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# APPENDICES

## APPENDIX A: Faculty approved ethics clearance approval statement



Faculty of Engineering,  
Built Environment and  
Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en  
Inligtingtegnologie / Lefapha la Boetšenere,  
Tikologo ya Kago le Theknolotši ya Tshedimošo

9 June 2021

Reference number: EBIT/79/2021

Ms A van Aswegen  
Department: Architecture  
University of Pretoria  
Pretoria  
0083

Dear Ms A van Aswegen

### FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

Conditional approval is granted.

This means that the research project entitled "Masters Professional Mini-Dissertation in Architecture, Landscape Architecture and Interior Architecture (Group / Blanket)" is approved under the strict conditions indicated below. If these conditions are not met, approval is withdrawn automatically.

#### Conditions for approval

This application is approved based on the summaries provided.

Applications from each student (including application forms and all necessary supporting documents such as questionnaire/interview questions, permission letters, informed consent form, etc) will need to be checked internally by the course coordinator/ supervisor. A checklist will need to be signed off after the checking.

All of the above will need to be archived in the department and at the end of the course a flash disc / CD clearly marked with the course code and the protocol number of this application will be required to be provided to EBIT REC administrator.

No data to be collected without first obtaining permission letters. The permission letter from the organisation(s) must be signed by an authorized person and the name of the organisation(s) cannot be disclosed without consent. Where students want to collect demographic the necessary motivation is in place.

This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Ethics Committee.

If action is taken beyond the approved application, approval is withdrawn automatically.

According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.

The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

**Prof K.-Y. Chan**

Chair: Faculty Committee for Research Ethics and Integrity  
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

## APPENDIX B: Questionnaire (interviews)

### Semi-structured interviews' question examples [Form for research interviews]

#### Title of Research Project:

The agency of recreation: The study of community-led initiatives in Mamelodi East to uncover a typology for recreational spaces with the potential to act as a device contributing to a culturally sustainable and cohesive urban environment

#### Researcher's details

Denambaye Martine Demba/ Student Number: 16070713 /, Department of Architecture, EBIT, University of Pretoria.

**Disclaimer: For the purpose of this form, the name of the NPO Thandanani has been used however the name will change according to the entity being interviewed. Similarly, the sets of questions are to be adapted to the conversations and sites of interview appropriately. Therefore, the order and number of questions will vary accordingly. This form only provides an insight on the types of questions that may be used.**

#### Question examples for small focus group

##### A. INTRODUCTION

- Could you describe Mamelodi in a few words?
- What is culture and how would you describe Mamelodi's culture?
- What is very unique to Thandanani [or insert name of CBO/NPO] (as a place, values)?
- What is the organogram of Thandanani (no names should be mentioned)?

##### B. POPULATION

- In your opinion, which of the following seem to be the dominant demographic in Mamelodi (ages 0-10/10-15/15-19/19-30/35-50/50+)?
- In which age bracket do the children using the center fall in?
- Which of these age groups appear to be less involved in specific recreation?
- Do elderly people also take part in some sort of recreation (at Thandanani or in the neighbourhood)?

##### C. THANDANANI'S [or insert name of CBO/NPO] RECREATION PROGRAM

- Which recreation-like activities does Thandanani hosts?
- Where do they occur? If possible, could you explain how the spaces are adapted when you use them? What is already available there?
- Which of these activities are the most open to the public (anyone from anywhere can take part in it) and which are specifically open to the people who are "regulars" of Thandanani?
- When they are not at Thandanani where do children gather?
- What does a typical sport and recreation Friday look like at Thandanani? Which places or spaces are used? Any interesting stories?
- Which activities are the most successful amongst the children?

- Are they receptive to new activities you introduce?
- In terms of sports and recreation Fridays, could you rank the places/activities in terms of accessibility (financially, physically)?
- What made it possible for Thandanani to be able to maneuver during the pandemic? Which activities were able to go on and how did the community respond?
- Which recreation activities are the most accessible to children when they are not at Thandanani?
- Are there any games that the children take part in that they initiated themselves?
- In which situations do the different generations in the community gather? How are those interactions made possible and where do they occur?
- Please tell me more about the story of the mobile toy library that you launched
- What can a library be?
- How would you see the future of "mobile" recreation?
- How important is technology in recreation today? Could you think of examples?
- Are there other recreation elements/events that you are aware of that are also mobile/ not fixed? If so how/where do they take place?
- Could you tell me about Sport and recreation success stories (Thandanani or in the neighbourhood)?

##### D. NETWORKS

- Approximately how many people visit the center per day?
- Generally, where are the visitors from (not the addresses, could be general areas, nationalities)?
- How are the centers' users welcomed (spatially, upon arrivals, sequences of spaces they move through)? How do they find out about the center?
- How are you able to break barriers with the diverse groups of people (from different backgrounds) that visit the center?
- Are you aware of other NGOs/NPOs/CBOs in Mamelodi East? Have you partnered with any of them? If so for which events or activities?
- For the sports and recreation aspect of Thandanani, have you collaborated with other entities (NPO,CBO,NGO,Universities, schools)?

##### E. MAMELODI'S RECREATION

- Which formal recreation facilities in Mamelodi (East) would you say are successful?
- Are they easily accessible (financially or physically)?
- Which are the biggest nodes of transport in Mamelodi East?
- Which are the closest places to Thandanani to catch public transport?
- Which would you say are less successful?
- The city of tshwane has allocated a few areas in Mamelodi as open public space and open space but they are not parks and remain vacant. What are your feelings about them?
- Are the parks in the area used by the community?
- Do you know of any other similar situations where communal or recreational spaces are left vacant? What has taken over these spaces?
- Is vandalism common in recreational spaces? Which recreational spaces in Mamelodi East (or Mamelodi as a whole) are the most well maintained?
- Please tell me more about the story of the dumpsite that you turned into a community garden.



#### F. OCCUPATION AND CROSS-PROGRAMMING

- Please tell me more about the story of the occupation phases of Thandanani? What had to be changed from the original buildings and setup?
- What were the sequences of activities that got implemented, starting from when Thandanani first began?
- How are Thandanani's buildings organized (in terms of programs)?
- Thandanani holds several functions, do all the programs run at the same time?
- How is privacy/safety and security ensured in Thandanani (cross-over of activities and groups of people substance abuse, homeless, feeding scheme, children)?
- Where do you feel are the most social spaces inside Thandanani's property or around Thandanani? What makes them so?
- Which activities/programs in the buildings do you think should be more visible to the public? Which ones should be more accessible to the public?

