

# SMALL BUILDINGS BIG IMPROVEMENTS

*Addressing the need for Community Educational Facilities  
in the Informal City through provision of Prototypical  
Alternative Learning and Teaching Spaces.*

Catherine Ann Tod

TDXCAT001

Supervisor | Francis Carter for UCT

Co-supervisor | Tessa Brunette, for ARUP Cape Town

Design Dissertation report presented as part fulfilment of the degree  
of Master of Architecture (Professional) in the School of Architecture  
Planning and Geomatics, University of Cape Town.

*December 2017*

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

## CONTENTS

### GLOSSARY

### INTRODUCTION

Contextualising the Issue   The Informal City	7
The Scope   Gugulethu	9
The Design Dissertation   Document Structure	11

### SECTION 1 | RESEARCH FOR DESIGN 13

Part A   Empirical Fieldwork	15
Part B   Theory and Technology Studies	36

### SECTION 2 | SITE SELECTION, THE SITE AND THE MAIN ARCHITECTURAL NOTION 45

### SECTION 3 | 3 PROTOTYPES 53

Prototype 1   The Stories Centre	56
Prototype 2   The Learning Stairs	84
Prototype 3   Public Toilets with Classrooms	100

### SECTION 4 | IMPLEMENTATION OF THE PROTOTYPES AS PART OF A BUILDING AND URBAN STRATEGY 106

### SECTION 5 | TESTING THE PROTOTYPES ON SIMILAR SITES 129

### CONCLUSION 140

### PLAGIARISM DECLARATION AND RESEARCH ETHICS APPROVAL FORM 142

### IMAGE REFERENCES 143

### REFERENCES 144

### APPENDIX | SG DIAGRAM 1 146

## **GLOSSARY**

**Informal City** - A universal term for a urban area that has arisen largely outside of state regulatory bodies.

**Township** - A suburb in South Africa occupied by a primarily black population that originally arose out of the Group Areas Act during the apartheid regime.

**Alternative/Informal Education** - Educational practices that are not form part of the formal state model

**VPUU** - Violence Prevention through Urban Upgrading

**RMA** - Rahul Mehrotra Architects

**U-TT** - Urban Think Tank

**FoP** - Fields of Play



## INTRODUCTION

Education, by its broadest definition, withholds and undeniable and indispensable potential for positive human development. This is particularly true in emerging economies where social and economic ills<sup>1</sup> are rife. Addressing this issue is a meaningful step towards creating a more “equitable society” (VPUU, 2015) by providing a mechanism for emancipation. Individuals have a better chance of improving their quality of life with an educated mind.

Contemporarily speaking, South Africa (an emerging economy) is enduring an educational crisis across many spheres that requires immediate attention. Due to historical disenfranchisement, many individuals have missed this fundamental human right and others (for numerous reason) have exited the system<sup>2</sup>.

These problems are ever prevalent to the poorer areas of the country, such as urban conditions like the South African township. The state institutions in these areas require support. Therefore, this inquiry seeks to address this issue.

The design dissertation is fundamentally an exploration of teaching and learning space in the Informal City that sits outside the formal system – informal and alternative education – that serves to complement existing institutions.

Informal educational space permits an ideal opportunity to experiment with new and innovative arrangements for educational operations and facilities in the South African township that provide a different spatial experience to conventional teaching and learning space. The architectural parameters can be extended.

<sup>1</sup> Some of these include high rates of unemployment, poverty, crime, gangsterism, violence, alcohol abuse, etc. This is especially true to the youth and adolescents.

<sup>2</sup> Examples are teen-pregnancy, they cannot afford it, they are not coping with the work, their parents do not support them, they have got caught up in gang-related activities, etc.



## Contextualising the Issue | The Informal City

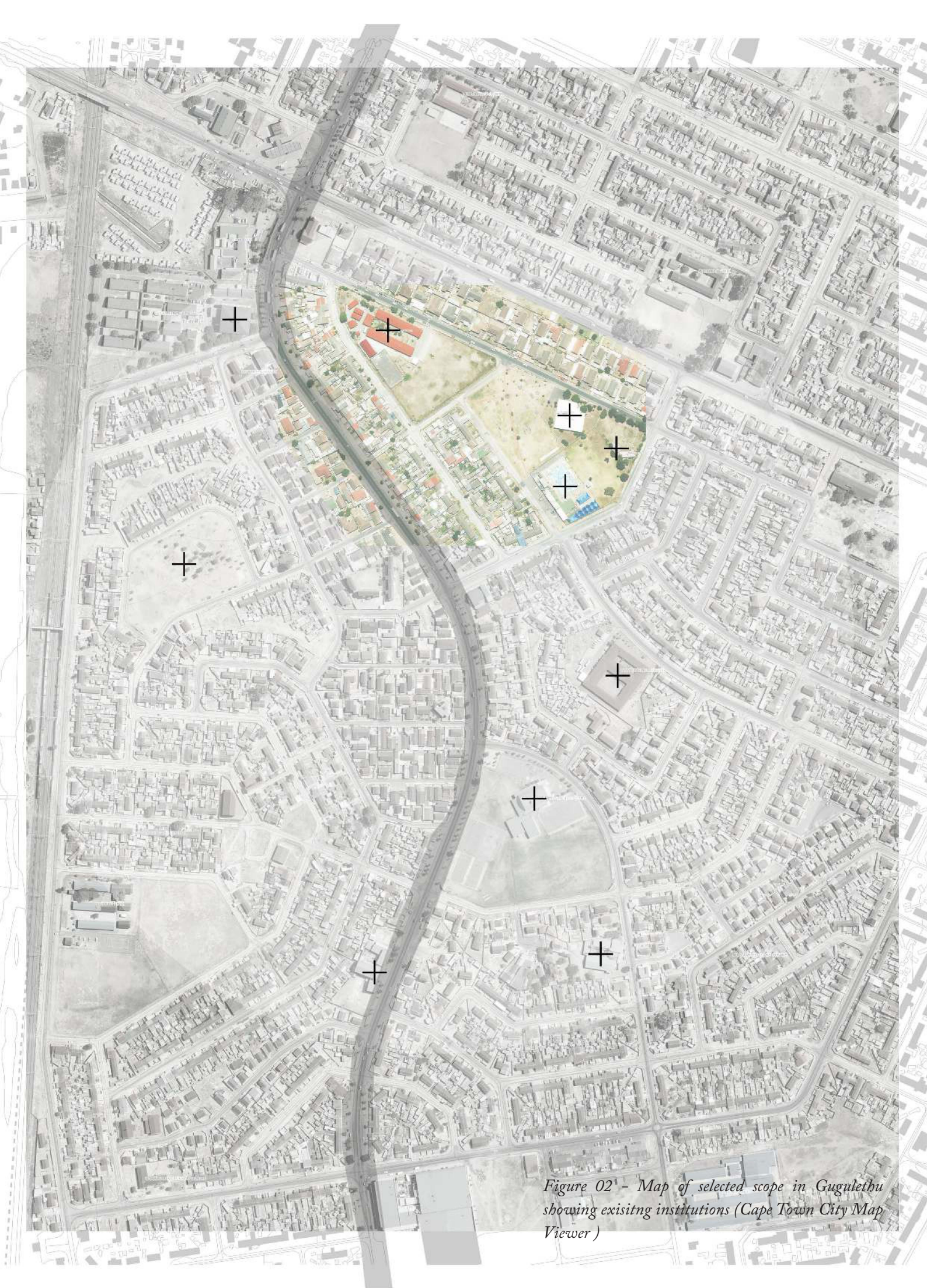
The other primary interest that has been running in parallel with 'education' and 'educational space' is the contemporary phenomenon of the 'informal city' - as an urban and social condition as well as a context for architectural design.

Universally speaking, the informal city cannot be reduced to one homogenous definition; however, it does present many analogous attributes. It can be characterised broadly as densely populated, poor, under-resourced, marginalised, rife with social ills, and moreover operate largely outside state regulatory bodies (emerging economies). What habitually emerges is a condition of incredible complexity. The slums of India, barrios of Venezuela, favelas of Brazil (to name but a few) and the townships of South Africa all present similar qualities of dynamism, fluctuations, juxtapositions, overlaps between informality and formality, etc.

Designing public architecture that responds appropriately to complex urban conditions is a difficult task. Therefore, over and above investigating education and educational space, this dissertation dually seeks to contribute to the discourse of apt civic architecture in the informal city, within a global as well as local context.

The Fields of Play<sup>3</sup> (FoP) Research studio utilises the township of Gugulethu (Figure 01) as an area of inquiry and a local example of the informal city. This is thus the locational scope for the design dissertation. Key interests of the investigation (education and the informal city) were a product of engagement with the township conducted in the Honours year.

<sup>3</sup> "The elective studio 'Fields of Play', co-taught by an architect (Francis Carter of UCT APG) and a collective of engineers (from the office of ARUP Cape Town) with participation of an urban upgrade NPC Violence Prevention through Urban Upgrading (VPUU), is based on cross-disciplinary design learning and public works practice aimed at improving institution building in under-resourced neighbourhoods. The social theme of the studio is public assembly programmes for youth development at the scale of architecture, considering both interior and exterior patterns of space and inhabitation" (Carter, 2017).



*Figure 02' - Map of selected scope in Gugulethu showing existng institutions (Cape Town City Map Viewer )*

## The Scope | Gugulethu

For the purposes of this design dissertation, the scope was further limited to the middle portion of Gugulethu (Figure 01). This precinct displays a good range of institutions (Figure 02), of varying programmes and types. In addition, there is an assortment of urban conditions (middle class, poor, informal, formal). This area provides a reasonable basis for understanding the existing qualities (architectural and social) of the existing facilities – their operations and physicality - both autonomously as well as within the larger urban fabric.



*Figure 01 - Map of Gugulethu with selected scope*



## **Document Structure**

This dissertation used the methodology of empirical fieldwork and exploring theoretic bodies to knowledge to develop a set of strategies for design, discussed in Section 1. The key findings from this exploration guide the further design development.

Consequently, proposals for a series of educational spaces in the Informal City were created in line with the research.

These spaces were then tested out in a larger building strategy on a selected site that would permit the objectives of the dissertation to find manifestation - development of both a universal and site specific scheme.

Lastly, the informal educational spaces were tested across similar sites to grasp their ability to adapt to different locations of similar conditions.



## **SECTION 1 | RESEARCH FOR DESIGN**

## RESEARCH FOR DESIGN

Design informed by research is a focal point of the new pedagogical structure of UCT's Department of Architecture. There is a strong belief that rigorous collection of data (qualitative and quantitative) results in design briefs that are better informed, by both the context in which they reside as well as the discourse/bodies of knowledge with which they are concerned.

The research component of this dissertation comprised of two streams of knowledge - 'Empirical Fieldwork Studies' and the 'Theory and Technology Studies' paper.

Although research, through a range of media, is an ongoing process that runs continuously with design development, the role of the two streams noted above served as key initial informants for design thinking and are thus integral in both the argument and the final product.

With preconceived interests in 'the informal city', 'public architecture', 'education' and 'existing institutions', research was focused towards these chief aspects of the inquiry within the selected scope.

The parts that follow will give greater insight into the specificities of Gugulethu - its people, buildings and operations - as well as the theory research, all that has ultimately influence the final design. The data is synthesised into key findings.

The objective is to galvanise the relationship between design decisions and real-life situations (tangible or tacit) as well as theoretic knowledge.

## **PART A | Empirical Fieldwork Studies**

The FoP Research Studio emphasises the indispensable capacity of ethically undertaken fieldwork as a methodology for design brief development. The established thematic interests set up a series of parameters for the fieldwork thus relevant buildings and spaces were studied. Consequently, this process assisted with site selection. This is a methodology that has stemmed from collaborative effort with VPUU where ground-up community engagement is imperative in design brief formulation.

### *Scope and Limits*

The previously indicated scope was extended to include Nyanga Junction (Figure 03) at the south end of Gugulethu. Several institutions were studied. Consideration was given to Steve Biko Road (previously NY1) as an additional site.

Due to safety constraints, fieldwork was limited to daytime hours and facilitated by fieldwork tutors (local community members).

### *Methodology and Ethical Considerations*

Approval for conducting of fieldwork was granted by the EBE Ethics in Research Committee prior to its undertaking. Walkabouts and visiting of institutions were conducted with the help of field tutors (Nontsika Mnotaza and Tarzan Mbita). This helped with language barriers and safety precautions.

Interviews on relevant personnel were conducted with their written informed consent. No minors were interviewed. It was made clear that the interview was purely for the purposes of academic research.

## **Empirical Fieldwork Studies | Gugulethu**

The institutional buildings and spaces that were visited are:

### **1 - Life of the Streets**

Steve Biko Road (NY1)

### **2 - Educational Institutions**

Bonga Lower Primary School (govt.)

College of Cape Town Gugulethu Campus (govt.)

### **3 - Mixed-use Community Institutions**

Masikanye Centre (Tankiso) (pvt.)

Gugulethu Library (govt.)

J.L. Zwane Centre (pvt.)

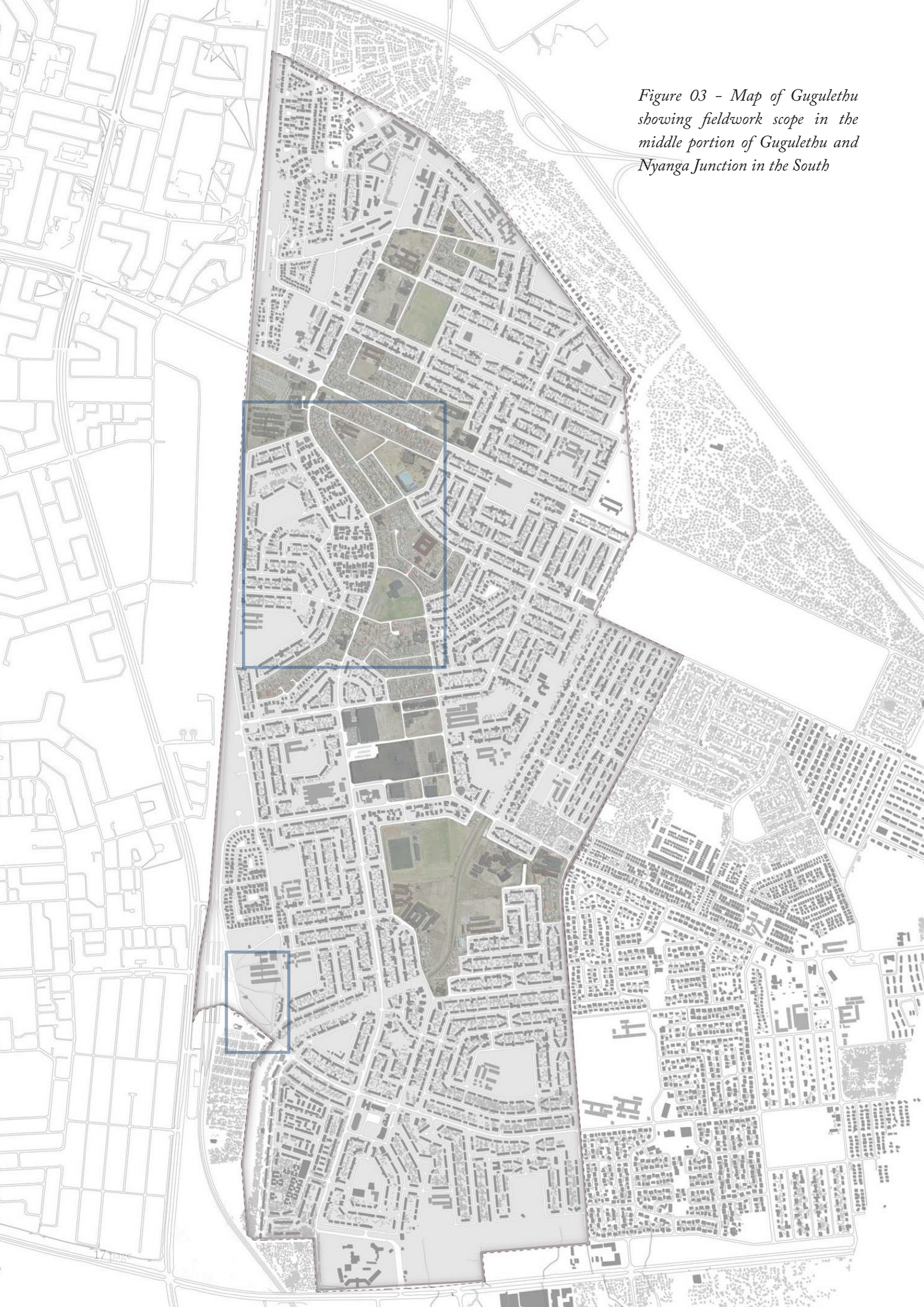
### **4 - Recreational Institutions**

Gugulethu Indoor Sports Complex (govt.)

The Oliver Kahn Youth Safe Hub (pvt.)

This compilation of findings in this section are mixed and varied. It is essentially a bricolage of ideas that appropriately mirrors the multi-faceted context in which they reside. The distilled principles and observations are thus loose in their structure. What is listed in the following section has had somewhat of an influence on design thinking. - some to a greater extent than others. Manifestation of these findings will be demonstrated in Sections 3, 4 and 5 of this document.

*Figure 03 - Map of Gugulethu showing fieldwork scope in the middle portion of Gugulethu and Nyanga Junction in the South*



## 1 | Steve Biko Road (Previously NY1)

Imperative to understanding this context was probing the main thoroughfare through the township. Not only is Steve Biko Road an essential transport arterial but is furthermore an important social space and economic hub. The street is an integral part of public life in a context where people have minimal private space<sup>4</sup>.

During a one day walk-about along Steve Biko Road (Figure 04) with fieldwork tutor Nontsika Mnotaza, interviews of community members and observation of daily life was conducted.

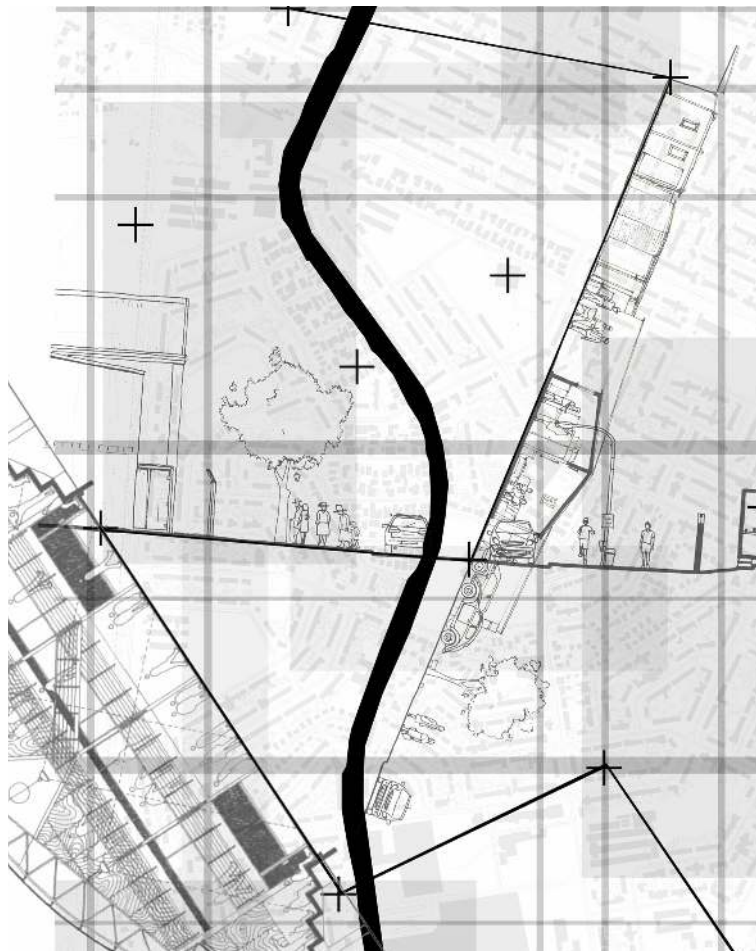
1.1 - **Bambisa Zazaza** (Steve Biko Rd resident)

1.2 - **An elderly female commuter** (pedestrian)

1.3 - **Mlibo** (car wash business owner)

1.4 - **Nelly** (ECD owner and Steve Biko Rd resident)

<sup>4</sup> A finding that arose during the course of the honours year



*A collage depicting the complexity of the Informal City, where complex networks are constantly at play, where institutions and residential life overlap and well as public and private, informality and formality. It is diverse. Scales range. It may appear as overwhelming but there is a chaotic order to this urban form. Steve Biko Road is an important mechanism in connecting the fragmented urbanism as well as a public space.*

*reference: combination of own image, tracing of Gugulethu Sports Centre (Noero, 1993) and a section (Enos, 2017) of the street done as a part of the Vertical Studio fieldwork.*



*Figure 04 –  
Image Source: City  
Map Viewer  
scale: 1:5000*



**1.1 - Bambisa Zazaza (Steve Biko Rd resident)**

He has lived on Steve Biko Road since the first houses were built. He states that the youth are putting the community under a lot of pressure and getting caught up in anti-social behaviour. Intervention needs to be done with this age group.

He pin-pointed that Steve Biko Road can be quite unsafe at times, especially around the Sport Centre Complex.



**1.2 - An elderly female commuter (pedestrian)**

She is likewise an older member of the community and confirmed Mr. Zazaza description of the youth.

She uses Steve Biko Road as her go-to place for catching public transport. It plays an important role in her daily life - a space to meet up with friends, do her shopping and to catch most forms of transport. This is always where her journey begins and ends.

She says the schools in the area operate reasonably well.



### 1.3 - Mlibo (car wash business owner)

He quit his job in the Cape Town City Centre to start a his own car wash business that operates from the pavement outside his house. The main reason he did this was to avoid poverty.

He also noted the struggles many youth in the area face as he himself is young. When asked what he thought would be a good way to attract youth to recreation activities he noted that you need to “**make it fun**”.

The car washing was observed as an important ritual in the township and an incredible form of socialisation. Allowing the daily street life to flourish, and inform economic practices to occur.

### Key Findings:

- *targeting youth development,*
- *addressing safety on Steve Biko Road through architectural intervention*
- *acknowledging the importance of Steve Biko Road as well as any street in civil daily life.*
- *the architectural intervention needs to be “fun” and attractive for youth in order to ensure its use.*

#### 1.4 - Nelly (ECD owner and Steve Biko Road resident)



Nelly recently started an ECD that operates from her home on Steve Biko Road. She is in the application process of registering her service.

Currently, 34 toddlers and infants are left under her protection daily from 6am to 6pm. Parents drop their children off (generally by walking) on their way to work. She has 4 additional staff members to assist her. The children are provided with 3 - 4 meals per day that are prepared in the house kitchen.

They mainly make use of the living room, which is inadequately sized for the number of children or the activities they conduct. Infants occupy her bedroom during the day to sleep.

They often use the back garden for group activities.

She is in the process of converting the outdoor shed in the yard into a flat for herself so that the main house can be mainly for the ECD.

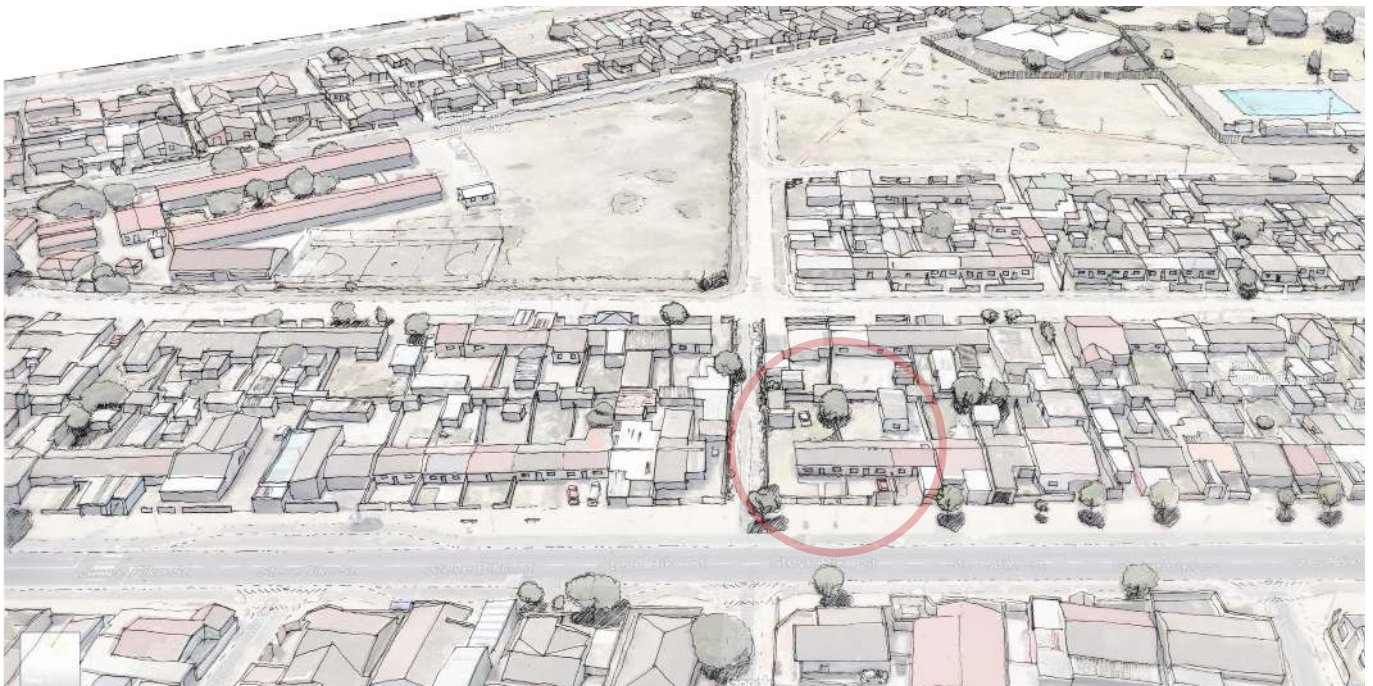


(Google Street View, 2010)



(City Map Viewer, 2017)





If the weather permits it, during the course of the day Nelly and her employee's walk with the children from the ECD, along the pedestrian road and into the park. There they will do numerous activities with the children, or they will let them play freely under their supervision.

*(Google Map data, 2017)*

Nelly herself uses the library facilities in the evenings and on weekends to study for her qualification through the College of Cape Town. She uses their IT resources to access the internet and printing facilities for her assignments

**Key Findings:**

- *display the incredible resilience member of this community have regardless of circumstance*
- *Informal ECDs in the area are in dire need of support and assistance - perhaps with childcare workshops, toy libraries, etc.*
- *adults who have missed out on education previously are seeking it and require facilitates to help them*
- *an important service can be operated from a small space*



*Pedestrian Street*



*Public Park*



*(City Map Viewer, 2017)*



## 2 | Educational Institutions

### 2.1 - Bonga Lower Primary School



*courtyards inbetween classrooms*



*temporary classrooms have been added*



*iKapa Foundation dance hall*

After an interview with the principal it was evident that the school operates reasonably well. It has good facilities - classrooms, courtyards, a large field, a remedial centre, feeding kitchen, vegetable garden. The admin block is adequate but could use some support facilities.

The principal noted that one of the biggest issue is what the children do after the school day is finished. There is a need for more afterschool programmes to keep them occupied. Generally the children occupy the park afterschool and play there is thus a close relationship to this piece of land.

The iKapa Foundation (a private organisation) hold a weekly afterschool dance programme from a temporary prefabricated classroom on the side of the field.

The school is set back from the main road which makes for a far more comfortable learning environment.

Most of the children walk to school - there is a need to make their commute safer.

Several women sell snacks to the children through the fence during break time.

#### *Findings:*

- *the need for more afterschool programmes should be addressed*
- *barriers needs to be presents but permeable - allow connections*
- *safety in the area needs to be increased*



## 2.2 - College of Cape Town

This institution is a facility that provides tertiary education mainly concerning business and engineering degree/diplomas. The courtyards are active with students at most points of the day.

The complex is surrounded by a high fence and there is a rigorous security check of bags and bodies upon entry.

There is a lack of I.T. equipment.





### 3.1 - Masikanye Hall

This study formed part of the Vertical Studio fieldwork, which brought together Honours and Masters cohorts for a 2 week collaborative building study on the Masikanye Hall (Tankiso). All drawings below were produced as collaborative effort. The teamwork was entitled “Life of Buildings”.

The facility is a large privately owned community facility occupied by many different bodies. The main hall (Figure 05) is used for many different functions or varying sizes.

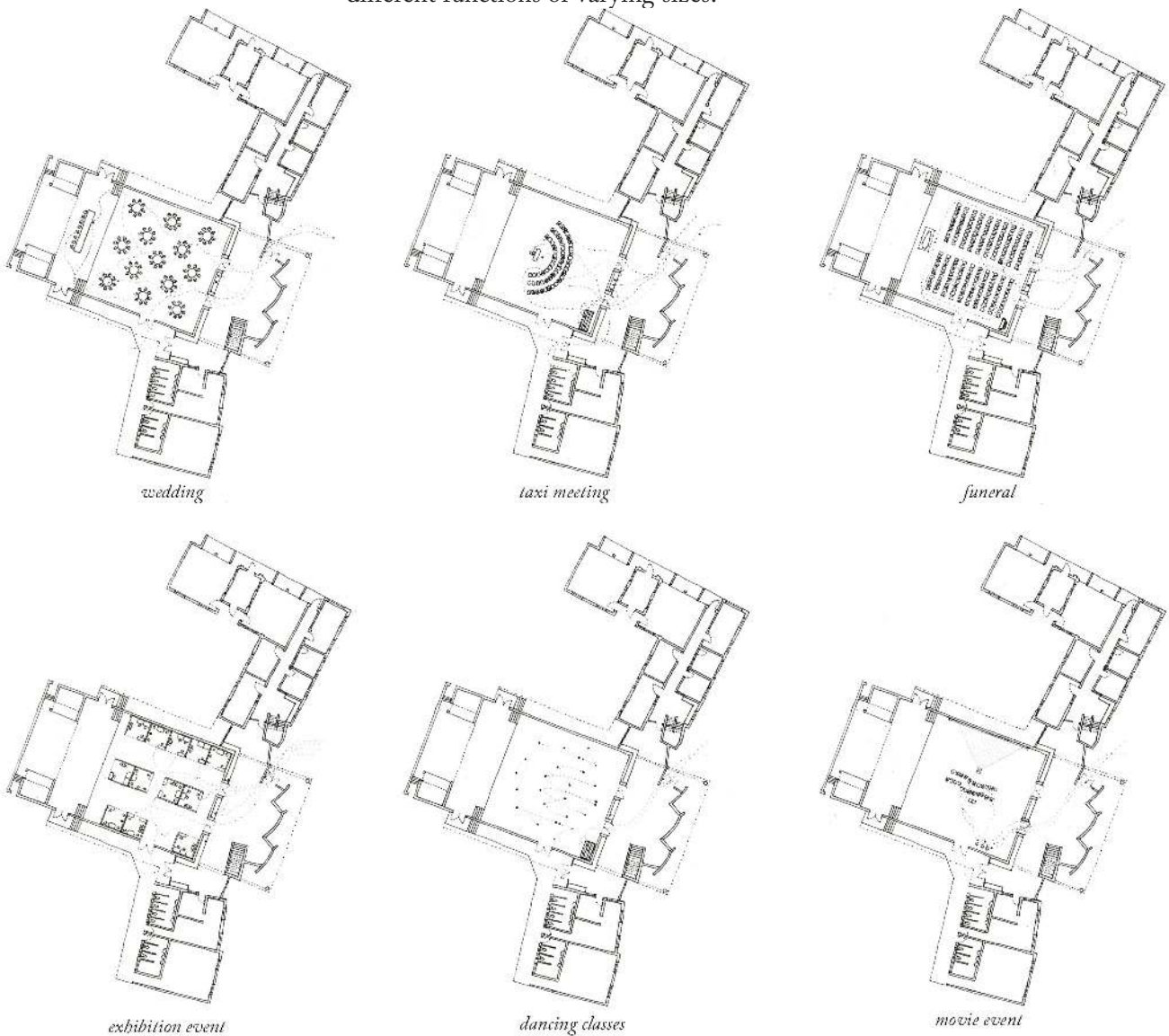
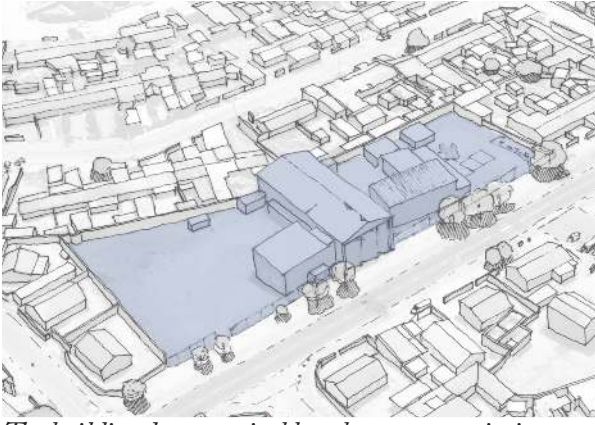


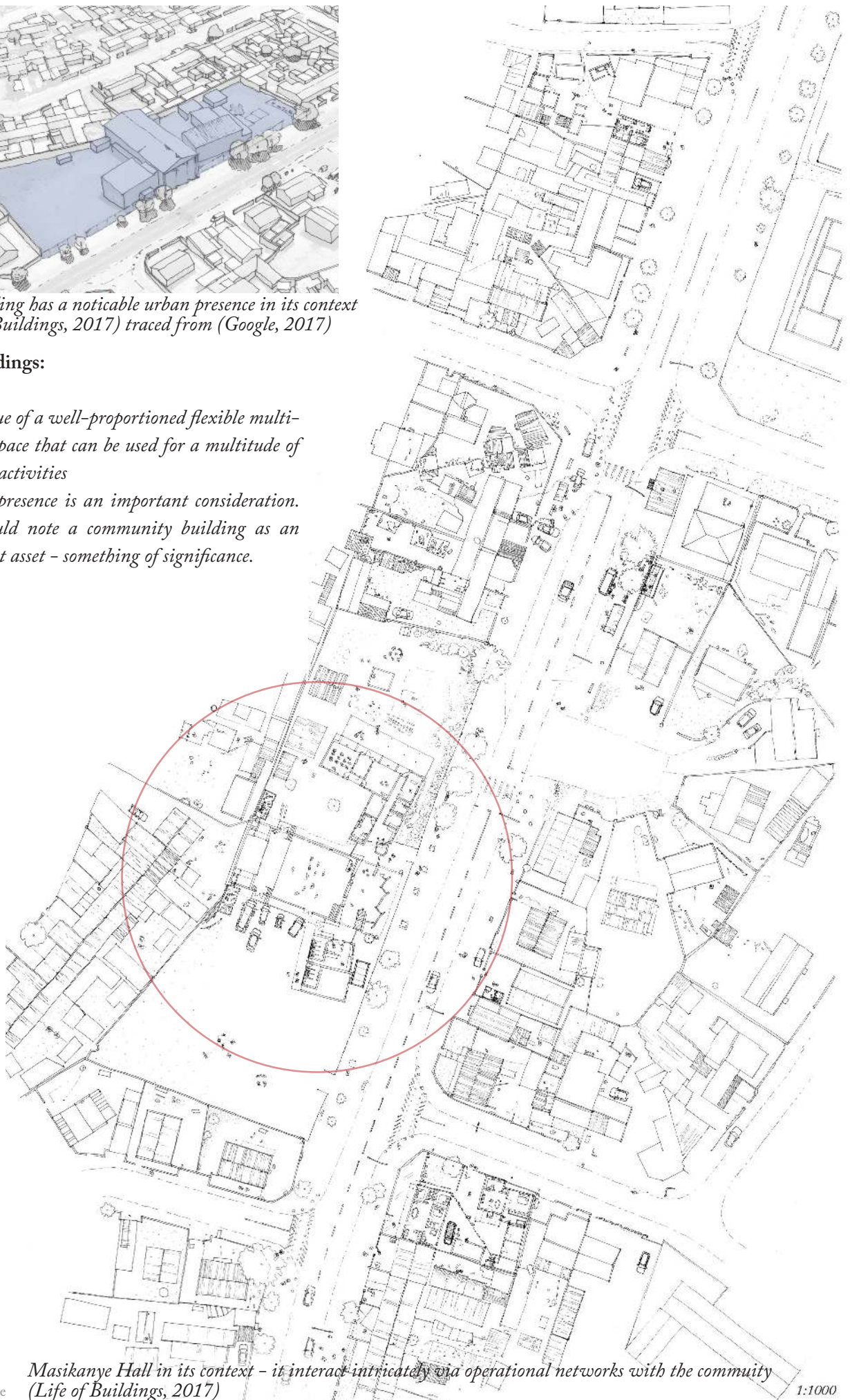
Figure 05: A plan of the Masikanye Hall showing the many different uses of the main hall space - flexible event in a fixed space (Life of Buildings, 2017)



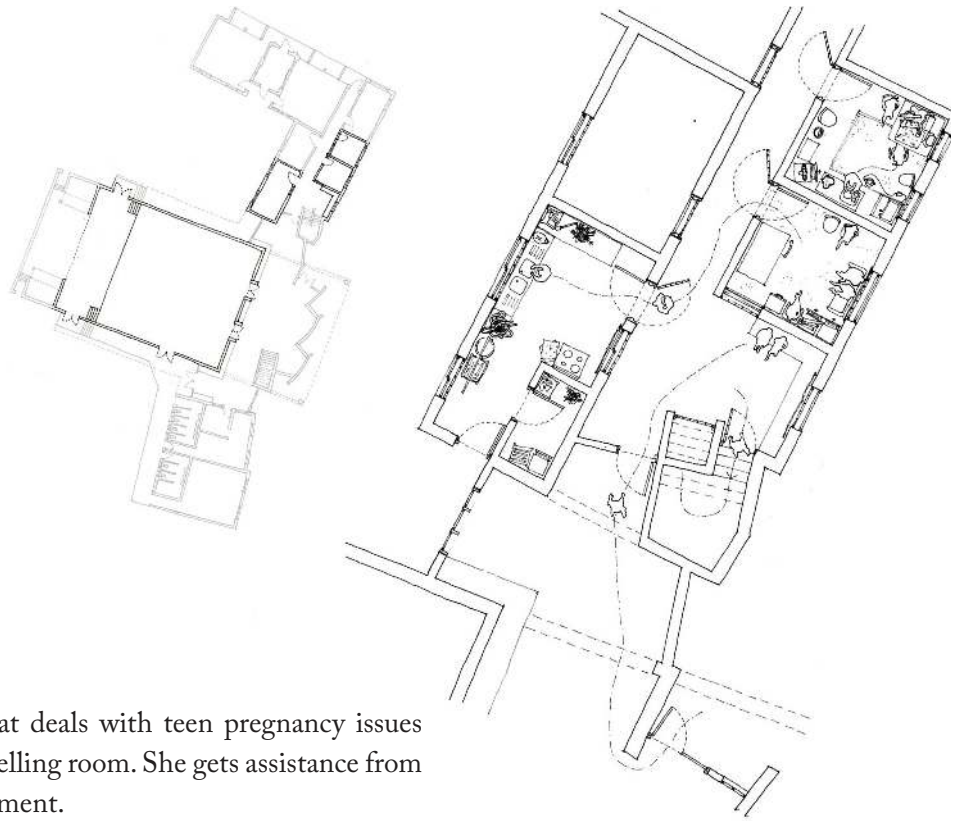
*The building has a noticeable urban presence in its context (Life of Buildings, 2017) traced from (Google, 2017)*

**Key Findings:**

- the value of a well-proportioned flexible multi-purpose space that can be used for a multitude of different activities
- urban presence is an important consideration. One should note a community building as an important asset - something of significance.

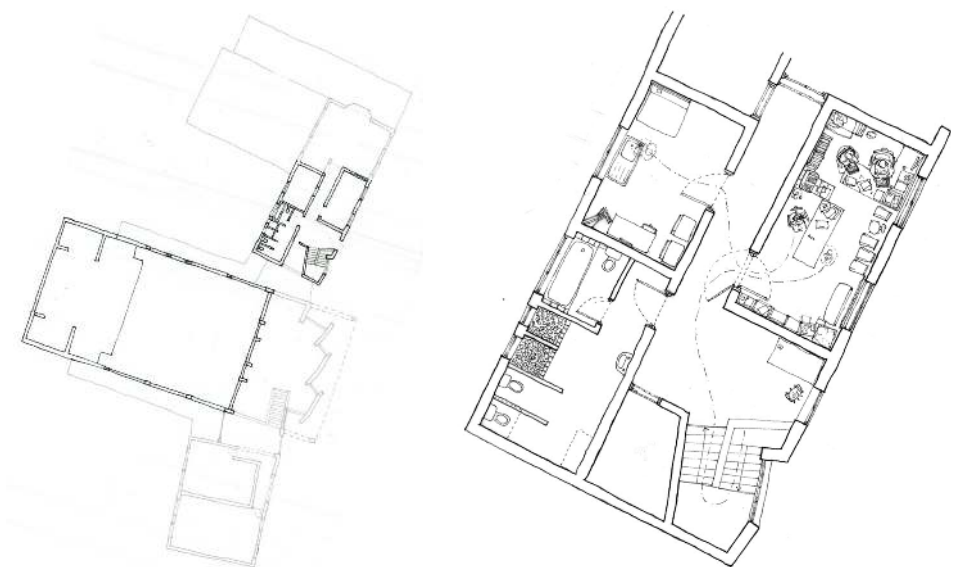


*Masikanye Hall in its context - it interacts intricately via operational networks with the community (Life of Buildings, 2017)*



### Lephina:

On the ground floor an NGO that deals with teen pregnancy issues rents a small office space and counselling room. She gets assistance from the Department of Social Development.



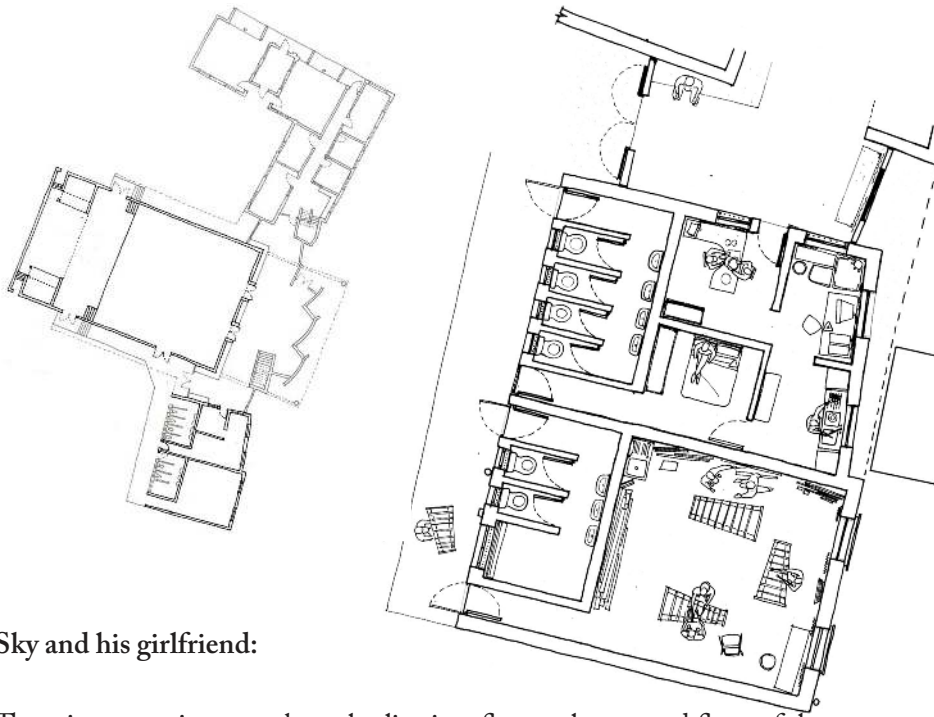
### Ntombo Jack:

On the first floor is a careers guidance and recruitment office. She states that sometime over 25 people occupy the very small space for meetings.

### Key Findings:

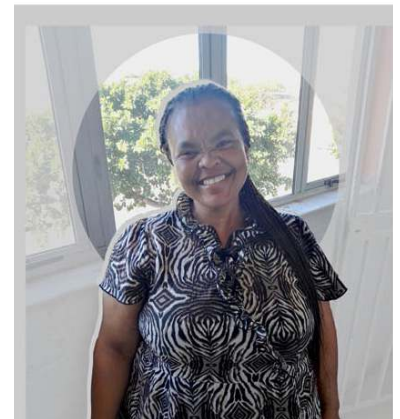
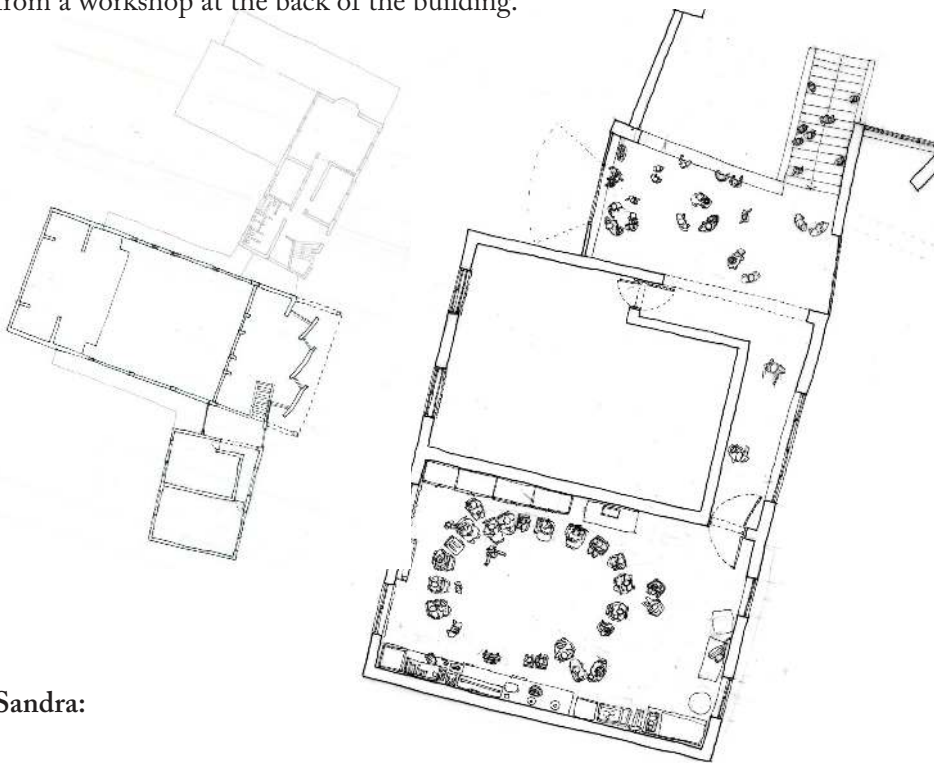
- provision of many facilities for small NGOs bodies to operate from is imperative in a public building. They play an important role in positive social development where issues are rife.
- there is a lack of “intermediate space” - small and large are evident - but nowhere to hold meetings, small workshops, etc.

