

# design development

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**documentation of design generators and process of design proposal**

# design development

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**No great thing is created suddenly.**

Epictetus (IEP, 2011)

## 6.1 Introduction

This chapter considers factors that served as design generators, thereby reinforcing the need for the Burger's Park Opportunity Platform. Secondly the chapter introduces design considerations and includes a continuous assessment of inclusive design guidelines that are intrinsically part of the design approach.

## 6.2 Client Profile

### 6.2.1 Main Client

#### - **The Library and Information Services (LIS)**

LIS is a subsidiary of the Department of Arts and Culture (DAC). The client is chosen because the project meets the requirements for eligibility for funding from the Community Library Services Fund.

The reason for this choice is because the project intention addresses "... the continuous challenge of improving access to information for all South African communities." (LIS Transformation Charter, 2009).

### 6.2.2 Participants

#### - **Tshwane Leadership Foundation (TLF)**

Development of Communities and urban renewal by means of community upliftment and skills programmes.

#### - **The Burger's Park Community Platform (BPcom)**

BPcom is a nonprofit organisation that was established as a result of community needs and new developments in the precinct.

#### - **Wesley Methodist Church Community Programme**

The Wesley Methodist Church has community based projects dealing with unemployment, women specific classes (like sewing classes), child care (like the day-care) and other basic skills development (like English literacy classes).

The participating foundations will run the Opportunity Platform, facilitating the 'Learn, Play & Gather' programmes with the aid of the resources provided. The centre will be run by these participants as they are already based within walking distance of the Opportunity Platform.

## 6.3 Accommodation Schedule

The programme development has given rise to the need of the following spaces:

### **Sidewalk and street edge:**

Seating  
Bus stop  
Bicycle racks  
Covered area for shelter  
On street parking for persons with disabilities

## Ground floor:

Foyer space  
Lobby  
Toilets including accessible wc  
Average size kitchen for community hall  
Community hall with storage  
Secondary community space, unprogrammed  
Exhibition space  
Server (food or selling of items)  
Place for seating  
Outside space linking to inside  
Refuse yard  
Recycling depot

## First floor:

Children's library and play area  
Computers  
Photocopiers  
Small informal gathering area  
Secondary entrance  
Main counter with office  
Instruction rooms (for small classes or workshops)  
Rest rooms with baby changing facilities  
Storage

## Second floor

Counter with office  
Periodical collection  
Main library  
Computers  
Copiers  
Small informal gathering area  
Staff offices and boardroom  
Storage  
Reading corner

## Third floor:

Counter with office  
Reserved collection  
Main library  
Computers  
Copiers  
Small informal gathering area  
Storage  
Reading corner

## Roof:

Services such as solar water heaters  
Lounge/gather space  
Server  
Patio type space for gathering



illus. 6.1 Programme distribution in the Burger's Park Opportunity Platform

## 6.4 Design Generators

### 6.4.1 Theoretical premise as design generator

#### a) Social architecture

Alvar Aalto speaks of ‘social architecture’ and reiterates the responsibility of architects to design buildings that are of no harm to its users and that are suitable to all its users (Aalto, 1940: 15).

Social architecture that Aalto refers to is the making of spaces that contribute to the lives and experiences of the users, humanising of architecture. This is important in public architecture, as public architecture has the possibility of enabling the community to become fully participating members of society. Jim Channon, a self proclaimed social architect, states that it is to “...design spaces so that people can have a bigger sense of life, a life force and ultimately an experience.”(Video, Channon, 2008).

If the link is made between social architecture and designing for persons with disabilities and impairments, it can be concluded that architectural space and place should enable people’s development and experiences, and “bring them together” (ibid.) rather than inhibit or diminish it.

#### b) Senses and synaesthesia

Lefebvre, in *Production of space* (1991), refers to social space as space that is occupied by energy. Energy within architectural space is the presence of humans. Human presence within space is experienced and appreciated by the use of senses. The senses of sight, hearing, taste, smell and touch can be used within architecture to change the perception of space. Space is also influenced by the presence of natural phenomena and ‘the outside’.

Synaesthesia is the use of senses. Synaesthesia, as part of the theoretical premise of inclusive design, can be used as a generator of architectural space that is accessible, but also that enhances the experience of ambulatory persons.

Senses are used for wayfinding in buildings, and wayfinding is the experience of spaces. It is essential that the multiple sensory decisions inform space, in order for persons with reduced senses, to be able to still experience the space or to navigate the space without difficulty. Easily navigational spaces are perceived as safer by

individuals who are not familiar with the spaces. According to an interview with an occupational therapist, persons with disabilities often ‘fear their environments’ (personal communication, Smit, 2011), a direct result of the environments they have found themselves in. If this fear of environments can be broken, by the author’s suggested Unified Design approach, these members of society that experience this fear will become productive and engaging members of society.

#### c) Inclusive design theory

Inclusive design carefully considers each disability, as diverse as they are, with equal importance. As discussed in Chapter 2, an inclusive environment is an environment that takes all people into consideration.

The inclusive design principles and intent are clear. It is an environment that considers the potential ability of all people, in order for them to use and occupy spaces freely and independently.