#### G. SAFETY AND SECURITY

- At what time does Thandanani close?
- Are there any recreation-like activities that happen at night in the neighbourhood/ township?
- Which activities/places (not necessarily recreational) in the neighbourhood/ township remain open at night or close late?
- Is the area surrounding Thandanani lit up at night? Which other areas are lit at night?
- How is safety and security ensured in the community?

#### Question examples for individual participants

##### 1. INTRODUCTION

- Do you live in Mamelodi (yes or no)?
- How long have you lived in Mamelodi?
- How long have you worked here?
- Describe Thandanani in 3 words.
- What does the journey coming to Thandanani feel like?

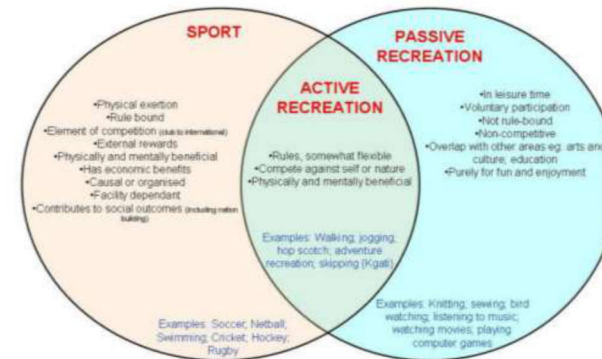
##### 2. MAMELODI'S RECREATION

- Are there any interesting cultural events in Mamelodi that you take part in? Which spaces are used for these events?
- How has recreation evolved in Mamelodi?

##### 3. SAFETY AND SECURITY

- Where do you feel the most comfortable/safe/unsafe around Thandanani? In the neighbourhood? Which physical element in these places/spaces make you feel that way?

##### 4. "SITES" OF RECREATION



- South African Government. 2020. Sport and Recreation White Paper. [Online]: <https://www.gov.za/documents/sport-and-recreation-white-paper> [Accessed 08 March 2020].
- This is the chart taken from the 2012 official White Papers on Sports and Recreation, do you agree with how recreation has been classified? Which other activities do you think are missing?
- What do you do in your spare/free time?
- What do you not consider recreation?
- What should recreation achieve for you?
- Do you take part in it on weekends mainly or throughout the week?
- How often per week/per month do you take part in this (these) activity?
- Do you take part in group recreation? Which one (s)?
- How far from your home is this (these) activity you take part in, at home, in front of your home, in your block, in another neighbourhood (NB: In case of homes, no addresses to be mentioned)?
- 5. **ACCESSIBILITY**
  - If getting to that place requires travelling, how is your journey there like? Any interesting/important spots/stops? Anything you enjoy doing on the way there?
  - Which modes of transport do you use: car, train, bus, foot, bicycle, other?
  - Which one do you use the most/longest time?
- 6. **RECREATION IMPRESSIONS**
  - Would you be able to perform this (these) activity(ies) elsewhere?
  - How does the space you use for these activities feels like? Which characteristics of the place present make you feel that way?
  - Have you visited [inserting name of a recreational facility mentioned during the focus group] facility? As a recreational facility, how did the space make you feel upon arrival/ while in the perimeters? Which physical elements/ characteristics of the space made you feel so?
  - How often do you visit the place?

## APPENDIX C: Informed consent form example

### Informed consent form [Form for research participant's permission]

#### 1. Project information

1.1 Title of Research Project:

*Masters Professional Dissertation:* The agency of recreation: The study of community-led initiatives in Mamelodi East to uncover a typology for recreational spaces with the potential to act as a device contributing to a culturally sustainable and cohesive urban environment

1.2 Research Field: Future Studio

1.3 Researcher's details:

Denambaye Martine Demba/ Student Number: 16070713 /, *Department of Architecture, EBIT, University of Pretoria.*

1.4 Research Study Description:

In the Department of Architecture, the students of the Professional Master's Program annually engage in research activities related to specific areas in Gauteng (or area outside this region that has been well motivated). The students investigate specific architectural issues related to their chosen contexts, to enable them to respond to these conditions through a design proposal. These design projects, while resulting in real life recommendations, are neither implemented nor built.

This study forms part of a MArch (Prof) dissertation as part of the Department of Architecture at the University of Pretoria. The research considers the notion of recreation within the township of Mamelodi East and aims to understand the meaning and types of recreation preferences amongst the community to derive subsequent spatial outcomes. Additionally, the study's objectives will be to uncover the community's cultural activities along with the social and physical nature of spaces or places appropriated by the community. The data/information will be collected through semi-structured interviews and unstructured interviews appropriately. No minors or vulnerable groups of people shall take part in the interviews.

The conversation will be recorded. All information gathered shall be kept safely in a device protected by a secure password only accessible by the researcher. Some of the results may be published and although participants will remain anonymous some of their words might be quoted in the publications.

#### 2. Informed consent

- 2.1 I, \_\_\_\_\_ hereby voluntarily grant my permission for participation in the project as explained to me by the researcher.
- 2.2 The nature, objective, possible safety and health implications have been explained to me and I understand them.
- 2.3 I understand my right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for the purposes of publication.
- 2.4 Upon signature of this form, the participant will be provided with a copy.

I will remain anonymous my comments may be used without giving any specific geographic or personal references (name, address, ID, occupation, age, income etc.) that may accidentally imply my identity

- I give permission for the interview to be recorded: Y / N
- I give permission for notes to be taken: Y / N

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

Researcher: \_\_\_\_\_ Date: \_\_\_\_\_

APPENDIX D: Informed Consent  
form example for entity

**Informed consent form  
COMPANY/ENTITY APPROVAL**

MProf Research project [The agency of recreation: The study of community-led initiatives in Mamelodi East to uncover a typology for recreational spaces with the potential to act as a device contributing to a culturally sustainable and cohesive urban environment]

Department of Architecture  
EBIT Faculty  
University of  
Pretoria.

