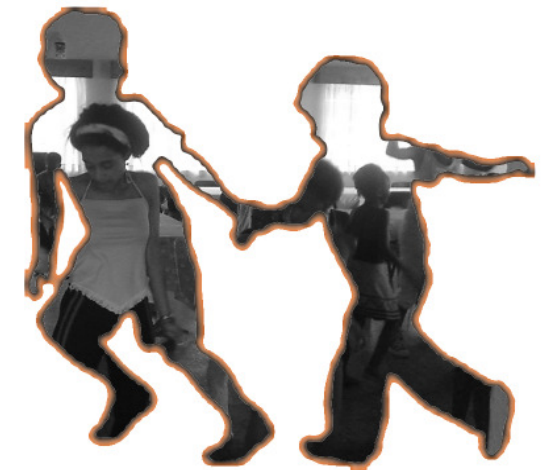




rehabilitating broken youth



: archi-therapy

This document is submitted in partial fulfilment for the degree:

Master of Architecture [Professional]
at the University of the Witwatersrand, Johannesburg, South Africa, in the year 2012.

Candidate: Katerini Karandreas 0703740 X

encouraging experiences $\Rightarrow$ stimulate $+$ help re-establish independence $+$ social relationships







declaration

I, Katerini Karandreas 0703740 X am a student registered for the course Master of Architecture [Professional] in the year 2012. I hereby declare the following:

I am aware that plagiarism [the use of someone else's work without permission and/or without acknowledging the original sources] is wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise. I have followed the required conventions in referencing thoughts, ideas, and visual materials of others. For this purpose, I have referred to the Graduate School of Engineering and the Built Environment style guide. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my unaided work or that I have failed to acknowledge the source of the ideas or words in my own work.

Katerini Karandreas 0703740 X

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&
ARCHITECTURE
PLANNING**



acknowledgements & dedication

Thank you Lord for giving me the strength and perseverance to achieve my goals.

To my supportive family and friends – you know who you are: Thank you for every bit of encouragement and help you offered me over these years, I could not have achieved this without you. You guys rock!

Thank you to my lecturers and fellow students for the advice along the way.

To all those people named in this document who allowed me to interview them, thank you for your valuable contribution.

I dedicate my thesis to all the children who are suffering from the trauma of abuse. You are all special and precious human beings who deserve only the best. Never forget that!



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abstract



**“Healing is a matter of time, but it is
sometimes also a matter of opportunity.”
– Hippocrates**

This thesis aims to explore the powerful synergy between the architectural constructs of a rehabilitative children’s home in collaboration with both clinical and non-clinical therapeutic approaches – particularly with regard to treating sexually abused children in their school-going years. Sadly, with the rising number of sexual child abuse cases in South Africa, there is a very dire need for such a facility as the care provided in a standard children’s home is not enough.

The use of space to ensure a reciprocal and beneficial relationship between architecture and healing is ultimately what this thesis wishes to achieve and it will thus focus on how the treatment affects the building and how the building affects the treatment.

Archi-therapy expands on the consideration of recent discoveries in the treatment of trauma in sexually abused children. Initial treatments were heavily based on a clinical aspect, not really considering the people and the place in which this healing occurs. Only in recent years has the importance of environment, activity and social interaction been considered. In addition to the clinical aspects of the healing process, certain hobbies and pastime interests also play a significant role as they can form part of an on-going, multi-faceted therapeutic process to assist with the overcoming of the trauma. In turn, this creates a positive developmental and rehabilitation platform for these broken youth, in a manner that goes beyond the limited realm of clinical therapy.

Through interviews, literature and site visits, I hope to bring to light that architecture can be interactive, and more than a mere container of a variety of therapeutic activities. Architecture and the nature of the context can be part of the healing process and assist with the sustainability of the specialised children’s home that is proposed.

Archi-therapy considers the nature of the architecture, activities, people and therapies (clinical and non-clinical) alongside their significant roles in the healing process of these precious children.

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archi-therapy & broken youth

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who is archi-therapy for and why?



**“The finest inheritance you can give to a child is to allow it to make its own way, completely on its own feet.”
– Isadora Duncan**

This thesis will explore the notions of how child therapies and developmental skills can be appropriately integrated within a children’s rehabilitation home. It is important to note that this home will not be a permanent residence for children who have been sexually abused, but rather will act as a temporary stepping stone. Children will be able to stay at this facility for at least two years, and thereafter will be reconciled into their original or new home – dependent on the child’s situation.

In some local children’s homes, observations have brought to light that traditionally, architecture serves as a mere container for holding activities such as play therapies that take place in separate rooms at specific times of the week. More contemporary thought embraces the notion that certain healing therapies can be an on-going process, a life skill and in many instances even part of the walls that contain it.

The research will focus specifically on rehabilitation for sexually abused youth because of the very specialised treatment and attention that is needed in these types of cases (Bagley, 1990:2-24; Heslop, 2012:interview; Govender, 2012:interview). Sexual abuse has just been classified as part of or the same as other abuses – such as neglect or domestic violence. The reality, however, is that each abuse is different, and each has its own repercussions that need to be dealt with individually (Govender, 2012:interview).

As observed by Narisha Govender (2012:interview), the director of Johannesburg Children’s Home (a home that houses children who have been exposed to different types of abuse), the obvious problem with putting all kinds of abused youth in the same place is that the child’s needs related to that specific abuse are not always fully attended to. This depends on the home’s facilities and the type of abuse of that child. At times, Govender (2012:interview) has to outsource institutions to help with a specific child’s problem, and this may sometimes result in treatment that is irregular and inconsistent. Consistency, correct attention and stability are key to any treatment process – in any aspect of healing – in order to achieve effective results (Hickman, 2012:interview).

In brief, what happens to a sexually abused child is that everything about them is affected. Their perception of who they are and how they relate to the outside world is completely distorted (Bagley, 1990:152; Holman, 1994:239). Sexual abuse is not just psychological, or physical, or something that just affects social relationships – it's everything at the same time, and if not dealt with correctly it can lead to a variety of very harmful and even deadly consequences (Bagley, 1990:9,10,17,24).

With sexually abused children, treatment aims to deal with their trauma and then reconnect and strengthen every aspect of their being – who they are as a person, what they believe and how they relate to the outer world (Holman, 1994:238-239). With the correct facilities and environment, this is possible and achievable (Holman, 1994:240-241).

If you consider a person to be made up of mind, body and soul, in a normal person these aspects co-exist as a whole. In an abused child, these aspects are broken apart, and their body becomes an object which can lead to self-abuse (Bagley, 1990:24). Therapy tries to reconnect these aspects, re-establishing confidence, self-esteem and the ability to form healthy relationships in a world they feel alien to (fig. 1) (Bagley, 1990:133-134; Holman 1994:239).

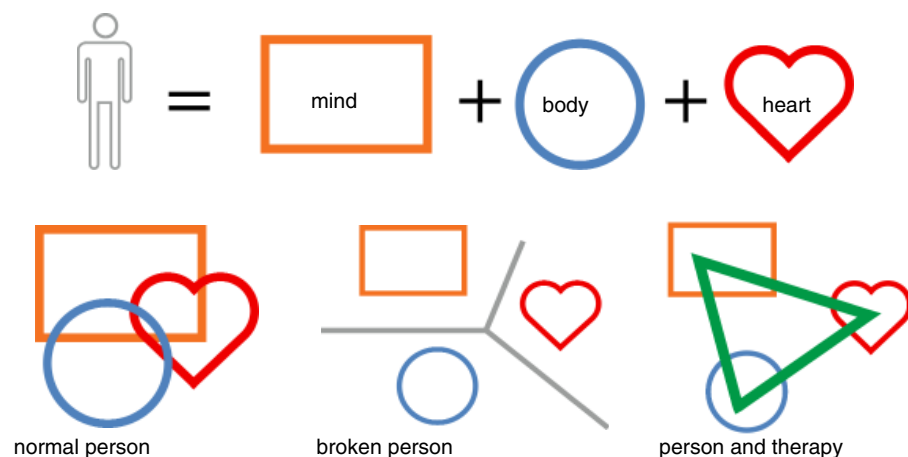


figure 1: Therapy aims for a sexually abused child.

Initially, treatment for sexually abused youth was heavily based on the clinical aspect of the treatment (Holman, 1994:237). For example, as stated by Bagley (1990:17) in his book, *Child Sexual Abuse: The Search for Healing*, an “effective treatment consists of”:

- group work (under professional observation)
- professional clinical therapy
- protection of the victim
- a network of community professionals.

(derived from Bagley, 1990:17)

However, towards the late 90s on an international scale, psychologists argued that clinical therapy was not enough and a variety of levels needed to be considered in the psychological treatment of sexually abused patients (Holman, 1994:237,244). The levels referred to are the integration of personal skill development, variety of social interaction, cultural aspects and the effect of the physical space that holds all of these experiences (Holman, 1994: 237, 243).

These relate to the theories of environmental psychology, which will unfold in more detail later in this document. The focus is the impact of the architectural component, in relation to its context, for the purposes of rehabilitating sexually abused youth, and the sustainability of this institution.

broken youth in our city



“Children are like wet cement. Whatever falls on them makes an impression.” – Dr. Haim Ginott

Although sexual child abuse is a worldwide problem (Bagley, 1990:3), this thesis research has zoned in on the city of Johannesburg. The research includes considerations of other international and national case studies in relation to child-specific architecture and child rehabilitation. In Johannesburg there are various facilities that have units that specialise in clinically treating and assessing abused children (fig. 2), such as the Tara Hospital and Charlotte Maxeka Johannesburg Hospital – previously known as Johannesburg General Hospital (Govender, 2102:interview). Other facilities also bring awareness to various communities, such as the Kidz Clinic (fig. 3) (www.wmaca.org.za).



figure 2: Google Earth Map with points indicating some specialised clinical/medical treatment units in Johannesburg for different kinds of abused children:



figure 3: Kidz Clinic, Boksburg – photo of child being mentally prepared for court case.

It is important to note that there is a component of the treatment process that doesn't involve medicine or a doctor. This non-clinical component is a powerful aspect that will be incorporated in this thesis, to work in synergy with the clinical treatment.

One such facility with a non-clinical focus that was studied closely is Guild Cottage, situated in Parktown West, Johannesburg. Guild Cottage is a children's home/treatment centre which specialises in rehabilitation of sexually abused children and creates awareness through talks in poorer communities and various schools. Guild Cottage works as follows: children live there for a minimum of a two year treatment period, so there is a more consistent and monitored treatment (Thod, 2012:interview). These children (under 18 years of age) are usually identified for treatment through a court case. During the treatment period a medical report-back is given to the court and any heavy medical assessment or treatment is done through the Teddy Bear Clinic Unit at the Charlotte Maxeka Johannesburg Hospital (Molefe, 2012:interview; Thod, 2012:interview).

At the Charlotte Maxeka Johannesburg Hospital there is a specialised unit that offers daily services such as counselling, support programmes and medical examinations for abused children – which is a managed branch of The Teddy Bear Clinic for Abused Children. The Teddy Bear Clinic for Abused Children has branches all around Gauteng and also has an influential voice against child abuse, even though it was only established in 1986 (www.tbc.org.za; Satekge, 2004:27).

At Guild Cottage, after extensive assessments, when the child psychologist feels that the child can re-enter the less fragile environment of an everyday person, the family psychologist reunites the child with an existing family or a new family, or in some cases, another less specialised children's home. The job of the family psychologist is to monitor the child's further care in relation to people and environments that are adequate for a child to grow up in after treatment (fig. 4) (Molefe, 2012:interview; Thod, 2012:interview). Guild Cottage is a unique and much-needed institution, and as a result the demand exceeds the supply as the children get sent off early or new children are hard to accommodate. It is thus evident that there is an obvious need for an additional treatment home of this kind in our city.

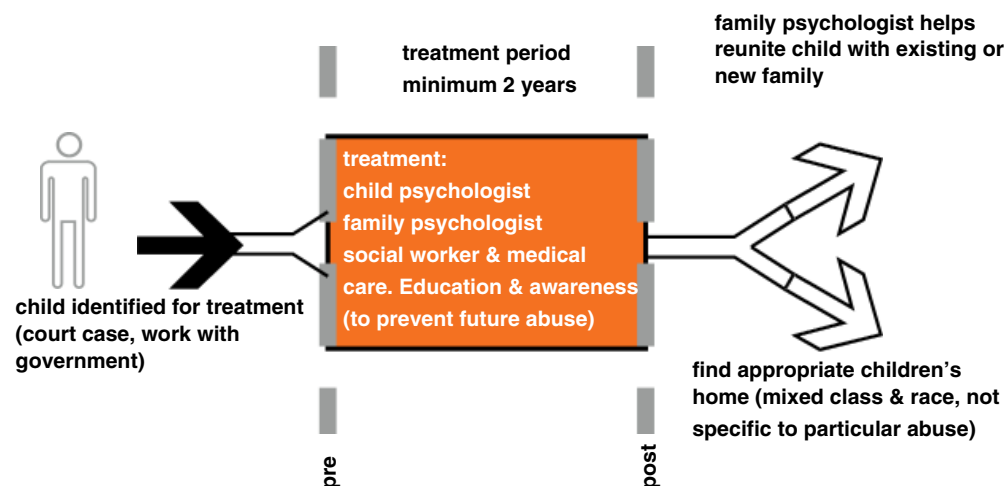


figure 4: Understanding the treatment process for a sexually abused child at Guild Cottage treatment centre.

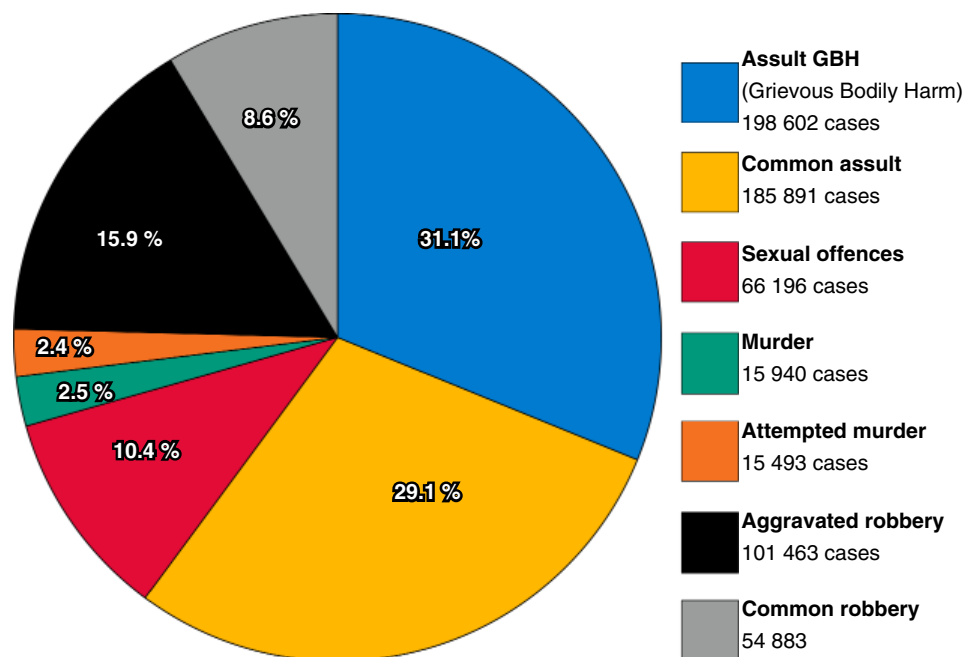


figure 5: After SAPS Crime Report, 2010/2011:11.

Children's homes have been an important part of society for centuries, as they serve the sole purpose of looking after the basic needs of children who are abused or abandoned (Community News, 2012:6). Guild Cottage was a typical children's home that started in 1907 and only in the 80s did it start specialising in treating sexually abused children because there was no home or place fulfilling this need at the time (Guild Cottage, 2012:www.guildcottage.com).

Considering the history of sexual child abuse treatment, this field of child trauma related psychology is something that only emerged internationally in the 70s (Bagley, 1990:3). Sexual abuse amongst youth was recognised as a serious problem through published literature at that time, which revealed the mental trauma of adults who had been sexually abused as children (Bagley, 1990:3). The sad part is that because of the lack of awareness at that time, children did not even realise what kind of abuse they were going through and did not know what to do about it. Over the years, and on an international scale, methods of treatment and awareness have been implemented for such youth (Bagley, 1990:8).

In South Africa, the revised Children's Act of 2005 that protects children against abuse was only first established in 1983 (Children's Act of 2005, 2012:www.acts.co.za). I was told that, before this Act, cases of abused children were fought under the 'Cruelty to Animals Act' – a testament to the lack of importance placed on the trauma experienced by these children at that time (Karandreas, 2012:interview).

Unfortunately, sexual abuse has increased in South Africa over time, and even though the crime statistics only show the cases that have been reported, they are still startling and unacceptable. In 2000, reported cases of sexual crimes against children numbered 25 578 (Resources Against Child Abuse and Neglect, 2003:1). Today that number has tripled (fig. 5)! The crime report of 2010/2011 from the South African Police Services (SAPS) shows a frightening recent statistic of how problematic sexual abuse is, especially in children (SAPS Crime Report, 2010/2011:11).

"66 196 cases of sexual offences reported to SAPS in 2010/2011...of those crimes committed against children, 51,9% were sexual offences...It is even more disturbing to note that 29,4% of these sexual offences involved children aged 0 – 10 years." (SAPS Crime Report, 2010/2011:11)

These kinds of statistics indicate an ever-spiralling degeneration of a city's moral fibre that influences the kind of adults these children will become if there is no adequate treatment for them to deal with this trauma.

It is critical to try and tackle this trauma as soon as it happens, especially as a child, because the longer it is not dealt with, the more likely it is the child will develop into a "hardened adult" (Heslop, 2012:interview; Hickman, 2012:interview), and it will be more difficult to reverse the negative repercussions of the trauma on that individual (Holman, 1994:239).

Literature and interviews have indicated that there are many intense psychological processes that need to be considered in the rehabilitation of sexually abused children. However, the main considerations of this thesis lie in the new aspects of treatment that are outside the clinical realm. This includes the nature of the physical spaces in relation to healing and development, as well as the community type as an important consideration for the choice of site for the rehabilitation home (Holman, 1994:237).

Observations of and close encounters with Guild Cottage over the years have resulted in a belief that a home for sexually abused children can be much more than a building with a clinical therapy room. By reassessing a children's home of this nature, behavioural patterns will undoubtedly improve and healing is bound to manifest. The aim is not only to serve the child's basic needs, but also to involve both aspects of therapy (clinical and non-clinical), whilst simultaneously empowering these youth with skills and healthy interests that will benefit them into adulthood.

Page 8 Joburg East Express August 1, 2006

Community News

Saheti helps orphan at Johannesburg Children's Home live his dream



Sifiso, an orphan from the Johannesburg Children's Home in Observatory, has been given an opportunity to follow his dream as a dancer thanks to Saheti School and other sponsors.

15-year-old Sifiso, who has wanted to be a dancer from an early age, was selected to join a 50-member South African team after beating over 1 000 dancers to compete in Prague.

Although Sifiso had the talent, lack of finances meant that he was likely to see his dream vanish before his eyes.

After hearing about Sifiso's dilemma through the media, Saheti School invited him to participate at its annual UNESCO International World Dance Day in May.

Saheti appealed for donations from the school's audiences as well as the school's learners, who were happy to oblige.

After raising some money, Saheti learners visited Sifiso to present him with a contribution made by the school.

Sifiso, whose dream is to become a professional dancer, was elated at the opportunity to compete at the international event.

The South African team was one of the attractions at the tournament winning first prize in the hip hop and African categories, second for pedagogy, third for costumes and the team was also the recipient of the Directors Award.

"I enjoyed being overseas especially listening to the different languages and meeting different people," said Sifiso. "Apart from dancing at the competition, I used the trip as an opportunity to meet different people," he added.

According to the director of the home, Mrs Muriel Farren, Sifiso has made everyone proud with his accomplishment. "Sifiso was a popular member of the team. He was complimented on his behaviour and manners by all who encountered him. He made us all proud," said Mrs Farren.

When school is out, Sifiso offers other children at the home dancing lessons and says he would like to start his own dancing school one day.

Thanks to sponsors like Saheti, Sifiso was able to follow his dream.

☐ Not the child's real name.

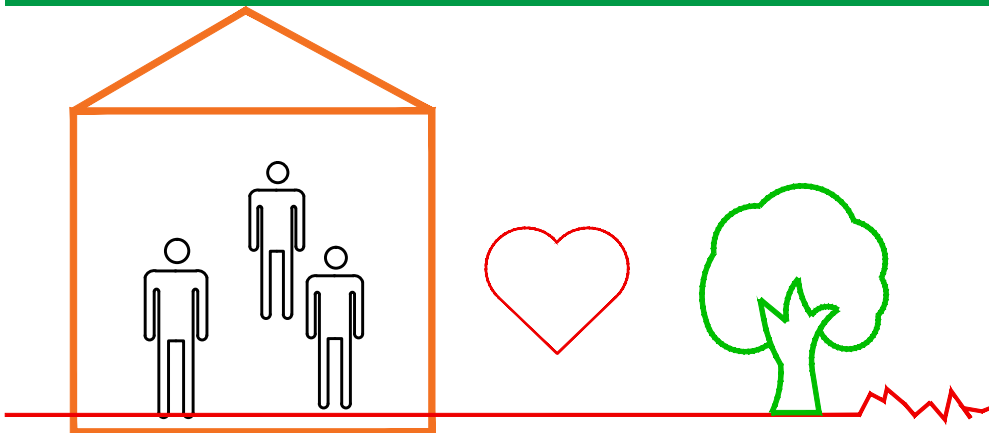
Grade 12 learners, Merushka Francis and Caterina Karandreas from Saheti, are entertained by Sifiso. Merushka and Caterina visited Sifiso and presented him with a donation for his trip.

behaviour and manners by all who encountered him. He made us all proud," said Mrs Farren.

When school is out, Sifiso offers other children at the home dancing lessons and says he would like to start his own dancing school one day.

The power of a talent/skill that is possible for any child to follow (Community News, 2006:8).

rehabilitation and environmental psychology



environmental psychology =
physical context + social environment

In a general sense, environmental psychology is made up of three aspects: the physical space, the individuals who occupy it, and the implications of those peoples' cultures and ethics on each other (Holman, 1994:241) (fig. 6). All these factors affect one's behaviour, reaction and emotional response (Holman, 1994:241). Literature has shown how important environmental psychology is with regard to children's behaviour and stimulation, and it should thus definitely be incorporated into the treatment process (Holman, 1994:239-240; Ittelson, 1970:387). This is where architecture matters. If trauma affects your behaviour, and clinical rehabilitation tries to stabilise it, surely environmental psychology has a role to play.

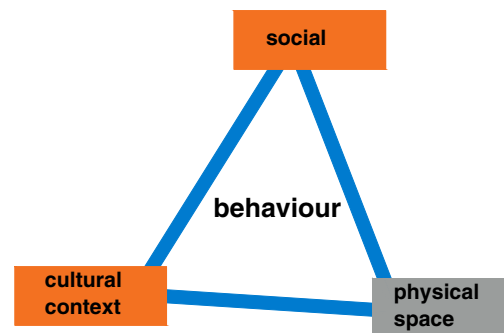


figure 6: Aspects of environmental psychology in terms of how environment and people affect behaviour.

Environmental psychology is a broad subject, and for it to be applicable to the desired environment it will be contextualised relative to the criteria explored for the design considerations. The conditions for this desired environment are derived from the literature/research on the subject of environmental psychology and sexual child abuse, as well as the variety of opinions of various involved individuals from interviews (fig. 7 and 8).

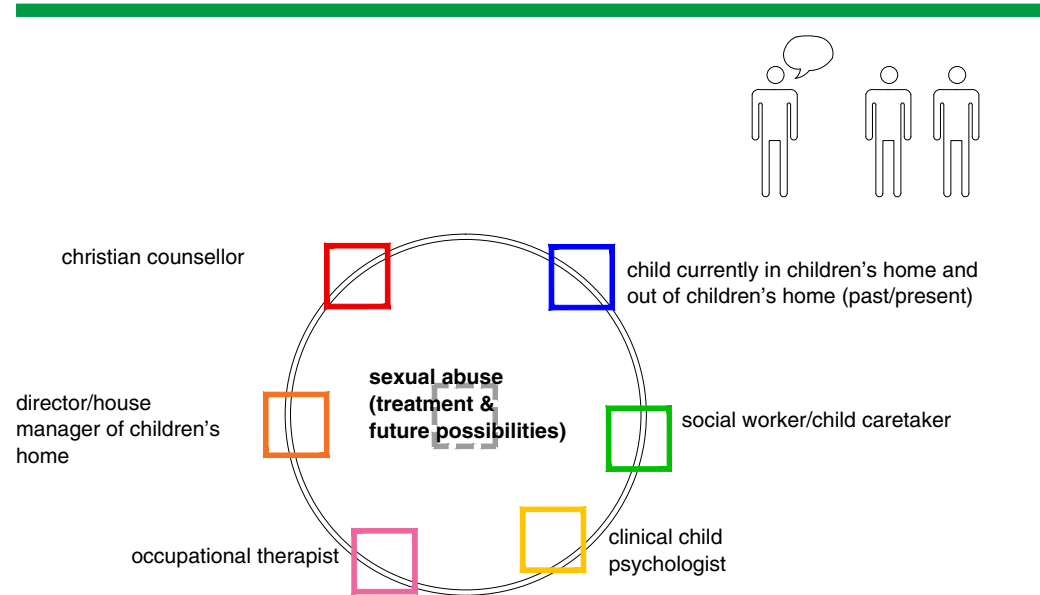


figure 7: Interview selection (aiming to get a variety of opinions).

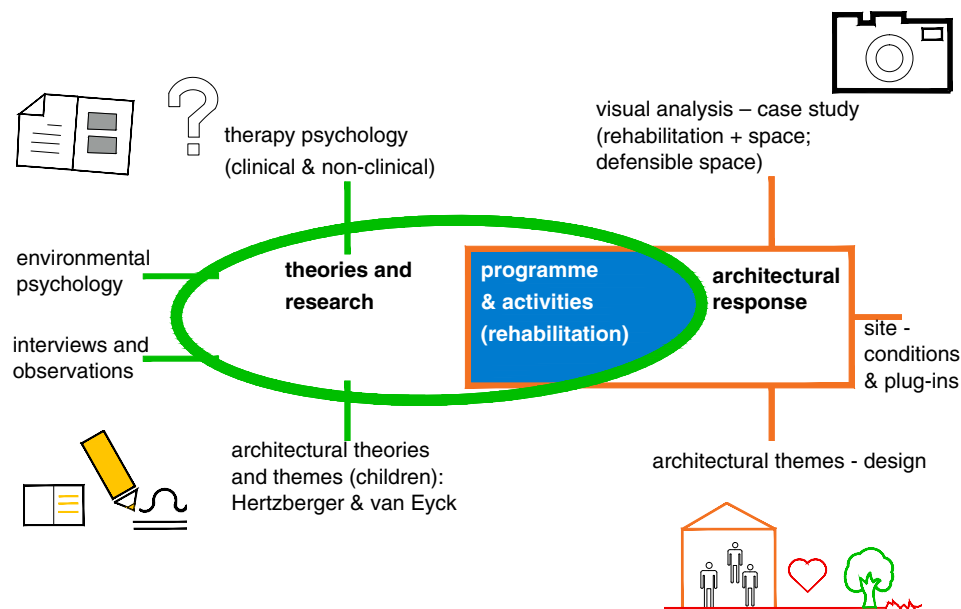


figure 8: Methodology overview for deriving appropriate environmental criteria.

Figure 8 indicates the multiple methodologies that have been integrated in order to derive appropriate environmental criteria that will result in a more suitable design. Findings will be interrogated in relation to case studies, interviews, architectural works, theories and literature, which act as a guide towards an insightful approach to constructing a children's home of this nature.

In the case of a rehabilitation home for sexually abused youth, the main aspects of environmental psychology that will be explored in order to help produce a building in an architectural sense are: a) physical spaces and form, b) programme and c) site – which includes location and community.

The general environment criteria are:

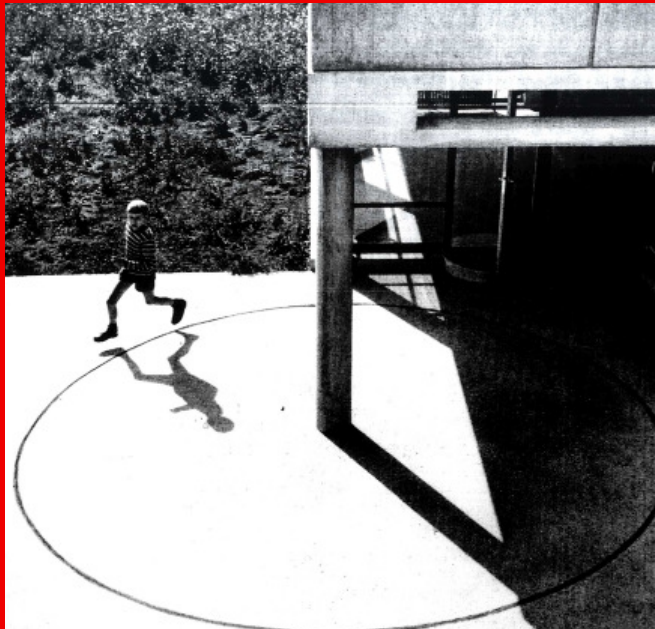
- safety, supervision and control of spaces
- skills and social interaction development (hierarchy)
- individual and group therapeutic activities (clinical and non-clinical)
- architecture that relates to children (colour, scale, planning, form, material, etc.), creating a productive and calming environment
- site location that efficiently connects to network facilities (plug-ins)
- appropriate site for the children's living conditions (noise, pollution, neighbourhood community)
- efficient use of site location and facilities (assisting with costs/funding)
- natural environment for healing and development (sunlight, greenery)
- nature of surrounding community members (local inhabitants)
- access to appropriate professional community members and treatment.