*all figures by (Life of Buildings, 2017)*



**Sky and his girlfriend:**

There is an on-site caretaker who live in a flat on the ground floor of the building. He has become an important part of the life of Tankiso and the community at large. He conducts dance classes and builds marimbas from a workshop at the back of the building.



**Sandra:**

The second floor is occupied by a church group. An interesting observation was the manner in which the stairs were used after a Sunday service. The adults used it as a social space and the children as an informal jungle gym.

**Key Findings:**

- the use of recreation (dance and music as a tool for youth development) and woodwork.
- having a on-site caretaker is useful in ensuring safety and good operation of the facility
- new readings and uses are given to utilitarian elements (e.g. stairs).

*all figures by (Life of Buildings, 2017)*

### 3.2 - Gugulethu Library

The Gugulethu Library (Figure 06) is an important asset to the community. It is spatially introverted and is a sanctuary in the busy township - a space of relief.

It functions reasonable well and is well-kept. It has a good amount of reading resources but lacks severely with digital equipment (mainly computer monitors)

Due to security risk the library is surrounded by a defensive barrier of a stark palisade fence. Several thresholds exist from the street edge to the internal space to maximised access control.

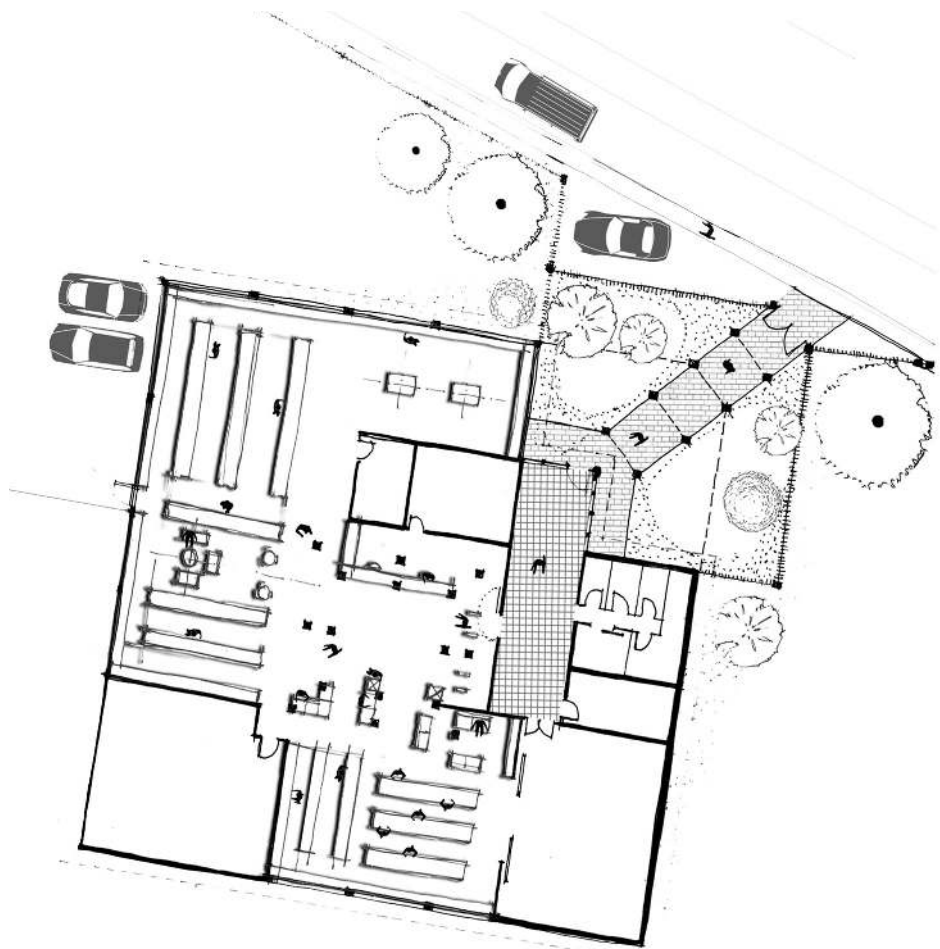


Figure 06 (Nunkoo, 2016)

### 3.3 - J.L.Zwane Church

This privately funded religious institution is a well-known facility to the community (Figure 07). Currently the run close to 15 different programmes, ranging from educational support for school children to health awareness.

The main service space is a multi-purpose hall, as oppose to a traditional church due to the wide range of uses it is facilitates.

On the lower ground level is a small library with Wi-Fi access. This further illustrates the need for digital facilities in the area.



*Figure 07- (Burge, n.d.)*

## 4 | Recreational Institutions

### 4.1 - Gugulethu Indoor Sports Centre

This large government managed sports complex facility, built in 1993 and designed by Jo Noero, is an important community space. Like the Masikanye Hall, it is used for a multitude of activities that extend past the prescribed programme of sports - weddings, funerals, a voting station, basketball games, aerobics, etc. It is highly *flexible*.

Additions have been made to the building overtime (a gym, recreational room, event space, recreational room). Its original organisation has easily allowed for this growth to take place. Apart from the main hall, the rec. room is the most utilised space in the building.

There is a lack of appropriate space for the NGO who occupy the building to operate.



## 4.2 - Oliver Kahn Youth Safe Hub

Designed by VPUU, the Oliver Kahn Safe Hub is a new youth facility in Nyanga junction. It operates as a partnership between VPUU, the Oliver Kahn Foundation, Amandla Edufootball and The City of Cap Town, thus demonstrating the possibility for government to work with private bodies.

Its material palette is robust and is focused on creating a secure and safe space for youth to socialise.

Football is used as a medium for education thus showing the potential of *sports and recreation paired with teaching.*



*Training spaces on the upper floor*



*operating in conjunction with a state school*



*Robust, exposed materials*



*A single access point with multiple security boundaries*

## **Conclusive Note:** Empirical Fieldwork

The findings from the fieldwork investigation are a collection of design prompts, considerations that have acted as key informant in the development of the architectural brief. They are relevant to the themes of public architecture in the informal city and existing institutions in Gugulethu and have been helpful in understanding the needs and desires of this community, as well as a context such as this as a global phenomenon.

The manifestation of these principles will be demonstrated in the sections to come where much of the creative work occurred in developing an architectural brief for educationally centred public architecture for the informal city.

### **Key points to note going forward are:**

- highly flexible, mixed used space that facilitates many activities;
- a lack of “medium/intermediate scale” spaces - large and small are in abundance;
- addressing issues with safety in the area;
- space for NGO to operate from, sufficient storage and office space
- the importance of afterschool programmes;
- allowing the informal practices and daily life of the SA township to occur;
- education and recreation working in collaboration.

Research for Design Part 1 | *Empirical Fieldwork*

Educational Institutions

Bonga Lower Primary School (govt.)



iKapa Foundation afterschool dancehall venue



College of Cape Town Gugulethu Campus (govt.)



Findings

both institutions **operate reasonably well** with good facilities but **require support**  
 there is an undying need for more **afterschool programmes** - this needs to be addressed  
**barriers** around the institutions should be present but permeable and **allow connections**  
**safety of children** outside school hours needs to be addressed

Mixed-use Community Institutions

Gugulethu Library (govt.)



J.L. Zwane Centre (pvt.)



Findings

both facilities are of **great value** to the community and are well-kept - **institutional presence** has an important role to play  
 there is a need for **I.T. facilities** in the area. Both noted they are under-resourced - Wi-Fi access, internet, printing, scanning, computer access  
 spaces get used for a multitude of different activities and are thus **highly flexible** - a "church" is a multi-purpose hall  
 both buildings are **introverted** and are a much needed **sanctuary** in a tough neighbourhood

Recreational Institutions

Indoor Sports Complex (govt.)



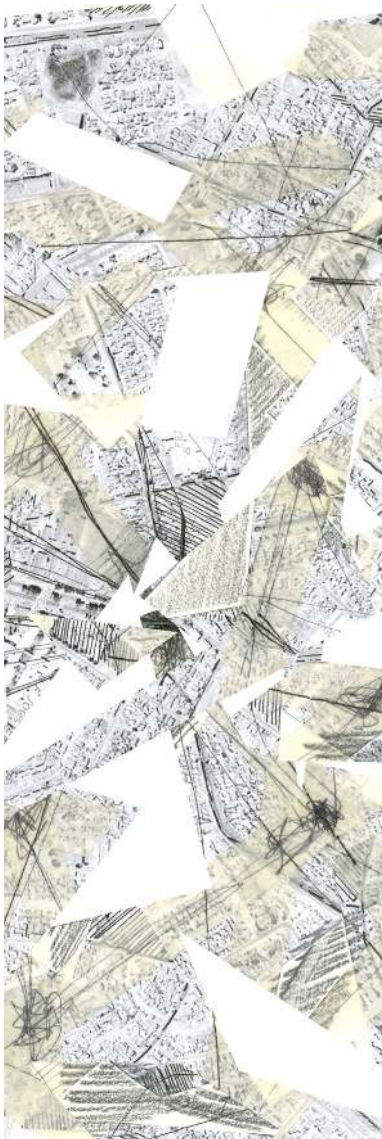
The Oliver Kahn Youth Safe Hub (pvt.)



Findings

Provision of **spaces for NGOs** to operate from is essential - they do a great deal of important work for the community regarding **positive social development** - there is a lack.  
 The use of **robust materials** to ensure longevity of the building as well as security of the facility and its inhabitants  
**Sport and recreation** has incredible potential to help **combat social ills**, especially for **youth**  
**highly flexible spaces** that can be used for many activities are imperative

## PART B | Theory and Technology Studies Paper



(Figure XX) A collage representing the complex and fragmented nature of the urban fabric in the South African Informal City (own image).

Entitled “Facilitating Complexity”, the Theory and Technology Studies (T&T) paper, undertaken mid-year, sought to explore an appropriate means of designing public architecture within the dynamic context of the South African Township. This occurred in parallel with empirical fieldwork.

Through an ideological and technical exploration of four highly relevant contemporary architectural practices, who deal chiefly with work of a similar nature in analogous conditions to that of the design dissertation, a compilation of ‘best practice principles’ were distilled. This “list” of considerations served partly as the basis from which much of the creative work developed.

The theories and ideologies of two Local and two Global South practices were studied through review of selected sources in PART A of the studies;

### Local:

Noero Architects  
VPUU

### Global South:

Urban Think Tank  
Rahul Mehrotra Architects

In PART B of the studies a separate studies of selected built works, ranging across scales and programmatic focus, sought to investigate how the ideas presented in PART A found manifestation in built form.

Urban Think Tank  
VPUU  
Rahul Mehrotra Architects

Vertical Gym  
Emthonjeni  
Mumbai Toilets

The best practice principles collated in the T&T paper that have had a noteworthy influence on the design brief have been identified below. SECTION 3 and 4 of this document will present evidence as to how this has been implemented in the dissertation strategy.

The principles were grouped into that which is related to (1) 'Practice and Ethos' and that which is (2) 'Design Related'.

A essay entitled 'Learning Making Agency' by Hannah Le Roux (2012) was the inspiration for the paper. She expertly identifies that built environment professionals often overlook the intricate dynamism of informal conditions. The investigation was thus to probe appropriate architectural strategies for such phenomena.



*(Figure XX) Photograph of the Yeoville Market in Johannesburg (Mark Lewis)*

## 1 | Practice and Ethos Related

- The *role of the architect* should extend beyond the traditional bounds of the profession (Noero, 2016). A more synthesised (Aravena, 2014) and multidisciplinary approach that ranges across questions of scale and sociological issues will address more aspects of the multifaceted informal city.
- Architecture has an undeniable *social role* (Noero, 1994) and the prevailing potential to improve people’s Quality of Life (VPUU, 2016) particularly in severely marginalised communities.
- The positive effects of a “*Ground-up*” approach are plentiful (Ewing, 2017). This can be translated into the design dissertation by means of allowing the programme to arise from direct consultations with local personnel (empirical fieldwork) and through inclusion of local skills in construction processes.

Moreover, consideration for the existing built-fabric should be taken into account.

- People and social capital should be prioritised over form - “*people not things*” (Ewing, 2017). What the building does for the community outweighs the justification for a “novel architecture” (Noero, 2010).
- In the quest for a “more equitable society” (VPUU, 2015), *meaningful intervention* should be done in areas that need them the most. For purposes relevant to the dissertation, this notion can help inform and justify site selection processes.

## 2 | Design Related

– The informal city withholds a wealth of design inspiration in its own right. The unbounded myriad of practices/operations as well as its physicality (spatial and material) should form integral components of the strategy.

Through provision of *highly flexible, efficient, dense and resourceful spaces* the predictable and mundane as well as unimagined activities of such an intricately complex context can be facilitated with this “elastic” (Mehrotra, 2013) use of space.

– The *urban presence and imageability* of a public building is paramount. It should be recognisable urban marker (Noero, 1994) that pay due to its context and is a valuable asset to the community.

Noero believes that the *form* of the building should be a direct response to its *programme*, (i.e. How does an educational programme shape the form of the building?) in opposition of retro-fitting programme to a predetermined “novel” form (Noero, 1994).

– A building that grows *incrementally* bears the aptitude to alter or change in accordance with the needs of the community (VPUU, 2015). In a highly dynamic, kinetic and unpredictable urban condition, where availability of funds may be limited, it is rational to start small and allow the project to grow in stages. Furthermore, it impedes hindrance of the design intention due to lack of available capital.

An important consideration is ensuring that individual parts can operate autonomously, outside of the fully realised project.

– *Safety*, of both the building itself and its inhabitants, should be a chief concern of the designer.

Environmental design can influence people's choices (Ewing, 2017), thus architecture has the potential to limit opportunistic crime. Good strategies included, clear lines of sight, copious lighting, surveillance, etc. (this will be explored further in the design process.).

– Not every building component needs to be designed formally. *Background architecture* suggests that certain spaces be left open-ended for mundane use – a scaffolding for daily life to occur (Noero, 2002) (Mehrotra, 2013).

– The mechanism of developing a *Kit of Parts* or *prototypical* models – a replicable, pre-designed/pre-determined building component/s or strategy, is one that is followed by all the practices concerned in the study (some to a greater degree than others).

## **Conclusive Note:** Theory and Technology Studies

The above findings, that are both theoretic and design based, from the T&T paper serve as a summative basis of strategies from which to develop the architectural brief. Analogous conditions of the Informal City, which all four practices cite a particular interest in contributing to discourse regarding this contemporary condition, and similar types of buildings advocates their views as admissible.

### *List of Findings:*

- *The Role of the architect (multi-disciplinary)*
- *The Social Role of Architecture*
- *Ground-up*
- *People not Things*
- *Meaningful intervention in areas which need it the most*
  
- *Inspiration from the Informal City*
- *Urban presence and Imageability*
- ***Incrementalism\****
- ***Safety\****
- *Background architecture*
- ***Prototypes\****

In the Sections that follow, the above findings will be demonstrated in the design outcomes.

The findings and principles that have been had the greatest influence in further development are ‘incrementalism’, ‘safety’ and ‘prototypes’.



**SECTION 2 | SITE SELECTION, THE SITE  
AND THE MAIN ARCHITECTURAL NOTION**

## Site Selection | Justification

Selection of an appropriate site for the design dissertation was informed by the **fieldwork** (ensuring a degree of ‘ground-up engagement’) and a **mapped analysis** of the scope. Hence, the park adjacent to the Gugulethu library was chosen.

Several measures gave rise to the selected site:

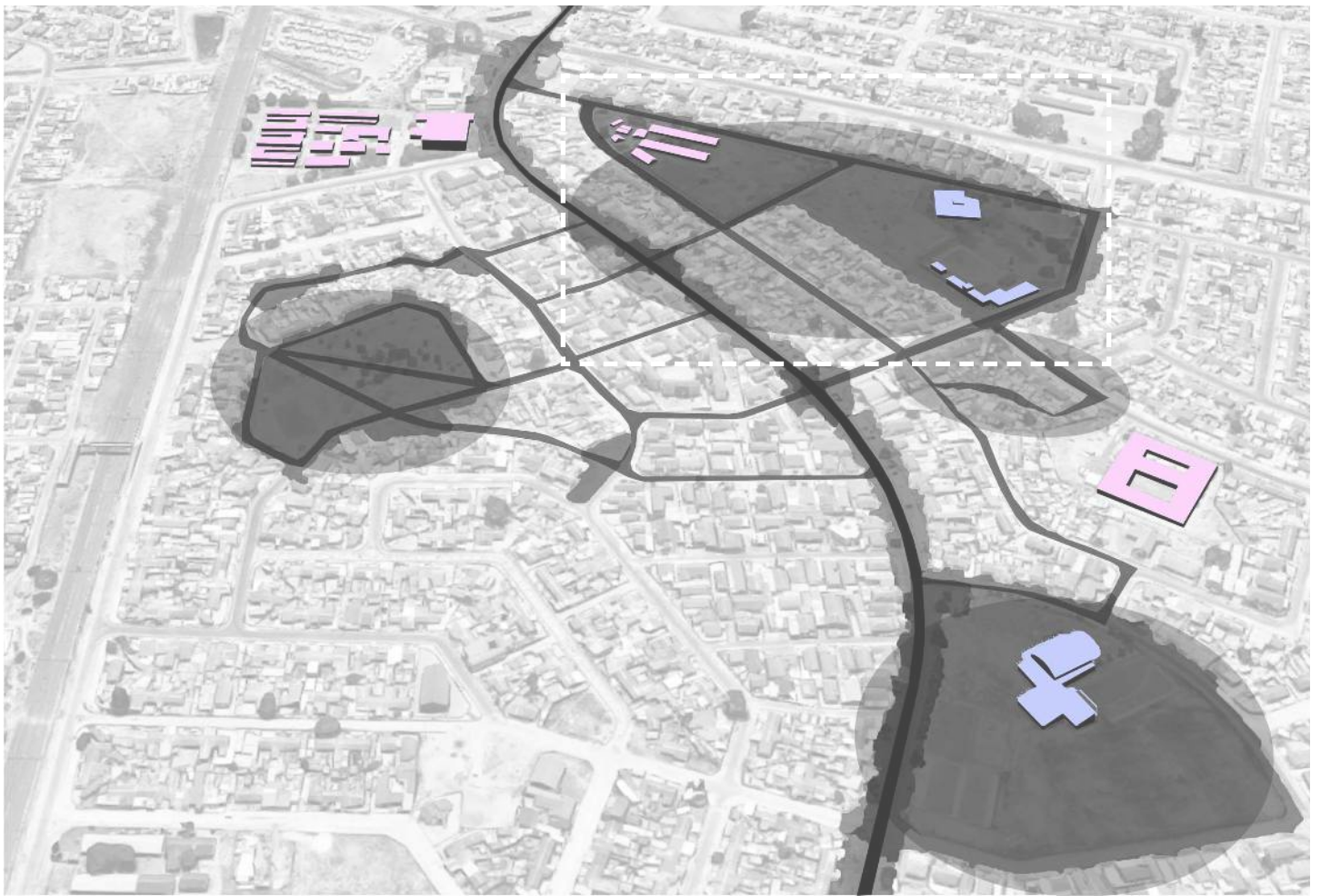
- Ascertaining which **existing institutions** require support, namely the Gugulethu Library, Bonga Lower Primary School, the College of Cape Town all presented evidence of this in the fieldwork. Additionally they are concentrated in **close proximity** to one another;
- Availability of **public open space** – this plot is zoned under this criteria;
- Establishing problematic areas in terms of **safety** – the park and pedestrian route have become a hotspot for gang-related activity;
- In close proximity to Steve Biko Road making it **easily accessible** to vehicular and pedestrian traffic.



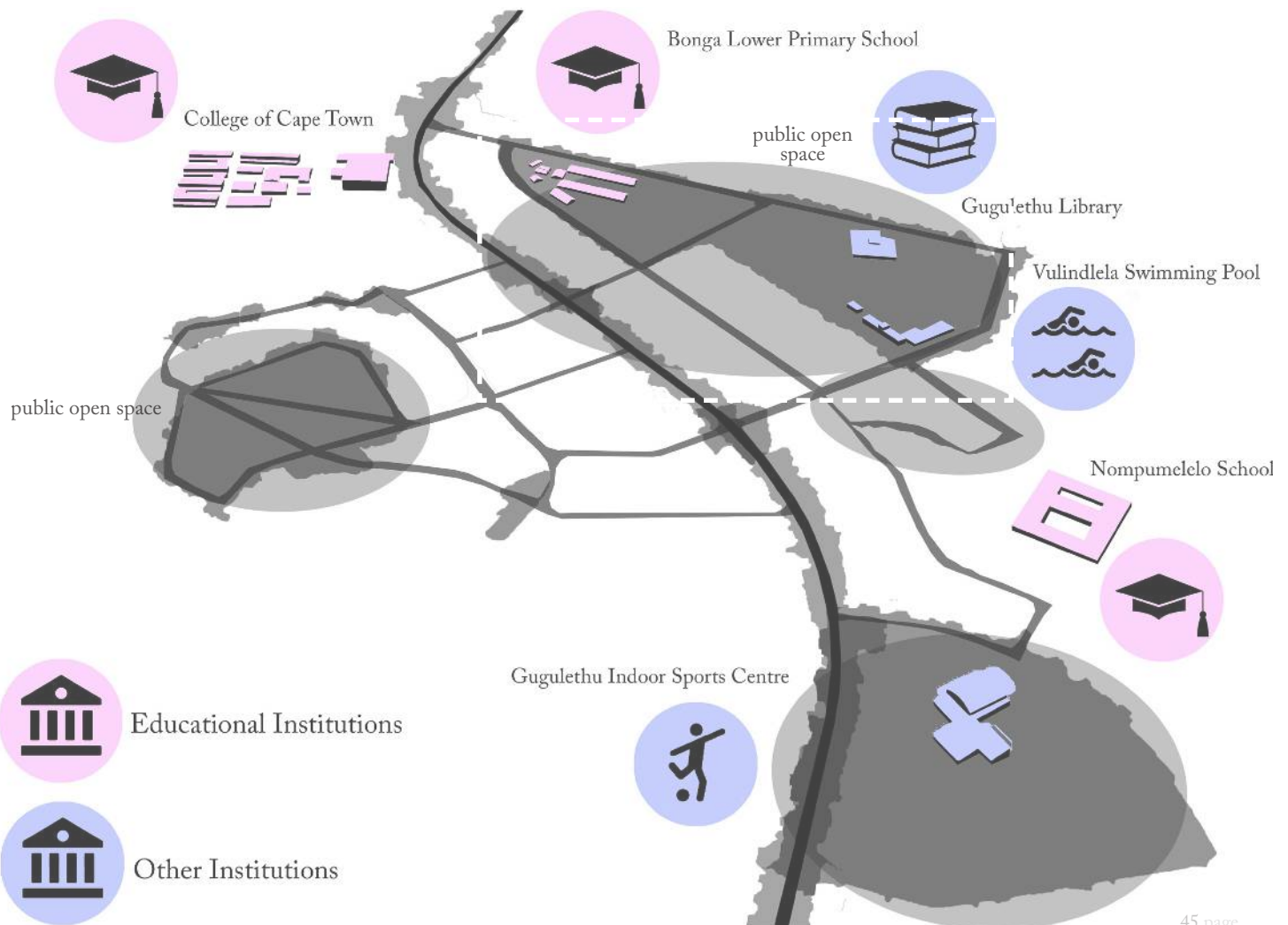
*(left)*  
aerial image of park  
site (City Map Viewer,  
2017)

*(below)*  
zoning map (City Map  
Viewer, 2017)





*perspective of scope highlighting institutions (Google Maps, 2017)*



## The Site | Constraints and Opportunities

The precinct is divided into 5 erven (See Figure below) all of which are state owned. The park is well-maintained by local authority and scattered with an assortment of play and gym equipment, furniture and lighting. Edges and pathways are landscaped formally making use of local succulents and standard pavers.

The park is flanked by palisade fencing on the public library/pool edge, a wire fence on the Bonga Lower Primary edge and two residential strips - one middle-class (norther edge) and the other of a poorer economic standing (southern edge).

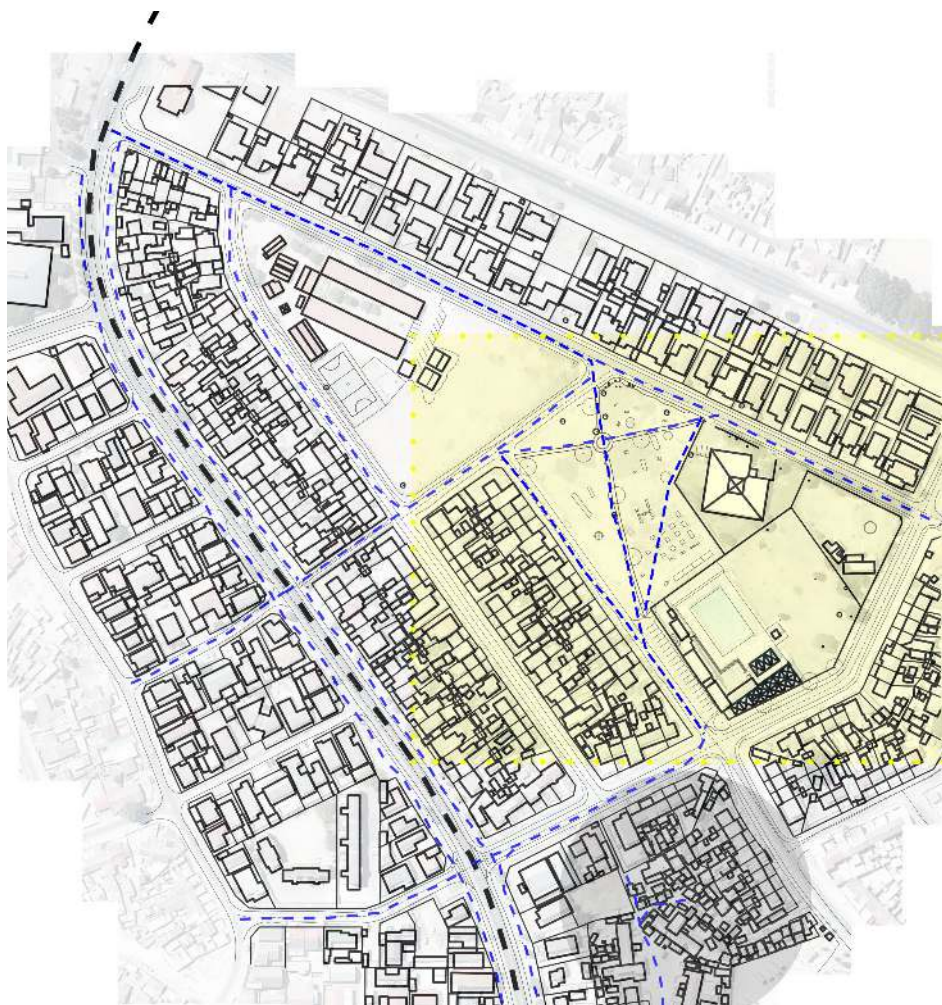
*(diagram provided by Cape Town City Council)*



*Erf boundaries, adapted from (City Map Viewer)*



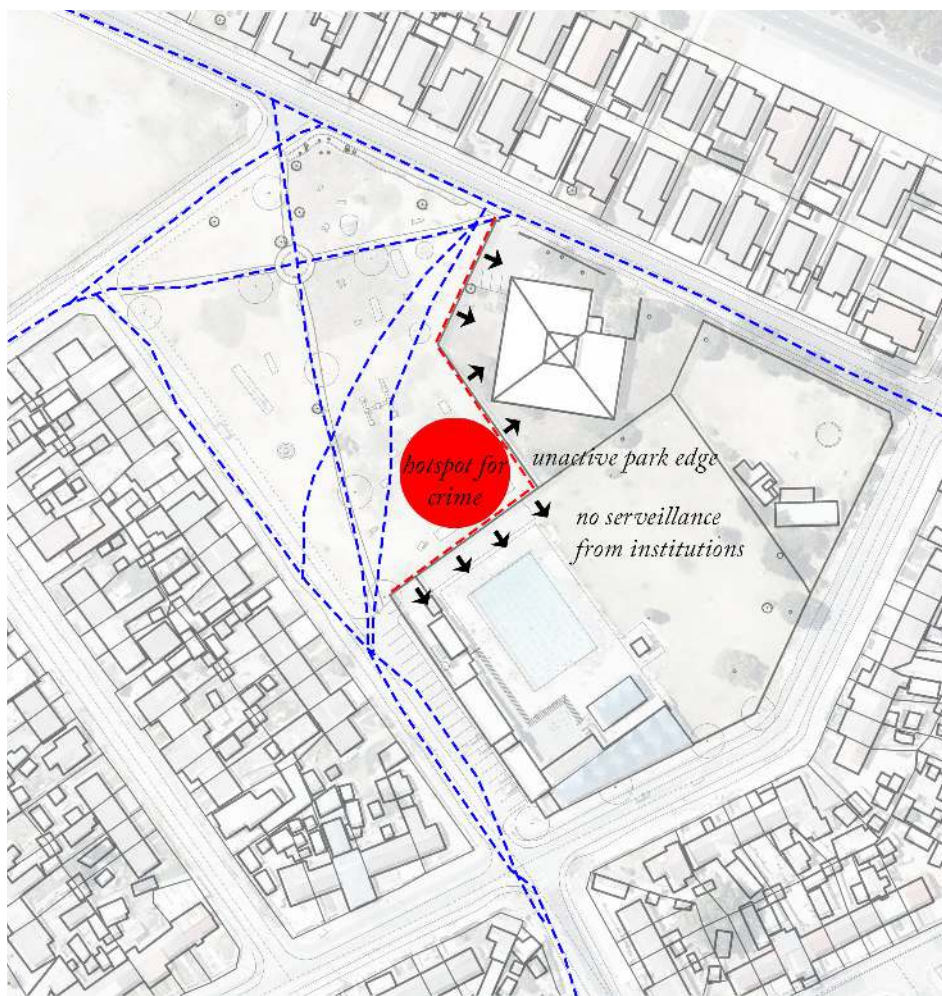
*Figure XX – perspective of park, Bonga Lower Primary, the library and pools (Google Maps, 2017)*



-----  
*main pedestrian movement*

-----  
*Steve Biko Road (main vehicular movement)*

*Underlay from:  
 (City Map Viewer, 2017)*



*A finding originating from the fieldwork, mentions that the park is well-used by the community on a daily basis for an array of different activities - especially on weekends. However residents noted that the space is unsafe at times and often occupied by gang activity. The corner adjacent to the library and pool (currently there is a concrete plinth on this piece of ground - an unrealised public intervention). This causes the desire line along this edge to become unsafe for pedestrian moving through the open space.*

*Limit visibility and surveillance from the surrounding institutions does little to help this issue. This is a good opportunity to intervene in the areas that need it most and notable unsafe areas.*

*underlay from:  
 (City Map Viewer, 2017)*

## Key Concept for the Over-all Strategy | Wrapping the Library

In order to understand how the prototypes explained in Section 3 developed, it is first necessary to grasp the architectural intention of the overall design strategy for the selected site. This was a crucial step in progression of the prototypes.

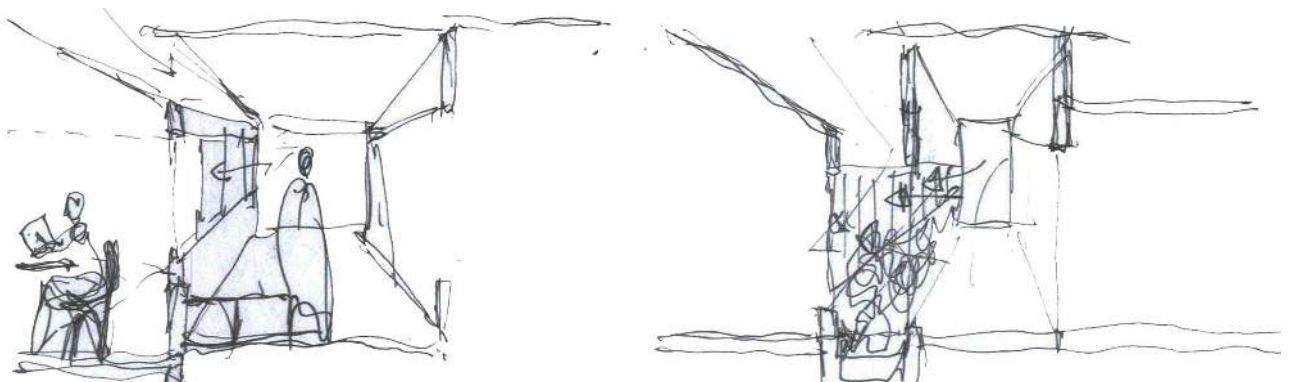
Fieldwork investigations noted that the library functions well as a state-run, public asset and is a space of relief in a reasonably tough neighbourhood. Therefore, following a “ground-up” approach, the library should be preserved as an autonomous entity from the new intervention(s).

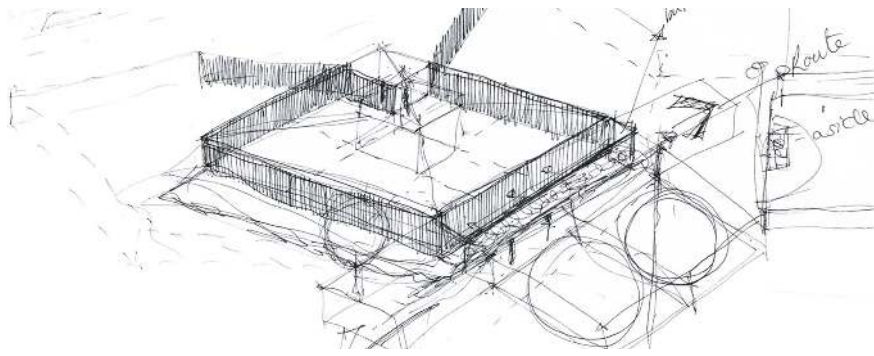
The palisade fence currently surrounding the library creates a defensive and hostile barrier to an otherwise appealing institution and public park. Additionally this restricts surveillance from the building increasing the opportunity for crime and anti-social behaviour to occur.

The current fence line follows the erf boundaries. From feasibility stance, it was accepted to work within these existing parameters.

With the aforementioned in mind, the leading architectural proposition is to wrap the library in a new series of buildings that would face onto the park. This new addition would operate independently but benefit the library through a number of means - a mutualistic symbiotic relationship where both facilities benefit.

The new addition would create a buffer between the library and the park edge allow the library to be opened out to outdoor spaces at strategic points (outdoor reading rooms, courtyards can be added). The new



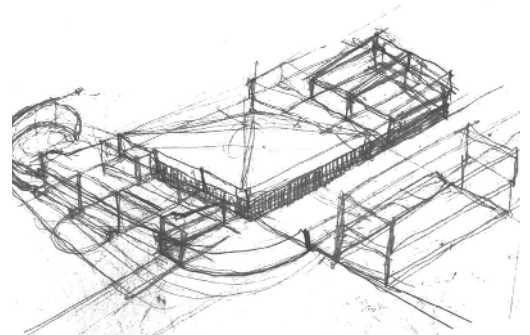
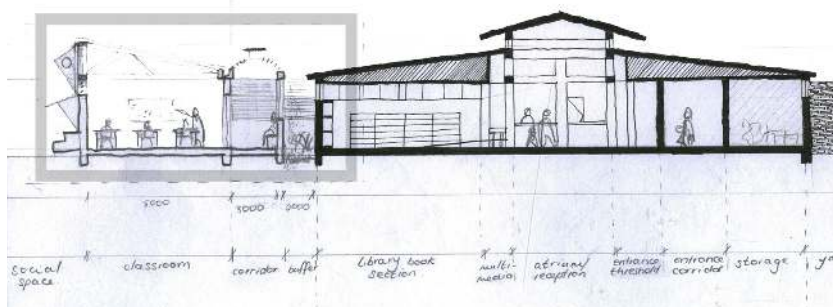
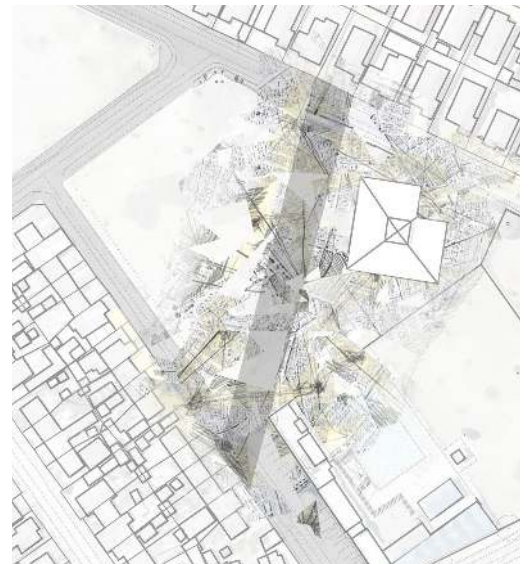
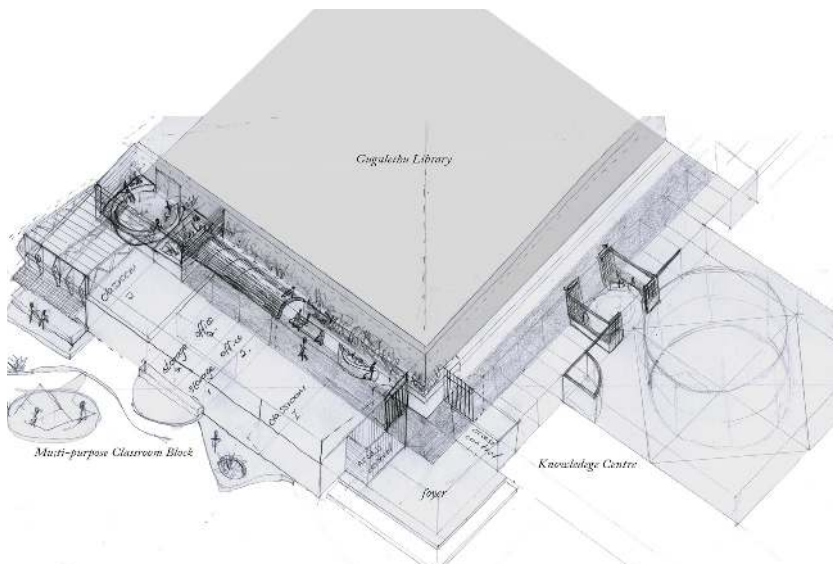


additions on the park site would utilise the institutional presence of a well-known existing institution and park to enhance usability.

This series of buildings are set to follow the formality of incremental implementation where the parts aggregate over time which will ultimately create a welcoming and interactive edge to the public park that dually serves a pertinent need.

What is important to note is that although this site presents attributes that are specific to this condition, many of the characteristics are analogous to other similar plots of land in similar contexts - under-resourced, unsafe public open land and institutions that require support facilities.

The parts that grow incrementally will be explained further in Sections 3 and 4.





## **SECTION 3 | 3 PROTOTYPES**

## INTRODUCTION

As per the findings of the T&T studies, formulation of a **prototypical model**<sup>1</sup> for a public building is a rational approach to architecture in the informal city - the crucial feature being the ability for the structure to adapt to numerous different contexts, sites and situations that present similar qualities (many of which are universal conditions).

The 3 prototypes that developed are;

- (1) The Stories Centre,
- (2) The Learning Stairs
- (3) Public Toilets with Classrooms

In line with the objective of proposing an intervention that is both universal and responsive to the specificities of a selected site, the prototypes were perceived as the generic **framework** from which the remainder of the public educationally-centred building could develop **incrementally**. Additions to these core structures would be largely a direct response to this site in specific, with regards to both its programmatic and architectural response. They thus mandated the capacity to exist as autonomous objects as well as being an integrated component of a larger building.

As an accommodation component of an architectural brief that is not part of the formal educational system, the spatial requirements were less constrained and prescriptive. These objects were appreciated as an opportunity to experiment with a **new type of educational space** that would provide a different kind of spatial and programmatic experience to orthodox educational architecture. Architectural parameters could be

<sup>1</sup> The Mumbai Toilets by RMA, the Emthonjeni's by VPUU and the Vertical Gyms by U-TT all follow this strategy. These were studied in depth in the Theory and Technology Studies Paper.

extended.

Focus was given to grappling with the programme, spatiality and tectonics of each prototype – the influences for each are derived from the relevant findings from the fieldwork, T&T and creative work explained in Section 1. Manifestation of these considerations/ strategies will be discussed and demonstrated further in this section.

### *Design Methodology*

#### - Local vs. Global

In short, the process in developing the 3 individual types was a continual alternation between reacting to the library site itself as well as developing a replicable educational element. This duplicity stemmed from Mehrotra's sentiment of "localising global practices, and globalising local practices" (Mehrotra, 2013). Working across scales of the urban, the immediate context and the detail set up the framework for design.

#### - Model making

A focus on structure and assemblage called for detailed level of resolution regarding construction. Digital and analogue means of model making were thus utilised.

## PROTOTYPE 1 | THE STORIES CENTRE

Provision of a **compelling, safe, civic educationally-centred** (teaching and learning) space, based on the premise of being a **highly useful and flexible object of beauty** in the landscape of the Informal City, that could moreover act as the **core for future incremental growth** was the objective in developing the first prototype.

The component that emerged – **The Stories Centre** – endeavours to manifest these ambitions architecturally resulting in a complicated overlap between programme, form and structure.

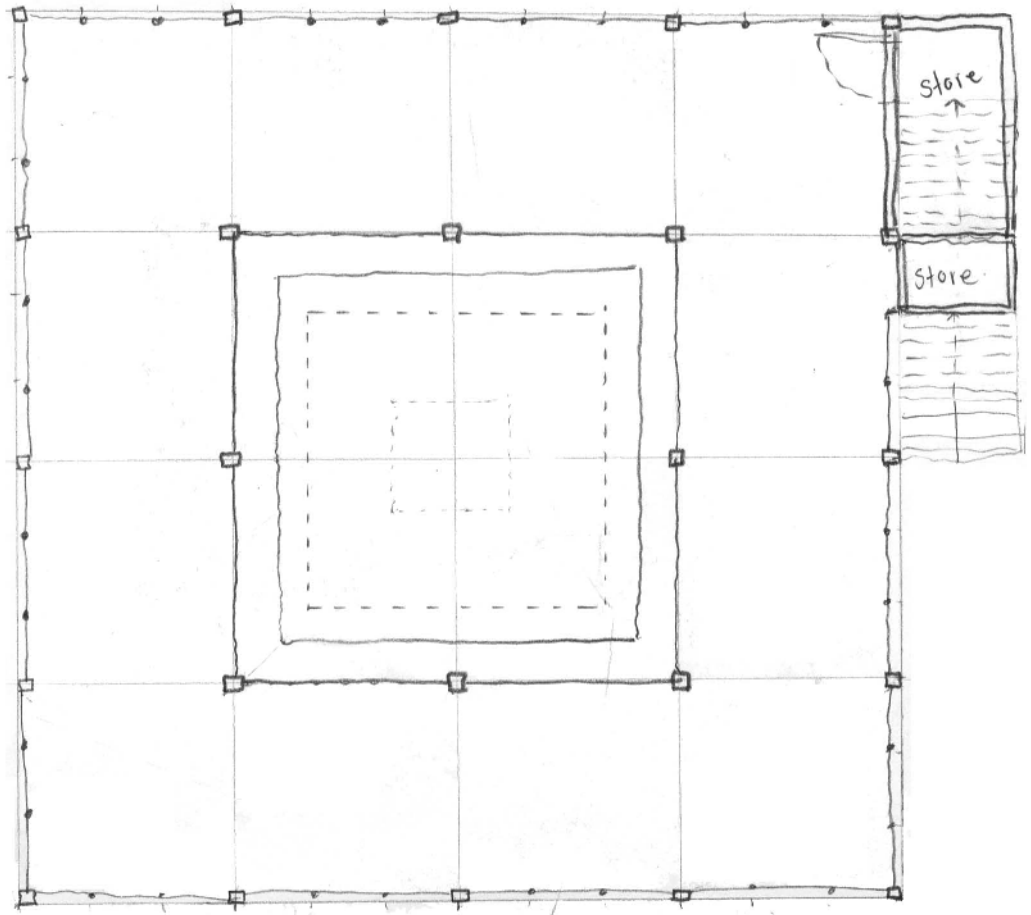
The informants are a bricolage of ideas (explained throughout this section) however, its primary inspiration proceeded from four key sources;

(1) A fieldwork encounter with a carwash business owner who stated that a crucial consideration to attract people, especially youth, is to the building is to “*make it fun*”.