1. Project Information:

1.1. Title of research project:

The agency of recreation: The study of community-led initiatives in Mamelodi East to uncover a typology for recreational spaces with the potential to act as a device contributing to a culturally sustainable and cohesive urban environment

1.2. Researcher's details:

Full Name: Denambaye Martine Demba  
Student Number: 16070713  
Email: u16070713@tuks.co.za

1.3. Research Study Description:

**This study forms part of a MArch (Prof) dissertation as part of the Department of Architecture at the University of Pretoria. The research considers the notion of recreation within the township of Mamelodi East and aims to understand the meaning and types of recreation preferences amongst the community to derive subsequent spatial outcomes. Additionally, the study's objectives will be to uncover the community's cultural activities along with the social and physical nature of spaces or places appropriated by the community. The data/information will be collected through semi-structured interviews and unstructured interviews appropriately. No minors or vulnerable groups of people shall take part in the interviews.**

**The conversation will be recorded. Some of the results may be published and although participants will remain anonymous some of their words might be quoted in the publications.**

2. I....., performing the role of ..... and representative for ..... hereby voluntarily grant permission for employees of ..... to participate in the project as explained to me by

**Denambaye Martine Demba.**

3. The nature, objective, possible safety and health implications have been explained to me and I understand them.
4. I understand that employees of the company I represent have the right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for academic purposes and / or publication.
5. I understand that the respondents representing the above stated company will remain anonymous their comments may be used without giving any geographic or personal references (name, address, ID, occupation, age, income etc.) that may accidentally imply our identity.
6. Upon signature of this form, you will be provided with a copy.
7. I, as representative of the above stated company, agrees that no specific data will be shared with the company. The company will have access to the final report.
8. This Informed consent form accompanies a letter from the above-mentioned company confirming permission to be granted. This letter is signed and states the company name (include the letterhead), date and role and identity of the person giving permission.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Witness: \_\_\_\_\_ Date: \_\_\_\_\_



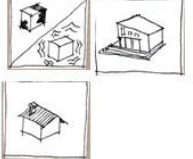




Researcher: \_\_\_\_\_ Date: \_\_\_\_\_







APPENDIX E: Deck of cards for  
typology study (Author 2021)


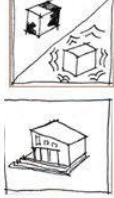

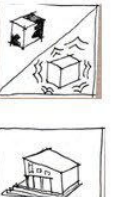

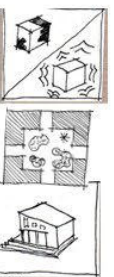


APPENDIX F: Typology study rating tables (Author 2021)








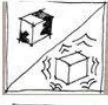


PRECEDENT	TYPOLOGY	URBAN COHESION RESPONSE								AGENCY/ AFFORDANCE/ DISPOSITIF /NETWORK
<p>ALEXANDRA INTERPRETIVE CENTRE, Johannesburg, Peter Rich Architects, 2010</p>	<ul style="list-style-type: none"> <li>• New Interpretive Centre</li> </ul>	1.1	1.3	1.1	1.6	1.5	1.6	1.6	1.1	<ul style="list-style-type: none"> <li>• <b>Agency:</b> people telling their stories and participation into design, job opportunities</li> <li>• <b>Affordance</b> of interpreting the plazas/squares</li> <li>• <b>'Dispositifs':</b> materials</li> <li>• <b>Networks:</b> community, visitors, stories</li> </ul>
		1.1	1.4	1.3	1.2	1.1	1.1	1.1	1.1	
		1.2		1.4	1.5	1.3	1.2	1.3	1.2	
				1.5		1.4	1.5	1.4	1.3	
						1.5	1.6		1.5	
						1.6			1.6	
<p>VPUU ACTIVE BOXES, Western Cape, VPUU, 2006-14</p>	<ul style="list-style-type: none"> <li>• New on vacant lot in dangerous zones</li> <li>• Series of Multipurpose community centres</li> </ul>	2.1	2.3	2.4	2.2	2.1	2.1	2.2	2.5	<ul style="list-style-type: none"> <li>• <b>Agency:</b> acupuncture recreation for safety</li> <li>• <b>Affordance:</b> open options for recreation</li> <li>• <b>'Dispositifs':</b> 24 Hour activities through articulation outdoors with routes protruding from active boxes</li> <li>• <b>Networks:</b> identity of a network of active boxes rejuvenating place on a spine thus knitting communities otherwise dispersed</li> </ul>
		2.2	2.5		2.2	2.2	2.2	2.3		
		2.6		2.3	2.3	2.4	2.4	2.5		
					2.5	2.6	2.7		2.2	
						2.7	2.8		2.4	
									2.7	
									2.8	
<p>NIKE FOOTBALL TRAINING CENTRE SOWETO, Johannesburg, RUFProject &amp; Luyanda Mpahlwa DesignSpaceAfrica, 2010</p>	<ul style="list-style-type: none"> <li>• New addition to existing soccer facility</li> <li>• Sports/ training centre</li> </ul>	3.2	3.3	3.6	3.2	3.9	3.1	3.4	3.8	<ul style="list-style-type: none"> <li>• <b>Agency:</b> a training centre recognizing its users, giving an identity to sports facility in a culturally distinct Soweto, use of local artists for security design</li> <li>• <b>Affordance:</b> More presence from the street</li> <li>• <b>'Dispositifs':</b> "Invisible security", materiality</li> <li>• <b>Networks:</b> local and international sports clubs and state of the art facility</li> </ul>
		3.4	3.8	3.3	3.2	3.2	3.3	3.7	3.9	
		2.1	3.6	3.1	3.6	3.4	3.7	3.8	3.2	
		2.5	3.8	3.8	3.6	3.5	3.9	3.3	3.3	
						3.8	3.2	3.6	3.4	
								3.8	3.7	
									3.8	