These aspects will be unfolded in more depth in the text that follows – in their respective order:

- the physical spaces
- programme
- site (location and community).

physical spaces

- home vs institution
- monocentric & polycentric
- children & space



“Play space represents mental freedom, and leeway to deviate from rules.”

– (Döll & Liane Lefaivre, 2007:28)

home vs institution



figure 9a: Pre-80s Johannesburg Children's Home, Observatory (1942). The home was established in 1892 (Community News, 2012:6).



figure 9b: Post-80s Johannesburg Children's Home.



figure 9c: Guild Cottage treatment centre and children's home.

Over the years the planning and building qualities of children's institutions, especially children's homes, have evolved. Figure 9 draws a comparison between Johannesburg Children's Home (pre and post 80s) and Guild Cottage, 1907 (Guild Cottage, 2012:www.guidcottage.com). These children's homes, in Johannesburg, have been around for at least a century (Community News, 2012:6), and as such might need a reassessment and evaluation as to how these homes can evolve in relation to new concerns.

The current Johannesburg Children's Home was built in 1987 (fig. 9b), and before that it was housed in the building next door (fig. 9a and 10b) (Community News, 2012:6). Guild Cottage has remained in the same house since 1907, but the programme of the home was altered in the 80s to specialise in treating sexually abused youth (fig. 9c) (Guild Cottage, 2012:www.guildcottage.com).

Planning observations (monocentric)



figure 10a: Monocentric plan (my observation diagram derived from site visits).



figure 10b: Johannesburg Children's Home (1965), Observatory, Johannesburg.



figure 10c: Guild Cottage treatment centre and children's home, Parktown West, Johannesburg.

On the one hand, Johannesburg Children's Home in figures 9a and 10b shows what a typical institution design looked like for children's homes pre 80s – a very insensitive, dull space with endless dark corridors and monotonous areas. This was a standardised way of organising a mass of children in a building.

On the other hand, the children's home approach like that of Guild Cottage (fig. 9b and 10c) uses a donated house to create a home environment – an important consideration for developing children (Thod, 2012:interview). Importantly, observations reveal that both have the planning principles of a mass divided space with one communal area (fig. 10a, 10b and 10c) – essentially a monocentric approach.

monocentric & polycentric

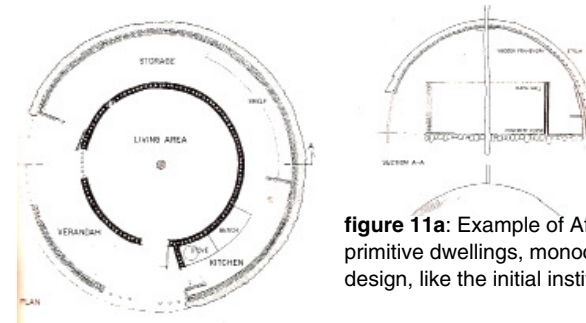


figure 11a: Example of African primitive dwellings, monocentric design, like the initial institutions.



figure 11b: Example of African primitive dwelling, starting to define edges/separate from one massive space.

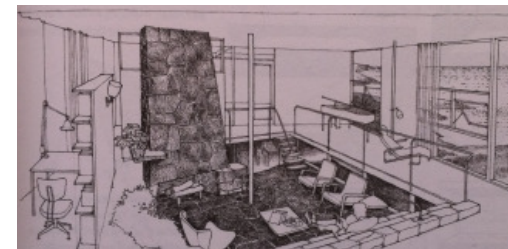


figure 12: A modern day house with a fireplace like the primitive hearth.

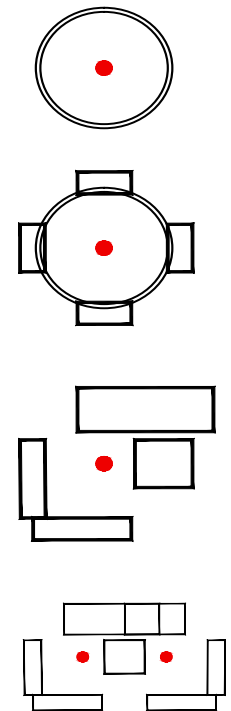


figure 11c: The transition of space organisation.

The monocentric planning approach was derived from man's initial attempt to make "homes" as seen in many primitive African dwellings (fig. 11a). The beginning of the notion of "home" had the hearth, which was the centre of the home. The hearth was where everyone gathered; whether it was to eat/cook food, gather for heat or to converse – a social space, for example, as seen in figure 11. The periphery of the home was more individual and use-based, e.g. for sleeping or storage (Oliver, 1971:118-123). Over time, the space around the hearth became more fragmented into separate spaces (fig. 11b, 11c and 12).

In the case of a children's home, a monocentric planning approach can be limiting to a developing child exploring an activity. When the main gathering space is overcrowded, constantly changing (eat, relax, study) and there are a variety of ages in the same space disagreeing on what activities to do, it can be counter-productive as the child is limited in exploration, thus hindering his/her development (Bartlett, 1999:19). For example, a child from Guild Cottage (anonymous, 2012: interview) admitted that it was frustrating that she could not enjoy watching a movie more appropriate for her age because at least 10 other younger children want to play and do their own thing in the same room (fig. 10c).

Over the years, children's institutions started to take on a polycentric approach to deal with the masses of children (fig. 13). Observations reveal that the polycentric approach is better because the activities can get broken up, thus creating multiple nodes of interest for each individual to use and interact in. The interaction the polycentric design provides promotes skill development and social interaction needed as per the treatment requirements mentioned previously (Govender, 2102:interview). This polycentric layout is a contrast to a heavily concentrated, monocentric space of interaction (fig. 10 vs fig. 13).

The Johannesburg Children's Home post-80s design considers various activities and spaces for the children, creating a variety of interactive nodes to satisfy and encourage a multitude of individuals to explore an interest/skill (fig. 13 and 14). The living spaces (fig. 15) still contain an intimate home environment, with chalets which comfortably accommodate 10 children and a house mother figure (child caregiver/social worker). This contrasts with the monocentric approach with subdivided large rooms with many beds in them – which has no sense of individuality, mother figure or home environment. Encouragement of personal space is crucial to establish independence and identity in a developing child (Holman, 1994:249).

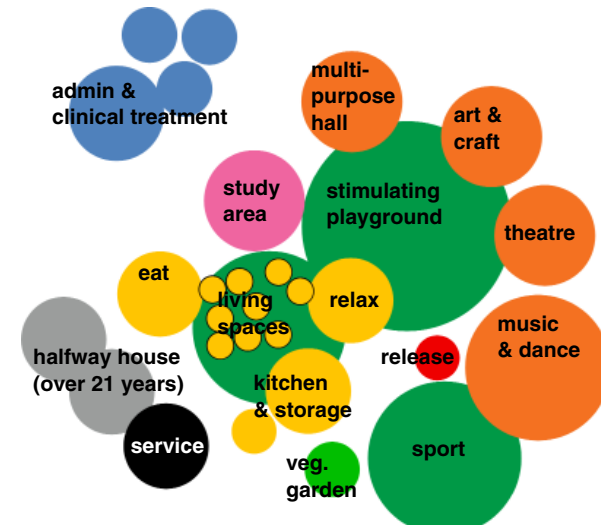


figure 13: Polycentric plan (my observation diagram of a possible approach from site visits).



figure 14: Chalet at Johannesburg Children's Home – creates an intimate/home environment.



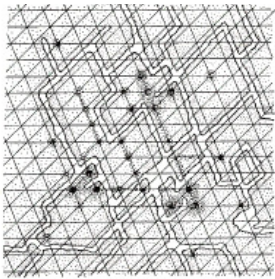
figure 15: Some activities/skills currently catered for at Johannesburg Children's Home.

children & space

Aldo van Eyck's Amsterdam Orphanage (1955-60) considers a polycentric layout in the planning approach (Strauven, 1996:12), which was derived from Martin Buber's¹ theories of the "in-between" (Lefaivre, 1999:65) and the "I and You" (Lefaivre, 1999:66). Van Eyck used these theories (fig. 16a) in the functionality of the building and related them to the users and the interaction of those users in combining a variety of spaces (Lefaivre, 1999:69).

The notion of "I and You" (Lefaivre, 1999:66) and the "in-between" realm (Lefaivre, 1999:65) are the key concepts to creating a building for layered social interaction which can be oppositional and complementary – essentially forming a mini-community in that building (Lefaivre, 1999:66). This promotes individuality and self-esteem as opposed to standardising everything under a single mass (Holman, 1994:241). Similarly, the approach of this thesis will be to incorporate functionality, spaces and social interaction into the design with the ultimate aim of assisting in the rehabilitation of these damaged children. Creating a community is not just about the architecture which is limited, it is how dwellers dwell in their space and interact with each other (Lefaivre, 1999:12).

The Amsterdam Orphanage (fig. 16b and 17), illustrates how complex the organisation of an orphanage can be, because even though it serves the simple function of housing children, there is a multitude of functions and interactions related to age and the child's individual interests (scale, hierarchy, activities, safety) (fig. 18). This is a vital aspect that needs to be considered alongside the other building programme that will be added in order to create a coherent design.



The 'Polycentric Net' from Kevin Lynch, 'The Pattern of the Metropolis', Dutton (Winter, 1960), pp.79-98

figure 16a i: Kevin Lynch (theorist) further exploring the idea of polycentricity.

figure 16a ii: Van Eyck's playground design (as a result of the theory of polycentricity: philosophies of human interaction, Martin Buber).



¹Martin Buber's philosophies of how people were connected and interacted in a physical and social realm. This was influential in the work of van Eyck, such as his playgrounds (Lefaivre, 1999:66).

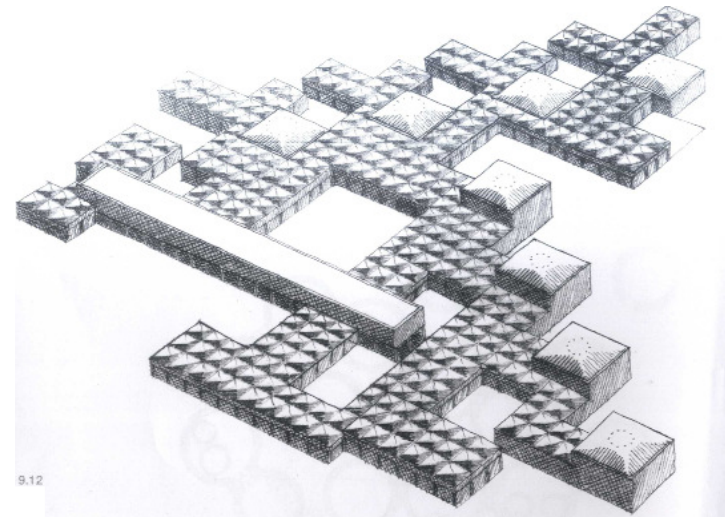


figure 16b: Axonometric of Amsterdam Orphanage illustrating the arrangement of polycentric courtyard spaces and the humble scale of architecture. Van Eyck. Orphanage. Amsterdam, 1955-60 (Hanlon, 2009:186).

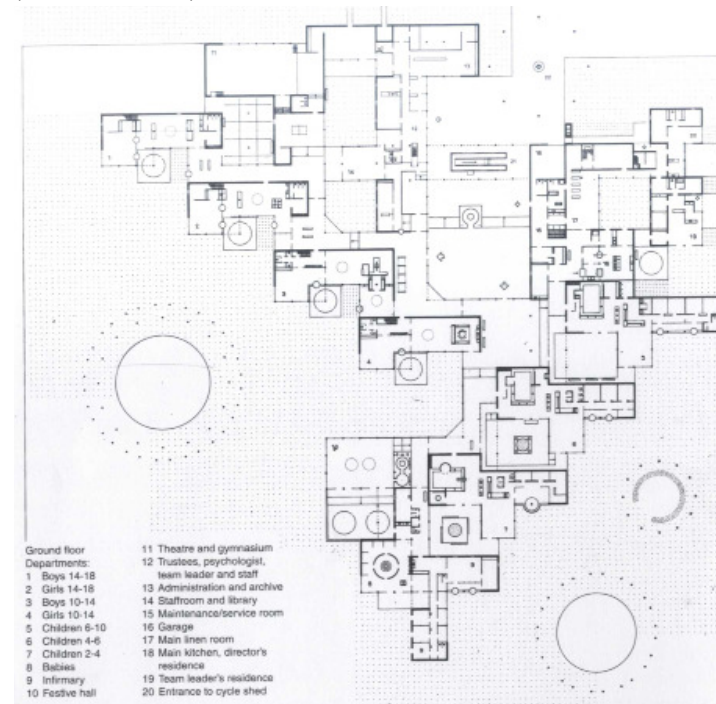


figure 17: Arrangement of complex programme consideration of age groups, social and private activities. Van Eyck. Orphanage. Amsterdam, 1955-60 (Strauven, 1996:18).

Van Eyck shows consideration of different types of age interaction in the Amsterdam Orphanage (1955-60)

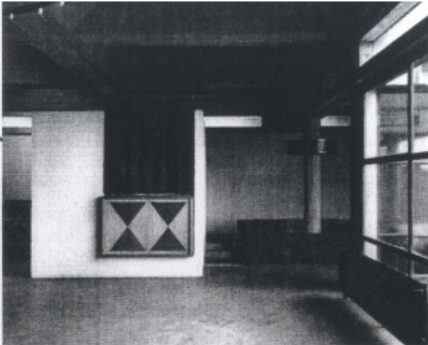


figure 18a: Age 10-14: puppet theatre and sitting nook.

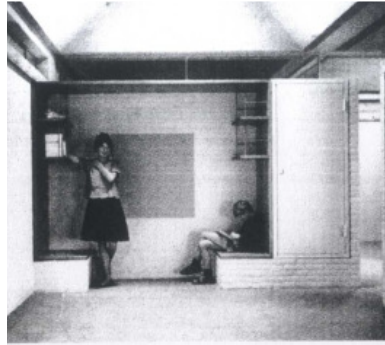


figure 18b: Age 14-20: reading niche.

In figures 16b and 17, it is evident how van Eyck was able to contain this entire programme in one coherent building, which grew into its own form. The organisation was guided by the relationship of the function and the interaction of the users (Lefaivre, 1999:66). The courtyard space was used to create a relationship with the outside, and also to fuse together the different functions and ages in the programme. This is very noteworthy as it is almost like a little city (fig. 17 and 18c): “a house is a city and a city is a house...” – Aldo van Eyck (Ligtelijn, 1999:49).

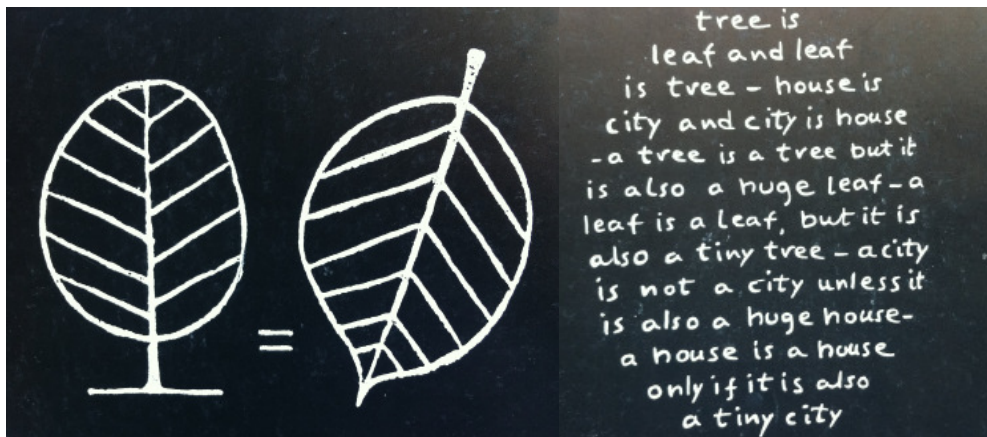


figure 18c: Theory of Aldo van Eyck, “a house is a city and a city is a house” (Ligtelijn, 1999:48,49).

The nature of the architecture itself is also very important in relation to the user, in this case, children. As per van Eyck's orphanage, a clinical psychologist suggested that humble/home-scale architecture is important to retain a homely type of environment for a developing child that is growing up in an institution (Thod, 2012:interview). In essence, “...our house must be a friendly house in every respect, both inside and outside” – Aldo van Eyck about the Amsterdam Orphanage (Strauven, 1996:5) (fig. 16a).

The architectural language of space and building pertaining to children needs to be thought out differently. Adults relate to space very differently in comparison to children (Lefaivre, 1999: 55,58; Dudek, 2000:62,63). Children in general understand the composition of things in their purest geometric form and colour. However, this is not to say children are not their own individuals. We know that they explore and relate to form in their own way (Lefaivre, 1999:55,58), as seen in the example in figure 19:

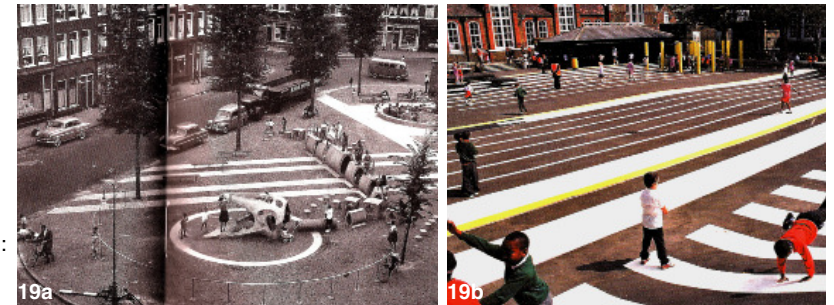


figure 19a & 19b: Children playing with simple form.

In the comparison of art in figure 20, a young child would probably relate more to Kandinsky's work than a Rembrandt, however, an older child might relate to both – so it is important to consider all aspects of the variety of children in relation to the building's function (fig. 18).



figure 20: Child in relation to simple form, pure line and colour.

In Hertzberger's book, *Lessons for Students in Architecture* (1993), he explores various architectural themes in relation to children – such as being public and private, scale, texture, making space and meeting spaces. The Montessori School in Delft (1944-1947) developed by Hertzberger is a good example of how some of these architectural themes are carried out (fig. 21), as well as the relation to Aldo van Eyck's theories of interaction between space and people, "active form" (Lefaivre, 1999:58) and the "in-between" (Lefaivre, 1999:11).



figure 21a: The "in-between" spaces can be a simple suggestive form to create social interaction and better transition between spaces, taking into account scale (older and younger children).



figure 21b: Making space and leaving space – allowing enough freedom for children to interact with form and material wherever their imagination takes them.



figure 21c: Allowing for exploration with built-in furniture.

Spaces for children, as per Hertzberger

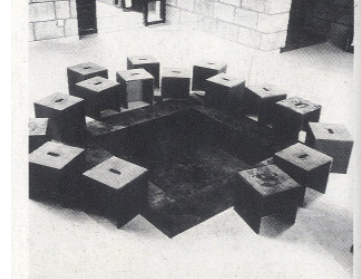


figure 21d: The importance of light, scale, view and rhythm/ composition in form and patterns.



figure 21e: The scale of a child and view is very important in the designing of spaces – one would have to try to think like a child.

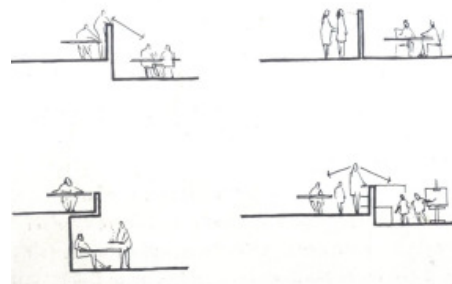


figure 21f: Levels, views and obstacles of separation can lead to interactive spaces or more private spaces (depending on function).

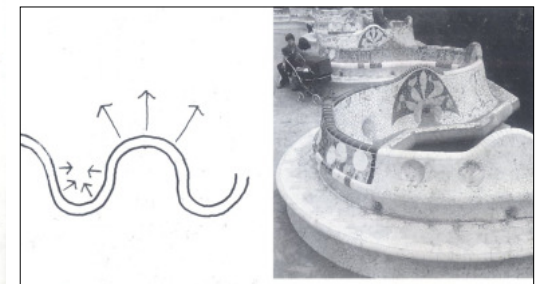


figure 22: Understanding how form can encourage and discourage interaction.

Even though not all the architectural principles relating to children have been explored here, it is crucial to understand how these principles are applied in various situations. They are used in relation to a specific scenario with a specific building's use and users (Hertzberger, 1993:29,171).

programme = architecture + therapy

definitions that need to be clarified:

ther·a·py

1. the treatment of disease or disorders, as by some remedial, rehabilitating, or curative process, like speech therapy
2. a curative power or quality
3. psychotherapy
4. any act, hobby, task, programme, etc., that relieves tension.

re·ha·bil·i·tate

1. to restore to a condition of good health, ability to work, or the like
2. to restore to good condition, operation, or management, as a bankrupt business
3. to re-establish the good reputation of (a person, one's character or name)
4. to restore formally to former capacity, standing, rank, rights, or privileges.

(dictionary.reference.com)

These two definitions are the driving factors behind what the programme of the specialised hybrid children's home aims to do.

There is a misconception among many that therapy and rehabilitation relate to clinical treatment, but as seen by the definitions, they really do not. This is an important factor contributing to the exploration of a non-clinical therapy aspect in the programme in relation to the existing clinical therapies which take place at a certain time with a doctor. Clinical treatment is certainly an important part of the healing process, but many forget that a hobby – something as simple as dancing, playing, listening to music or painting – is therapeutic and has rehabilitative qualities too (Alvin, 1975:21,70,90; Philpot, 2006:97). The best part is that non-clinical therapy can be on-going and there is no age limit (fig. 23).

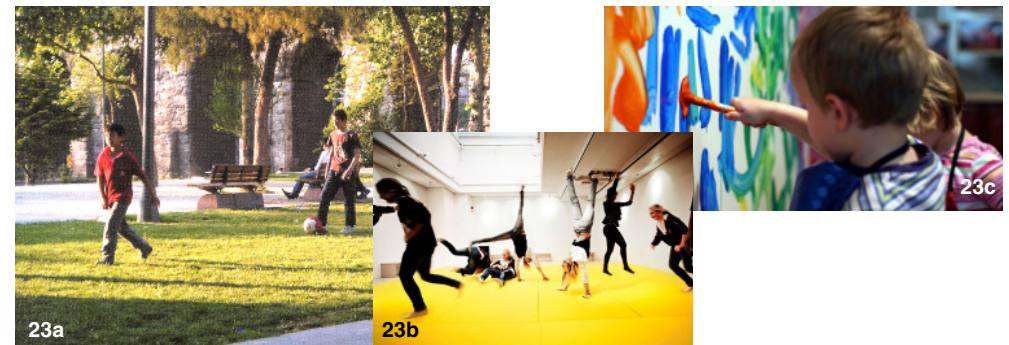


figure 23a, 23b & 23c: Examples of non-clinical therapies (i.e. no doctor supervision or monitoring).

The programme for the rehabilitation home for sexually abused children consists of:

- a traditional children's home (living and basic play area)
- clinical and professional treatment
- non-clinical therapies (hobbies, skills development, etc.).

The rehabilitation home serves not only as a stepping stone to help the healing process for traumatised youth, but also to help them back into society through the exploration of non-clinical activities and skills development (fig. 24).

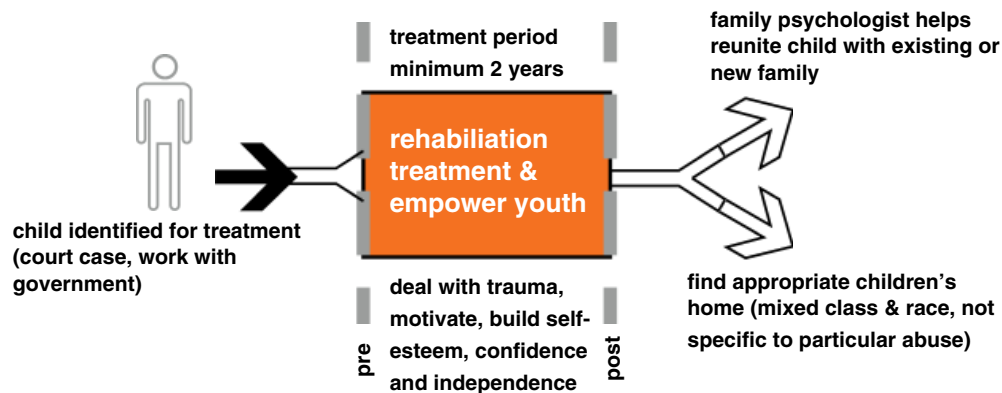


figure 24: The aim of the process in the rehabilitation home is to heal and empower with clinical and non-clinical therapies.

The design aims to use the site, building and programme to assist in the therapeutic treatment needed. A new aspect of treatment that will be advocated is the importance of non-clinical therapies/skills to motivate, develop and help in the on-going healing process of these children.

Traditionally, treatment for sexually abused youth focused on the immediate problem of dealing with the trauma. However, their development stages into adulthood after the treatment were, to a large extent, ignored. Beneficial activities can include motivational hobbies that empower the youth with interests and skills that develop with them into adulthood, whilst being part of the healing process.

All the non-clinical therapies that are shown in figures 25 and 26 have supporting literature indicating that they are therapeutic, and can even help in the developmental stages of a child's skills development. For example, the rhythm and structure of musical sounds can help with speech problems as well as soothe the emotional state of a person (Bunt, 1994:76). The therapy selection is suited to a range of children's ages, cultures and interests – in relation to rehabilitation. Johannesburg Children's Home is a great example of an institution that is promoting a similar programme (fig. 25).



figure 25a, 25b, 25c & 25d: Some of the many non-clinical activities being promoted at Johannesburg Children's Home.

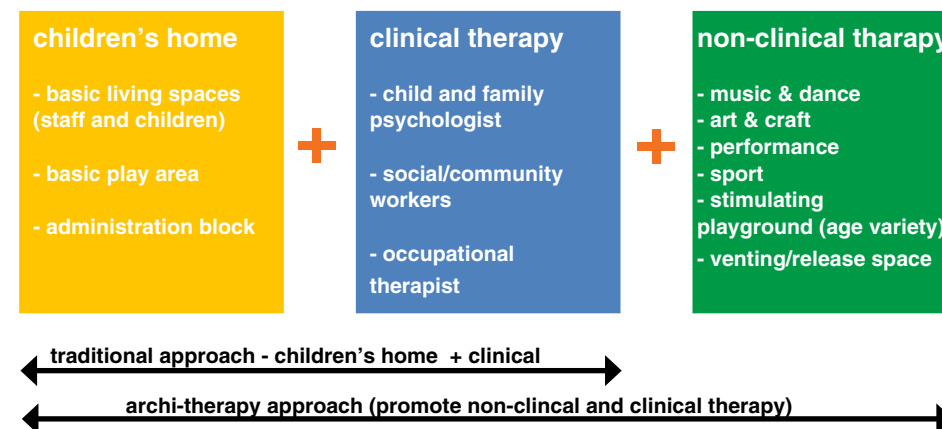


figure 26: The rehabilitation home programme approach for the thesis project.

The next section on site criteria will focus on analysing, on a broader scale, how this building and a programme of this nature should be located within a city like Johannesburg.

site criteria



“No house should ever be on a hill, or on anything. It should be of the hill. Hill and house should live together, each the happier for the other.”
– Frank Lloyd Wright

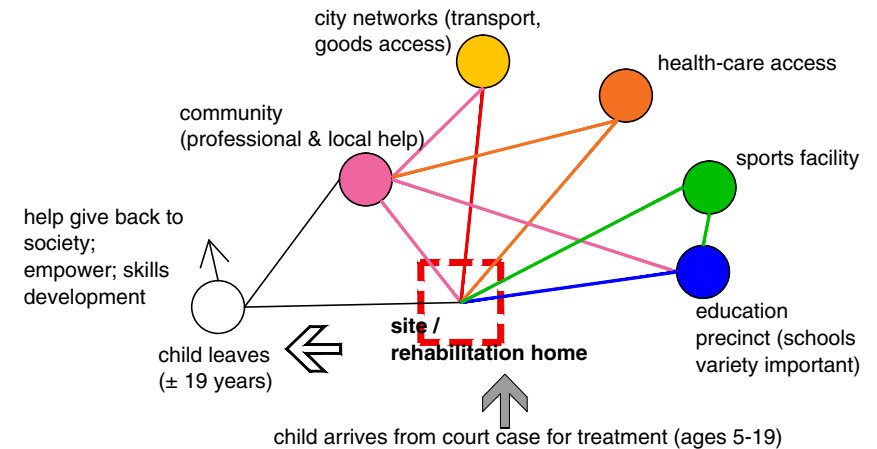


figure 27: Site plug-in relationships for treatment home.

The site selection for this project is crucial in incorporating all the desired criteria that were identified from listening to the concerns and suggestions of people that were interviewed. This, coupled with various observations of existing children’s homes, offered clues on how to select an appropriate site.