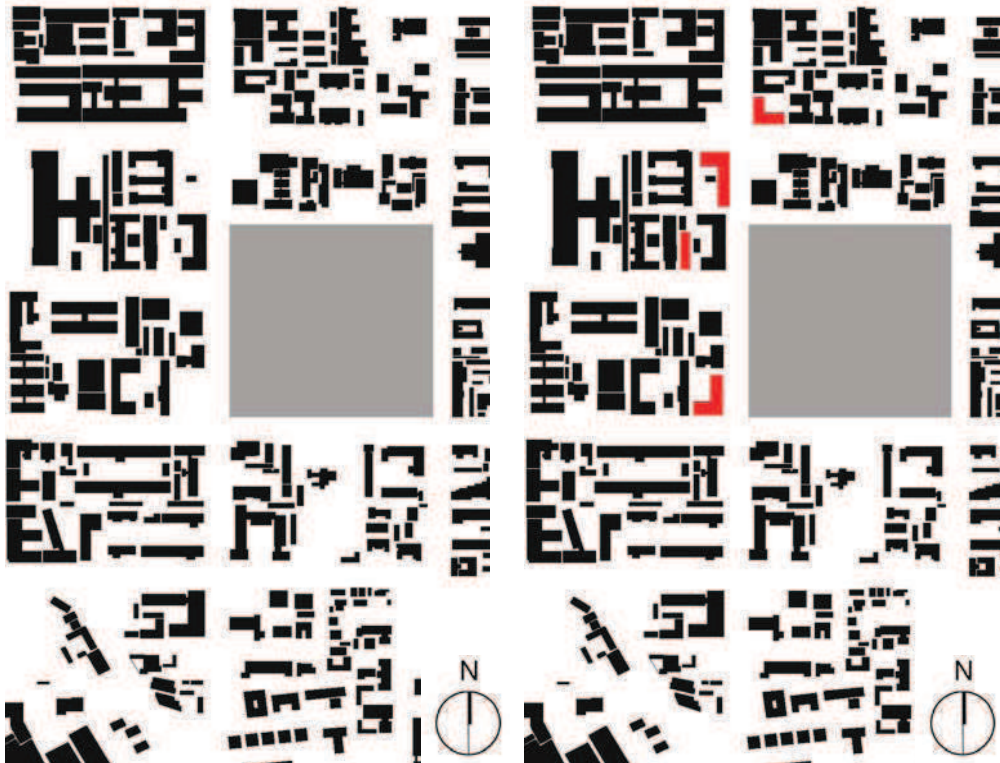
Within the design of a public building the process must be an exclusively inclusive approach, one that considers every design decision critically. This critical retrogressive-progressive process of decision making and evaluation, with inclusivity in mind, enriches and enables buildings to be intrinsically inclusive.

### 6.4.2 Site as generator

#### 6.4.2.1 Urban Design considerations

##### a) Urban fabric

The urban fabric of the Precinct is a fine grain patchwork of low rise apartment buildings and old houses. The urban fabric displays areas of urban scars and wounds. The proposed site, 455 Andries Street can be seen as one of these wounds, illustration 6.2a. Illustration 6.2b indicates the result of repairing the wounds along Andries Street. The site can be seen as underdeveloped, which is a break in the developed and established character of the precinct as a whole. The proposed courtyard typology responds to existing developments in the precinct and completes the urban fabric.



illus. 6.2a Existing Urban fabric along Andries Street

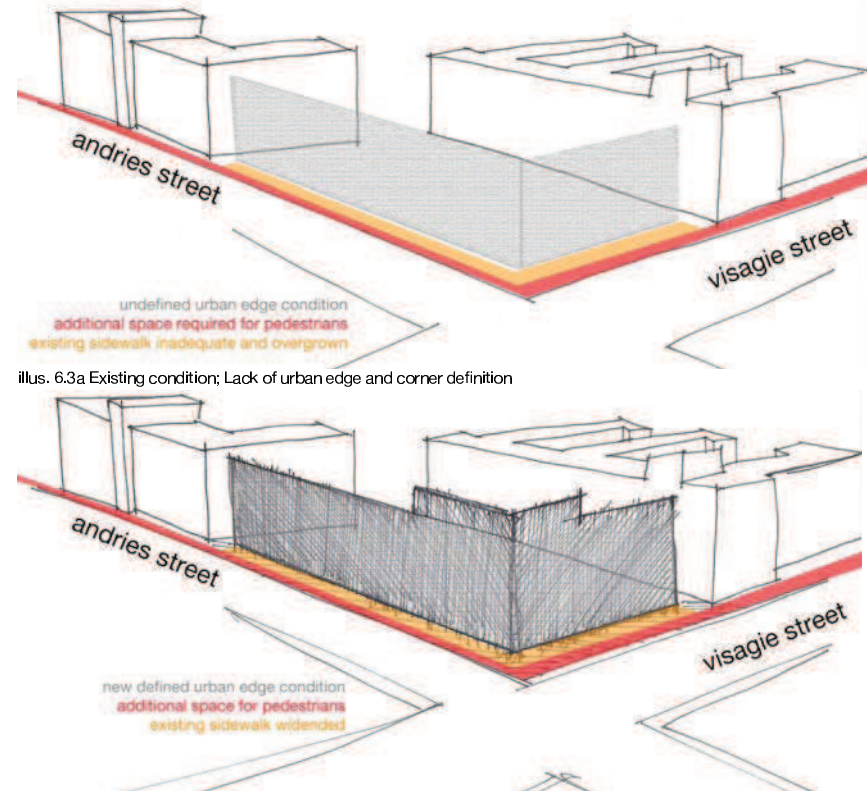
illus. 6.2b Proposed patchwork to urban fabric along Andries Street

### b) Undefined urban edge

The site has an undefined urban edge that results in a series of problems as discussed in Chapter 2. The main problems are:

- Lack of built fabric
- Inadequate pedestrian response
- Dilapidation and deterioration of urban qualities
- Problems with crime and illegal occupations

Illustration 6.3a&b shows the intended treatment of the site/street edge to reduce and/or address the identified issues.



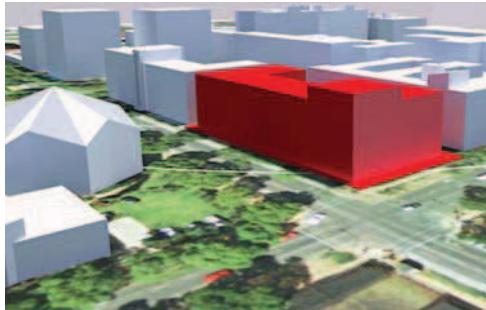
illus. 6.3a Existing condition; Lack of urban edge and corner definition

illus. 6.3b Proposed urban edge and corner treatment

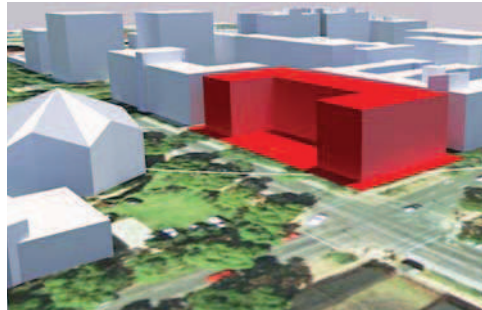
### c) Corner site

Traditional corner treatment methods were investigated and are illustrated in Illustrations 6.4a to 6.4c. The corner treatment of the proposed site is dealt with in the following manner:

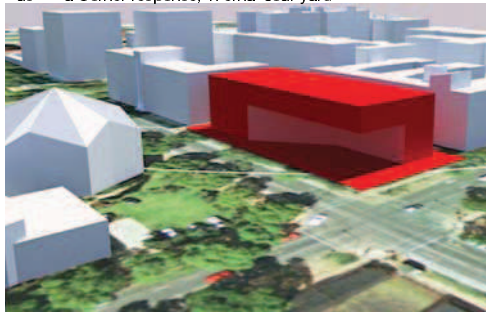
- Recessed facades relative to corner
- Corner facade(s) reads as larger volume
- Corner volume of continuous material choice to anchor and define the corner
- Verticality of screen elements suggest a 'tower' corner
- Entrance on ground level is located on corner, possible entry from both sides of corner



illus. 6.4a Corner response; Internal courtyard



illus. 6.4b Corner response; external courtyard



illus. 6.4c Corner response; lower level recessed



illus. 6.4d Corner response; corner recessed

#### d) Pedestrian routes not defined and inadequate

The current sidewalk conditions along the site are inadequate and neglected. The fencing and vegetation growth on the sidewalk is overgrown on the fence and on the sidewalk surface, no vegetation is present. The existing 1200mm sidewalk is in good condition, but does not suffice in carrying the pedestrian traffic. Illustration 6.5 shows the position and size of the sidewalk and fence. Illus 6.5 is a photo indicating the lack of ownership and neglect due to no development on the site.



illus. 6.5 Sidewalk in need of upgrading and vegetation overgrowing fence

## 6.4.2.2 Site conditions

### a) Pedestrian activity

The intersection of Andries and Visagie is an active pedestrian intersection, with many people moving to and fro between the Pretoria Station, Burger's Park and the CBD. Most of the concentrated pedestrian activity ensues during the peak periods; early morning, lunch time, after school and at the end of the work day. Illustrations 6.6a to 6.6b are photos indicating the inadequacy of the sidewalk treatment.



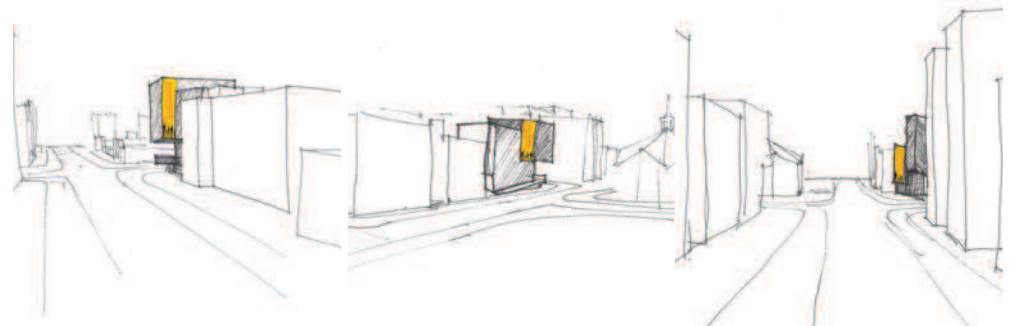
illus. 6.6a Busy sidewalk after school day



illus. 6.6b Busy sidewalk with inadequate path

### b) Vehicular activity

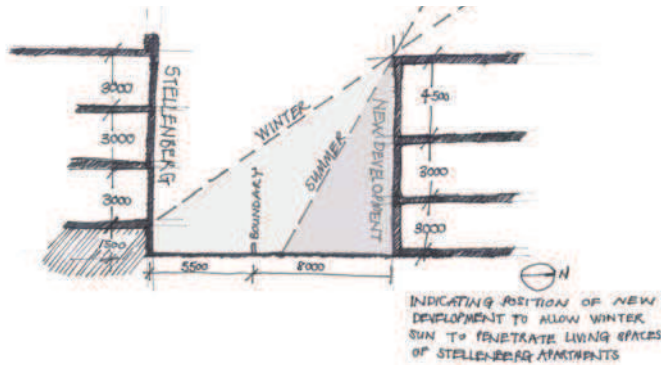
The site also has two major one way streets running past it, Visagie Street towards the east and Andries Street towards the south. This direction-controlled movement of cars results in the eastern and the northern facades being the only visible facades when travelling in a vehicle past the site. This observation should inform the placement of entrances and building identification tools (like signage). Illustration 6.7a indicate the possible use of facades as signage or advertising.



illus. 6.7 Drawings indicating use of facades for building identification and signage

### c) Adjacent buildings

The third component of consideration is the adjacent buildings locations. The A.J.O Centre on the western periphery and Stellenberg Apartments on the southern periphery have implications on any development that takes place on the site, as both buildings have units that are orientated to the site. Careful consideration in terms of function placing and shading opportunities and restrictions. Illustration 6.7 indicates positioning of new built fabric to allow adequate winter sun to still enter the living areas of Stellenberg apartments.



illus. 6.7 Drawings indicating distance required to retain winter sun in Stellenberg Apartments

### d) Topography

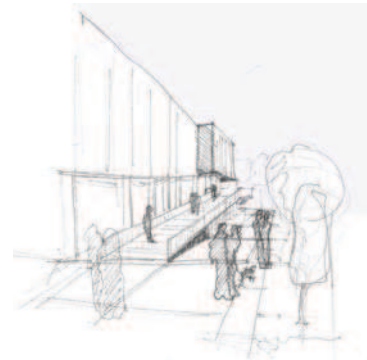
The site has a fall of two meter diagonally across from the south-west corner to the north-east corner. The slope is utilized as a design generator to position the floor levels. Firstly the lowest point is placed level with the entrance level ensuring the possibility of a threshold transition from inside out to be flush (illus 6.8).