PRECEDENT	TYPOLOGY	URBAN COHESION RESPONSE								AGENCY/ AFFORDANCE/ DISPOSITIF /NETWORK
										
 <p>SOS CHILDREN'S VILLAGE, Mamelodi, 1985</p>	 <ul style="list-style-type: none"> <li>• New</li> <li>• Village Centre</li> </ul>	4.2	4.1	4.2	4.5	4.2	4.2	4.1	4.5	<ul style="list-style-type: none"> <li>• <b>Agency:</b> Social structure centred around family, a space where non' blood-related people come together</li> <li>• <b>Affordance:</b> Interpretation of the rondavel as a multifunctional "room" outdoors</li> <li>• <b>'Dispositifs':</b> Central rondavel, houses, hall</li> <li>• <b>Networks:</b> Children/ teenagers and family, elderly and child headed-homes and help, children/teenagers and recreation in all its aspects (including self-discovery and education)</li> </ul>
		4.4	4.2		4.1	4.1	4.2	4.3	4.1	
					4.2	4.1	4.2	4.1	4.3	
 <p>THANDANANI DROP INN CENTRE, Mamelodi, 1970 (buildings) / 2011 (current function)</p>	 <ul style="list-style-type: none"> <li>• Adaptive reuse of TB clinic and Feeding scheme building</li> <li>• Drop-in Centre and after school care facility</li> </ul>	5.2	5.1	5.4	5.2	5.4	5.2	5.1	5.4	<ul style="list-style-type: none"> <li>• <b>Agency:</b> Appropriation of old municipality-owned buildings, Constant re-appropriation of space</li> <li>• <b>Affordance:</b> Basketball court as an open space flexible enough for reinvention, free plan office where studying, playing, eating and working happens in synergy</li> <li>• <b>'Dispositifs':</b>Basketball court, in-between street, pavement greening scheme, volunteers vehicles</li> <li>• <b>Networks:</b> School children and older school children tutoring each other, Children and recreation, Food and homeless/substance abusers, Access to help and information, afterschool care</li> </ul>
		5.3	5.4		5.4	5.4	5.2	5.2	5.4	
				5.1	5.2	5.3		5.3	5.3	
 <p>RDP HOUSING, Mamelodi, South African Government, c. 1994</p>	 <ul style="list-style-type: none"> <li>• New</li> <li>• Subsidised Housing</li> </ul>	6.3	6.1	6.3	6.1	6.1	6.4	6.4	6.1	<ul style="list-style-type: none"> <li>• <b>Agency:</b> A house under the control of the user (without accounting for forces outside their control)</li> <li>• <b>Affordance:</b> RDP house is very standard therefore there is an abundance of possibilities for modifications</li> <li>• <b>'Dispositifs':</b> Materiality, courtyard, front yard, street interface</li> <li>• <b>Networks:</b> Neighbourhood ties and associations, eyes on the street</li> </ul>
		6.4	6.2		6.4	6.8	6.4	6.5	6.2	
		6.6	6.3	6.4	6.5	6.5	6.5	6.6	6.3	
		6.8	6.4	6.5	6.6	6.6	6.5	6.6	6.4	
				6.6	6.7	6.6	6.6		6.5	
		6.5	6.5	6.6	6.7	6.6	6.6		6.6	
		6.6	6.6	6.7		6.7	6.8		6.7	
									6.8	

PRECEDENT	TYPOLOGY	URBAN COHESION RESPONSE	AGENCY/ AFFORDANCE/ DISPOSITIF /NETWORK																																																								
 <p>WRITERS THEATRE, United States, Studio Gang, 2016</p>	  <ul style="list-style-type: none"> <li>• New with reuse of old library materials and park</li> <li>• Theatre Centre</li> </ul>	 <table border="1"> <tr> <td>7.3</td> <td>7.3</td> <td>7.3</td> <td>7.3</td> <td>7.1</td> <td>7.1</td> <td>7.8</td> <td>7.1</td> </tr> <tr> <td>7.1</td> <td></td> <td>7.4</td> <td></td> <td>7.3</td> <td></td> <td></td> <td>7.3</td> </tr> <tr> <td>7.2</td> <td></td> <td>7.5</td> <td></td> <td>7.6</td> <td></td> <td></td> <td>7.5</td> </tr> <tr> <td>7.3</td> <td></td> <td>7.6</td> <td>7.1</td> <td>7.4</td> <td></td> <td>7.1</td> <td>7.6</td> </tr> <tr> <td>7.5</td> <td></td> <td>7.8</td> <td>7.5</td> <td>7.6</td> <td></td> <td>7.3</td> <td>7.8</td> </tr> <tr> <td>7.6</td> <td></td> <td></td> <td>7.9</td> <td>7.9</td> <td></td> <td>7.6</td> <td>7.9</td> </tr> <tr> <td>7.7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>7.8</td> <td></td> </tr> </table>	7.3	7.3	7.3	7.3	7.1	7.1	7.8	7.1	7.1		7.4		7.3			7.3	7.2		7.5		7.6			7.5	7.3		7.6	7.1	7.4		7.1	7.6	7.5		7.8	7.5	7.6		7.3	7.8	7.6			7.9	7.9		7.6	7.9	7.7						7.8		<ul style="list-style-type: none"> <li>• <b>Agency:</b> Transformation of old Woman Library Club Park, Transfer of the spirit of the Writers theatre group</li> <li>• <b>Affordance:</b> An intervention which embodies the experience of Writers theatre group and link it to the environment</li> <li>• <b>'Dispositifs':</b> Spatial organisation, street and outdoor interface</li> <li>• <b>Networks:</b> Network of performers and their audience, theatre and outdoors, theatre and neighbourhood</li> </ul>
7.3	7.3	7.3	7.3	7.1	7.1	7.8	7.1																																																				
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7.7						7.8																																																					
 <p>FRIENDS CENTRE AT ANGKOR HOSPITAL FOR CHILDREN, Cambodia Cook + Fox Architects, 2006</p>	<ul style="list-style-type: none"> <li>• New addition to existing care facility</li> <li>• Outreach Pavilion</li> </ul>	<table border="1"> <tr> <td>8.2</td> <td>8.1</td> <td>8.1</td> <td>8.1</td> <td>8.2</td> <td>8.8</td> <td>8.6</td> <td>8.3</td> </tr> <tr> <td>8.1</td> <td>8.5</td> <td>8.3</td> <td>8.7</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8.2</td> <td></td> <td>8.5</td> <td>8.8</td> <td>8.3</td> <td>8.1</td> <td>8.3</td> <td>8.4</td> </tr> <tr> <td>8.3</td> <td></td> <td>8.7</td> <td></td> <td>8.8</td> <td>8.6</td> <td>8.5</td> <td>8.5</td> </tr> <tr> <td>8.7</td> <td></td> <td></td> <td></td> <td></td> <td>8.7</td> <td>8.6</td> <td>8.6</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>8.7</td> <td>8.7</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>8.8</td> </tr> </table>	8.2	8.1	8.1	8.1	8.2	8.8	8.6	8.3	8.1	8.5	8.3	8.7					8.2		8.5	8.8	8.3	8.1	8.3	8.4	8.3		8.7		8.8	8.6	8.5	8.5	8.7					8.7	8.6	8.6							8.7	8.7								8.8	<ul style="list-style-type: none"> <li>• <b>Agency:</b> a gateway into the clinic without being in the clinic, mediator space, incorporation of culture and people's participation in the making of the pavilion</li> <li>• <b>Affordance:</b> Free plan allowing for interpretation of space, diversity, multifunctionality</li> <li>• <b>'Dispositifs':</b> Free plan, Materiality, transparency, pond/water catchment, roof, partitions</li> <li>• <b>Networks:</b> Public and information, Public and Clinic, public and cultural knowledge</li> </ul>
8.2	8.1	8.1	8.1	8.2	8.8	8.6	8.3																																																				
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 <p>UVA EL PARAISO, Colombia, Empresa de Desarrollo Urbano de Medellín, 2015</p>	<ul style="list-style-type: none"> <li>• New and adaptive reuse of a soccer field</li> <li>• Sport and Leisure centre</li> </ul>	<table border="1"> <tr> <td>9.2</td> <td>9.5</td> <td>9.2</td> <td>9.5</td> <td>9.1</td> <td>9.3</td> <td>9.1</td> <td>9.5</td> </tr> <tr> <td>9.1</td> <td></td> <td></td> <td></td> <td>9.4</td> <td>9.5</td> <td>9.3</td> <td></td> </tr> <tr> <td>9.2</td> <td>9.1</td> <td>9.1</td> <td>9.1</td> <td></td> <td>9.1</td> <td>9.4</td> <td>9.1</td> </tr> <tr> <td>9.3</td> <td>9.3</td> <td>9.3</td> <td>9.1</td> <td></td> <td>9.2</td> <td></td> <td>9.2</td> </tr> <tr> <td>9.4</td> <td></td> <td>9.4</td> <td>9.3</td> <td></td> <td>9.3</td> <td></td> <td>9.3</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9.4</td> </tr> </table>	9.2	9.5	9.2	9.5	9.1	9.3	9.1	9.5	9.1				9.4	9.5	9.3		9.2	9.1	9.1	9.1		9.1	9.4	9.1	9.3	9.3	9.3	9.1		9.2		9.2	9.4		9.4	9.3		9.3		9.3								9.4	<ul style="list-style-type: none"> <li>• <b>Agency:</b> Appropriation of underused soccer field, democratic provision of recreation</li> <li>• <b>Affordance:</b> Site affording form and atmosphere of intervention, diversity of platforms for activities, good circulation tied to activities</li> <li>• <b>'Dispositifs':</b> Sports fields and outdoor gym/ playground as introductions, sloped site, street interface, nature (streams and vegetation)</li> <li>• <b>Networks:</b> Community, nature and recreation</li> </ul>								
9.2	9.5	9.2	9.5	9.1	9.3	9.1	9.5																																																				
9.1				9.4	9.5	9.3																																																					
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							9.4																																																				