Site selection was mainly based on:

- defensible space (secure and controllable)
- a healthy neighbourhood for children (residential, possible business plug-in)
- accommodating site plug-ins, mainly schools and off-site medical care (fig. 27)
- site relationships: design (edge condition, natural light, location, pollution, noise)
- people in relation to building users, professionals and the local neighbourhood.

As a starting point for site considerations, the factors influencing the Guild Cottage location were evaluated in order to extract learnings. First, the existing surrounding site plug-ins for Guild Cottage were mapped out, in order to get an idea of how this institution works in relation to these plug-ins. Context and how far away they were from each other were also key considerations (fig. 28). The Charlotte Maxeka Johannesburg Hospital, in Parktown, was deemed an important central point because if any heavy medical assessment or medication is needed, children can go there as this institution works in collaboration with the government. More importantly, this hospital has a specialised sexual abuse trauma unit for special examinations, and as such, close proximity becomes a vital consideration for the site.

The following were mapped out:

- Charlotte Maxeka Johannesburg Hospital (Johannesburg General Hospital)
- Schools (that children from Guild Cottage currently attend and possible new schools)
- Major nodes (activities and shopping)
- Recreational facilities for the children

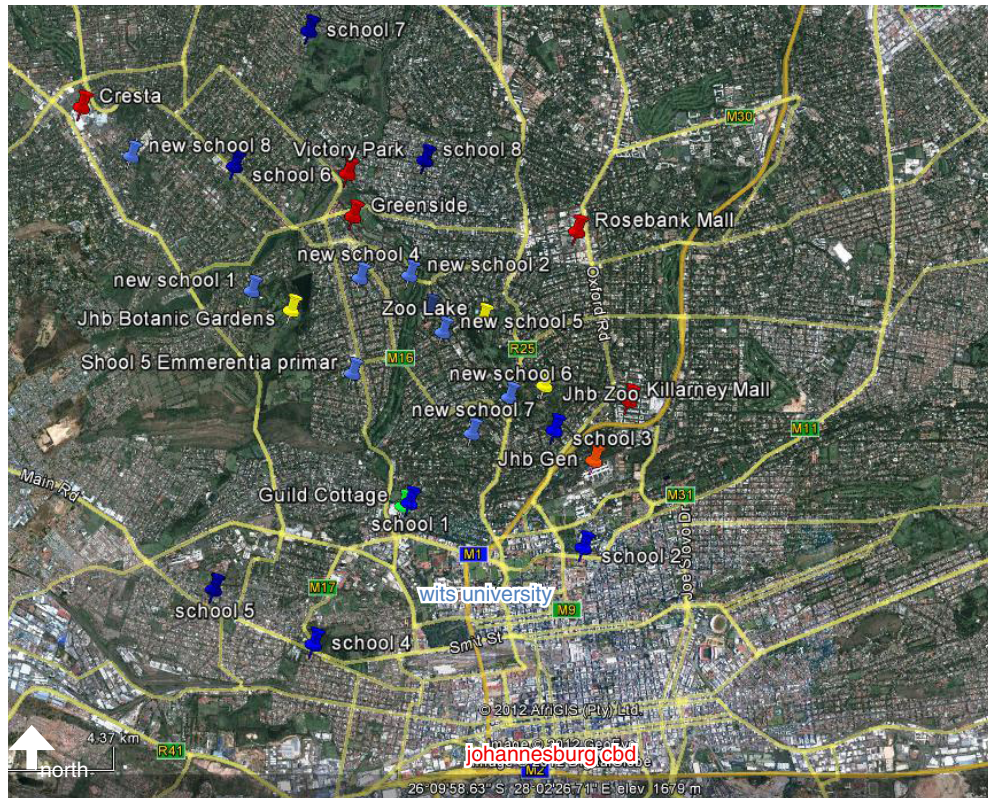


figure 28: Map of Johannesburg showing possible site plug-ins and Guild Cottage site plug-ins.

This investigation offered a sense of how the site plug-ins outside Guild Cottage home work in relation to one another – namely, schools, hospitals and recreational activities.

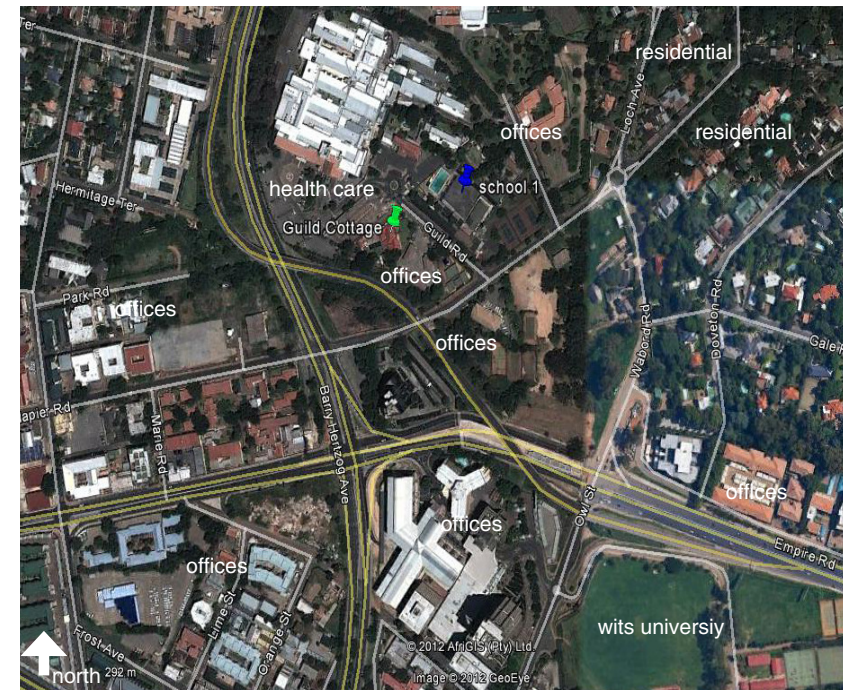


figure 29: Study of Guild Cottage neighbourhood, Parktown West.

The safety in the area around Guild Cottage has deteriorated significantly over the years. A nearby park that is literally a minute's walking distance away is not being used by anyone because the nature of the surrounding community has changed from residential to more commercial, thus isolating Guild Cottage (fig. 29). Unfortunately the park attracts suspicious individuals because no one uses it. The children no longer play there and are rather driven to Zoo Lake Park for a recreational visit as the people there consist of young children and families who also use the park (Molefe, 2012:interview; Thod, 2012:interview). This provides a healthier environment exposure and interaction for the children and this is why the nature of the people in the neighbourhood is so important, especially in childhood when the development stages are so crucial (Bartlett, 1999:122-123) (fig. 30).

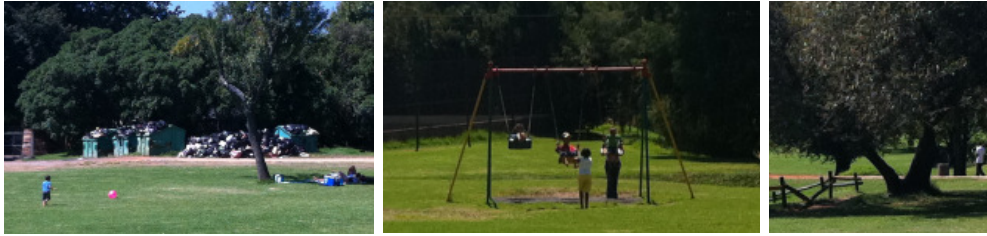


figure 30: Zoo Lake Park on a Sunday.

It seems that people relate to sites depending on their function. If the site is residential, there will be families and children, and if there are many offices there will be more adults. In keeping with the home environment aspect, as well as the healing and growing of the child, it is important to consider not only the physical site, but also the people surrounding that site (Holman, 1994:242).

These plug-in site relationships were used as a starting point for finding a site. A suitable site had to be close to many schools, not far from health-care access and extra medical professionals (Charlotte Maxeka Johannesburg Hospital), and central to a shopping node and a variety of explorative activities (fig. 27). A healthy environment for children is also important because the wrong environment can add stress when dealing with this kind of trauma (Heyneke, 2012:interview; Thod, 2102:interview).

When looking for possible sites for the rehabilitation home that is still to be developed, three main types of possible physical site conditions were encountered:

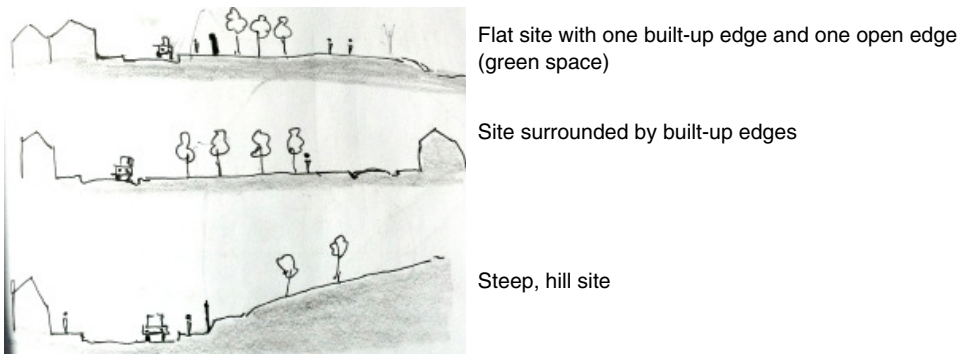


figure 31: Sketches of possible site conditions for the thesis project during site investigation.

This project has to be able to tackle any of these three site conditions. The conditions were investigated in precedent studies, which involve very strategic planning in creating defensible space. These are also further explored in the visual analysis essay, in chapter 2.

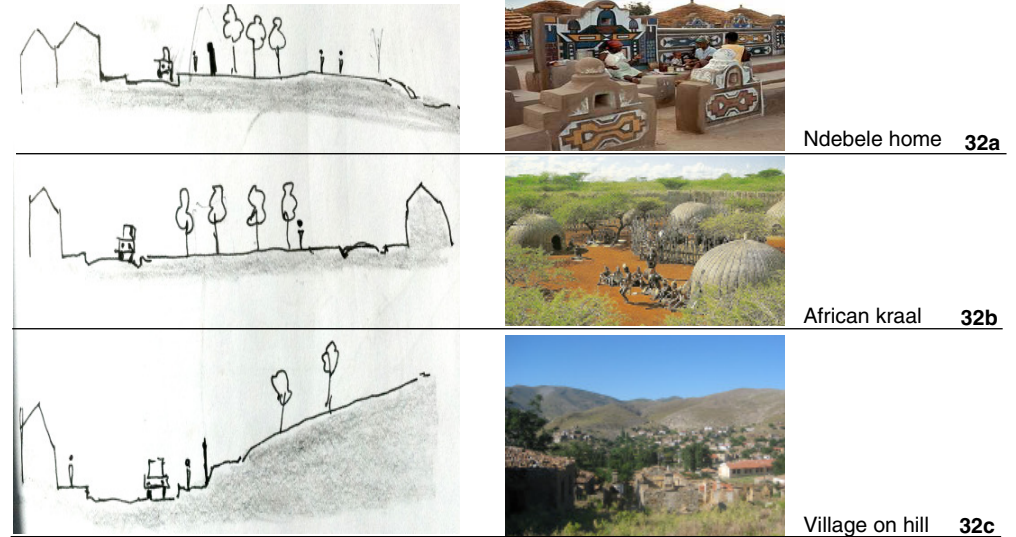


figure 32: Possible site conditions – relating to precedent study of defensible space and social organisation (explored in visual analysis).

The analysis in figure 32 is not directly related to the formation of a children's home, but the principles of how these sites used their context to accommodate their programme and create a defensible space will hopefully assist in the design process for the multi-programmed nature of the rehabilitation home yet to be designed.

In summary, all these site considerations that were raised are important in finding an adequate site for a children's rehabilitation home. Moreover, financing any site or development is always an important consideration. Children's homes often struggle with capital due to the diverse financial spectrum of the families of those affected by sexual abuse. Funding opportunities in the programme and site location that could assist with capital will, therefore, also be explored (Heslop, 2012:interview).

what does archi-therapy hope to achieve in the end?



“Although the world is full of suffering, it is full also of overcoming it.”
– Helen Keller

The basis for archi-therapy is to recognise recent considerations in the treatment process for sexually abused children. There are many forms of therapy, clinical and non-clinical, and appropriate environments for the rehabilitation of sexually abused and other abused youth that need to be implemented in future designs of children's homes.

On the whole, archi-therapy aims to explore how a specialised children's home that treats sexually abused children can be an effective part of the rehabilitation process. The purpose of an on-going, multi-faceted therapeutic process is to assist with the overcoming of the trauma and create positive development for the children, in a manner that goes beyond the limited realm of clinical therapy. Hopefully, by expanding their experiences, talents and skills, a seed of interest will be planted in these children. A seed that will grow with them, assist with healing, re-establish them into society, and help them be the ambitious, goal-seeking adults that they were always meant to be.



A child's bed at Guild Cottage Children's Home (Site visit, 2012).



Photographs on the wall at Guild Cottage Children's Home of children having fun and of children who have left the home (Site visit, 2012).

chapter 2:

visual analysis

prelude

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rehabilitation & space

page 26

sensory experience & healing

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the "in-between" space (transition)

page 29

private & public

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defensible space

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the southern ndebele

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african kraal

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ancient greek village

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findings

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prelude

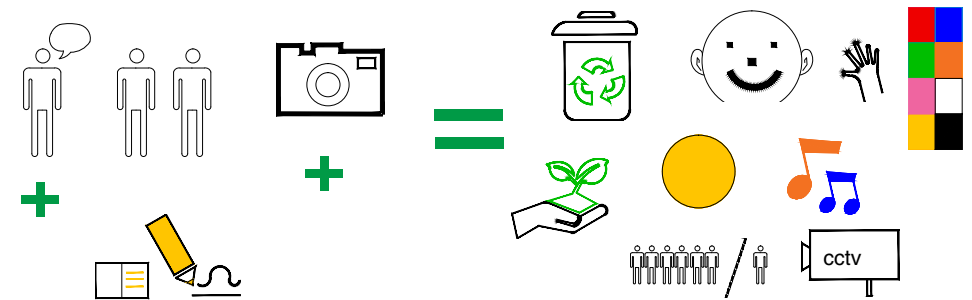


**“Rehabilitation is not a destination,
it’s part of life’s journey...”**
– K. Karandreas

The visual analysis is composed of two parts:

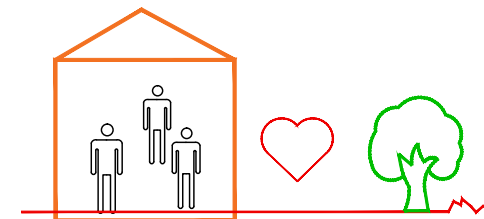
Intimate scale: Rehabilitation and space

One’s surroundings and the space within which the healing process takes place can play an incredibly significant role in the rehabilitation process. The symbiotic relationship between institutional therapy and deliberate architectural themes that enhance the healing process and play a role in mitigating the negativity of institutionalisation were carefully considered and interrogated. The methods of documenting this included photography, sketching, interviews, site visits and observation.

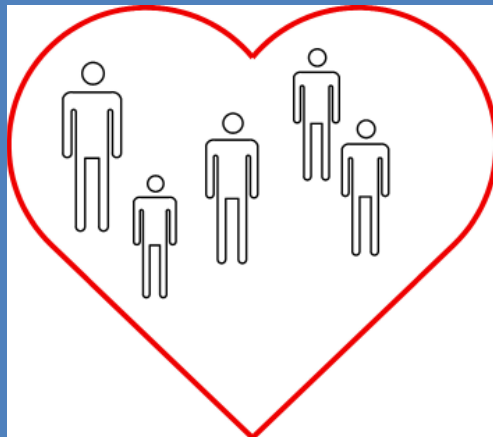
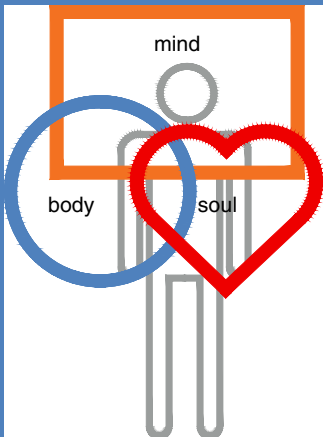
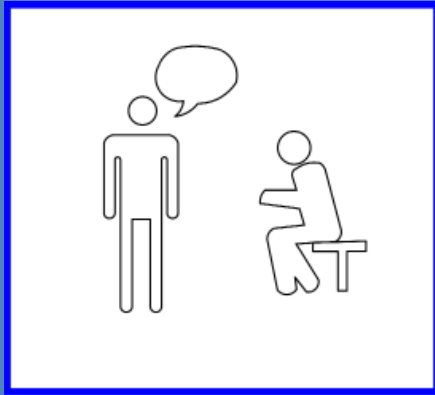


Planning scale: Defensible space

The nature of the complex programme in an institution like a children’s home, when combined with the treatment aspect, requires deliberately thought-out social organisation of spaces in relation to building functionality, users and site. Three different vernacular architecture types along with their site conditions were chosen for analysis. They were explored in terms of the main principles used on each respective site to create defensible spaces and social organisation of space. The overall compositions of these case studies vary in the degree of transitional spaces connecting different spaces of order. This approach endeavours to add deeper insight into the site use and choice, and a more creative approach to the project design.



rehabilitation & space



“Hold on to what is good, even if it’s a handful of earth.” – Hopi prayer

Although this thesis focuses specifically on children within a particular age group that have been sexually abused, the visual analysis takes a different viewpoint and focuses more broadly on exploring rehabilitation and space in relation to architectural themes.

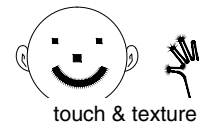
Different forms of therapy in five very diverse rehabilitation programmes were investigated in order to enhance understanding around various architectural themes that will be further elaborated on. The institutionalised rehabilitation methodologies and therapies that will be analysed are labelled in the pictures to follow:

- A** - Disability: Lusito Association for the Mentally Handicapped, Rosettenville, Johannesburg
- B** - Abandonment: Johannesburg Children’s Home
- C** - Substance abuse: Fiona Hickman: Dealing with various types of substance abuse in various rehabilitation centres
- D** - Sustainability and stress relief: Paddy Wallington: Green Power House (sustainable living), Linden, Johannesburg
- E** - Medical: Herzog & de Meuron. REHAB, Centre for Spinal Cord and Brain Injuries. Basel, Switzerland, 1998.

The architectural components that were focused on in relation to rehabilitation and healing are:



colour & light



touch & texture

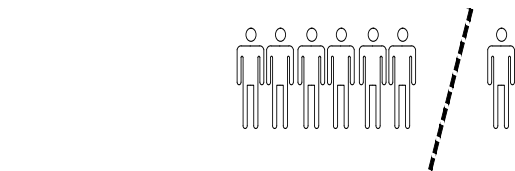


nature & sustainability

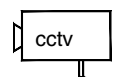


sound

sensory experience & healing



the “in-between” space (transition)



private & public
(collective & individual)

sensory experience & healing

light & colour

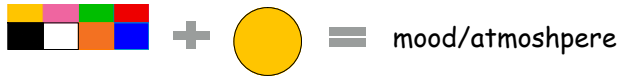


figure 33a:

Natural light always has a more pleasing effect on a space, and even patients enjoy sitting in the sun.

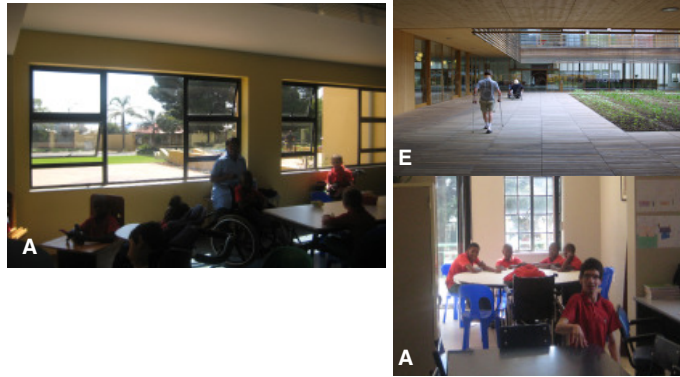


figure 33b:

Windows that looked outside into well-lit areas made a difference to the mood in the room. It is lovely when you can look into a garden or another group activity, thus creating interaction with other spaces and activities. In more private spaces light was let in in a more appropriate manner.



figure 33c:

Colour and light had an interesting relationship, because the colour of the walls in the space changed the light quality of the space, which in turn affected mood. Earthy, pastel colours were used throughout all the case studies; only younger children started to have more exciting colours like green or blue.



nature & sustainability



Nature's elements definitely have positive and healing qualities on people. It's very calming to be in a space where nature is present.



figure 34a:

The Green Power House, D, was very much geared towards sustainability – recycling waste, collecting rain water and even making their pool into their own mini wetland, using the plants to filter the water. Cross-ventilation/natural ventilation was an important consideration for keeping the air cool and clean. It also created a connection to the outside spaces (A,B,C,D,E). Vegetable gardens were also used in some cases, to save on costs.



figure 34b:

Nature is a vital part of the design consideration, and it was a dominant feature in all rehabilitation spaces. Nature seemed to be present in the "in-between" spaces, courtyards especially.

sounds



figure 35a:

Besides the use of a radio or other music, the most prominent and calming sounds were from nature.

There were also the sounds of the materials you were walking on. Sounds changed from walking on the gravel to the timber floors to the tiles. As the material changed, so did the sound and the function of that space. Maintenance of materials was also a consideration.



figure 35b:

Other sounds around were birds or the running water, and the sound of the wind going through the trees.

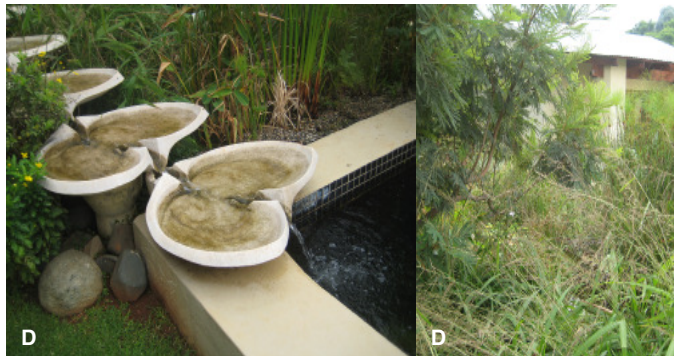


figure 35c:

Sounds that people make were considered in the planning because where individual therapy takes place, you do not want the interruption of people socialising to disrupt the individual clinical treatment. Creating separation by using nature and “in-between” space was a common solution.



touch & texture



figure 36a:

The predominant textures used were earthy. Mainly timber was used as well as a lot of glass to create a sense of openness. Smooth walls with a coat of paint were also prominent. Even texture of rock clad was used. Steel was used but not in a dominant way. The floors used textures you would find in a house – carpet, tiles, timber floors, “home-like” driveway paving – no industrial textures were used. There seemed to be a constant effort to create a home-like environment. Recycled material like timber door frames and other materials were used in D to save on costs.



figure 36b:

There were also some materials that were considered therapeutic. These tended to be natural materials and natural elements. Water was used as both a feature and part of activities – a therapeutic element in every way.

the “in-between” space (transition)

The “in-between” space can be seen as a threshold that “...provides the key to the transition and connection between areas with divergent territorial claims and, as a place in its own right, it constitutes, essentially, the special condition for the meeting and dialogue between areas of different orders” (Hertzberger, 1993:32).

Given that a rehabilitation centre has a variety of public and private spaces with all kinds of functions and users, the case studies involved deliberate analysis of the “in-between” spaces. An important consideration was gaining insight into how one connects different orders of space with space.

This analysis explored five possible “in-between” space conditions:

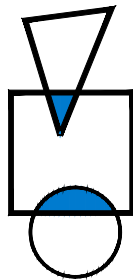
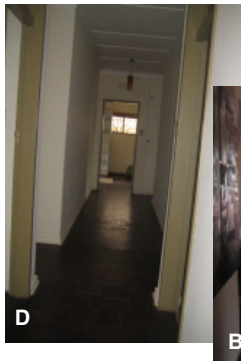


figure 37a:
Inter-locking spaces: These were small, dark, quick transition spaces. Natural lighting always enhanced the nature of these spaces.



figure 37b:
Adjacent spaces: These spaces were separated to let enough light in, which always benefited the rooms. This “in-between” space was more comfortable to pass through, and sometimes attracted people as a pause space as people like to be outside for a few minutes.

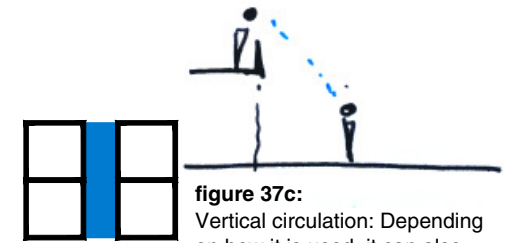


figure 37c:
Vertical circulation: Depending on how it is used, it can also become a space of visual and brief social interactions.

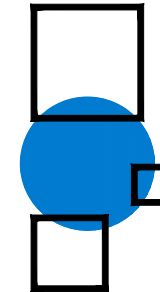


figure 37d:
Linking common space: These were very spacious linking spaces, loosely defined by the surrounding forms. This seemed to be a very social space. Lots of people can be held in this space compared to the other transitional spaces. It was a space that could join any order of spaces.

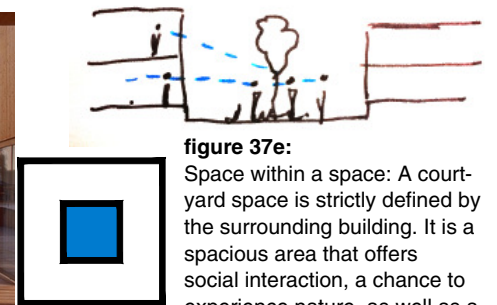


figure 37e:
Space within a space: A courtyard space is strictly defined by the surrounding building. It is a spacious area that offers social interaction, a chance to experience nature, as well as a visual interaction from inside to outside.

(Diagrams derived from Ching, 2007:185).

It was also noted that form plays an important role in how one moves through these connected spaces, affecting the nature of transition between those spaces. Transition occurs in the spaces of the “in-between” that connects different orders of programme (public/private spaces). The form that defines these transition thresholds is important in the overall planning, as successful planning aims to create fluid transitions of spaces, rather than abrupt black and white spaces (fig. 37f and 37g). Transition thresholds can also add to the nature of the spaces they lead off from, for example in figures 37h and 37i, a colonnade-covered space leads to an open area from a private room, and becomes a social interactive space, between inside and outside. This creates degrees of movement from public to private, which is a smoother transition from threshold to threshold. Transition needs to be considered in a variety of scales throughout the building’s overall composition/planning (fig. 37f to 37j).

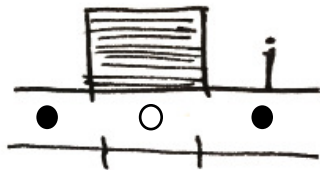


figure 37g i:
Black and white/in and out = no transition: an abrupt transition would be to have a space that is simply in and out. There is no degree or grey area/“in-between” space of transition.

figure 37g ii:
Levels create transition – change in level starts to create a variety in transition. Levels bring an awareness of change in the building programme, and can indicate that there is a sense of hierarchy in spaces.

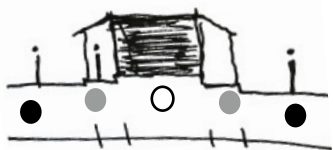
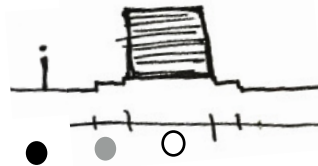


figure 37g iii:
Covered/colonnade type of transition space: as in the level change, a colonnade type-space creates a more fluid connection of spaces because there are different degrees of transition. Furthermore, this “in-between” space lends itself to creating its own use, and can add to the interaction of people between spaces, as seen in figure 37i.

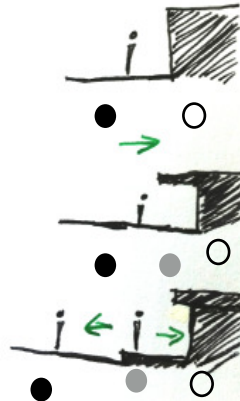


figure 37f:
Nature of transition affects how one enters a space.

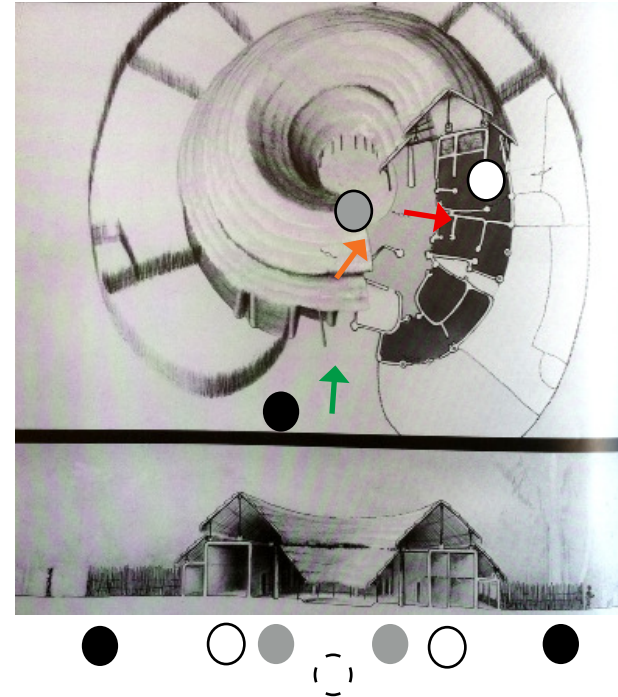


figure 37h i:
Compound dwelling in Seleki, Senegal. The composition of this dwelling makes use of different degrees of transition of space from in to out. The scale of these spaces also suggests what is private and what is public (big and open vs small and protected).



figure 37h ii:
An “in-between” space created by the colonnade, transition from in/out and public/private.



figure 37i:
Boys socialising in covered colonnade transition/“in-between” space. Dwelling in Mlomp, Senegal.