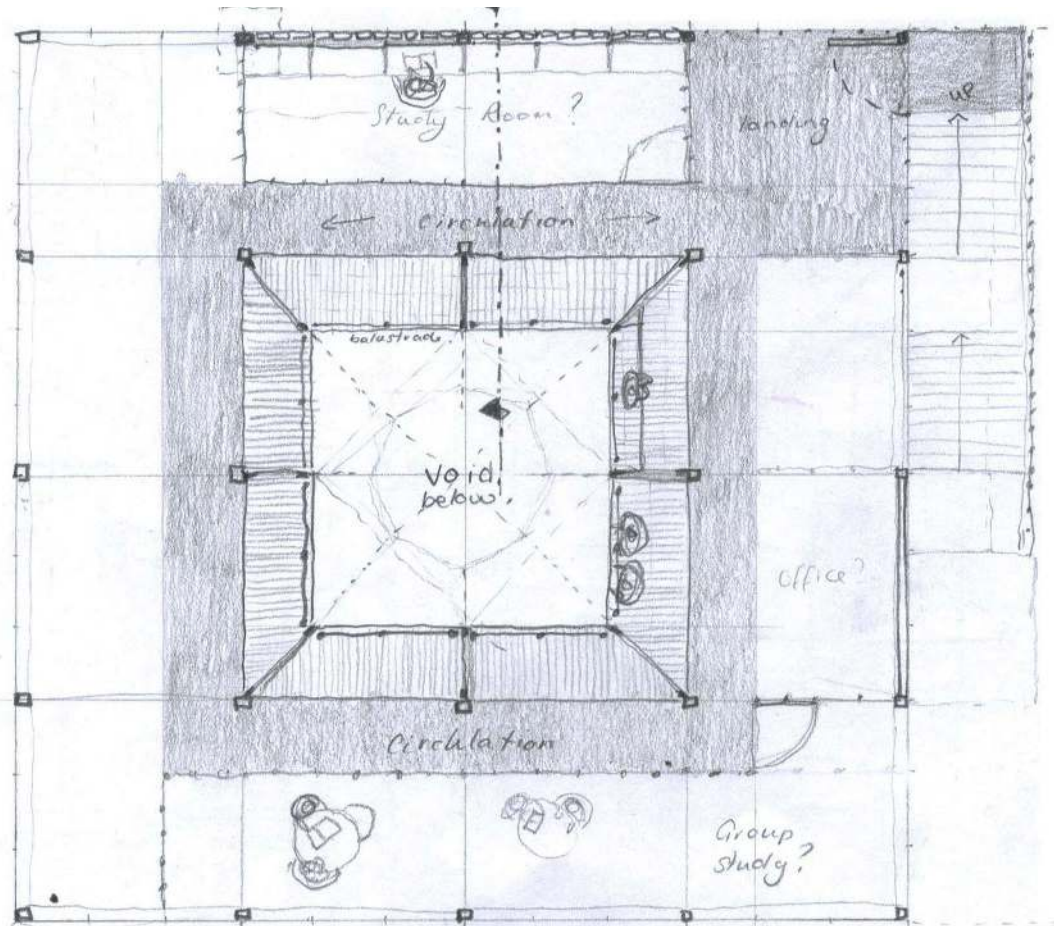
(2) The Noero’s exploration of “*Archaic Space*” (Noero, 2017), inspired by the work of Aldo Rossi, in the T&T studies. As well as the “*intrinsic relationship between programme and form*” (Noero, 1994).

(3) A resourceful use of space through stacking of programmes, inspired by U-TT’s Vertical Gym .

(4) The central theme of the ‘Fields of Play Research Studio’ - *flexible event in fixed space* , illustrated in the Vertical Studio study of the Maikanye hall



*Initial design concept  
of the Stories Centre  
prototype, ground level*

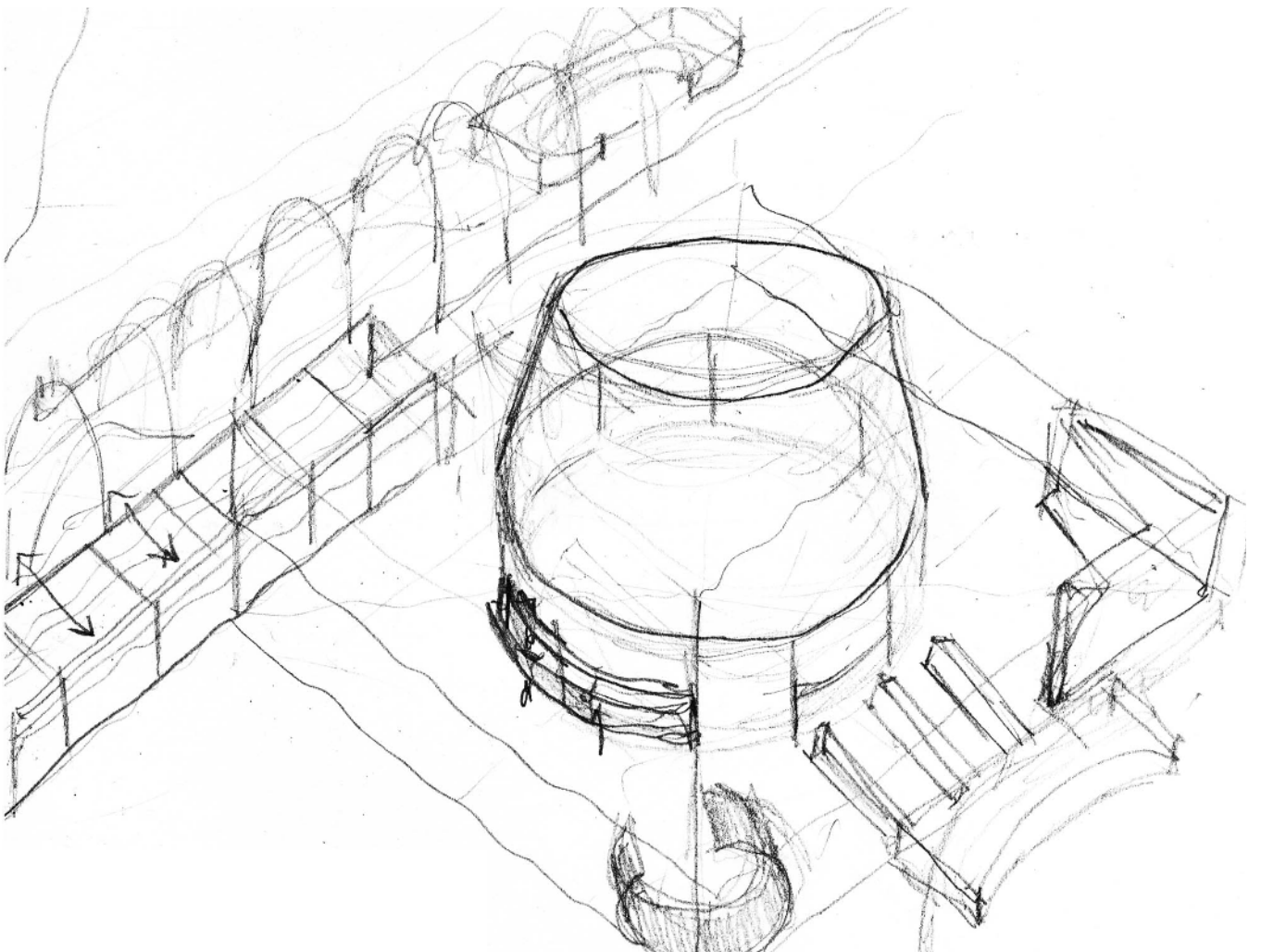


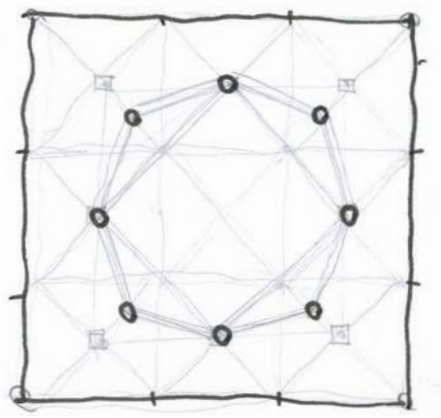
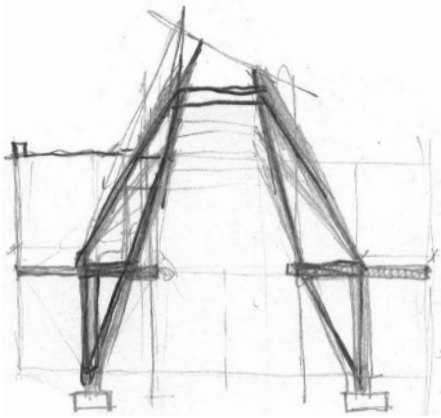
*Initial design concept  
of the Stories Centre  
prototype, upper level*

## Creative Work | Initial Key Design Concepts

Early design sketches in developing a strategy for the series of buildings that wrap around the library suggested a need for an iconic “special space” for public interaction and use - an object of value and beauty. Its form should be **expressive** and offer a **urban presence** in a landscape generally characterised by low-slung, single story residential units and shack dwellings. Hopefully, this civic beacon will become a recognisable community asset associated with educational happenings if replicated.

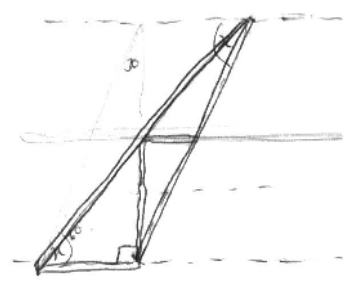
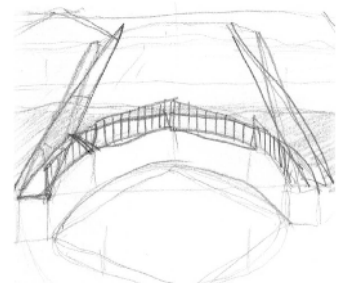
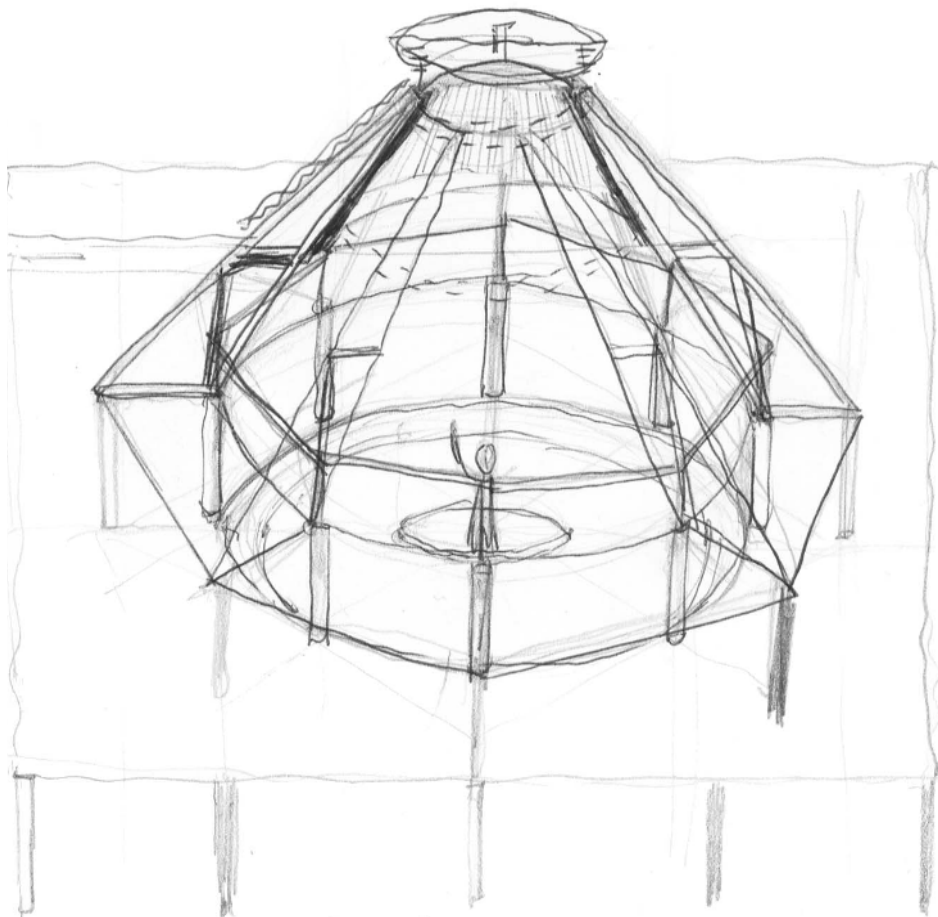
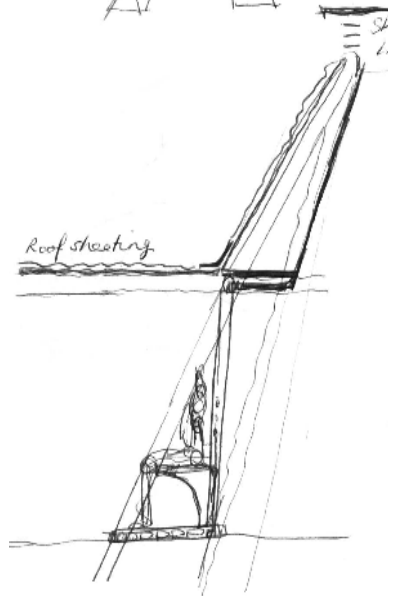
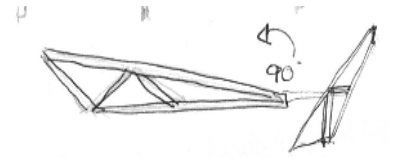
A circular form and the idea of Archaic Space (Noero, 2017) provided the inspiration for the overall form. presenting the argument that spaces with rigid/strict geometry have historically proven to withhold the greatest ability to **adapt** to a myriad of programmes overtime.





This expressive form need not entail specialised or complex construction, but rather purposefully use standard members and systems in a unique way whilst still allowing for local personnel to be included in construction.

Assembled on site out of intricately crafted timber elements, the airy atrium space would be a welcoming an intimate space for human occupation.

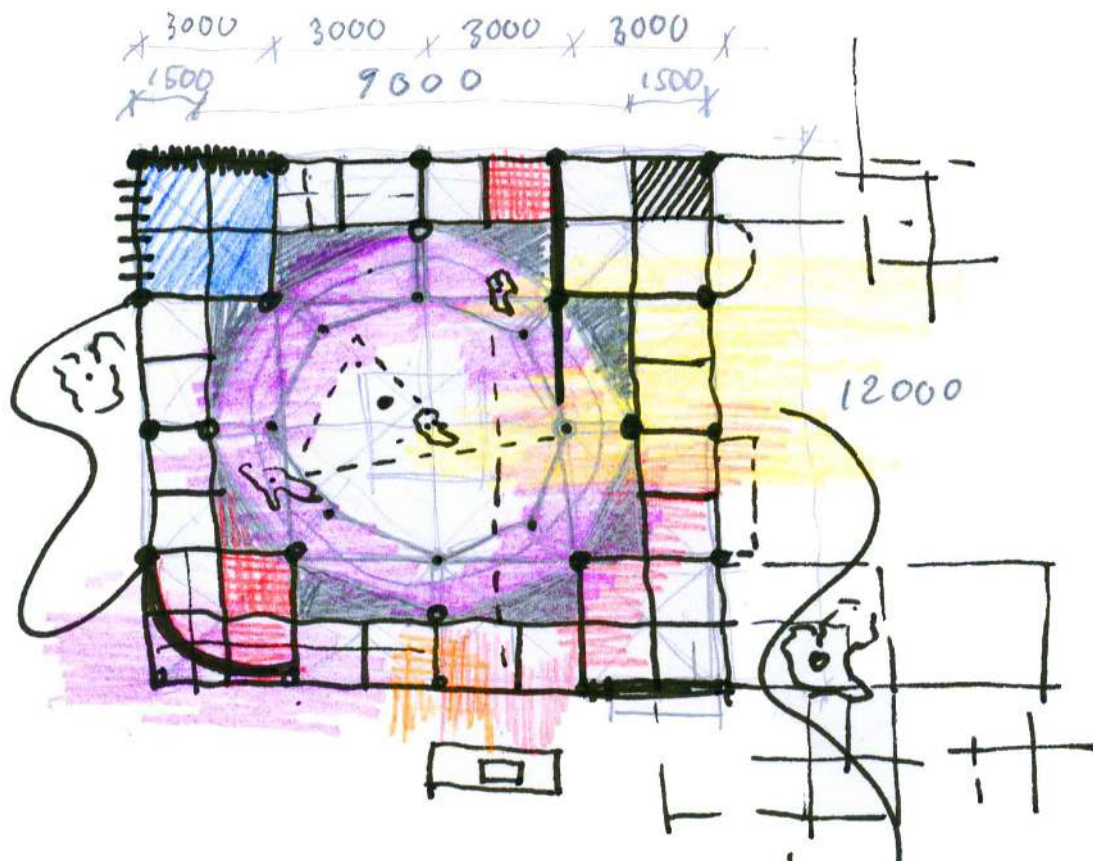


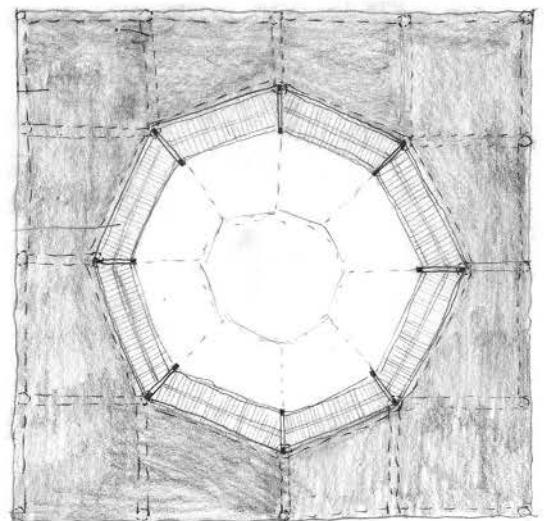
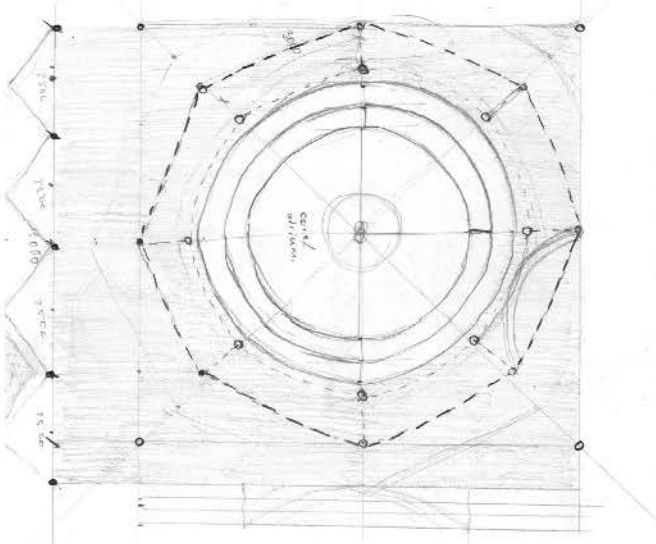
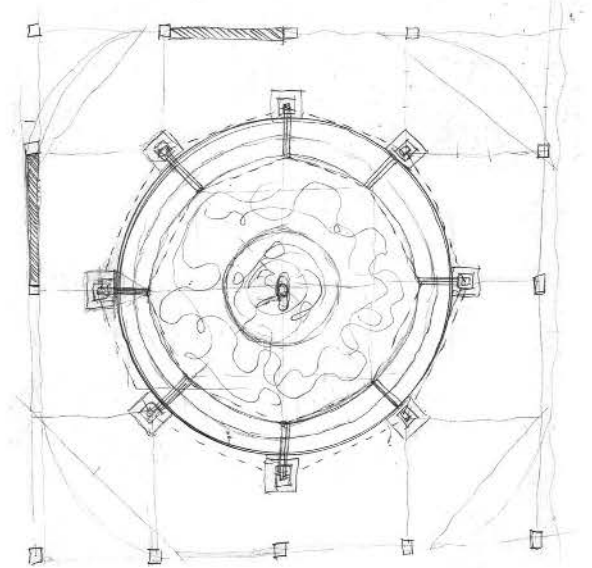
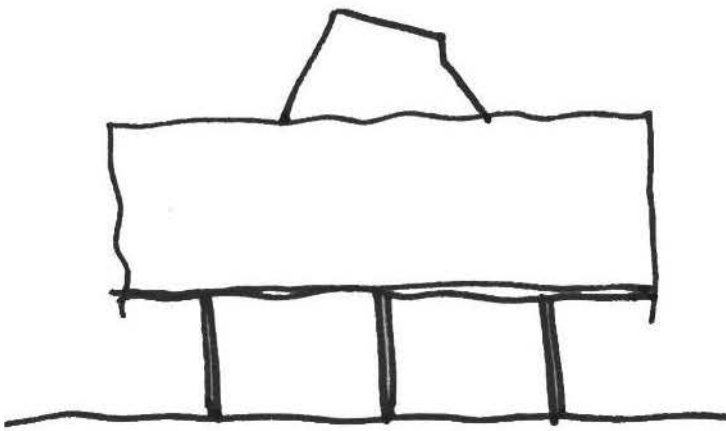
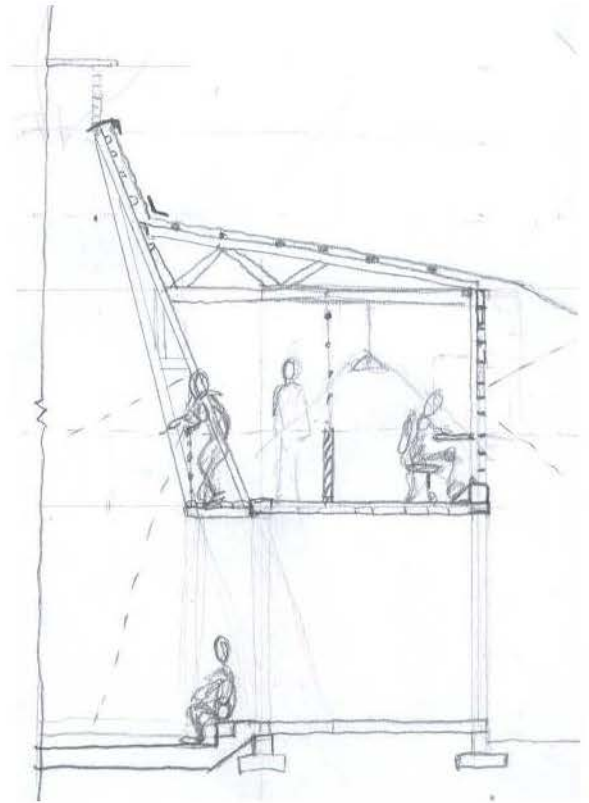
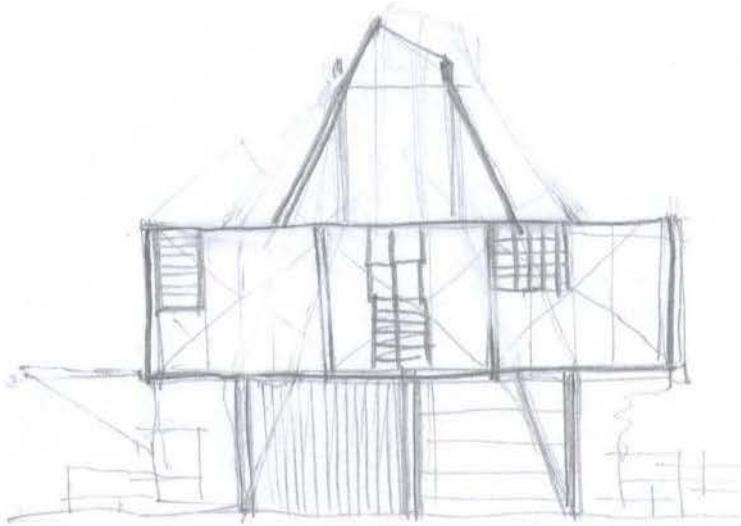
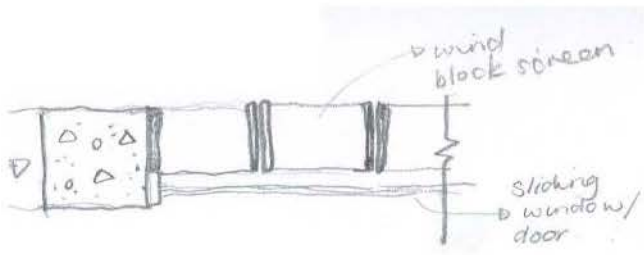
In order to densify activity (Brillembourg, 2016), from the outset this prototype for an informal educational space would comprise of a double story structure where its parts could be adapted to different sites and allow for incremental growth.

The drawings alongside illustrate several of these initial design strategies.

*Institutional arrangement:*

Operationally, the activities in this space would need to be facilitated by a NGO or volunteers within the community. Provision of the structure could be by means of the Department of Social Development or privately funded.





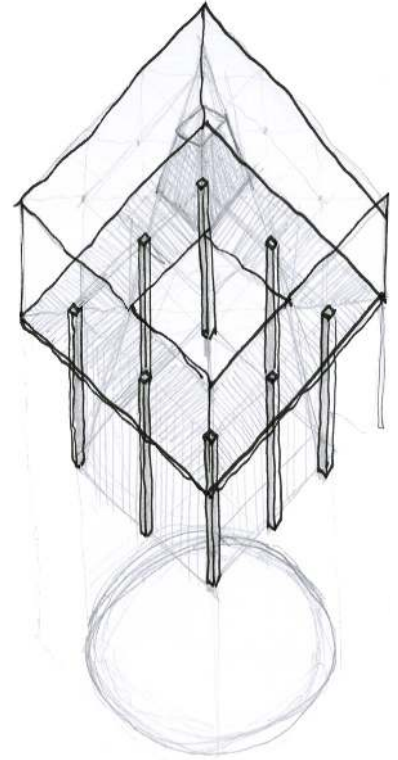
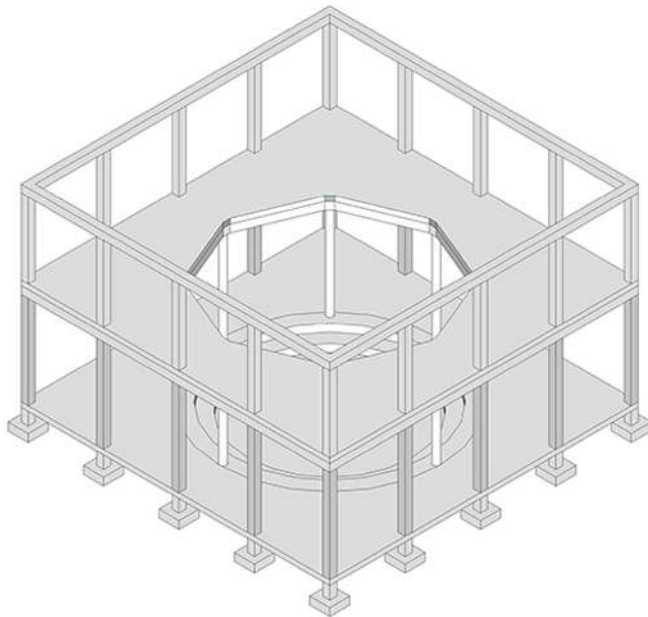
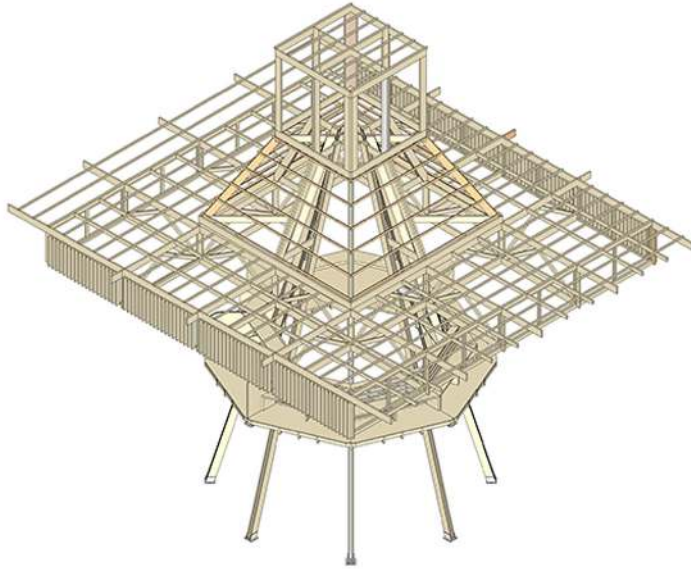
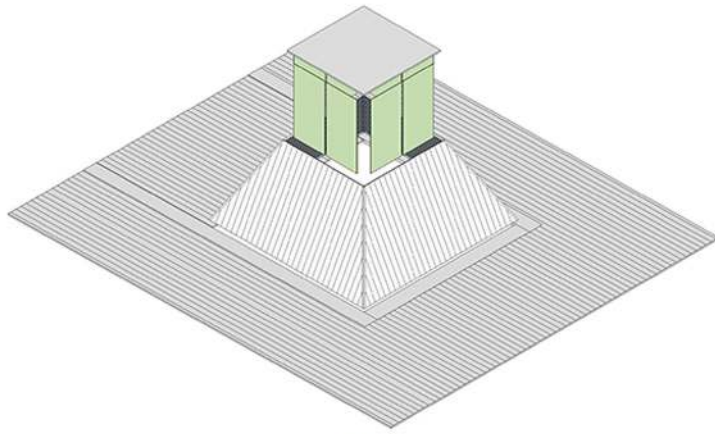
## Stories Centre | Spatial Configuration, Form and Programme/

The previously stated initial creative work and inspiration culminated in the formulation of the ‘**Stories Centre**’ (Prototype 1). It is characterised as a regular, double story concrete framed structure, where the ground level adheres to the need for **multipurpose learning/teaching space for the community and the upper for individual-centred modes of study**. This “stacking” of programme densifies activity and denotes a commitment to an efficient use of available floor area in a context where “space is a resource” (Noero, 2002). More needs are met with the same occupation of ground space. The intention is that spaces/components added to this core (present-day or future) incrementally should complement and support these programmes.

### *Programme and Form*

A driving feature of the design is the *flexibility of programme*. In a context where resources are limited spaces need to accommodate a multitude of activities - the anticipated and mundane as well as the unimagined and unpredictable (See Figure 08).

The aforementioned is a challenging undertaking for a designer - allowing for the seemingly infinite uses of space in the Informal City and an undefined programme, regularly foreign to its programmatic intention. Consequently, the use of strikingly rigid geometries and “Archaic Space” (Noero, 2017) is employed to facilitate the myriad of activities constantly at play in the dynamic and complex South African Township.



*small group study, quiet learning, homework support, reading room, social space, consultations, mentoring...*

upper level

*storytelling sessions, small performances, reading workshops, seminars, council meetings, community gatherings, debates, spelling bee competitions, marimba recitals, lectures, playgroups, choir practice, ...*

ground level

*individual-centred activities*

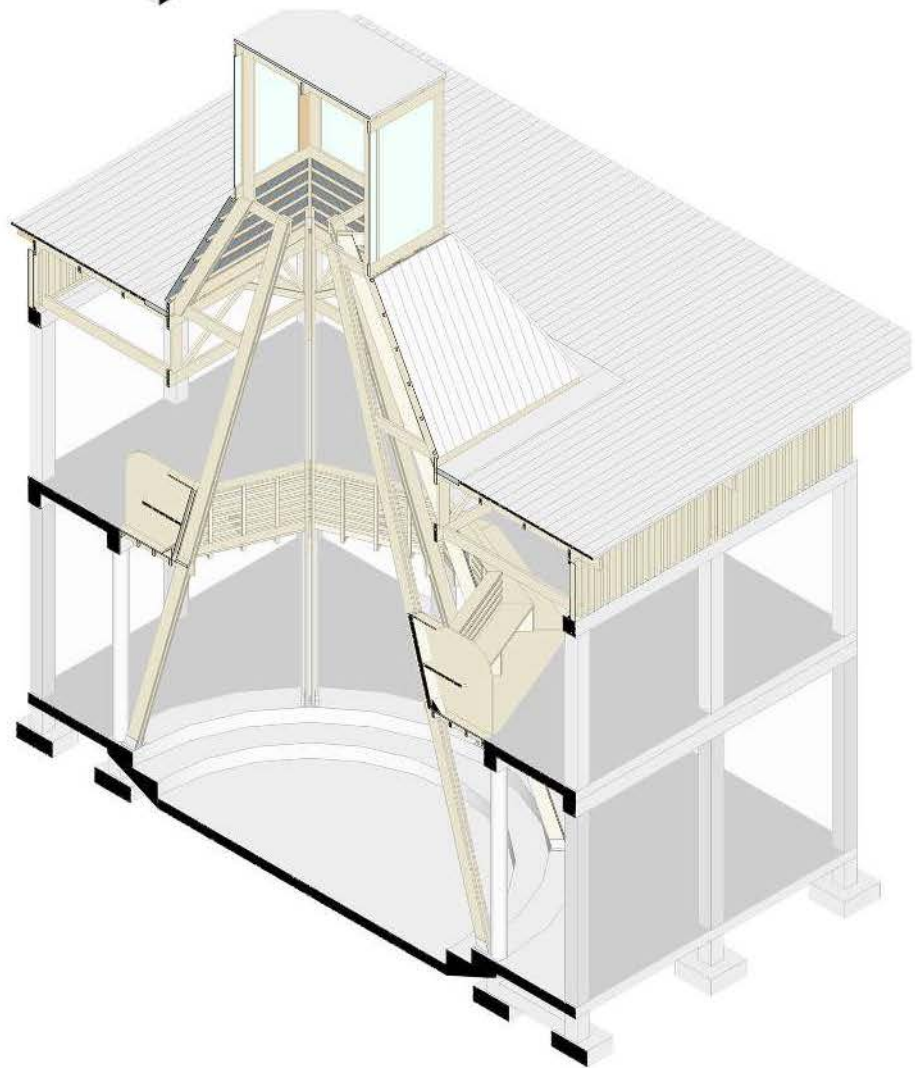
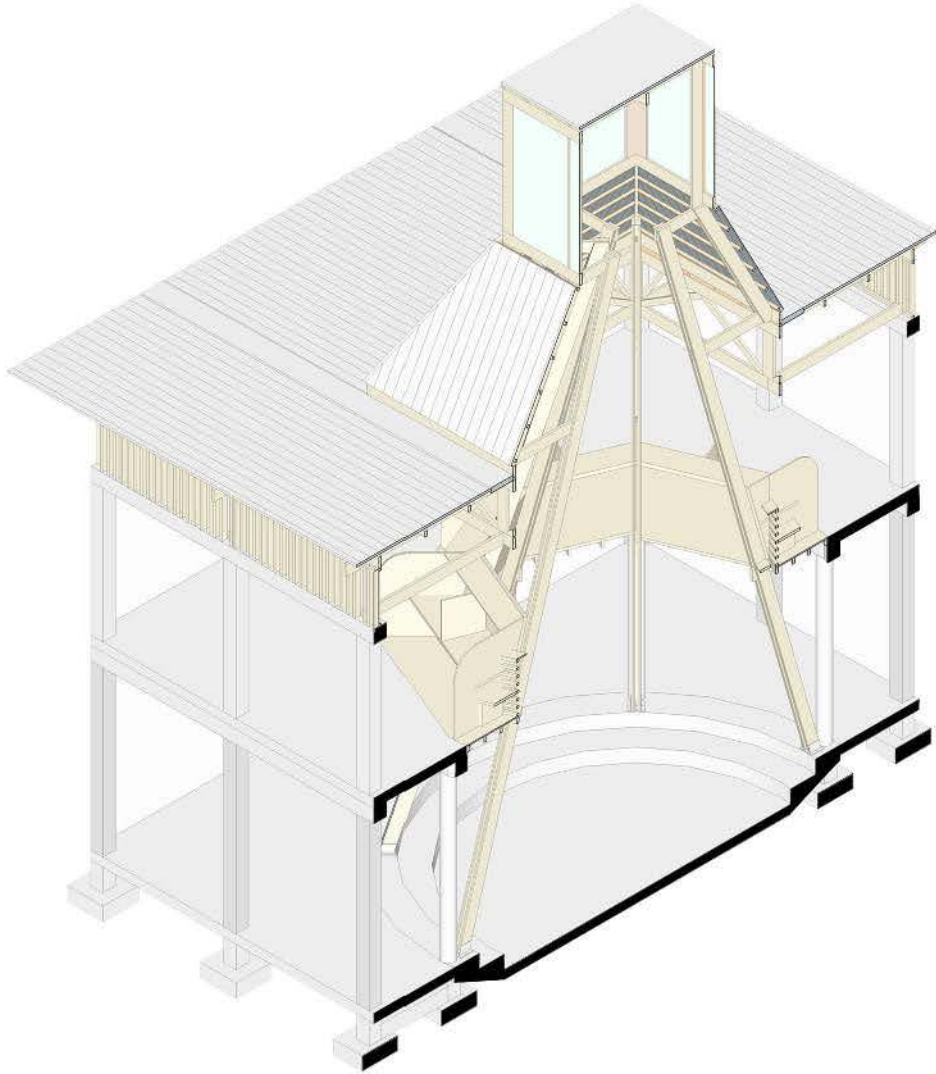
*group related activities*

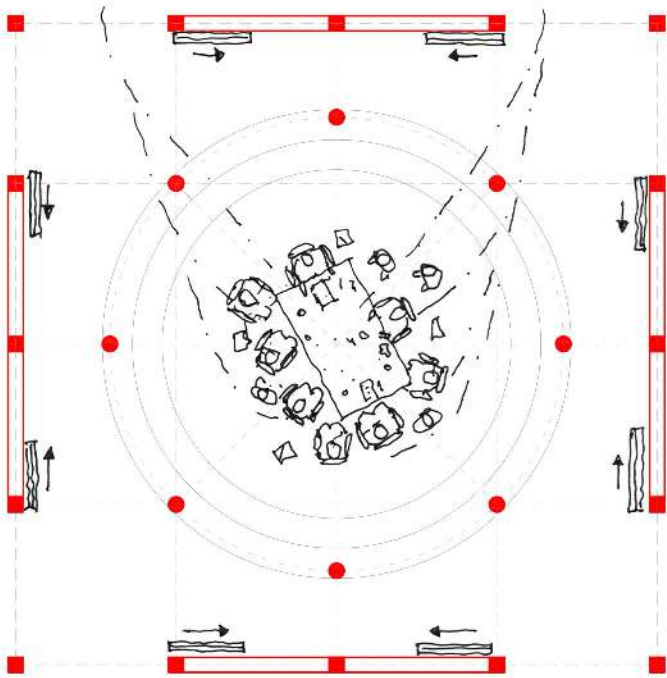
Stringent geometries solicit an implied layer of formality a condition of intense multiplicity while concurrently allowing is unpredictability to flourish. It is in this regard that the chosen form arose from the need for flexible functionality, mirroring Noero's belief in an "intrinsic relationship between programme and form" (Noero, 2002).

On a side note, the square form is sensitive to the library building on the park site, which is also square in plan. Moreover, it makes for a regular core that allows for easy additions to this prototypes.

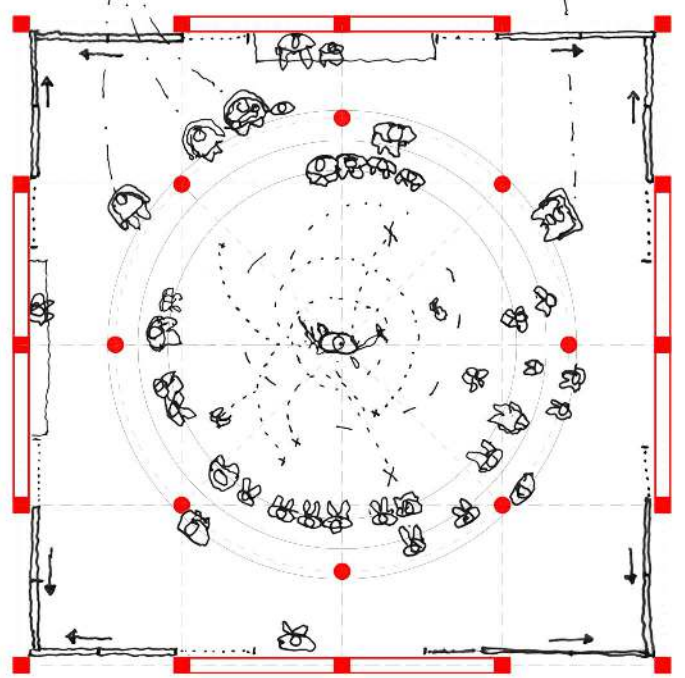
Considering that the ground level is for more social modes of educational happenings that are verbal, interactive, vibrant and collaborative a form that would enhance this experiece was chosen - the circle. There is a lack of heirachial order in the space as it kept neutral. Some possible group uses could be seminars, meeting, lectures, group reading, performances, recitals, debates, playgroups - the posibilitirs are seemily endless.

The circular space on the ground floor is negotiated by an octagon on the upper level. This makes buildabilty easier as well as a space that is geometrically appropriate for more individual modes of studying. (extra lessons, one-on-one tutoring, etc.). Comfortable study nooks and seating (assembled timber panels) can be easily installed on this level with linear geometries (as oppose to circular or curved edges).

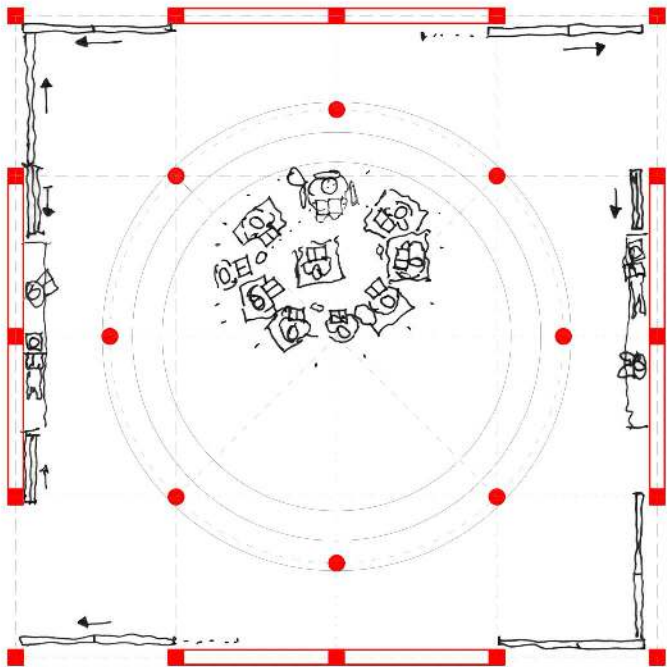




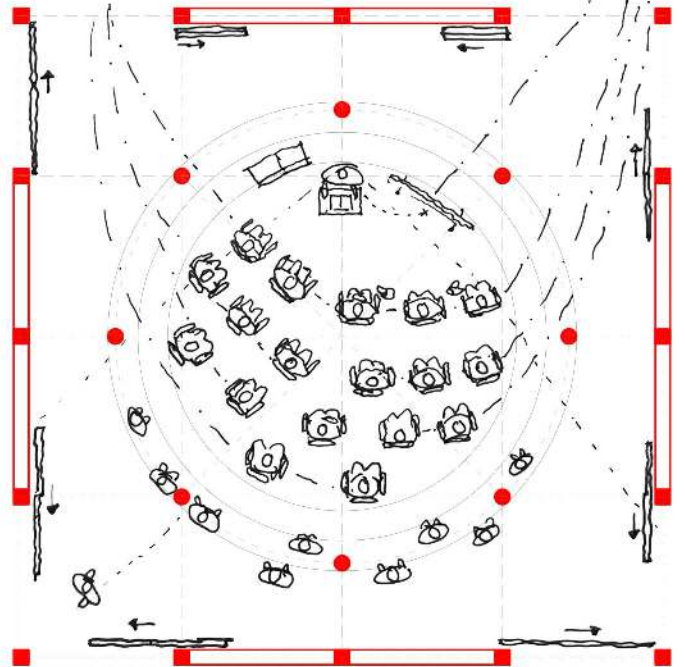
1



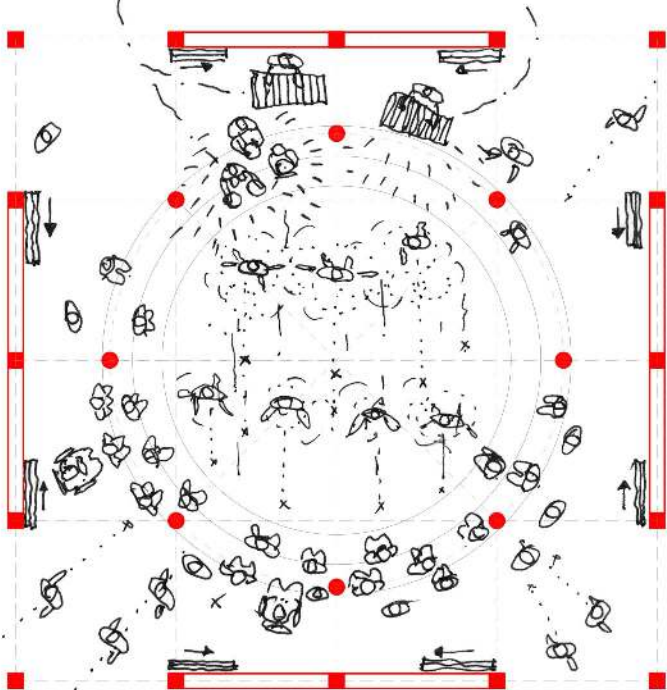
2



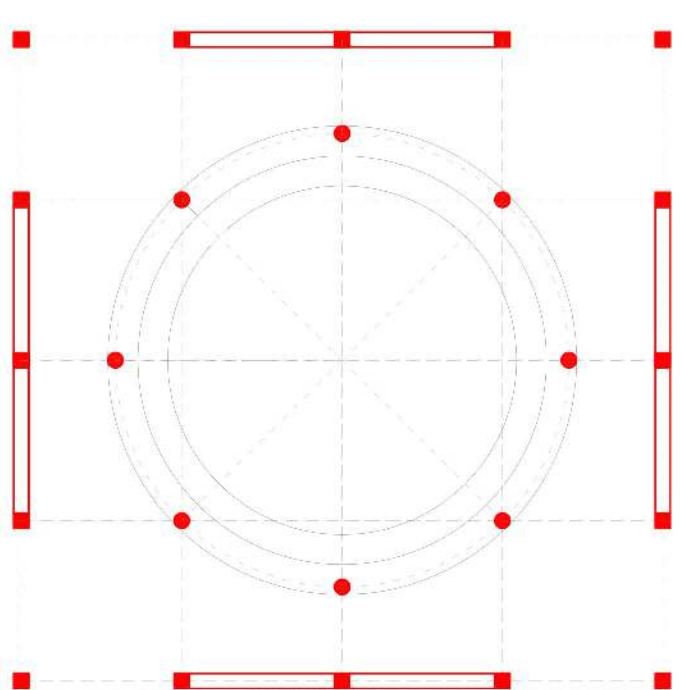
3

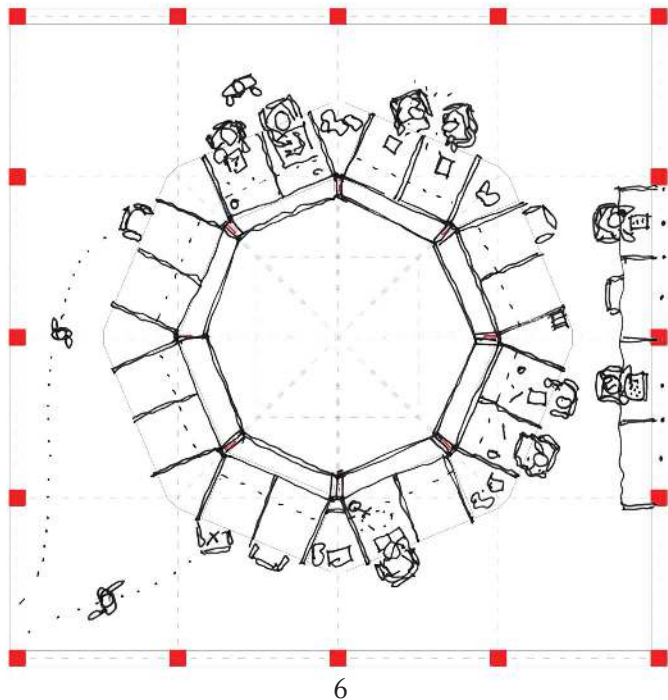


4

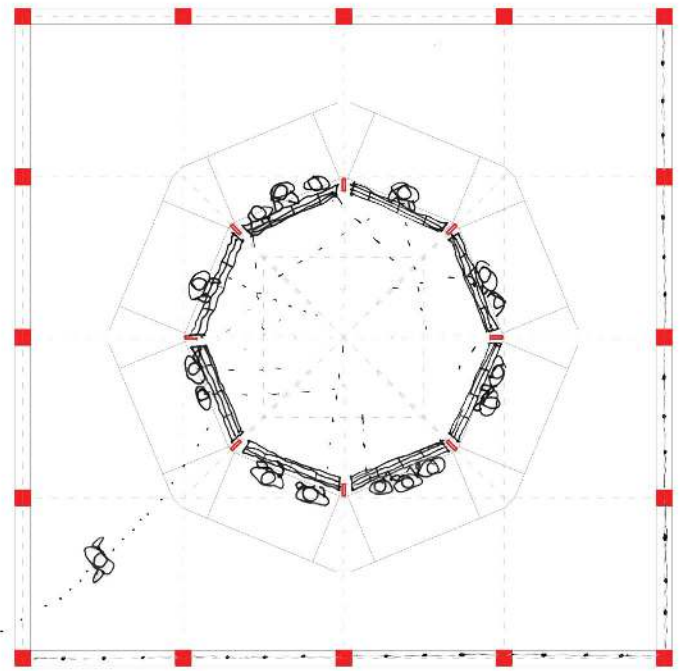


5

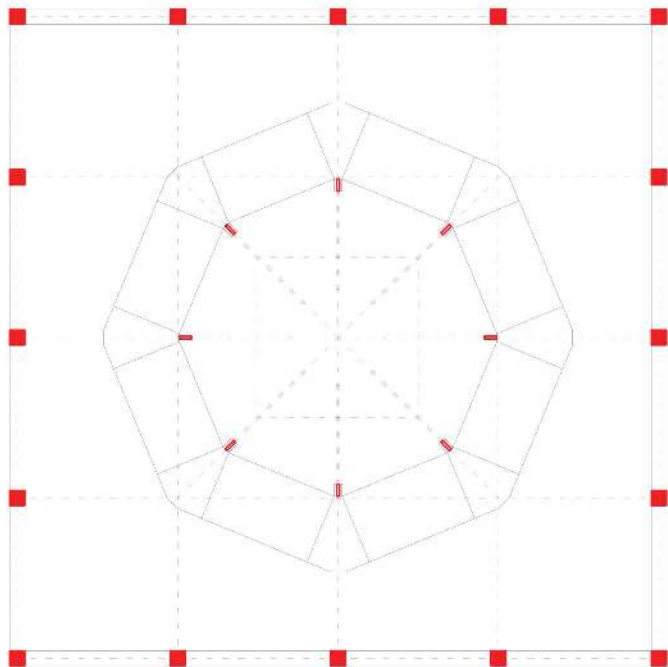




6



7



8

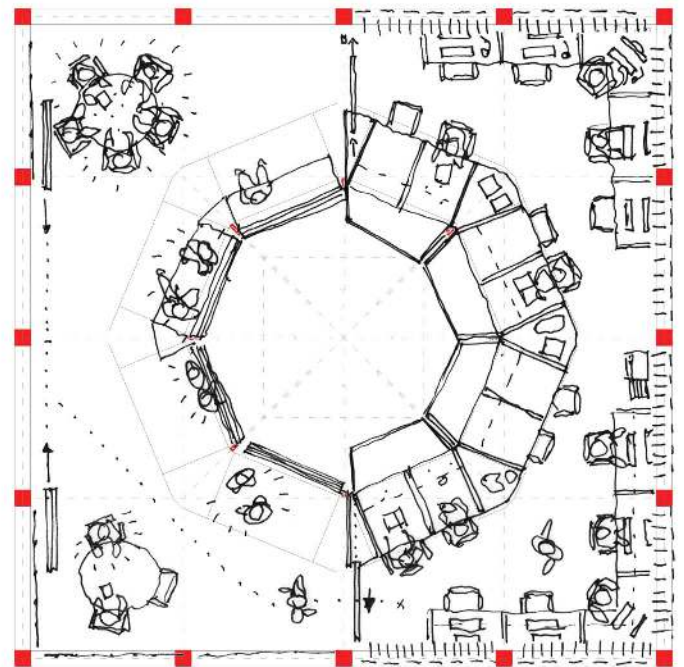


Figure 08: Inhabitation studies of the Stories Centre depict how this fixed space will facilitate many different activities. Its uses are unbounded and its programme is undefined.