PRECEDENT	TYPOLOGY	URBAN COHESION RESPONSE								AGENCY/ AFFORDANCE/ DISPOSITIF /NETWORK
 <p>EDUCATIONAL CENTER 'MONTECARLO', GUILLERMO GAVARIA CORREA, Colombia. EDU - Empresa de Desarrollo Urbano de Medellin, 2012</p>	 <ul style="list-style-type: none"> <li>New centre on old factory footprint</li> <li>Educational centre</li> </ul>	10.4 10.5	10.5 10.8	10.8 10.1 10.2 10.4 10.5 10.6 10.7 10.8	10.3 10.5	10.4 10.5	10.1 10.2	10.1 10.2	10.1 10.2	<ul style="list-style-type: none"> <li><b>Agency:</b> Democratic provision of recreation</li> <li><b>Affordance:</b> Multipurpose ground floor</li> <li><b>'Dispositifs':</b> Gallery and promenade, roof, soundproofing</li> <li><b>Networks:</b> Community and nature/ music, activities/ sports/ kindergarten</li> </ul>
 <p>GIMNASIO VERTICAL (Vertical-gyms), Venezuela. Urban-Thnk Tank c. 2001</p>	 <ul style="list-style-type: none"> <li>Kit of Parts on existing vacant lot</li> <li>Gymnasium centre</li> </ul>	11.3 11.5	11.2 11.4	11.3 11.1 11.3 11.4 11.5 11.6 11.7	11.1 11.2	11.3 11.2	11.3 11.7	11.4 11.5	11.1 11.2	<ul style="list-style-type: none"> <li><b>Agency:</b> Democratic provision of recreation, appropriation of leftover space, community participation into design</li> <li><b>Affordance:</b> Multilevel space for diversity of activities (play, active and passive sports like chess)</li> <li><b>'Dispositifs':</b> promenade, kit of parts, atrium</li> <li><b>Networks:</b> Community and recreation, social aspect</li> </ul>
 <p>SESC POMREIA, São Paulo (Lina Bo Bardi) 1936</p>	 <ul style="list-style-type: none"> <li>Adaptive reuse</li> <li>Sport and Leisure centre</li> </ul>	12.1 12.2 12.9	12.9 12.1 12.2 12.3 12.4 12.7	12.2 12.4 12.6 12.7 12.8 12.9 12.10 12.11	12.1 12.2	12.1 12.2	12.1 12.2 12.6 12.11	12.1 12.2 12.3 12.4 12.5 12.6 12.7 12.8 12.9	12.3 12.2 12.3 12.4 12.5 12.6 12.7 12.8 12.9	<ul style="list-style-type: none"> <li><b>Agency:</b> community used as inspiration for organisation and atmosphere of the place, adaptive reuse of cultural artefacts</li> <li><b>Affordance:</b> Passages for activities, non standard sports courts to avoid competition, bridges as viewing decks</li> <li><b>'Dispositifs':</b> Passages, three towers, bridges, concrete openings, materiality</li> <li><b>Networks:</b> Community and recreation, cross generational network, Old factory worker and new space with some genius loci from the old</li> </ul>