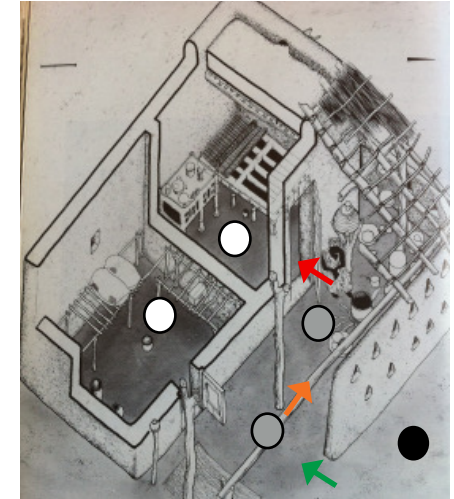


figure 37j:
Transition into dwelling; notice the change in the nature of the spaces as well as the scale.

private & public

Making use of the “in-between” analysis was a key consideration for assisting with a smoother transition of a variety of spaces in the final design of the home. Furthermore, these variations in the spaces indicated had an effect on how people used these spaces collectively and individually, which in turn resulted in the spaces being public or private. Private and public spaces also involve aspects of collective and individual, as obviously individual spaces will tend to be more private and vice versa (Herzberger,1993:12).

In the case of rehabilitation centres, there are different degrees of privacy, interaction and control that need to be considered. Variety of spaces is thus critical as there are group activities that require big spaces in comparison to the smaller, very private rooms where psychologists can do assessments. I looked at the nature of some of these spaces and how they related to the building.

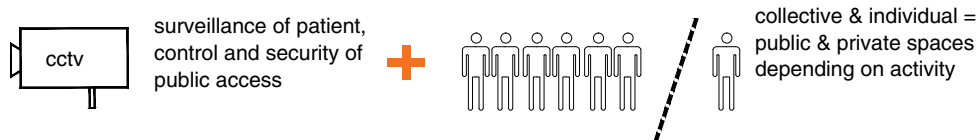
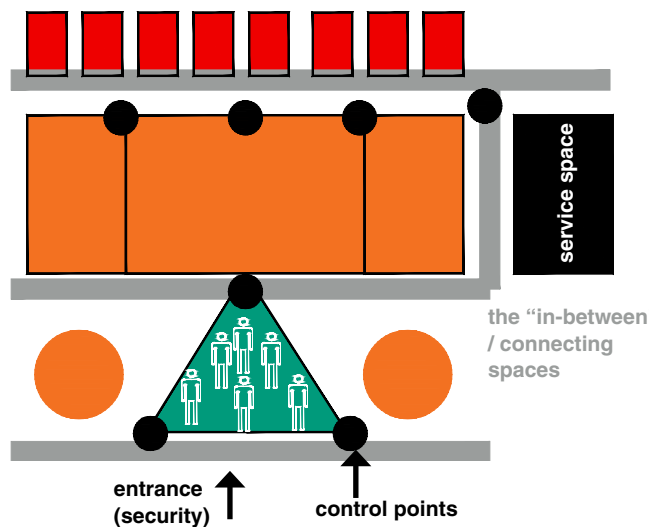


figure 38a: Major considerations.



- 3 - private/individual space, or private individual therapy like psychologist room/bedroom.
- 2 - semi-private – group activities and gathering spaces for patients.
- 1 - the public space was very directional for any visitors. You could not walk around the property without surveillance or security present.

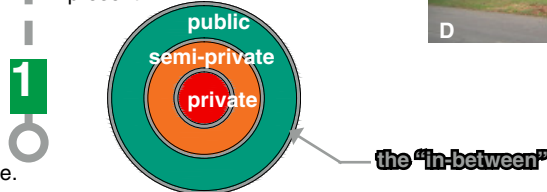


figure 38b: Observations of the general transition of public to private.



figure 38c:

Private: Private spaces were intimate and small. The therapy in this case focused either on an individual or small groups of patients. The spaces leading to these private spaces were also smaller than the other transition space. One could sense that this space was restricted.

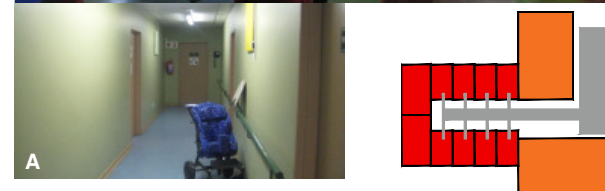


figure 38d:

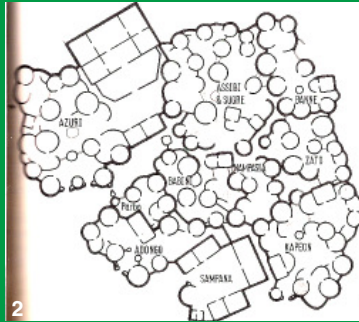
Semi-private: Control and security were still evident in these spaces, however, these spaces were allocated for group activities. These were social spaces for group interaction. No monitored therapy by a doctor was included here.



figure 38e:

Public: Any public access was directional to a control point. It is very important not to let visitors wander around without the supervision of staff. On my site visits I was always accompanied by staff – especially when patients were there.

defensible space



Defensible space is an important consideration in rehabilitation facilities, as the people inside are in a fragile state and need to be protected. Treatment centres are normally very careful about who they let into the rehabilitation environment – as this has an effect on the environment. Defensible spaces essentially explore different levels of order that need to be accessed and/or protected inside the home.

There are various degrees of defence, the first being between the outer world (e.g. the street) and the building itself (i.e. the home). Once inside the home, there are various other factors influencing access, such as private and public spaces.

The notion of defensible space was analysed in terms of three cultural-spatial models – any or all of which played a critical role in the choice of an appropriate site.

Site exploration – defensible space and social organisation

Thesis project investigation – possible physical site conditions:

Precedent studies:



figure 39a:
Ndebele home.

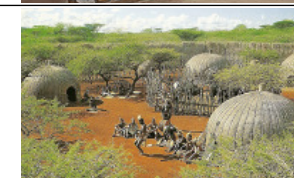
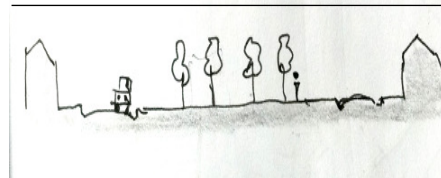


figure 39b:
African kraal.

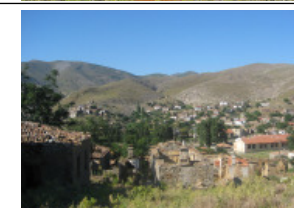
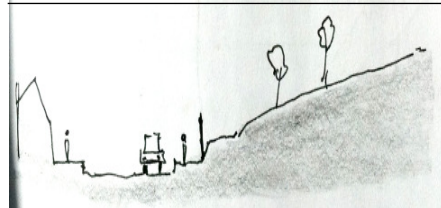


figure 39a:
Village on hill.

A space/site



B defence



AB defensible space

the southern ndebele

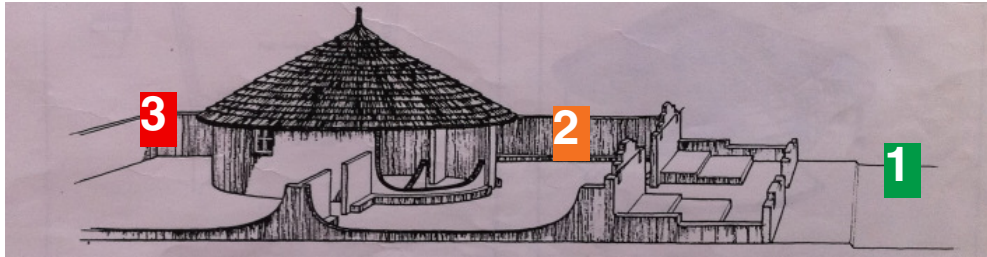


figure 40a i:

The transition of space in this dwelling is made evident by the use of the levels and height of separating walls. The land seems to be flat in most instances. The privacy of the spaces becomes evident in the nature of the surrounding form and visual exposure. For example:

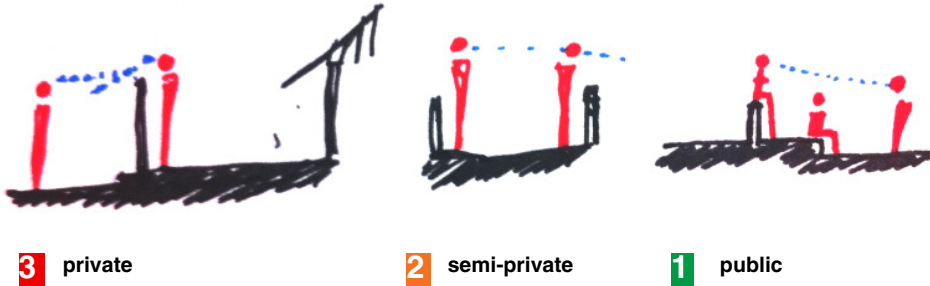


figure 40a ii:

Form and level = private/public.

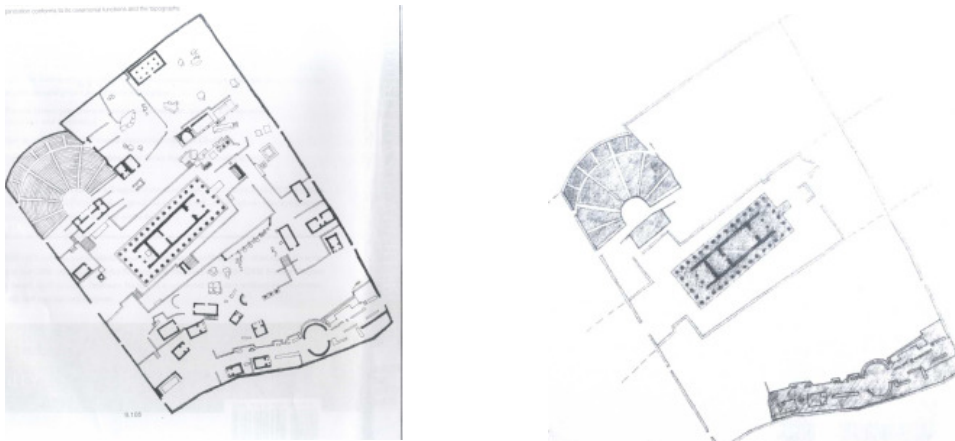


figure 40b:

Using the levels to separate function and spaces can also be applied on a greater scale: like the sanctuary of Delphi, Ancient Greece (Hanlon, 2009:240).

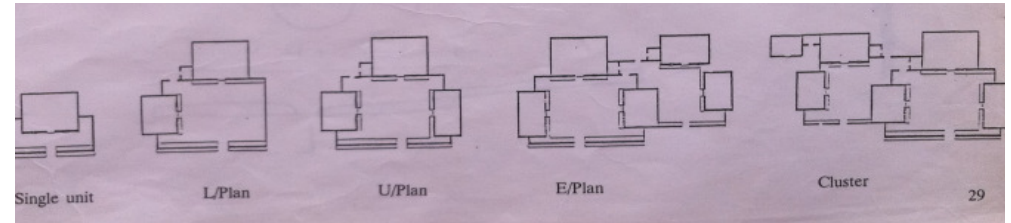


figure 40c:

Due to the polygamous nature of the Ndebele and the usually flat land, the architecture grew organically. The new huts were linked by the courtyard and placed according to hierarchy (i.e. child or new wife) (Rich, 1991:29).

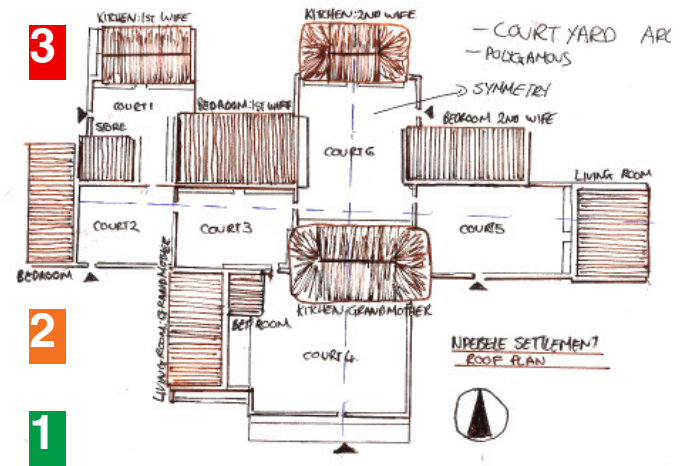


figure 40d:

The courtyard spaces and levels of threshold are an important transition tool from private to public as well as defining hierarchy of huts. It's like a formula used over and over to grow the family's home (Rich, 1991:22).



figure 40e:

Even though the principles were similar here, there is an expression of individuality in the art/patterns and form of walls (Rich, 1991:117).

african kraal

Figures 41a i, 41a ii, 41a iii and 41a iv show how the nature of the African kraal differs from tribe to tribe but there are certain principles of defence and hierarchy that stay the same (Oliver, 1971:97-100). The kraal is limited by the surrounding fence, therefore doesn't grow organically like the Ndebele dwelling.

The levels of privacy and hierarchy are dependent on how protected that space is. The entrance of the kraal is the least protected, therefore the most public space with the lowest hierarchy (Oliver, 1971:104)



figure 41a i:
Zulu kraal.

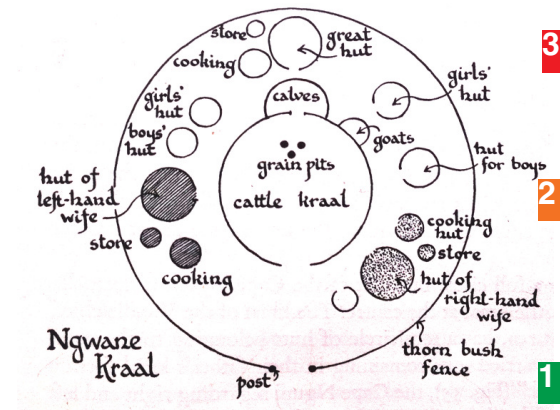


figure 41a ii:
Nguni kraal – hierarchy.

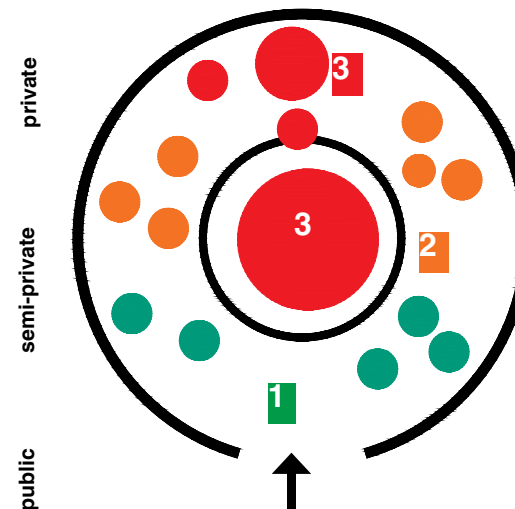


figure 41a iii:
Basic plan of kraal – private and public.

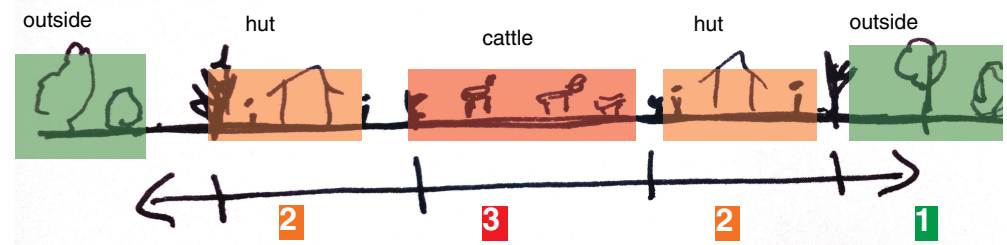


figure 41a iv:
Section through kraal showing basic private and public and hierarchy layout on a flat landscape.



figure 41b:
Wall of defence of kraal.

A citadel-like surrounding fence/wall of defence of kraal (fig. 41b) provides protection against dangerous animals (Oliver, 1971:104).

In figures 41c i, 41c ii and 41c iii, it is interesting to note how some kraals start to use the slope of a hill for defence purposes (as the surrounding wall is not evident). The view offers the advantage of seeing anyone nearby. The kraal's growth is also not limited anymore. However, the planning principles of hierarchy and privacy still remain, they are just applied to level differences now.



figure 41c i:
The kraal in this case started to use the slope of the land for defence instead of a surrounding wall like in figures 9a and 9b.



figure 41c ii:
Stepped kraal layout.

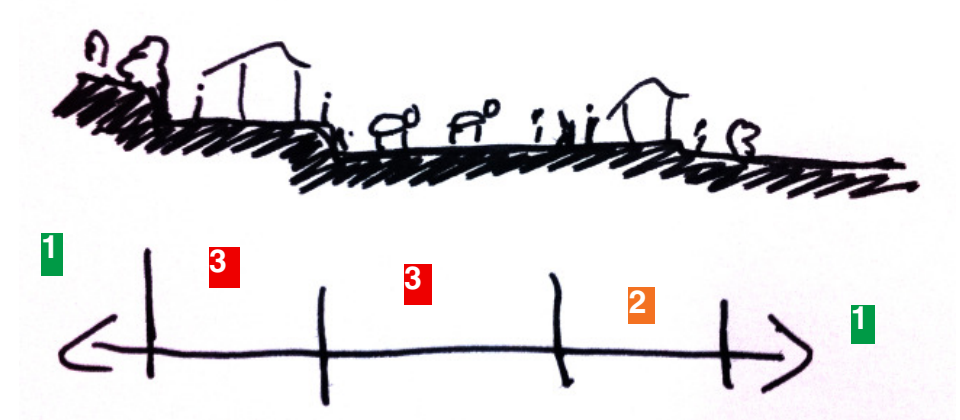


figure 41c iii:
Same planning of kraal but stepped because of landscape.

ancient greek village

This analysis is based on an ancient Greek village from personal experience when I stayed in the village of Skinudi, on the island Imbros, Greece. The visual exploration of this village was understood from observations and living with the local inhabitants. This valuable experience will conclude my analysis on defensible space and social organisation.

This village is very specific to a hillside layout, and the layout of this village was strongly influenced by nature – something the ancient Greeks always considered in their planning (Dinsmoor, 1975:171).

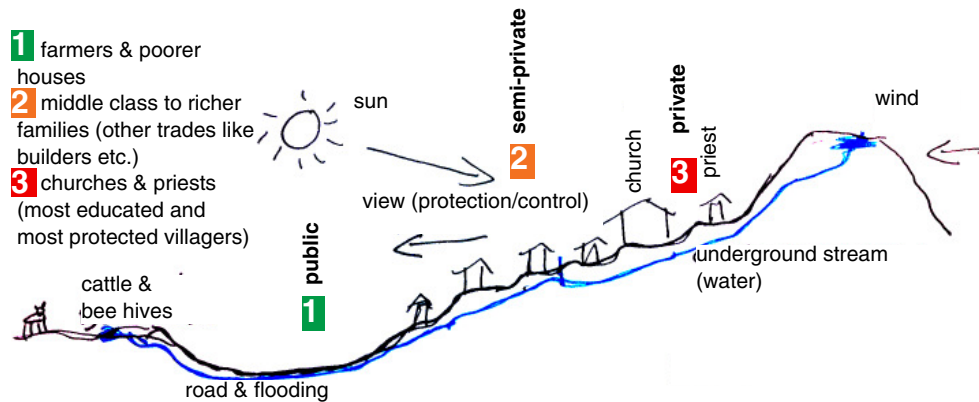


figure 42a:

This village combines the use of levels and hierarchy similarly to the Ndebele. However, due to culture the hierarchy is different. The main consideration for the organisation of this village is natural elements – namely wind protection, view (control and protection), water availability, sun and keeping away from the flood plain.



figure 42b:
Water from underground stream.



figure 42c:
Church (upper hill).

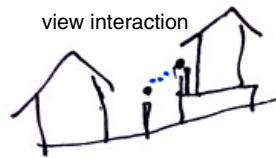
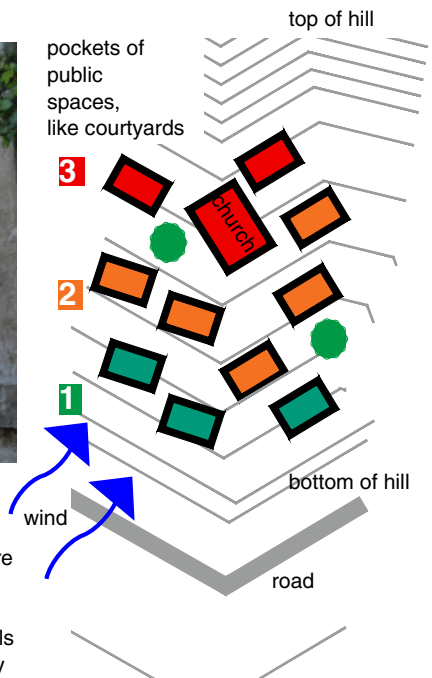


figure 42d:
View from middle-level house onto surrounding land.



figure 42e:
The social organisation layout of this village was all a response to different methods involving site location – using the site for control and protection (view), sun advantages, etc. Houses were built close together and were staggered to break strong winds. Natural resources were available to construct and sustain the houses. Houses were built along contours and the various levels also provided visual interaction. The village's growth would only be limited by the site's natural condition.



findings



To conclude, the visual analysis was helpful in terms of understanding rehabilitation in a variety of instances, which included an intimate point of view such as spatial qualities in relation to healing, colour, the importance of nature, materials and various activities relating to therapy. From there the analysis took on a broader scope, studying planning principles of how to connect different orders of space through the notion of “in-between”/transitional space, which creates degrees of privacy.

Furthermore, the precedent studies in relation to how villages used their site or planning solutions (bigger scale) to create a defensible space, social organisation and strategies of control were helpful in understanding various methodologies of how this is achieved.

All the visual studies were important considerations in the design of the rehabilitation home for sexually abused youth. These aspects, big and small, served as an important tool in the final project and add a richness that considers all scales of the building, the users, functionality and how the spaces are planned in relation to this specific site.

chapter 3:

locating the site

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site options vs rationale

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chosen site analysis & response

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brief site history

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location & site edges (public/private)

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site uses and users

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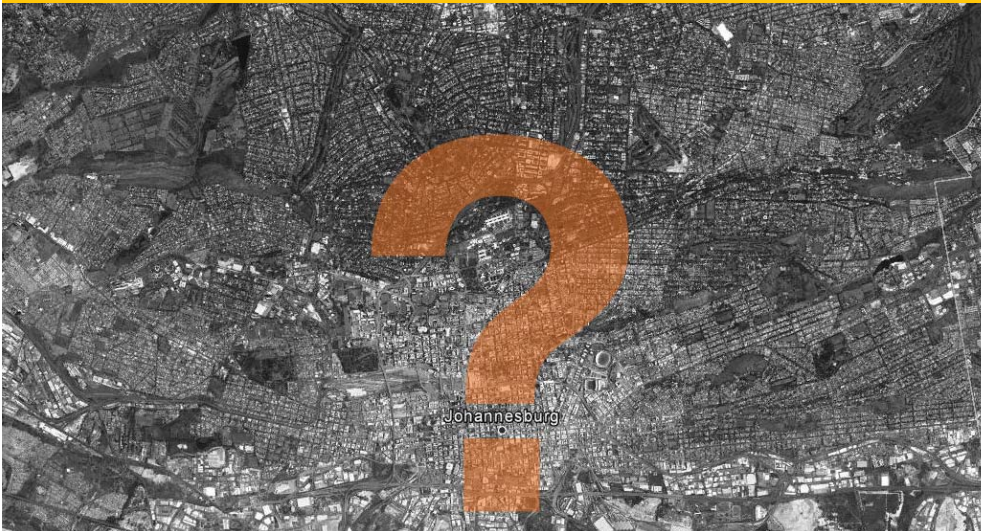
other nearby site uses

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design response from the site

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site selection methodology



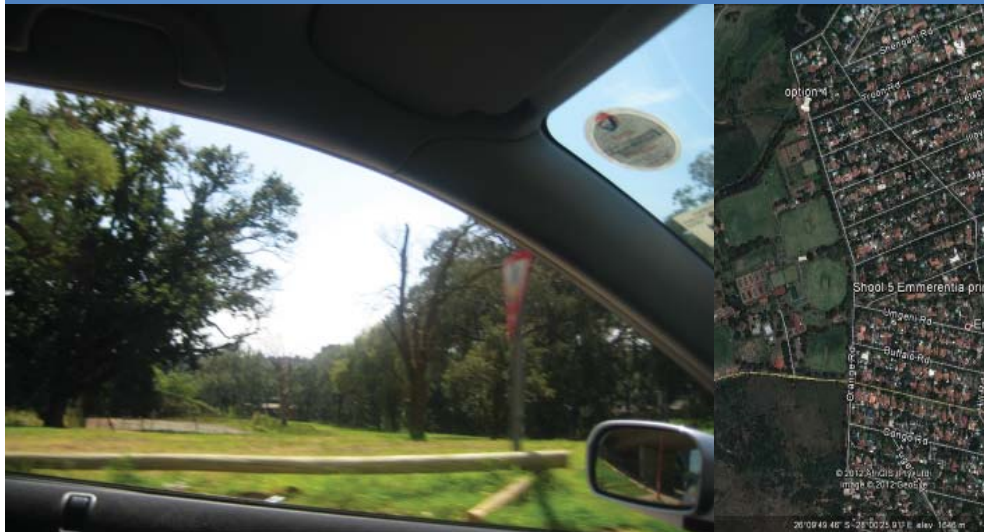
The criteria for locating the site were based on certain requirements for this children's rehabilitation home, in relation to site plug-in relationships as introduced in the first chapter. The objective of this thesis is to show that by considering the importance of locating a home of this nature in a network of existing facilities, it can benefit the sustainability of the home in more than one way. The location must not only relate to the treatment needs of these children, but also to a sustainable and safe environment that benefits the children's home financially as well as culturally – incorporating avenues for enhancing non-clinical and clinical therapies.

The reason the site is located in Johannesburg is that a children's home like Guild Cottage (fig. 44), which is a more specialised children's home, is struggling with the demand to treat abused children. Also, a home like the Johannesburg Children's Home (fig. 44) is struggling to cater for children that are in need of more specialised care involving doctors. There are expensive private clinics in Johannesburg that help with mental trauma, like Crescent Clinic in Randburg (Govender, 2012:interview). However, Narisha Govender claims that we are in need of a more affordable children's home that specialises in and focuses on treating children who are suffering from mental issues due to severe abuse, like sexual abuse (Govender, 2012:interview). It has become apparent, at Johannesburg Children's Home and other such homes as well, that the staff are not adequately equipped to properly deal with the specific needs of children that differ from others. Certain traumatic incidences and abuses have manifested into particular behaviours that require focused and specialised attention and care from properly trained staff and professionals (Govender, 2012:interview).

The site location for this children's rehabilitation home can not only benefit the home itself, but also becomes very important in allowing opportunities to collaborate with other child-based institutions that have identified children who need to be placed in the care of a specialised children's home.



site options vs rationale



The mapped out site plug-ins, as shown in figure 45 below, provided pockets of potential areas for locating a site. Amongst these site plug-ins, how the children's rehabilitation home would function was considered alongside a set of criteria. The site criteria were refined to five main points, which assisted in selecting a suitable location within the Johannesburg region. In the pages to follow, six potential options that were considered are provided, using the site criteria as a point system. 1 point = low consideration, and 5 points = high consideration, giving an overall score out of 25 points. The criteria are as follows:

- a) **defensible space** (able to use the site and create a secure and controllable development for children)
- b) **healthy neighbourhood for children** (residential for children and possible business/funding plug-in)
- c) **accommodate site plug-ins** (use existing networks, mainly schools and off-site special examinations)
- d) **site relationships for design, appropriate for rehabilitation** (natural light, pollution, noise)
- e) **existing site users, professionals and local neighbourhood** (how these may relate to the children's home financially, medically and culturally).