#### Ground Level:

- 1 - a community meeting
- 2 - a story telling session
- 3 - a reading workshop
- 4 - a lecture
- 5 - a dance and marimba recital

#### Upper Level:

- 6 - a series of study nooks
- 7 - a place to view into the space below
- 8 - a combination of the two

## Stories Centre | Scale and Urban Presence

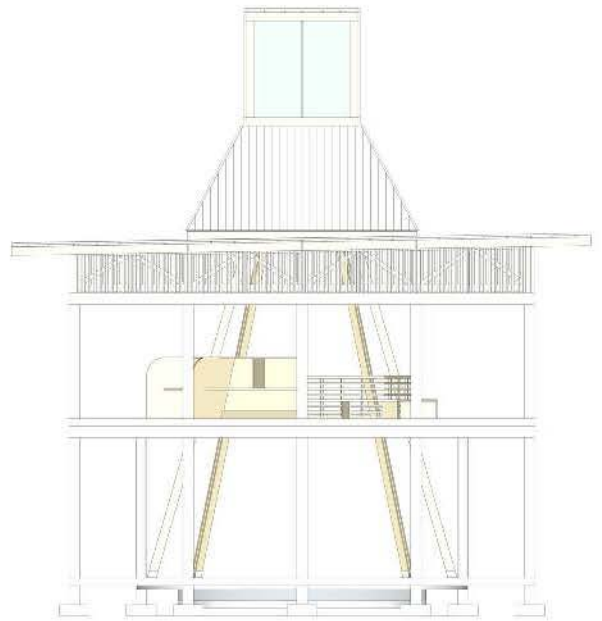
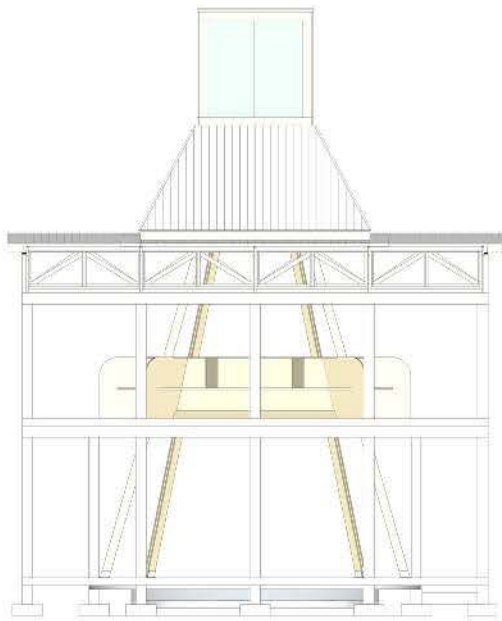
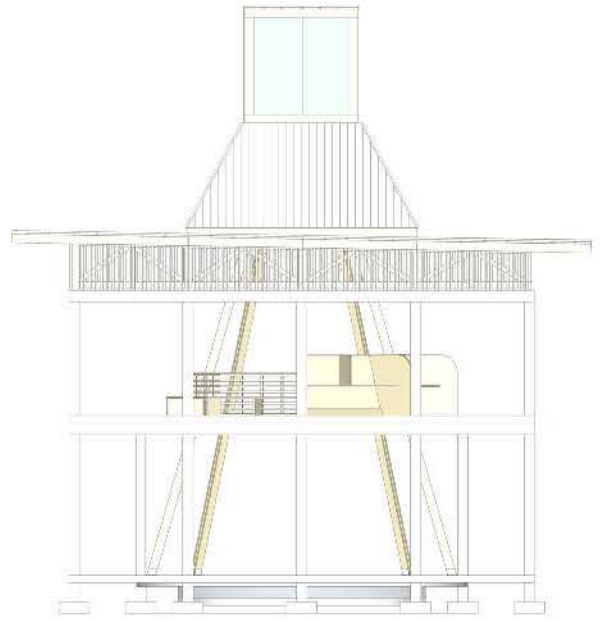
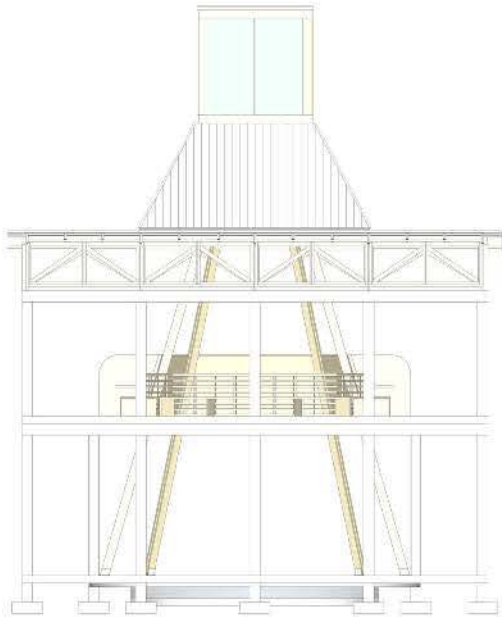
The need for space of an intermediate scale restrains the volumetric proportion of the form. Working off a standard 3000x3000x3000mm (l x b x h) dimension the building is moderated to an inherently human-centric scale.

These dimensions are by no means fixed - for example, the ground level soffit height is increased to 4000mm to allow for housing of services in anticipation of future expansion and to celebrate the more publically occupiable of the the two floors - this will often sit adjacent to an existng public space - street, park, etc.

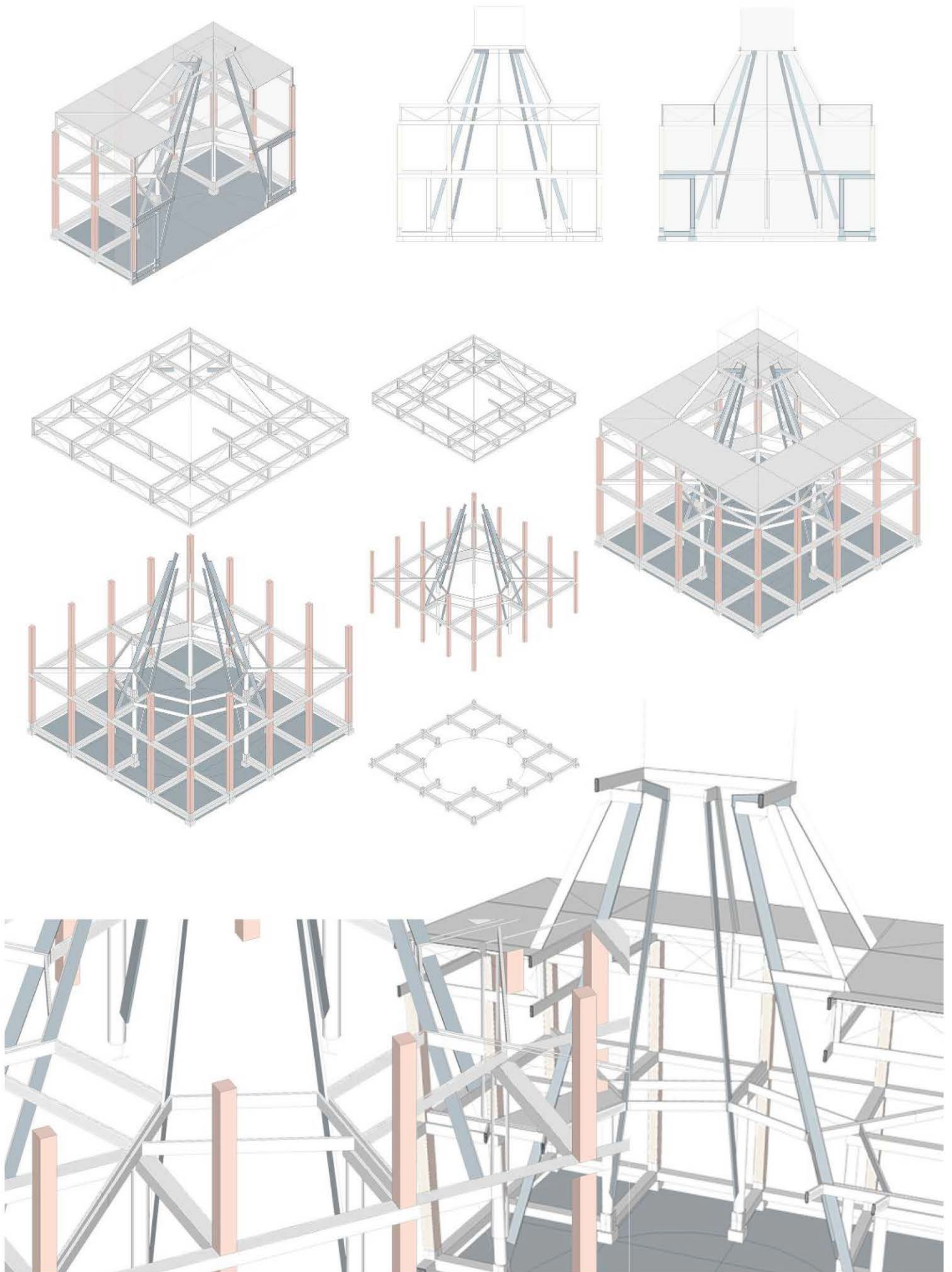
The prototype has a square footprint (12m x 12m) and only takes up a surface area of 144sq/m. It is in this regard that it presents an intermediate scale of public enclose space. From the fieldwork it was evident that there is an abundance of largescale mix-use space in public buildings (Masikanye Hall and the Sports Centre) as well as small "room scale" spaces - their is a lack of a space inbetween these two scales.

In relations to its context, the Stories Centre has a elevation height of about 9m (3 stories) thus emphasising its vertical scale and urban presence.

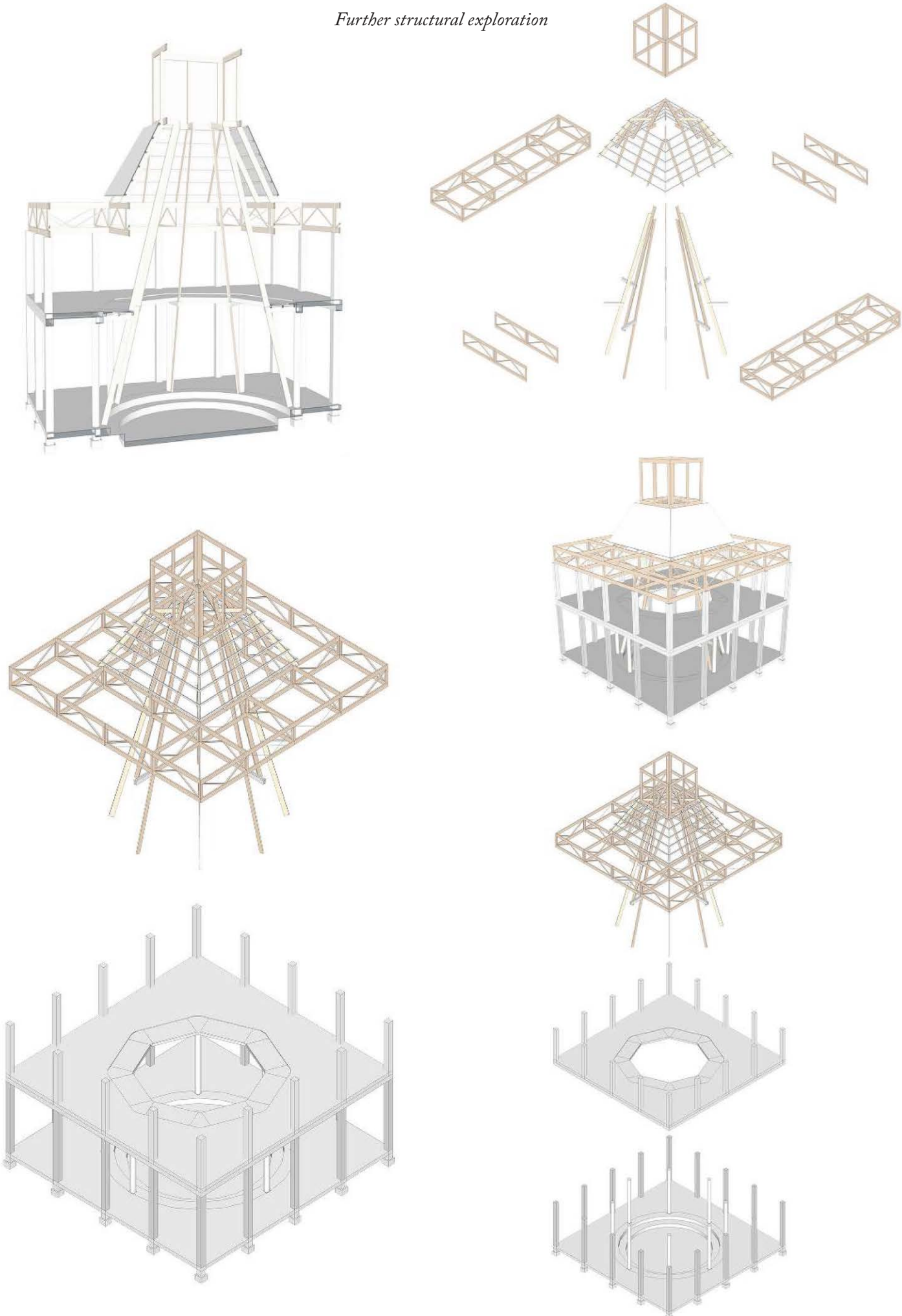
The tectonic scale of the construction components utilised standard dimensions where possible. All timber beams, concrete columes, infill heights and widths, seating works off conventional dimension to allow for easy construction.



*Digital modelling was used as a design tool in developing the structure of the prototypes*



*Further structural exploration*



## Stories Centre | Structure, Materiality, Construction

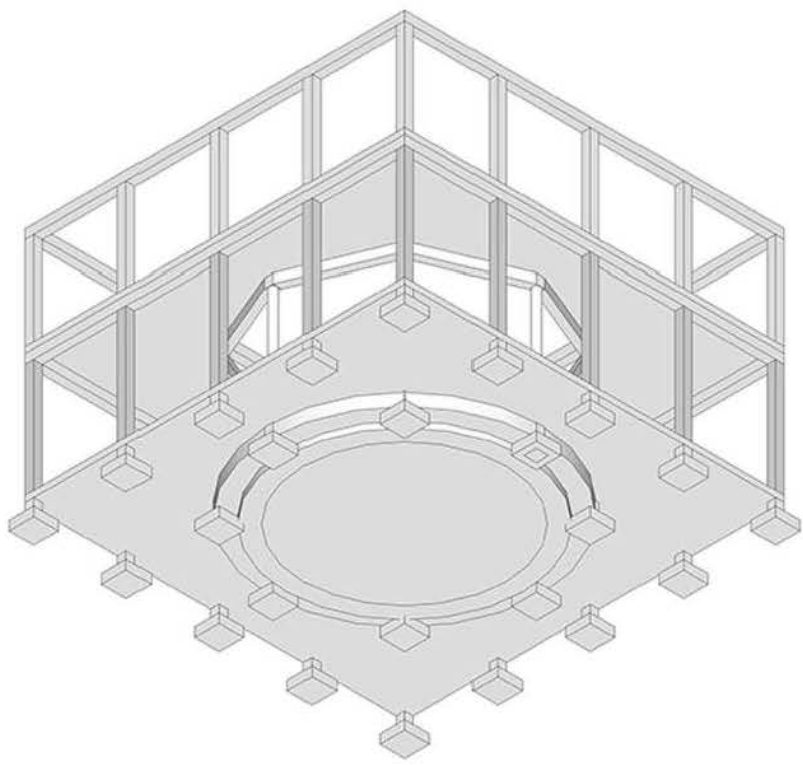
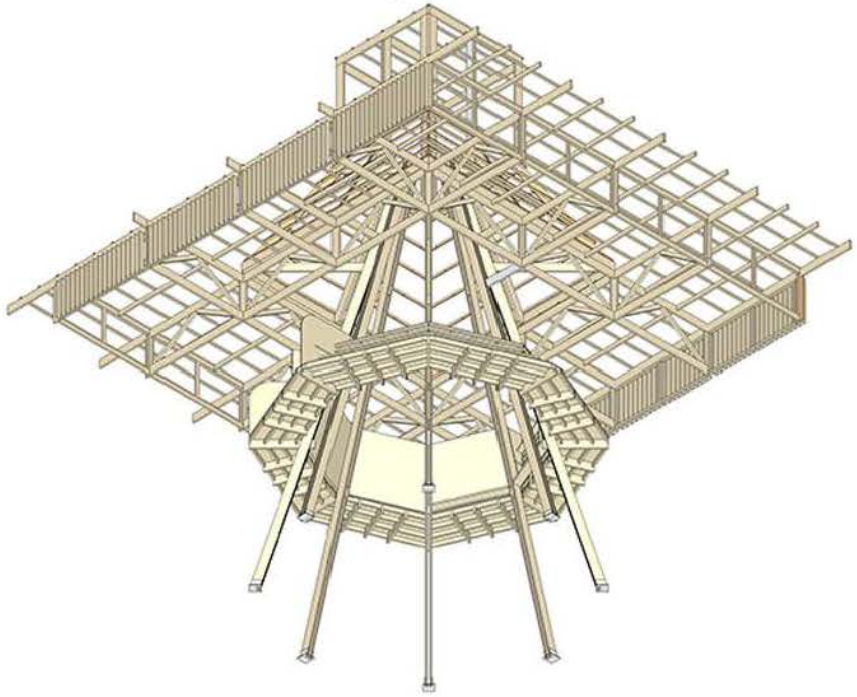
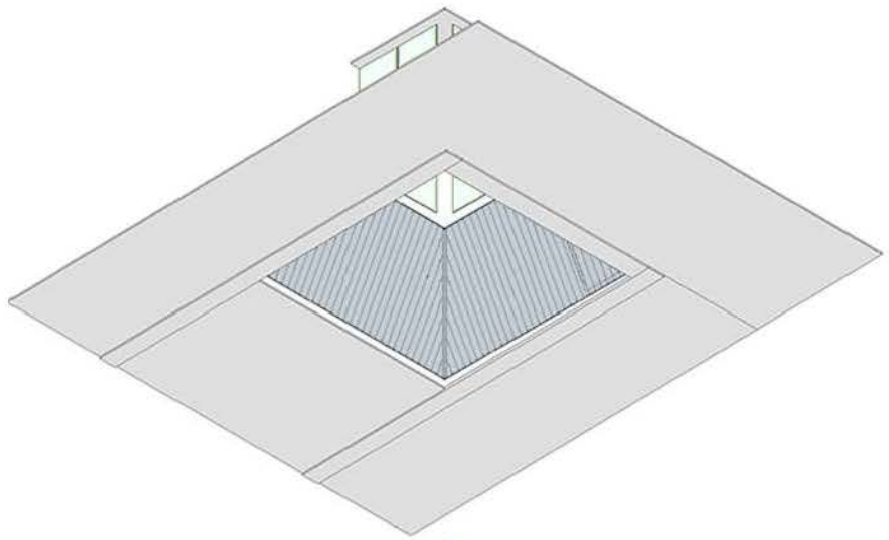
Working within the parameters of **standard materials and construction practices** ensures financial feasibility of the replicable structure in conjunction with the certainty local personnel can be included in the construction process. Most of the final product can be locally produced.

The primary material palette of the basic structure (without specific infill materials for the particular site) is **in situ cast reinforced concrete (RC)** and conventional assembled **timber** beams - both of which are done on site. Highly specialised subcontractors are limited in this regard.

Over and above being the programmatic and spatial heart of the building, the Stories Centre is conjunctly the **structural core**. The use of reinforced concrete (RC) provides a rigid bracing for attaching elements for future development.

Deep downstand beams allow for greater versatility and ease for extensions (spaces, components, elements) to fixed onto the existing Stories Centre (timber, steel, brickwork etc.).

The RC columns work off a 280x280mm plan dimension allowing for the voids to be filled in with conventional brickwork cavity walls should it be an exterior facade. This industry norm accommodates many standard infill elements (windows, doors etc.).

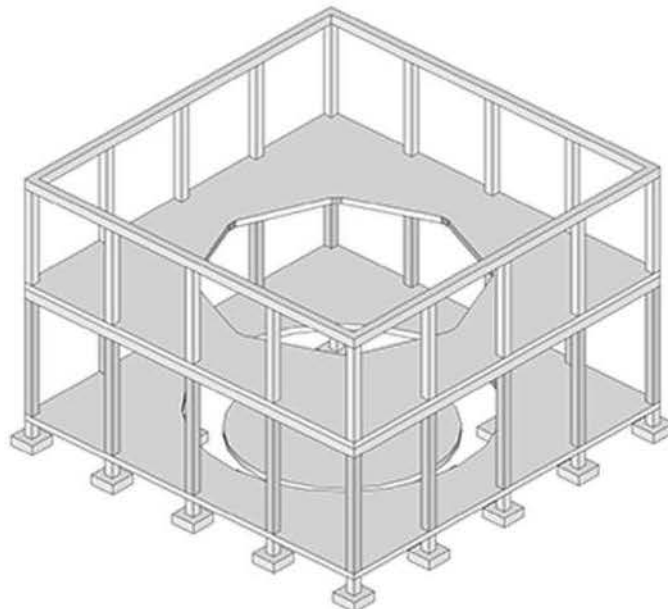
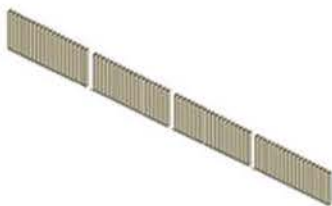
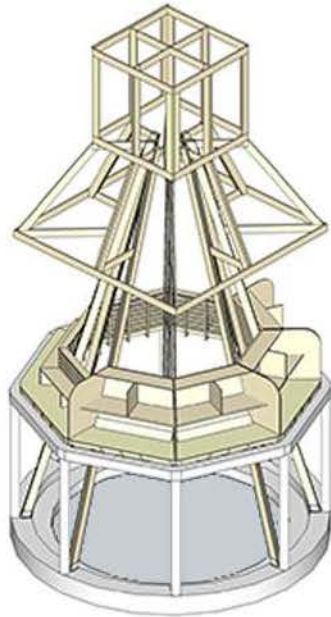
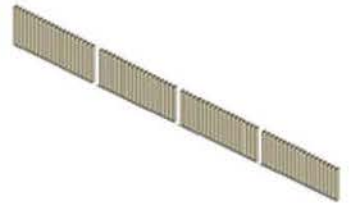
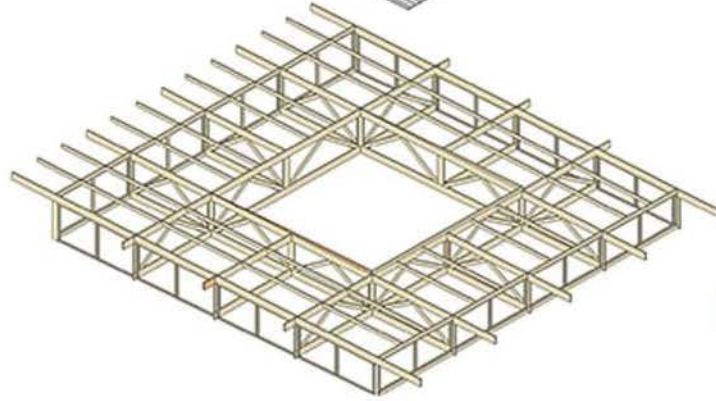
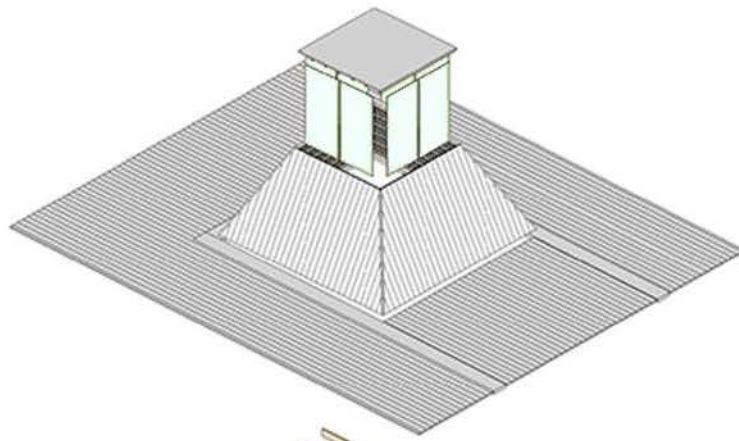


A celebratory and intricately assembled timber “atrium” slots effortlessly into the rigid concrete frame. This much needed juxtaposition transforms a practical but stark space into a comfortable, humane and welcoming learning and teaching space. The challenge was to use standard timber member in an interesting way to create a new spatial experience for users.

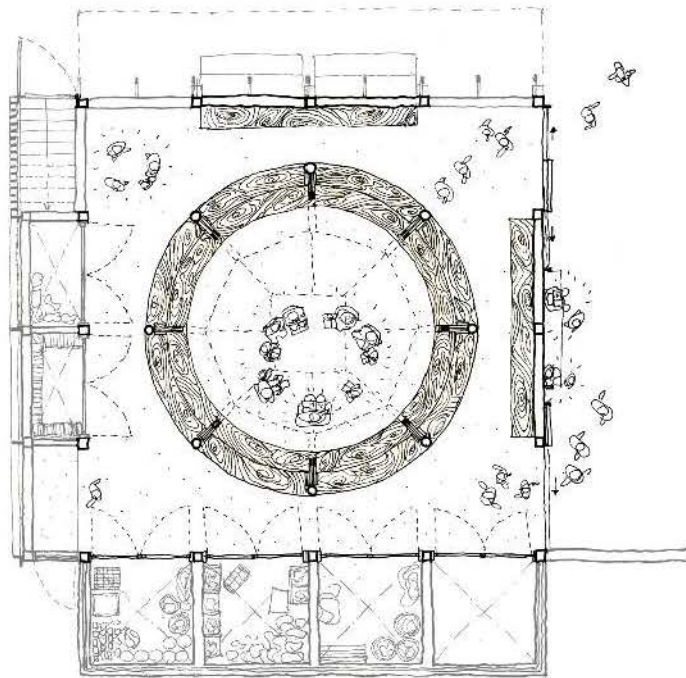
The prototype seeks to reveal the construction methodology and components through its aesthetic appearance. The building thus becomes a didactic space for inhabitants. The objective is that community members will be exposed to good practices of building and transfer this knowledge to the construction of their own dwellings (Noero, 1994). The building itself becomes an educational object in its own right.

Arguably there is an over-allowance of structure in the Stories Centre, however it is through this approach that a greater degree of flexibility and adaptability is granted. It is a worthwhile investment in the present to facilitate develop for the future. Catalytic growth should start with meaningful intervention (Urban Think Tank, 2016) (VPUU, 2015).

Moreover, this prototype is suggestive of a strategy that can be reconfigured and changed in accordance with the needs of many sites. Elements may be changed, replaced and retrofitted. For example the number of columns can be reduced, it can be scaled up or down, heights can be changed, the material palette might differ depending on availability, one facade might cease to exist and rather be part of an existing structure.



## Ground Floor Plan | *a Space for Group Learning*



storytelling sessions

small performances

reading workshops

seminars

council meetings

community gatherings

debates

spellingbee competitions

marimba recitals

lectures

playgroups

chior practice

First Floor Plan | *a Space for Individual Learning*

100

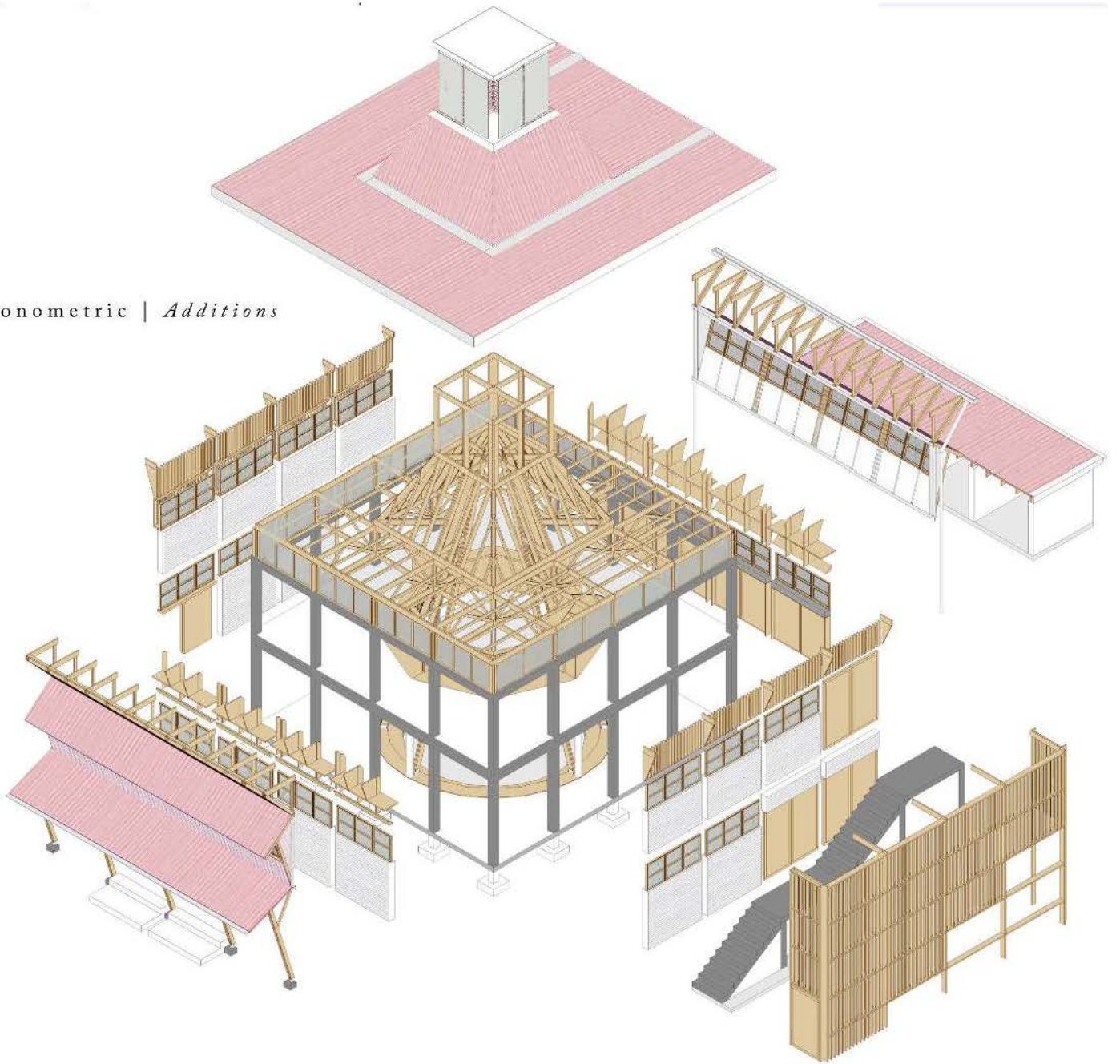


small group studying  
quiet learning  
homework support  
reading room  
a social space  
one-on-one consultations

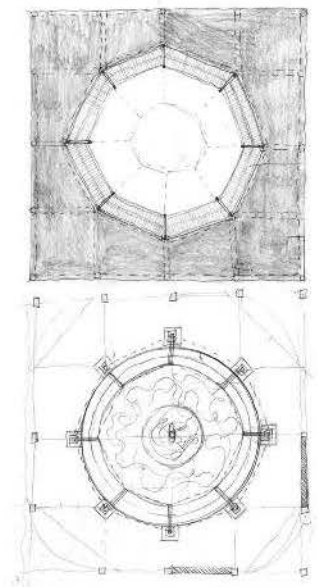
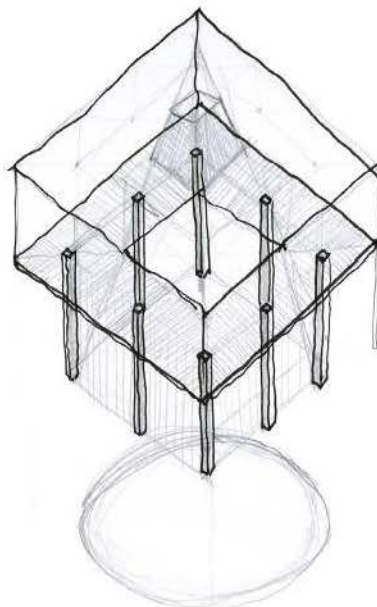
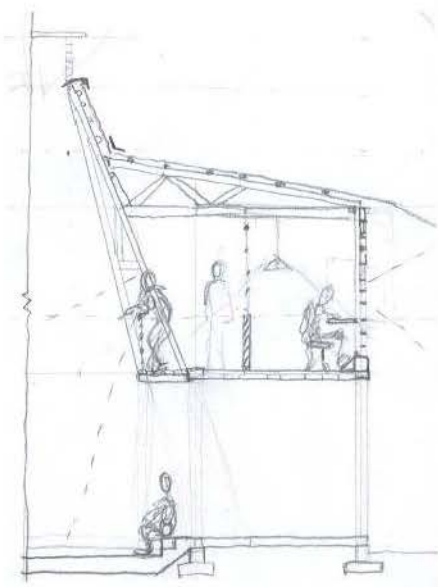
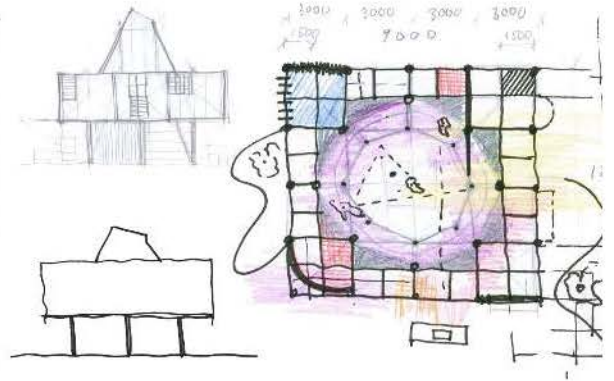
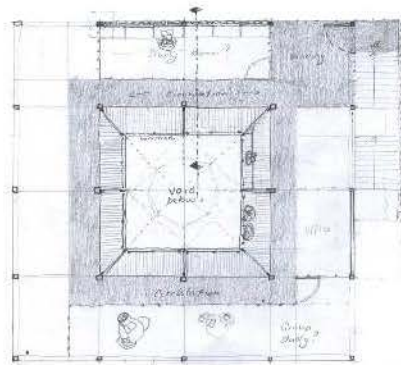
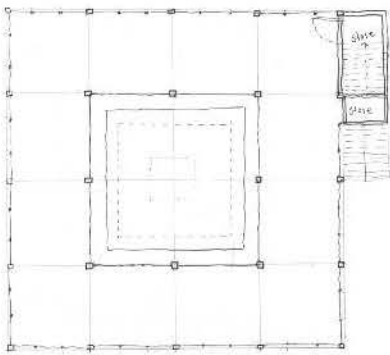
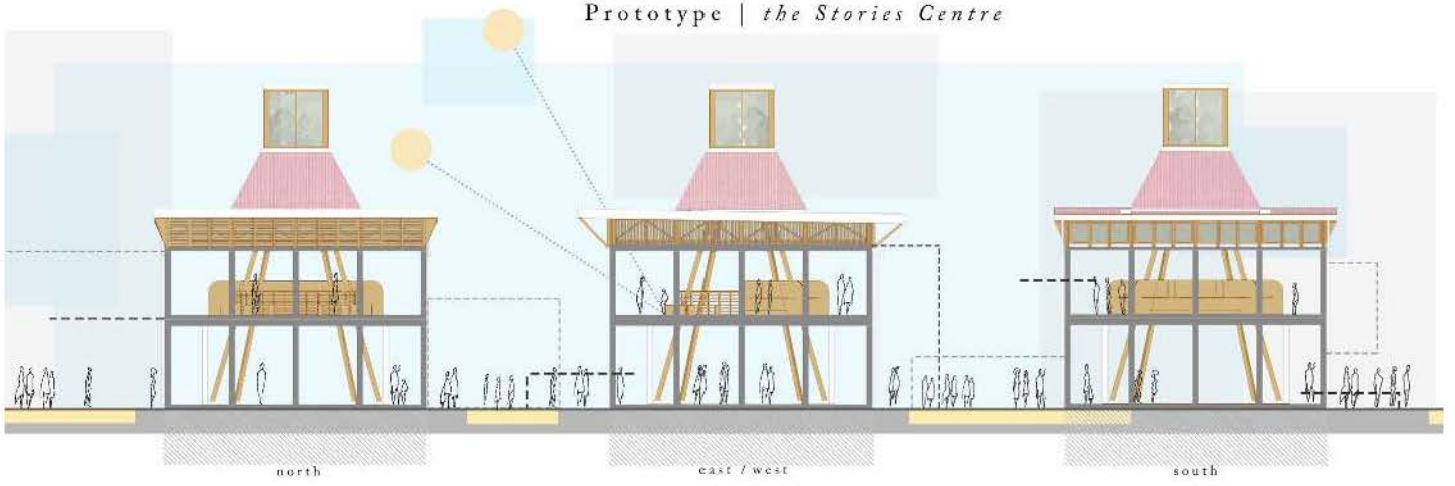
individual-centred  
activities

