YEANG K (1996), the skyscraper-
bioclimatically considered, London,
Academy Group Ltd, p.80)



Head office for Department of Foreign Affairs, Pretoria, South Africa:

By TC Design
Architects, 2009



Fig. 6.4.9

The public foyer of Head office for
Department of Foreign Affairs

Image:

(Taken by TC Design Architects)

Introduction

TC Design Architects has just recently completed the Head office for the Department of Foreign Affairs in Pretoria. It was designed as the head quarter with **classified information** been stored. Therefore different security levels are required.

What to take as lesson from the design:

1. *The publicity of foyer and the public service area (fig.6.4.9).* A portion of the office is to be designed to serve the **public** need, such as the applying of passport. Therefore, this public service space is designed close and linked to the foyer, allowing it to be easy accessed by the public.
2. *The different level of security (fig.6.4.10).* There are **5 levels** of **security**, and the higher it is placed in the building, the higher the security level:
 1. The access to the site and parking
 2. The foyer, all people can gain access to this area
 3. Area for all the staffs
 4. Classified area. Only accessible by certain staffs.
 5. Highly classified. Where high classified information is stored.

Conclusion

The lesson to take from the design is the way how the **security** is managed through the use of planning and clever design. Furthermore, how does the public area serve its publicity while the rest of the building stays private?

Fig. 6.4.11

A private internal street that links all the functions

Image:
(Taken by TC Design Architects)

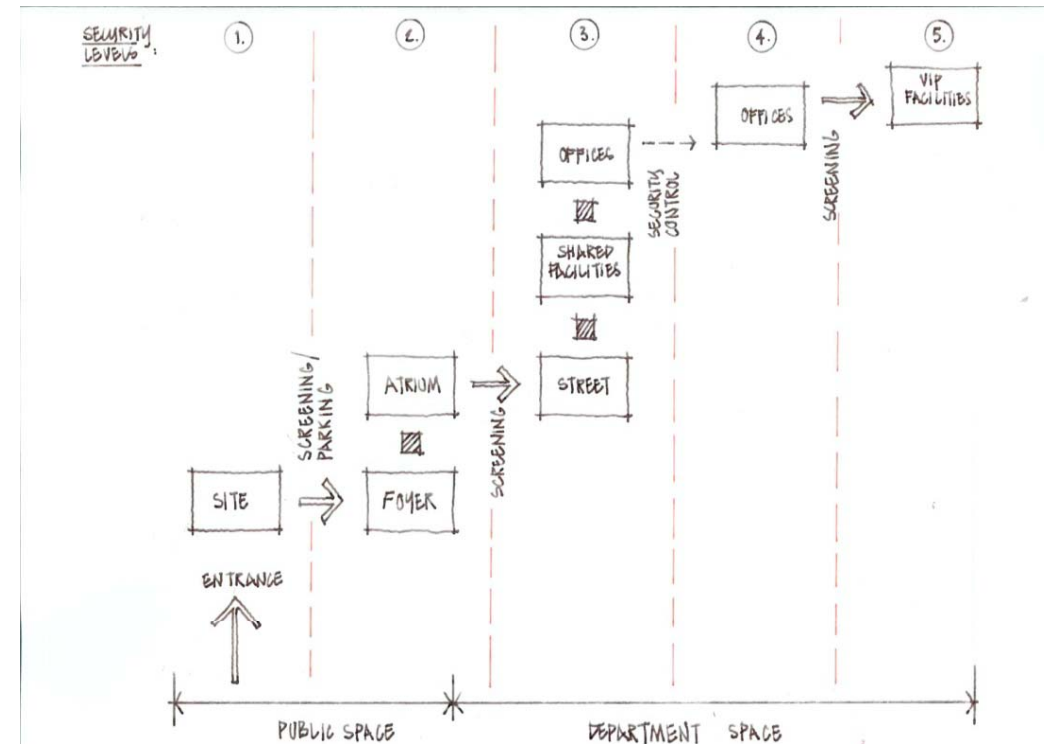


Fig. 6.4.10

The different levels of security

Image:

(Drawn and Illustrated by TC Design Architects)



The Standard Bank Centre, Johannesburg, South Africa:

By Hentrich-Petschnigg Partner, 1970



Fig. 6.4.12
The Standard Bank Centre

Image:
(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.67)

Introduction

The Standard Bank Centre (**fig.6.4.12**) is located in the financial center of Johannesburg, opposite to the stock exchange. The idea is to use as small of the ground area as possible, leaving the **ground area** to the **public**. Furthermore, the design is also to leave large open space between the bank and stock exchange.

What to take as lesson from the design:

1. *The relationship between the building and the public square (**fig.6.4.13**) (**fig.6.4.14**).* The entire ground foyer is glazed and is opened towards the urban space, therefore creating a sense of **welcoming** towards the building.
2. *The use of foyer space and its publicity (**fig.6.4.15**, on page 185).* The public banking foyer takes place in the basement level. As one travels down, one can feel the **humanness** that is contained within the space. Furniture and sculptures has made the space user friendly.
3. *The separation between public and private (**fig.6.4.16**, on page 185).* The public interaction happens on the ground and basement banking level. Using the lift core as a **security control** device, as the building travels up, the more private the building becomes. This is a way of making use of planning for the separation between private and public.
4. *The in-between space between the urban space and the interior (**fig.6.4.17**, on page 186).* Before the entering of the banking foyers, an **in-between space** is introduced. This space contains retails and activities, therefore making this space more interactive with people.

Fig. 6.4.13

The locality of the building in relation to the square

Image:

(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.67)

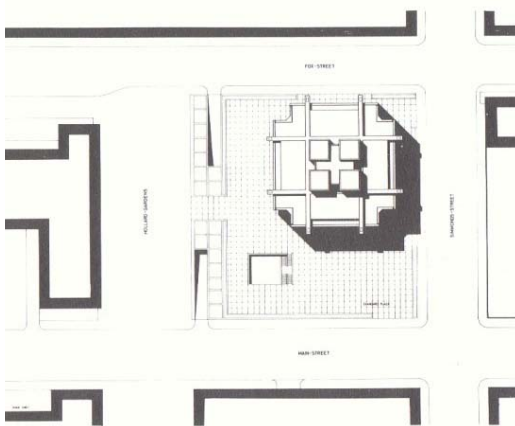


Fig. 6.4.14

The glazed ground floor to the lift core

Image:

(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.72)



Conclusion

The lesson to take from this design is how the building deals with its interior public space, and how does this space interact with the urban space. Furthermore, I have also learnt on how the private space is separated from the public space.

Fig. 6.4.16
The publicity of the banking foyer

Image:
(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.71)



Fig. 6.4.17
The in-between space between urban space and banking foyer

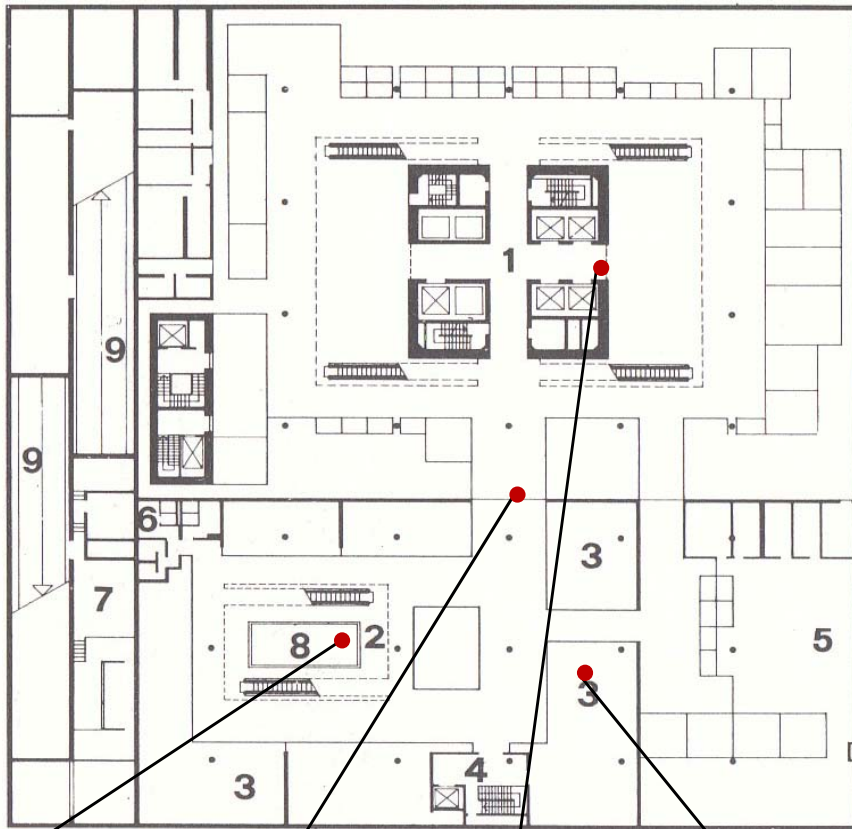
Image:
(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.72)

Fig. 6.4.18

Basement plan. This is where more public activity took place

Image:

(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.70)

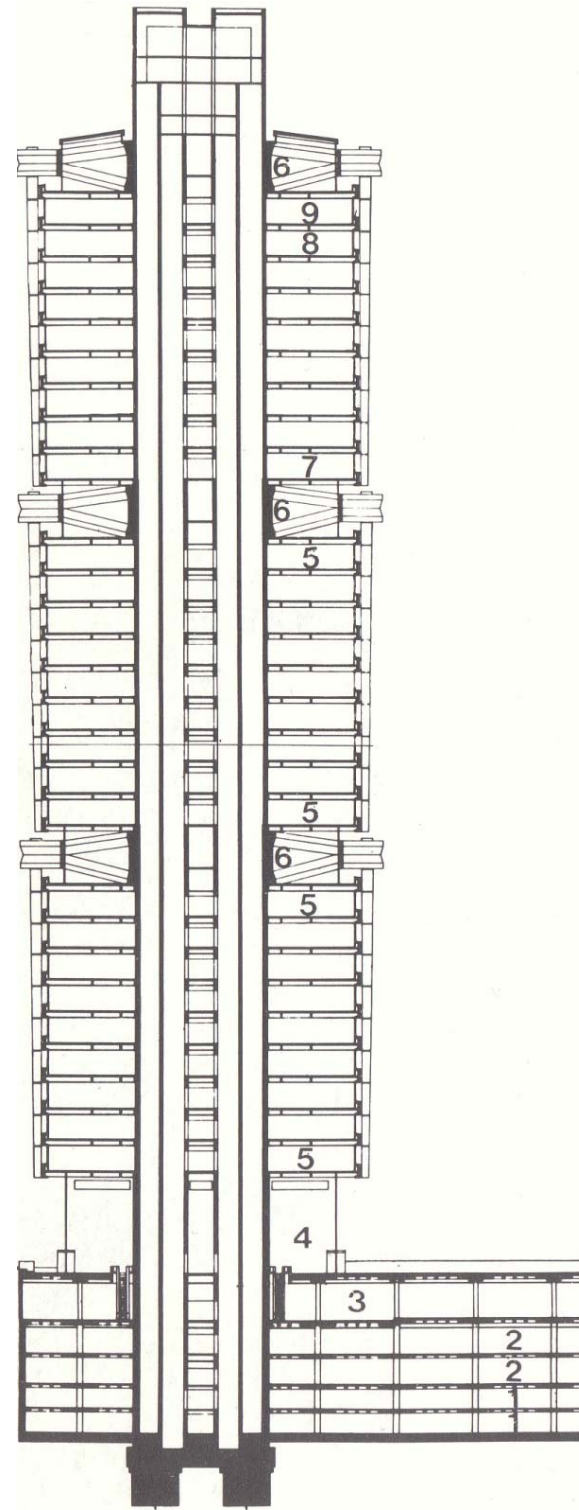


The in-between space

Entrance to bank

Banking Foyer

Retails



END OF 6.4

Fig. 6.4.18

Section. The public facility is located on the ground and basement level

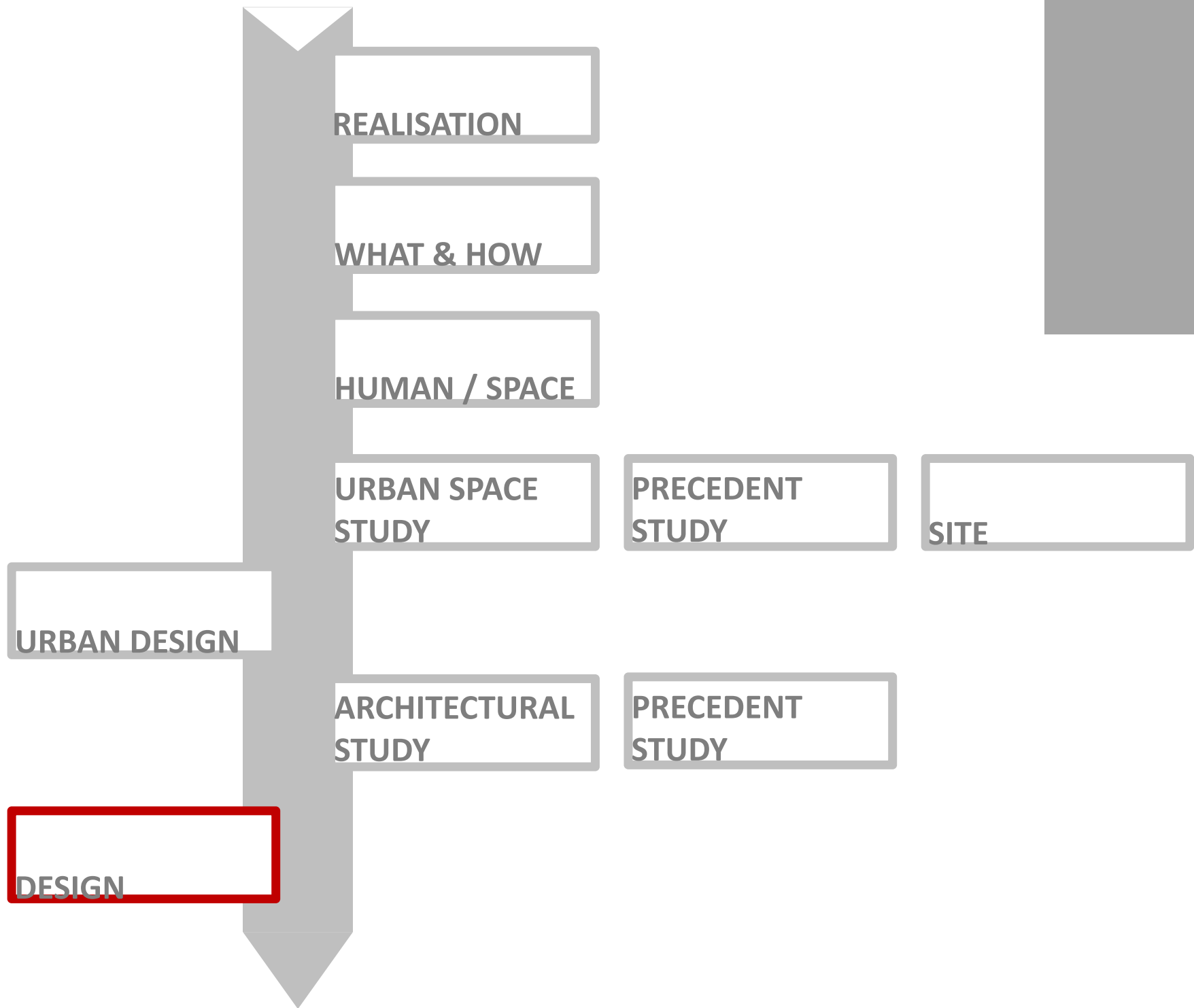
Image:

(DEILMANN H, DEILMANN T (1978), Buildings for Banking and Insurance, Germany, Karl Kramer Verlag Stuttgart, p.70)

187

7.0

DESIGN 



7.1 DESIGN DEVELOPMENT

Why choose this building as my design?

The building acts as a **beacon**

Located at the tip of the site, acting as a regional / city landmark, this building has declared the **location** of Randburg; and furthermore reinforcing the importance of this “**central business district**” with its height.

It locates **between Taxi Rank** and **BRT** station

Sitting in-between two transportation system, where most pedestrian activities and movements happen. The building will be the **most active structure** in the region.

Draws the **boundary** between Jan Smuts and the pedestrian space

The heaviness of this structure allows a **buffer** to form between the **vehicle movement** and the **pedestrian movement**, therefore providing a pedestrian friendly space within.

It's a **civic** and commercial mixed used building

Due to the re-planning of the urban environment of Randburg, the **public service facilities** such as: the **library** and **commercial centre** Therefore, these facilities are regrouped and relocated to the building that I will be designing, as these facilities all share a common characteristic, “**civic-ness**”.