1 = indicate site option number and location in Johannesburg in figure 45 below:

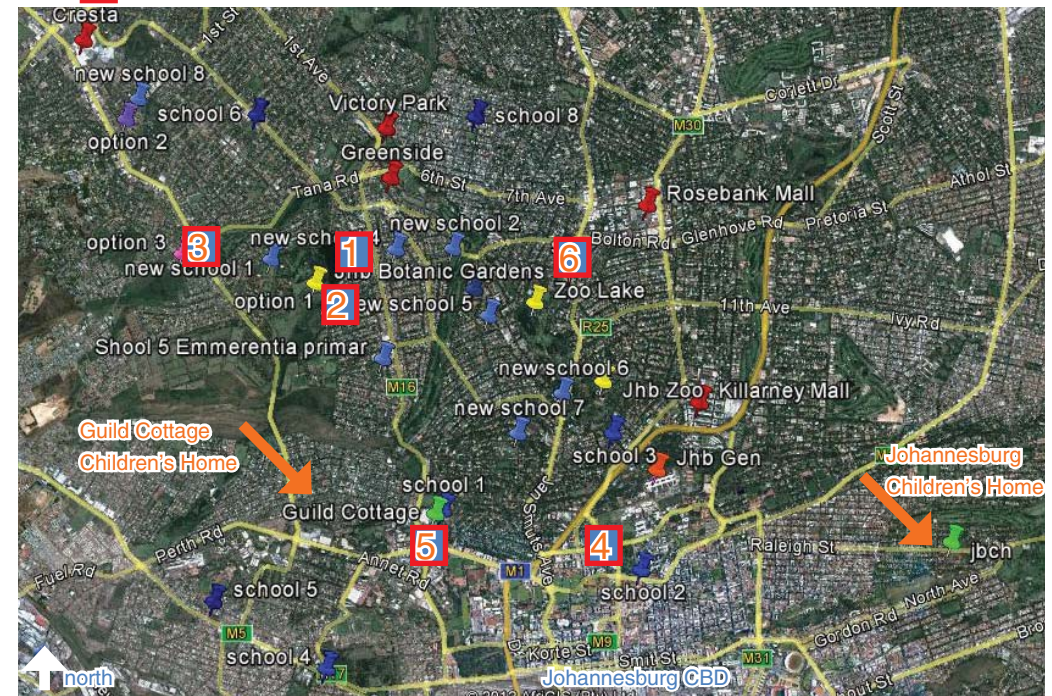


figure 45: Google Earth Map showing site options in relation to mapped out site plug-ins in Johannesburg.

option one: emmarentia

This site is located on one of the edges of the Johannesburg Botanical Gardens in Emmarentia. The natural beauty of the park was what was most appealing about this site. The site is not very centrally located in terms of the plug-ins, but still relates well to them. The neighbourhood is child-friendly and very active in terms of sporting events. However, culturally it does not seem to be very diverse. When considering defensible space it seemed that this would be a challenge because the edge of the park has no real boundaries and the park itself attracts a lot of public so this turned out not to be a good option. This green space, however was very valuable.



figure 46a: Johannesburg Botanical Gardens periphery fence, Orange Road.

option two: emmarentia

Option two is located on the far north-east corner of the main Melville Koppies Municipal Nature Reserve, opposite some residential houses on the corner of Orange Road and Judith Road, Emmarentia. The slope and views of the site were appealing, as well as the potential to use levels as a method of creating public and private differentiation. It is also a north-facing slope. A similar problem to option one is that because of the nature reserve, there are no defined boundaries on the internal park edge of the site. So to create a safe zone or defensible space would be challenging. Options one and two are not far apart so the comments in terms of neighbourhood type and relation to site plug-ins are the same.



figure 46c: Melville Koppies Nature Reserve periphery fence, Judith Road.

Site Criteria: Option 1	Points
a) defensible space	2
b) healthy neighbourhood	3
c) accommodate site plug-ins	3
d) site relationships for design	2
e) existing site users	3
total	14

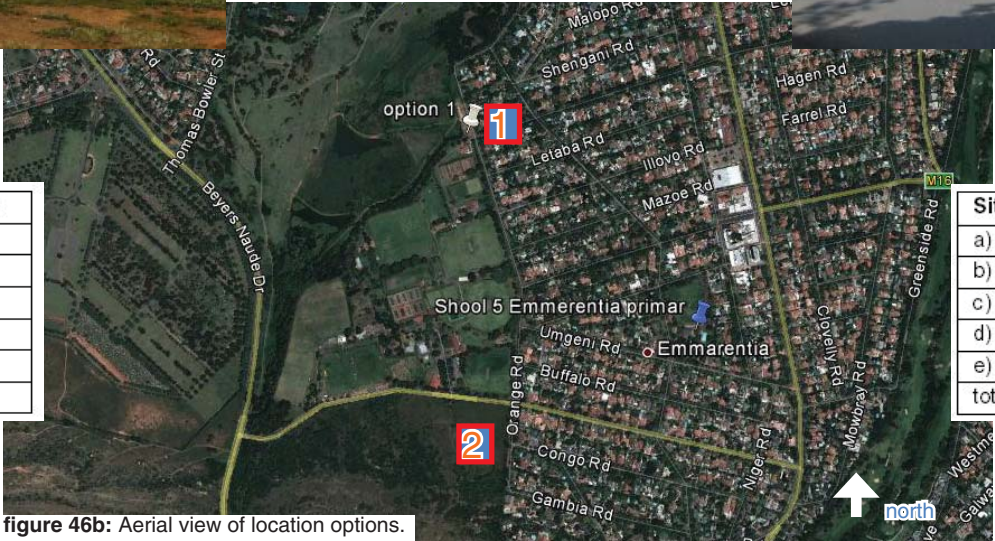


figure 46b: Aerial view of location options.

Site Criteria: Option 2	Points
a) defensible space	2
b) healthy neighbourhood	3
c) accommodate site plug-ins	3
d) site relationships for design	2
e) existing site users	3
total	14

option three: linden

Observations from driving around in these areas and the surrounding suburbs revealed that there are many parks, many of which seem to be underutilised. The option was considered of using one of the parks not only to develop the children’s home, but to encourage a component of the children’s home as a common play space that both the children’s home and the surrounding residents could utilise, as the interaction would be beneficial to the children. The boundaries of the park were defined. However, parks are mainly surrounded by residential users and incorporating the use of a business/income generation component to the children’s home would not fit in with this kind of site – especially if the children’s home was also going to incorporate a clinic for public and private use. This is also a green site and from here on I avoided green spaces and focused on trying to find a brown site that was big enough to accommodate the site and programme requirements.



figure 47a: A park in Linden.

Site Criteria: Option 3	Points
a) defensible space	3
b) healthy neighbourhood	3
c) accommodate site plug-ins	3
d) site relationships for design	2
e) existing site users	2
total	13

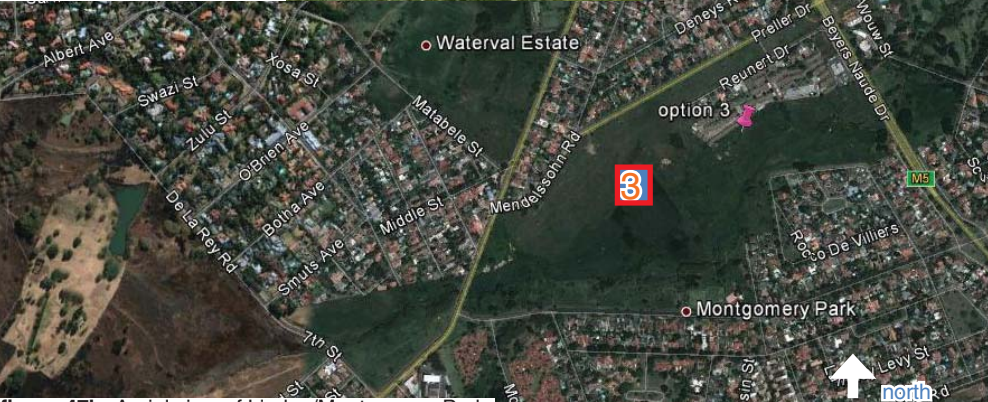


figure 47b: Aerial view of Linden/Montgomery Park.

option four: parktown

This option considered locating the site in a more medical orientated precinct in order to minimise the programme requirements of the clinical treatment component needed for the children’s rehabilitation home. The site is well located in relation to the mapped out site plug-ins and the neighbourhood has residential as well as commercial and medical uses. It is also close to the Charlotte Maxeka Johannesburg Hospital, in Parktown. There are many schools in the area too. There are not many pieces of large land that are not being used and the option of using a cluster of existing homes opposite the sporting grounds of St John’s College, corner Houghton Drive and St David’s Road, was considered (fig. 48). However, the neighbourhood seemed overly busy for this project. The search thus continued to find a similar precinct, but one where the nature of the neighbourhood is more quiet and residential.

Site Criteria: Option 4	Points
a) defensible space	3
b) healthy neighbourhood	3
c) accommodate site plug-ins	4
d) site relationships for design	4
e) existing site users	4
total	18

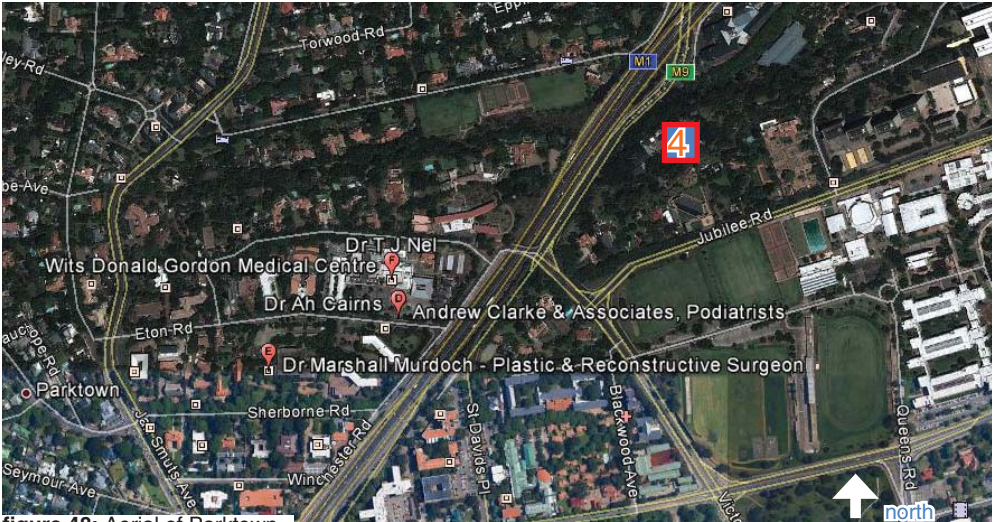


figure 48: Aerial of Parktown.

option five: parktown west

This park was mentioned in the first chapter of the site criteria. The reason for this consideration was that the children’s rehabilitation home was inspired by what Guild Cottage started. There is a park close by that was considered to expand on the existing home, but the nature of the neighbourhood is not ideal, as explained in the first chapter. The site is not very centrally located in terms of the site plug-ins. The site edges are also very harsh for a children’s home and the existing Guild Cottage would really like to relocate if given the opportunity (Heyneke, 2012:interview).



Site Criteria: Option 5		Points
a) defensible space		3
b) healthy neighbourhood		2
c) accommodate site plug-ins		2
d) site relationships for design		3
e) existing site users		3
total		13

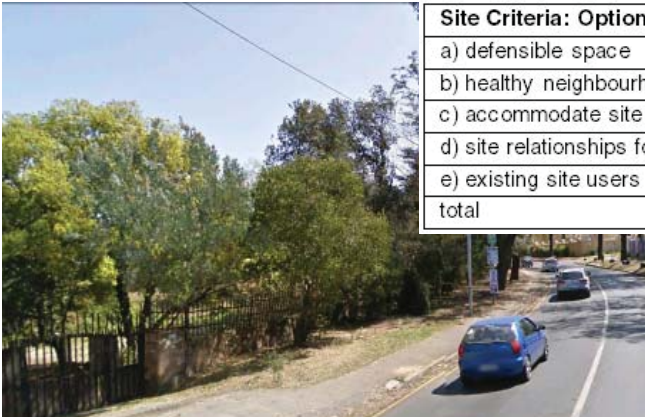
figure 49a: A park in Parktown West, close to Milpark Hospital.



figure 49b: Aerial view of Parktown West.

option six: parkwood

I knew of this site but it had been closed up for many years and its actual size was not obvious to me (fig. 50a). From searching on Google Earth Maps, it was revealed that a big portion of this site was not being used and had been demolished for a few years, therefore this site became an option. This site is located centrally in terms of all the mapped plug-ins. On a site visit, the nature of the neighbourhood was appealing as it seemed safe and has residential, recreational, sport, cultural, medical and business-orientated uses nearby. The scale of the buildings does not exceed three storeys, thus keeping to a more humble and human scale. The site is located along a busy street with a quieter street on the other side, making for interesting site edges to use in the design.



Site Criteria: Option 6		Points
a) defensible space		5
b) healthy neighbourhood		4
c) accommodate site plug-ins		5
d) site relationships for design		5
e) existing site users		4
total		23

figure 50a: The site, from the main road Jan Smuts Avenue.

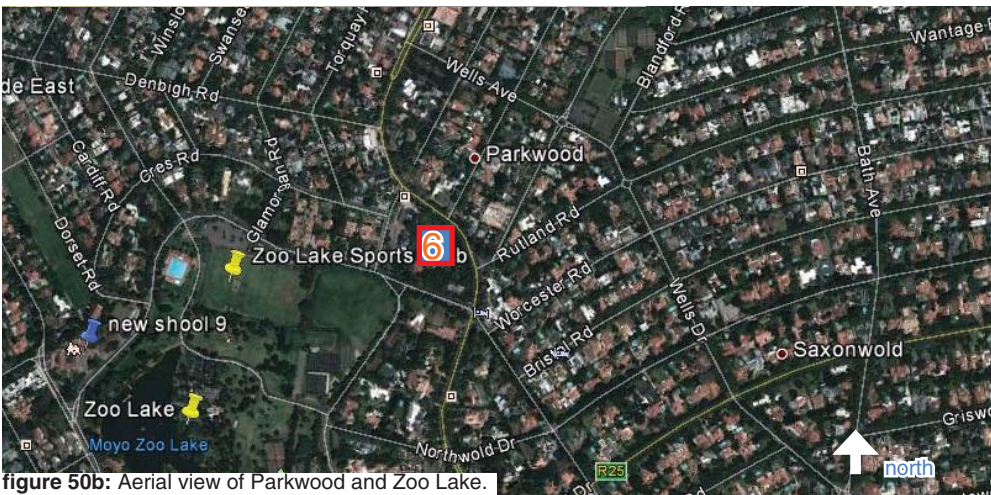


figure 50b: Aerial view of Parkwood and Zoo Lake.

chosen site: option six

The Parkwood site (option six) was the site chosen for this thesis, as it fulfilled the site criteria. It is located centrally in terms of the site plug-ins in Johannesburg, and the central location of this children's rehabilitation home could serve to not only function as its own entity, but also work in collaboration with other children's homes in Johannesburg, and in so doing, help attend to children identified for treatment. Physically the site has a public and private edge to it, alongside a multitude of mixed uses in the area that could be used to the children's home's advantage. Opportunity for design was also considered in the natural slope the site offers (fig. 51a). It is located directly across from Zoo Lake Sports Club.

When the decision had been finalised to use this site for this thesis, it so happened that the site was bought by developers, Renico Construction (Pty) Ltd, and cleared for construction in about May of this year. The developers are currently building a dense townhouse complex and the two remaining buildings on the site were demolished. This is why most of the site photos show a cleared demolished site (fig. 51). However, a children's rehabilitation home is proposed for this site in this thesis, as further analysed in the following pages.

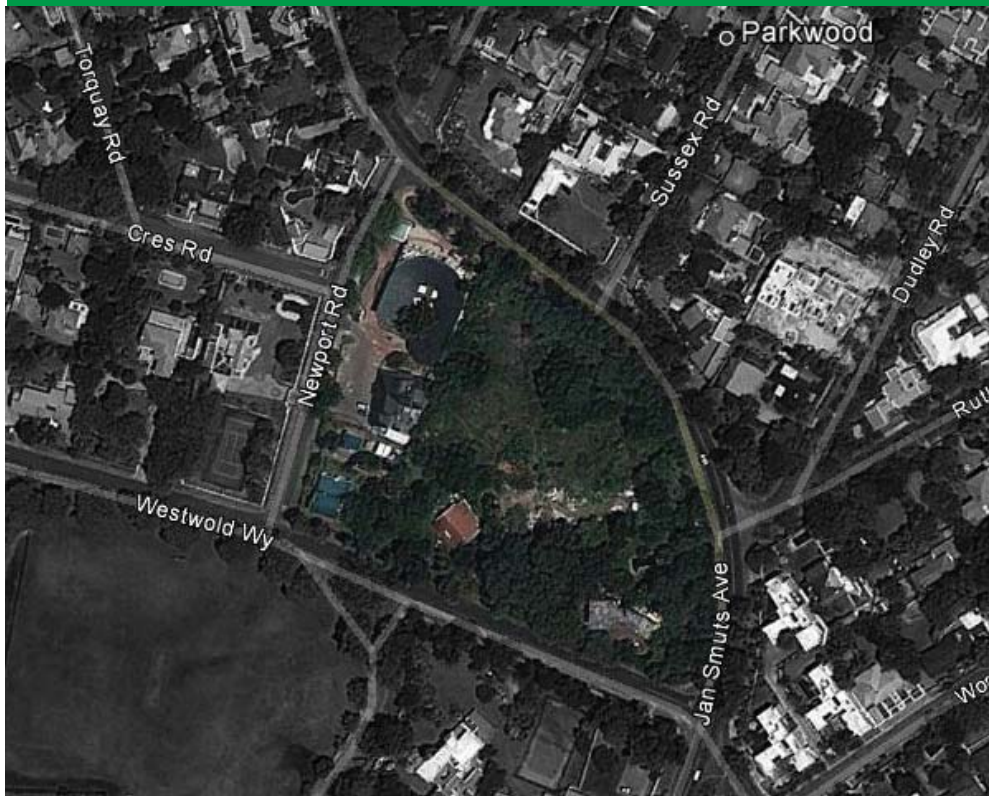


figure 51a: The chosen site looking towards Zoo Lake Sports Club.



figure 51b: The chosen site being cleared for residential, high-density townhouse development.

chosen site analysis & response



The site is centrally located in Johannesburg (fig. 52), and most of the site plug-ins are located within a radius of about 4,5 km. This means that schools, recreational facilities, and major healthcare facilities are all nearby. The two homes that would definitely work with a home like the children's rehabilitation home proposed in my thesis are Guild Cottage (3,2 km away) and Johannesburg Children's Home (5,6 km away).

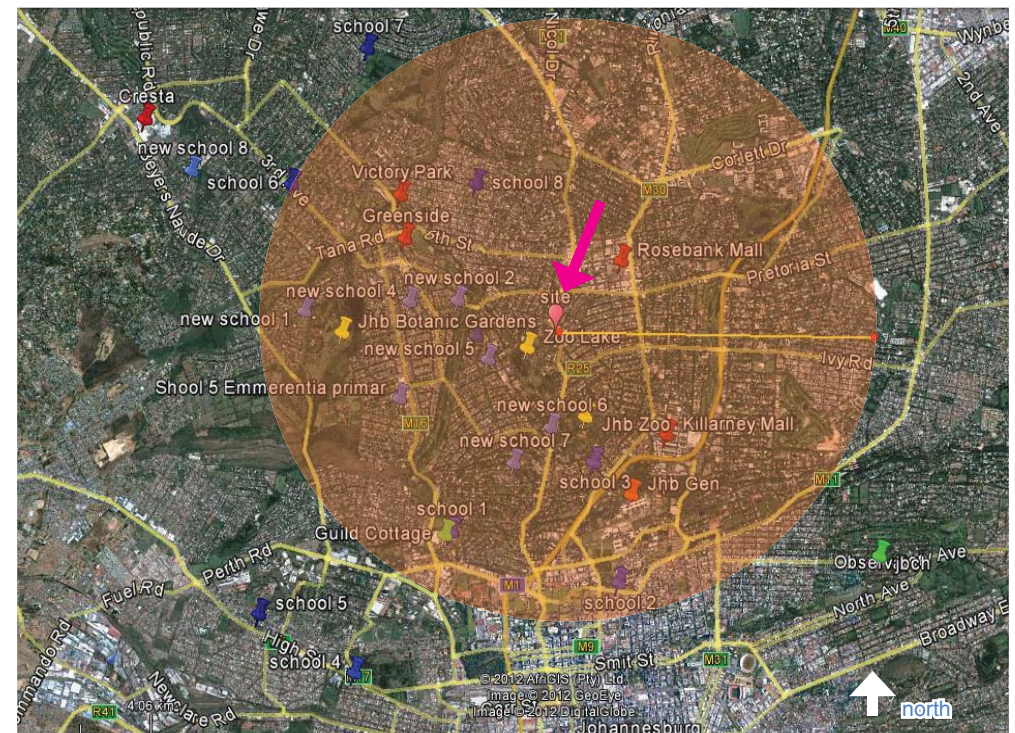


figure 52: 4,5 km radius around the chosen site (pink arrow) in relation to mapped out plug-ins.

An important site plug-in right next door to the site is Zoo Lake Sports Club (fig. 53), which would help with the home's maintenance, as it would not need to incur the costs of keeping pristine soccer fields, pools and many other sporting facilities. Under the supervision of the allocated house mother, this sport club not only forms part of the non-clinical therapy, but also allows for interaction with others. Zoo Lake Park (fig. 54), also located within walking distance, appeals to younger and older children, allowing for an outing from the home. The Johannesburg Zoo provides interaction and learning about animals, so is also seen as providing positive non-clinical therapy.



figure 53: Zoo Lake Sports Club: game of soccer on a Sunday morning.



figure 54b: Zoo Lake Park picnic spots.



figure 54a: Zoo Lake park jungle gym, one of many facilities in the park.

Main shopping nodes are needed to access existing avenues of receiving bulk food and other supplies. Another aspect that is important is entertainment, like going to a cinema or being treated to a meal at McDonald's once in a while. This is something that Guild Cottage does already. This interaction with the outer world is important as it is not a good idea to completely isolate the child from the outside environment. However, a child in a more extreme and fragile state will obviously only be more comfortable with these outings in a later stage of treatment (Karandreas, 2012:interview; Thod, 2102:interview).

Children institutions	Schools	Recreational	Shopping/Entertainment	Medical/Hospitals
Johannesburg Children's Home	McAuley House	Zoo Lake Sorts Club	Rosebank mall	Charlotte Maxeka Johannesburg Hospital
Guild Cottage	Roseneath Primary	Zoo Lake Park	Cresta	
Kidz Clinic	Forest Town	Johannesburg Zoo	Greenside	
	Baumann	Johannesburg Botanical Gardens	Killarney Mall	
	Piet Van Vuuren			
	Laerskool Louw Geldenhuys			
	Delta Park			
	Parkhurst			
	Roosevelt High			
	Greenside High			
	Parktown Girls High			
	Greenside Primary			
	Emmarentia Primary			
	Parkview Primary			
	Japari			
	The Ridge Prep			
	Risidale Primary			
	Laerskool Jan Celliers			
	Parktown Boys High			

figure 55: A list of the mapped out site plug-ins as indicated in previous aerial photos (fig. 52). A starting point to the site selection process.

brief site history

The residential suburbs of Parkwood and Zoo Lake Park (name changed from Herman Eckstein Park) were established in 1907 (Musiker, 2000:210; Smith, 1971:407), and have “extensive planted woodlands” (Musiker, 2000:210). These woodlands are evident in the site photos, a defining feature of the suburbs and their parks, further enhancing nature’s presence in the area.

A series of aerial photographs over the years (fig. 56) give some indication of the history of the site, together with the help of the lady currently living in the south-west corner house of the site. This timeline of the site is indicated in the site aerial photos to follow, as well in their attached captions in figure 56 below.



figure 56a:
June 2001

This photo indicates that the site had existing houses on it which were probably used for residential purposes.



figure 56b:
June 2005

There used to be houses on the site, but their uses were unknown and most were probably residential (anonymous resident, 2012:interview).

figure 56c:
June 2007

Two houses alongside Jan Smuts Avenue were demolished, perhaps in looking to develop a new office, as a mixed use suburb began. However, it is possible due to factors like recession that this portion of the site was left vacant for many years.



figure 56d:
June 2010

There were two houses left on the site. One was residential and another house was converted into a training centre, the Language Works, Words In Motion: Communication & Training (fig. 56e). These houses were demolished in 2012.



figure 56e:
Language Works, Words In Motion:
Communication & Training.



location & site edges (public/private)



figure 57a: Aerial view of chosen site in Parkwood.



figure 57b: View of site from Avonwold Road – quiet and more private road. Not much traffic, unlike Jan Smuts Avenue.

The location of the site is along the main road, Jan Smuts Avenue (fig. 57a and 59). This site is situated between a heavily commercial/office environment to the north (nearby Rosebank Mall, fig. 58a and 59) and to the south of the site is a residential and recreational based environment (fig. 58b and 59). The small scale of the residences, businesses and low-rise buildings contributes to a “home-like” neighbourhood. This is ideal for the children’s home aspect. Recreational and cultural institutions (fig. 58c and 58d) are nearby or neighbouring the site, and they provide an opportunity to create a relationship with the children’s rehabilitation home and to enhance the non-clinical therapy aspect for children of all ages and for all interests. The mixed use of the area was appealing for the intended mixed programme discussed in the next chapter.

The site location proposed incorporates all desired aspects of this project, enhancing its viability to operate a children’s rehabilitation home, in collaboration with cultural, recreational, residential and income-generating entities. Its prime location provides the opportunity for a mixed-use let-out space and high rental income, which assists with the financial sustainability of the entire development.



figure 58a: North of Jan Smuts Avenue.

figure 58b: South of Jan Smuts Avenue.



figure 58c: Zoo Lake Park (recreational).

figure 58d: Goethe-Institut (cultural).



figure 59: An aerial view showing the heavy commercial environment to the north of the site and a more residential environment to the south, along the main street, Jan Smuts Avenue.

The pages that follow, and figures 60 and 61, provide observations shown in photographs that focus on the site edges. Exploring these edges initiated various design concerns and opportunities, as well as programme considerations.

figure 60a:

This was taken standing on Jan Smuts Avenue looking in a south-west direction, which is the direction of the site's slope. There is a contrast in these two streets surrounding the site in terms of noise, light and traffic. The trees, a feature of the neighbourhood, are evident in this photo.



figure 60b:

This is Jan Smuts Avenue, a busy road with many businesses along it. The traffic along this road is very busy as it is a main road. There are many taxis that pass by and there are a few bus stops nearby the site – making it very accessible to public transport.



figure 60c:

This was taken on the corner of Jan Smuts and Newport Road looking southwards. The trees and low-rise buildings can be seen in this photo. This is the predominant character of the neighbourhood, even though at this particular edge most of these houses are used for cultural and office/business purposes.





figure 61a i: This photo shows the two roads the site is wedged between: Jan Smuts Avenue, the more public and busy street, and Avonwold Road, which is more private and quiet.



figure 61a ii: This was the Language Works office before demolition in May 2012.



figure 61a iii: This is the view from Jan Smuts Avenue of the site. It remained in this state for many years.



figure 61b: This photo was taken at the lowest point of the site, where access into the children's rehabilitation home will be, on Avonwold Road. It faces onto the corner of Zoo Lake Sports Club, a facility that was considered a positive plug-in relationship for the children's home because it falls under the non-clinical therapy component.



figure 61c: Offices on Jan Smuts Avenue opposite the site.



figure 61d: Quiet Avonwold Road that is situated south of the site.

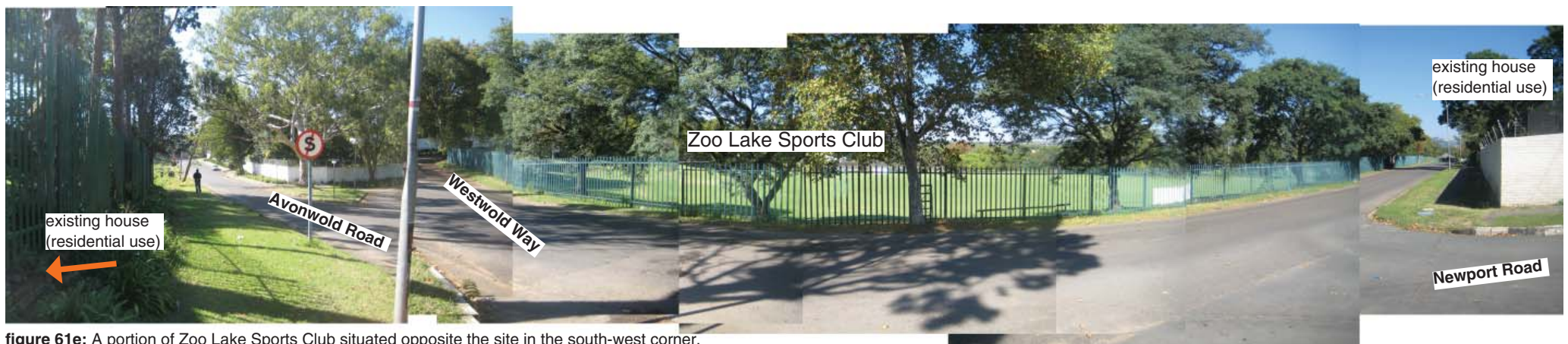


figure 61e: A portion of Zoo Lake Sports Club situated opposite the site in the south-west corner.



figure 61f: View of site showing quiet road: Avonwold Road to the left, and busy road Jan Smuts Avenue to the right.



figure 61g: Jan Smuts Avenue with some of the offices/businesses which face onto the site. This photo was taken at the highest edge of the site.



figure 61h: Newport Road – Goethe-Institut.

site uses & users

Key: immediate existing site users

- Residential
- 1 The Diversity Institute
- 2 Trust for Educational Advancement in South Africa (TEASA)
- 3 Goethe-Institut S.A. (German cultural centre)
- 4 Indian Cultural Centre
- 1 Limelight Advertising & Design
- 2 R.C. Naik's Travel Services (Pty) Ltd
- 3 Sim & Botsi Attorneys Inc. Attorneys & Conveyancers
- 4 Smit Sewgoolan Inc. Attorneys & Conveyancers
- Zoo Lake Sports Club



figure 62: Map of immediate site uses along site edges.



figure 63a: Various cultural/educational uses around the site.



figure 63b: Cultural node at the north-east corner of the site.