group-related  
activities

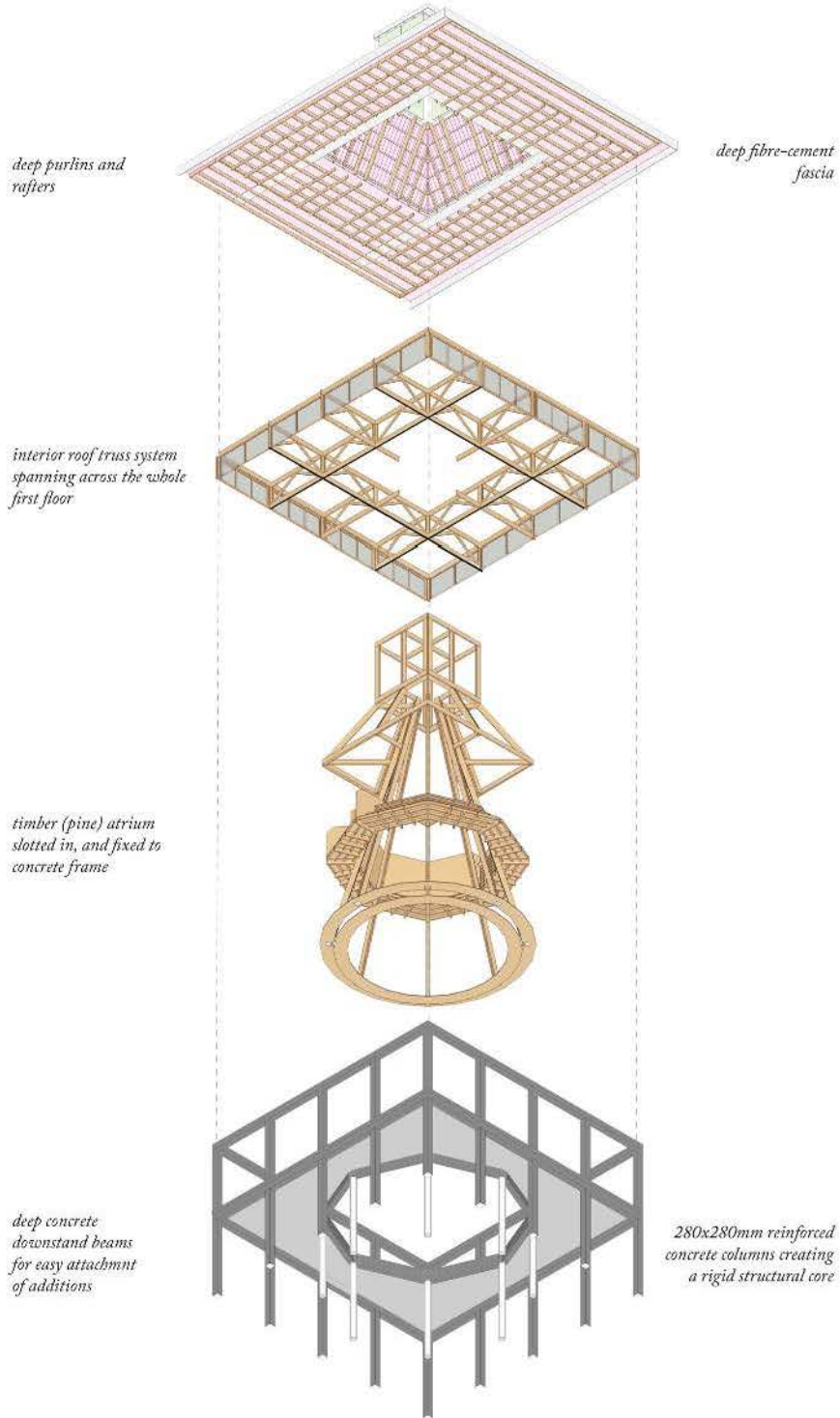
Axonometric | *Additions*

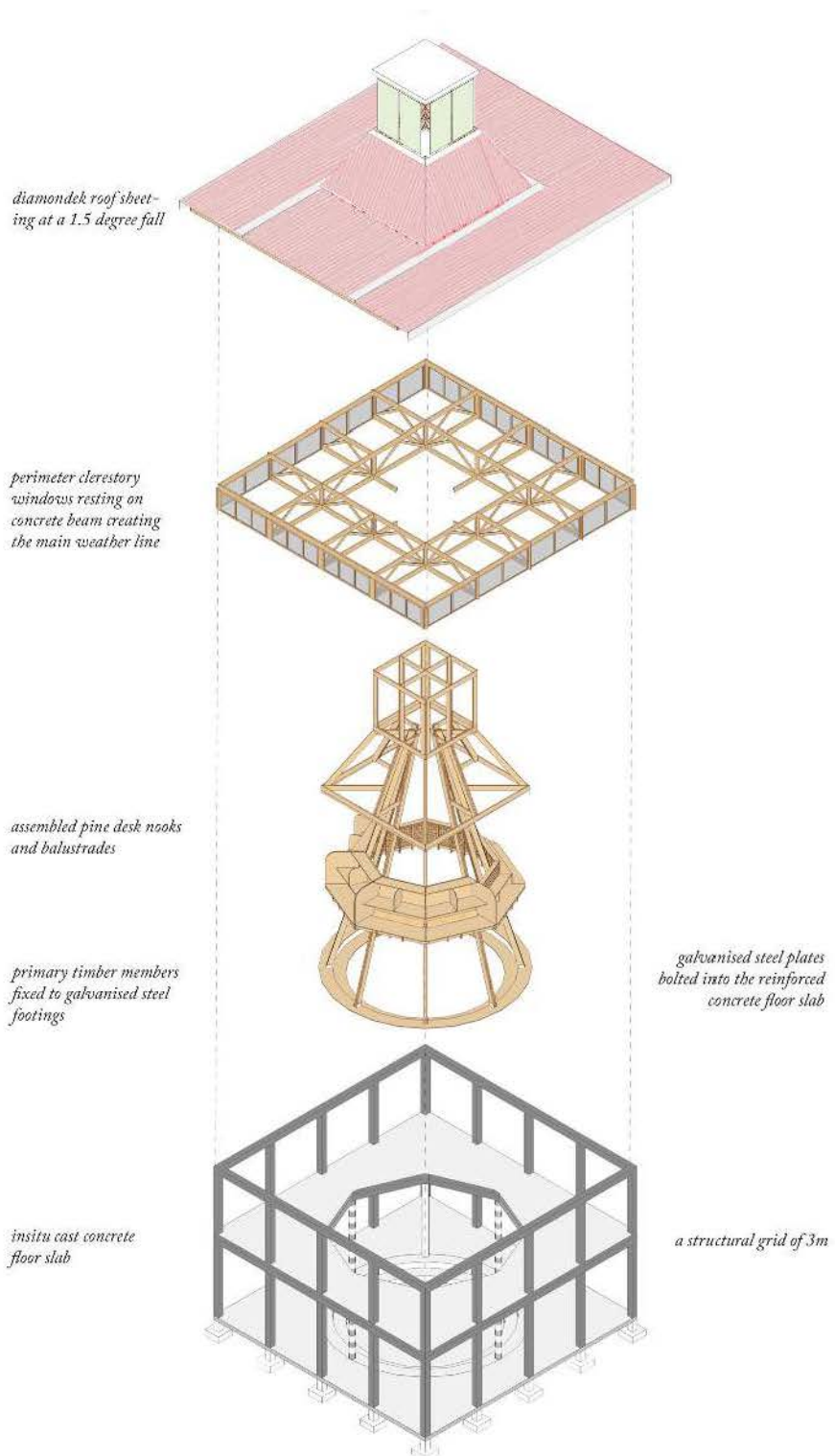


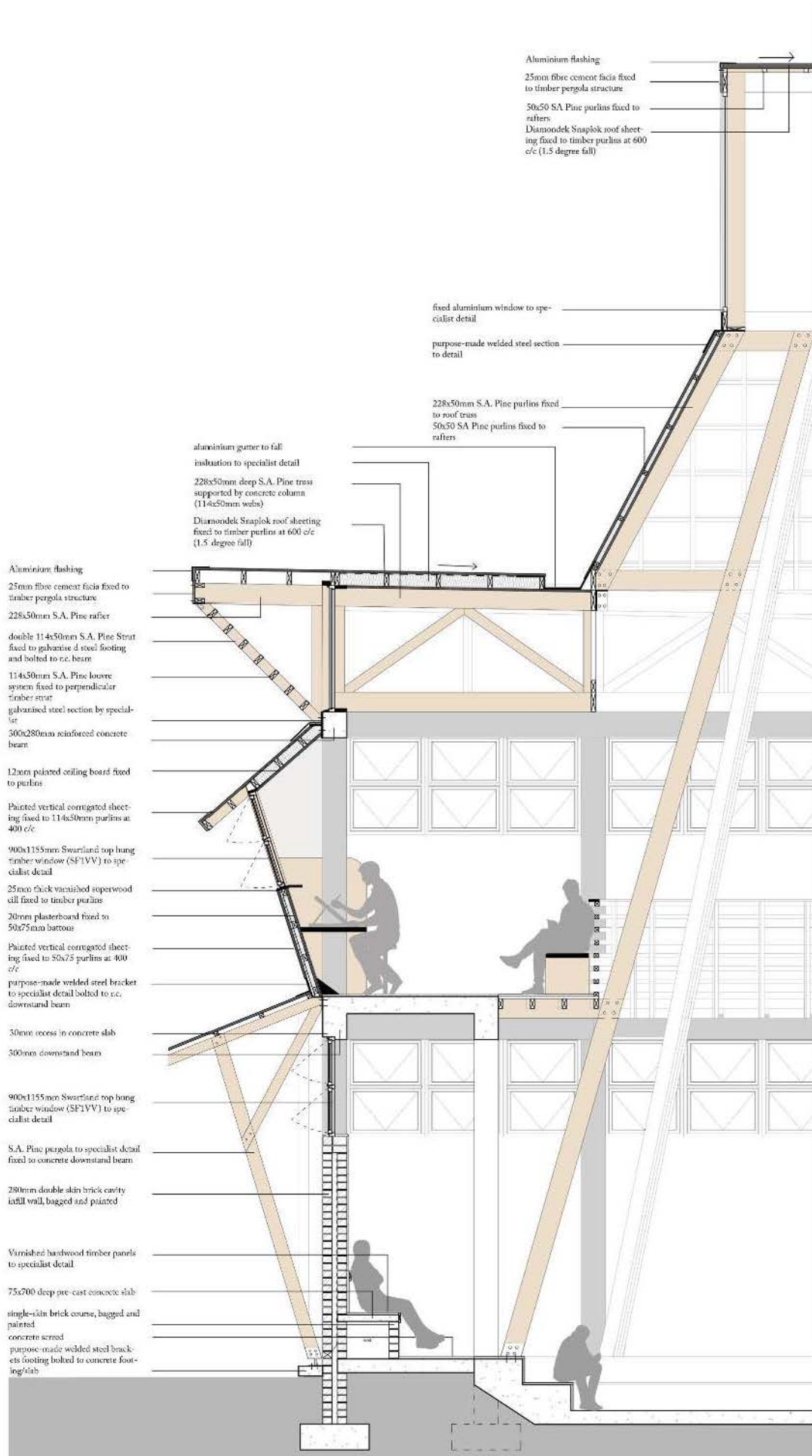
Prototype | *the Stories Centre*



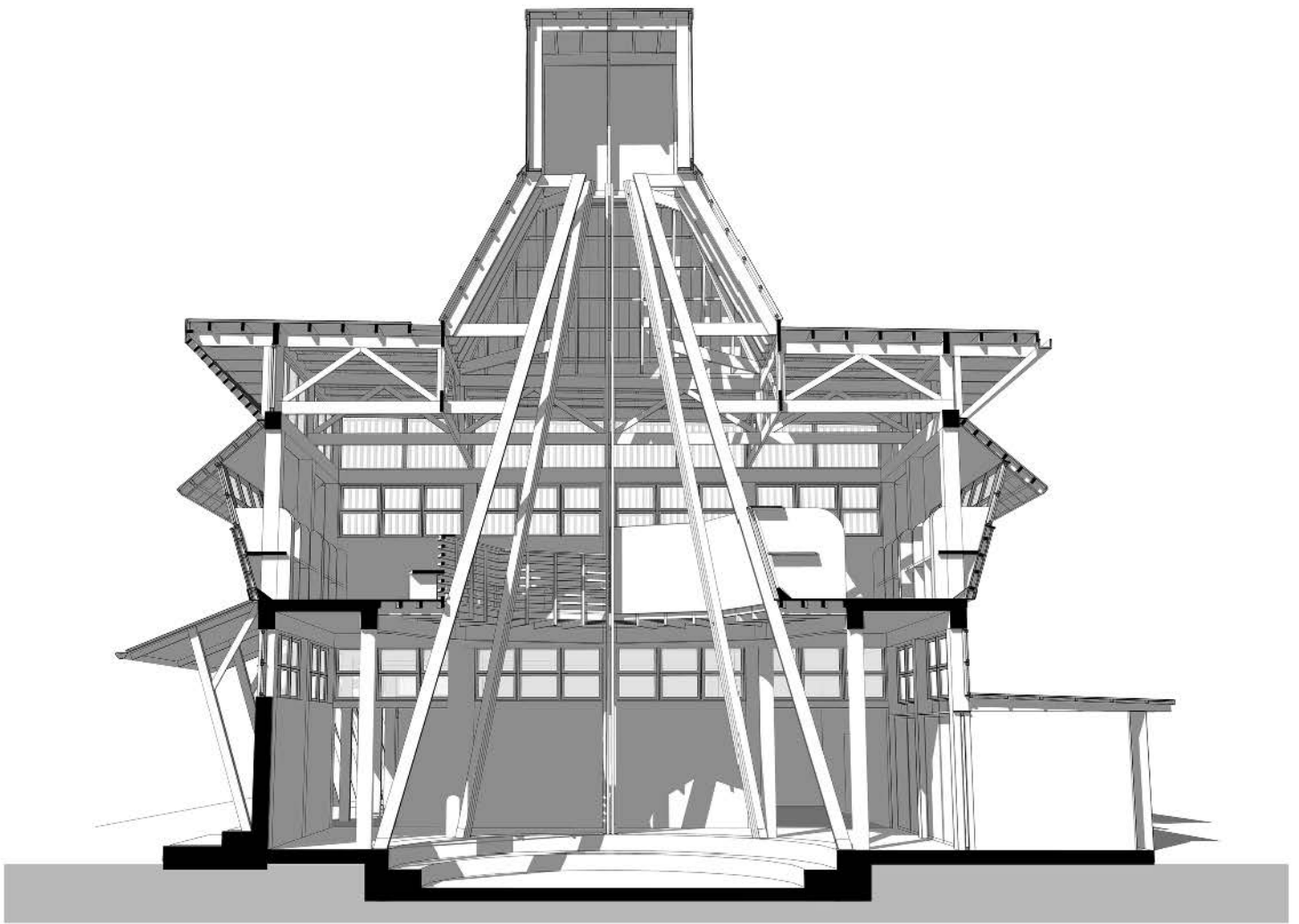
The Stories Centre | Key Tectonic Components



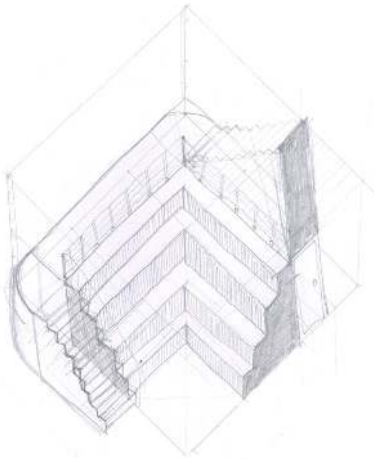




The Stories Centre | *Sectional Perspective*

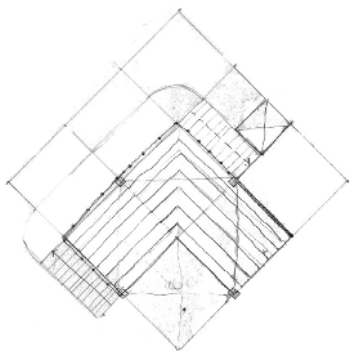


## PROTOTYPE 2 | THE LEARNING STAIRS



The conception of a double storey Stories Centre (SC) called for a means to get from the ground to the upper level. Particularly when the SC is incorporated into a larger public building, a more celebrated and substantial circulation route would be required to facilitate the increased population.

The Learning Stairs were thus an acknowledgement of the utilitarian requirement of a staircase along with the opportunity for addition of a supplementary prototypical teaching/learning space. It was underpinned by the premise that a main circulation route serve a greater purpose than solely movement, reinforcing the objective of a “resourceful use of space” (Noero, 2002).



Inspiration emanated from two precedents - Neoro's **Duduza Resource Centre**<sup>1</sup>, and use of the **stairs in the Masikanye Hall** during the Vertical Studio fieldwork.

Duduza Resource Centre in Johannesburg, is organised around two large staircases that lead to administration block. Lightscoops that capture sunlight in the winter to warm the buildings are located above these circulation routes. Intentionally designed intentionally designed to function dually as a social space, these utilities become classrooms during cold sunny days. When one perceives *purpose* instead of *function*, use of a space becomes much more open-ended – new readings and functions can be added to something that might be perceived as quite ordinary, standard or conventional.

The second, was a first-hand witnessing of the use of the staircase in the Masikanye Hall on a Sunday after the church service. The element was used by adults to socialise and by children as an informal “jungle gym”, – jumping from several risers to the ground floor

<sup>1</sup> a community building on the periphery of Johannesburg that was engaged with in the Theory and Technology Studies Paper.



*Figure 10 - Photograph of Duduza Resource Centre by Noero Architects (Noero Architects, 1990). The internal staircases are located below the lightscoops on the right and left of the main admin complex.*

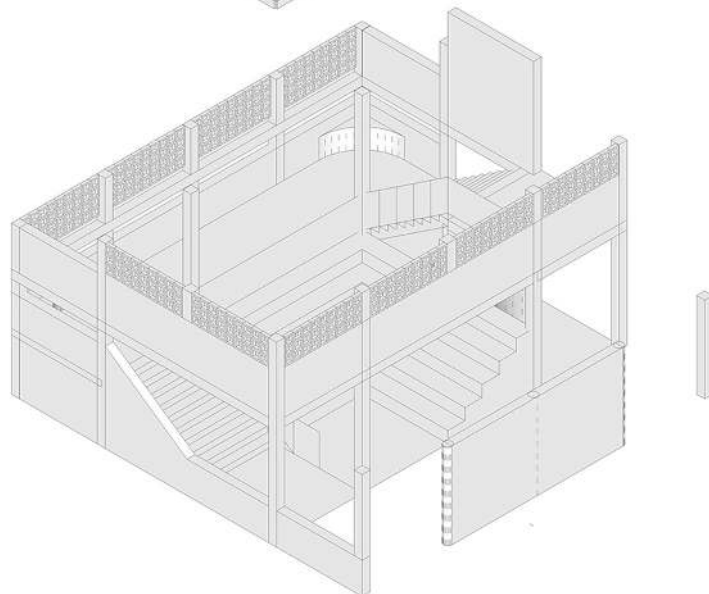
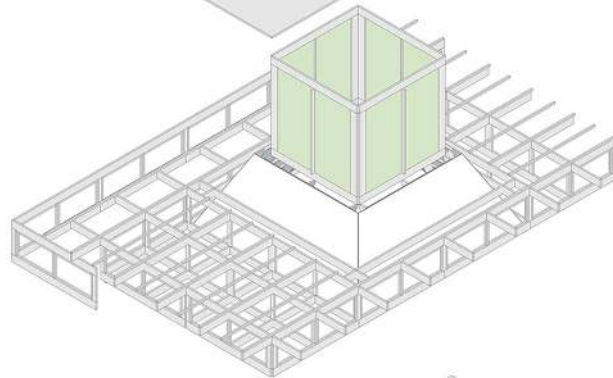
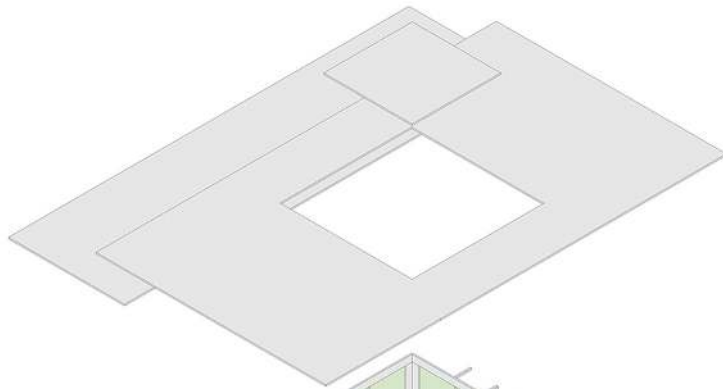
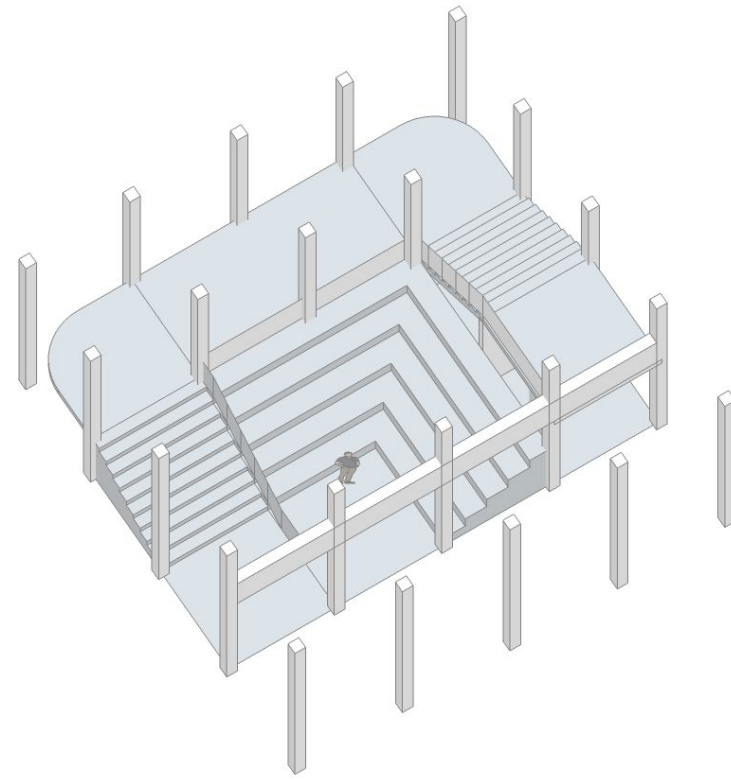
*(left)  
Figure 11 - Photograph of the light-filled staircases inside the Duduza Resource Centre by Noero Architects (Noero Architects, 1990)*

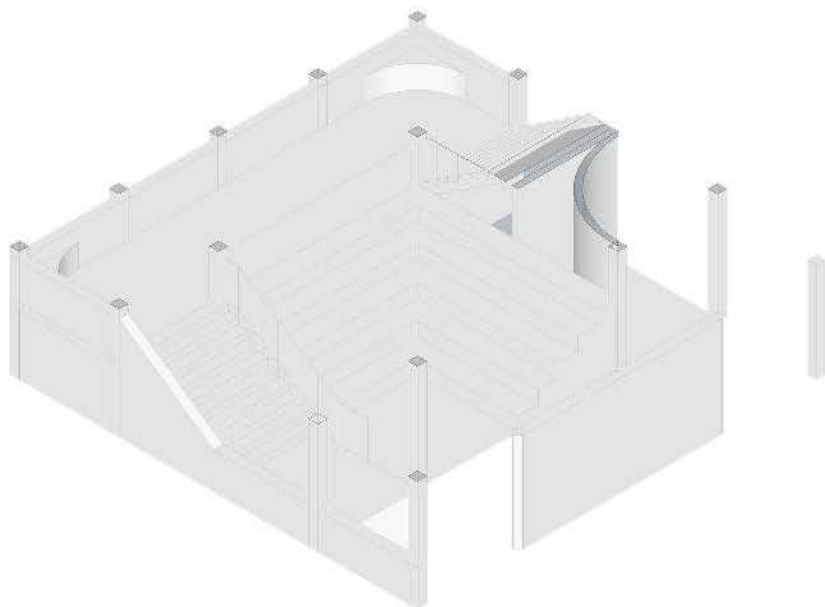
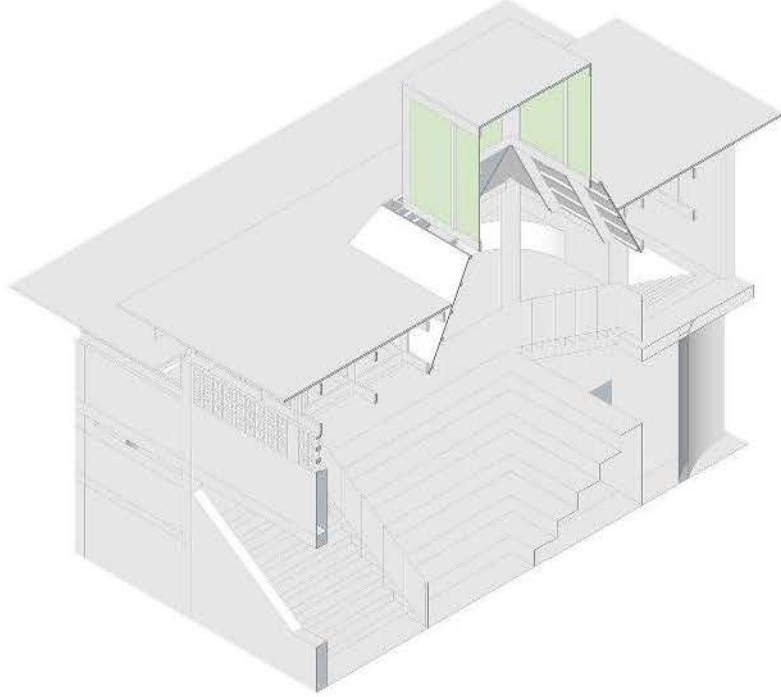
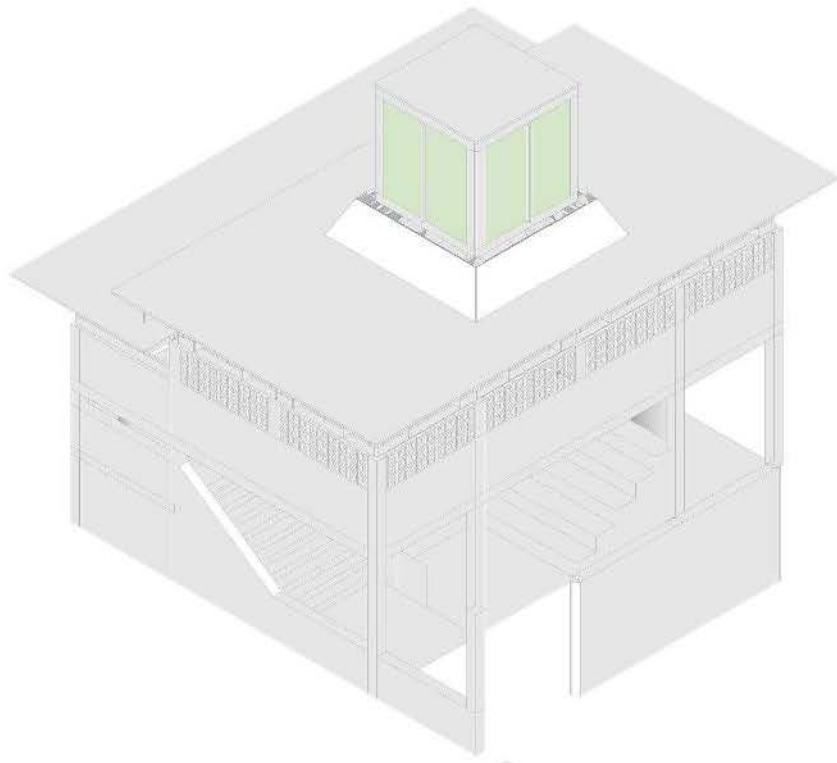


*Photograph of the stair case in the Masikanye Hall foyer being used as a social space after church (own image)*

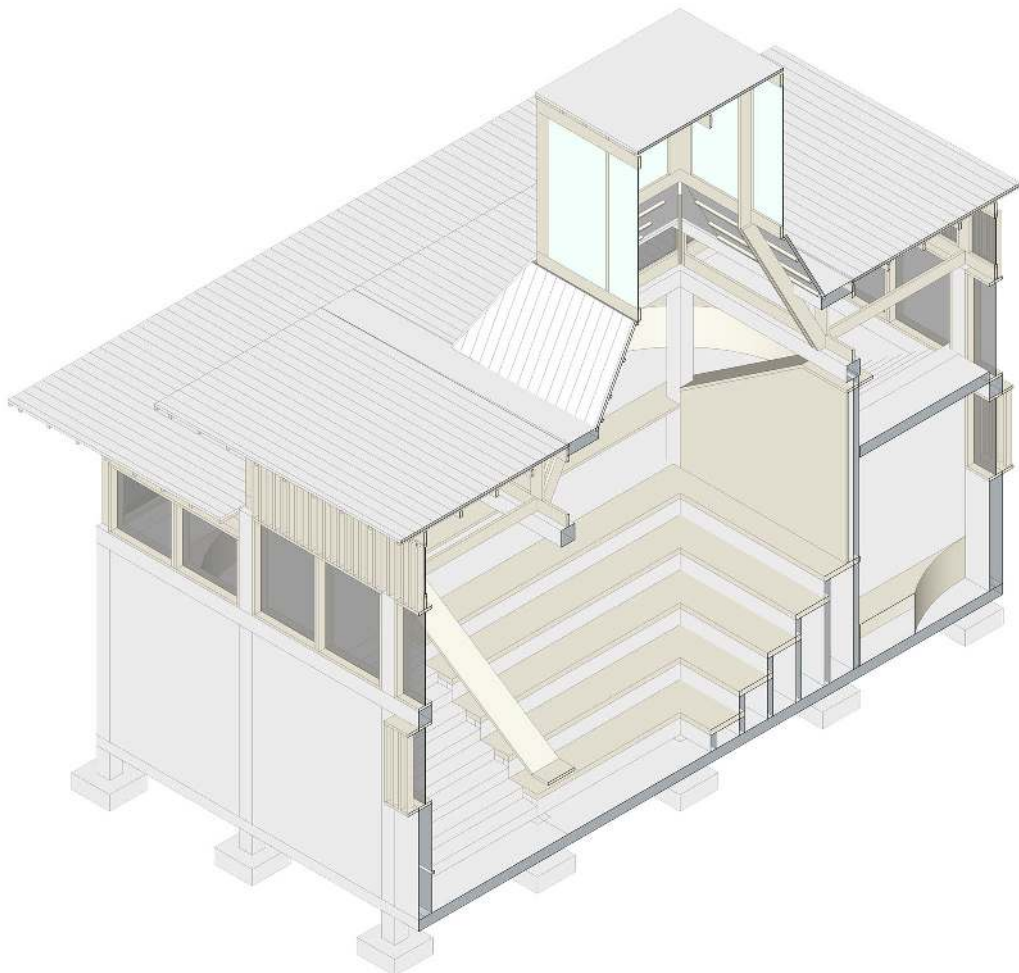
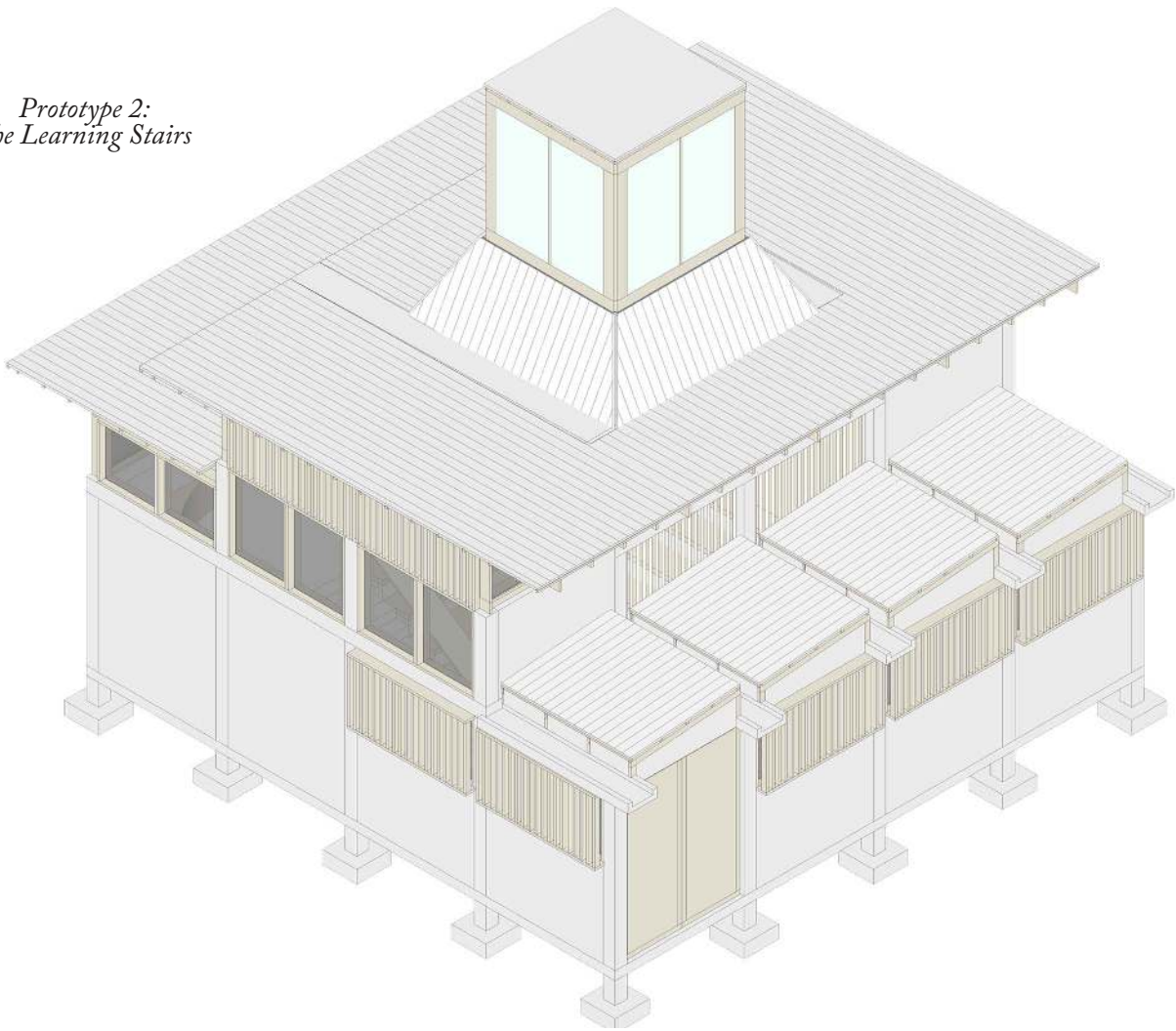


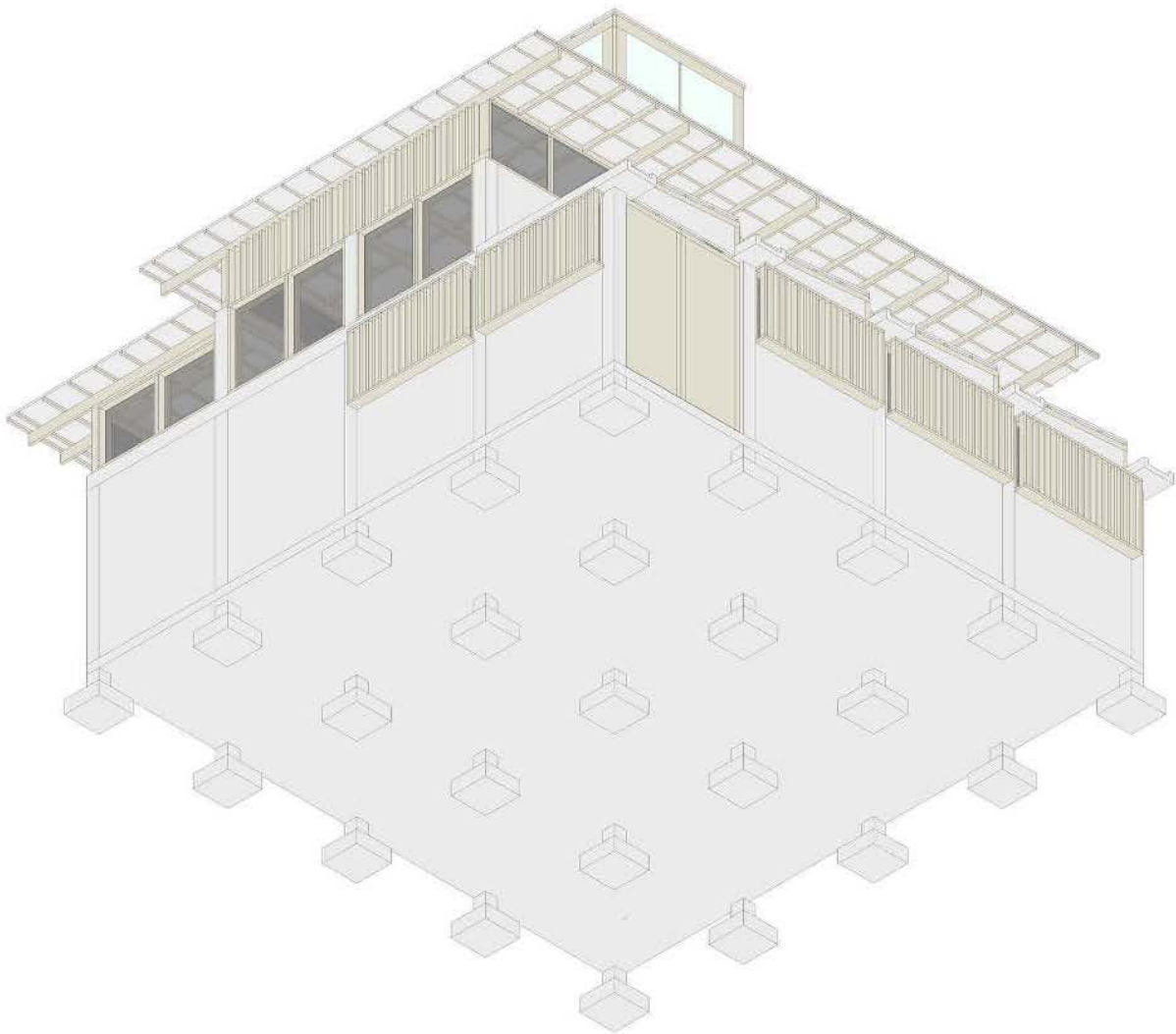
*Photograph of the stair case in the Masikanye Hall foyer being used for a jumping competition (own image)*



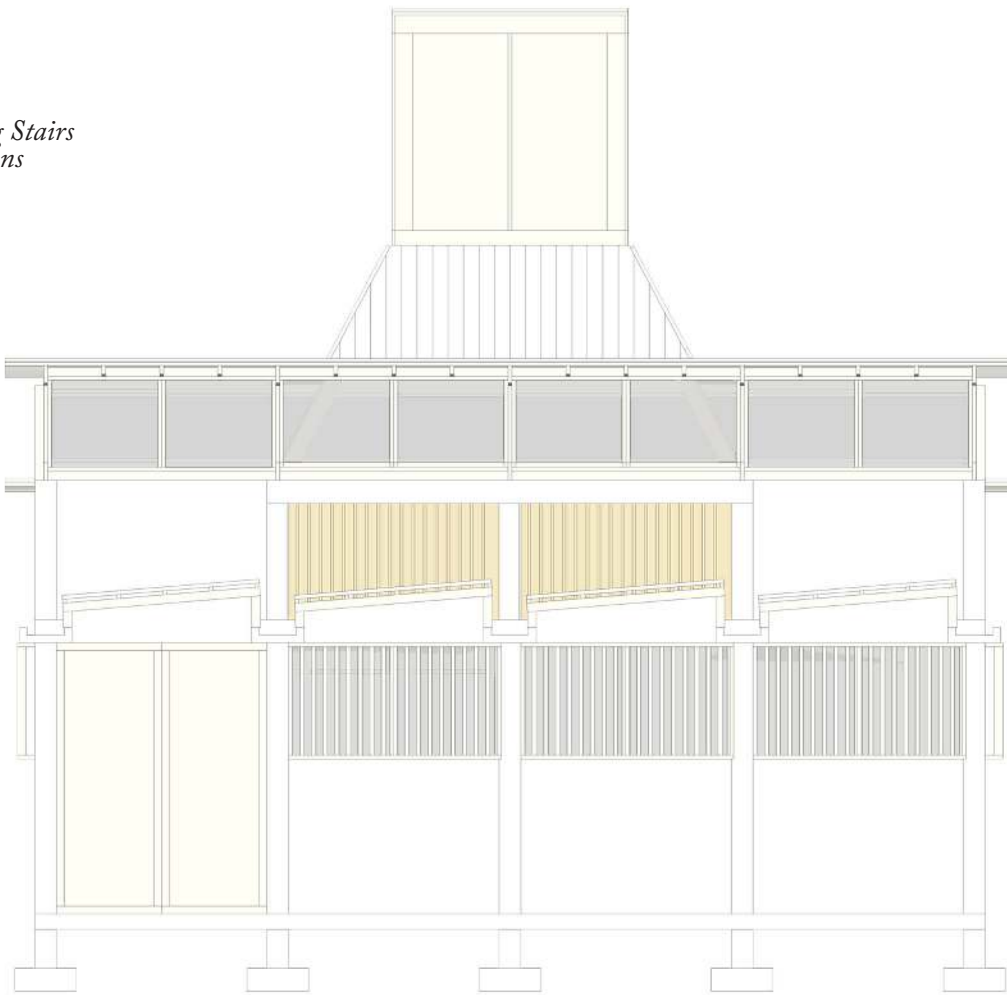


*Prototype 2:  
The Learning Stairs*

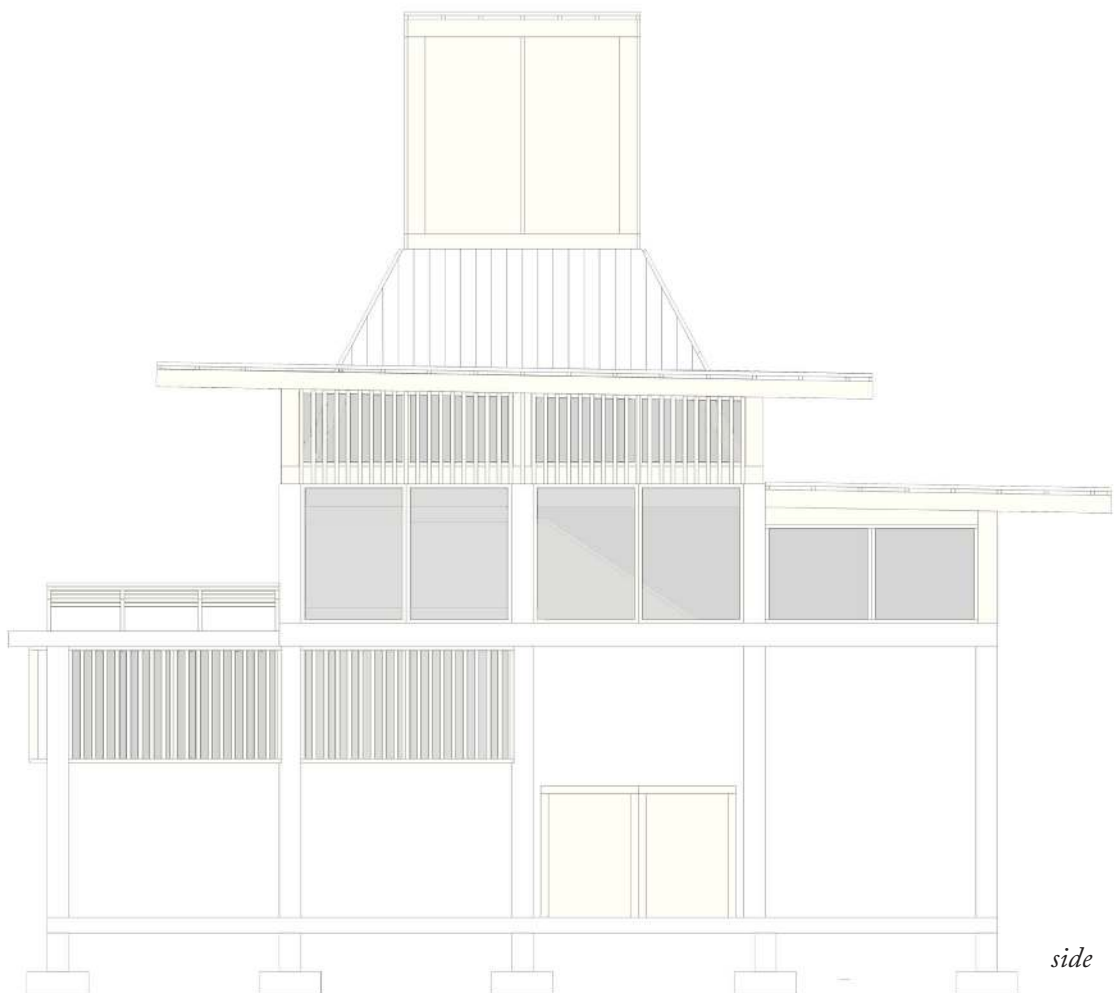




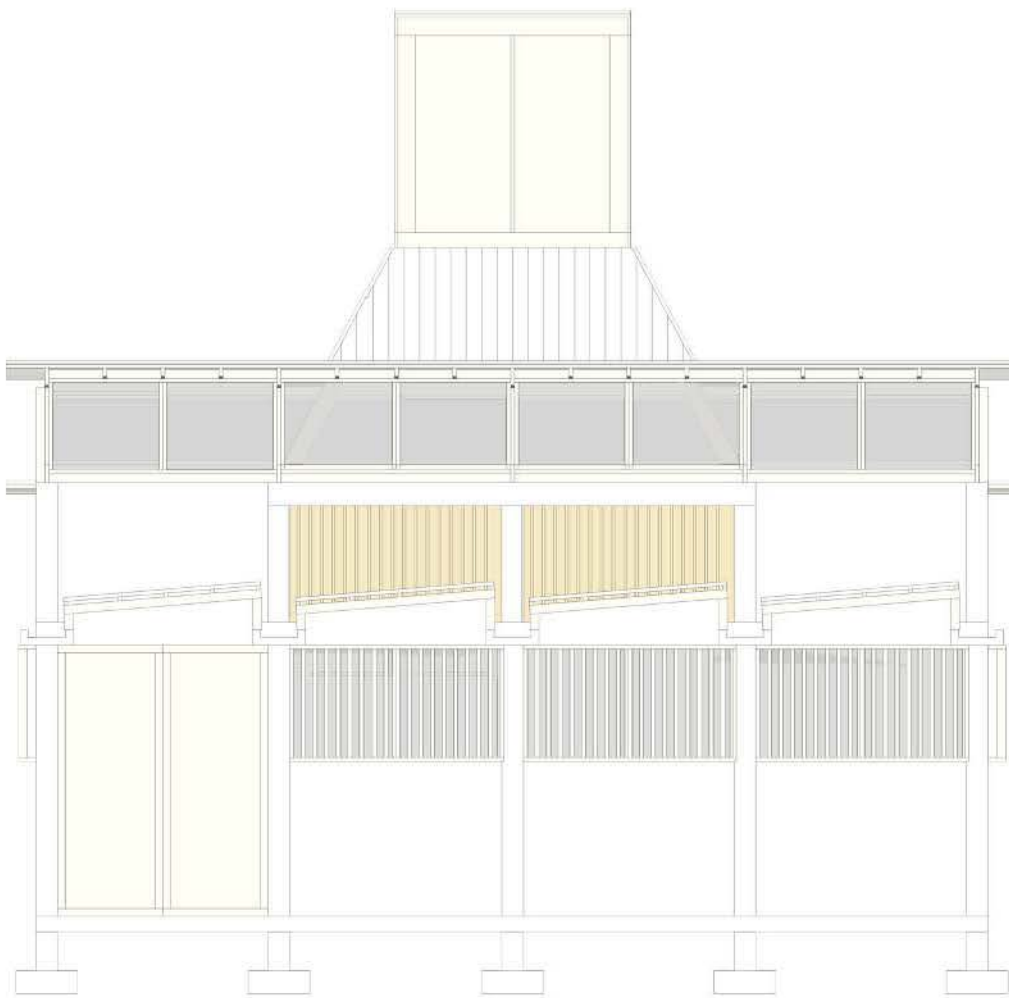
*The Learning Stairs  
Elevations*



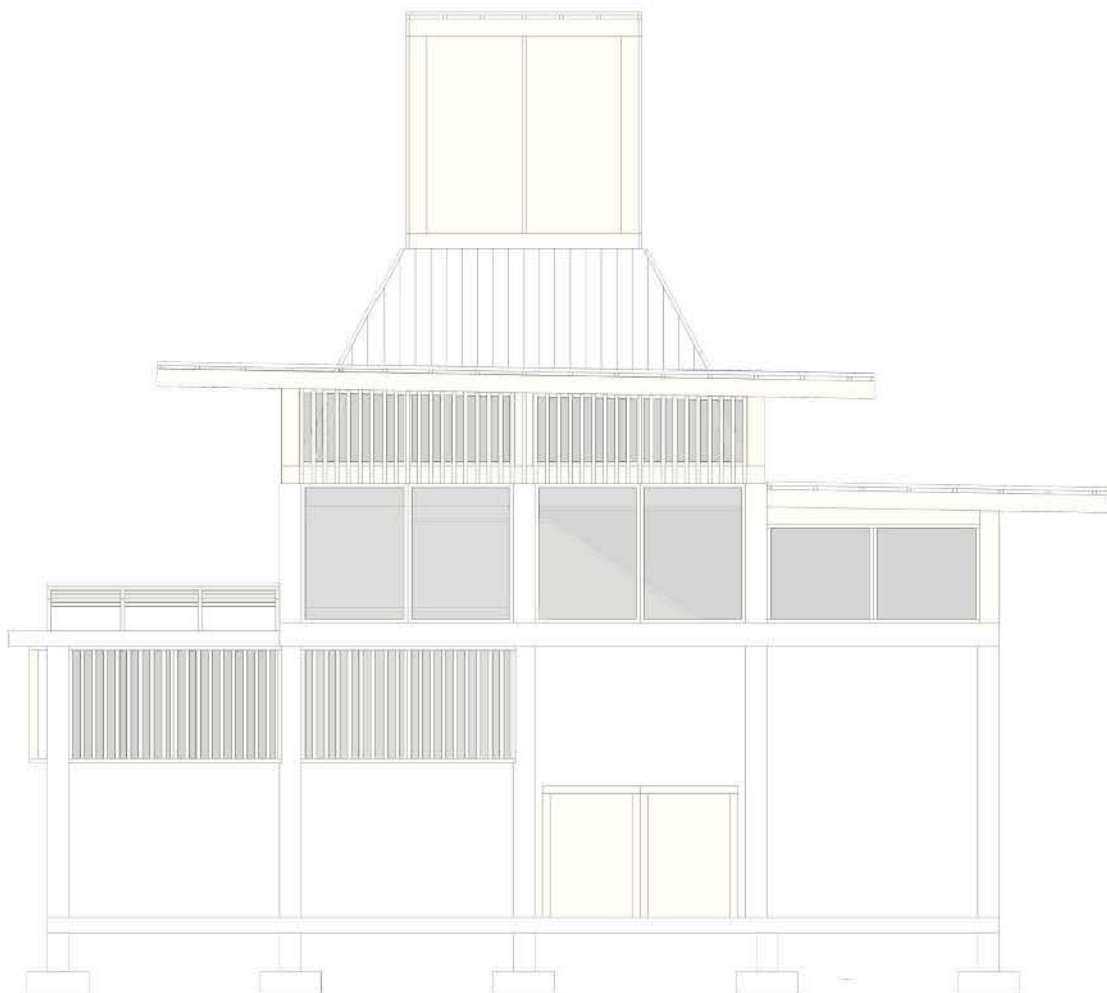
*front*



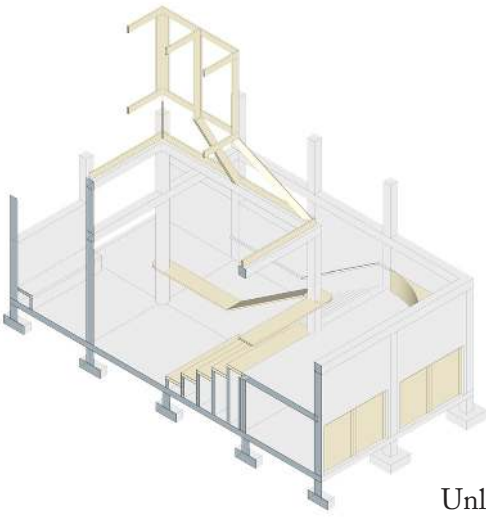
*side*



*back*



*side*



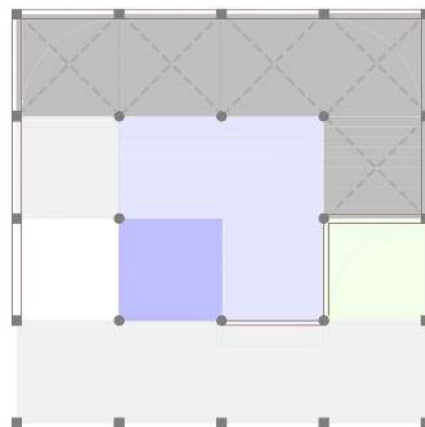
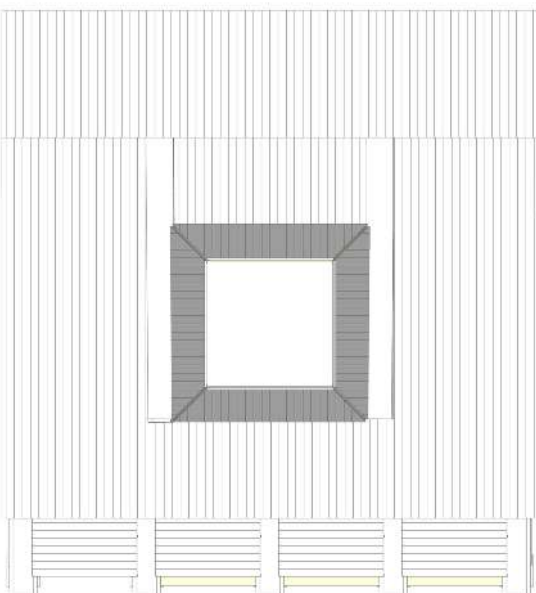
## The Learning Stairs | Programme, Form and Spatial Organisation