The level difference is also absorbed by the approach to vertical circulation by means of the central ramp-around-atrium configuration. The south block floor level acts as the landing for the ramp, and the north block then acts as the next landing for the ramp. This enables the building to take on a form that does not create levels with no function.



illus. 6.8 Slope of site is negated by the use of ramps

The downward slope is also juxtaposed by the ramp extension of the (downward sloping) sidewalk that leads up to the first level. The ramp only has to negotiate a level change of 1500mm due to the existing slope and building positioning. (Illus 6.8 and 6.9).



illus. 6.9 Sketch showing sidewalk manipulation by the use of the ramp

## 6.4.3 Site zoning as generator

### 6.4.1 Presence of energy and users

The first zoning approach is the positioning of spaces with functions that relate to the presence of users. This results in the positioning of the community spaces on ground level, the main entrance to the library component off the ramp on the first floor and the location of spaces that need a quieter environment higher up (illus 6.8).

Position of external ramp that leads to first floor is off the main pedestrian route past the site and aims to extend the sidewalk to an upper level. The ramp also serves as vantage point, shelter below and allows access for persons that prefer not to use of stairs as vertical circulation (illus. 6.9).

### 6.4.2 Presence of noise

The noise generated by pedestrians and passing vehicles has determined the zoning of the site. The programme of an Opportunity Platform has diverse accommodation schedule and allows for function grouping. The community spaces, receiving foyers and public seating are grouped on the lowest level towards the street corner of Visagie and Andries Street. The other community space extends outwards to the quieter amphitheatre space, a semi private extension to the built fabric.

### 6.4.3 Summary

Vertical zoning has taken into account the placement of functions that work together more appropriately and that generate tolerable noise levels. The following is the distribution of functions in the design:

- Noisy community spaces on ground floor
- Children's library on lower level, placed to link to outside space
- Instruction/workshop spaces on first level opening up on the balcony/extension of the ramp
- The open computers and gathering lounge spaces are located on the lower levels adjacent to the atrium.
- Upper levels are dedicated to study spaces, the library and reserved sections
- The roof is accessible and can accommodate functions and gatherings and also houses some of the services of the building

### 6.4.4 Programme as generator

Visual connections between levels allow for passive surveillance due to the presence of people. Library and computer spaces need this passive surveillance and omnipresence of eyes as an additional security measure.

The community gathering spaces that are provided within the Opportunity Platform have two different intentions. Resources and gathering spaces; with the possibility of play in both components. The programme had the following implications:

- Visual links between levels a passive surveillance
- Ease of navigating between different components of the programme\
- The grouping of services
- Separation between community gathering spaces and library component, without physical barrier by placement of spaces
- Square forms work best for book stack layouts and are also optimal for group gathering spaces.

### 6.4.5 Prevalent colours and materials

Stellenberg apartments to the south of the site are built of face brick in a yellow-brown shade, whilst the A.J.O. Centre is in a dark deep red-brown colour. These colours are shown in Illustration 6.10, and serve as informant for the colour choices of the Eastern to Northern facade screen. These colours are used and red, orange and yellow are introduced.



illus. 6.10 The prevalent colours; Colour analysis of Stellenberg Apartments and A.J.O. Centre



### 6.4.6 Views from the site as generator

The Burger's Park Precinct is located in an area that is surrounded by many visual links, places of interest and landmark buildings. The site has the opportunity to make use of these as an influence on the organisation and quality of interior functions and space.

The Illustration below indicates the views possible from the site. Some of the elements in view are only visible or appreciable from upper floors, due to adjacent buildings. Views that were optimised are B.J. Vorster Tower, The Wesley Methodist Church and the lush trees of Burgers' Park.

The presence of the Wesley Methodist Church greatly influences the observer from the proposed site, given the omnipresence of the "hand of God" on the roof of the church building (le Roux, 1990, 127).

The view towards the B.J Vorster Tower is utilised by placing and orientating reading spaces towards it. The presence of objects within view, during reading, makes for good eye distraction and helps eye fatigue and concentration span. From the roof the natural ridges that surround Pretoria can be observed, and to south, the Voortrekker Monument is visible on the ridge (Illus. 6.11 a,b,c & d).



illus. 6.11 Possible views from the site



## 6.5 Design response process

[Intent, description, problems]

### 6.5.1 Initial design response

Model 1

#### Intent:

- Iconic volume
- Respect to adjacent built fabric
- Sidewalk widening
- Importance of stair and lift combination as vertical circulation method
- Service grouping

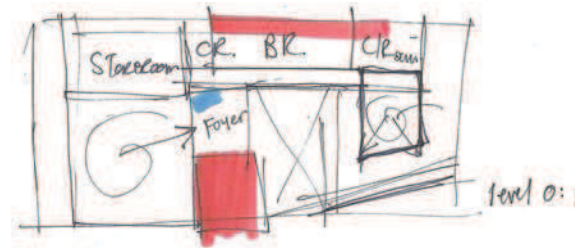
#### Result:

The first response after observations was to address the need for a pedestrian friendly sidewalk and street crossings over Andries and Pretorius Street. Along with this was the inclusion of the new Gautrain bus stop and the general need for more space on the corner for people waiting to cross the road.

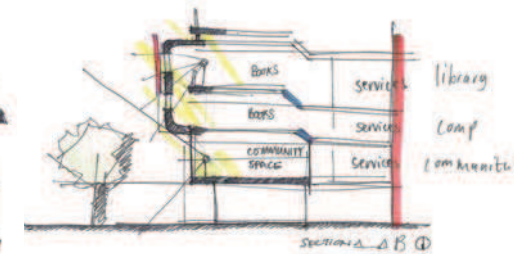
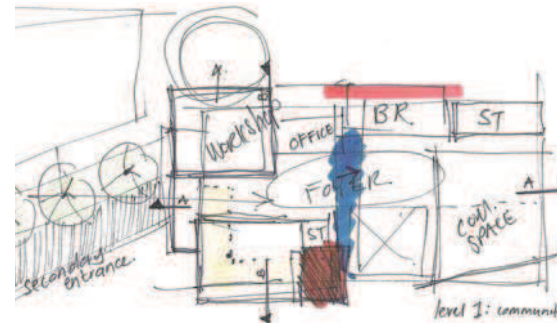
The volumetric proposal was that of a box on a pedestal, which allows for the required additional space on the corner. This volumetric approach firstly addressed the undefined urban edge by filling the void. Secondly it provided a recognisable, iconic volume that stands out within its context; appropriate given the public nature and importance of the Opportunity Platform within the precinct.