PRECEDENT	TYPOLOGY	URBAN COHESION RESPONSE	AGENCY/ AFFORDANCE/ DISPOSITIF /NETWORK																																
 <p>MAGGIE'S CENTRES Multiple architects, Europe and China, c1996</p> 	  	 <table border="1"> <tr> <td>13.2</td> <td>13.1 13.6</td> <td>13.1 13.2 13.6</td> <td>13.2</td> <td>13.1</td> <td>13.1 13.2</td> <td>13.1 13.2 13.6</td> <td>13.1 13.2 13.3 13.4 13.5 13.6</td> </tr> <tr> <td>13.1</td> <td>13.4</td> <td>13.5</td> <td>13.6</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	13.2	13.1 13.6	13.1 13.2 13.6	13.2	13.1	13.1 13.2	13.1 13.2 13.6	13.1 13.2 13.3 13.4 13.5 13.6	13.1	13.4	13.5	13.6					<ul style="list-style-type: none"> <li>• <b>Agency:</b> Architect's interpretation of briefs for contextual responses, Architecture for well-being</li> <li>• <b>Affordance:</b> Brief set around a kitchen surrounded by outdoor connections setting, various interpretation of what these spaces can be</li> <li>• <b>'Dispositifs':</b> Kitchen, gardens, windows and openings</li> <li>• <b>Networks:</b> Cancer suffering patients and care facility and activities</li> </ul>																
13.2	13.1 13.6	13.1 13.2 13.6	13.2	13.1	13.1 13.2	13.1 13.2 13.6	13.1 13.2 13.3 13.4 13.5 13.6																												
13.1	13.4	13.5	13.6																																
 <p>COMMUNITY CONNECT, Houston, Gulfport, Sharotown, Purpose Built Communities,</p>	 	<table border="1"> <tr> <td>14.1</td> <td>14.3 14.4</td> <td>14.1</td> <td>14.2</td> <td>14.4</td> <td>14.1 14.2</td> <td>14.1 14.5</td> <td>14.1 14.2 14.4</td> </tr> <tr> <td>14.2</td> <td>14.4</td> <td>14.1 14.2 14.3 14.4 14.5</td> <td>14.1 14.4 14.5</td> <td>14.1 14.2 14.5</td> <td>14.5</td> <td>14.2 14.3 14.4 14.5</td> <td>14.1 14.2 14.4</td> </tr> </table>	14.1	14.3 14.4	14.1	14.2	14.4	14.1 14.2	14.1 14.5	14.1 14.2 14.4	14.2	14.4	14.1 14.2 14.3 14.4 14.5	14.1 14.4 14.5	14.1 14.2 14.5	14.5	14.2 14.3 14.4 14.5	14.1 14.2 14.4	<ul style="list-style-type: none"> <li>• <b>Agency:</b> Synergy in a neighbourhood, Community-driven project</li> <li>• <b>Affordance:</b> Shared spaces , use of the neighbourhoods streets, roads and infrastructures for small spatial moments</li> <li>• <b>'Dispositifs':</b> Institutions' spaces, infrastructures, streets</li> <li>• <b>Networks:</b> Community and its members, community and visitors</li> </ul>																
14.1	14.3 14.4	14.1	14.2	14.4	14.1 14.2	14.1 14.5	14.1 14.2 14.4																												
14.2	14.4	14.1 14.2 14.3 14.4 14.5	14.1 14.4 14.5	14.1 14.2 14.5	14.5	14.2 14.3 14.4 14.5	14.1 14.2 14.4																												
 <p>SOS CHILDREN'S VILLAGES LAVEZZARIO COMMUNITY CENTRE, Illinois Studio Gang Architects, 2008</p>	<ul style="list-style-type: none"> <li>• New</li> <li>• Community Centre</li> </ul>	<table border="1"> <tr> <td>15.2</td> <td>15.2 15.3</td> <td>15.2 15.3</td> <td>15.2</td> <td>15.5</td> <td>15.1 15.2</td> <td>15.1 15.4</td> <td>15.1 15.3 15.4</td> </tr> <tr> <td>15.1</td> <td>15.4</td> <td>15.4</td> <td></td> <td>15.1</td> <td>15.3</td> <td>15.5 15.6</td> <td>15.4 15.5 15.6</td> </tr> <tr> <td>15.3</td> <td></td> <td></td> <td></td> <td>15.2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>15.4</td> <td></td> <td></td> <td></td> <td>15.6</td> <td></td> <td></td> <td></td> </tr> </table>	15.2	15.2 15.3	15.2 15.3	15.2	15.5	15.1 15.2	15.1 15.4	15.1 15.3 15.4	15.1	15.4	15.4		15.1	15.3	15.5 15.6	15.4 15.5 15.6	15.3				15.2				15.4				15.6				<ul style="list-style-type: none"> <li>• <b>Agency:</b> A community centre for people's comfort, social life and safety</li> <li>• <b>Affordance:</b> Articulation of atrium and circulation to accommodate activities</li> <li>• <b>'Dispositifs':</b> Materiality, openings, circulation</li> <li>• <b>Networks:</b> Children and recreation, families and communities</li> </ul>
15.2	15.2 15.3	15.2 15.3	15.2	15.5	15.1 15.2	15.1 15.4	15.1 15.3 15.4																												
15.1	15.4	15.4		15.1	15.3	15.5 15.6	15.4 15.5 15.6																												
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15.4				15.6																															

PRECEDENT	TYPOLOGY	URBAN COHESION RESPONSE	AGENCY/ AFFORDANCE/ DISPOSITIF /NETWORK																																																
 <p>SUPERKILEN, Copenhagen, Tøpotek 1 + BIG Architects + Superflex, 2012</p>	  <ul style="list-style-type: none"> <li>Street/ plaza adaptive reuse</li> <li>Park/Plaza</li> </ul>		<ul style="list-style-type: none"> <li><b>Agency:</b> Public space for a diverse community, ethnic and nationality representation in public space, public participation for representation opinion</li> <li><b>Affordance:</b> linearity of space for promenade and thematic, integration into urban fabric and the everyday, gallery-like aspect</li> <li><b>'Dispositifs':</b> International artefacts, materiality, thematic, colour, promenade, in-between</li> <li><b>Networks:</b> Diverse community and public space, and diverse community discovering itself, people and recreation</li> </ul>																																																
 <p>HIGH LINE, New York Diller Scofidio + Renfro, James Corner Field Operations, 1999-2011</p>	  <ul style="list-style-type: none"> <li>Infrastructure adaptive reuse</li> <li>Infrastructure</li> <li>Park</li> </ul>	<table border="1"> <tr><td>17.1</td><td>17.6</td><td>17.1</td><td>17.7</td><td>17.2</td><td>17.2</td><td>17.2</td><td>17.1</td></tr> <tr><td>17.3</td><td></td><td>17.2</td><td></td><td>17.6</td><td>17.3</td><td></td><td>17.2</td></tr> <tr><td>17.4</td><td>17.4</td><td>17.4</td><td>17.4</td><td></td><td>17.7</td><td></td><td>17.4</td></tr> <tr><td></td><td>17.6</td><td>17.5</td><td>17.5</td><td></td><td></td><td>17.1</td><td>17.5</td></tr> <tr><td></td><td>17.7</td><td>17.6</td><td>17.6</td><td></td><td></td><td>17.4</td><td>17.7</td></tr> <tr><td></td><td></td><td>17.7</td><td></td><td></td><td></td><td></td><td></td></tr> </table>	17.1	17.6	17.1	17.7	17.2	17.2	17.2	17.1	17.3		17.2		17.6	17.3		17.2	17.4	17.4	17.4	17.4		17.7		17.4		17.6	17.5	17.5			17.1	17.5		17.7	17.6	17.6			17.4	17.7			17.7						<ul style="list-style-type: none"> <li><b>Agency:</b> Adaptive reuse of infrastructure and different ways</li> <li><b>Affordance:</b> Industrial and urban presence for genus loci, growth of wild plants as indicator for future vegetation in the design, linearity and promenade, proximity to buildings, height, linkages and destinations</li> <li><b>'Dispositifs':</b> the infrastructure/bridge, rails</li> <li><b>Networks:</b> People and park/recreation, people and destinations</li> </ul>
17.1	17.6	17.1	17.7	17.2	17.2	17.2	17.1																																												
17.3		17.2		17.6	17.3		17.2																																												
17.4	17.4	17.4	17.4		17.7		17.4																																												
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	17.7	17.6	17.6			17.4	17.7																																												
		17.7																																																	
 <p>LEA MOBILE LIBRARY, Foro Lindbergh (Parque México), Project for Public Spaces + Lugares Públicos, 2015</p>	  <ul style="list-style-type: none"> <li>Park space appropriation</li> <li>(Park) Library</li> </ul>	<table border="1"> <tr><td>18.1</td><td>18.2</td><td>18.1</td><td>18.2</td><td>18.2</td><td>18.1</td><td>18.2</td><td>18.2</td></tr> <tr><td></td><td></td><td>18.2</td><td></td><td></td><td>18.2</td><td></td><td></td></tr> <tr><td></td><td>18.1</td><td></td><td>18.1</td><td>18.1</td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>18.2</td><td>18.2</td><td></td><td></td><td></td><td></td></tr> </table>	18.1	18.2	18.1	18.2	18.2	18.1	18.2	18.2			18.2			18.2				18.1		18.1	18.1						18.2	18.2					<ul style="list-style-type: none"> <li><b>Agency:</b> Democratic provision of libraries</li> <li><b>Affordance:</b> Mobility to experience various places, space offered by the park</li> <li><b>'Dispositifs':</b> LEA itself, movable furniture</li> <li><b>Networks:</b> People and education/recreation/leisure, people and the outdoors, communities</li> </ul>																
18.1	18.2	18.1	18.2	18.2	18.1	18.2	18.2																																												
		18.2			18.2																																														
	18.1		18.1	18.1																																															
		18.2	18.2																																																