Space planning and program

CONNECTIVITY

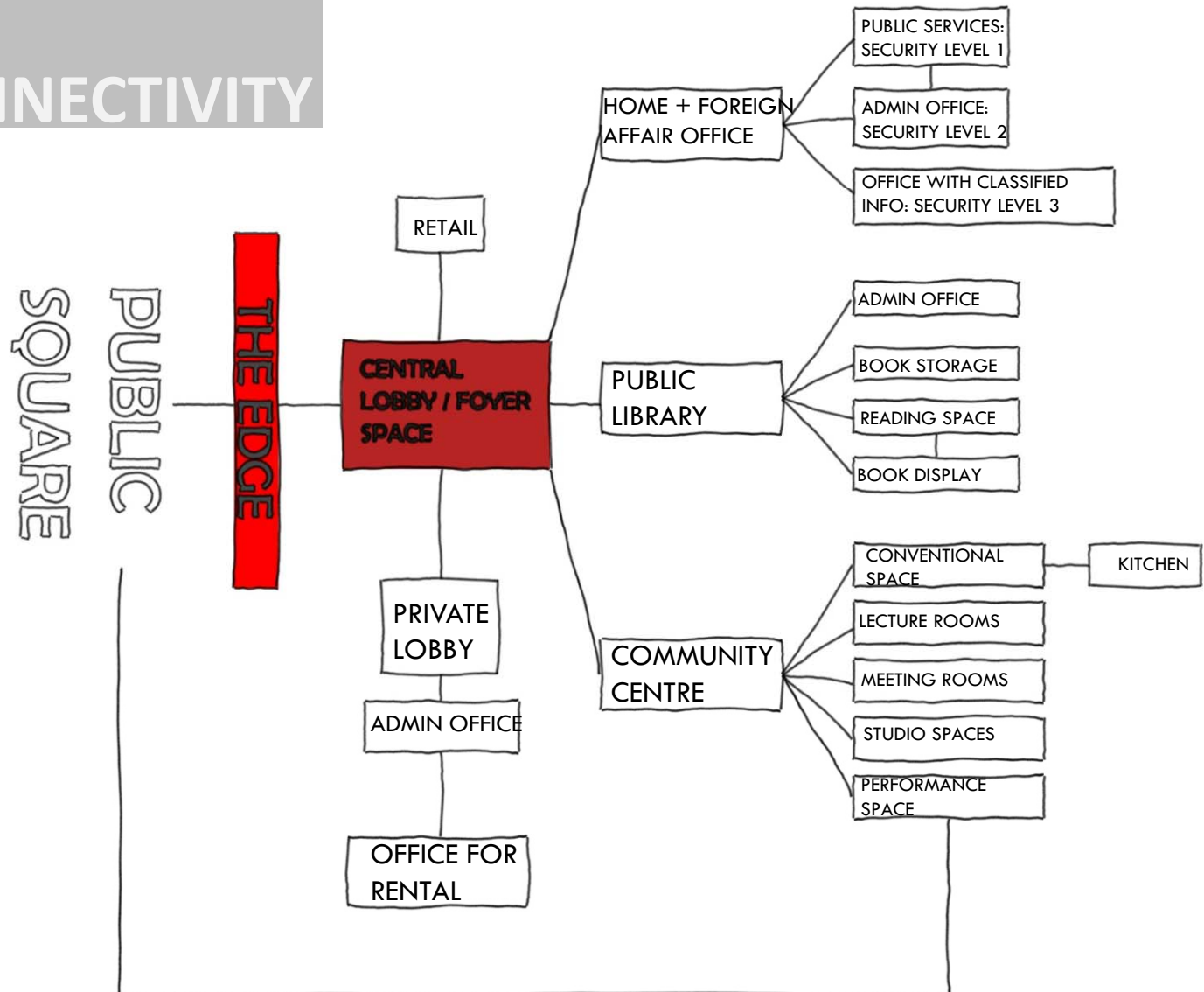
The design is to accommodate the following facilities:

- Home and foreign office
- Public Library
- Community centre
- Office for rental

The key is to **link** these functions and allowing a **systematic communication** to happen between all these facilities.

Furthermore, all these function should **relate back** to the **urban space**, using the **edge** as a separation and connection tool.

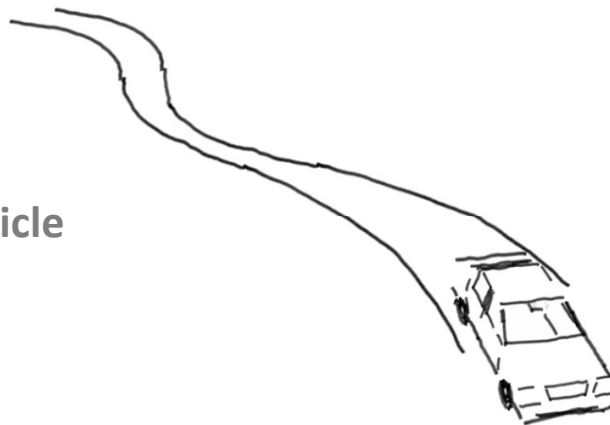
At last, a **program** is then introduced base on the relationship of each of the functions.



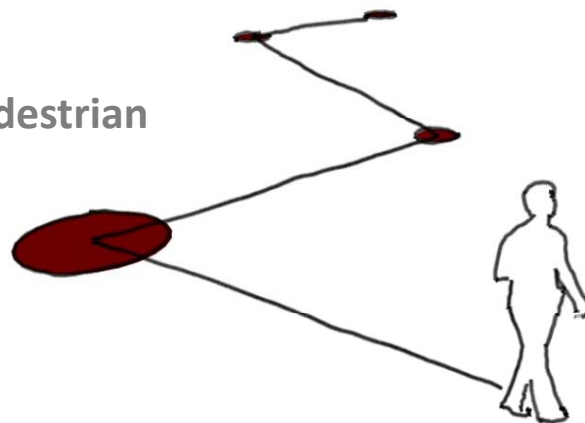
Design form

1. Movement

Movement of vehicle



Movement of pedestrian

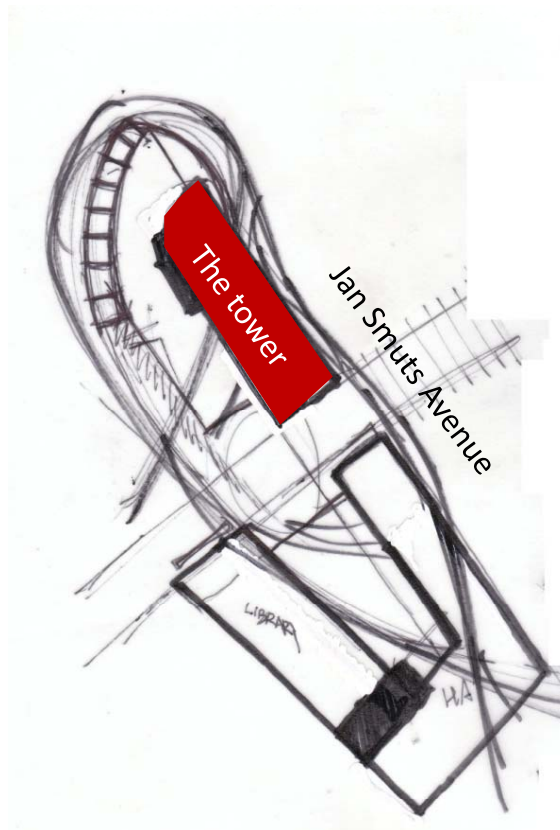
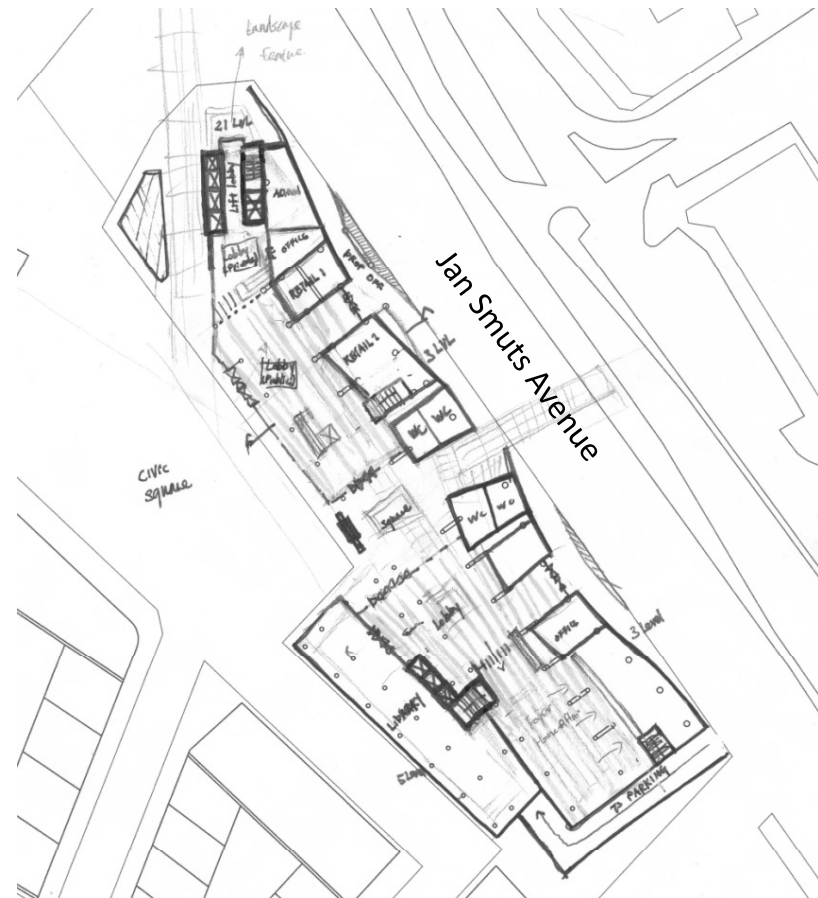


Using movement as a form generator

The Randburg urban space holds a strong notion of **movements**. These movements include the movement of the **pedestrian** and the movement of the **motor vehicles**. Therefore, my aim is to capture the vibrancy of these movements and translate them into architectural form.

The building plan is generated according to the movement studied. The heavy traffic on Jan Smuts has generated the **curved elevation** that faces on to the street. However, where the building faces toward the **pedestrian** space, the form becomes more **linear**, as it suits the movement of the pedestrian better.

Furthermore, the tower is pushed towards the vehicle street, as it enables to **ease the pressure** that a tower might cause upon the pedestrians.

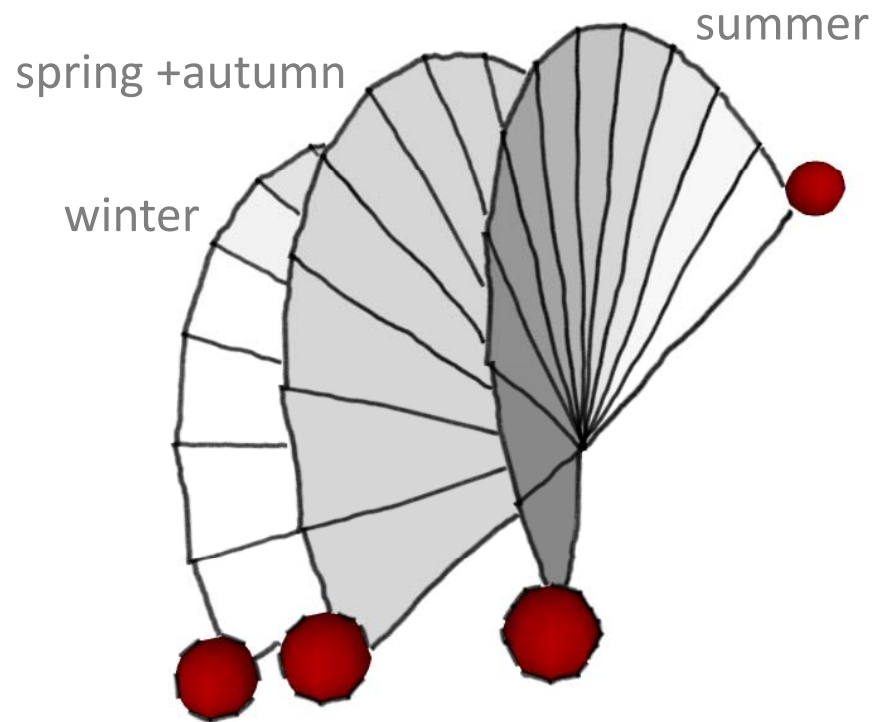


Plan generated by movement

Sketches & Images by
Chih-Hao Lu

Design form

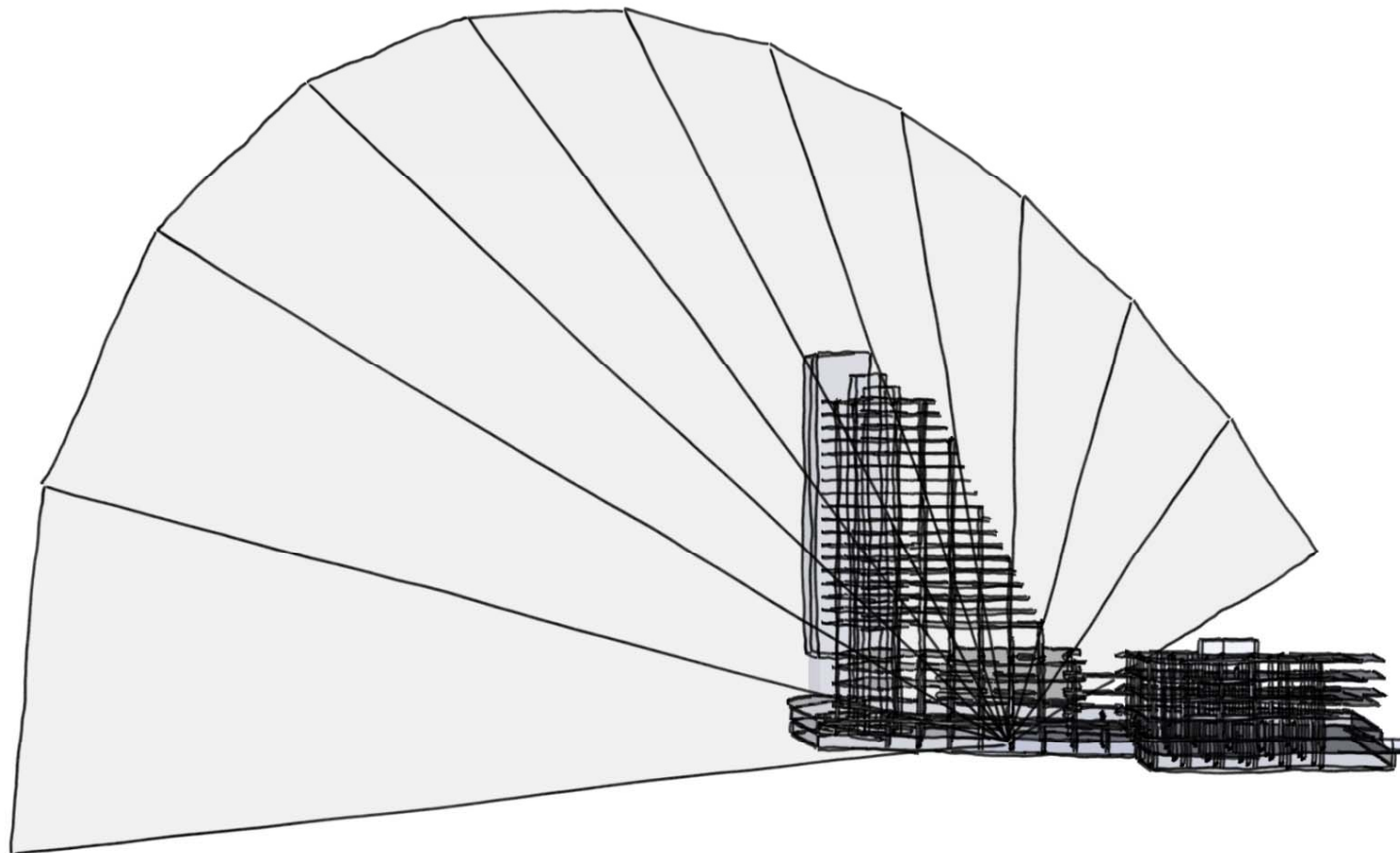
2. Solar path



Using solar path as a form generator

Due to the **deep shadow** that this tower will cast onto the civic square below. The building will have to be formed according to the **solar path** studied, as it enables the building to be shaved and moulded using the plan that is generated by the solar path.

The building is shaved accordingly with plan generated the solar path. Therefore resulting in a **angled building**. In addition, the core sits at the tallest point of the angle.



Sketches & Images by
Chih-Hao Lu

Design form

3. Concept of Tree and Earth

and tower as the tree...