The proposed volume responds to existing built fabric and respects the building heights within close proximity to the site; It also investigates the use of colour.

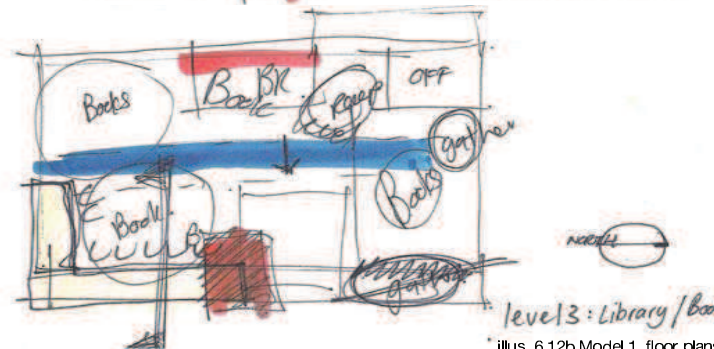
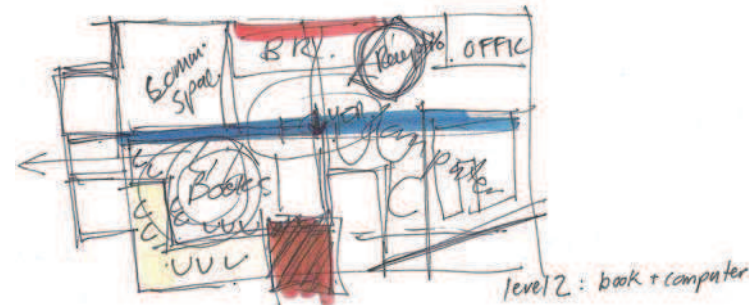
This investigation placed importance on vertical circulation (lift within stairs) as the only form of circulation; a result of the unified design approach. This is expressed on the exterior facade as a single vertical element. Access into the building is from ground floor, on the street corner, into the lobby space. Community spaces placed on first floor to overlook activities below on the street corner. Book and computer repositories are located on upper levels.



illus. 6.12a Model 1. Volumetric model



illus. 6.12a Model 1. Section



illus. 6.12b Model 1. floor plans

## Model 2

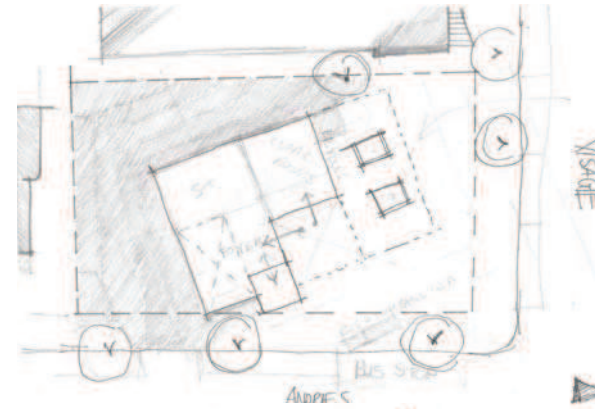
### Result:

This interpretation of the first response reassesses the placing of the box and investigates the possibility of introducing a twisted placement. The twisted geometry orientates towards Burger's Park and generates additional urban surface in the form of public realm as an outside foyer to the entrance of the building. This foyer space increases space for pedestrians, the bus stop and for cutting the corner.

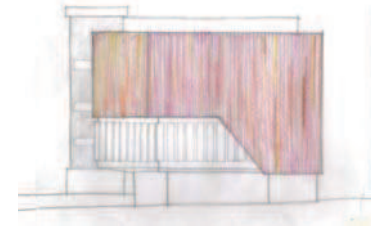
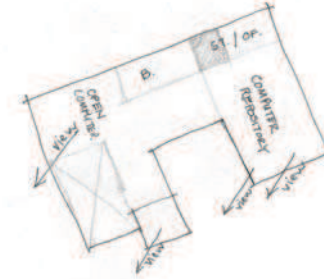
This model introduces a further exploration of the vertical circulation expression on the facade. An atrium-like space is also placed on the eastern facade and directly faces the street.

### Problems:

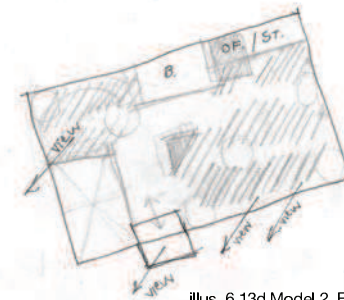
- Set back corner could result in inadequate corner definition
- Unprogrammed podium level creates dead street interface, even though sidewalk is increased.
- Box approach is problematic in plan and results in a deep floor plate creating darker interior spaces that are difficult to light and ventilate naturally, even though atrium-like space is present.
- Twisted geometry creates awkward space on western and southern facades, therefore the spaces become recluse.
- Twisted geometry seems arbitrary and unjustified (even though justified).
- Missed opportunity from inclusive design point, very little exploration other than vertical circulation.
- Lack of ordering system