The Goethe-Institut and the Indian Cultural Centre are very important existing links that the proposed children's rehabilitation home could work with for certain youth programmes and events (fig. 62 and 63). Even though these centres originate from very specific cultural backgrounds, they both promote youth-orientated programmes and activities, including dance classes, language courses, performance art, art, multimedia art and various workshops for the general youth of Johannesburg (www.goethe.de; www.indiansouthafrica.com). This is key to the non-clinical therapy component of the rehabilitation home.



figure 63c: Goethe-Institut and the Indian Cultural Centre, possible links to assist with non-clinical therapies/youth programmes for the proposed children's rehabilitation home.

The Diversity Institute and the Trust for Educational Advancement South Africa (TEASA) are more involved in the further training of young adults looking to start out in the world (diversityinstitute.co.za). These businesses are also possible collaborations for older children finishing school in the proposed children's rehabilitation home.



figure 64: Various office/business uses around the site.

The immediate offices/businesses along the north edge of the site include travel agents, attorney offices and design and advertising companies (fig. 64). From observation, this diverse use is consistent with the general area. This allows the rehabilitation home to possibly rent out a portion of the home to gain rental income. The tenant types are diverse so there is the potential to be very flexible with the letting out of spaces.



figure 65: Sports club next to the site.

Zoo Lake Park was one of the initial site plug-in relationships looked at when searching for a site and is located within walking distance of the site. Zoo Lake Sports Club strengthened the location of the Parkwood site due to the existing sporting facilities right next to the site that many youth were already using – based on site observations (fig. 65). This promotes the non-clinical therapy component of the children's rehabilitation home.



figure 66a: Sussex Road, Parkwood.



figure 66b: Dudley Road, Parkwood.



figure 66c: Corner Jan Smuts Avenue and Sussex Road, Parkwood.

The residential areas of the surrounding neighbourhood consist of both low density and high density residential homes. It appears that the height restriction for the area is three storeys, but most houses are double storeys. This scale is ideal for the children's home in terms of keeping the development on a more humble scale to relate to the children. Examples of these residential uses are shown in figure 66.

Figure 66d below shows the remaining residential house on the far south-east corner of the site that faces onto Zoo Lake Sports Club.



figure 66d: The remaining residential house on the site. Located corner Avonwold Road and Newport Road.

other nearby site uses

The table below (fig. 67) is an indication of what types of business, cultural and health-orientated practices exist in the nearby area of Parkwood and along the main street, Jan Smuts Avenue (± 1 km radius). The rehabilitation needs to incorporate some form of income generation component/rental component to assist with funding, as mentioned in the first chapter.

This study indicated possible public users and tenants in these categories:

- office
- retail
- cultural institutes
- health-orientated practices/research
- education facilities.

Some of the existing users/practices surrounding the site (Parkwood) and within a 1 km distance		
Cultural/Educational/Recreational	Business/Retail/Office	Health-Orientated/Important Services
Goethe Institut South Africa ●	Smit Sewgoolam Inc. Attorneys ●	Genesis Clinic ●
Indian Cultural Centre ●	Sim & Botsi Attorneys Inc. ●	Kaelo Performance Wellness (health programmes) ●
Trust for Educational Advancement South Africa (TEASA) ●	R.C. Naik's Travel Services (Pty) Ltd ●	Camelot Spa at Villa d'Este ●
Zoo Lake Sports Club ●	Limelight Advertising & Design ●	Parkview Police Station ●
Goodman Art Gallery ●	Blue Monkey (toys retail) ●	Medi Kredit Integrated Healthcare Solutions (Pty) Ltd ●
Zoo Lake Park ●	Wright Rose-Innes Inc. Attorneys ●	Various private doctors' suites ●
Zoo Lake Restaurants (e.g.Moyo) ●	Avondhu Bed& Breakfast ●	
Zoo Lake Bowls Club ●	BSC Innovative Products South Africa ●	
New Horizons Computer Learning Centre ●	Fedics (catering company) ●	

Located around site periphery ●
Located within 1 km ●

figure 67: Mapping of existing users in the surrounding Parkwood neighbourhood.

Specific examples are indicated and discussed in figure 68.

figure 68a:

Located on Jan Smuts Avenue:
The Goodman Gallery (art gallery).



figure 68b:

Located on Jan Smuts Avenue:
Genesis Clinic – A private maternity clinic which specialises in maternity care and childbirth (www.genesisclinic.co.za).



figure 68c:

Located on Jan Smuts Avenue:
De Broglio Attorneys – offices.



design response from the site

On the whole, the mixed uses of the surrounding area showed evidence that the proposed mixed-use children's rehabilitation home would fit in well in this neighbourhood as it relates culturally, clinically and commercially (fig. 68). The edge conditions also provided clues as to how the site could be utilised.

The main design responses to be considered, which relate to figure 69, were as follows:

1a:

Jan Smuts Avenue is a main road with fast traffic, which needs to be considered in relation to the children's home. Vehicular access to the children's rehabilitation home is not ideal off this busy road.

1b:

Avonwold Road is a quieter street and is better traffic-wise. This would be more ideal for children and vehicular access.

2:

The rentable area could relate to the existing business/office use that already exists to the north of the site along Jan Smuts Avenue. This could also create a protective edge for the children's rehabilitation home from the main street.

3:

Zoo Lake Sports Club is to the south-west of the site, providing access for children's sport activities.

4:

There is a cultural node existing, as shown in the shaded green circle in figure 69. Creating a link and relationship with the children's rehabilitation home would be important as these facilities offer activities that are part of non-clinical treatment or youth programmes (e.g. Goethe-Institut).

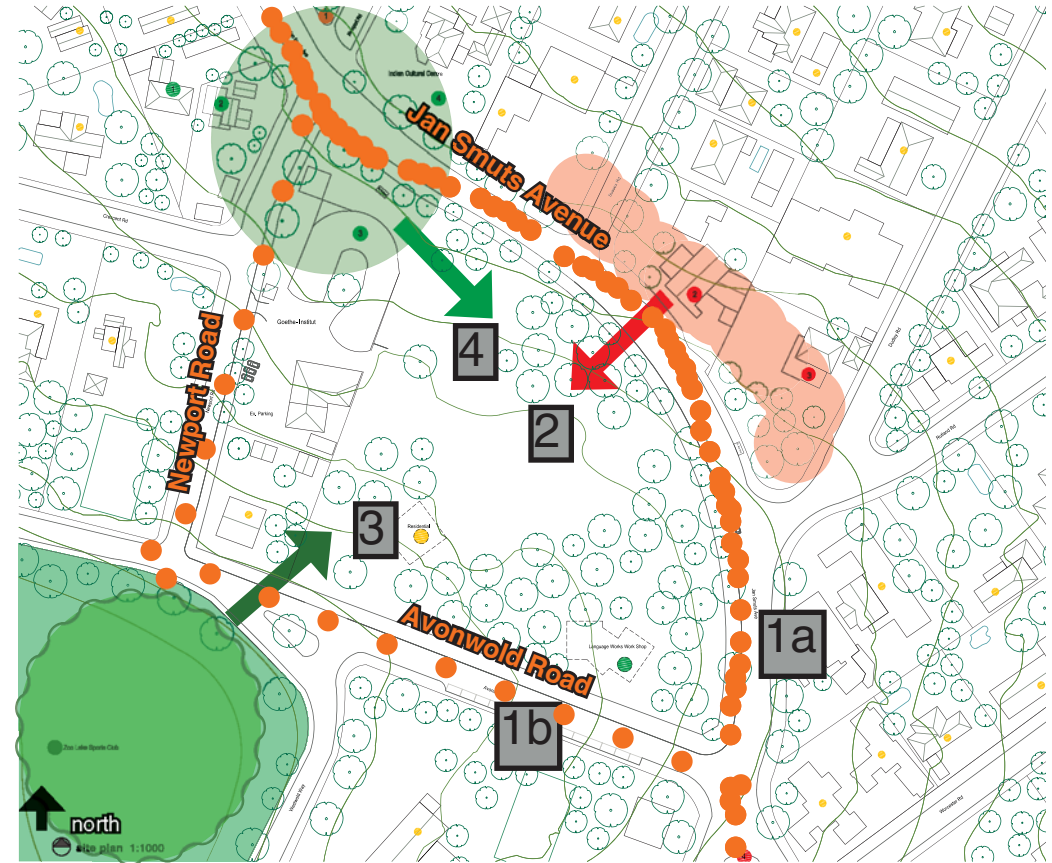


figure 69: Immediate site edges, which create responses for the design.



General photos of the surrounding site (Site visit, 2012).

chapter 4:

programme & users

programme components, users & schedule

page 63

A: stepping stones rehabilitation home (children's home)

page 69

B: clinical therapy

page 73

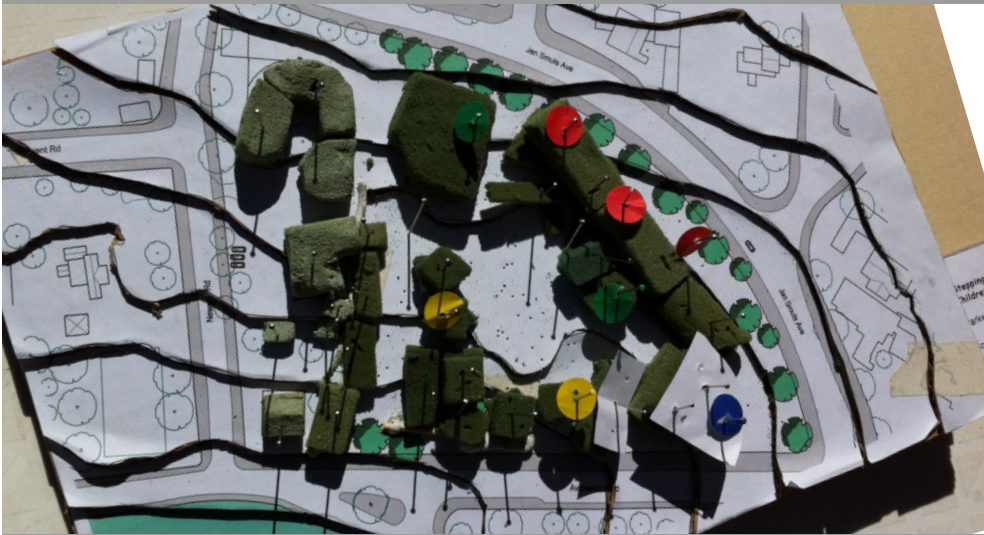
C: non-clinical therapy

page 76

D: rentable office area

page 81

programme components,
users & schedule



Stepping Stones

Rehabilitation Home



Trauma Treatment Centre for Children

The name of the development proposed in this thesis is called Stepping Stones Rehabilitation Home. This is a specialised children's home that houses children who are in need of specific care due to the after-effects of trauma from sexual abuse. Other various types of abuse could also be treated depending on the severity of the child's issue. The treatment programme considers the child's specific problems and uses the treatment suited to the child's personal needs. A variety of professionals and therapies are offered in the programme in order to achieve this. Stepping Stones Rehabilitation Home is unique because of its combination of programme types that fall under a unified and protected precinct (fig. 70).

Incorporated in the proposed rehabilitation process will be a clinical component with specific doctors (as per treatment requirements). Alongside the clinical component, new discoveries in treatment, such as non-clinical therapy, will be incorporated into the building's design (fig. 70). The non-clinical therapies will include promoting the child's involvement in skills and social development activities such as theatre, art, dance and music.

One of the key considerations of this development is that these types of institutions struggle financially (Govender, 2012:interview; Heyneke, 2012:interview). Therefore, incorporated into this design is an income generation component. Alongside an appropriate site selection for this development, rental opportunities are considered for office based tenants. Rental will be a main contribution to creating a sustainable business model. As a whole, the main consideration of this project lies in rehabilitating and providing opportunities for these children in and outside the children's home (fig. 70 and 71).



the children's home

clinical therapy

non-clinical therapy

rentable area (income)

programme: four components

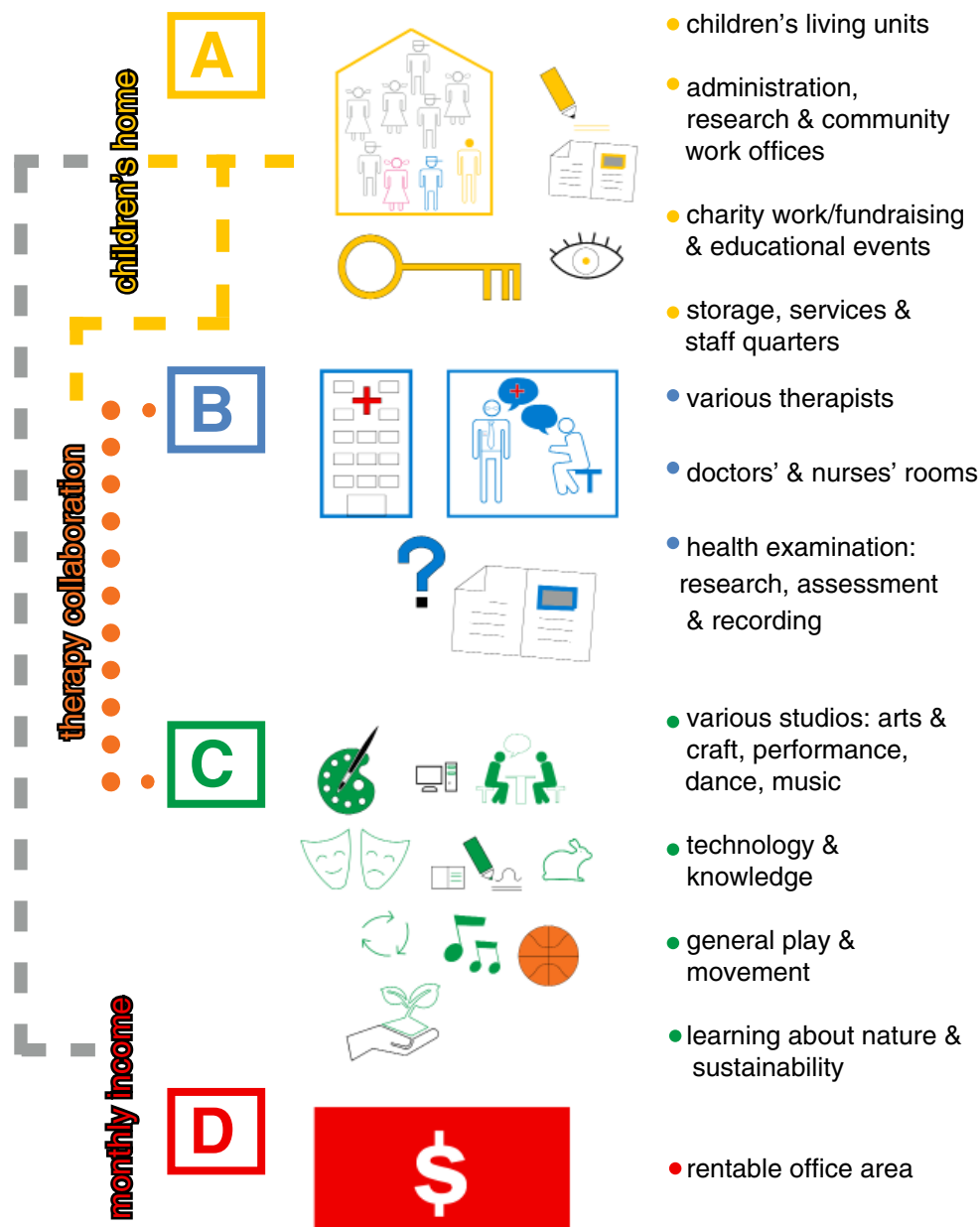


figure 70: Programme components breakdown.

private vs public use (fig. 71)

Figure 71 on the next page, Programme operation and Users' relationships, is a diagram indicating how the various users (public and private) interact within the four component programmes of this project.

The children's home (component A) has very specific staff and children that live and operate within this programme's precinct. The children are identified for treatment either through private sources, other institutions, or other organisations, or from crime offences that may lead to court case hearings. In the case of a court hearing, government has a duty to take responsibility for the children of our country (i.e. under 18 years of age) (Molefe, 2012:interview; Thod, 2012:interview; www.justice.gov.za) (fig. 71).

Component A, the children's home, is where the child's realm is kept under strict control and any interaction with any persons outside the home will be monitored/supervised accordingly. This could involve events such as educational workshops, dance classes or art exhibitions, etc. (components B and C). The design of the home allows public interaction, however, under certain desired conditions. The variety of interaction adds a positive outlook to the child's environment at the home so they do not feel completely isolated from the outside world.

Components B and C, which form the therapy treatment of the home (fig. 70, 71 and 72), are where this supervised interaction with invited/specific individuals from the public will interact. Therefore, the planning around security and control is important within these nodes.

A limited portion of the clinic has rooms that can be let out to medical-based tenants for public use. This is also a form of income generation, like component D.

Component D, the rentable office space, acts completely as a separate entity, with only public users (tenants and clients). This programme component has no direct functional link with the rest of the programme components (A,B and C). However, the rent acquired from this rentable space will contribute to the home financially.

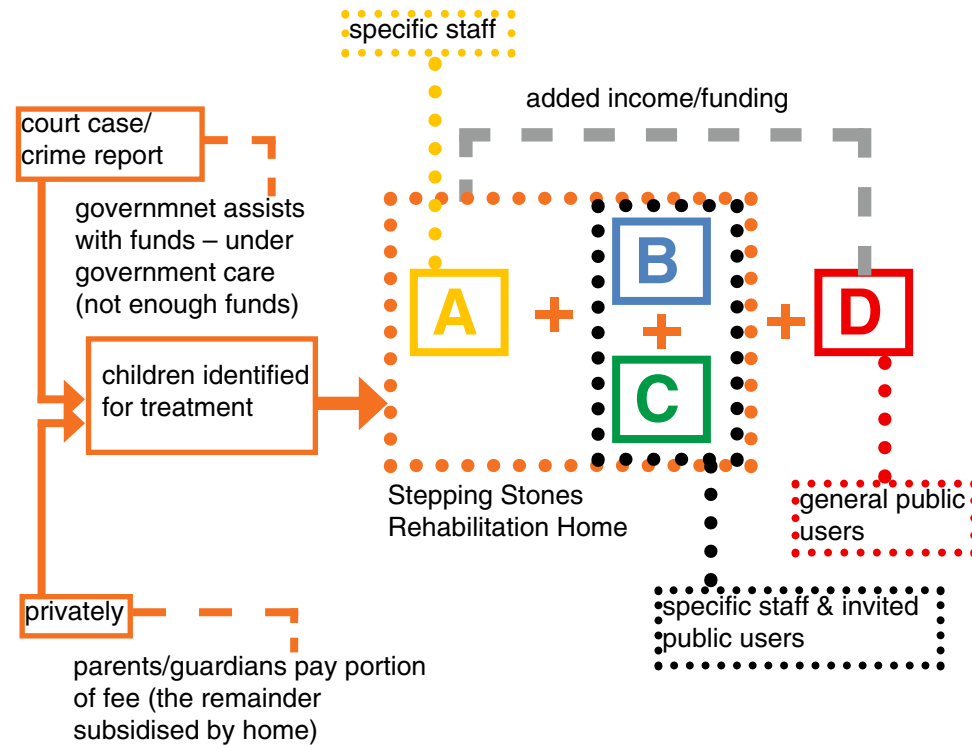


figure 71: Programme operation and users' relationships.

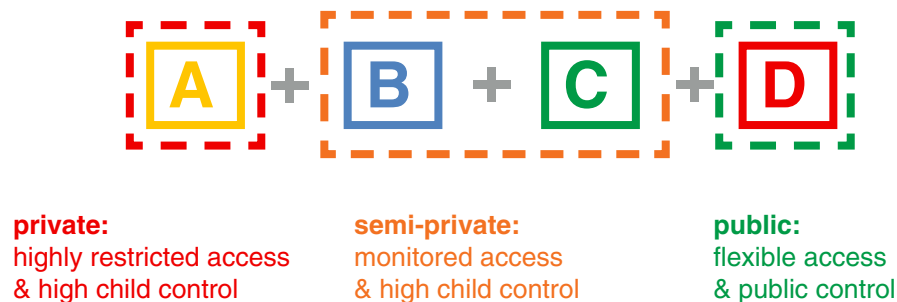


figure 72: Private, semi-private and public programmes.

operating professional team within the children's home

Figure 73 on the next page highlights the operational relationship within this mixed-programme children's home. The entire development will operate under the contractual agreement of Stepping Stones Rehabilitation Home. A business type such as a non-profit organisation is used in this instance because this institution is a socially driven project, not a financial gain entity, and does not want to be a government-run organisation (Heyneke, 2012:interview; Molina, 2012:interview). Therefore, any profit made over and above the home's expenses belongs to the institution, in this case Stepping Stones Rehabilitation Home, and will be used to assist children leaving the home – such as with bursaries and so forth. The business is its own juristic entity, will be run by members and does not belong to one individual.

Managers/management teams are needed in order to manage the functioning and maintenance of the building components. Alongside the children's home are various users under the interests and agreement set up by the directors of Stepping Stones Rehabilitation Home (fig. 73).

Stepping Stones Rehabilitation Home requires a variety of staff who are involved with the children, such as art teachers, therapists or psychologists.

The clinic, component B, is occupied by medical professionals that are required by the home. The organisation and required medical tenants will agree on conditions in terms of treating patients from the home.

The rentable office space, component D, will be managed in order to control the tenants' operational requirements and monthly rental payment to the children's home.

Each of the four programme components will be discussed in more depth in the pages that follow. This discussion will reveal what each programme component is made up of and how it contributes to the greater good of helping these children and creating this specialised children's home.

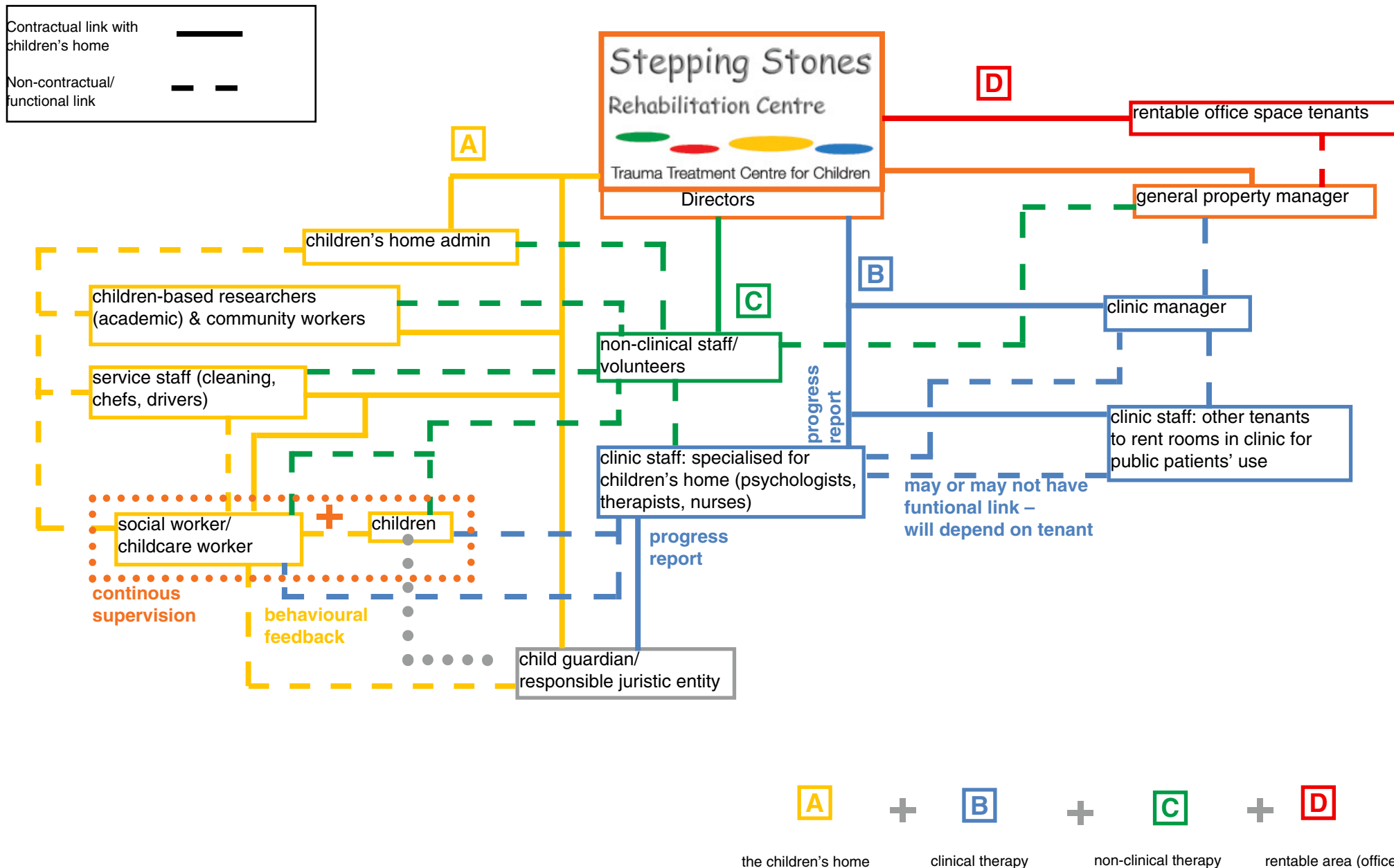


figure 73: Operational team and working relationships for entire development.

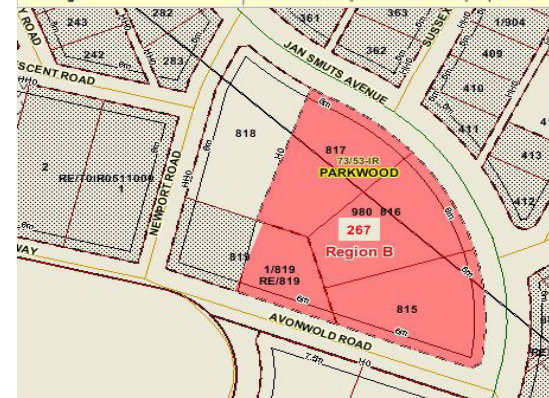
programme schedule

Stepping Stones Rehabilitation Home				
Public/ Semi- public/ Private Scale	Main Programme Component	Sub-Programme Components	No. of Rooms/ Parking Bays	Area m ²
	A: Children's Rehabilitation Home			
	Administration, Community Work & Research	Reception Area & Waiting Area	1	80 m ²
		Staff Room/lounge & Kitchenette	1	45 m ²
		Meeting Room/boardroom (10 people min)	4 (± 25 m ² each)	100 m ²
		Children's Home's Director's Office	2 (14 m ² each)	28 m ²
		House Manager's Office	2 (12 m ² each)	24 m ²
		General Manager's Office (entire building)	2 (14 m ² each)	24 m ²
		Community Workers/researchers (20--25 people)	3 m ² per 1 desk	75 m ²
		Toilets (Male & Female) (30 staff + 100 people auditorium)	130 people	± 100 m ²
		General Store/File Archives	1	25-30 m ²
		Parking Bays (Staff & Visitors)	2 bays per person	± 35 bays
	Main Storage & Services	Donations Hall (clothes/toys/school supplies)	1	140 m ²
		Laundry Room	1	30 m ²
		Main Kitchen, Training Kitchen & Store	1	160 m ²
		Kitchen Store	1	75 m ²
		Main Vegetable Garden	1	100 m ²
		Refuse & Recycling Bay	1	18 m ²
		Secure Private Parking (± 6 Mini-buses)	12.5 m ² each	75 m ²
		Security Huts/ control Points	2 (3 m ² each)	6 m ²
	Overnight Staff Living Units (Service-based)	Bedrooms (Chefs/gardener/cleaning staff/driver)	5 (6 m ² each)	30 m ²
		Staff lounge/eating area & kitchenette		60 m ²
		Staff Ablutions		30 m ²
		Staff Locker Room		25 m ²
	Children Living Units: 64 Children (Max 8 Children + 1 House Mother per 1 Unit) = 8 Units	Children's Bedroom 4-8 bedrooms (max 2 children per room)	4 m ² x 8 children (x 8 units)	256 m ²
		House Mother bedroom (1 per unit)	7 m ² (x 8 units)	56 m ²
		Bathrooms (3 per unit)	3 m ² x 3 (x 8 units)	72 m ²
		TV Room 1 per unit	14 m ² (x 8 units)	112 m ²
		Dining Room/living Room (1 per unit)	30 m ² (x 8 units)	240 m ²
		Basic Kitchen (Wash-up & basic Food and Drink Store – no cook) (1 per unit)	12 m ² (x 8 units)	96 m ²
		General Storage (linen cupboards)	2 m ² (x 8 units)	16 m ²
	B: Clinic – Private Use (Children's Home)			
	Private Use	Reception desk & Waiting Area	1	80 m ²
		Clinic Manager/director	1	12 m ²
		Child Psychologist Office & Consultation Room	3 (12 m ² each)	36 m ²
		Family Psychologist Office	2 (12 m ² each)	24 m ²

	Family Psychologist Consultation Room	2 (25 m² each)	50 m²
	Play Therapy Room/Paediatric Occupational Therapist & Observation Room	2 (40 m² each)	80 m²
	Sick Room & Consultation Room (For GP or Nurse)	1	18 m²
	Laboratory (Store and Nurse Office) – Blood take & Store	1	30 m²
	Nurse Office & Filing store	1	25 m²
	Staff Room & Kitchenette	1	40 m²
	Meeting room	2 (25 m² each)	50 m²
	Staff Room & Kitchenette	1	45 m²
	Parking Bays: staff & invited visitors	± 25 bays	
B: Clinic – Rentable Rooms			
Public Use (Rentable Rooms)	Reception desk & Waiting Area	1	80 m²
	General Doctor Office (Rentable Rooms)	4 x (15 m²)	60 m²
	Kiosk	1	28 m²
	Parking Bays (4 per 100 m² of rentable area)	5 bays	
	Toilets (Male & Female)	1	± 50 m²
C: Non-Clinical Component			
Public & Private Users/Events	Multi-purpose Hall/Exhibition Hall	1	± 400 m²
	Theatre/auditorium (seating, back stage & store) (100 people min)	1	± 400 m²
	Parking Bays (Auditorium) 1 bay per three seats	± 37 bays (110 people)	
Controlled Private Use (Children Only)			
Studios (Inside)	Dance/Performance Studio (± 35 children @ 2.25 m² each)	1	79 m²
	Music studio (± 30 children @ 2 m² each)	1	60 m²
	Art & Craft (± 58 children @ 2 m² each)	1	116 m²
Outside	Basic Amphitheatre/Performance space	1	100 m²
	Mini Multi-Purpose sports court (15m x 10m)	1	150 m²
	Playground/ Open green area (all ages) (± 100 children @ 10 m² each)	1	min 1000 m²
Study/home work area	PC Research desks, reading spaces/ Pods (± 65 children @ 2 m² each)	1	130 m²
	Basic Library & Book shelves	1	120 m²
D: Rentable Office Area (Income Generation Component)			
Potential Tenants:	Office Rentable Area (to tenant's design)		± 2 000 m²
General Facilities:	Toilets (Male & Female)	1	± 100 m²
	Parking Requirement (4 bays per 100 m²)	80 bays	
	Underground office parking (80 bays of 12.5 m² each) + 10% of area for roads)		± 1100 m²
	Service Rooms/Plant Rooms		60 m²

Zoning Right	Res 1, Res 3 and Special	Permissible	Proposed Development	Zoning Req.
Floor Area Ratio	1,2	14 522 m² (total land area)	Res1, Res 3 and Special, Business/office rights needed	OK
Coverage	60%	14 522 m² x 1,2 = 17 426,4 m² 60% of 14 522 m² = 8 713,2 m²	± 6 526m² (excluding basement parking) ± 3500 m²	OK
Height Restriction	2-3 storeys	OK	OK	OK

Township	PARKWOOD
SG ID	T0IR0511000000009800000000
Land type	ERVEN
Status	SG APPROVED
Stand number	980
Region	B
Ward number	117
Area(m²)	14522.27360328
Market value	-null-
Owner	
Zoning	Residential 1, Residential 3, Special



Total site area: 14 522m²
(eservices.joburg.org.za/joburg/eservices#clkCntrl)

Total estimated buildable area over 2 storeys, including basement parking:
7 626 m²

A: stepping stones rehabilitation home (children's home)



children's living unit



figure 74a: One of the children's bedrooms at Johannesburg Children's Home – maximum 2 children per bedroom.



figure 74b: The children's living units at Johannesburg Children's Home.