Podium as earth;



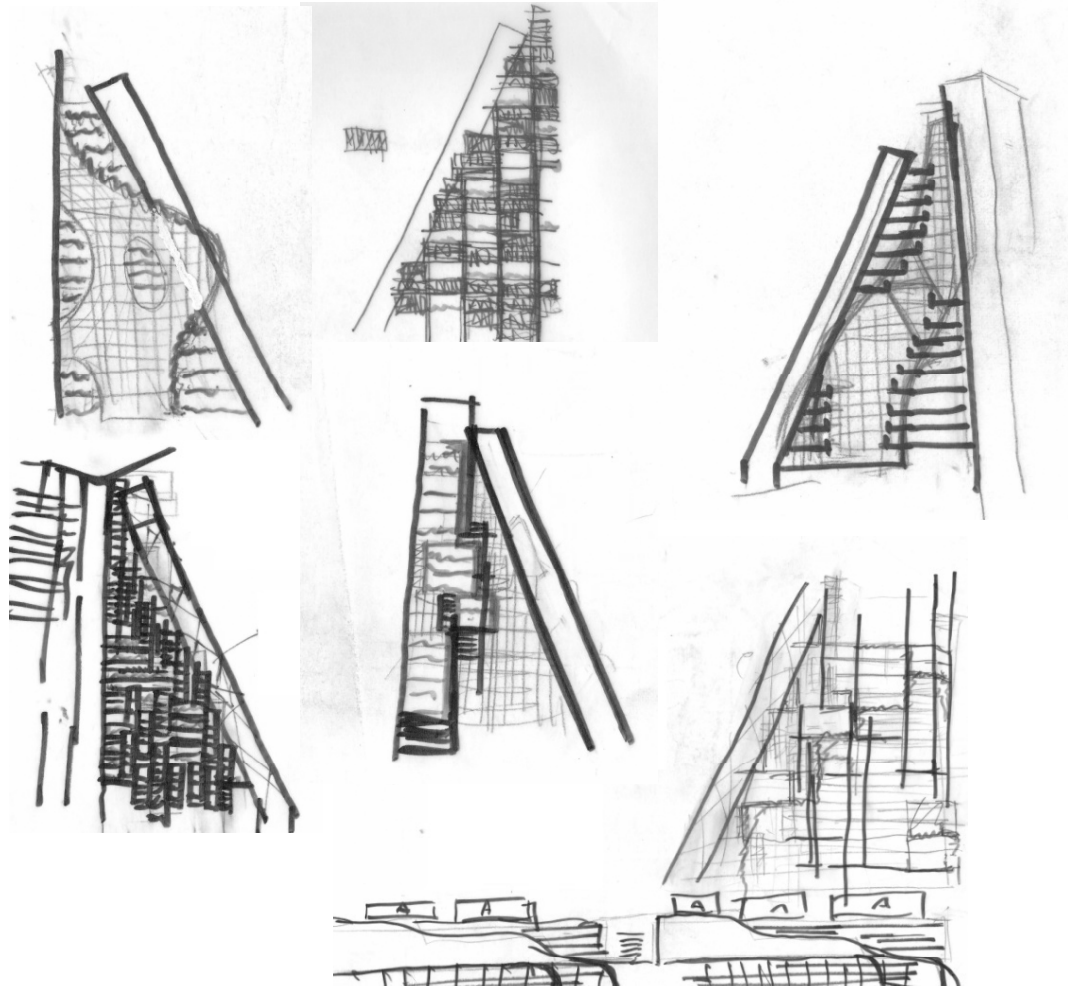
Using tree as a form generator

Tree is the only high-rise nature element that people can easily relate to, as people were often seen sitting, reading, resting or working underneath a tree . Further more, a tree is also able to provide:

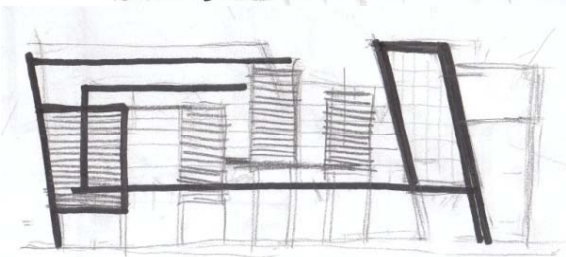
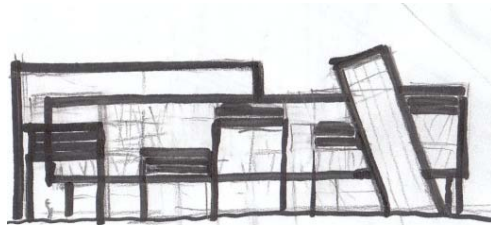
- High-rise
- Visually beautiful
- shade
- comfort

Tree is also considered to be a **light weight structure**. Therefore, due to the bulkiness of the high-rise structure, I would like to **informalised** its **elevations** in order to give the tower a softer and lighter appearance.

A **podium** is also introduced, as a podium at an height of four storeys relates better to human scale. The podium is represented as the **earth** of the tree, therefore its elevation should be more formal and solid.



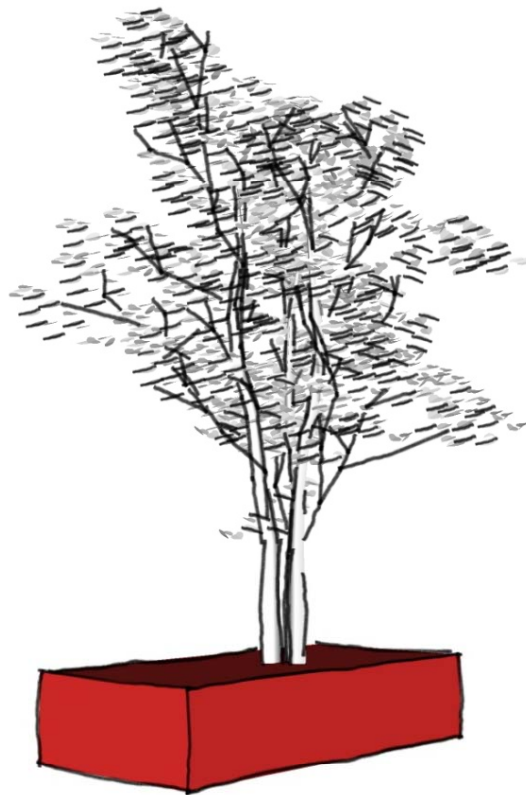
Sketches exploring all possible elevations that is suited for the design of the tower and its podium



Sketches & Images by
Chih-Hao Lu

7.2 DESIGN

The podium;
the earth



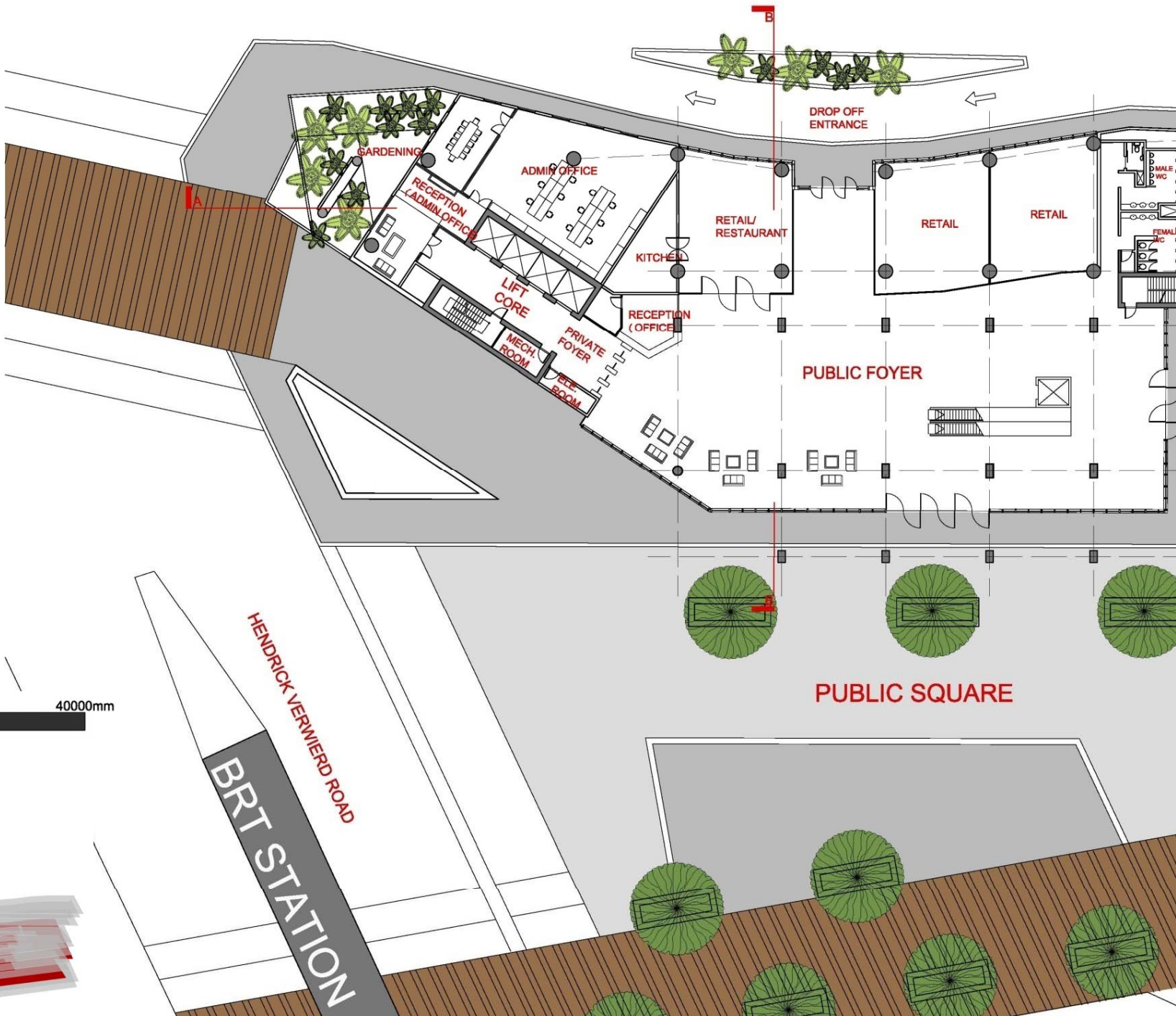


The Public Square space

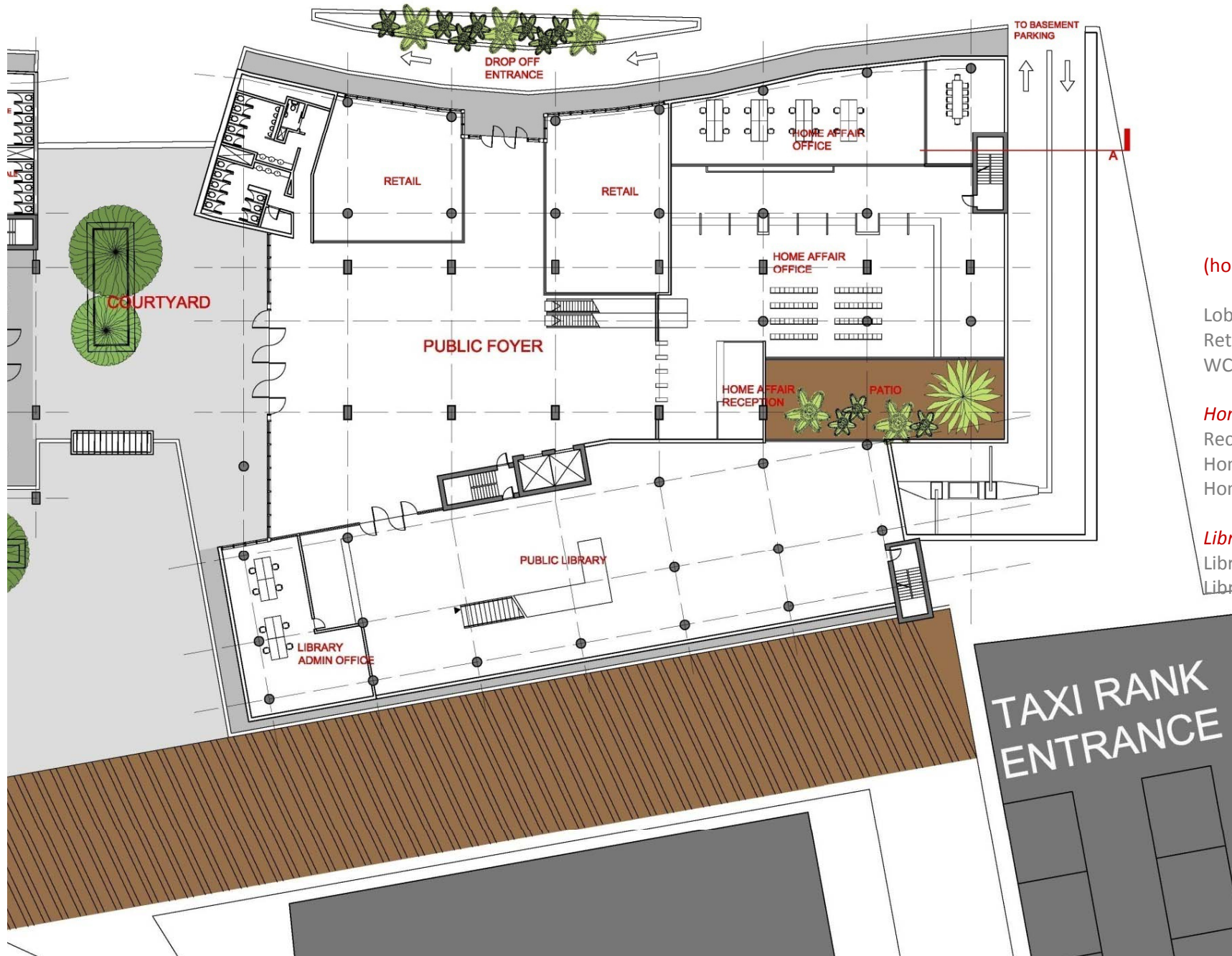
Ground Floor

Ground Floor
(tower section):

Lobby:	840sqm
Retail x2:	350sqm
Admin office:	230sqm
WC:	70sqm
Reception:	15sqm



JAN SMUTS AVE

**(home affair + library section):**

Lobby:	650sqm
Retail x2:	310sqm
WC:	70sqm

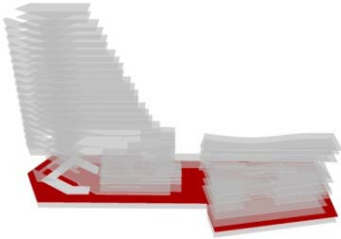
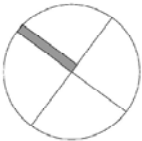
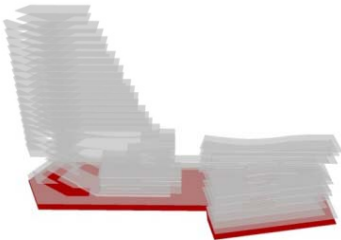
Home affair office

Reception:	25sqm
Home Affair:	320sqm
Home Affair office:	350sqm

Library

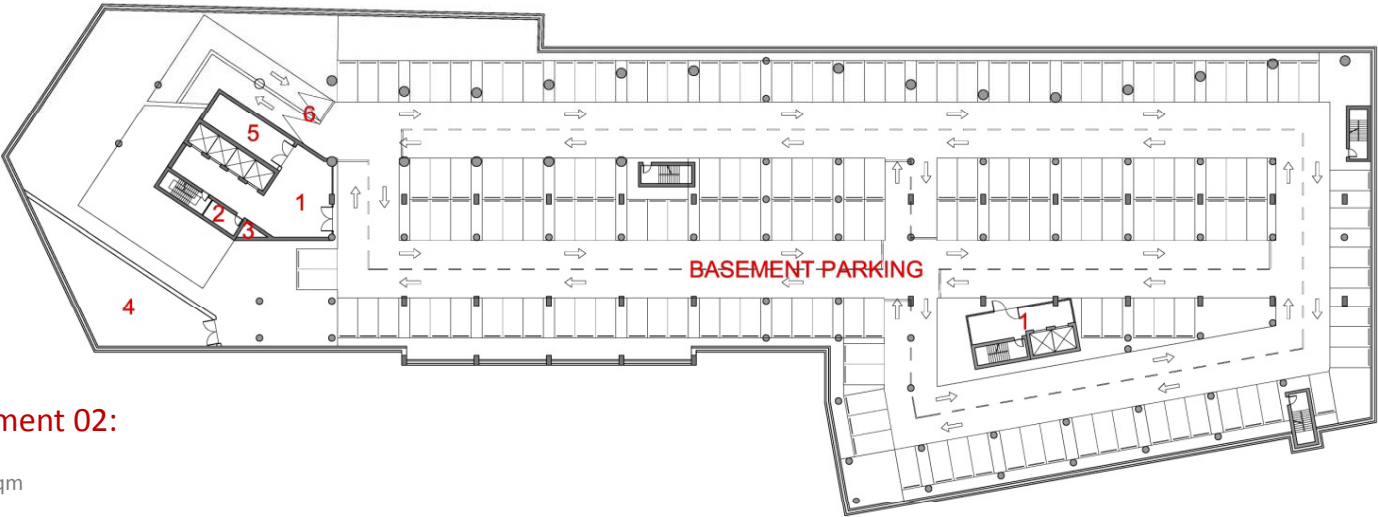
Library:	650sqm
Library office:	130sqm

Basement levels



Basement 02:

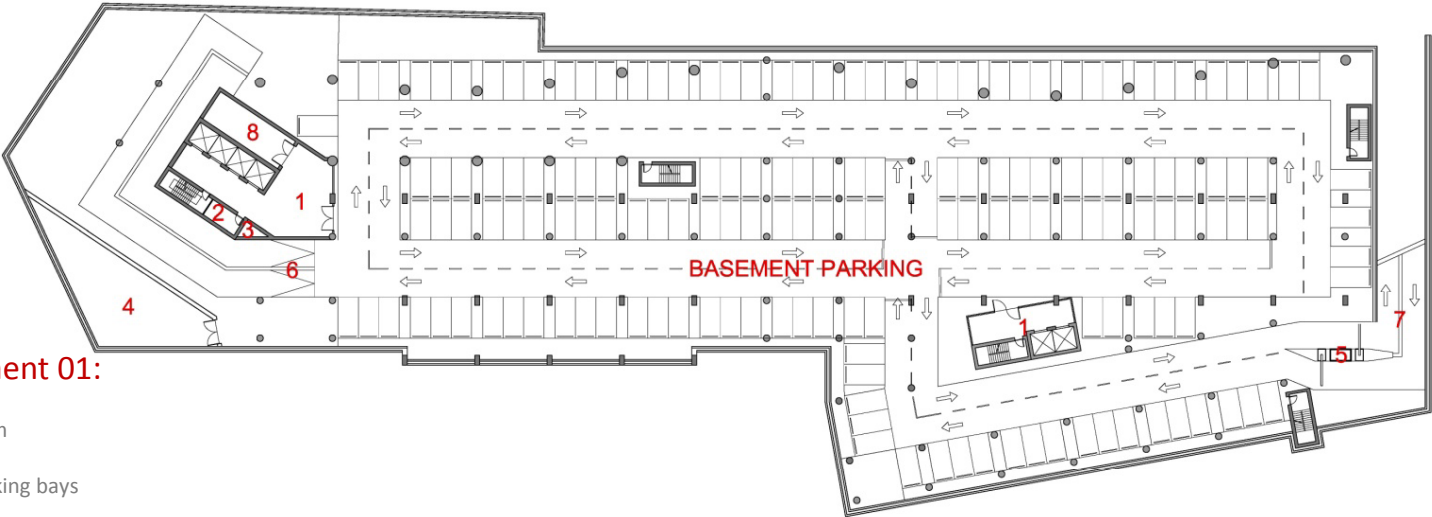
- 5590sqm
- 165 parking bays



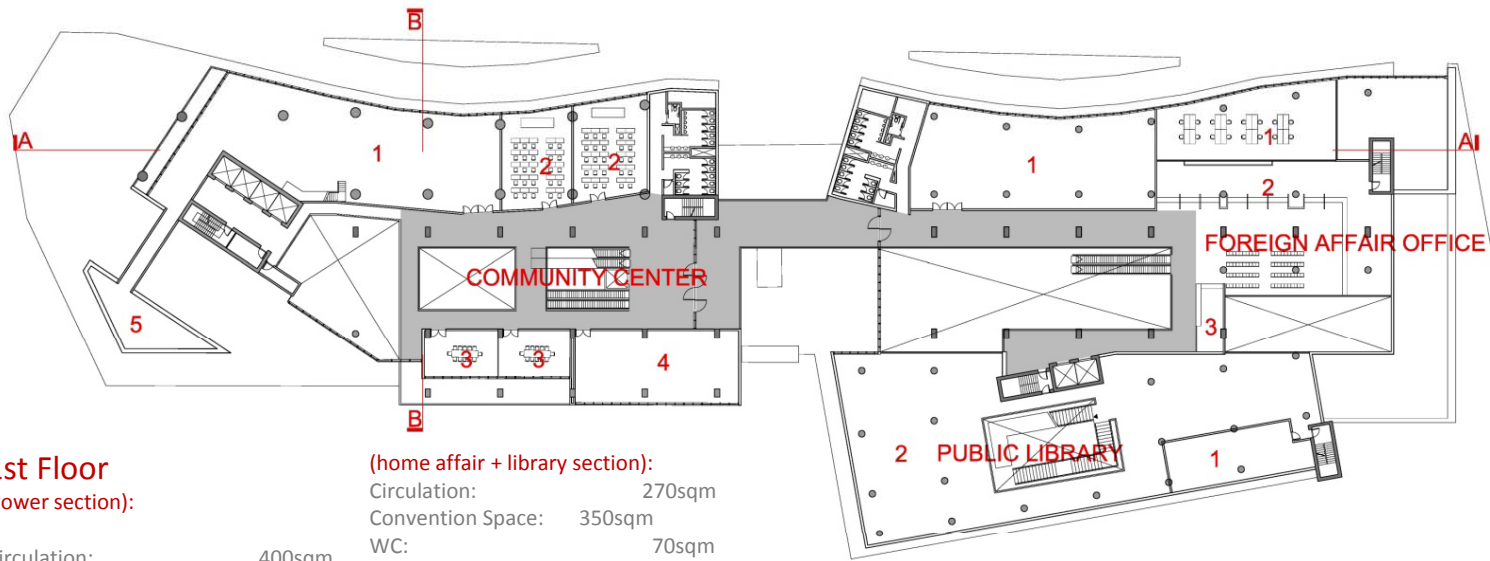
BASEMENT PARKING 02
1.LIFT LOBBY 2.MECH. ROOM 3.ELE. ROOM 4.TRANSFORMER
5.STORAGE 6.RAMP TO BASEMENT 01

Basement 01:

- 5160sqm
- 160 parking bays



BASEMENT PARKING 01
1.LIFT LOBBY 2.MECH. ROOM 3.ELE. ROOM 4.TRANSFORMER
5.CONTROLED ENTRANCE 6.RAMP TO BASEMENT 02 7.RAMP TO JAN SMUTS AVE 8.STORAGE



1st Floor (tower section):

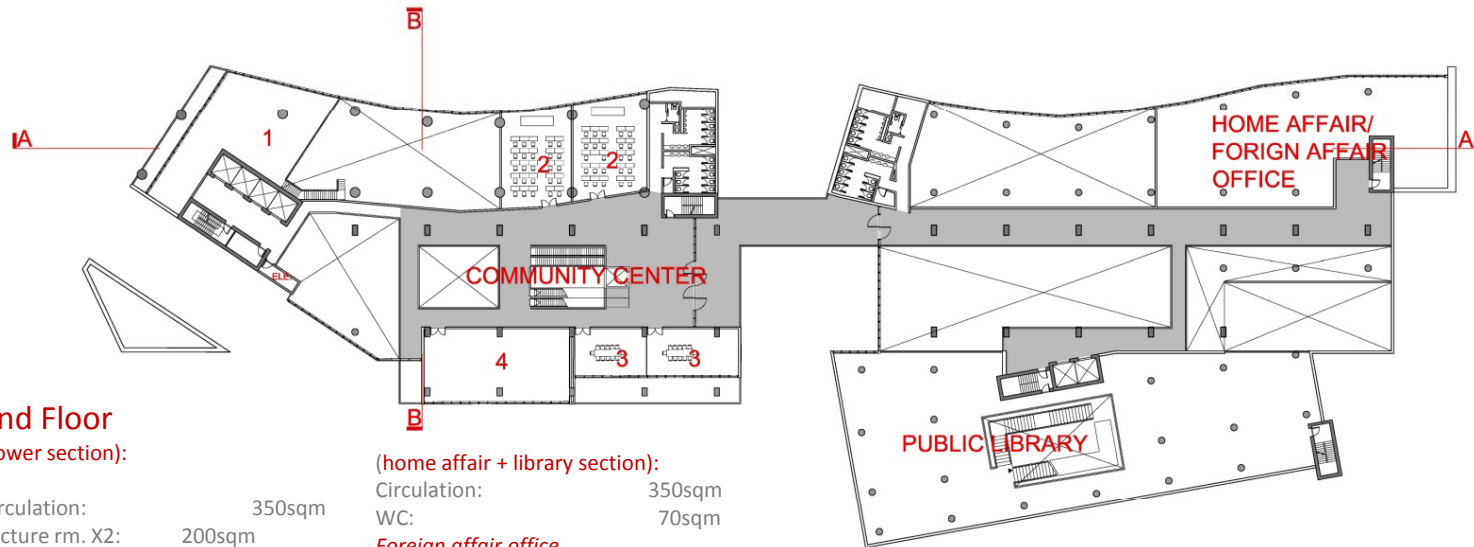
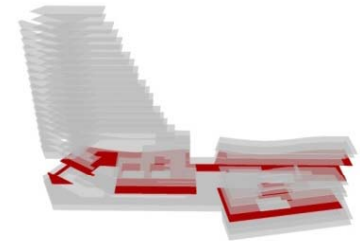
Circulation:	400sqm
Lecture rm. X2:	200sqm
Meeting rm. X2:	110sqm
Studio:	170sqm
WC:	70sqm
Convention Space:	470sqm
Kitchen:	60sqm

(home affair + library section):

Circulation:	270sqm
Convention Space:	350sqm
WC:	70sqm
Foreign affair office	
Reception:	35sqm
Foreign Affair:	230sqm
Foreign Affair office:	430sqm
Library	
Library:	750sqm
Library storage:	100sqm

- PUBLIC LIBRARY**
1.STORAGE 2.READING AREA AND BOOK SHELVES
- FOREIGN AFFAIR OFFICE**
1.FORIGN AFFAIR ADMIN OFFICE 2.PUBLIC SERVICE 3.RECEPTION (FORIGN AFFAIR)
- COMMUNITY CENTER**
1.CONVENTIONAL SPACE 2.LECTURE ROOM 3.MEETING ROOM 4.STUDIO 5.KITCHEN

Podium levels



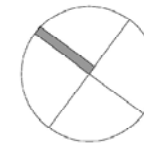
2nd Floor (tower section):

Circulation:	350sqm
Lecture rm. X2:	200sqm
Meeting rm. X2:	110sqm
Studio:	170sqm
WC:	70sqm
Convention Space:	200sqm

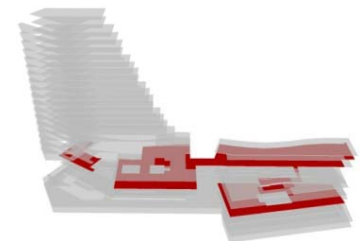
(home affair + library section):

Circulation:	350sqm
WC:	70sqm
Foreign affair office	
Home + Foreign Affair Office (security level 3):	430sqm
Library	
Library:	850sqm

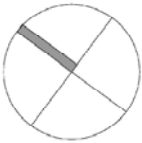
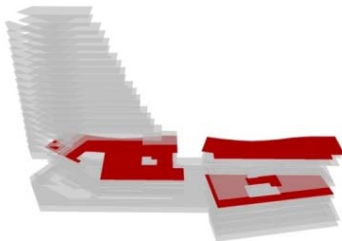
- COMMUNITY CENTER**
1.CONVENTIONAL SPACE 2.LECTURE ROOM 3.MEETING ROOM 4.STUDIO



2.5m 10m 40m
0m 5m 20m



Podium levels

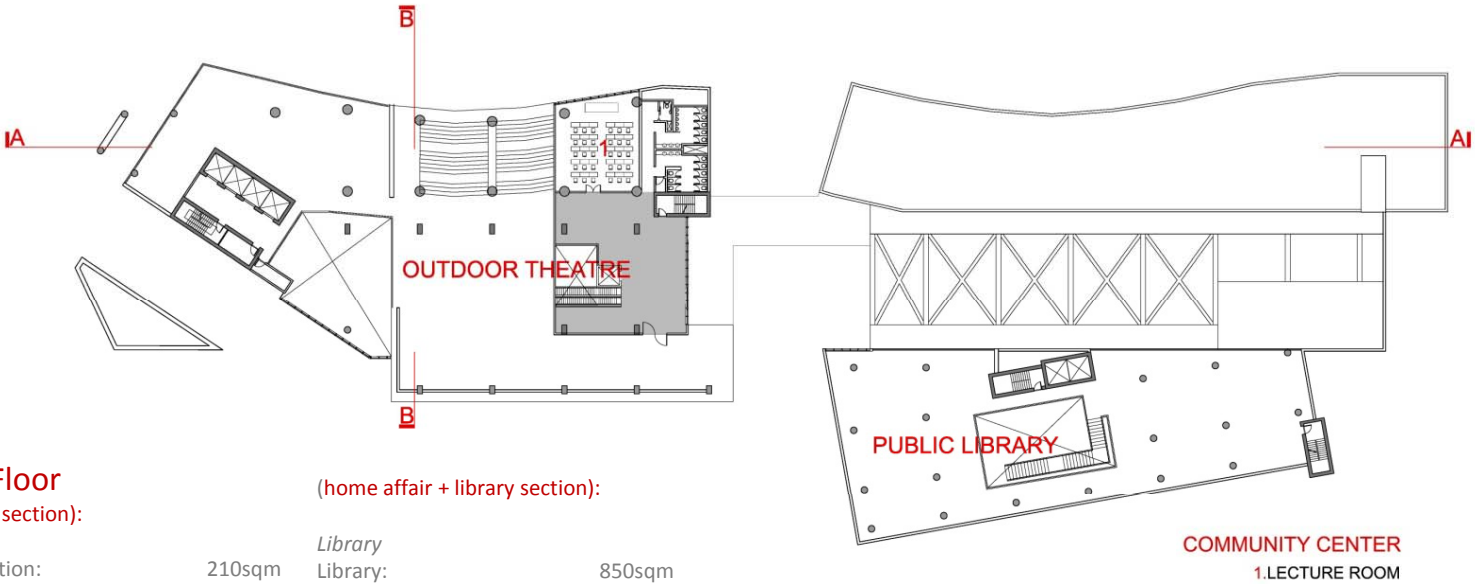


3rd Floor
(tower section):

Circulation: 210sqm
Lecture rm.: 110sqm
WC: 70sqm

(home affair + library section):

Library 210sqm
Library: 850sqm



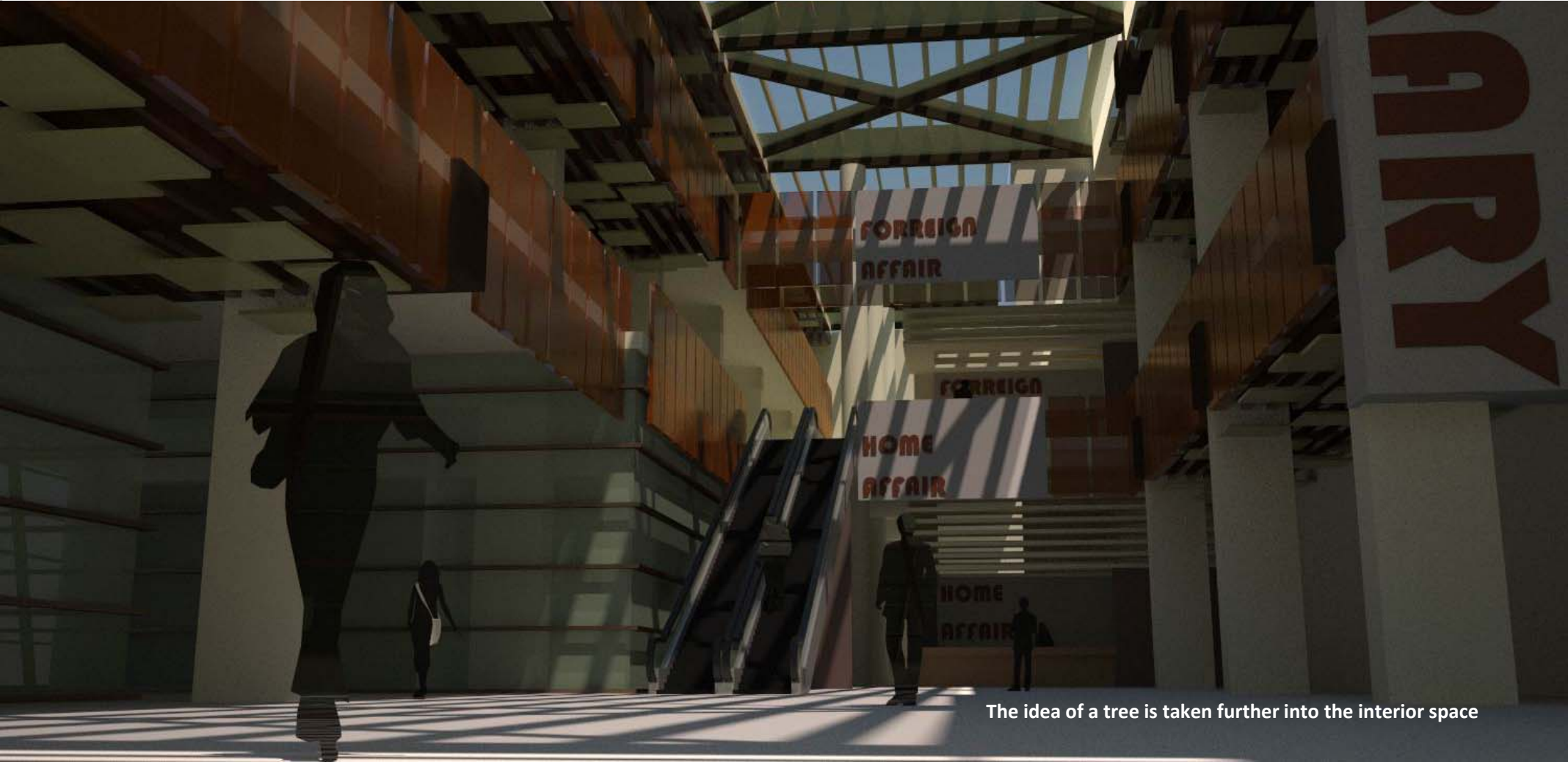
View into the courtyard space



Podium interiors

‘Under a tree’