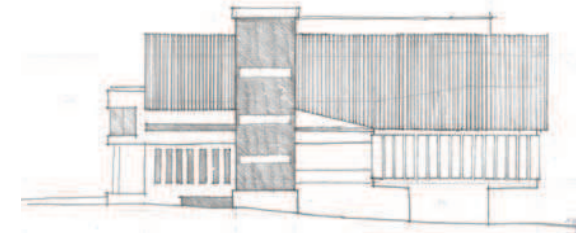
illus. 6.13b Model 2. Volumetric model



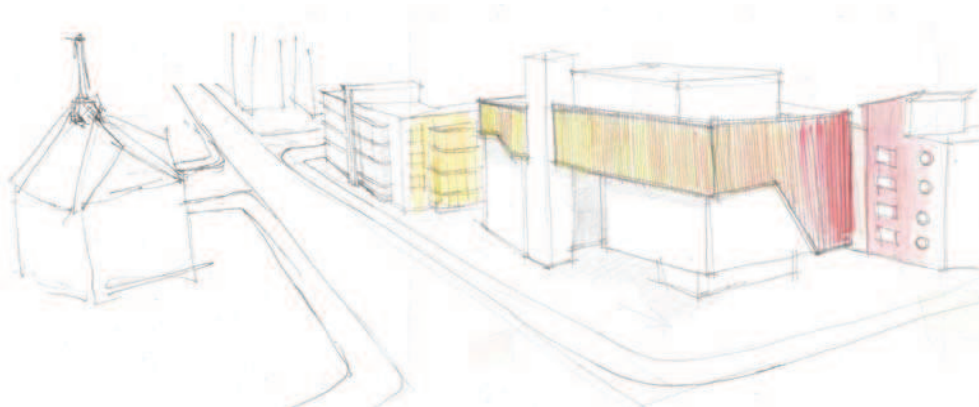
illus. 6.13c Model 2. North Elevation



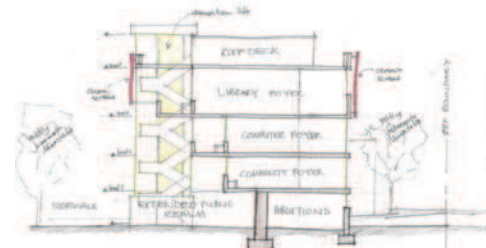
illus. 6.13d Model 2. Floor plans



illus. 6.13e Model 2. East Elevation



illus. 6.13a Model 2. Corner approach



illus. 6.13e Model 2. Section



## 6.5.2 Revised response

### Model 3

#### Intent:

- Re-evaluate the model 1 and 2 sidewalk responses and evaluate approach to make a better urban edge connecting building to surroundings.
- Addressing placement of main community gathering space on first floor opening to balcony/ramp extension.
- Explore ramp as extension of sidewalk
- Usable space under ramp extension
- Screen element reconsidered

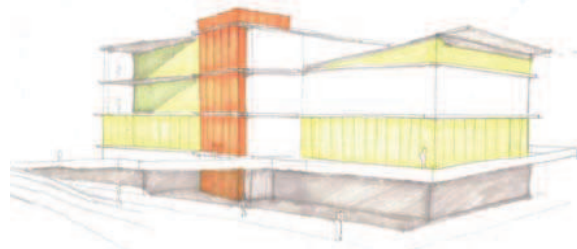
#### Result:

Takes model 1 and introduces extension of sidewalk by introduction of external ramp to connect with first level. The investigation focuses on the addition of an external ramp to existing ideas. The ramp addition provides outside space that can be used as extension of space or vantage point over street activities. Removal of twisted geometry.

The external ramp as extension of sidewalk gives new opportunities on and below it. This should be explored. Ramp allows access to first floor without the use of stairs. Services are reorganised but remain grouped on the southern facade.

#### Problems:

- Screen element needed, contextualisation lost
- Top floors are cut off from lower levels.
- Copy paste floor plans
- No links (physical and visual) other than vertical circulation tower
- Ground floor still lifeless and not reacting to street edge, gathering space, to move to ground floor.
- Oversized foyers and lobbies



illus. 6.14a Model 3. Corner approach



illus. 6.14b Model 3. Floor plans



illus. 6.13c Model 3. Volumetric model



### 6.5.3 Response 4

#### Model 4

##### Intent:

- Iconic facade manifested in traditional corner approach
- Respect and response to existing built fabric and introduction of contextualising by addressing the approach to screen (colour use)
- Sidewalk widening and extension thereof to the first floor
- Specific focus on inclusive design during urban response
- Specific focus on volumetric response together with layout and circulation within building with inclusive design as generator.
- Take traditional corner response and investigates the specific site and problems that need to be addressed.
- Additional breathing space between A.J.O Centre and the proposed building, with the possibility of private space away from street.
- Exclusively inclusive approach to all design decisions

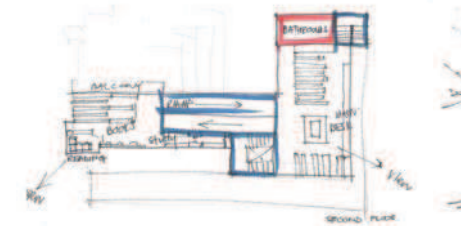
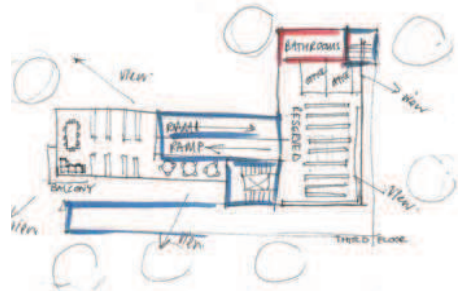
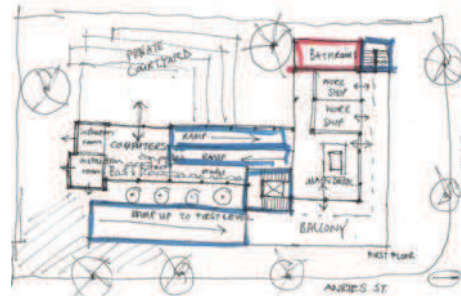
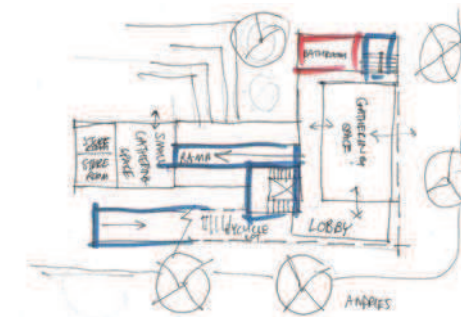
##### Result:

Model 4 presents a responsive and iconic corner volume that also improves the sidewalk and completes the edge conditions. This model explores the ramp as design component. The ramp allows for interaction on different levels by awareness of movement and actions taking place on other levels and means of circulation. The ramp as circulation method is a slower means of movement, which enables the user of the ramp to focus some of his or her attention on the surroundings and views that are possible from the ramp. The ramps are used in the design for this specific purpose, in order to encourage users to be aware of the surroundings by strategic placement of the ramp(s).