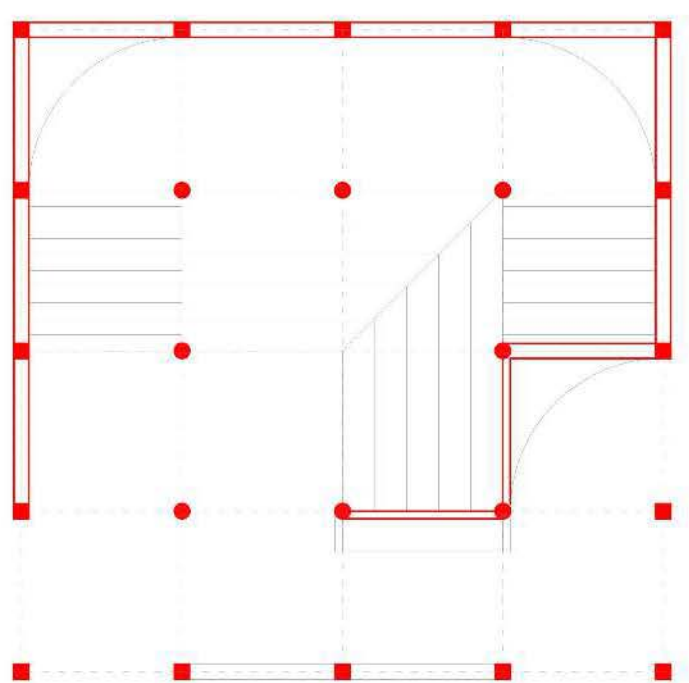
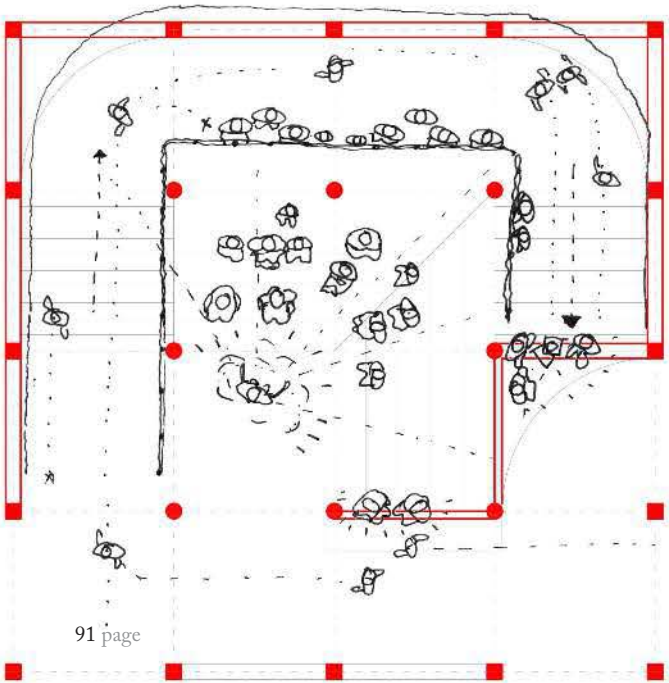
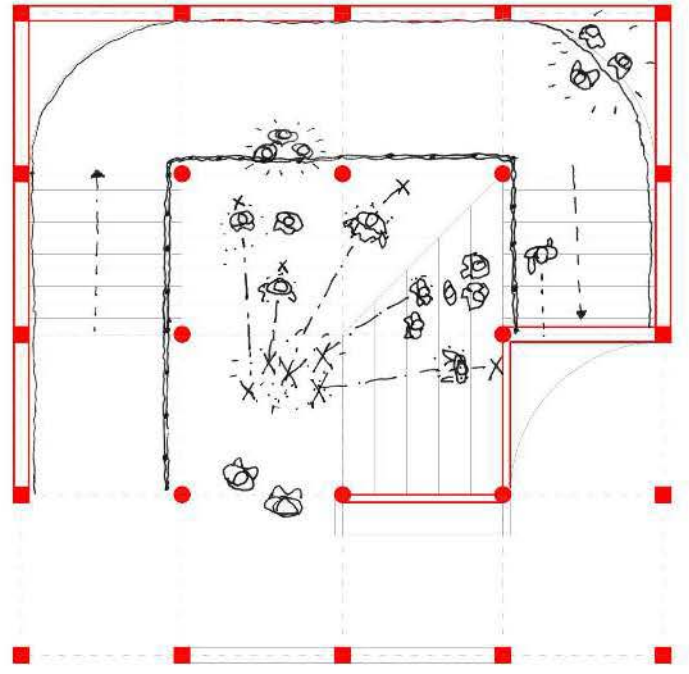
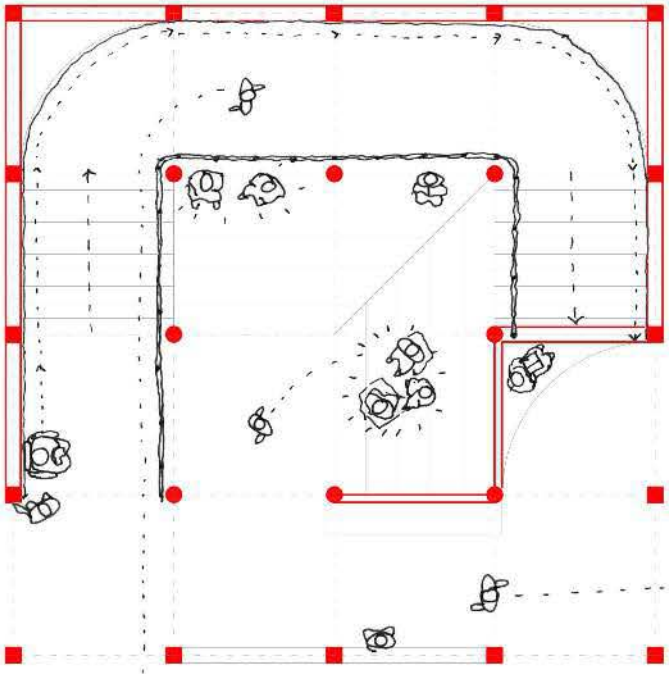
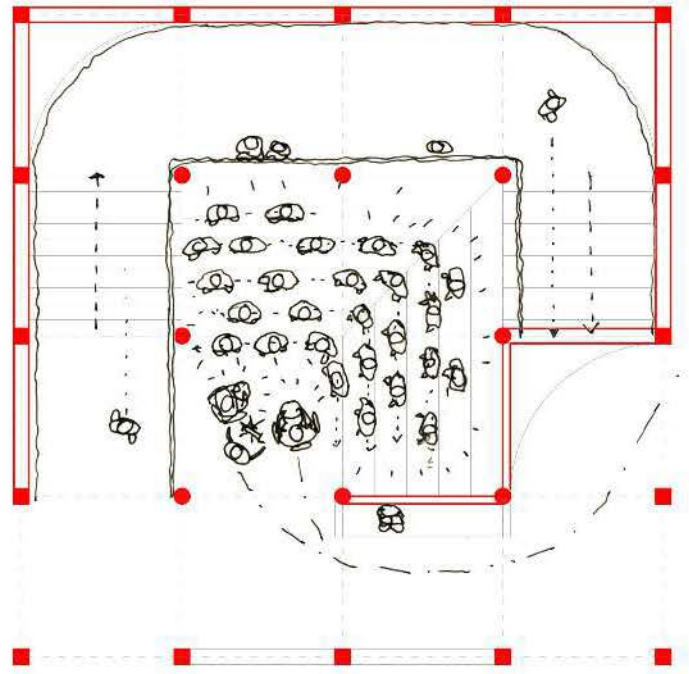
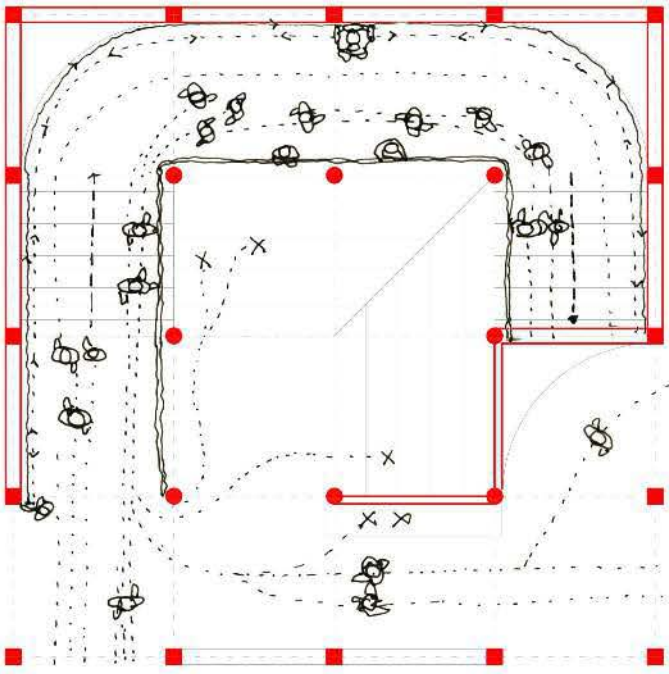
Unlike the Stories Centre, where the space will generally be used for the undertaking of one function/activity at the time, the Learning Stairs encompasses an **overlapping of programme**. A staircase intended for circulation is collaged with a teaching and socialisation platform. The learning space becomes one that is sporadically engulfed in movement activity.

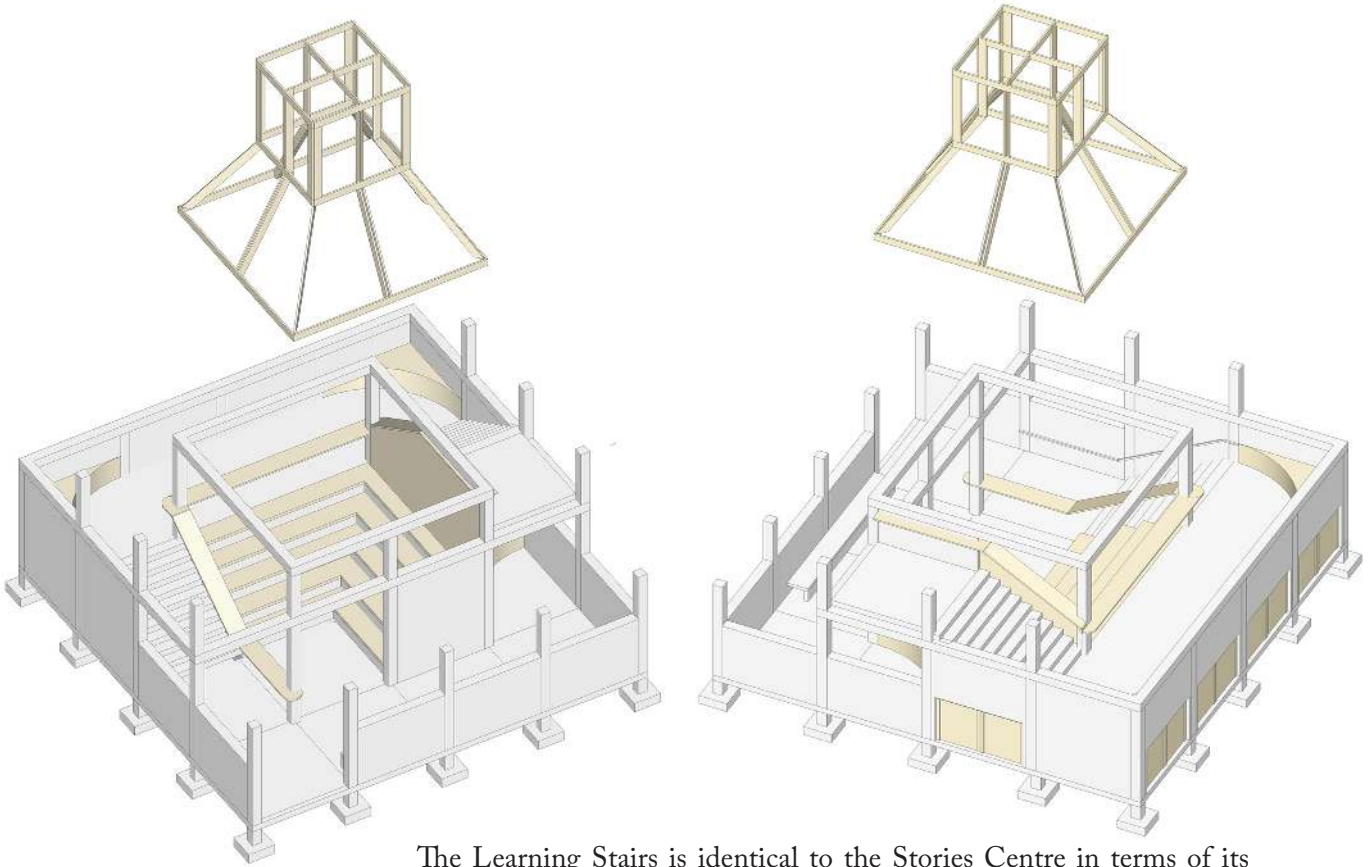
The concept of Learning Stairs is rooted in the “celebration of purpose” (Noero, 2002) as oppose to its functionality. This results in the uses of a perceivably pragmatic and mundane building component becoming entirely blurred. Their uses become open-ended and can sit fully outside its intended programme. The drawing alongside depicts this notion the staircase permits a wide range of activities.

The form is essentially a one and a half story structure comprising a generous 3m wide staircase wrapping around a social/teaching space. The void below the landing and stairs houses storage units for NGO equipment (multiple activities can thus occur in the space with safe storage of equipment).

The Learning Stairs is essentially an additional useful object of beauty to support the Stories Centre. This prototype can be adapted to stand alone (through removal of one concrete staircase leading to the upper level) however, for the most part, the two components would exist as a pair.







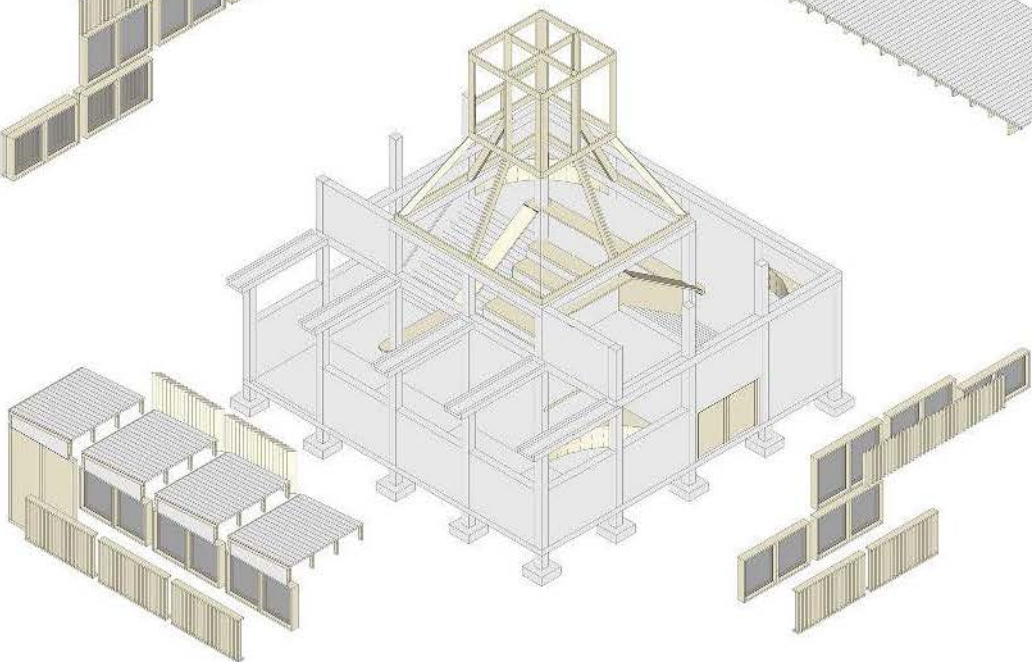
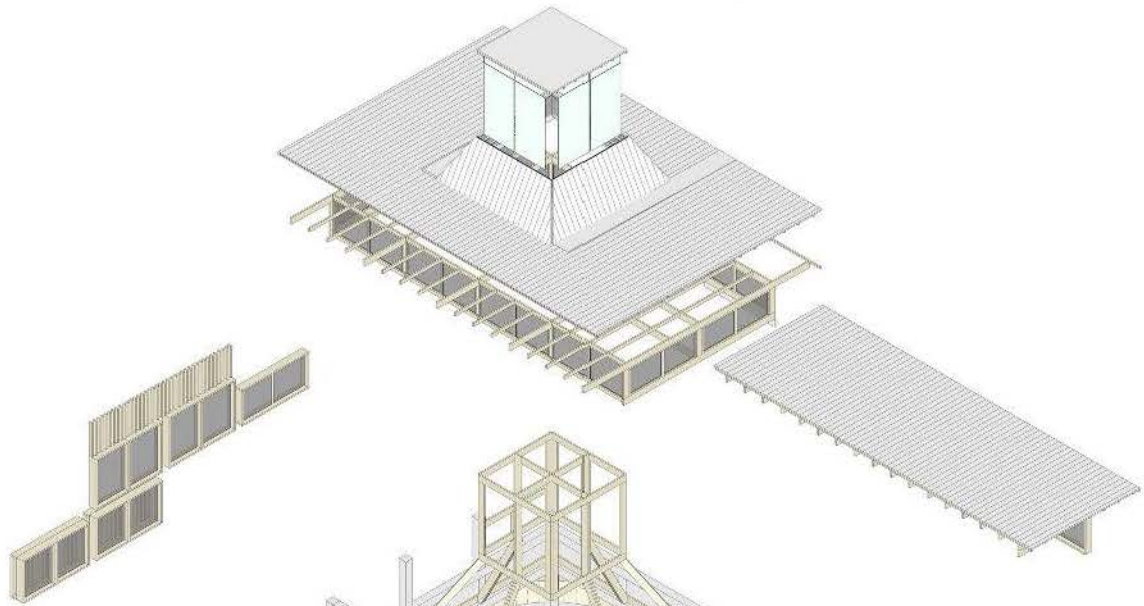
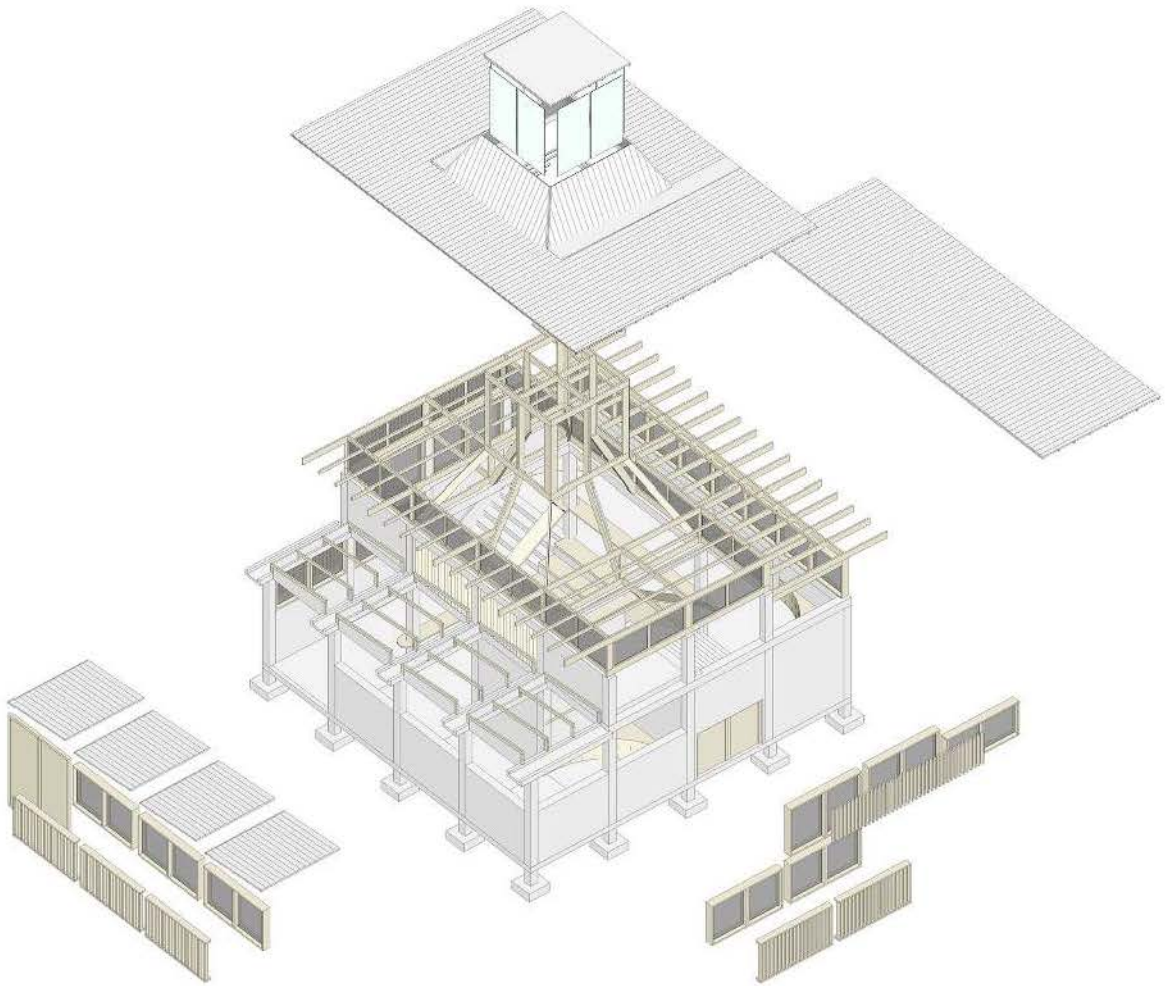
The Learning Stairs is identical to the Stories Centre in terms of its material palette and systems of construction. They operate on the same 12x12m footprint and 3x3m structural grid.

When placed in a building, these two forms can be used to give order to the overall strategy. It is possible for the two to be placed side-by-side or pulled-away from one another - creating a *void* space between them that can be used uses pertinent to the context (this idea will be further illustrated in Section 4).

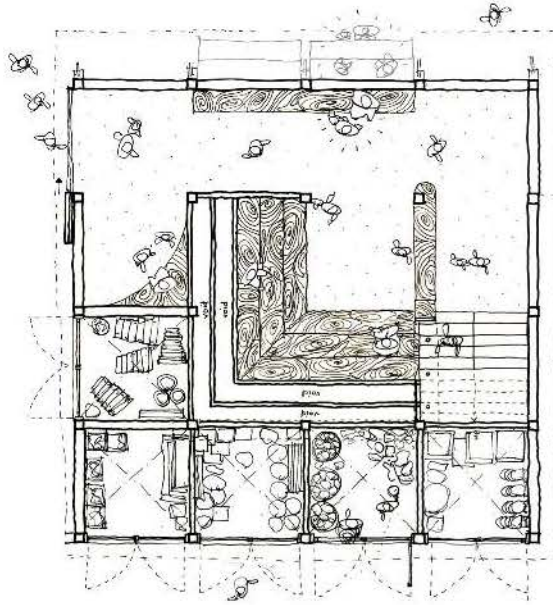
The deep RC beams allow for easy incremental additions of floor slabs or pergolas that can connect the Stories Centre to the Learning Stairs as well as for the remained of the building to develop around it.

In terms of scale, the Learning Stairs is half a story lower than the Stories Centre. The expressive roof is pushed down into the space. This creates a hierarchical order to the scheme and reinforces its urban presence as well as making for a more intimate educational space below.

Warm timber panelling and overscaled balustrades (which can dually be use for work-tops) emphasises the human-centric, fine-grain detailing of the prototype.



## Lower Level Plan



a circulation space

a social space

small gatherings

lectures

quiet reading

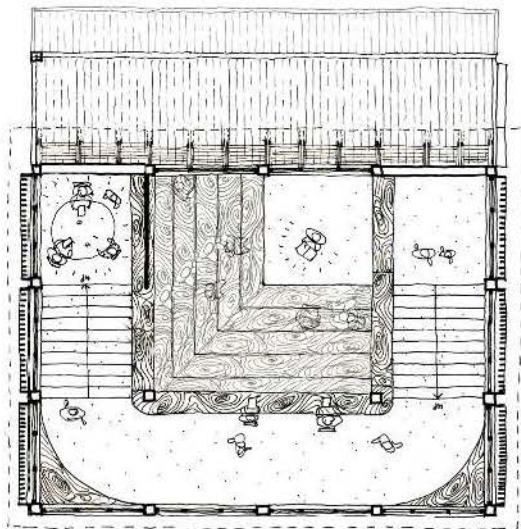
chior practice

relaxing

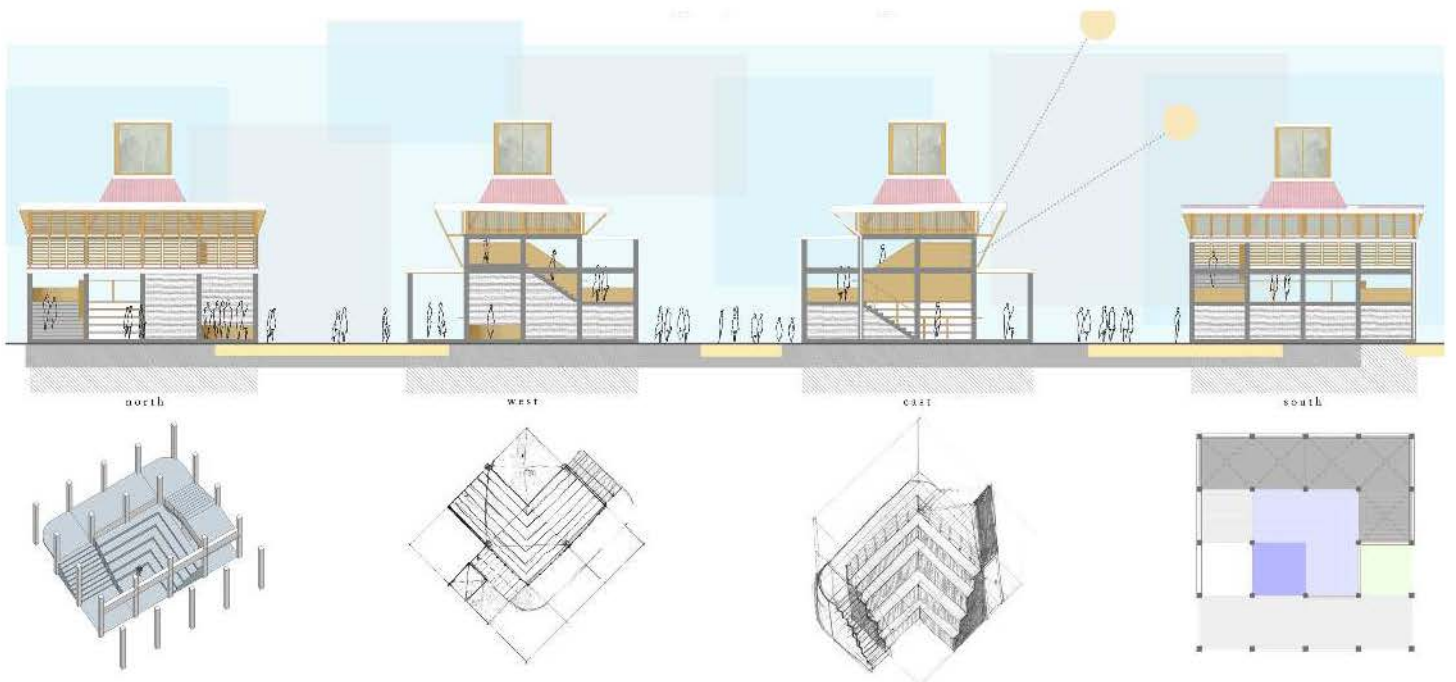
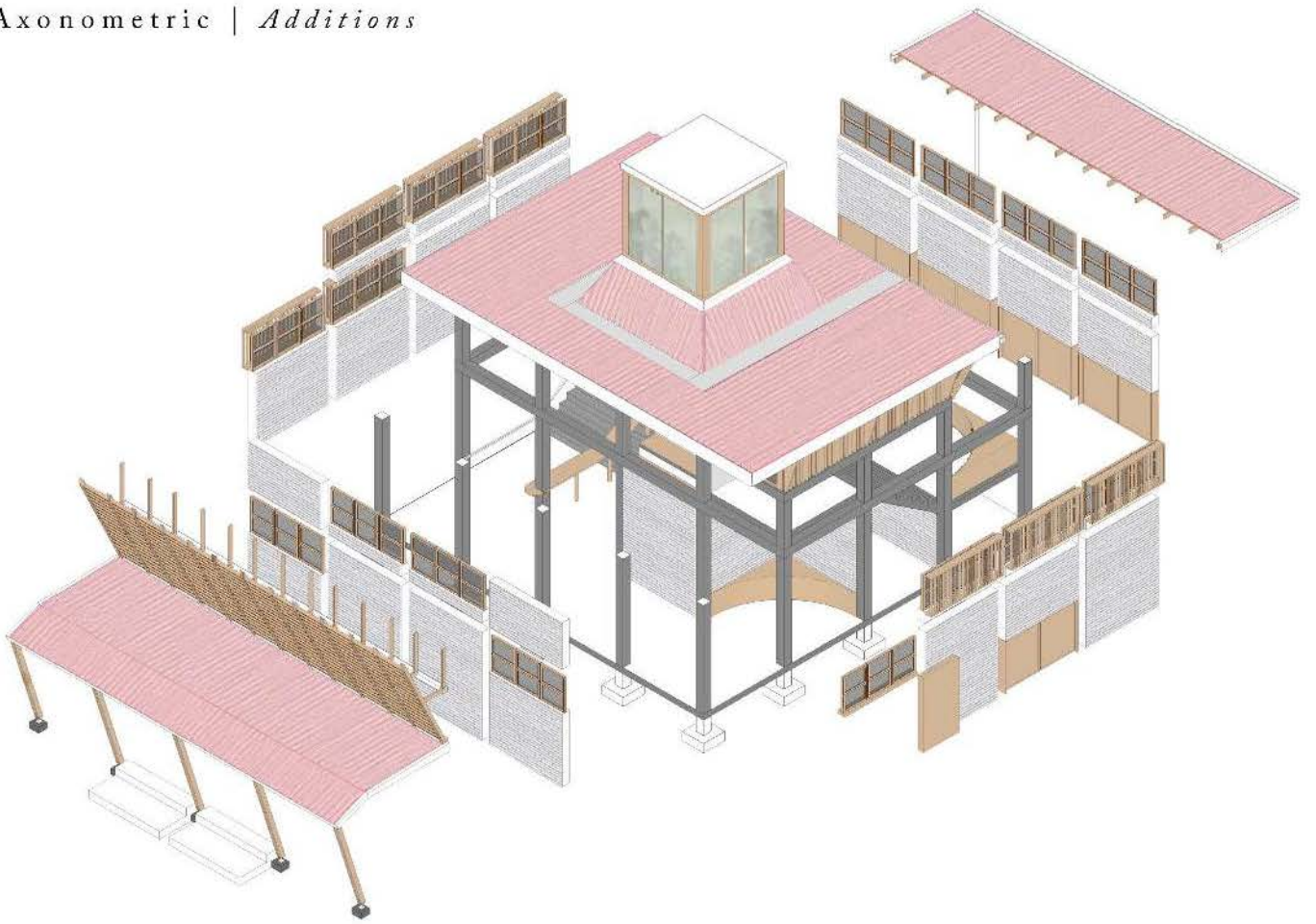
amphitheatre

storage

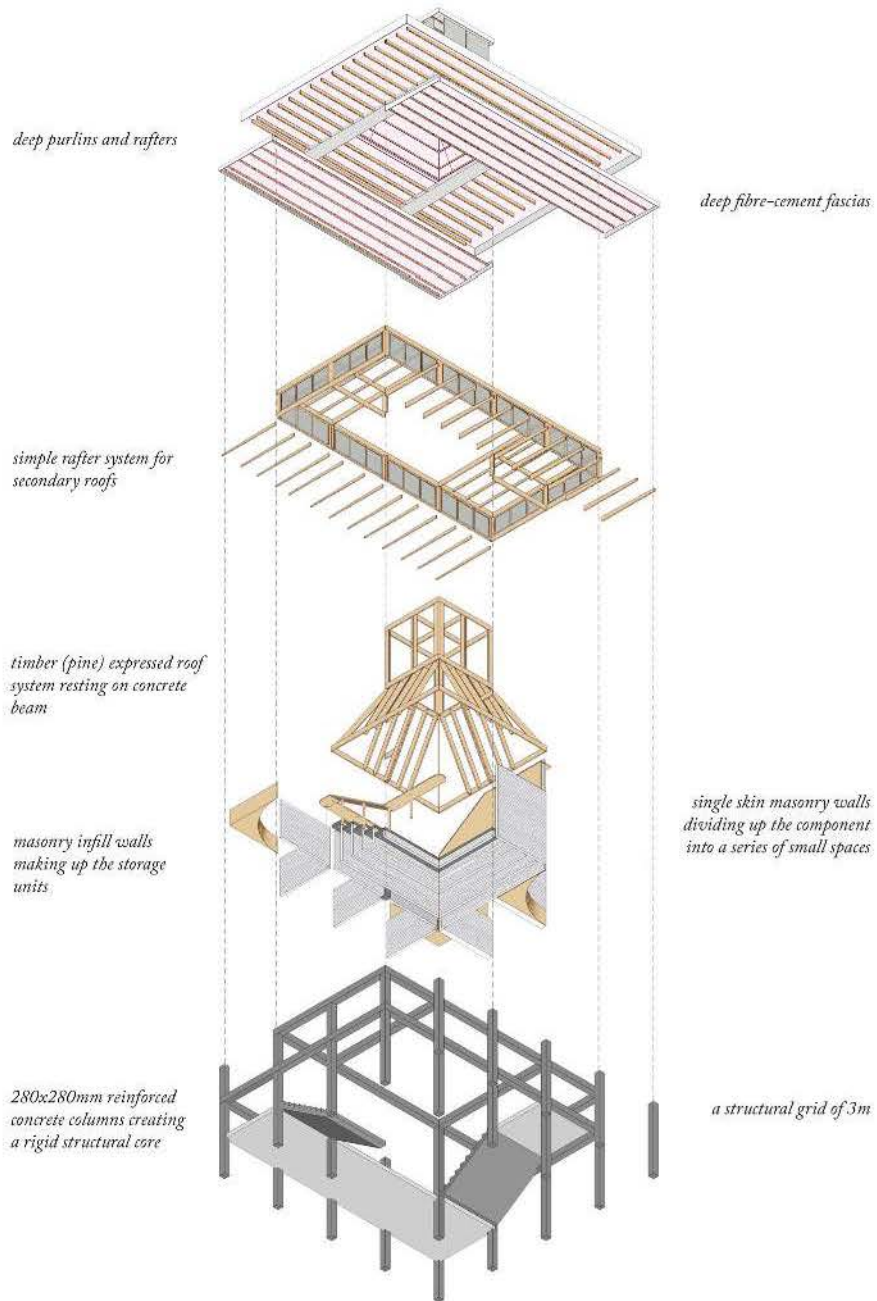
## Upper Level Plan



Axonometric | Additions



The Learning Stairs | Key Tectonic Components

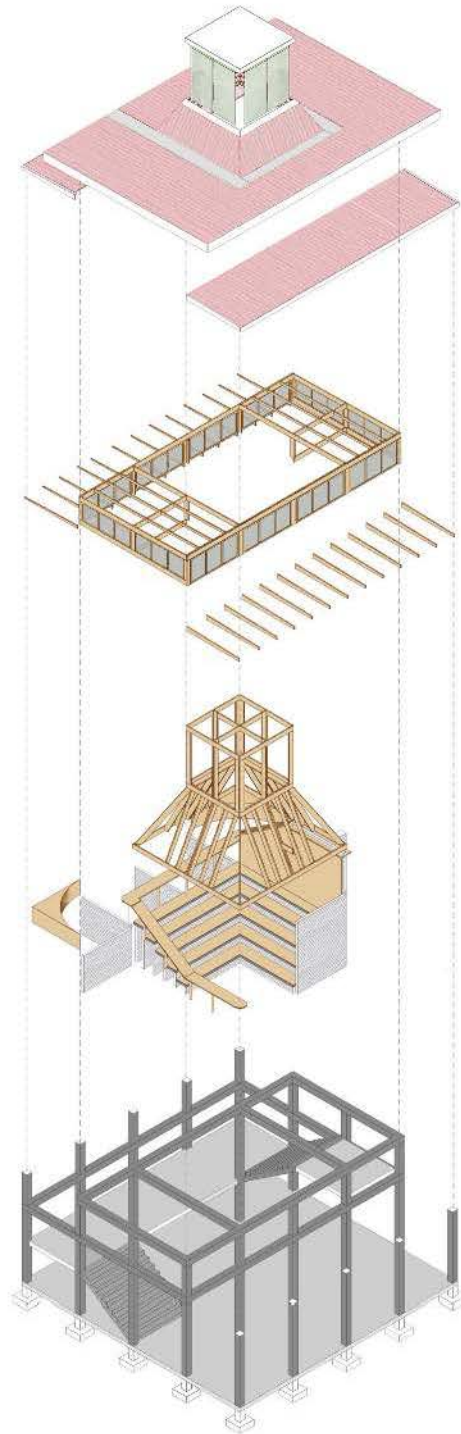


*iamondek roof sheeting  
at a 1.5 degree fall*

*perimeter clerestory win-  
dows resting on concrete  
beam creating the main  
weather line*

*custom made, interior  
timber seat, wall and  
handrail details*

*in situ cast concrete  
staircase*



*expressive roof enhancing  
the intimacy of the space*

*insitu cast concrete floor  
slabs and columns*

## PROTOTYPE 3 | PUBLIC TOILETS WITH CLASSROOMS

The third prototyped developed as a pragmatic response to a lack of basic public amenities servicing the park and community in general. This is not a unique condition but a recurring one.

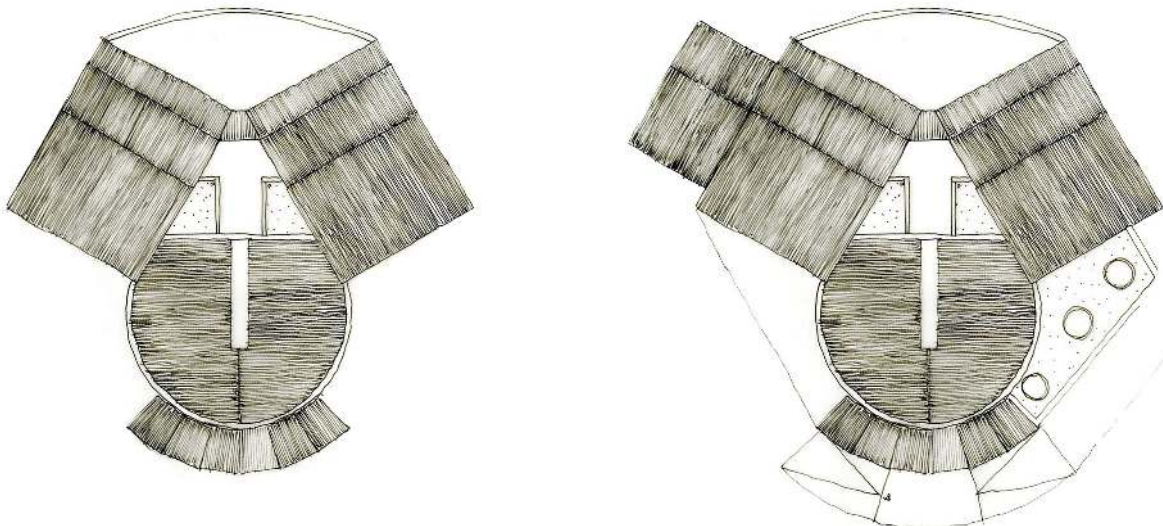
Rather than attempting to create a new type of educational space like the Stories Centre and Learning Stairs, this prototype focuses alternatively on provision of basic necessities - public ablutions (services) - whilst still responding to lack of educational teaching and support spaces in South African townships with a standard set of multi-purpose classrooms (teaching facilities).