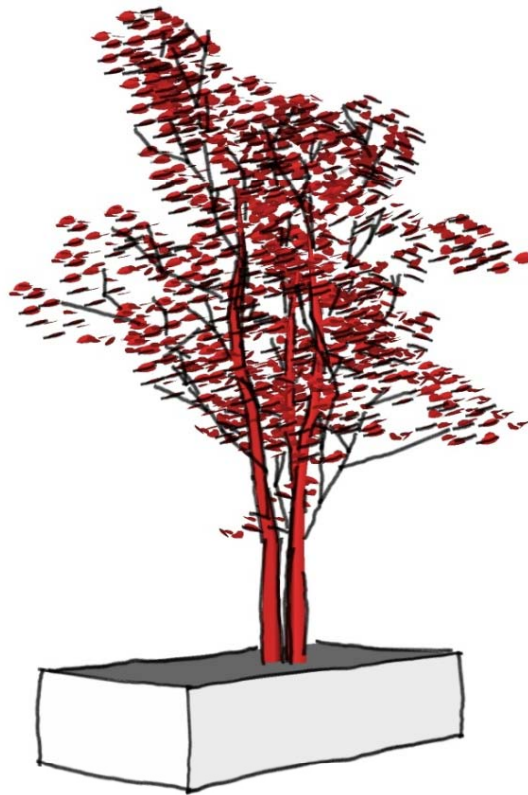
Image:
(‘Under a tree’
http://www.jeaniechadwick.com/uploaded_images/LITTLE-BOY-UNDER-A-BIG-TREE-copy-702811.jpg)



The idea of a tree is taken further into the interior space



The tower;
the tree



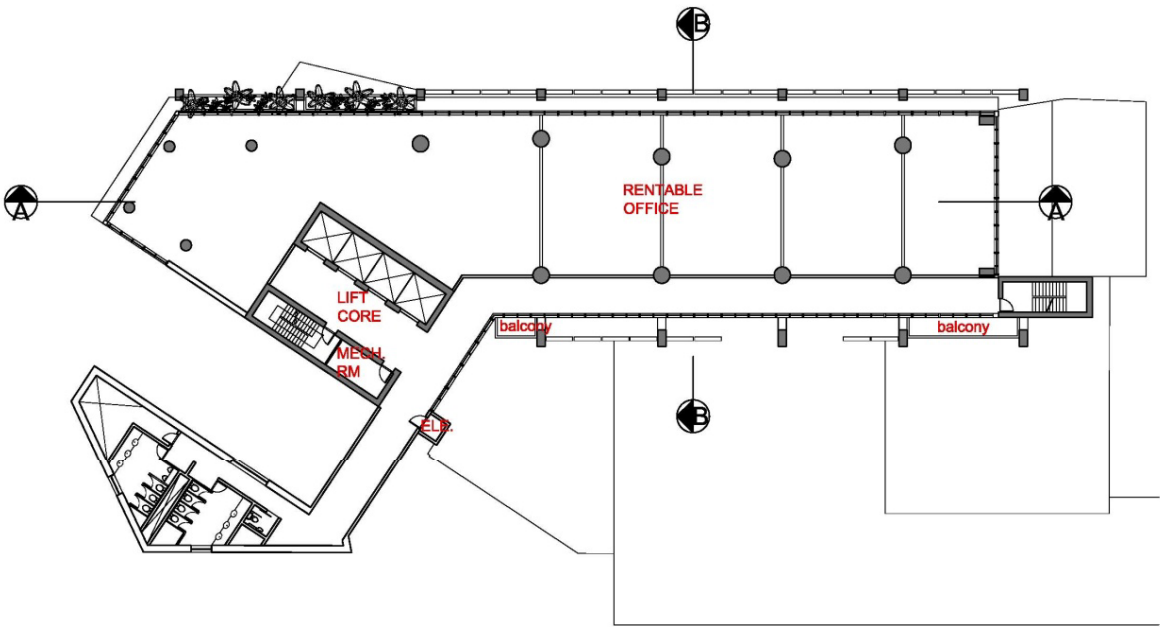
A “tree” like tower



4th Floor

4th Floor:

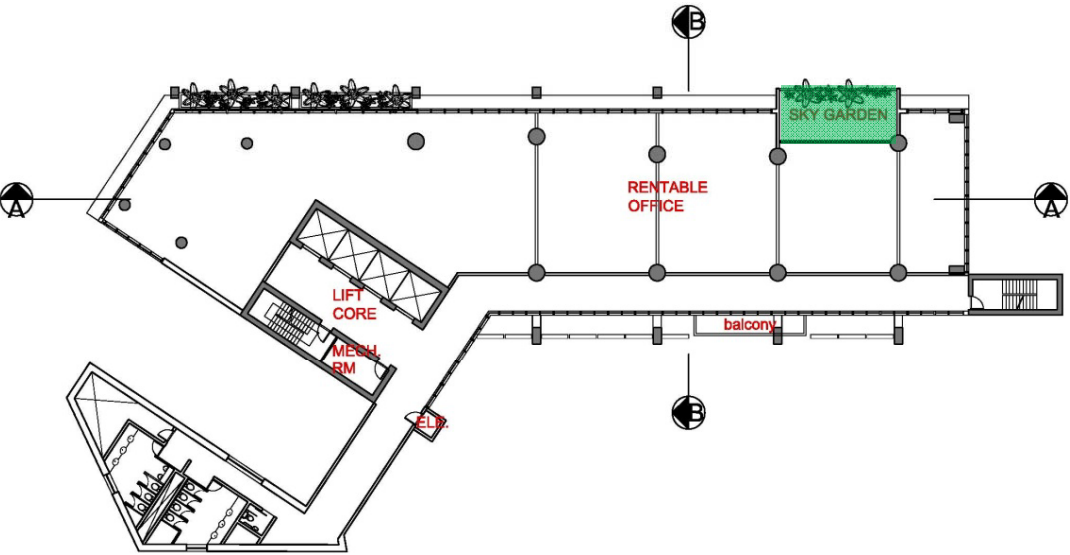
Circulation: 163sqm
Office: 712sqm
WC: 55sqm

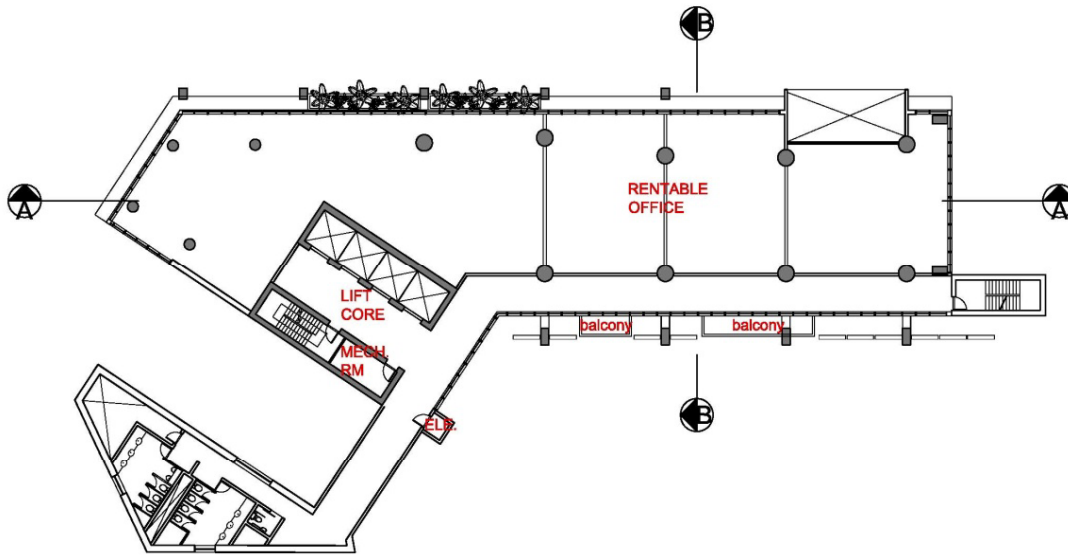


5th Floor

5th Floor:

Circulation: 159sqm
Office: 687sqm
WC: 55sqm

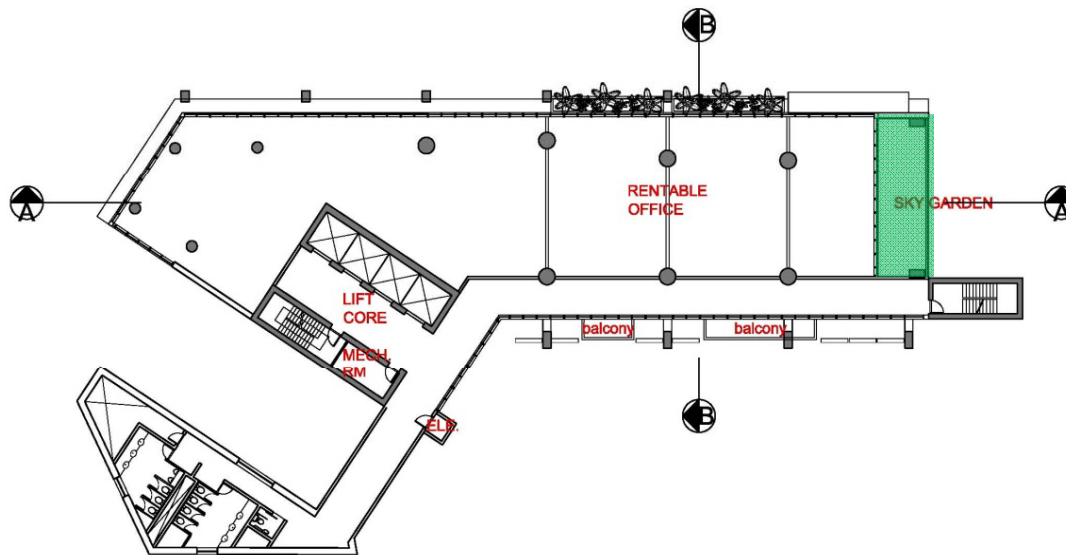




6th Floor:

Circulation: 155sqm
Office: 664sqm
WC: 55sqm

6th Floor



7th Floor:

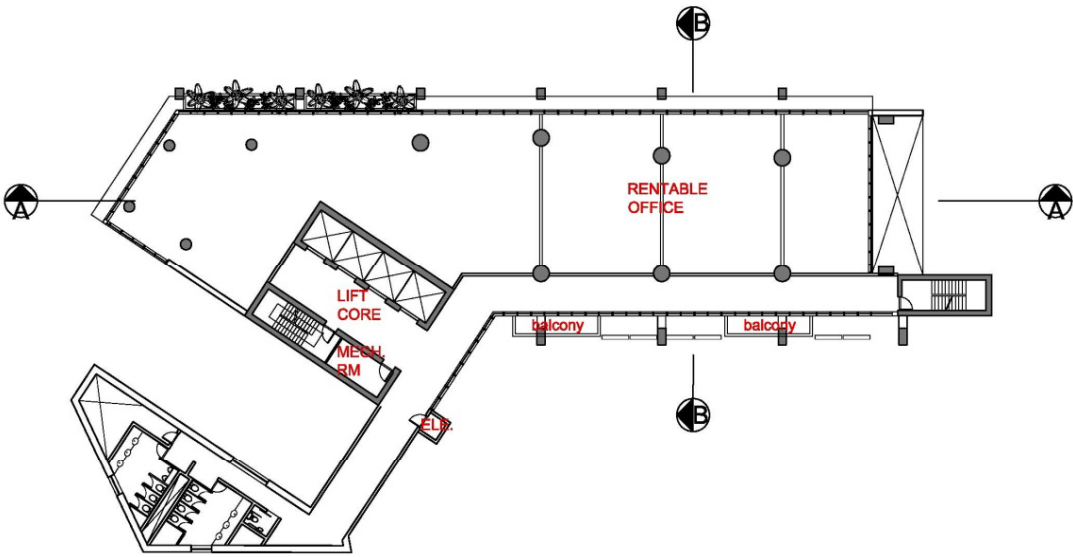
Circulation: 151sqm
Office: 608sqm
WC: 55sqm

7th Floor

8th Floor

8th Floor:

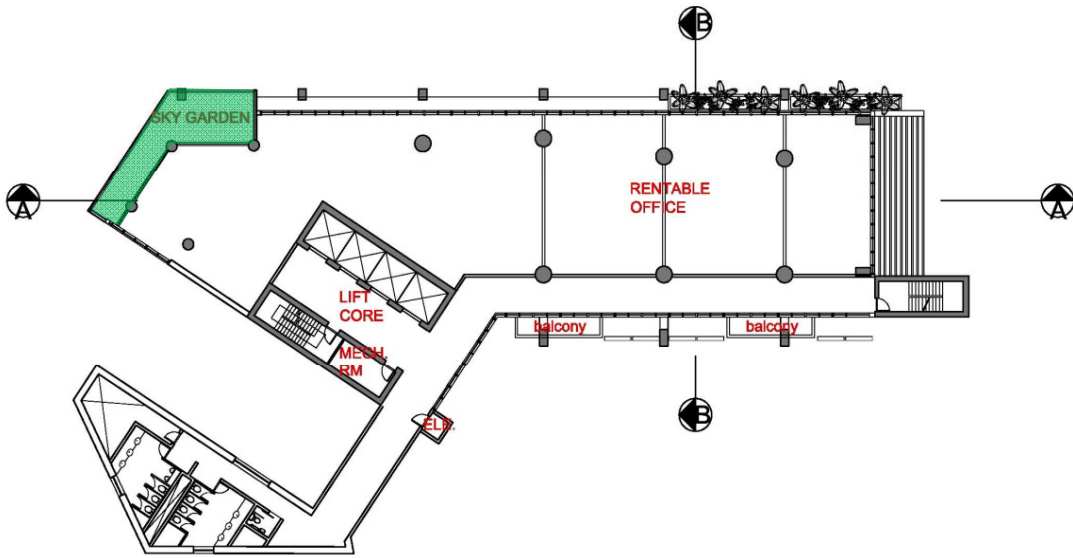
Circulation: 141sqm
Office: 608sqm
WC: 55sqm

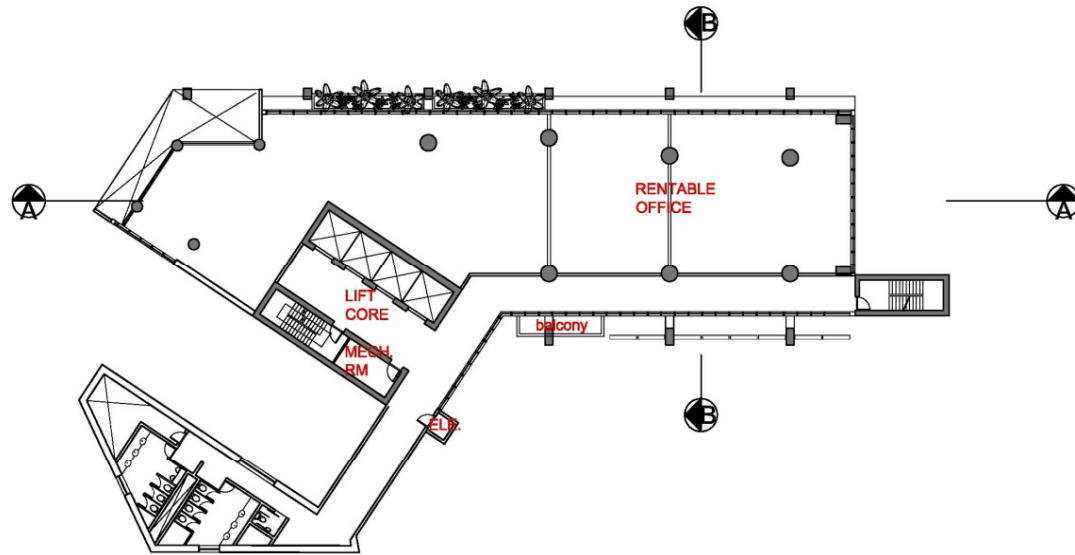


9th Floor

9th Floor:

Circulation: 143sqm
Office: 608sqm
WC: 55sqm

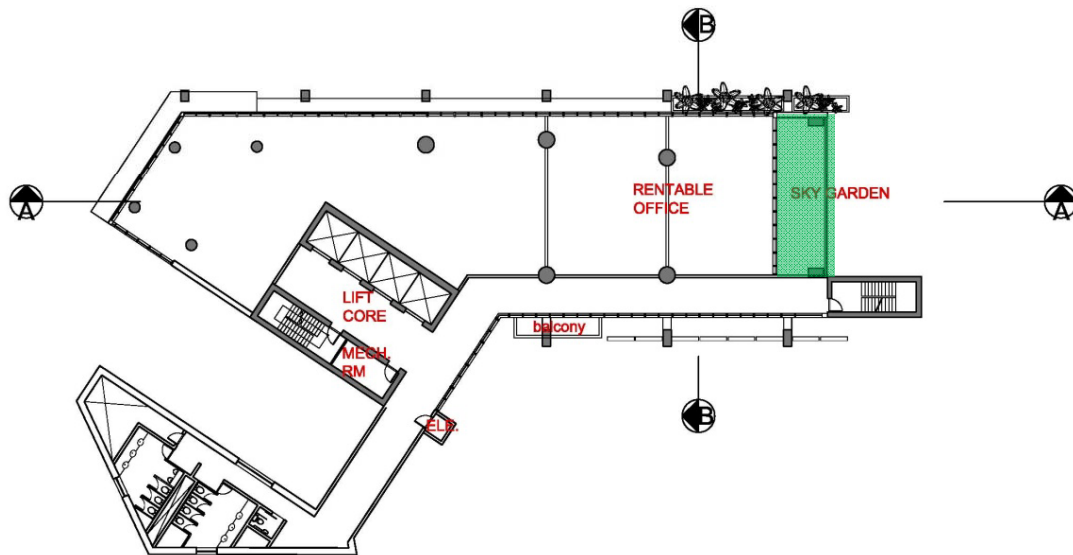




10th Floor:

Circulation: 139sqm
Office: 574sqm
WC: 55sqm

10th Floor



11th Floor:

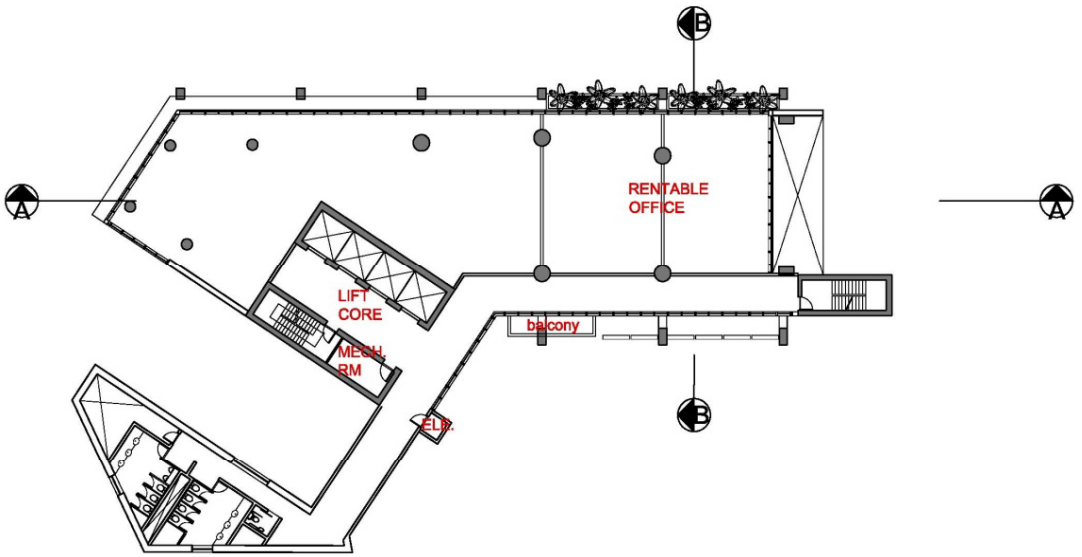
Circulation: 135sqm
Office: 516sqm
WC: 55sqm

11th Floor

12th Floor

12th Floor:

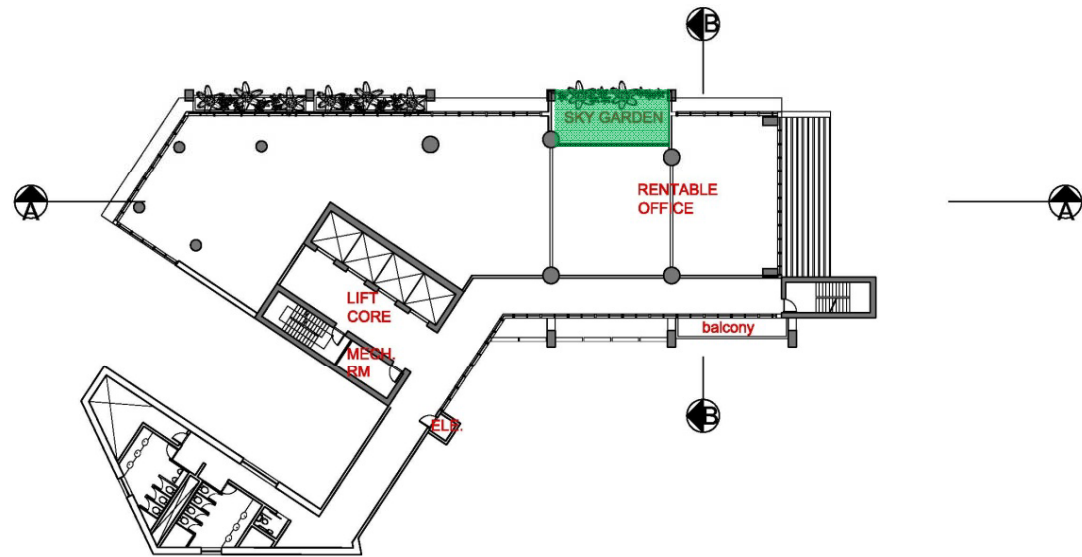
Circulation: 131sqm
Office: 516sqm
WC: 55sqm

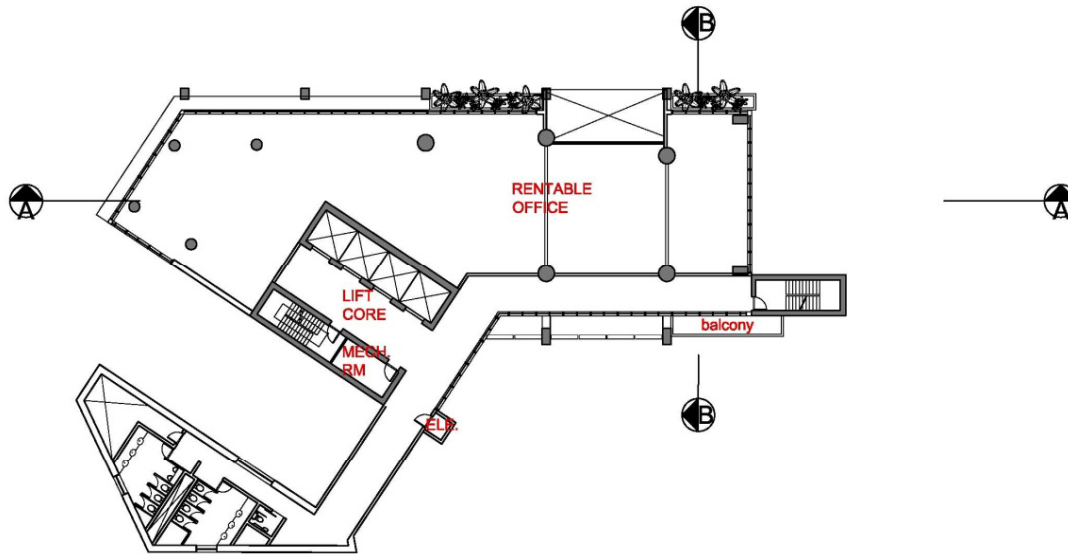


13th Floor

13th Floor:

Circulation: 127sqm
Office: 516sqm
WC: 55sqm

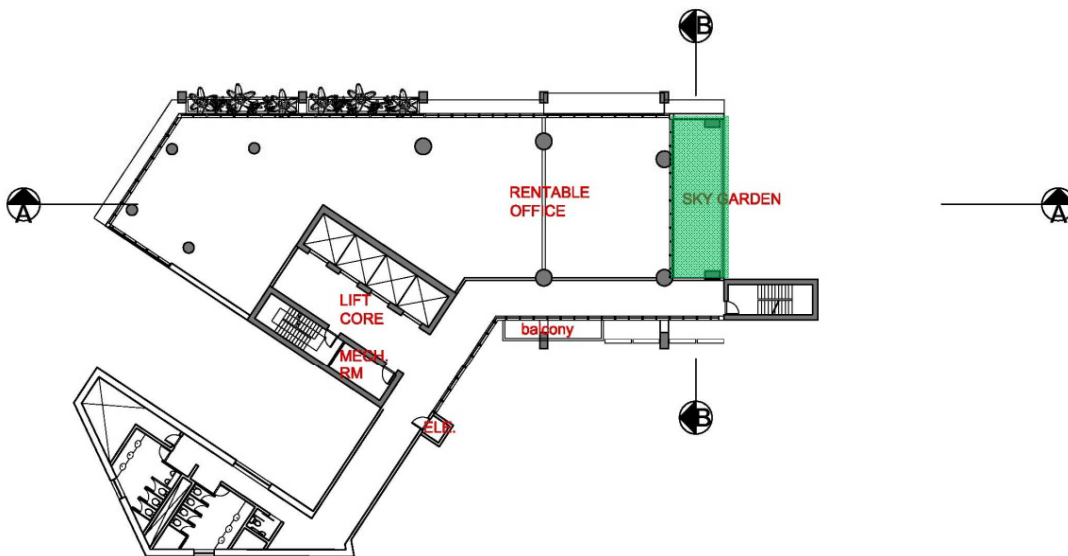




14th Floor:

Circulation: 123sqm
Office: 498sqm
WC: 55sqm

14th Floor



15th Floor:

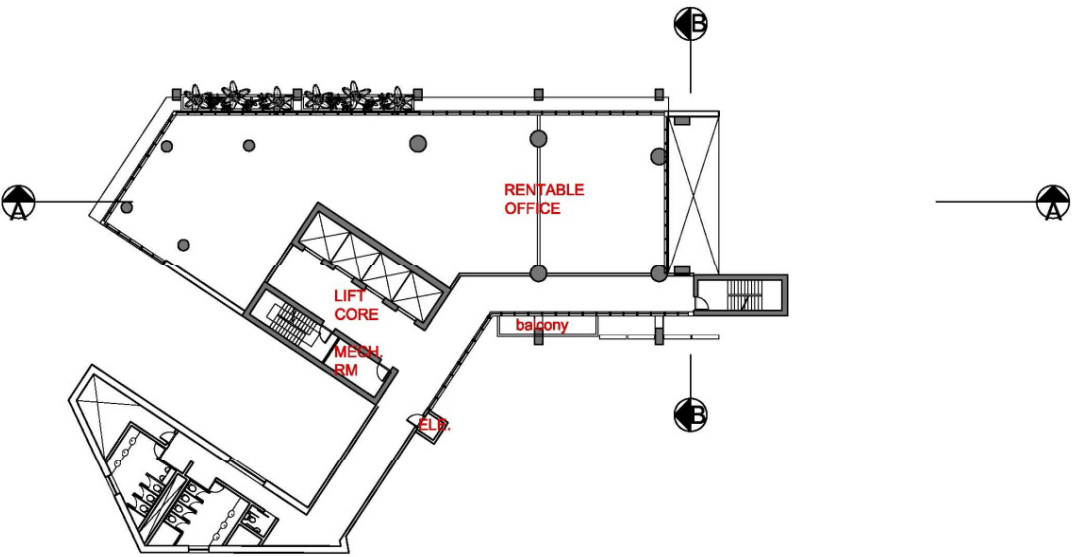
Circulation: 119sqm
Office: 431sqm
WC: 55sqm

15th Floor

16th Floor

16th Floor:

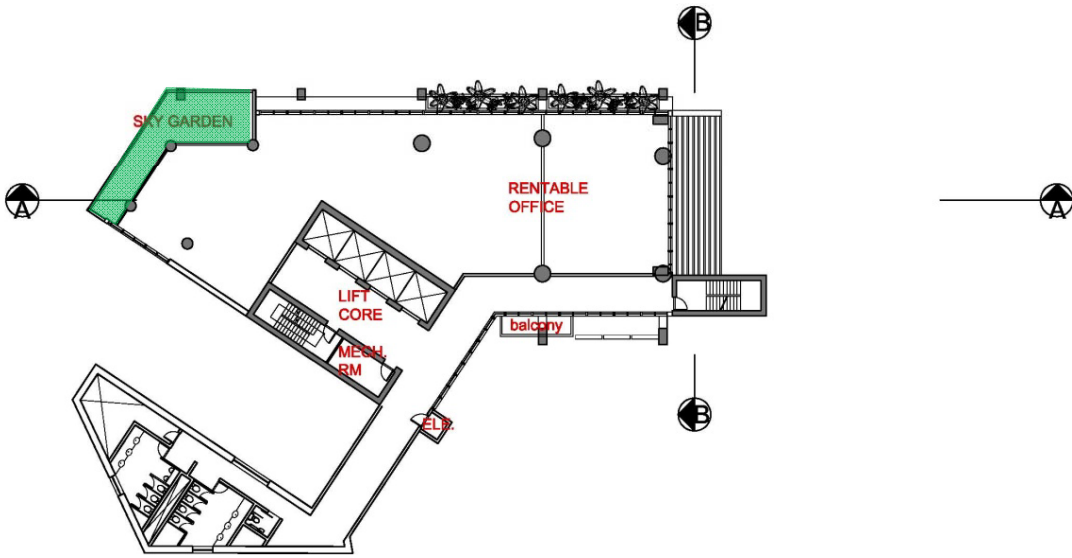
Circulation: 115sqm
Office: 431sqm
WC: 55sqm

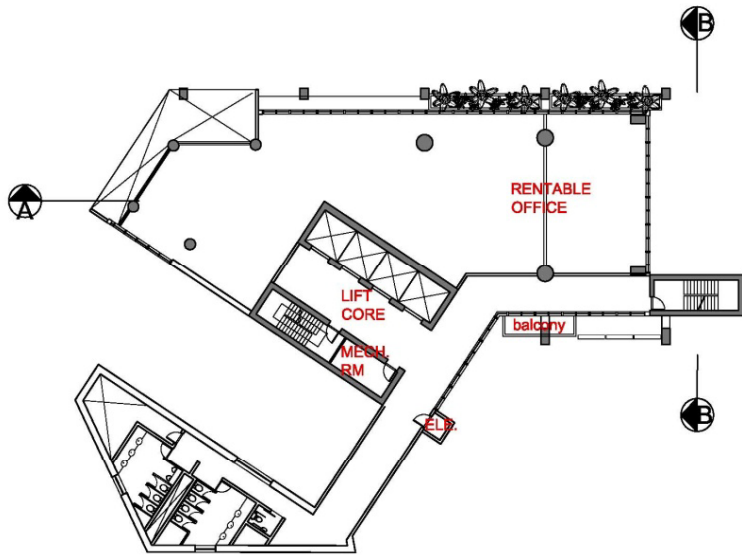


17th Floor

17th Floor:

Circulation: 111sqm
Office: 431sqm
WC: 55sqm

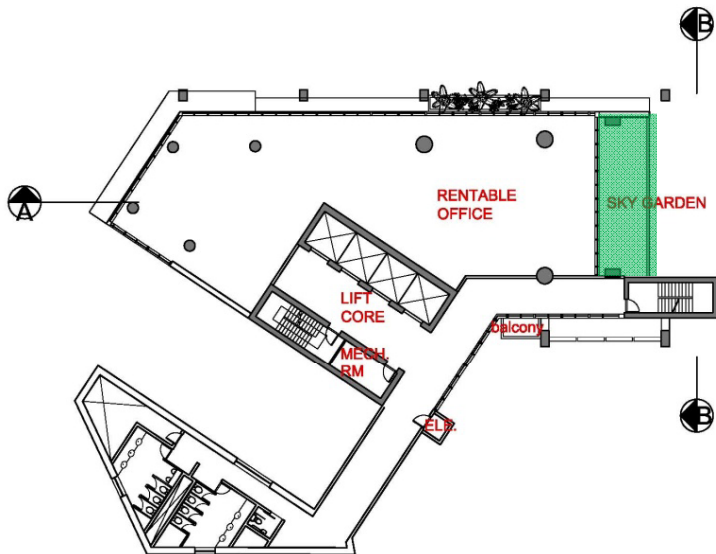




18th Floor:

Circulation: 107sqm
Office: 411sqm
WC: 55sqm

18th Floor



19th Floor:

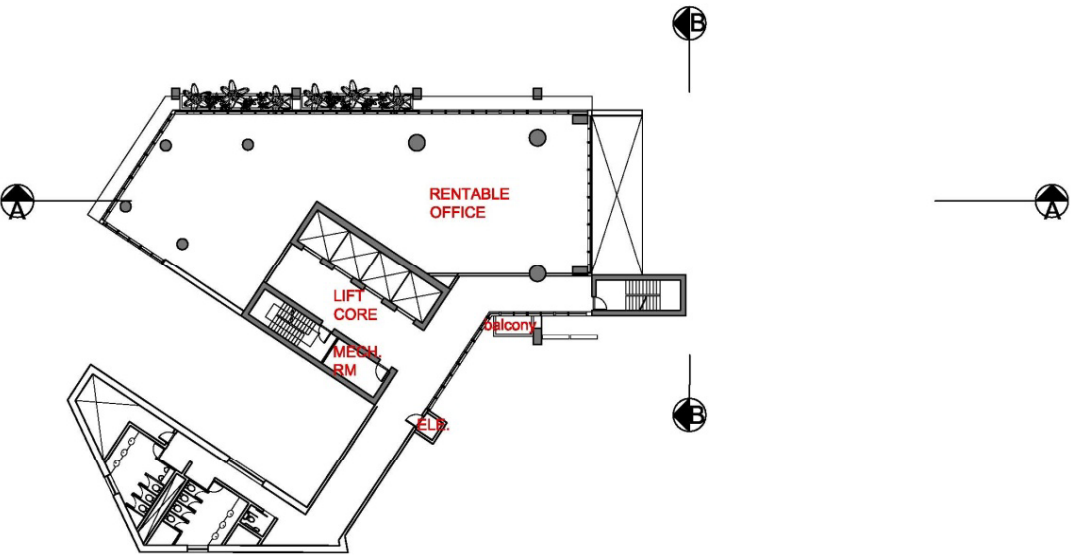
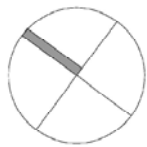
Circulation: 103sqm
Office: 362sqm
WC: 55sqm

19th Floor

20th Floor

20th Floor:

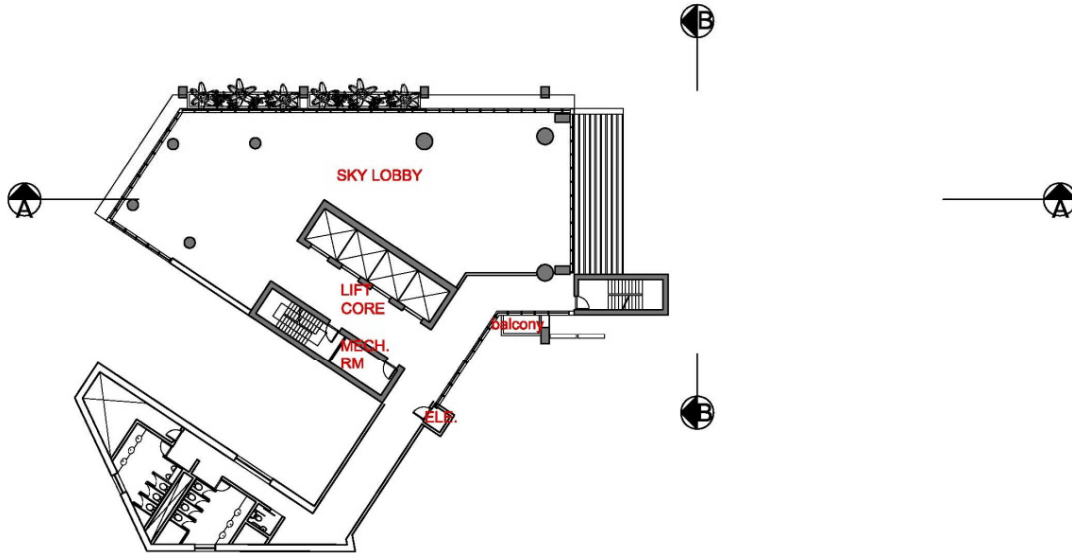
Circulation: 99sqm
Office: 362sqm
WC: 55sqm



21st Floor

21st Floor:

Circulation: 95sqm
Sky Lobby: 362sqm
WC: 55sqm





Office working environment

Sections

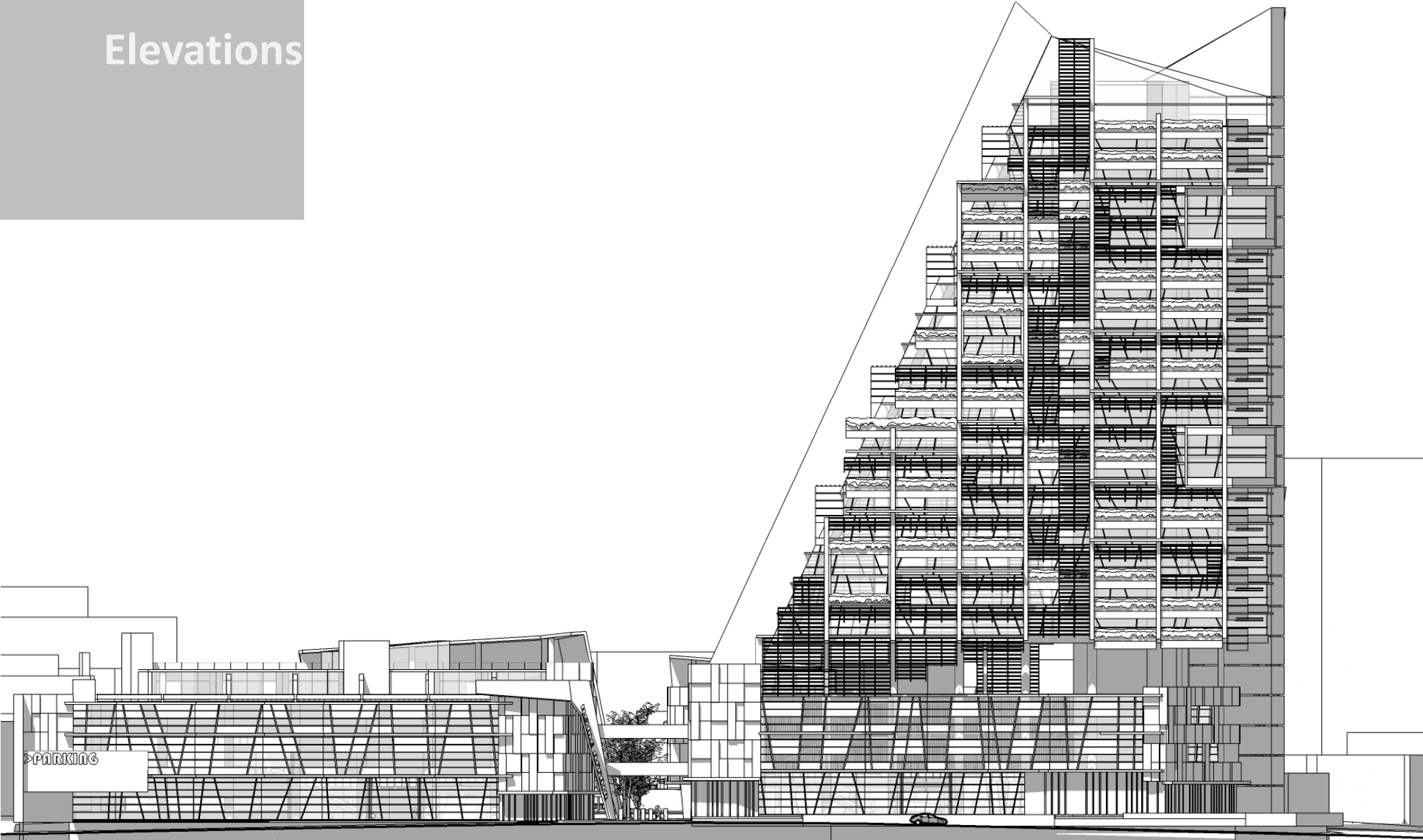
Section A-A



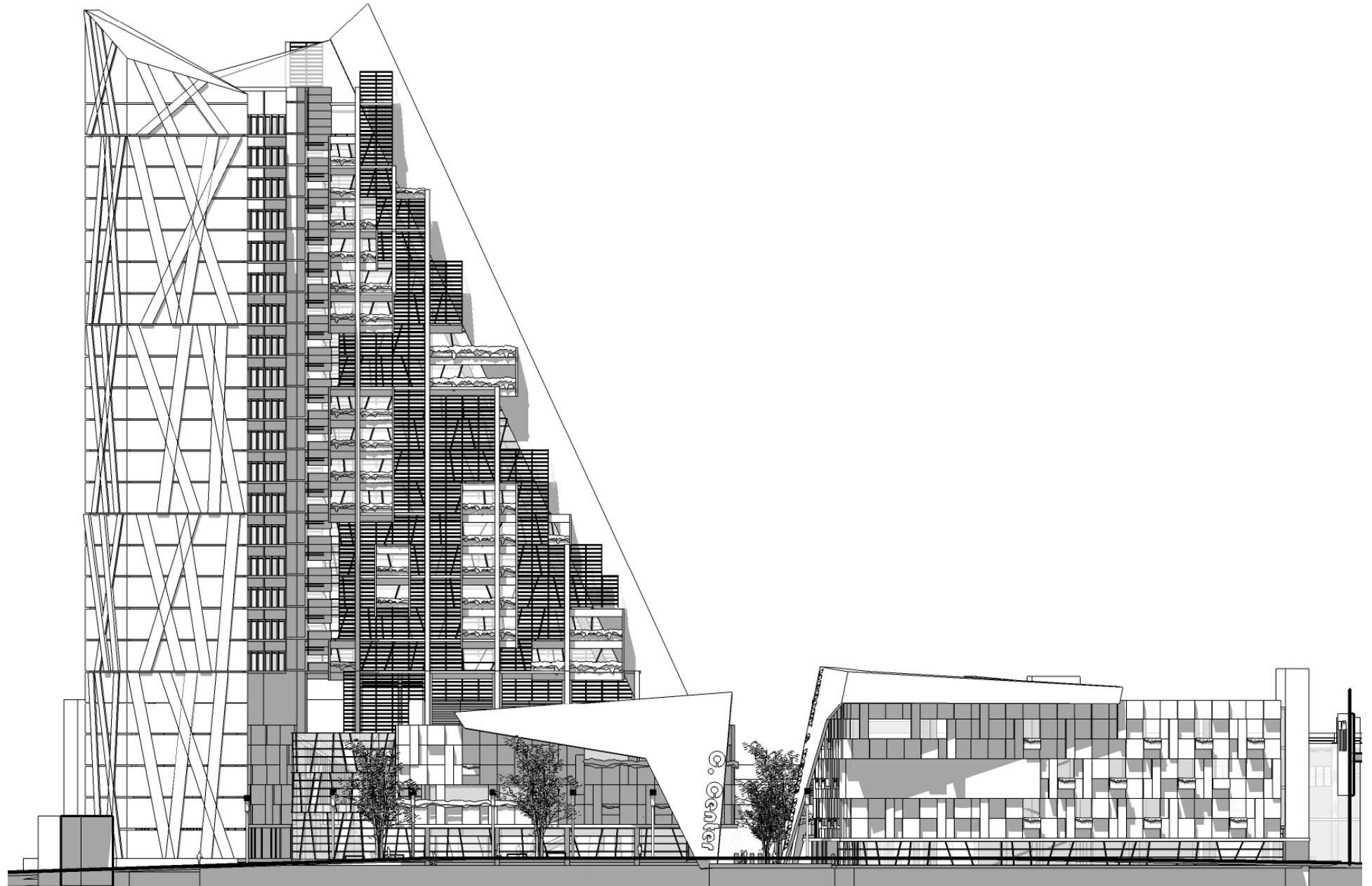
Section B-B

Architectural section drawing of a building, showing a multi-story structure with a sloped roof and a series of 'SKY LOBBY' and 'SKY GARDEN' spaces. The ground floor includes 'OUTDOOR THEATRE', 'CONVENTION SPACE', 'ADMIN OFFICE', 'RETAIL', 'LECT. RM.', 'WC', 'RETAIL / RESTAURANT', 'SQUARE SPACE', 'CONVENTION SPACE', 'HOME / FOREIGN AFFAIR OFFICE S3', 'FOREIGN AFFAIR OFFICE S2', 'HOME AFFAIR OFFICE S2', and 'FIRE ESCAPE'. The building is surrounded by 'PARKING' areas. A scale bar indicates 0mm, 5000mm, 10000mm, and 20000mm.

Elevations



North-East Elevation



South-West Elevation

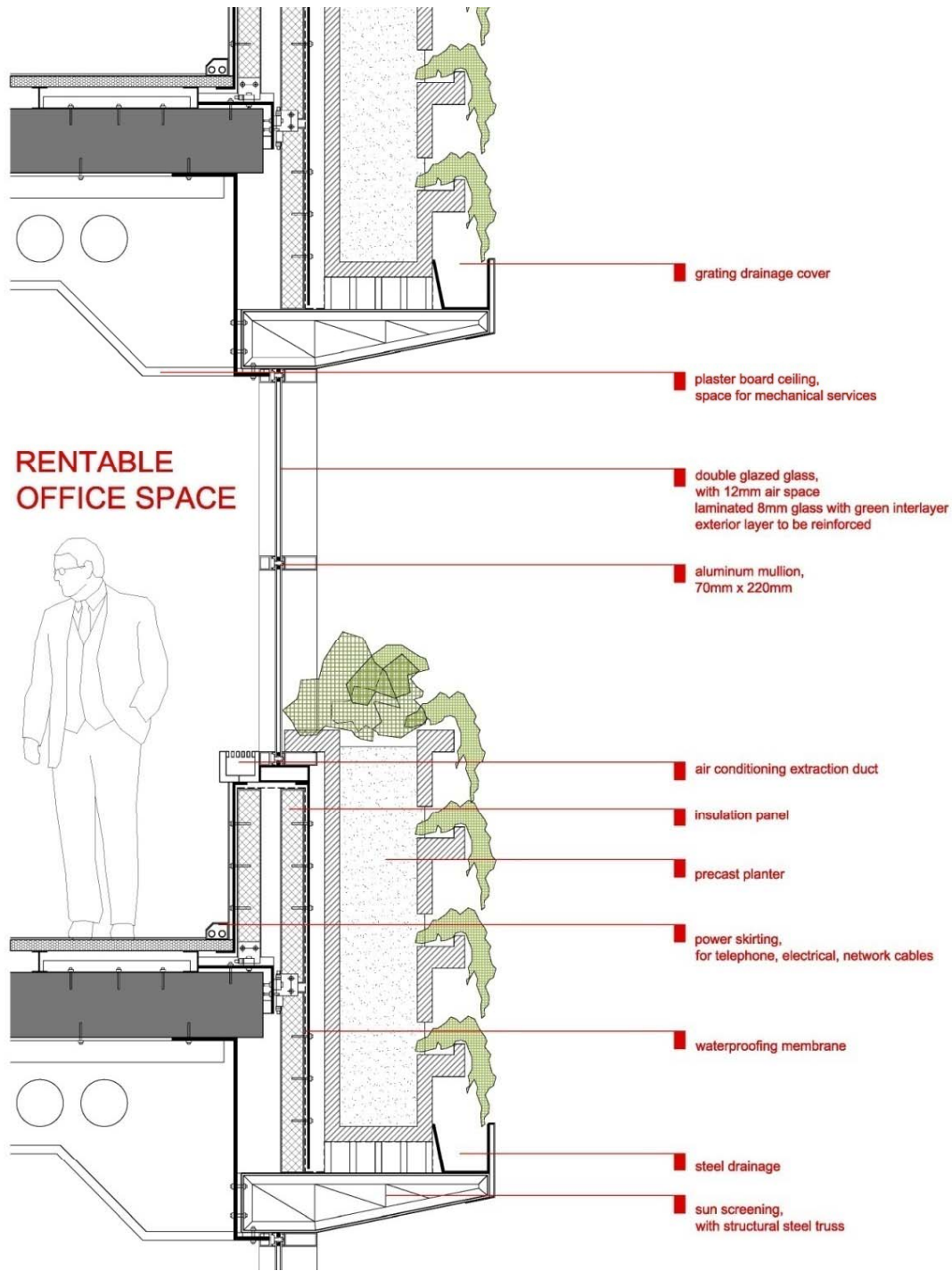


North-West Elevation



South-East Elevation

The tree concept:
human comfort



Leaves

image:
(‘leaves’
<http://www.pewclimate.org/docUploads/images/green%20leaves%20with%20rain%20drops.jpg>)

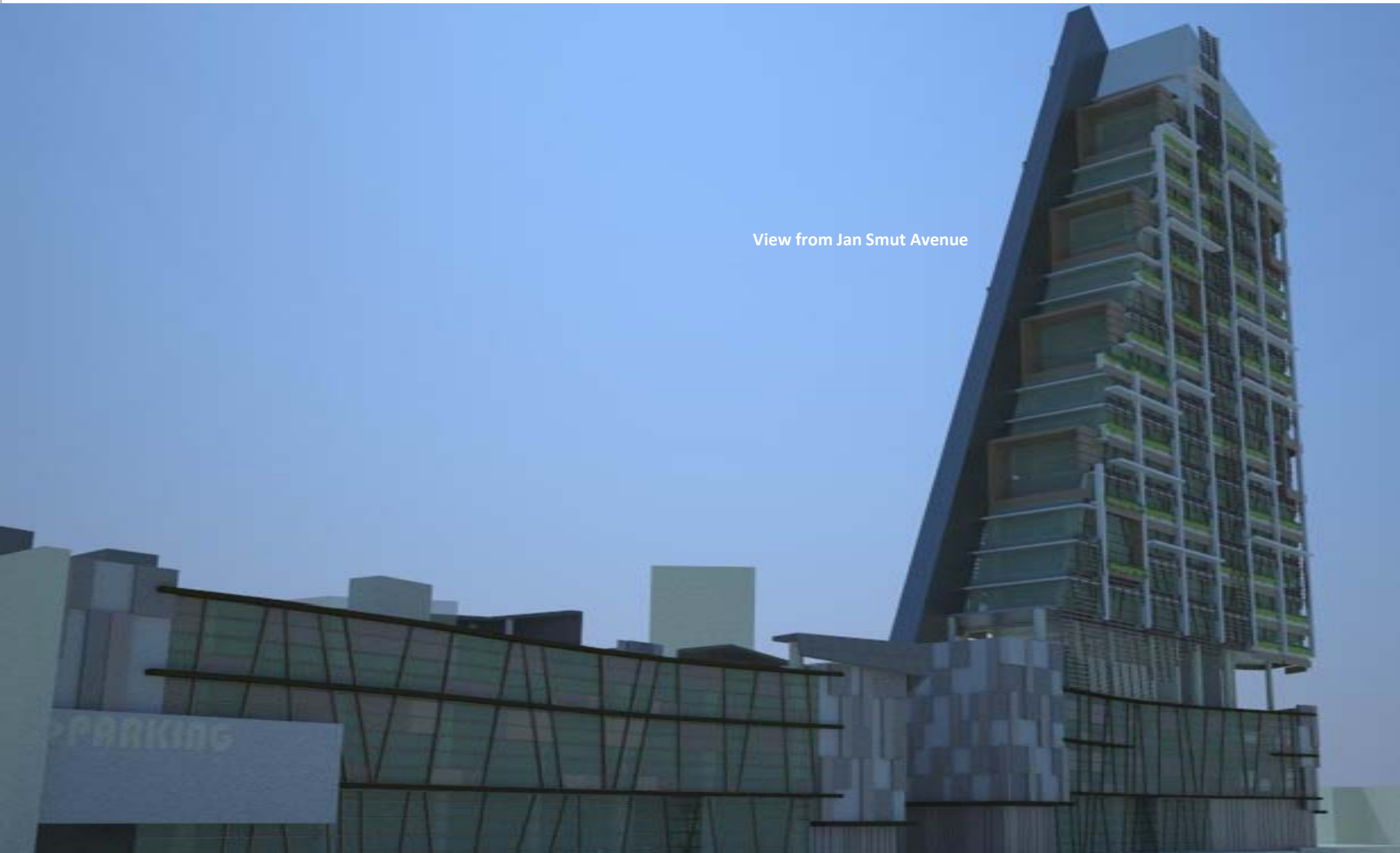
Tree branch

image:
(‘Tree branch’
<http://www.ameliabauer.com/art/images/branch.jpg>)