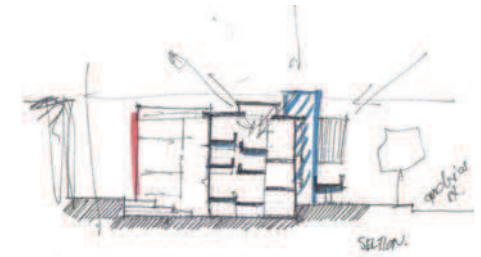
Ramps as primary vertical circulation method are a result of inclusive design principle. This model also explores the ramp with function possibilities, by introducing level floor surfaces of the circulation ramp and programming these spaces. This enables the ramp to be more than just a form of circulation.

##### Problems:

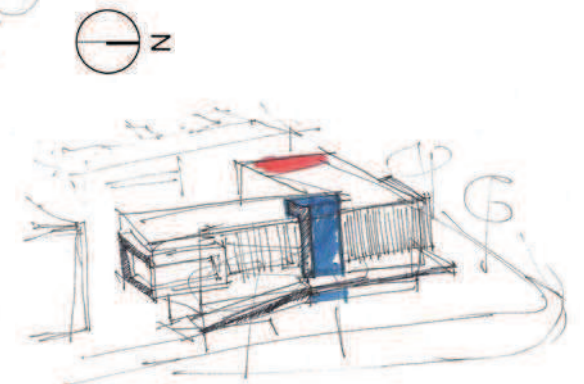
- External ramp not fully explored
- Private courtyard needs to be designed
- Corner and colour approach is manifesting but can be further improved.
- Internal ramps still problematic
- Lack of ordering system