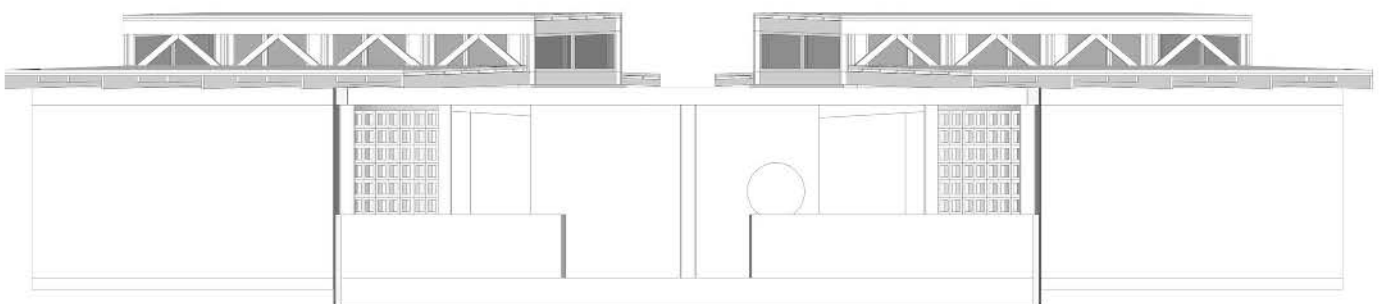
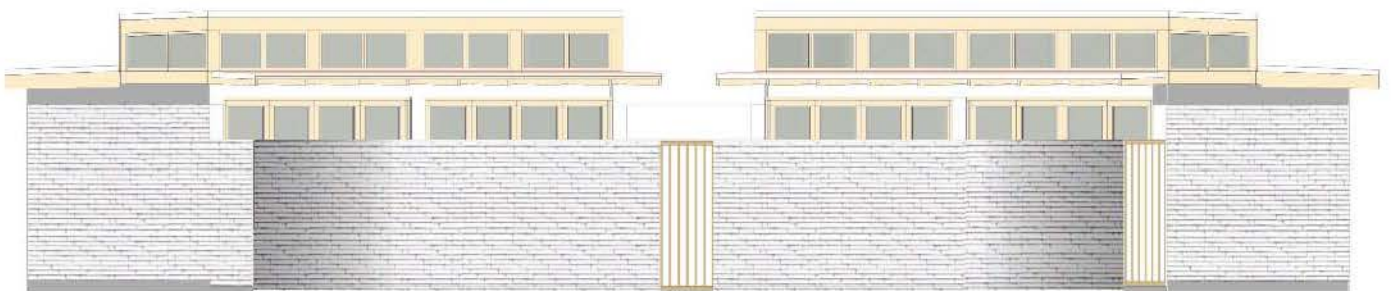
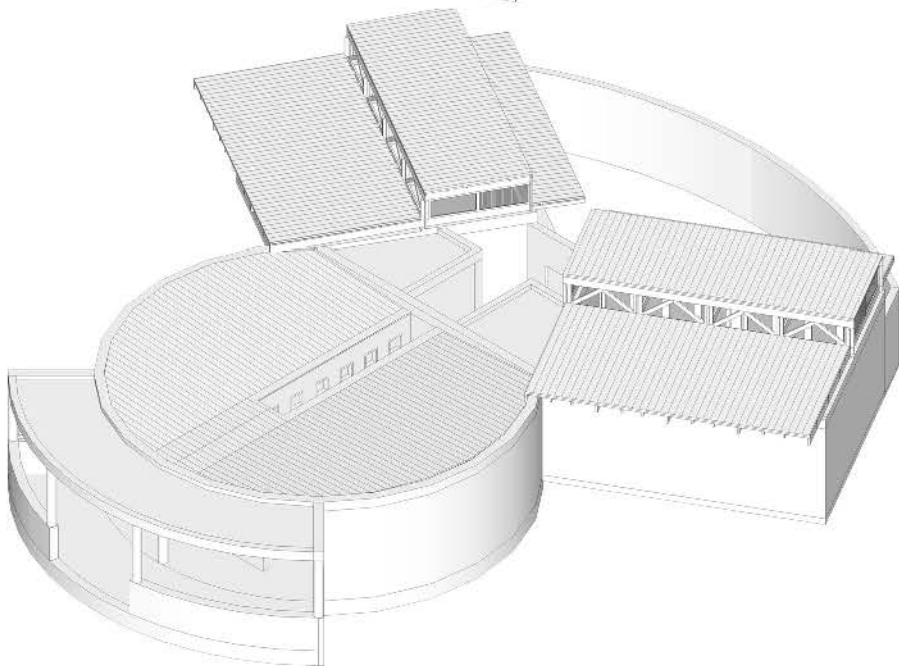
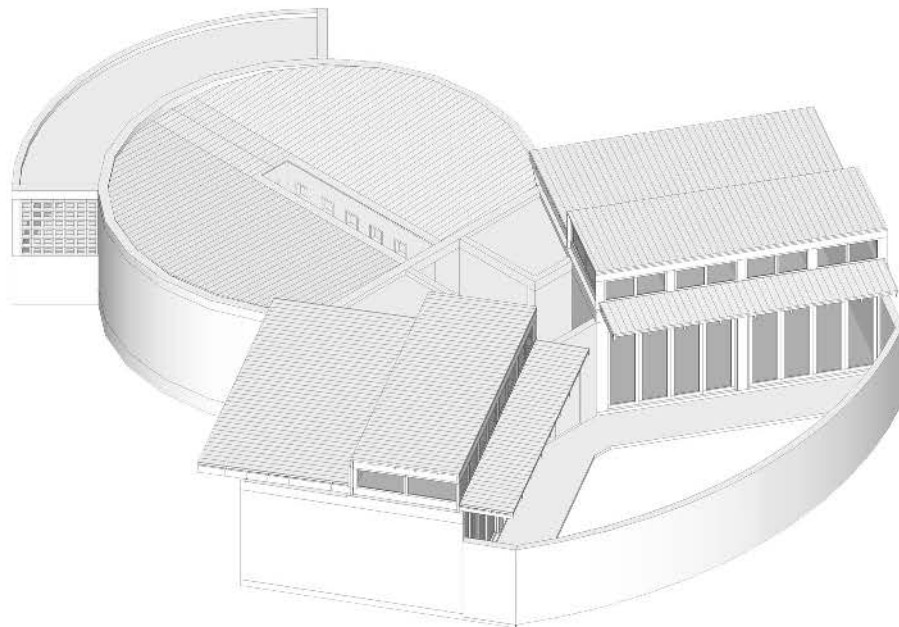
Utilising universally *conventional* typological models, this building contributes an amenity focused on *usefulness* and *safety* whilst simultaneously permitting *adaptability* and *flexibility*, all through a number of regards.

The intention is that this complex will be funded and managed by the state, with the possibility for private organisations to occupy/rent the spaces, either permanently or temporarily.

Possible activity examples that the classrooms could facilitate could be adult classes in the mornings, homework support classes after school and night classes for young adults.

A standard classroom module (6x8m) permits a multitude of educational happenings to occur.





## Public Toilets with Classrooms | Spatial Organisation

The prototype comprises of a generous, well-ventilated circular toilet complex (separate male, female and disabled toilets) raised to overlook the public open space. Incorporation of a “conciierge nook” warrants increased surveillance outwards, contributing to the park-facing active edge.

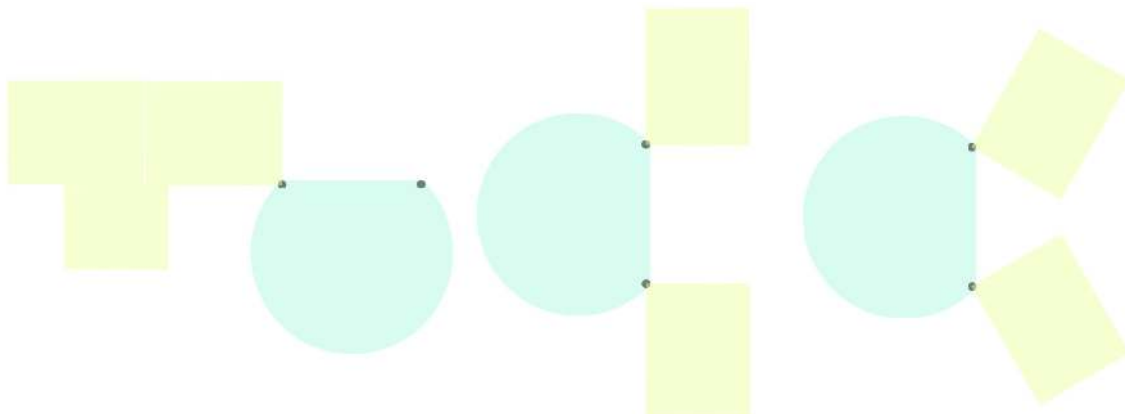
A pair of standard (6mx8m) classrooms are orientated away from the bustling park activity face onto a shared protected courtyard enclosed by a wall (controlled access). Classes may spill out onto this space. Generic office and storage space is included in the schedule.

The undefined area at the back of the classrooms becomes “plug-in” space where site appropriate functions/amenities/spaces can be inserted. Some example of this could be;

- an outdoor space for play equipment, a plinth, table, stoep or even an water platform, plinth, table, stoep, etc.
- an formalised indoor enclosed space such as a seminar room, office, toy library etc.

Other buildings may be added to this prototype in accordance with the needs of the site e.g. - a caretaker’s flat, or a headquarters for park security could be built on. (see diagram alongside)

Orientation of the building is dependent on the site. Toilets generally should face out onto the public space. The classrooms can “pivot” to adapt to different situation should need be (See diagram below). Additional classrooms can aggregated incrementally.



# Prototype | *Public Toilets with Classrooms*

Ground Floor Plan | *Generic Prototype*  
1 : 100

a generic set of multi-purpose classrooms

a paved walkway

a shared outdoor courtyard

a service yard and garden store

generic offices/storage

seating for gathering

a controlled access point

a generous public ablutions compound

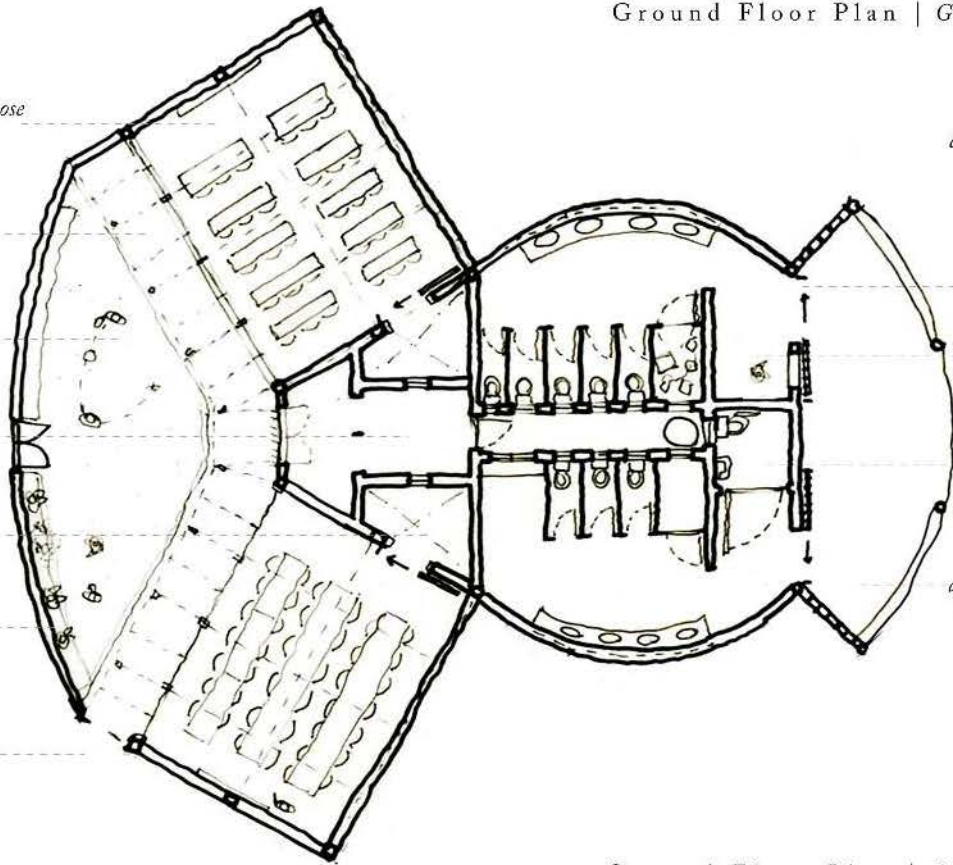
lockable access points

a conceige nook

disabled cubical

a stoep for public gathering and increased surveillance

sufficient ventilation



Ground Floor Plan | *Adapted Prototype*  
1 : 100

a toy library, NGO office and indoor play area

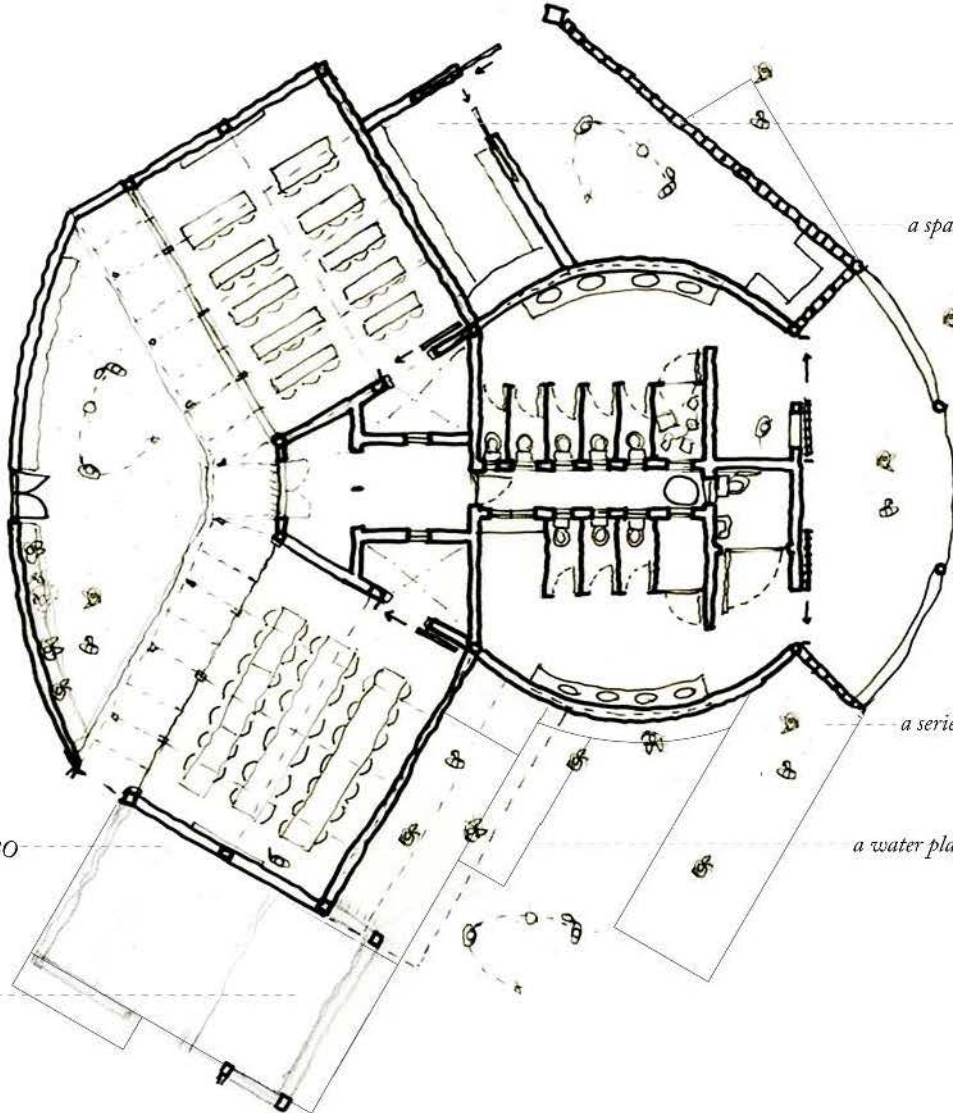
a space for community meetings and socialisation

a series of paved, well-lit walkways and seating

a water platform and washing plinth

park security, admin/NGO offices

a caretaker's flat on the upper floor





**SECTION 4 | IMPLEMENTATION OF THE  
PROTOTYPES AS PART OF A BUILDING AND  
URBAN STRATEGY**

## SECTION 4 | IMPLEMENTATION OF THE PROTOTYPES AS PART OF A BUILDING AND URBAN STRATEGY

Formulating a strategy as to how the prototypical parts will be implemented an intervention on the park site was the next course of the design dissertation.

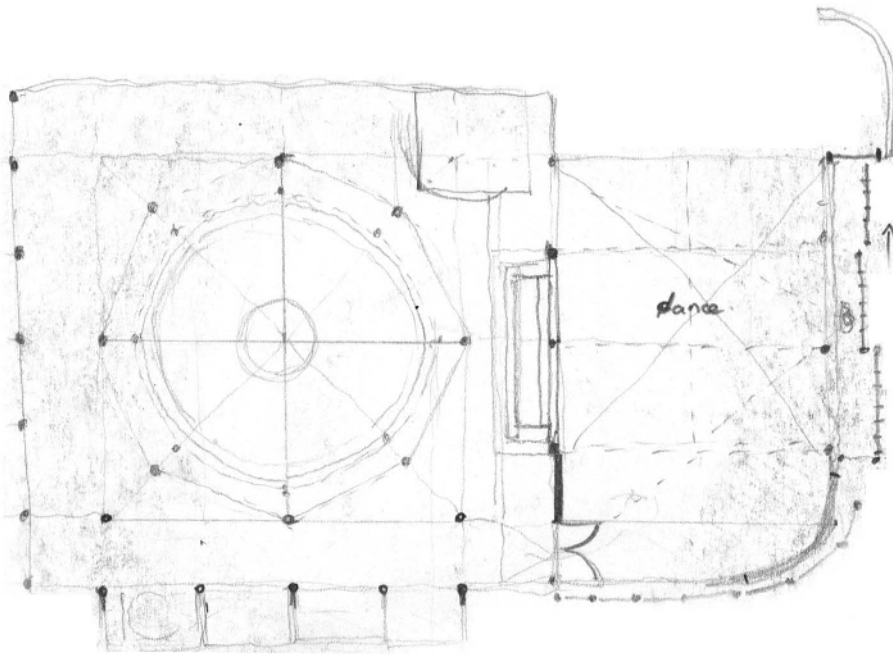
Some of the objectives established early on in the inquiry were to create a safe, m active and publically usable edge to the park as well as providing a much needed, useful facility to the community, especially for the youth.

Several parameters were established, one being that the current erf boundaries would be used and the library would continue to function as an autonomous government institution.

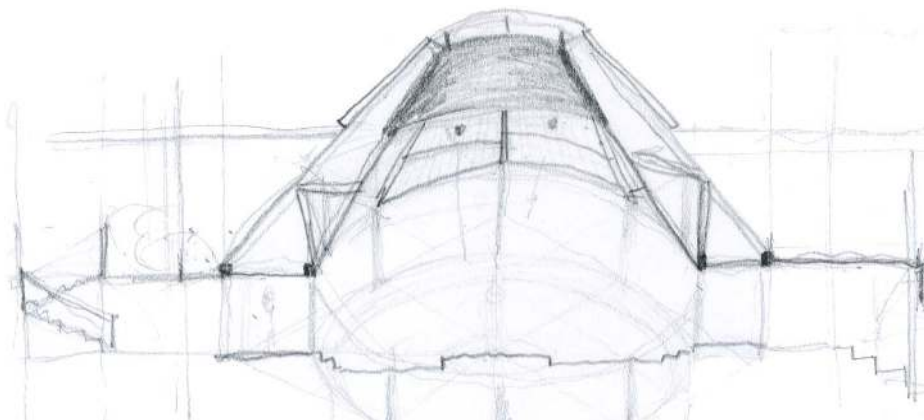
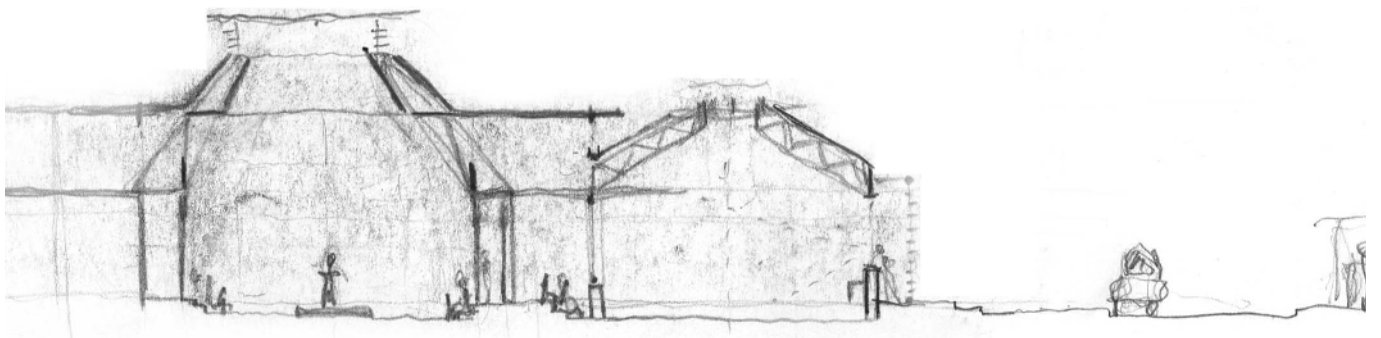
The new intervention would “wrap” around the library. The prototypes would be condensed and strategically placed along this problematic edge. They would aggregate over time through additions of spaces and architectural components.

The strategy would be organised around the 3 prototypes. They become the basis, or the framework for the rest of the building. Hopefully, the functions that get added are programmatically compatible to that of the Stories Centre and Learning Stairs.

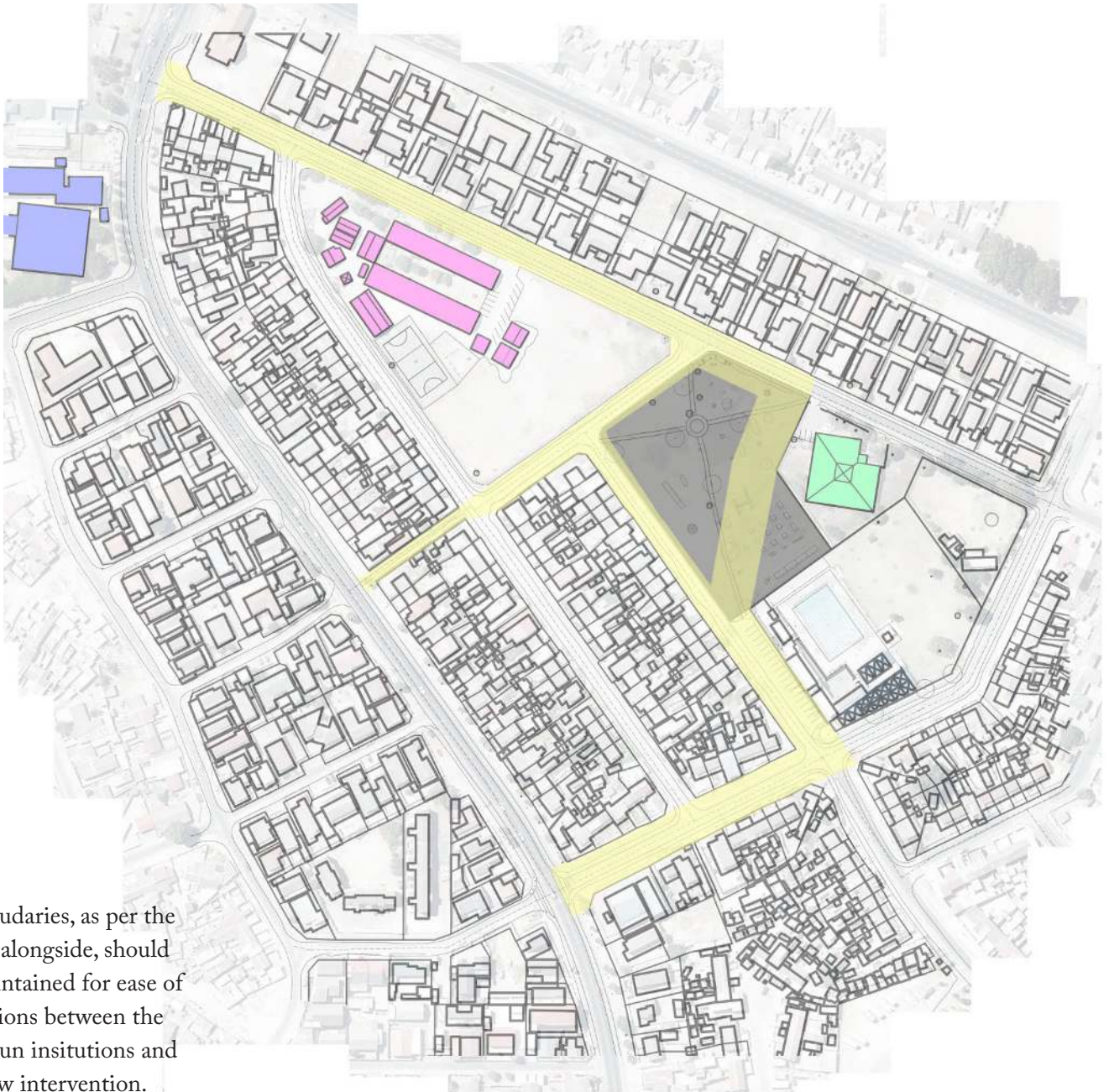
The prototypes require several non-negotiable support components - such as storage, office space and toilets. These should thus be a priority in the incremental growth of the building.



*a sketch of the Stories centre with a small dance hall for the iKapa foundation plugged onto one of the edges at street level.*



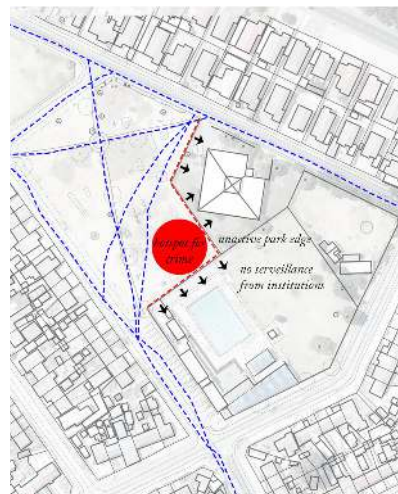
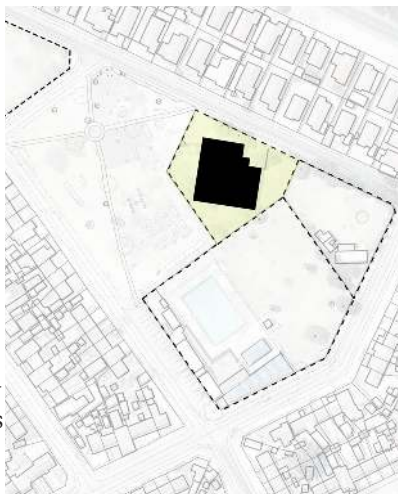
*Aggregation of the Stories Centre prototype*



Erf boundaries, as per the image alongside, should be maintained for ease of operations between the state-run institutions and the new intervention.

Acceptance of these parameters reduces issues with land procurement and therefore increasing feasibility of the project.

For replication on other sites, existing erf boundaries are unavoidable therefore upfront acceptance to rather build on the zoned public open land is a more feasible strategy.



*all map underlays adapted from (City Map Viewer, 2017)*



a safe, active route

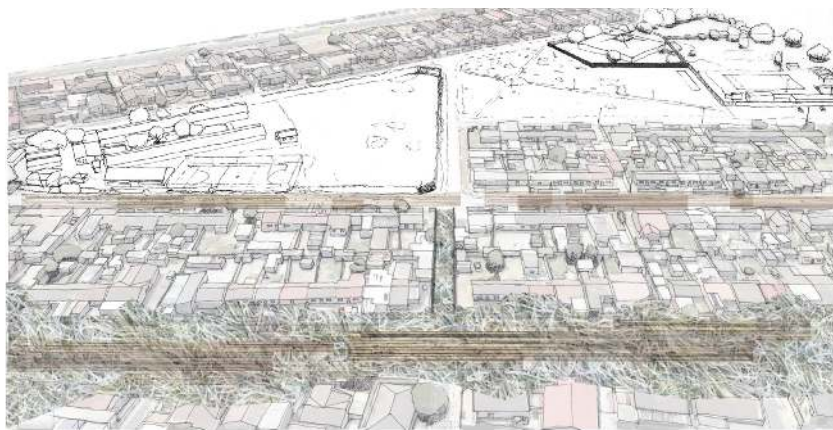
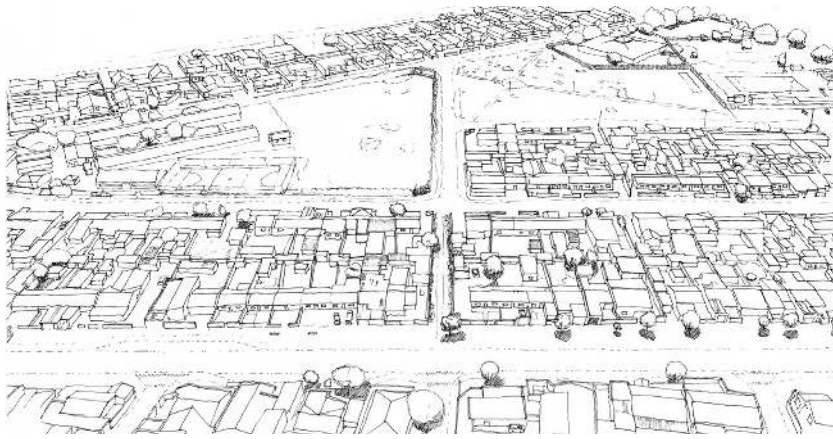


responding to the site geometries



placing the prototypes

*all map underlays  
adapted from (City  
Map Viewer, 2017)*

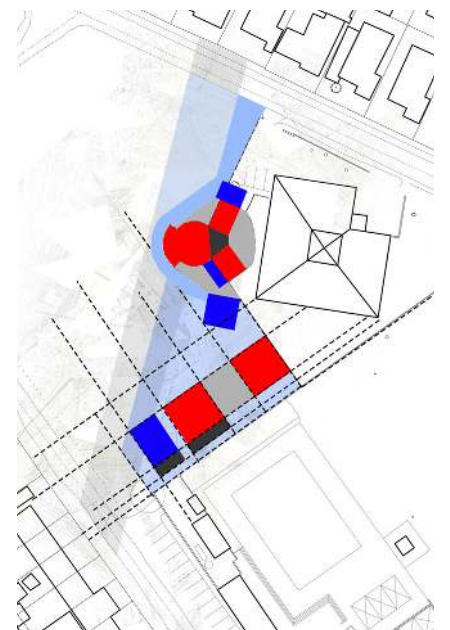


*adapted from (Google Maps, 2017)*

*all map underlays  
adapted from (City  
Map Viewer, 2017)*

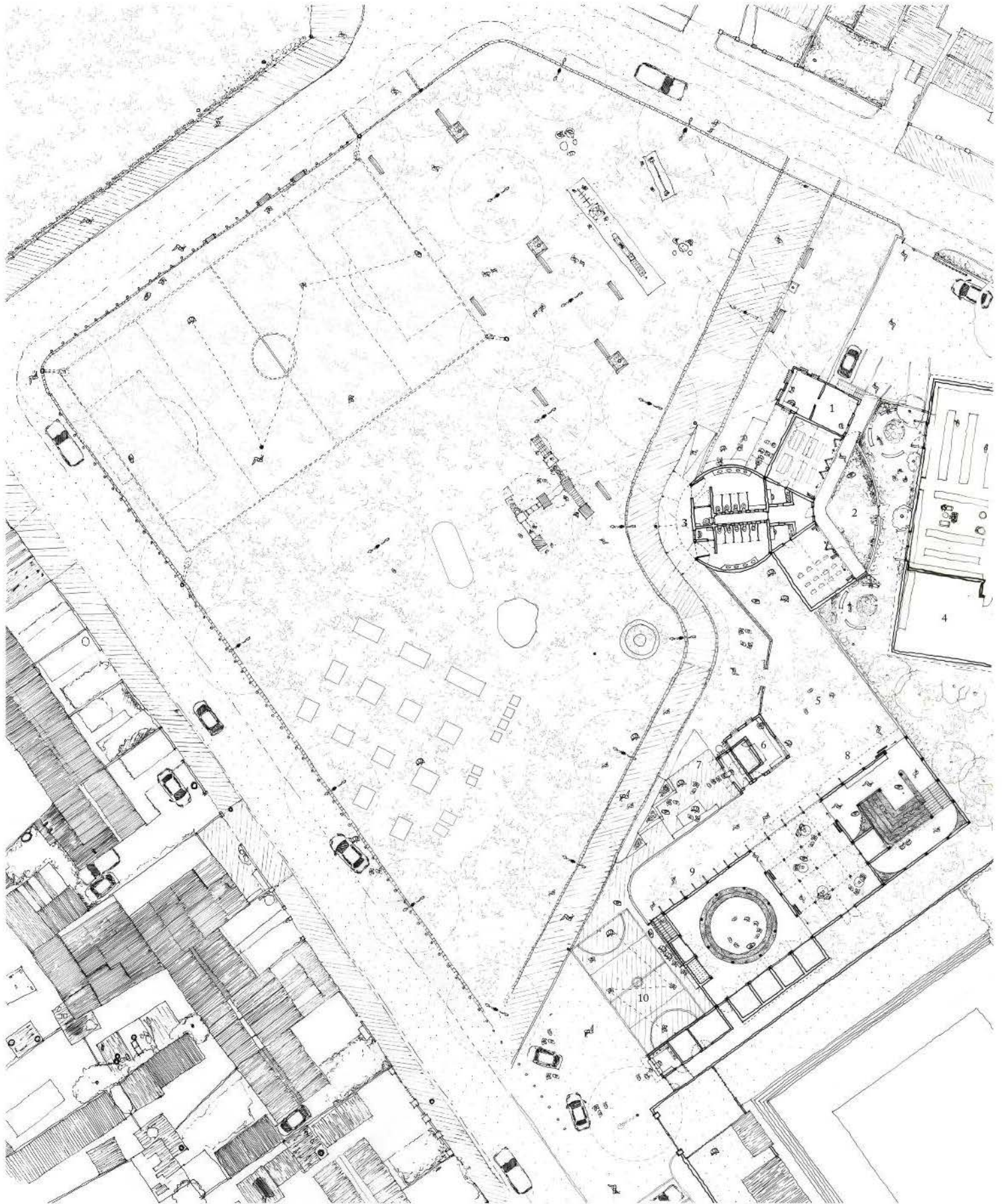


*reinforcing a safe pedestrian route through an active park edge comprising  
of different fragments*



*the spaces in between the prototypes can be formalised in stages, or not at all,  
using the geometries*

Ground Floor Plan | *First Stage of Development*

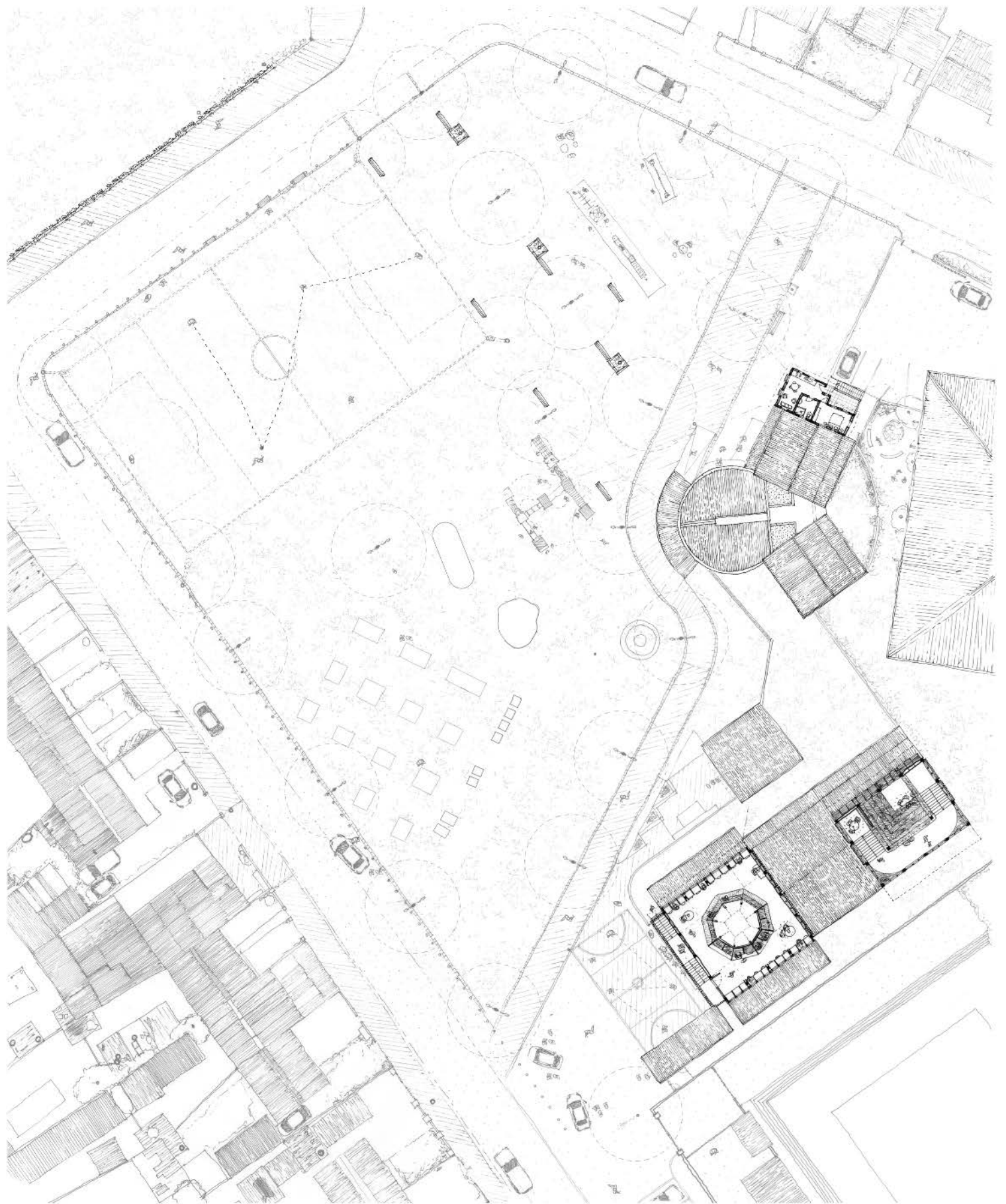


- 1 | Park Security / Admin
- 2 | Classrooms and Courtyard
- 3 | Public Toilets
- 4 | Gugulethu Library
- 5 | Play Area

- 6 | Admin Office / Reception
- 7 | Kiosk / Social Space
- 8 | Learning Stairs
- 9 | Stories Centre
- 10 | Sports Court

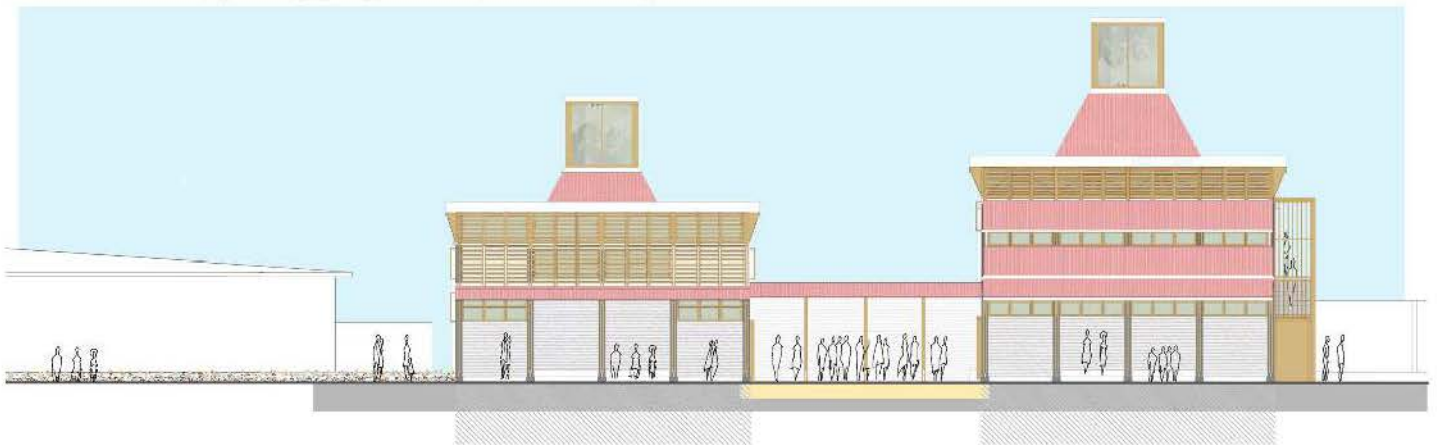
1 : 200  
N |

First Floor Plan | *First Stages of Development*

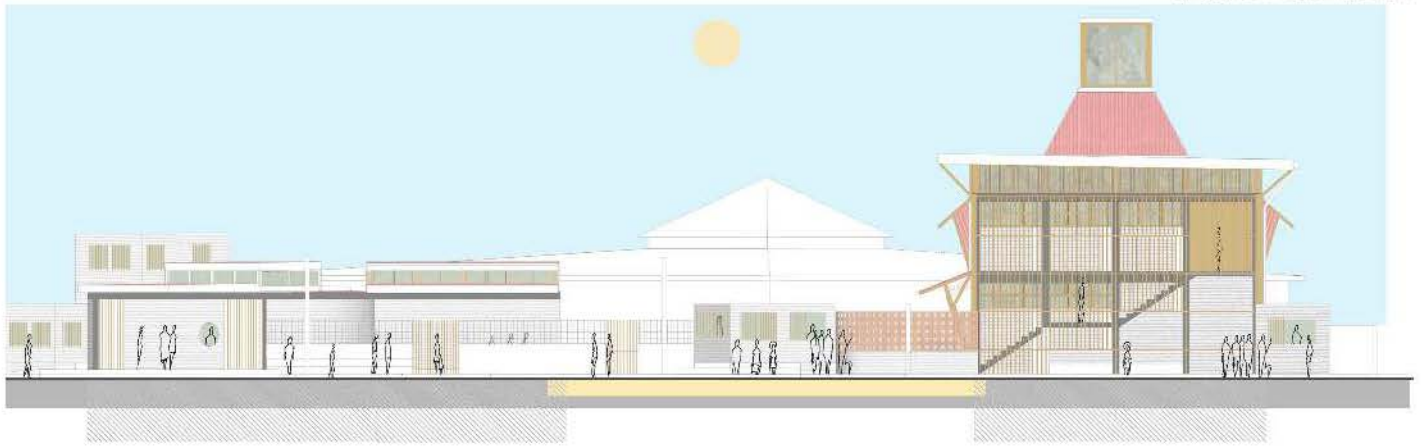


Prototype Aggregation | *First Stage*

North Elevation



Western Elevation





- |                                      |                                  |
|--------------------------------------|----------------------------------|
| 1 - Gugulethu Library                | 9 - Stories Centre               |
| 2 - public toilets with classrooms   | 10 - iKapa Foundation dance hall |
| 3 - main entrance                    | 11 - storage                     |
| 4 - courtyard                        | 12 - toilets                     |
| 5 - front desk/admin                 | 13 - day-time entrance           |
| 6 - wifi, youth cafe                 | 14 - pavement                    |
| 7 - Learning Stairs                  | 15 - paved walkway               |
| 8 - flexible collaborative workspace | 16 - outdoor gym                 |
|                                      | 17 - kick-about space            |

Strategy for the park: a neutral kick-about space. There is equipment that is randomly placed around - can actually have a soccer/netball tournament.

These should rather be moved closer to the building edge to reinforce the safe route and allow for a more generous sports play surface.



- 1 - Learning Stairs
- 2 - admin desk
- 3 - I.T. labs
- 4 - admin/NGO offices
- 5 - reading room
- 6 - study/study room
- 7 - A.V. library
- 8 - seminar rooms
- 9 - Stories Centre upper floor

This highly formalised strategy uses the collaborative and social programme on the ground level of the Stories Centre and the quiet, individual modes of studying on the upper, to organise the building.

The ground floor in the building above offers cafes, collaborative work areas as well as many small nooks for sharing of ideas. The upper floor includes individual-centred spaces for learning - homework rooms, I.T. lab, etc.

This highly formalised strategy is an indication of what the building might be in due time.