Taken the form of leaves and branches, and transform them into architectural elements



View from Jan Smut Avenue

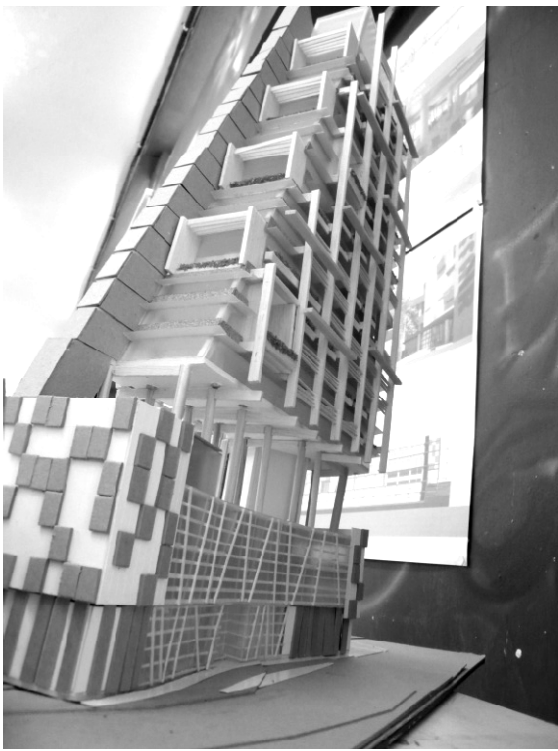


View from the secondary square space of the urban planning

Models

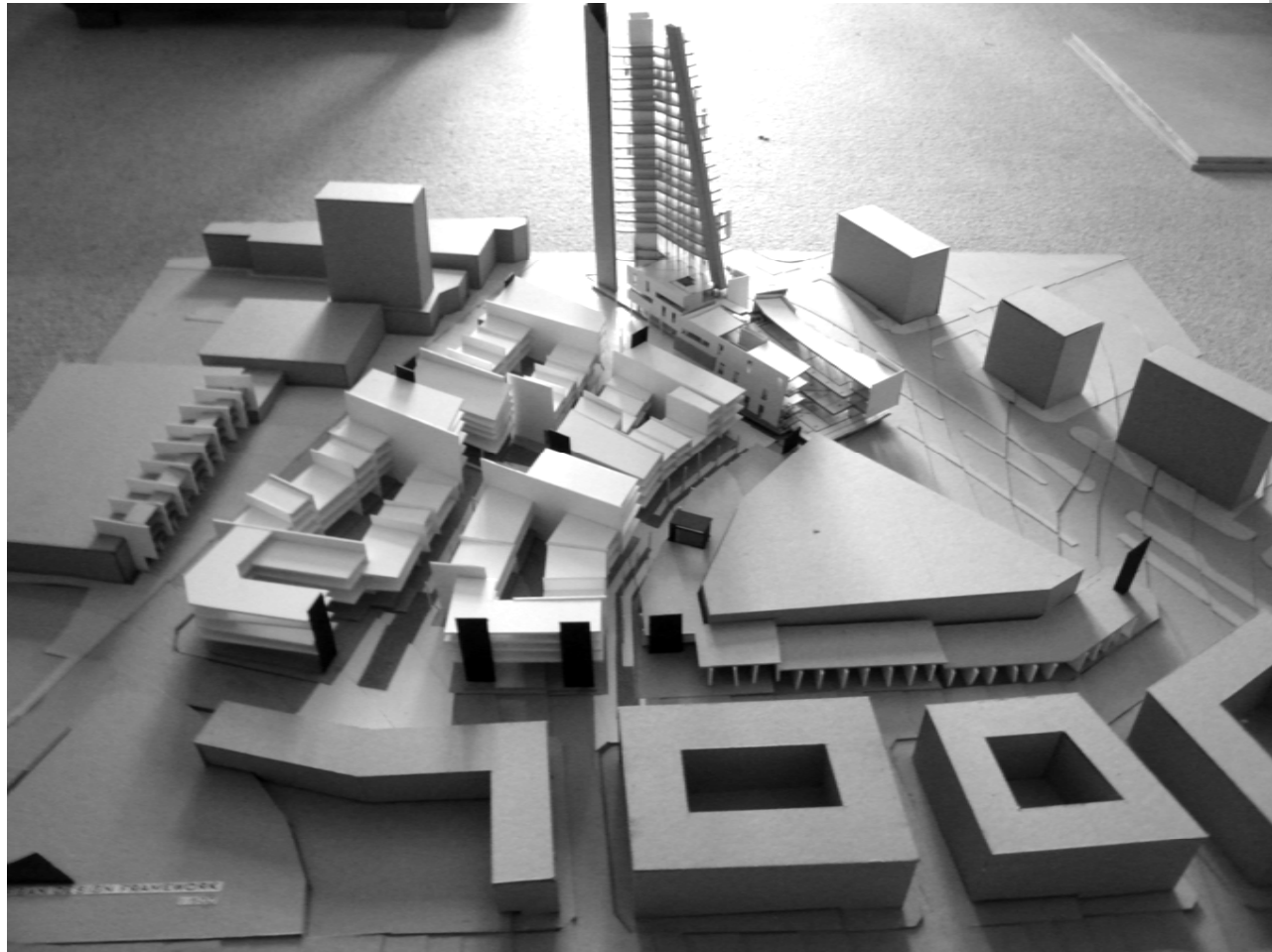
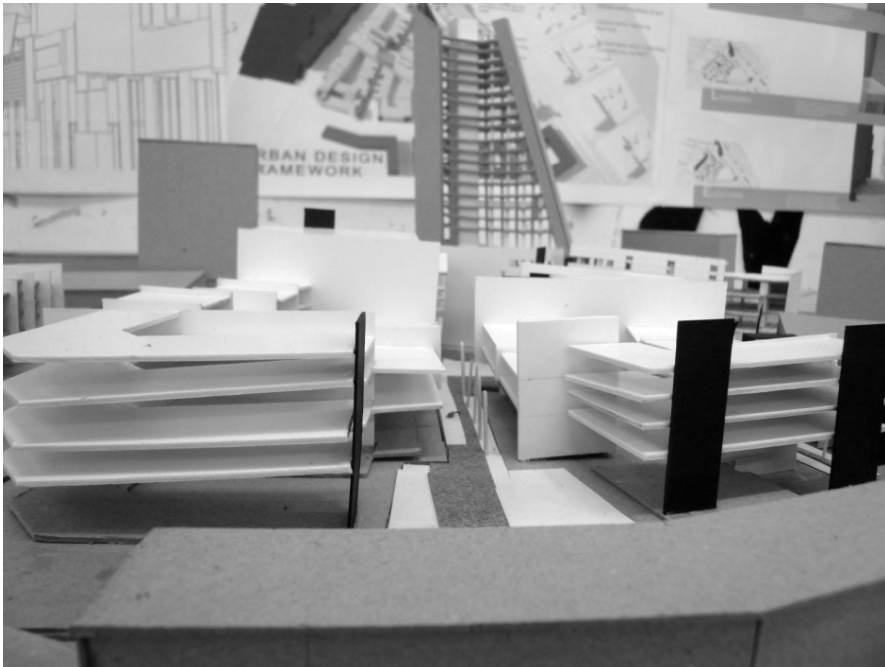
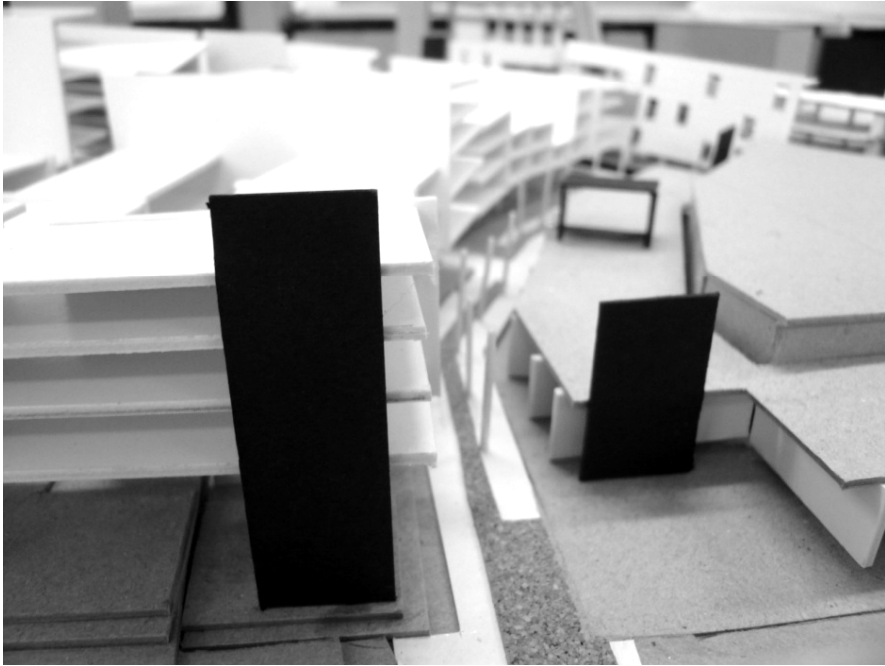


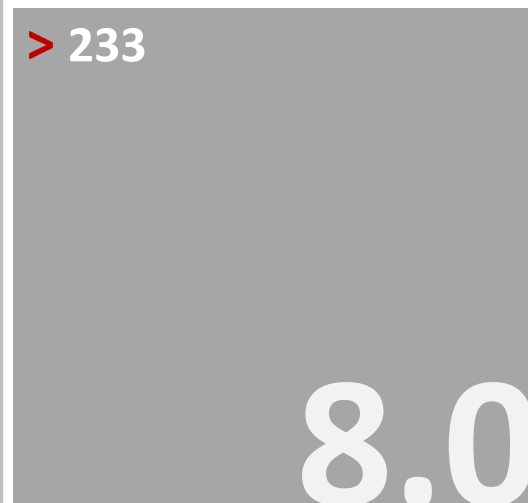
Architectural model at scale 1:200



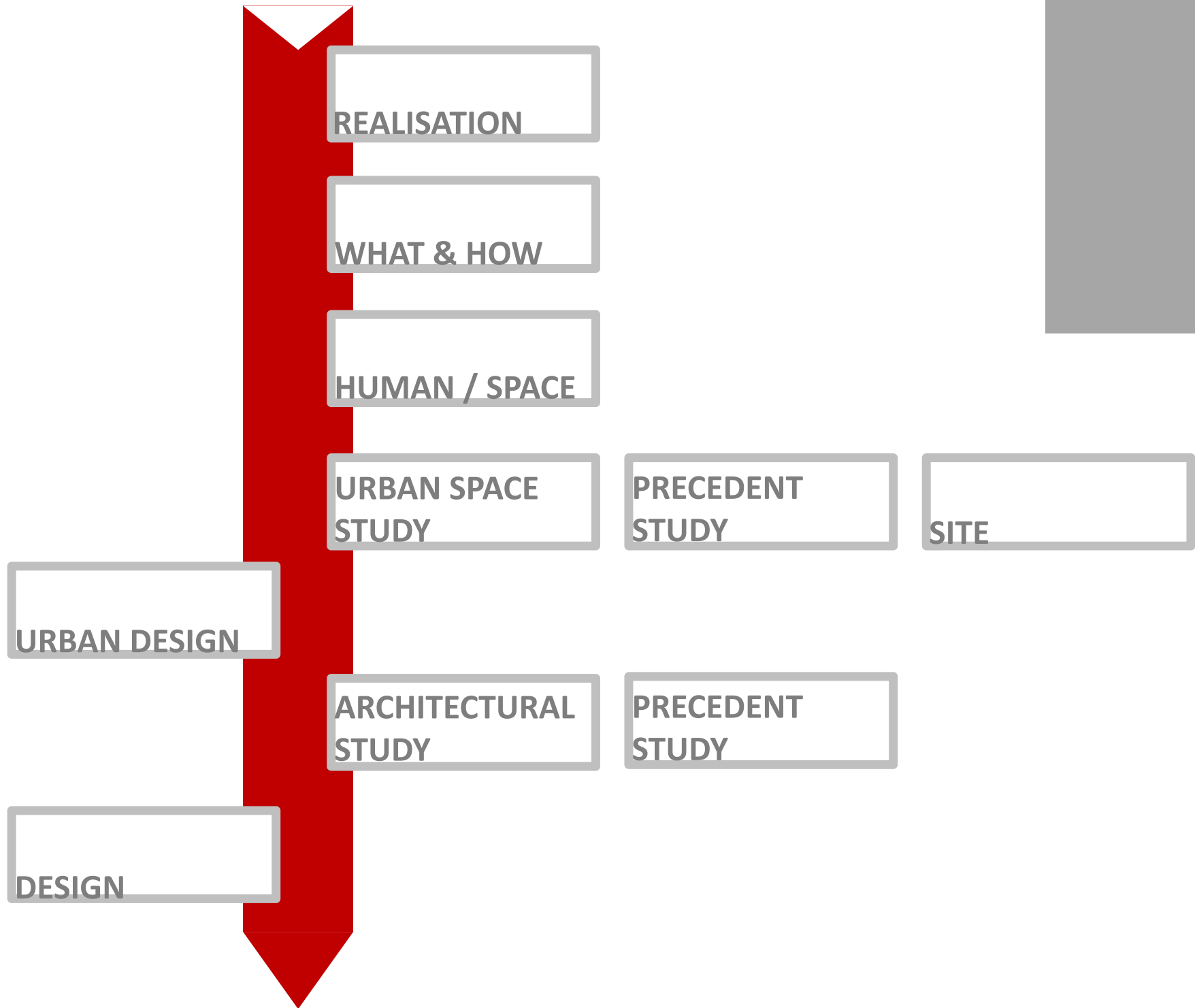


model of the master planning at scale 1:500





CONCLUSION ○



8.1 CONCLUSION

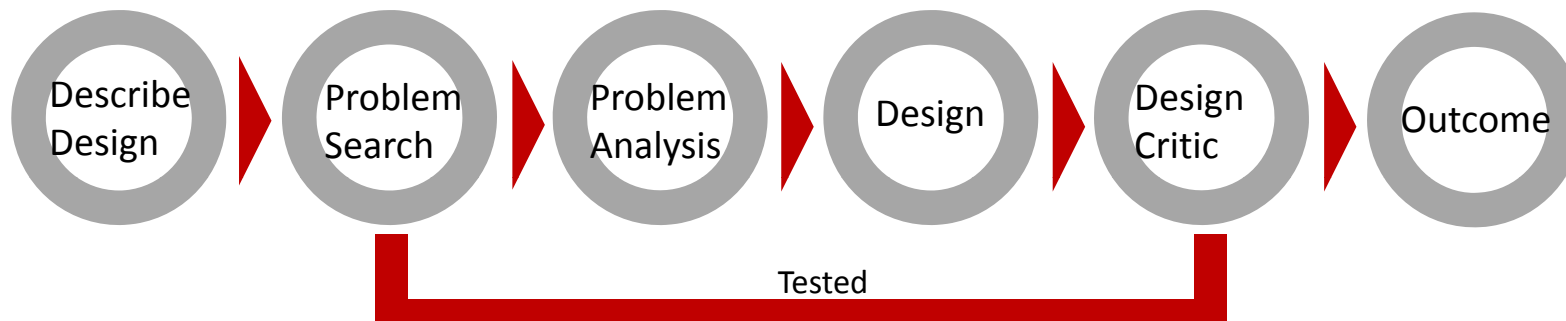
The realisation

What have I learnt from my thesis? I have learnt that all functions, spaces and architectures are required to be linked with some kind of connection. And furthermore, all these connections (negative spaces) need to be provided with meaning in order for them to function.

But besides from architecture, I have furthermore learnt that connection and communication not only applies to urban space, it's a universal element that can be applied to any condition. For example, the **development of thesis** relies heavily on the notion of connection and communication.

In order for the thesis to read as a continuous spine, the design and its theory need to be constantly disconnected and then re-connected until the perfect match is discovered. Furthermore, a well connected thesis will allow the theory and its design to work in a single system.

Like a city relies on the relationship of an urban space and its architecture; a well developed thesis relies on the **connectivity** of the theory and its design.



The theory need to be tested constantly with its design, and to be changed or discarded if not suitable for the design

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