The living units for the children incorporate new methods of designing children's institutions, as initiated by Johannesburg Children's Home, figure 74b. In the case of Johannesburg Children's Home, to create a "homely environment", the children are housed in separate living units which accommodate a maximum of 10 children with a house mother (trained child-care worker/social worker) in each living unit. This is the model that will be used in this thesis design (Govender, 2012:interview).

However, Govender (2012:interview) mentioned that a maximum of 8 children seems to be a more manageable number for the child-care worker. This number was used in the planning of the units for Stepping Stones Rehabilitation Home. The site chosen caters for 8 units which means the home has a maximum capacity of 64 children.

There would normally be a maximum of 2 children per bedroom (fig. 74a), however, a couple of home directors have expressed that ideally it would be better to have the children in their own rooms, giving them their own space (Govender, 2012:interview; Heslop, 2012:interview). This was also considered in the planning of the children's rooms.



figure 75a: Multi-purpose event hall at Lusito Association.



figure 75b: Art exhibition and sale at Johannesburg Children's Home.



figure 75c: Lusito Association annual fundraising event – major financial aid.

We proudly celebrate our traditions on Heritage Day

We always celebrate public holidays here with a theme that is relevant to the day. Heritage Day on the 24 September was



figure 75d: Heritage Day at Johannesburg Children's Home.

Charity work/fundraising events are a great way to promote companies' good will work through getting their sponsorships for a specific event, along with the help of volunteers. Moreover, extra money can be made, which is especially needed for an institution like a children's home.

These events could happen only with the help and involvement of the public, such as comedy evenings, ladies' breakfasts (fig. 75a), and festivals (fig. 75c), which Lusito Portuguese Association for the Mentally Handicapped runs regularly (Molina, 2012:interview). Other fundraising events can involve the public and the children, such as art sales and exhibitions (fig. 75b). There could even be a youth-orientated programme/event which is sponsored for the children to have their own private event – such as being educated about Heritage Day (fig. 75d).



figure 76a: Poster on wall of a community worker at Guild Cottage.

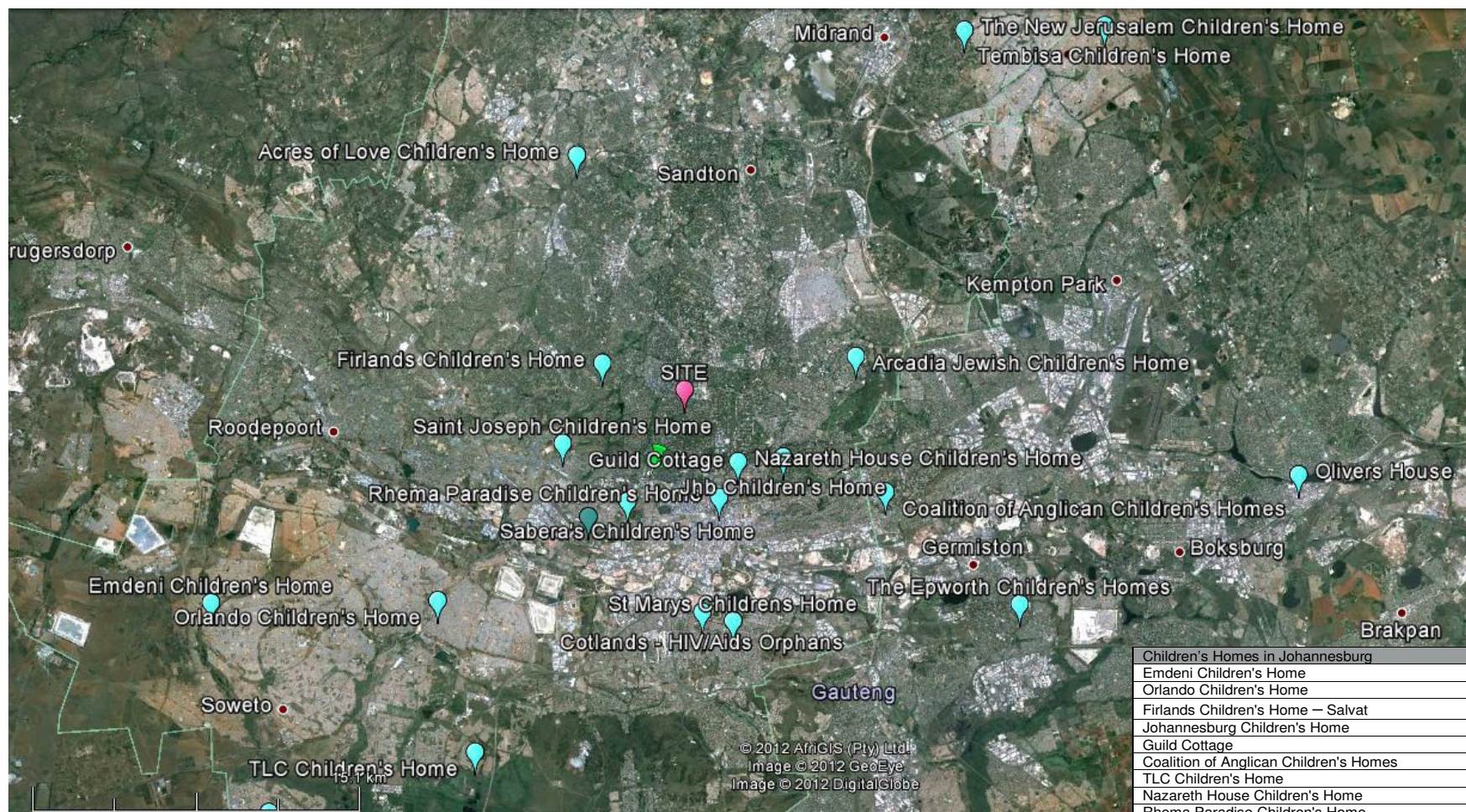


figure 76b: Educational workshop against child abuse – doll demonstration.

Office administration consists of the directors of the children's home – who are in charge of running the entire home. Their roles can range from meeting with major corporates for donations, to making sure that the children are in a well-kept facility, overseeing major events, and collaborating with other institutions to assist any child in need (fig. 76c). Under the directors there are management staff, who help run the practical components of the home, such as monitoring grocery shopping and maintenance of the home bills. Another component involves managing the children who leave and exit the home – a process that needs to be recorded (Govender, 2012:interview; Heslop, 2012:interview; Heyneke, 2012:interview).

As mentioned in the first chapter, the realm of child psychology is fairly recent internationally. The research component appeals to academics and postgraduate students who are interested in using research from the home to contribute knowledge related to child trauma. This information could assist the home itself, as well as other institutions.

Community work involves a group of individuals who set up educational workshops outside the home – especially in rural areas – in order to help educate and prevent child abuse (fig. 76a and fig. 76b) (Thod, 2012:interview).



Children's Homes in Johannesburg	Area
Emdeni Children's Home	Soweto
Orlando Children's Home	Soweto
Firlands Children's Home – Salvat	Randburg
Johannesburg Children's Home	Observatory
Guild Cottage	Parktown West
Coalition of Anglican Children's Homes	Bedfordview
TLC Children's Home	Bronkhorstfontein
Nazareth House Children's Home	Hillbrow
Rhema Paradise Children's Home	Johannesburg CBD
Sabera's Children's Home	Mayfair
Saint Joseph Children's Home	Westdene
Arcadia Jewish Children's Home	Edenvale
St Mary's Children's Home	Alberton
Tembisa Children's Home	Tembisa
Acres of Love Children's Home	Sandton
Kathorus Children's Home	Katlehong
Crescent Haven Children's Home	Lenasia
The New Jerusalem Children's Home	Midrand
The Epworth Children's Homes	Germiston
Oliver's House	Benoni
Cotlands - HIV/Aids Orphans	Turffontein
Abraham Kriel Childcare	Langlaagte

figure 76c: Other children's institutions in the greater Johannesburg region that Stepping Stones Rehabilitation Home could work with.

storage, services & staff quarters



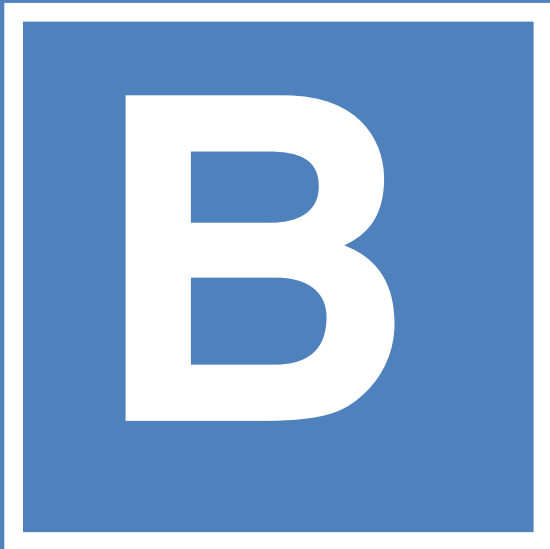
figure 77a: Johannesburg Children's Home: Clothes donation store.
figure 77b: Guild Cottage: Laundry room.
figure 77c: Johannesburg Children's Home: Main staff kitchen.
figure 77d: Johannesburg Children's Home: Dry food store.
figure 77e: Johannesburg Children's Home: Toys & book store.
figure 77f: Johannesburg Children's Home: Sewing counter.
figure 77g: Johannesburg Children's Home: Mini-buses for children.

Service spaces needed for the everyday functioning of the home include the main kitchen (it is cheaper to cook food in one space), storage, charity sorting rooms (clothes and other donations), laundry hall, etc., as seen in figure 77. In the programme schedule there is a detailed breakdown of these service facilities. There are over-night service-based staff that stay at the home because it is easier from a transport point of view or because of the staff's specific services offered, which requires them to stay at the home on a time-table basis that is alternated with other staff (Govender, 2012:inter-view).

The staff personnel range includes:
 Chefs, maintenance staff (laundry, ironing, gardeners), cleaning staff, drivers, security personnel.

Stepping Stones Rehabilitation Home has allowed for five service staff personnel to stay on site. This number excludes the child-care workers/social workers or house mothers who stay with the children.

B: clinical therapy



health examination: research, assessment & recording

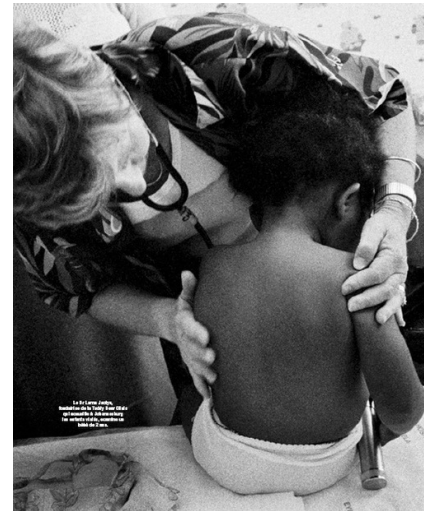


figure 78a: Child being examined by a nurse.



figure 78b: Teddy Bear Clinic – provides clinical assessment for abused children.

Basic physical examinations are done by nurses and can be done at the children's home (fig. 78a). These examinations are also important for record purposes of the child, as well as general health check-ups. When there is a court case, these records are very important and confidential (Molefe, 2012:interview).

Any further specialised clinical examination that needs to be done for the child's report will be done in collaboration with a facility such as Teddy Bear Clinic For Abused Children, which is equipped with more specialised medical examination equipment and staff (fig. 78b) (Molefe, 2012:interview).



figure 79a: Guild Cottage: Play therapy room.



figure 79b: Guild Cottage: Play therapy room with dolls, toys and sandbox.



figure 79c: Guild Cottage: Play therapy room with drawing/painting.



figure 79d: Lusito Association for the Mentally Handicapped: Group play therapy room.



figure 79e: Lusito Association for the Mentally Handicapped: Occupational therapist room.

The clinical aspect of the site reduces travel costs and allows the doctors to provide their full attention to the rehabilitation home. In some instances these child specialists may also attend to patients from the general public or other children's homes if there is a need. Based on the current clinical treatment programme at Guild Cottage (Thod, 2012:interview) and some new clinical-based needs and facilities at Johannesburg Children's Home (Govender, 2012:interview), there are specific doctors needed by the home (fig. 79), such as:

- child psychologists
- family psychologists
- paediatric occupational therapists
- play therapists
- nurses (basic health check, regular blood tests to monitor medication)
- speech therapists (in some cases)
- remedial teachers (for struggling learners).

Over and above dealing with the trauma of abuse, the child's IQ is often lowered, which affects the child's developing skills and learning skills (Heslop, 2012:interview; Thod, 2012:interview). This is why the clinical therapy component is so crucial to helping the child correct their behaviour and learning patterns before becoming an adult.

Play in general is a very powerful tool with children because *"the child's natural tendency to play... proposed that play uncovered the child's unconscious conflicts and desires and that play was the child's way of free-associating."* (Gill, 1991:29).

This notion was reinforced by Sheila, the child psychologist at Guild Cottage. Sheila Thod uses her office to talk to older children (teenagers) about how they feel (fig. 80a). However, younger children really struggle to talk, so play therapy is an important method not only to extract information on what happened to the child, but also to direct the child's feelings and behaviour. Other play therapists, occupational therapists, remedial teachers and sometimes speech therapists provide auxiliary therapies that help the child once the core issues are discovered and dealt with by the child psychologist. The family psychologist helps the child deal with their family and eventually assists with reuniting the child with his or her family – as discussed in detail in the first chapter (Thod, 2012:interview).



figure 80a: Sheila Thod (child psychologist at Guild Cottage): Office and consultation niche.

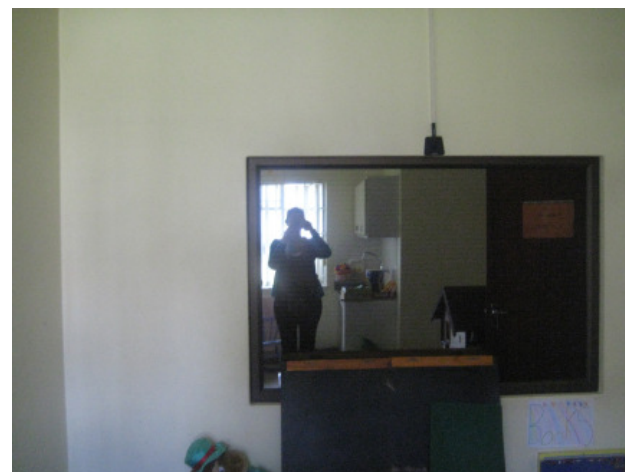


figure 80b: One-way window looking into play therapy room from hidden observation room for research and examination purposes.

Figure 80b shows the one-way viewing window from a hidden observation room that looks into the play therapy room. The reason for this observation room is that where more than one observer is part of the therapy session, the child will probably not be as honest or co-operative with the therapist/psychologist. Observers may be part of the therapy session for research, to teach students or to show someone in particular a child's behaviour when talking about something specific (Thod, 2012:interview).

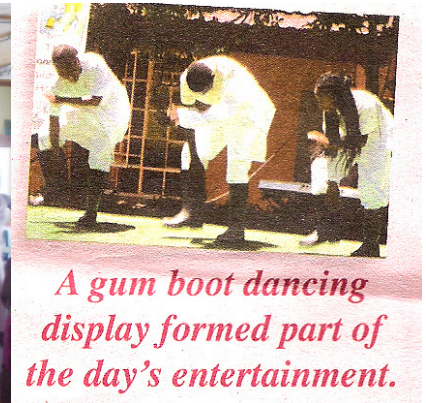
C: non-clinical therapy



various studios: arts & crafts, performance, dance, music



figure 81a: Children dancing at a children's home.



A gum boot dancing display formed part of the day's entertainment.
figure 81b: Gum boot dancing at celebrations of Family Day at Johannesburg Children's Home.

Non-clinical therapy, in collaboration with the clinical therapy programme, is what makes the object of this thesis so different from existing children's homes. A home like Stepping Stones Rehabilitation Home would put as much emphasis on the clinical component as the non-clinical component in order to satisfy all realms of treatment for the children.

Johannesburg Children's Home is an institution that is starting to strengthen its children's exposure to activities such as arts and crafts classes, video games, computers, baking/cooking classes, dancing, theatre and performance. Govender, the home's director (2012: interview), says the children really enjoy it, and they learn a skill as well as how to interact socially (fig. 81b-85). These are definitely part of what Stepping Stones Rehabilitation Home would like to encourage in the non-clinical therapy, and that is why studio spaces have been planned for. These kinds of activities will encourage children in classes, as well as in the child's own time.

The maximum child capacity of Stepping Stones Rehabilitation Home is 64 children. The studios provided in the programme schedule do not cater for all the children at once because not all of the children have the same interests – although art and dance seem to be the interest of the majority of the children from observation. A multi-purpose hall has been provided to be able to cater for all the children at once if needed for a specific class/event.

art & craft



figure 82a: Johannesburg Children's Home:
Art and craft by a 6-year-old boy.



figure 82b: Johannesburg Children's Home:
Art and craft by a 12-year-old girl.



figure 82c: Guild Cottage: Child painting my
shirt.



figure 82d: Guild Cottage: Emelina Molefe wants to teach
children how to knit if they are interested.

music & singing



figure 83a: Guild Cottage: Singing at a church
outing for Mother's Day.



figure 83b: Celebrating Johannesburg Children's Home 120th birthday. The children from the home
perform with traditional dancing and singing from their choir.



figure 83c: A self-taught musician at Johannesburg
Children's Home shows an interest in music.

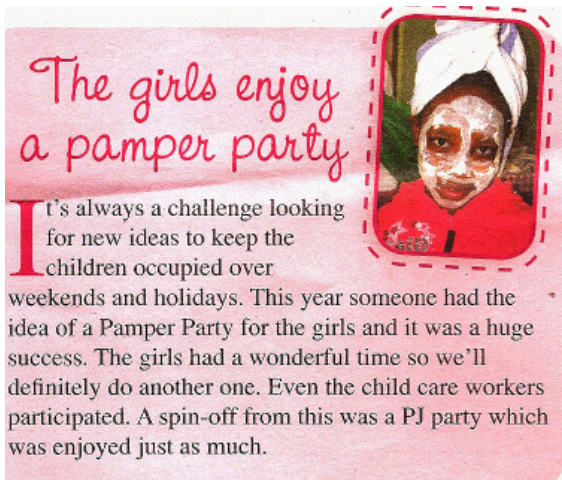


figure 84: Other pastime events that happen randomly, such as pamper parties, are also a great form of non-clinical therapy as the children interact and have fun as well as learn about new things.

technology & knowledge

We live in an information and technology-driven age, and any child who is not exposed to technology and books will be left behind. A basic library is needed by the home to provide the children with access to basic books. Older children need computer skills and monitored internet access for homework purposes (Govender, 2012:interview). This can be seen in figure 85.

Stepping Stones Rehabilitation Home will provide a library space that holds books, allows for reading spaces and gives the child an opportunity to work on a laptop or PC for educational and school requirement purposes (fig. 85b).



figure 85a: Johannesburg Children's Home: Video and game room.



figure 85b: Johannesburg Children's Home: PC research/homework room.



figure 85c: Guild Cottage: Library and homework area.

general play & movement



figure 86a: Johannesburg Children's Home: Large play area.



figure 86b: Guild Cottage: Jungle gym.

Providing an outside play area with jungle gym equipment is important for the children's home. In all the interviews and site visits (fig. 86), playing outside and on jungle gyms was cited as being very important for a child to free themselves, not only mentally but also physically (Deetlefs, 2012:interview; Molina, 2012:interview).

"Play is a natural activity for children and so is movement. Children move naturally to express their feelings and delight in the sensation of their bodies and movement." (Philpot, 2006:97)



figure 86b: Lusito Association for the Mentally Handicapped: Playground, important to stimulate physical growth.



figure 86d: Lusito Association for the Mentally Handicapped: Sports day in celebration of the 2012 Olympics.



figure 87a: A vegetable patch introduced into the learning programme at Hertzberger's Montessori School. A teacher on duty there expressed this taught the child responsibility and skills – Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).



figure 87b: The Green House Project: Sustainable Living in Johannesburg, Joubert Park, Johannesburg CBD. The project encourages youth to participate in learning about sustainable living.

Figure 87 shows examples of how the children can learn a skill and learn about responsibility in gardening. A successful vegetable patch can also help cut down on food expenses for the home. Having small animals, like birds, rabbits or dogs is also a form of therapy as a child may find it easier to bond with an animal than a human, especially in fragile, emotional times of depression and post-traumatic stress (fig. 87d) (animalassistedtherapyprograms.com).



figure 87c: Lusito Association for the Mentally Handicapped started to grow their own vegetables to help cut down on costs.



figure 87d: Small farm and animal shed, part of children's park in The Hague, Holland (site visit, 2012).

D: rentable office area

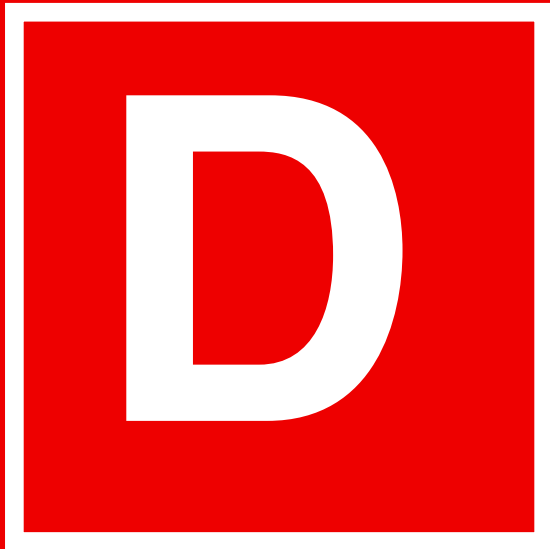


figure 88a: Existing offices along Jan Smuts Avenue.

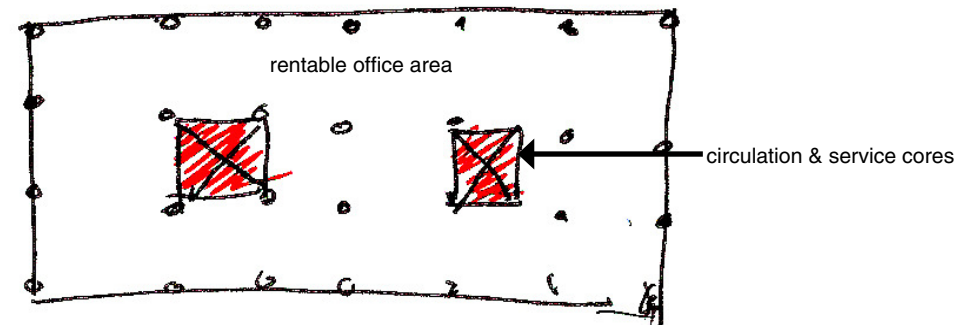


figure 88b: Concept for rentable office space, derived from office building layouts (Neufert, 2000:342-346).

The rentable offices provided by Stepping Stones Rehabilitation Home need to appeal to a variety of possible tenants. This resulted in the proposal of an open plan layout, with service and circulation cores in central locations for easy access (fig. 88b). This layout allows flexibility for a variety of office layouts for every possible new tenant (Neufert, 2000:342-346).

chapter 5:

design themes

overview of design concept & themes

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clustered form

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footprint

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boundary

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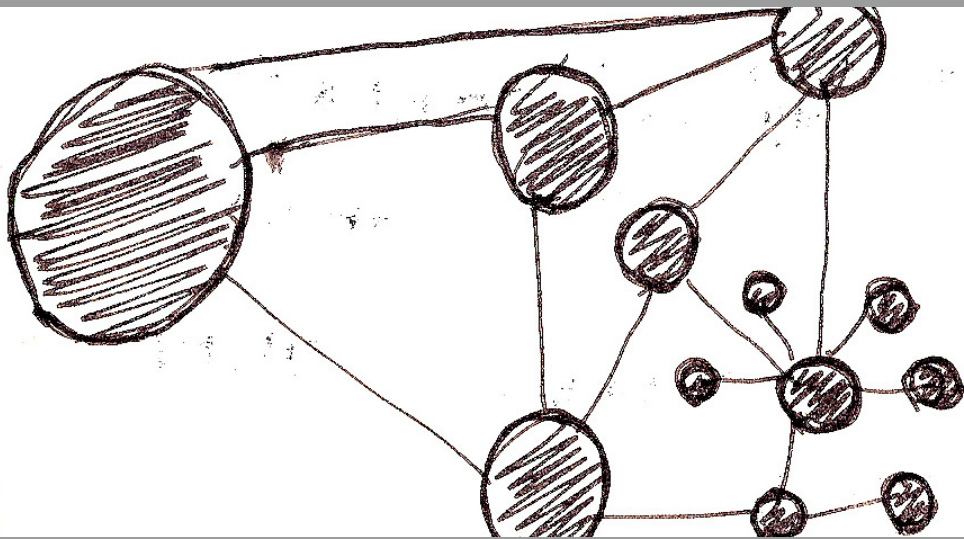
shelter

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creating a system of spaces

page 99

overview of design concept & themes



The main design concept for this children's rehabilitation home is polycentric designing of a "small city" (fig. 98a). Polycentric planning breaks away from the monocentric institutional environment that emphasises all activities in one main space under strict control. This monocentric approach is limiting and does not promote the individuality of a person, especially a child affected by mental issues. Creating an environment that is child sensitive and promotes a variety of interactions and activities encourages growth and development in a child. These are key aspects in healing and the treatment process (Holman, 1994:239-241).

Polycentric planning aims to create a community that interacts through a variety of transitional spaces from public to private (fig. 89b and 89c), emphasising the notion of the "in-between", as discussed in chapter 2. This in turn creates a connection of spaces that act as a whole, like a city (Lefaivre, 1999:77).

Buber's notion of the "I and You" is concerned with how people communicate and interact, and was taken further by van Eyck's humanist approach which "placed the emphasis on buildings as means for creating relations between people" (Lefaivre, 1999:11), rather than concentrating on the building itself. These concepts were explored and developed in this proposed specialised children's home, Stepping Stones Rehabilitation Home.