# APPENDIX G: Full Green Star report

Green Building Council of South Africa

07:02 2021/11/15

## Green Star SA - Public & Education Building v1 Credit Summary

Comments:

Enter description of project aspects etc.

Category	Title	Credit No.	Points Available	Points Achieved	Points to be Confirmed	Percent of Available Points Achieved	Weighting	Weighted Score
<b>Management</b>								
	Green Star SA Accredited Professional	Man - 1	2	0	0			
	Commissioning Clauses	Man - 2	2	0	0			
	Building Tuning	Man - 3	2	0	0			
	Independent Commissioning Agent	Man - 4	1	0	0			
	Building Users' Guide	Man - 5	1	0	1			
	Environmental Management	Man - 6	2	0	2			
	Waste Management	Man - 7	3	0	2			
	Building Management Systems	Man - 10	1	0	0			
	Learning Resources	Man - 13	1	0	1			
	Life Cycle Costing	Man - 14	1	0	1			
	Maintainability	Man - 15	1	0	1			
	<b>TOTAL</b>		<b>17</b>	<b>0</b>	<b>8</b>	0%	11%	<b>0,0</b>
<b>Indoor Environment Quality</b>								
	Ventilation	IEQ - 1	2	0	2			
	Carbon Dioxide Monitoring and Control	IEQ - 3	1	0	0			
	Daylight	IEQ - 4	3	0	0			
	Daylight Glare Control	IEQ - 5	1	0	1			
	Electric Lighting Levels	IEQ - 7	1	0	0			
	External Views	IEQ - 8	2	0	2			
	Thermal Comfort	IEQ - 9	2	0	0			
	Hazardous Materials	IEQ - 11	1	0	0			
	Internal Noise Levels	IEQ - 12	3	0	0			
	Volatile Organic Compounds	IEQ - 13	3	0	1			
	Formaldehyde Minimisation	IEQ - 14	1	0	0			
	Mould Prevention	IEQ - 15	1	0	1			
	Dedicated Exhaust Riser	IEQ - 16	1	0	0			
	Stairs	IEQ - 23	1	0	1			
	<b>TOTAL</b>		<b>23</b>	<b>0</b>	<b>8</b>	0%	15%	<b>0,0</b>
<b>Energy</b>								
	Conditional Requirement	Ene - 0		Not Achieved	-			
	Greenhouse Gas Emissions	Ene - 1	20	0	0			
	Energy Sub-metering	Ene - 2	3	0	0			
	Lighting Zoning	Ene - 4	2	0	0			
	Maximum Electrical Demand Reduction	Ene - 5	3	0	0			
	Unoccupied spaces	Ene - 11	2	0	0			
	<b>TOTAL</b>		<b>30</b>	<b>0</b>	<b>0</b>	0%	25%	<b>0,0</b>
<b>Transport</b>								
	Provision of Car Parking	Tra - 1	2	0	0			
	Fuel Efficient Transport	Tra - 2	2	0	2			
	Cyclist Facilities	Tra - 3	Requires a 'na'		5			
	Commuting Mass Transport	Tra - 4	5	4	0			
	Local Connectivity	Tra - 5	2	0	1			
	Vehicle Operating Emissions	Tra - 7	2	0	1			
	<b>TOTAL</b>		<b>18</b>	<b>4</b>	<b>9</b>	22%	11%	<b>2,4</b>
<b>Water</b>								
	Potable Water	Wat - 1	12	7	0			
	Water Sub-Metering	Wat - 2	3	0	2			
	<b>TOTAL</b>		<b>15</b>	<b>7</b>	<b>2</b>	47%	12%	<b>5,6</b>
<b>Materials</b>								
	Recycling Waste Storage	Mat - 1	3	1	2			
	Building Reuse	Mat - 2	5	0	1			
	Reused and Recycled Materials	Mat - 3	2	0	2			
	Concrete	Mat - 5	3	0	0			
	Steel	Mat - 6	3	0	0			
	Timber	Mat - 8	2	0	1			
	Design for Disassembly	Mat - 9	1	0	0			
	Dematerialisation	Mat - 10	1	0	1			
	Local Sourcing	Mat - 11	2	0	0			
	Masonry	Mat - 13	2	0	1			
	<b>TOTAL</b>		<b>24</b>	<b>1</b>	<b>10</b>	4%	12%	<b>0,5</b>