Site Plan

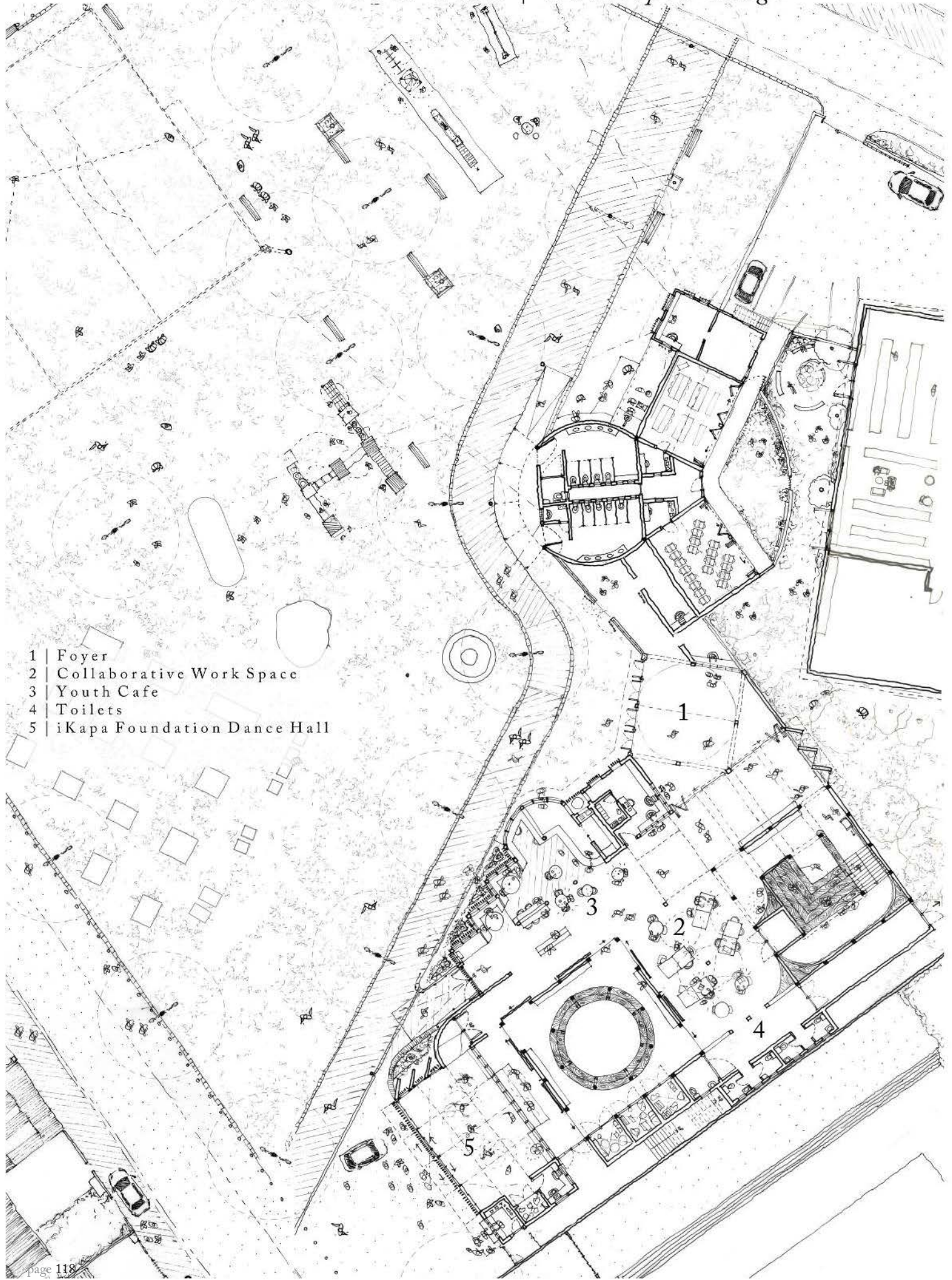
- 1 | Bonka Lower Primary
- 2 | Steve Biko Road
- 3 | Public Park
- 4 | Gugulethu Library
- 5 | New Additions
- 6 | Vahlndlela Swimming Pool

N |





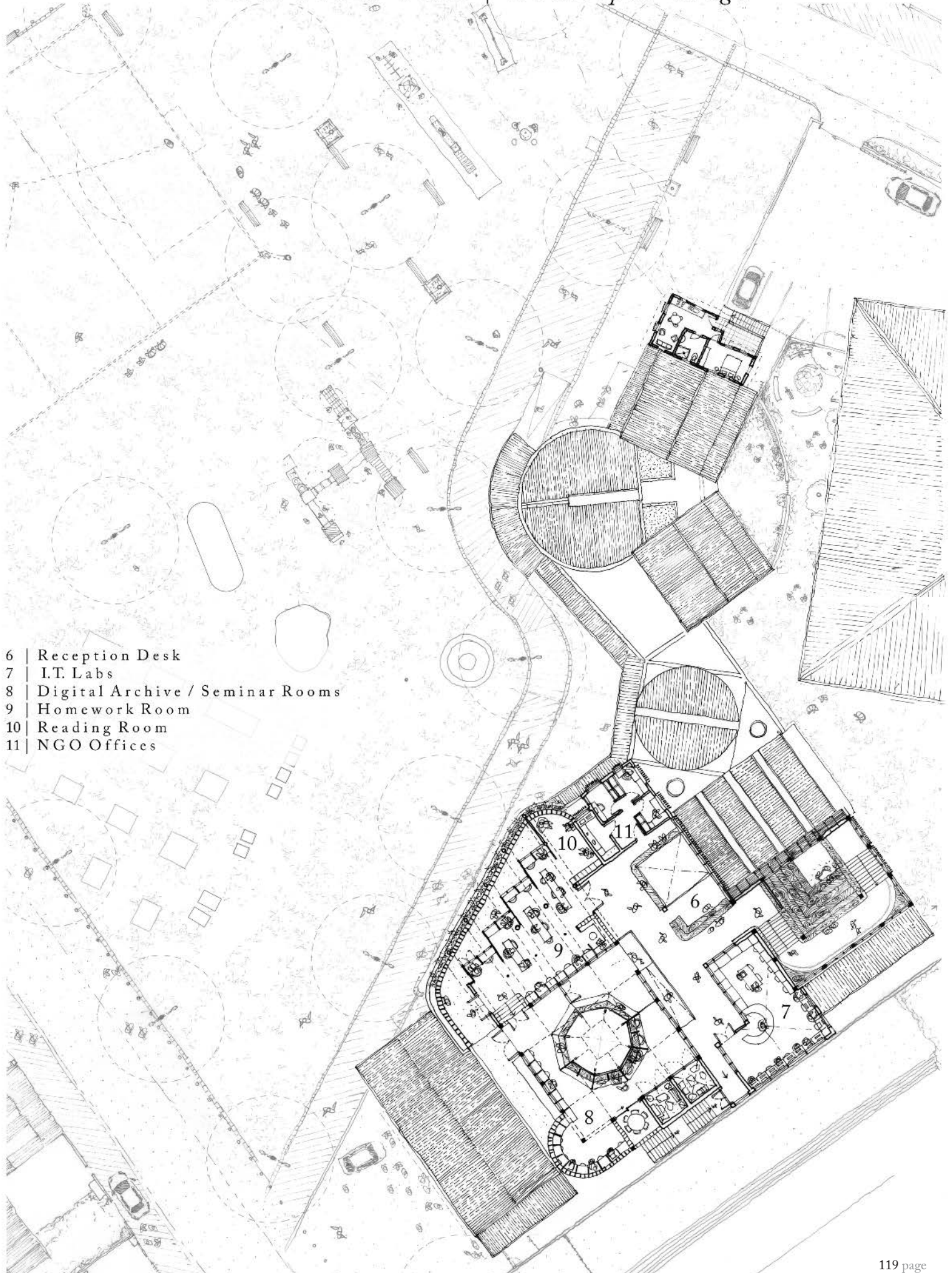
# Ground Floor Plan | *Developed Stage*



- 1 | Foyer
- 2 | Collaborative Work Space
- 3 | Youth Cafe
- 4 | Toilets
- 5 | iKapa Foundation Dance Hall

# First Floor Plan | *Developed Stage*

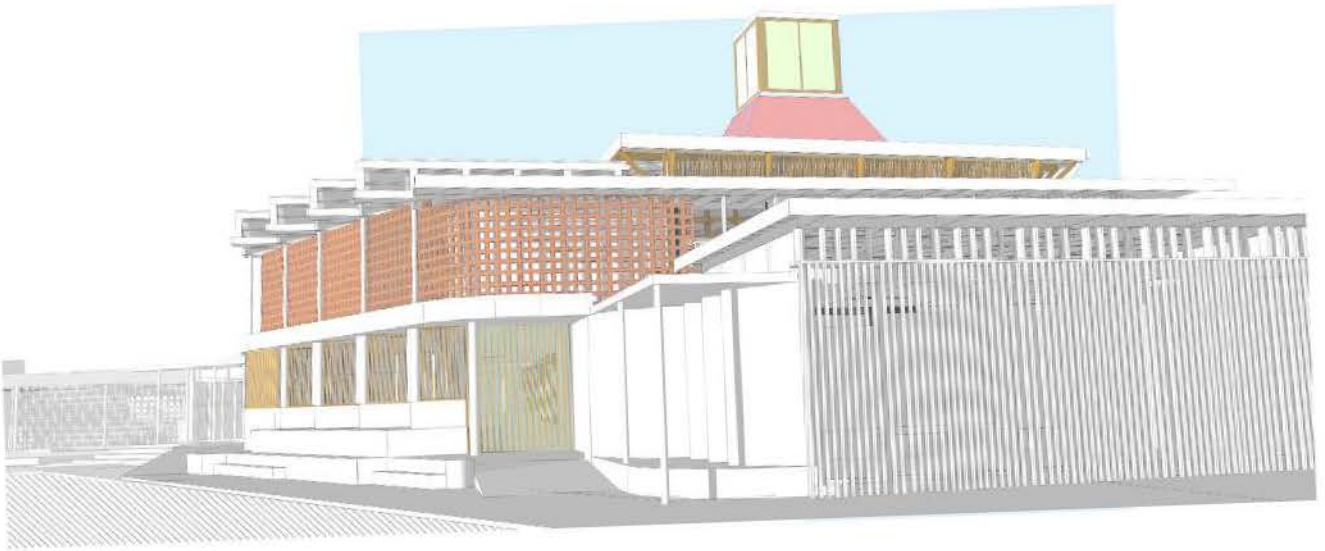
- 6 | Reception Desk
- 7 | I.T. Labs
- 8 | Digital Archive / Seminar Rooms
- 9 | Homework Room
- 10 | Reading Room
- 11 | NGO Offices



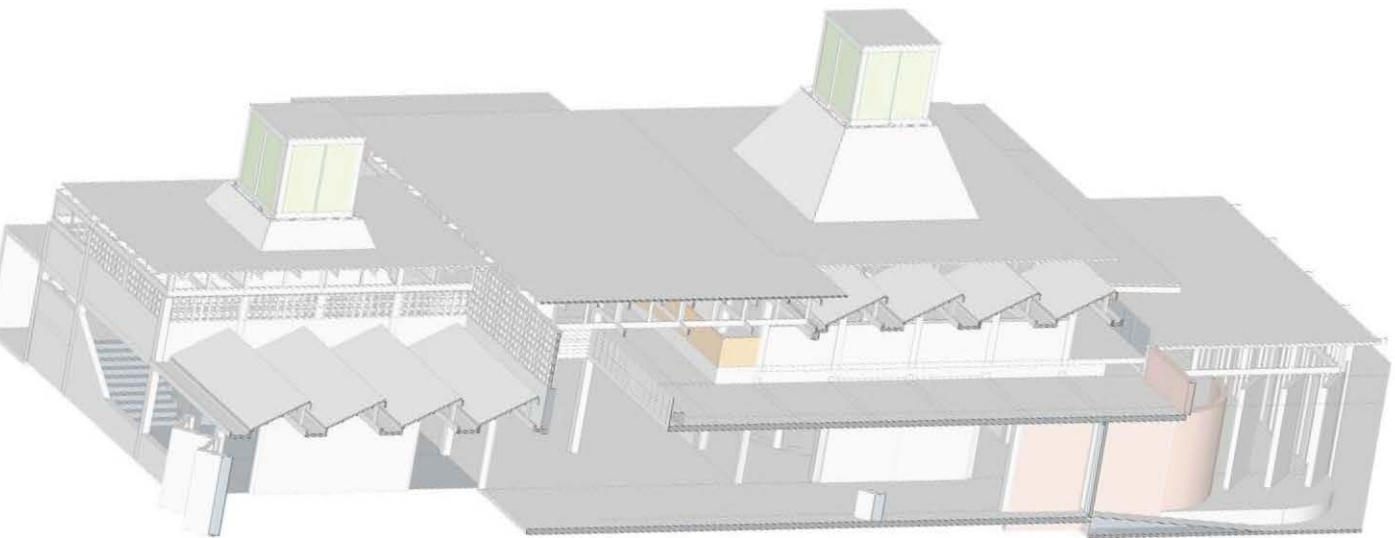
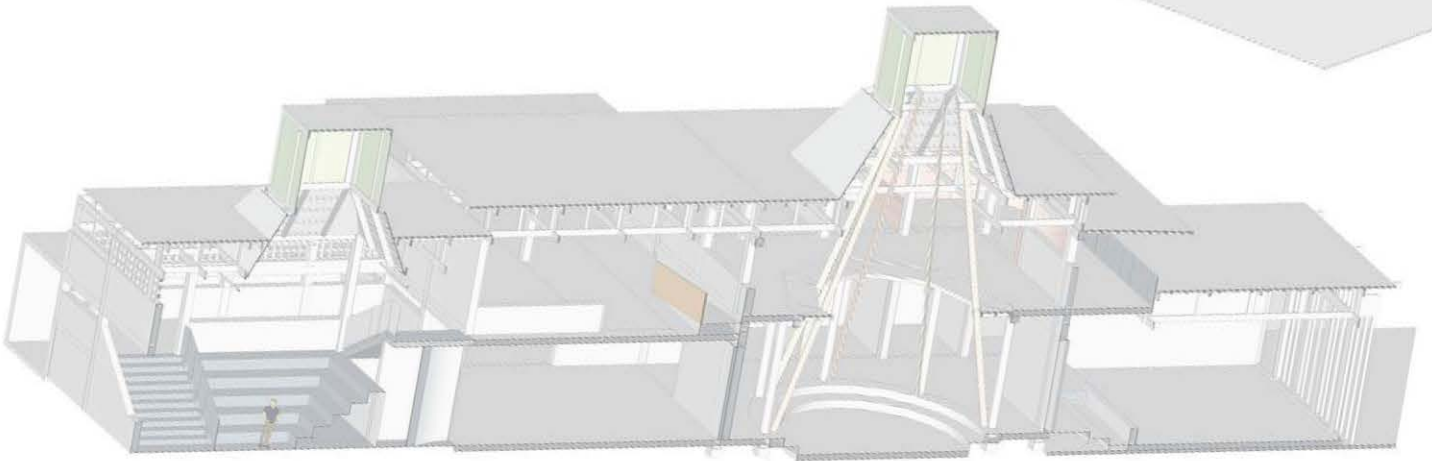
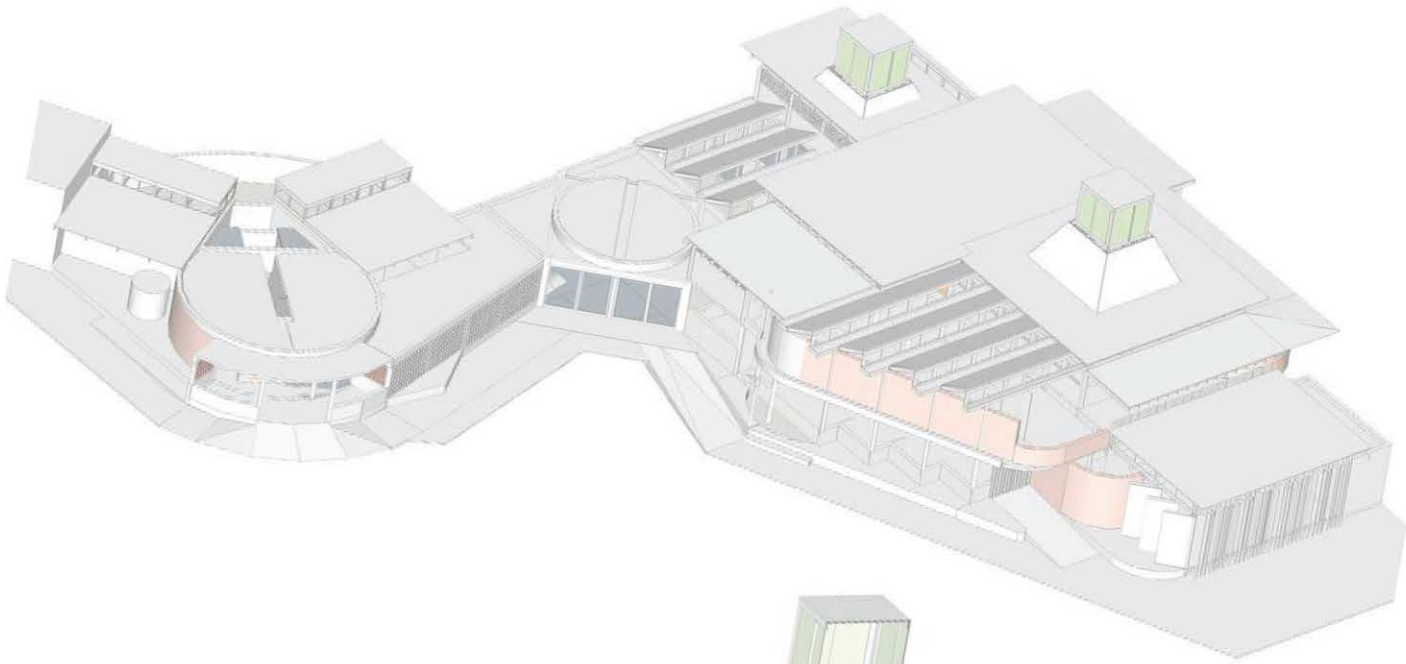
Prototype Aggregation | *Developed Stage*

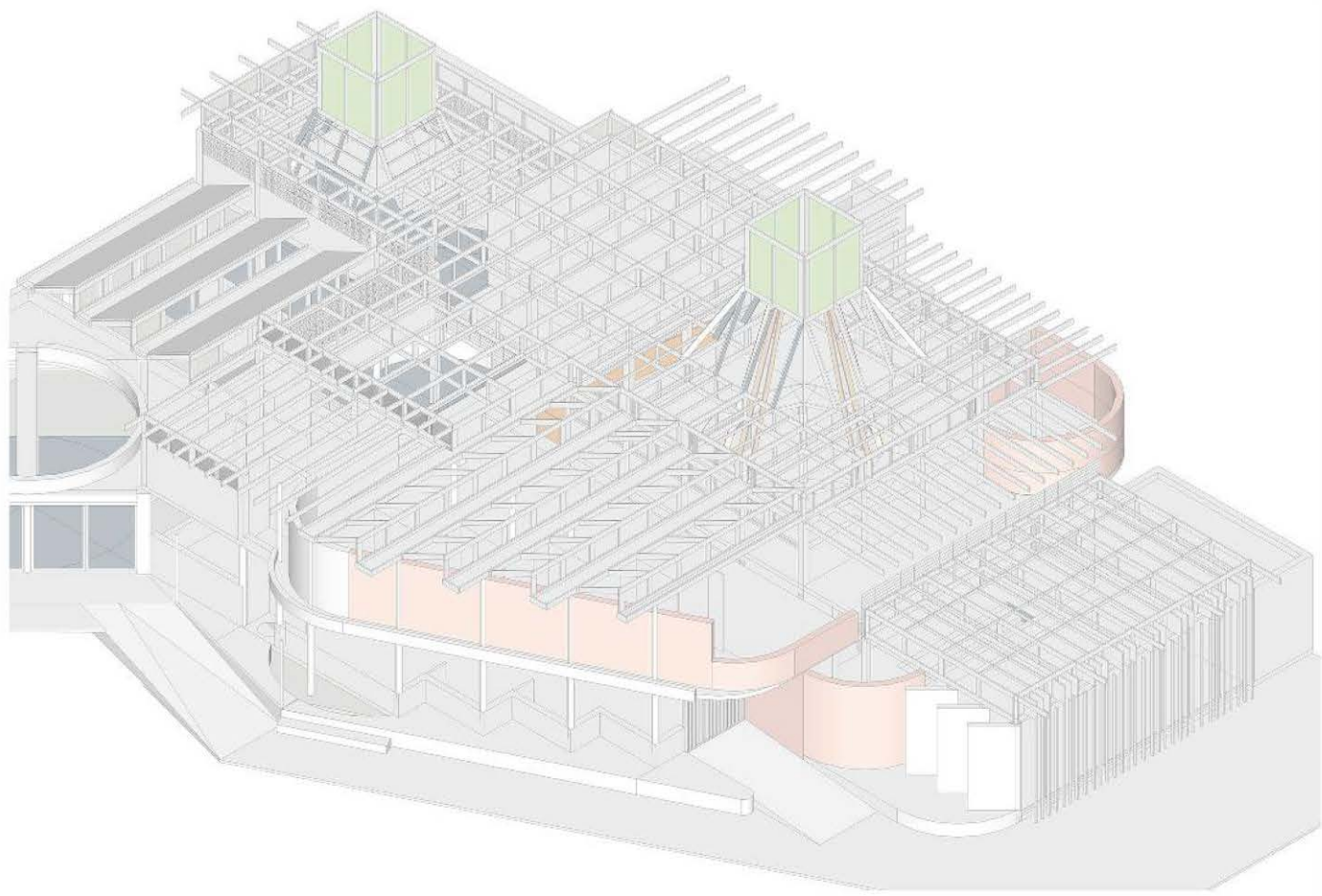
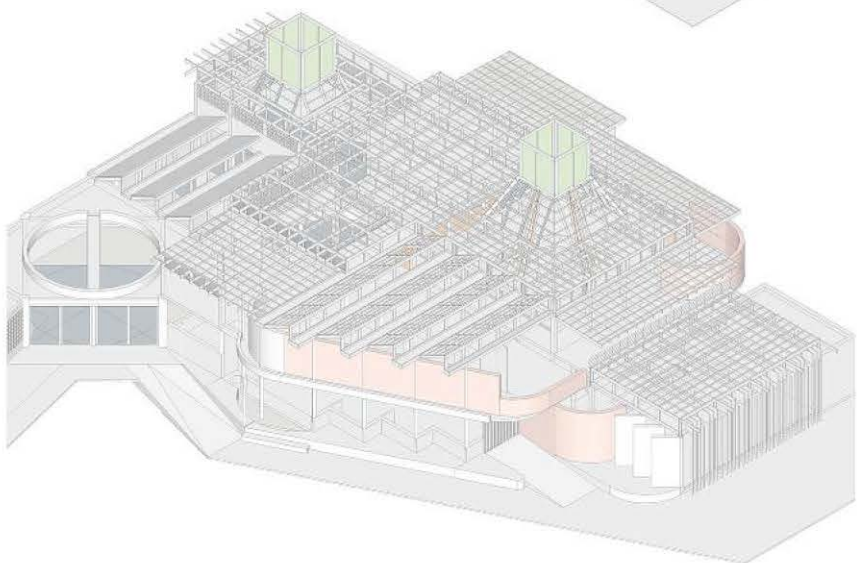
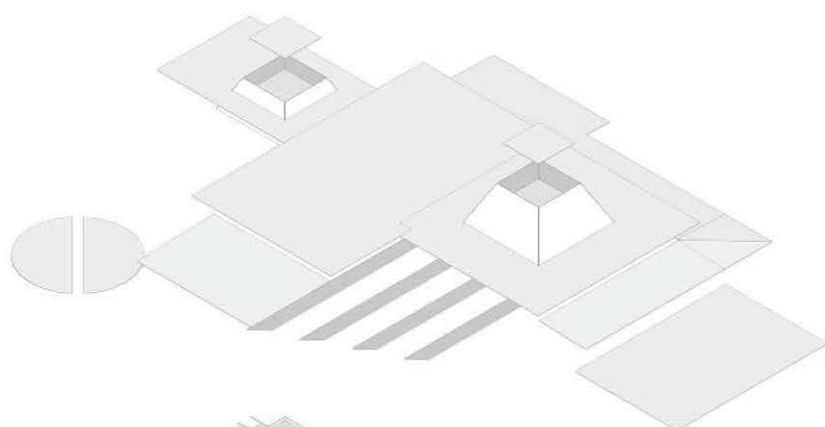
Northern Elevation

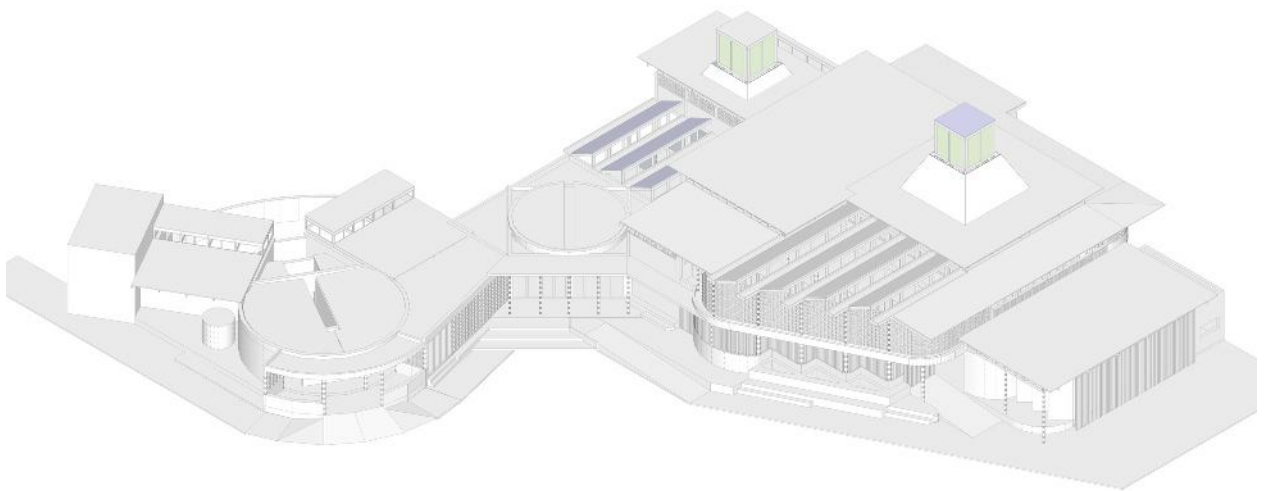
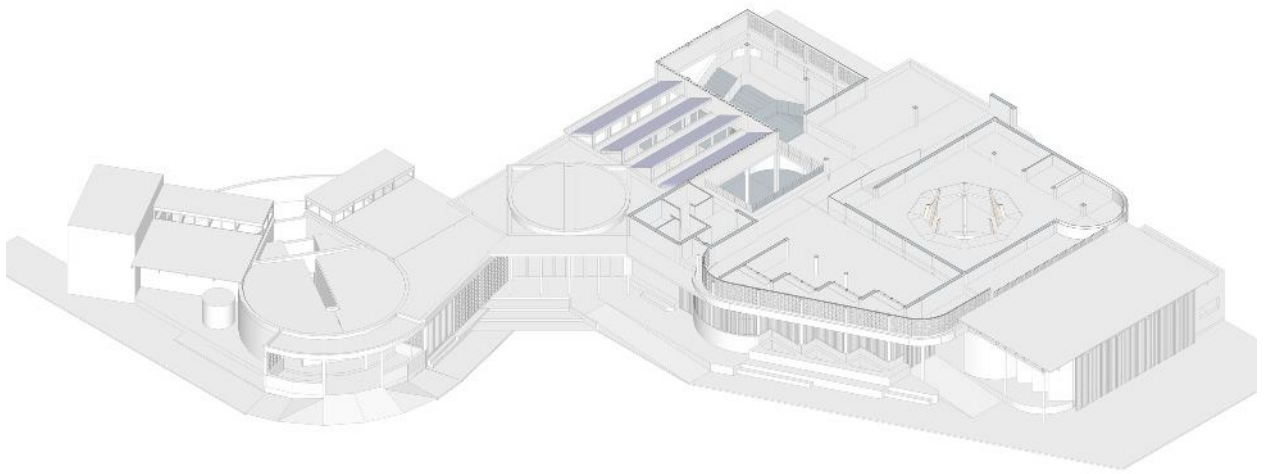
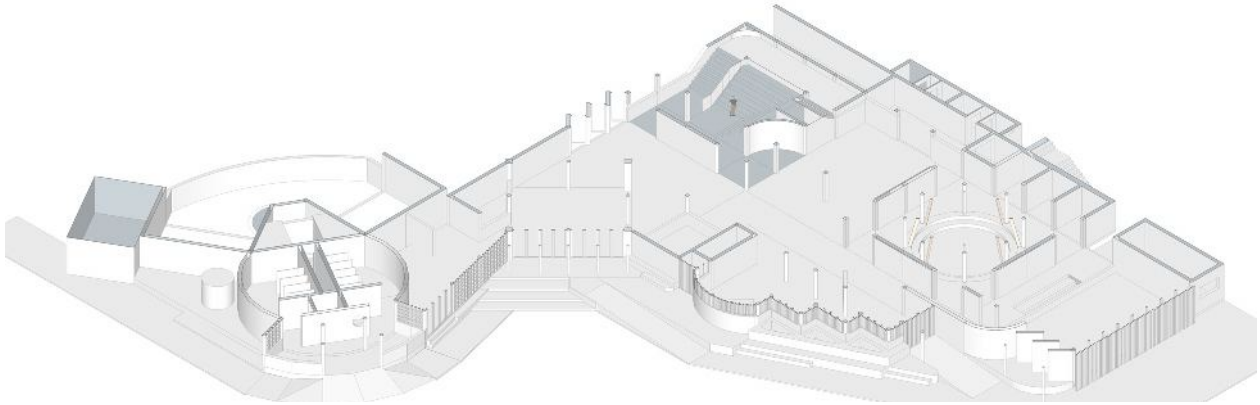
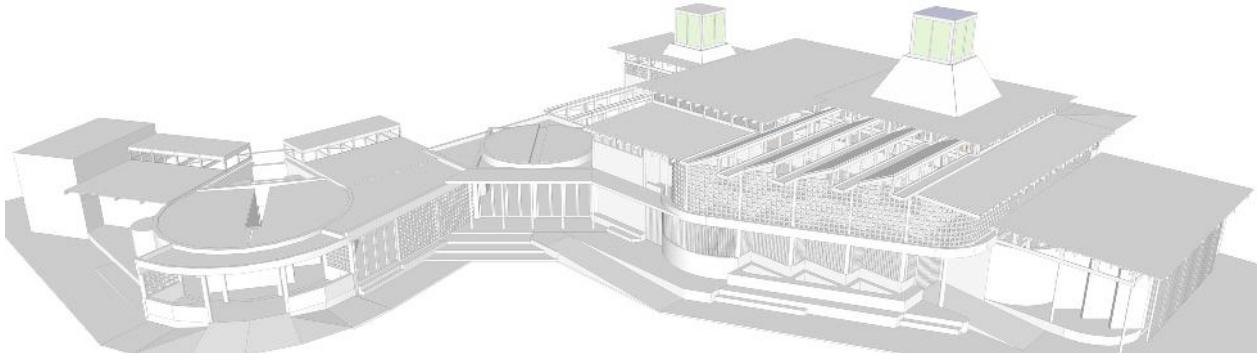


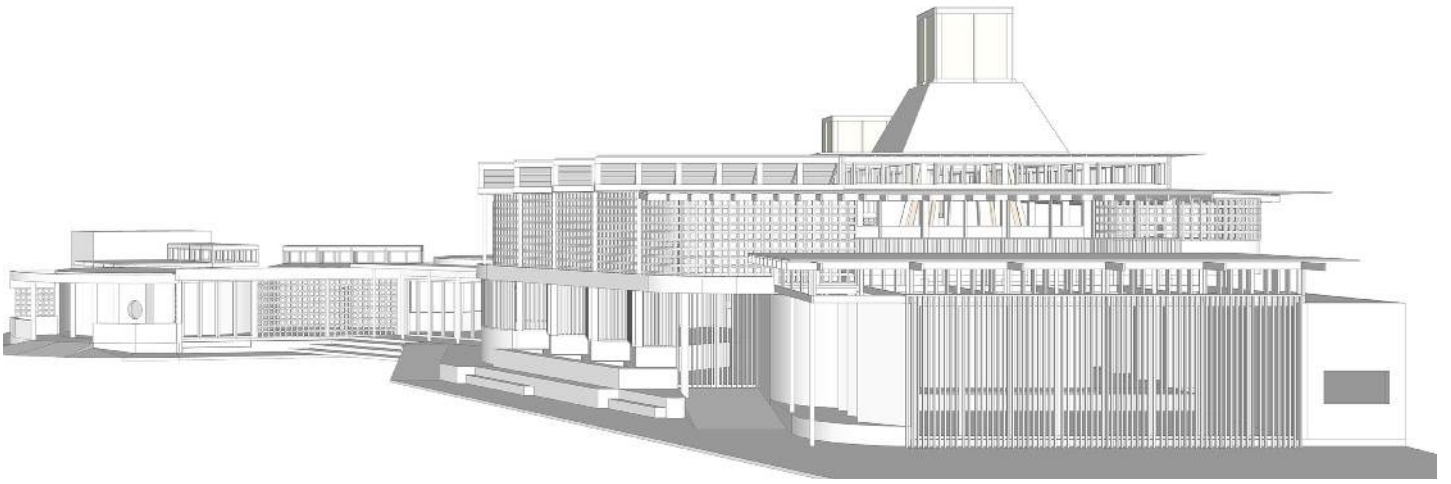


*Design development of whole building*









*robust materials, a lockable edges, speaking back to the idea of the palesade fence with vertical elements, however this time done in timber. The building requires access-controlled edges to protect the building and its inhabitants.*



**SECTION 5 | TESTING THE PROTOTYPES  
ON SIMILAR SITES**

Testing the 3 prototypes out on other sites, using a similar design process as the one used regarding the park site, was the next step in the design process.

The sites were required to be of a similar nature to the previous - characterised by expanses of public open space that lack facilities, has institutions that may require support and present issues of security.

This was an experiment to see what considerations/issues arise when a generic prototype is placed in different contexts and how the inbetween spaces develop incrementally and in accordance with the needs of the community.

Two supplementary sites in the same scope were selected - a park and the Gugulethu Sports Centre site.



*(City Map Viewer, 2017)*



*(City Map Viewer, 2017)*



## Site 1 | Public Park

This piece of land zoned for public use and is located away from Steve Biko Road. It is expansive and set in close proximity to the railway line - a hotspot for gang activity. Currently it has minimal facilities supporting it.

This park is another good opportunity to test out the prototypes in a different configuration using the same principles on the park site. Desire lines are noted, and possible provision of safe routes through backyard shack dwellings.

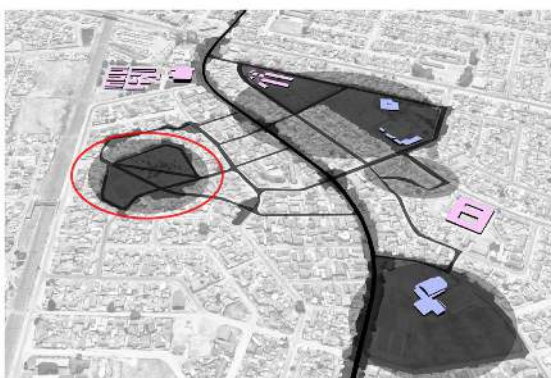


*(City Map Viewer, 2017)*



*(City Map Viewer, 2017)*

## Final Proposed Strategy



Site 1 | *Public Park*  
1 : 500

Prototypes placed on a prominent pedestrian route

An enclosed outdoor play space

A safe, active route through a large, under resourced public park

Incremental growth to occur along and perhaps over the safe route





## Site 2 | Gugulethu Indoor Sports Centre Complex

Similar to site one the Gugulethu Complex is likewise zoned for public use. This site is located on Steve Biko Road and is thus good for harnessing public activity.

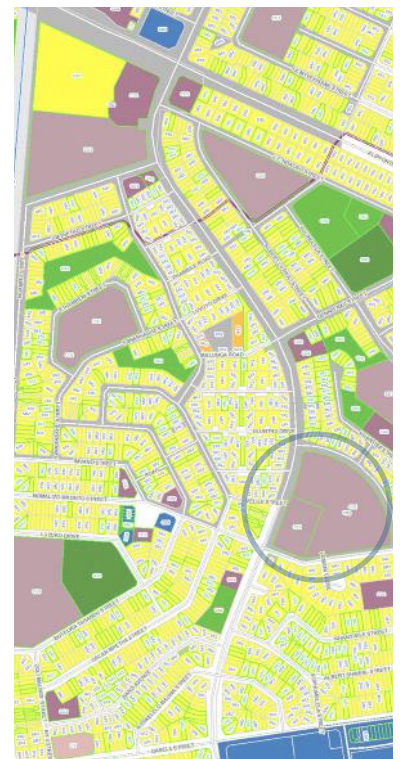
Security issues around the plot arose out of the fieldwork investigation. One again, this presents a good opportunity to create safe commuter routes and well equipped community facilities.

The educational programmes within the Stories Centre and the Learning stairs can occur collaboratively with the activities/ operations in the Sport Centre.

A formalised public square can spill out onto the street edge and provide a place for socialisation.



*(City Map Viewer, 2017)*



*(City Map Viewer, 2017)*

## Final Proposed Strategy



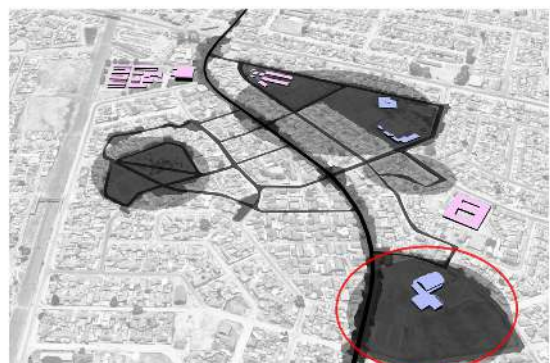
Site 2 | *Gugulethu Indoor Sports Complex*  
1 : 500

Site is located along a very busy Steve Biko Road

The prototypes are tested as an attachment to an existing building - the Sports Centre

A large public forecourt is created with the buildings as the backdrop and the street as the main social space

The existing playground becomes the safe outdoor play space





## CONCLUSION

To conclude, the findings from this dissertation range across multiple scales of architecture and aspects of society. This has ultimately resulted a multi-faceted discoveries.

Education is a fundamental need to address in marginalised societies. State-run bodies need support and alternative oportunities hold cognisance. There is a positive social impact this can have on the community.

Through the methodology of empirical fieldwork and investigating public architecture in the informal city, it was discovered that a justified strategy for civic alternative educational space in the South African township could follow a prototypical model. This component should embody the dynamism and unpredictability of the Informal City through the means of being highly flexible and adaptive.

Standard and conventional building materials that are ubiquitous to the area can be used in an imaginative way that creates a different kind of spatial experience for teaching and learning.

Through the procedure of incremental aggregation and implementation, the buildings can change in accorance to the needs of the community whilst dually providing an economically feasible strategy.

Safety is a major concern and should be prioritised in the building form and spatial arrangement.



# SMALL BUILDINGS BIG IMPROVEMENTS

*Addressing the need for Community Educational Facilities in the Informal City through provision of Prototypical Alternative Learning and Teaching Spaces.*

Catherine Ann Tod

TDXCAT001

Supervisor | Francis Carter for UCT

Co-supervisor | Tessa Brunette, for ARUP Cape Town

Design Dissertation report presented as part fulfilment of the degree of Master of Architecture (Professional) in the School of Architecture Planning and Geomatics, University of Cape Town.

*December 2017*

I hereby grant the University free license to reproduce the above design dissertation in whole or in part, for the purpose of research.

I declare that:

(i) The above design dissertation is my own unaided work, both in conception and execution, and that apart from the normal guidance of my supervisors I have received no assistance apart from that stated below:

- making of physical model assistance from Graham Siebert and Anthony Whitaker

(ii) Except as stated below, neither the substance or any part of the design dissertation has been submitted for a degree in this university or any other university:

n/a

(iii) I am now presenting the design dissertation for examination for the degree of Master of Architecture (Professional).

Plagiarism declaration:

I know that plagiarism - to use another's work and pretend that it is one's own - is wrong.

I have used the Harvard convention for citation and referencing. Each contribution to, and quotation in, this report from the work(s) of other people has been attributed, and has been cited and referenced.

This report is my own work.

I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

Signature

**Signed**

Date 2017/12/11

## Image References:

\*\* all images, unless stated otherwise, are the author's original work.

### Figure 05:

Life of Buildings, (2017). *A plan of the Masikanye Hall showing the many different uses of the main hall space - flexible event in a fixed space.*

### Figure 06

Nunkoo, A., 2016. Gugulethu Library.

### Figure 07

Kimberly Burge, (n.d.), *J. L. Zwane Presbyterian Church & Community Center, Gugulethu* [ONLINE]. Available at: <http://kimberlyburge.com/gallery/> [Accessed 11 October 2017].

### Figure 10

Noero Architects, (1990), *Duduza Resource Centre* [ONLINE]. Available at: <http://www.noeroarchitects.com/project/duduza-resource-centre/> [Accessed 30 October 2017].

### Figure 11

Noero Architects, (1990), *Duduza Resource Centre* [ONLINE]. Available at: <http://www.noeroarchitects.com/project/duduza-resource-centre/> [Accessed 30 October 2017].

### Figure XX

Lewis, M (2014), *Wake up, This is Joburg, Inside Out*, Johannesburg

## References

(Aravena, 2014)

Aravena, A. (TED Talks). (2014). Alejandro Aravena: My architectural philosophy? Bring the community into the process. [Online Video]. October 2014. Available from: <https://www.youtube.com/watch?v=oI0Poe3qIlg>. [Accessed: 8 March 2017].

(Brillembourg, 2016)

Brillembourg, A. (2016). Urban-Think Tank on a curriculum for a new urban planet. [Online Video]. 2 April 2013. Available from: <https://www.youtube.com/watch?v=TuT8ljzzLSU>. [Accessed: 23 June 2017].

(Ewing, 2017)

Ewing, K., 2017. Building[s] for Change. *ArchSA*, 1(84), pp. 7-9.

(Le Roux, 2012)

Le Roux, H. I., 2012. Learning making agency . In: G. B. a. A. Graafland, ed. *African Perspectives - South Africa*. Rotterdam : 010 Publishers, pp. 139-153.

(Mehrotra, 2013)

Mehrotra, R. (2013). "Working in Mumbai" with Rahul Mehrotra. [Online Video]. 2 April 2013. Available from: <https://www.youtube.com/watch?v=abv2zI39f1A&t=1728s>. [Accessed: 10 October 2017].

(Mehrotra, 2013)

Mehrotra, R. (2013). "Working in Mumbai" with Rahul Mehrotra. [Online Video]. 2 April 2013. Available from: <https://www.youtube.com/watch?v=abv2zI39f1A&t=1728s>. [Accessed: 22 October 2017].

(Noero, 1994)

Noero, J. (1994). Jo Noero - Spaces of Johannesburg: The City after Apartheid. [Online Video]. 1 May 2015. Available from: <https://www.youtube.com/watch?v=Xo3Yv0cVEX4&t=4354s>. [Accessed: 23 July 2017]

Noero, J. (2002). Jo Noero Lecture: Architecture in Transition: Recent Work by Jo Noero in South Africa. [Online Video]. 23 April 2013. Available from: <https://www.youtube.com/watch?v=YdYHvh13AqM&t=6364s>. [Accessed: 11 June 2017].

(Noero, 2010)

Noero, J. (2010). Current Work: Jo Noero, Noero Wolff Architects. [Online Video]. 3 January 2015. Available from: [https://www.youtube.com/watch?v=\\_aqy890VF\\_8&t=2s](https://www.youtube.com/watch?v=_aqy890VF_8&t=2s). [Accessed: 13 June 2017].

(Noero, 2016)

Noero, J. (2016). Urban Age Shaping Cities: Jo Noero - Housing and regeneration. [Online Video]. 22 July 2016. Available from: [https://www.youtube.com/watch?v=0SXsW\\_Ni9vw&t=304s](https://www.youtube.com/watch?v=0SXsW_Ni9vw&t=304s). [Accessed: 15 March 2017].

(Noero Architects, 2017)

Noero Architects. (2017). St. Cyprian's School – Library. [ONLINE] Available at: <http://www.noeroarchitects.com/project/st-cyprians-school-library/>. [Accessed 18 October 2017].

(Urban Think Tank, 2016)

Urban Think Tank. (2016). About. [ONLINE] Available at: <http://u-tt.com/about/>. [Accessed 19 June 2017].

(Urban Think Tank, 2016)

Urban Think Tank. 2016. Vertical Gym Chacao. [ONLINE] Available at: <http://u-tt.com/project/vertical-gym/>. [Accessed 9 June 2017].

(VPUU, 2015)

Cooke, J., Krause, M., Giles, C., Shay, D., Smith, E., Taani, I., et al. (2015). Violence Prevention through Urban Upgrading - A manual for safety as a public good. Cape Town: VPUU NPC.

(VPUU, 2016)

VPUU. 2016. About. [ONLINE] Available at: <http://vpuu.org.za/who-we-are/>. [Accessed 22 July 2017].

Harris, McGeerick and Nelson

Guguletu Allotment Area GENERAL PLAN No. L No. 427/1987

S. G. No. L.No. 427/1987 SHEET No. 1 of 17

APPROVED [Signature] for SURVEYOR GENERAL 1988-04-28

C.P.A. COMMUNITY SERVICES- WESTERN CAPE

Township register opened 1st Oct 1991 File. 5/280 pg.167



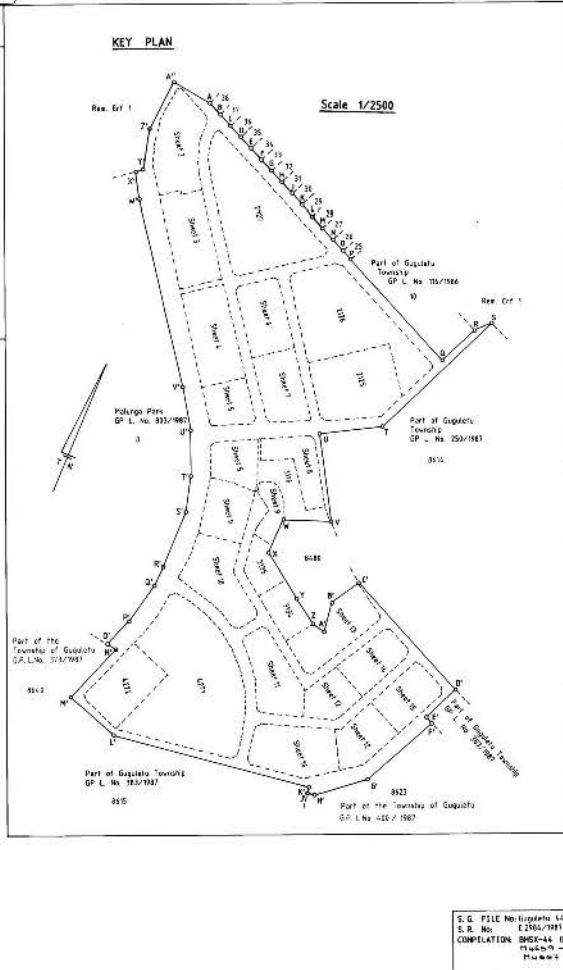
(Consisting of 17 sheets) OF part of the Township of Guguletu (Comprising Subdivision of Erf 8741 Guguletu Vide Diagram No. L No. 426/1987 D/T Situate in the Municipality of Cape Town Administrative District: Cape Province: Cape of Good Hope

Surveyed in June - November 1987 by me, [Signature] Jackson Professional Land Surveyor

ENDORSEMENTS table with columns: No., AMENDMENT, ADDITION, AUTHORITY, INTD, DATE

Main table with columns: MAIN FILAR, BLOCK CORNERS, AREAS, AREAS, AREAS. Includes coordinates, bearings, distances, and area calculations.

SHEET INDEX table with columns: SHEET No., GUYEN, KEY PLAN



L.G. KANI/OORNOTAS / S.G. OFFICE NOTES Erf 8978 represented by plan 3622/1993 Erf 3177 traced vide plan 3262/1988

S.G. FILE No. 427/1987 S.R. No. E 360/1987 COMPLETION 8/8/88 (M1218) [Signature]

L No 427/87 SHT 1 Appendix 1