illus. 6.15b Model 4. Volumetric model



illus. 6.15c Model 4. Section



illus. 6.15a Model 4. Floor plans

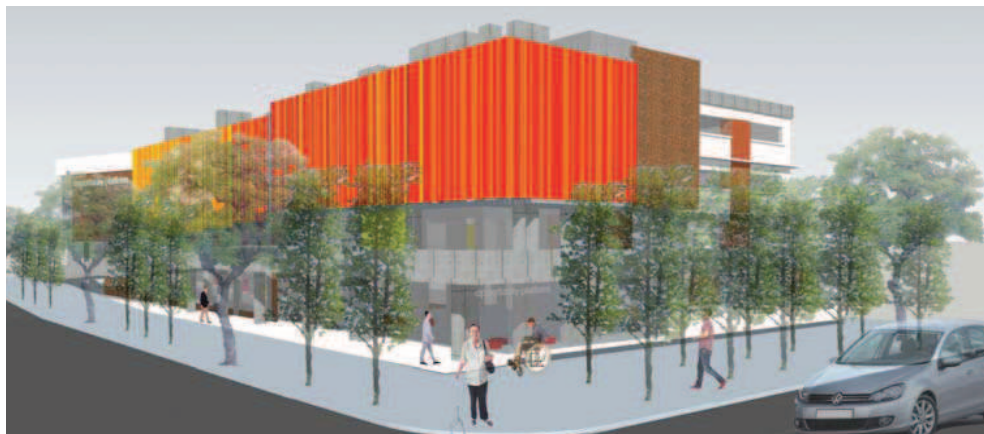
illus. 6.15d Model 4. Perspective

## 6.5.4 Response 5

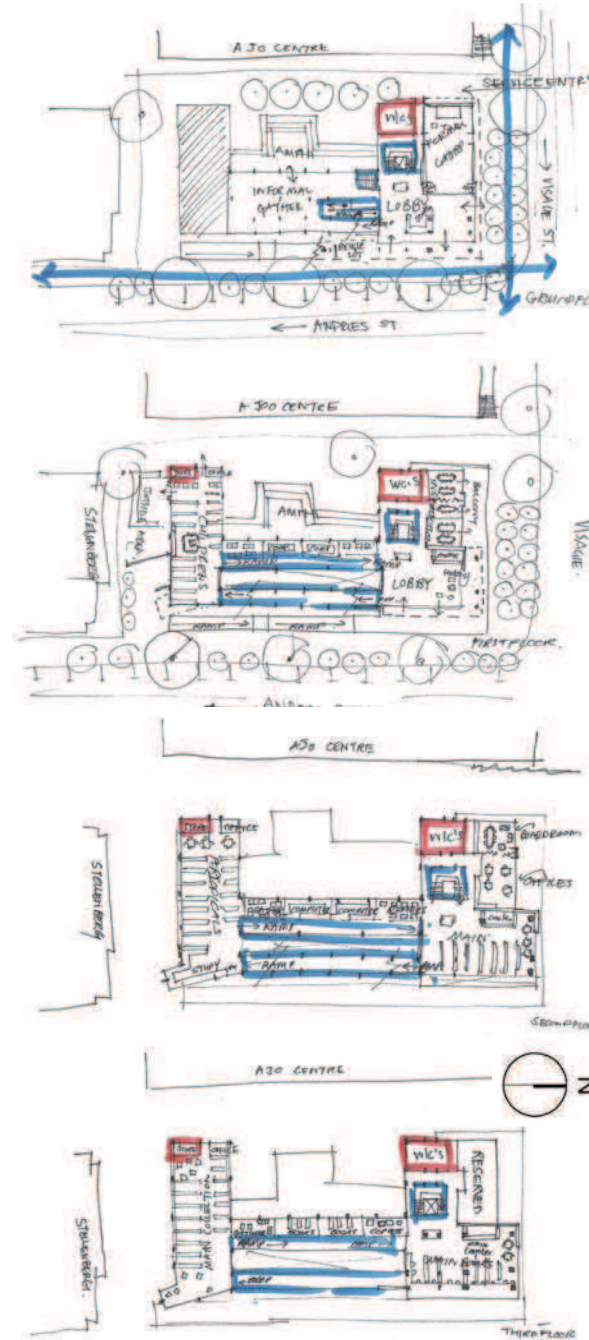
Model 5a & 5b

### Intent:

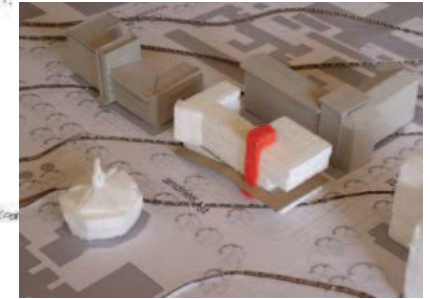
- Courtyard typology matching typical response in precinct
- Traditional corner approach
- Narrow building volume allows for natural lighting and ventilation
- 'Wings' create additional northern facade
- Courtyard can be used as semi-public/semi-private space which links to community gathering space on ground floor
- Longer building envelope on eastern facade allows external ramp slope to be gradual and have adequate (oversized) landings.
- Facade line stepped back from adjacent facade lines to increase the sidewalk width to address space limitation on sidewalk
- Ramp is extension of sidewalk when walking northbound and extends to wrap around the corner and transform into a balcony that acts as receiving space and vantage point to activities below and beyond.
- Building identification and signage
- Specific sizing with inclusive design as generator
- Material evaluation with inclusive design as generator
- Exclusively inclusive approach to all decisions in more critical detail
- All ramp design considerations are continued from model 4, but refined.
- Assessment of design for inclusivity
- Model 5a circulation tower visible from street and competes with the ramps.
- Model 5b circulation that is emphasized is the ramp circulation and stair



illus. 6.16a Model 5. Corner approach



illus. 6.16b Model 5b. Floor plans



illus. 6.16c Model 5a. Volumetric model



illus. 6.16d Model 5a. Sectional perspective



illus. 6.16e Model 5a. corner approach



illus. 6.16f Model 5b. Volumetric model

**Result:**

Ramp circulation is more refined and slope adjusted accordingly, to create a gradient that is as flat as possible for easy movement. Programmed spaces along ramp design are more refined optimising space and views towards private courtyard (illus. 6.16g).

The exploration of the screen as facade treatment allows for the contextualisation and playfulness that the site requires. The screen has a dual function; the main function is the sun control it provides to the curtain wall on the eastern facade. The secondary function is the contribution to the identity of the facade.

Signage placement and typeface on face brick walls were tested and resulted in legible building identification (illus. 16.6k).

Further testing of renders with a 'visual impairment simulator' must be done to check final design and see if product is inclusive.

Skylights allow ample natural light into the atrium space and along with eastern facade creates patterned light throughout the entire space (illus. 6.16k).



illus. 6.16d Model 5b. Interior view of lobby



illus. 6.16e Model 5b. Northwards up the ramp



illus. 6.16f Model 5b. View from the reading space, B.J. Vorster Tower in the distance



illus. 6.16g Model 5b. Longitudinal section

**Problems:**

- Ordering system still lacking
  - Courtyard design to be reconsidered, possible seating in terrace formation
  - Concrete structure and slab edges not designed/explored
  - Roof design not optimal/forgotten
  - Internal layouts have problem areas, possible resizing of structure and spaces necessary.
  - Structure to be investigated
  - Store room and kitchen facilities are not sufficient
  - Instruction spaces and office layout to be reconsidered
- Seating on corner and below ramp to be investigated
  - Bicycle lot not functioning
  - Balustrade on ramps, interior and exterior, to be revisited with PARTI diagram in mind
  - Lobby signage intrusive and lobby needs security mechanism
  - Balustrade too solid and prevents visual connections



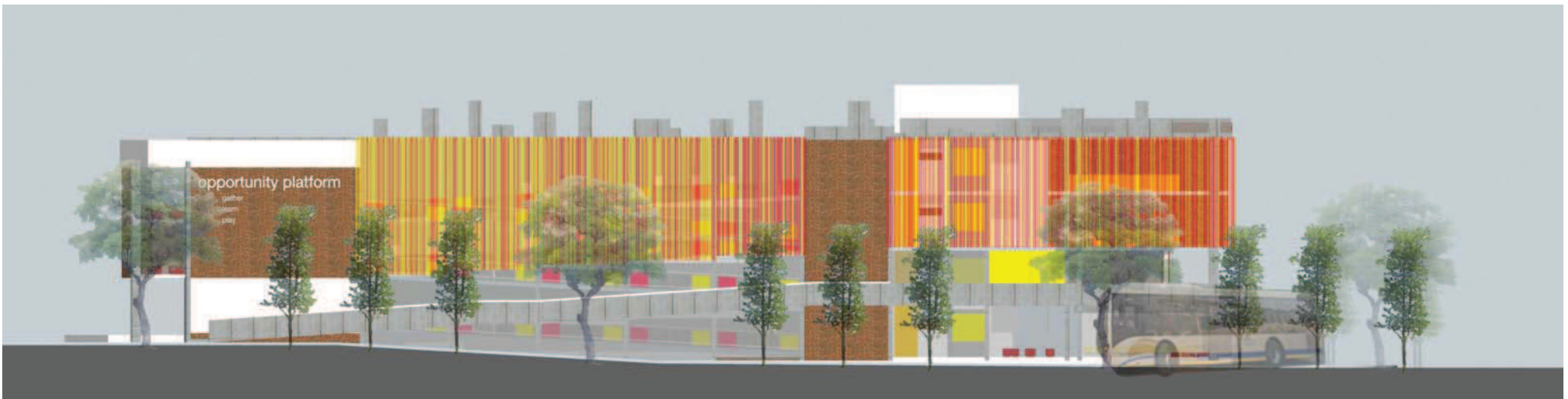
illus. 6.16h Model 5b. Southwards down the ramp



illus. 6.16i Model 5b. Interior view over atrium



illus. 6.16j Model 5b. Sidewalk interface



illus. 6.16k Model 5b. East Elevation