Green Building Council of South Africa

07:02 2021/11/15

Category	Title	Credit No.	Points Available	Points Achieved	Points to be Confirmed	Percent of Available Points Achieved	Weighting	Weighted Score
<b>Land Use &amp; Ecology</b>								
	Conditional Requirement	Eco - 0		Not Achieved	-			
	Topsoil	Eco - 1	1	0	1			
	Reuse of Land	Eco - 2	2	0	1			
	Reclaimed Contaminated Land	Eco - 3	2	0	0			
	Change of Ecological Value	Eco - 4	4	0	3			
	Urban Heat Island	Eco - 5	2	0	0			
	Community Facilities	Eco - 8	1	0	1			
	<b>TOTAL</b>		<b>12</b>	<b>0</b>	<b>9</b>	0%	7%	<b>0,0</b>
<b>Emissions</b>								
	Watercourse Pollution	Emi - 5	3	0	3			
	Discharge to Sewer	Emi - 6	5	2	1			
	Light Pollution	Emi - 7	1	0	1			
	Legionella	Emi - 8	1	0	0			
	Boiler and Generator Emissions	Emi - 9	1	0	0			
	Atmospheric Deterioration Avoidance	Emi - 11	6	0	1			
	<b>TOTAL</b>		<b>17</b>	<b>2</b>	<b>5</b>	12%	7%	<b>0,8</b>
<b>Sub-total weighted points achieved: 9</b>								
<b>Innovation</b>								
	Innovative Strategies & Technologies	Inn - 1	5	0	2			
	Exceeding Green Star SA Benchmarks	Inn - 2	5	0	1			
	Environmental Design Initiatives	Inn - 3	5	0	1			
	<b>TOTAL</b>		<b>5</b>	<b>0</b>	<b>4</b>			<b>0</b> (Innovation is not weighted)
<b>Total weighted points achieved: 9</b>								

The GBCSA does not endorse any self-assessed rating achieved by the use of Green Star SA - Public & Education Building v1. The GBCSA offers a formal certification process for ratings of Four Stars and above; this service provides for independent third party review of points claimed to ensure all points can be demonstrated to be achieved by the provision of the necessary documentary evidence. The use of Green Star SA - Public & Education Building v1 without formal certification by the GBCSA does not entitle the user or any other party to promote the Green Star SA rating achieved.

Weighted Score	Rating
45-59	Four Star
60-74	Five Star
75+	Six Star

## APPENDIX I: Ecology table (Author 2021)

Element	Area pre intervention (m <sup>2</sup> )	Area post intervention (m <sup>2</sup> )	Information Source
Bio-region type	Savana		SANBI c.2021
Vegetation type	Marikana thornveld		SANBI c.2021
Impervious/concrete area	5644,59		
Total Impervious/concrete area		6904,59	
Permeable Paving	–	1041	
Bare ground	34056	0	
Construction company	453	0	
Pool buildings total	290		
Caretaker building	196,2		
Total buildings on site	939,2		
Total buildings kept	486,2		
New Buildings		4326	
Total kept		4812,2	
Natural Wetland	–	–	
Rehabilitation/Creation of Wetland/Riparian	0	19980	
Natural Grazing	21178		
Existing Natural Waterway/Riparian Zone*	21178	21178	
Indigenous Garden	0	1295	
Indigenous Roof Garden	0		
Regenerated Endemic Habitat (< 10 years old)*		21178 (Riparian zone)	
Consultation pavilion garden roof	–	282	
Workshop pavilion garden roof	–	–	
Educational Pavilion garden roof	–	457,2	
Garden Pavilion garden roof	–	175,8	
Sports Pavilion garden roofs	–	469	
Total gravel roof	–	146	
Total roof garden	–	1384	

Total flat roofs	–	–	1530
Pool zone-pool	–		2845

## APPENDIX J: Rainwater calculations (Author 2021)

Name	Area (m <sup>2</sup> )	Water consumption	Water wasted (L)	Mamelodi Av. Annual rainfall (mm)	Harvesting Capacity (L)	Amount of users	Flow rates (L/flush or L/min)	Information Source
Consultation pavilion roof	162			708				<a href="https://en.climate-data.org/africa/south-africa/gauteng/mamelodi-27164/">https://en.climate-data.org/africa/south-africa/gauteng/mamelodi-27164/</a>
Workshop pavilion roof	690			708	114696			
Educational Pavilion roof	253			708	488520			
Garden Pavilion roof	108			708	179124			
Sports Pavilion roofs	888			708	76464			
Bicycle Pavilion roof	94,5			708	628704			
Sibande stalls roof	520			708	66906			
Tsomo stalls roof	780			708	368160			
Total IBR	3495,5			708	552240			
Total flat roof					2474814			
Stormwater runoff	2542			708	1799736			
Indigenous garden				708				
Shower (4-10 minute )			7				7	
Car wash			15-70 L/wash					

Hand wash basin 4,5

Urinals

[https://www.sawater.com.au/\\_\\_data/assets/pdf\\_file/0006/6693/Factsheet\\_SmallBusiness.pdf](https://www.sawater.com.au/__data/assets/pdf_file/0006/6693/Factsheet_SmallBusiness.pdf)

Toilet flushing

11L/flush

[https://www.sawater.com.au/\\_\\_data/assets/pdf\\_file/0008/6686/Factsheet\\_Amenities.pdf](https://www.sawater.com.au/__data/assets/pdf_file/0008/6686/Factsheet_Amenities.pdf)

Washing machine

72 L/load

<https://www.pub.gov.sg/wels/Documents/Water%20Efficiency%20Requirements%20for%20Products.pdf>

Pool

328

Pool pump

1429,1667

Wetland

Water storage tank

Building's dominant  
occupation type

Information Source

SANS 10400 A

2016: 44-45

**Occupancy**

SANS 10400A 2016:

46

**Design Population**

E3 institutional

(residential) 2/bedroom

G1 offices 1/15 m<sup>2</sup>

A1-A5 (excl A3) 1/m<sup>2</sup>

A3 (instruction) 1/5m<sup>2</sup>

H2 Dorm 1/5m<sup>2</sup>

A1 Entertainment,  
public assembly 1/m<sup>2</sup>

A2 theatre and  
sports 1/m<sup>2</sup>

A5 outdoor sports 1/m<sup>2</sup>

D3-D1 high to low

risk industrial 1/15m<sup>2</sup>

J3-J1 storage 1/50m<sup>2</sup>

**Provision for  
sanitation fixtures**

SANS 10400 P  
2010: 29-33



APPENDIX K: Extracted activity mapping on Hinterland and the Buffer Zone  
(Niebuhr 2021)