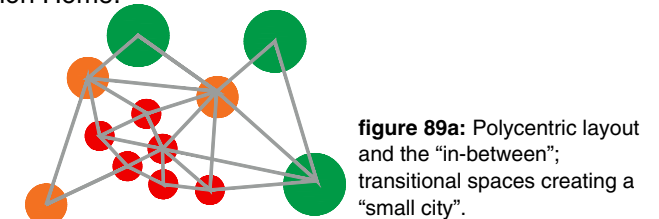


figure 89a: Polycentric layout and the "in-between"; transitional spaces creating a "small city".

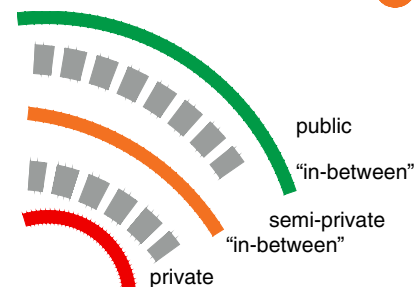


figure 89b: Plan: Public to private and transitional spaces/"in-between".

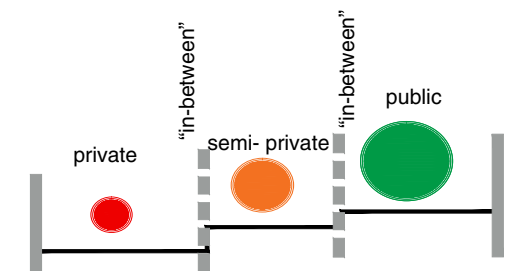
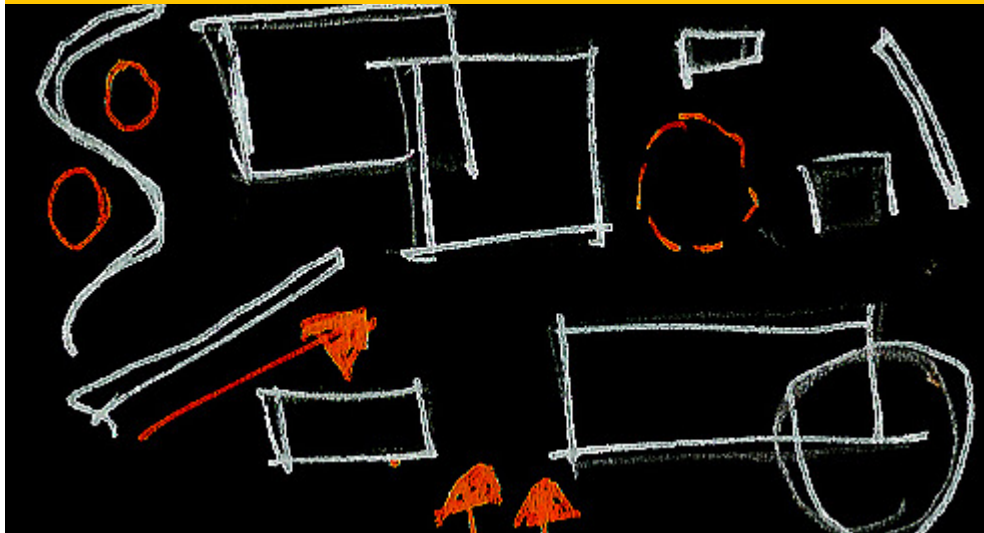


figure 89c: Section: Public to private and transitional spaces/"in-between".

clustered form



Main concept: deinstitutionalise – “small city principle”

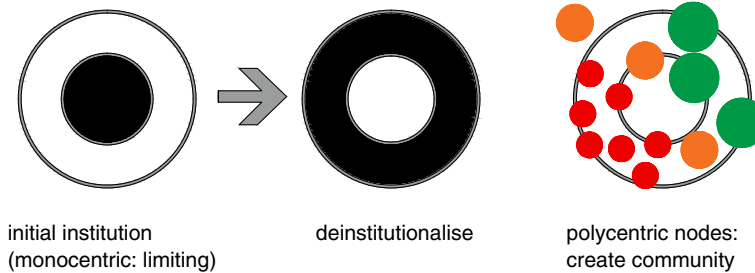
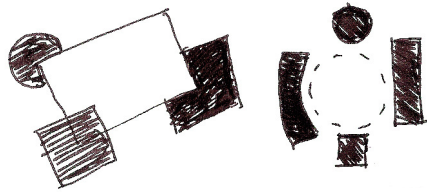


figure 90: Deinstitutionalising and creating a small community rather than having a single node of strict and limiting interaction.

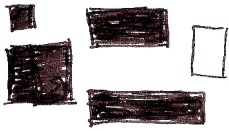
Figure 90 above indicates the main conceptual approach of this thesis, which is emphasising the “small city” concept and deinstitutionalising the monocentric planning approach.

A clustered form-based design is the result of creating a polycentric layout. However, in creating a cluster form design, the strength of this kind of planning needs to be strong in the fragments as well as in how the forms/spaces connect and read as one unified whole – which brings the theories of connectivity to life. This is where the major challenge lay in the planning of this children’s rehabilitation home.

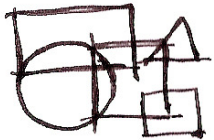
The pages to follow describe precedents that were studied to extract methodologies on how to deal with a clustered form in terms of connecting form and space in a variety of typologies, which assisted in the design process.



Option 1: Whole form shaped around dominating and central main shape. The main space/shape can be empty space or building.



Option 2: Using proportions or a pattern to connect separate entities within the limits of the context.



Option 3: A combination of interlocking volumes of different form could create a single merged form that could grow – according to design-specific requirements and methodologies.

figure 91: Possible cluster formation principles (derived from Ching, 2007:68).

The above diagram (fig. 91) shows basic design principles in terms of how to connect clustered forms/spaces through compositional strategies using form and/or space. Understanding these principles helped with identifying design methodologies in various architectural case studies, which are discussed in the pages to follow. These case studies were used to enhance the design approach for this thesis, which will be explained in detail in the next chapter on design development (chapter 6).



figure 92a: Piano. Parco Della Musica. Rome, 1994-2002 (Jodidio, 2005:382).

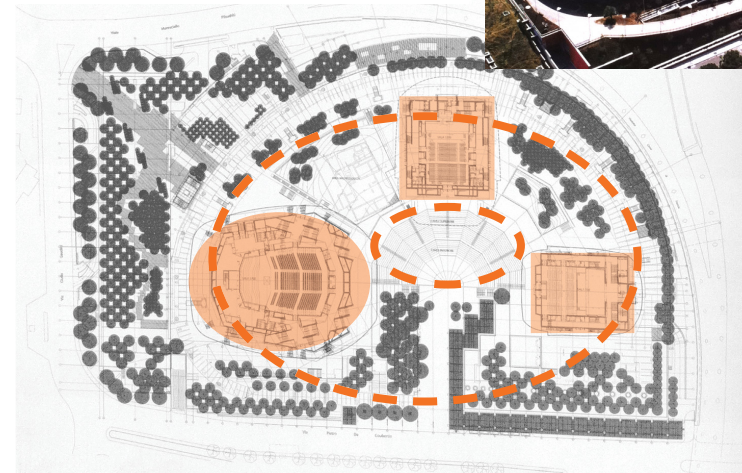


figure 92b: Plan of Parco Della Musica. Piano. Parco Della Musica. Rome, 1994-2002 (Jodidio, 2005:380).

The organisational form of Parco Della Musica (fig. 92 above), is two main central spaces combining three separate forms. There is an outer ring road towards the outer edge of the site combining the three forms and reinforcing a main circulation link. There is also an internal courtyard space that the three forms connect to by facing entrances into this common central space. This central space combines the three buildings, which have a form that differs slightly in shape, but the proportion is relative in relation to the context and other buildings. The space between the forms adds clarity and definition to the three forms.

figure 93a: Rewal. National Institute of Public Finance and Policy. New Delhi, 1979 (Taylor, 1992:111).

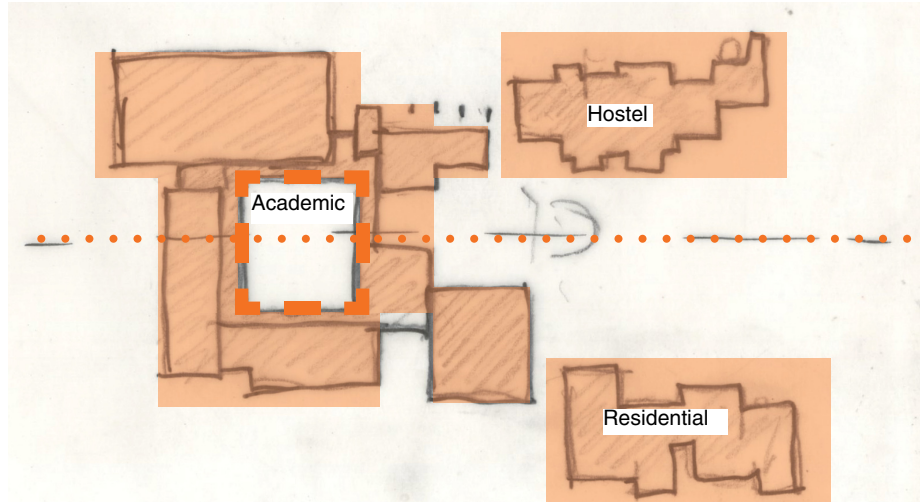


figure 93b: After Rewal. National Institute of Public Finance and Policy. New Delhi, 1979 (Taylor, 1992:111).

The National Institute of Public Finance and Policy, shown in figure 93 above, was of interest because Rewal uses clustered form in a mixed-use programme precinct, which is what the design of this children's rehabilitation home aimed to do. Rewal achieves this collaboration by creating clusters that differ in shape but have a relative proportion (fig. 93b). To unite the clusters, the main public form and space is placed along a central axis. The smaller private forms/clusters relate back to the main form because they lie parallel to the main axis (fig. 93b).

The two smaller forms, the hostel and residential units, relate to each other by being placed adjacent to each other, with the axis dividing them. They have a similar function and order, as indicated by the form's position and proportion.

figure 94a: Piano. Jean-Marie Tjibaou Cultural Center. New Caledonia, 1991-1998 (Jodidio, 2005:275).

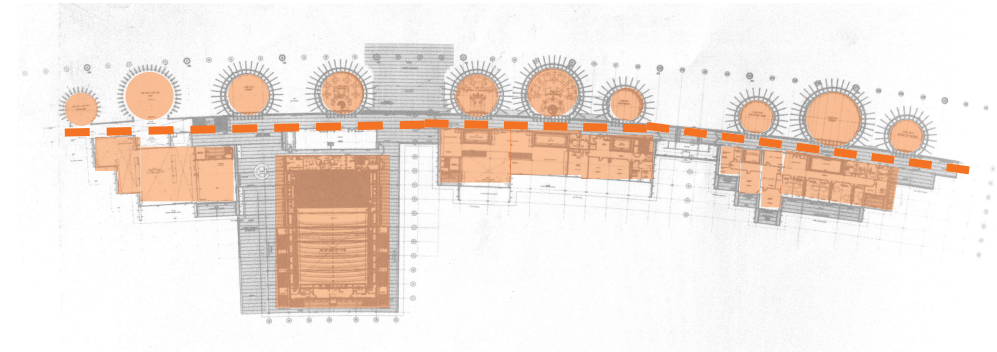
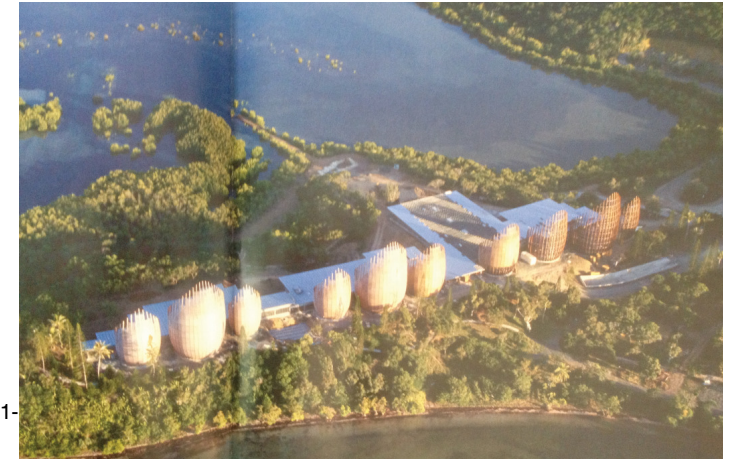


figure 94b: Piano. Jean-Marie Tjibaou Cultural Center. New Caledonia, 1991-1998 (Jodidio, 2005:287).

The plan in figure 94b shows a main central axis/concourse combining a variety of forms and cluster patterns. The circular form indicates more social/interactive nodes, whereas the orthogonal form relates to a more functional programme. The orthogonal forms vary in programme type and in terms of public and private uses, which is evident in the different proportions. The programmes of the circular forms do not differ too much, thus indicating a more consistent proportion variation. Open space creates an "in-between"/dividing tool to create a clarity of zoning of that building component.

Connecting different orders of different shapes was another design challenge in this thesis. However, this case study assisted with some aspects of this design issue.

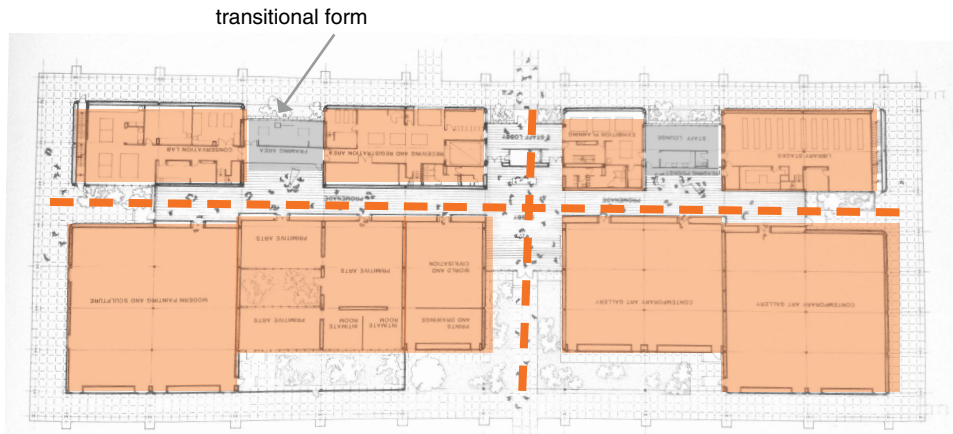


figure 95: Piano. Menil Collection. Houston, 1982-1986 (Jodidio, 2005:160).

In figures 95 and 96, both plans have orthogonal cluster patterns but use different methods to unite these forms.

Figure 95, however, uses space along axes to order the different forms/functions. The smaller cluster in figure 95, which is above the horizontal axis, is joined through a smaller transitional form, as highlighted in the grey box.

Figure 96 below also shows orthogonal cluster forms that are based on a modular set-up by an underlying structural grid. There is also an open central courtyard space that the solid forms are planned around, reinforcing the unity and creating a language of figure and ground.

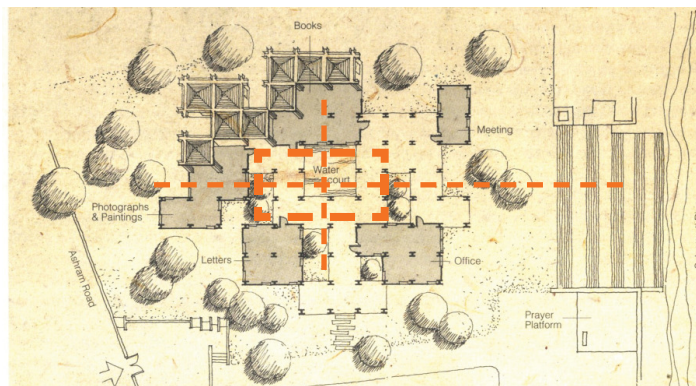


figure 96: Correa. Gandhi Smarak Sangrahalaya. Sabarmati Ashram, 1958-63 (Correa, 1996:30).

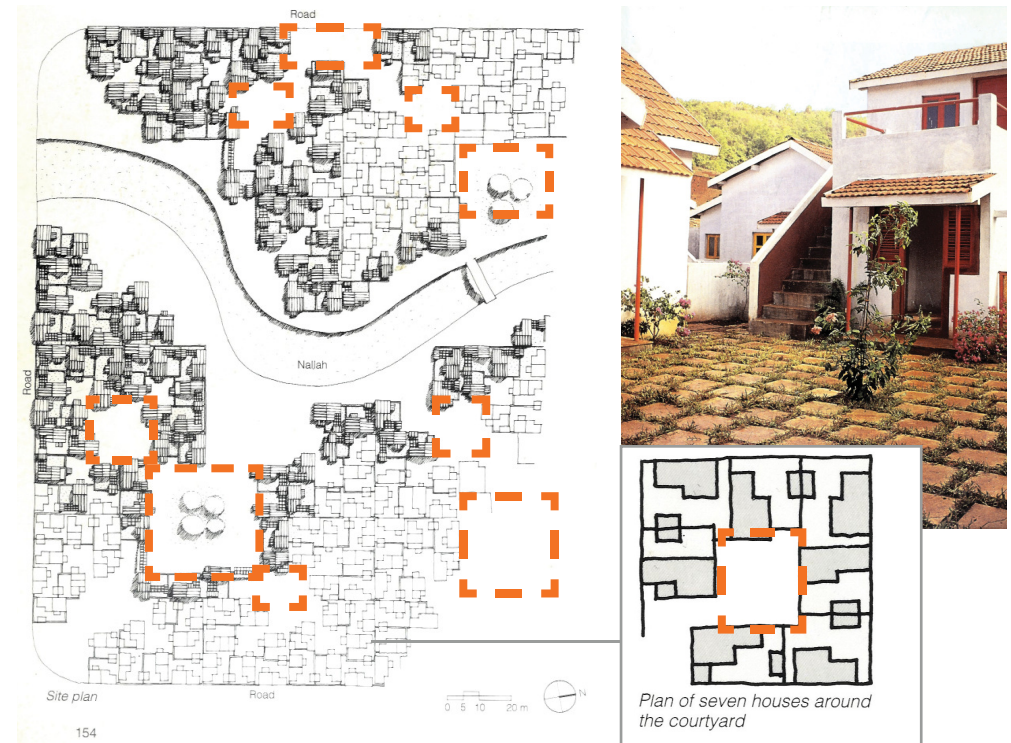


figure 97: Correa. Incremental Housing at Belapur. Belapur, 1983-1896 (Correa, 1996:152).

In the housing scheme at Belapur (fig. 97), Correa creates a module that can be connected to form one unit. This single unit is connected by a central courtyard space. Furthermore, when the single modular unit is replicated and connected in tight patterns, this in turn creates another united form, centred around a bigger courtyard space, as seen in the main plan above (fig. 97). The use of a common courtyard space surrounded by the replicated modular unit connects different variations of the modular pattern. The sizes of the modular units are consistent, however, the proportions of the courtyard space differ in size from small and intimate to large and public (fig. 97).

This is the approach taken for the design of the living units of the children's rehabilitation home proposed in this thesis.

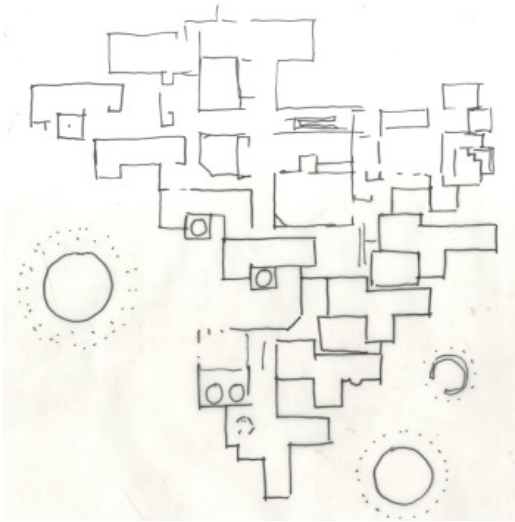


figure 98: After van Eyck. Orphanage. Amsterdam, 1955-60 (Strauven, 1996:7).

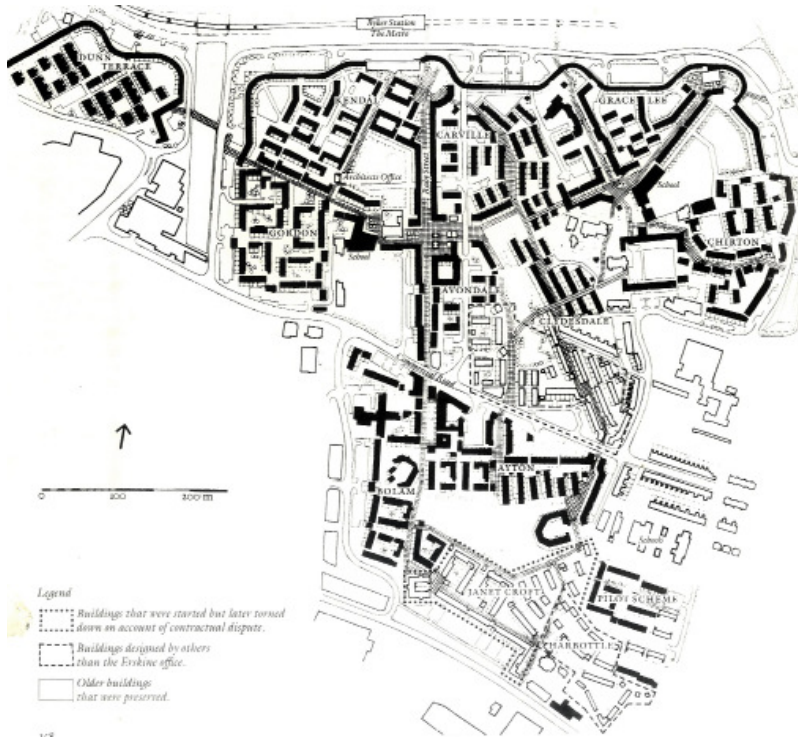


figure 99a: Erskine. The Byker. Newcastle-on-Tyne, 1969-81 (Egelius, 1990:150).

The site chosen for this thesis has distinct private and public edges that are important to consider in the design of the children's rehabilitation home. The children's home will have a variety of cluster forms because of the mixed programme and building typologies. It was important to understand the implications of having a variety of clustered forms when responding to site edges, versus duplicating a modular form to create an interlocking cluster that does not relate to the edge. Some examples pertaining to this are discussed below.

The Byker development, as seen in figure 99, is made up of many different forms of clusters, both linear and modular groups that are connected along axes or a courtyard public space. However, what shapes this entire development as a whole is how these different clusters have reacted to the edges of the site (fig. 99a). Each edge response of the cluster relates back to the internal development by defining the edge, creating a building that responds to both the inside and outside (fig. 99b).

The Byker development approach is unlike the interlocking approach used in van Eyck's orphanage (fig. 98), a method that creates its own independent united form made up of smaller interlocking forms.



figure 99b: Inner face of a building wall of the Byker development. Erskine. The Byker Wall. Newcastle-on-Tyne, 1969-81 (Egelius, 1990:150).

relating clustered form to footprint, boundary & shelter

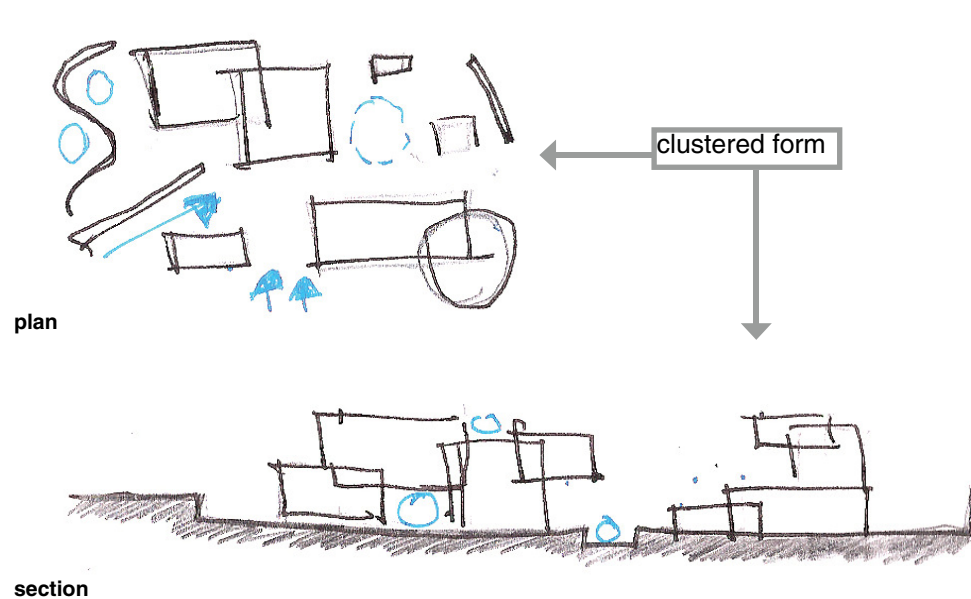


figure 100: Relating cluster and form from plan to section and elevation.

The design theme of clustered form has so far only been analysed in plan. When designing a layout that involves a variety of clustered forms and transition, there are design implications that need to be considered in section and elevation (fig. 100). This will be explored in three main parts (fig. 101):

- footprint
- boundary
- shelter

A simple section illustrating these three design themes is shown in a small chapel by Geoffrey Bawa (fig. 102). There is a clear variance in transition from the low areas into the central platform of the chapel, which is at the highest level (fig. 102). Figure 103 illustrates how these principles are taken further not only in a single building but also in how buildings relate to each other, especially in a clustered form development.

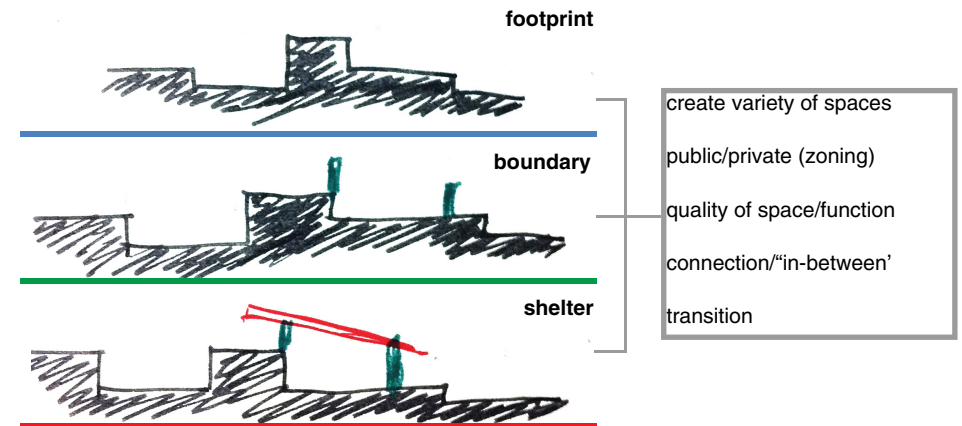


figure 101: Cluster and form design principles: footprint, boundary, shelter.

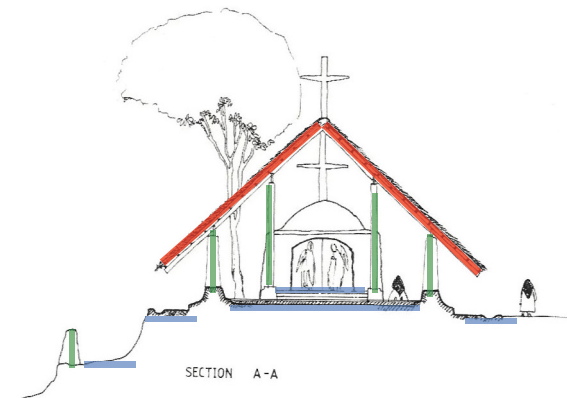


figure 102: Bawa. Yahapath Endera Farm School. Hanwell, 1966 (Taylor, 1986:90).

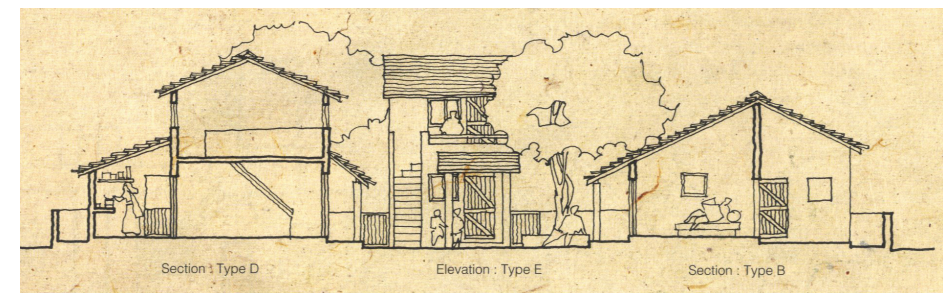


figure 103: Correa. Incremental Housing at Belapur. Belapur, 1983-1986 (Correa, 1996:152).

footprint

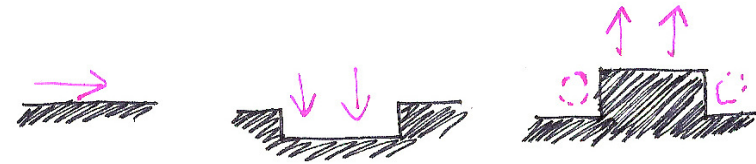


figure 104: The different effects of manipulating the footprint.

The footprint of a building is the base for defining spaces and the type of spaces in relation to the function or zoning of the building. This is done by manipulating the ground to suit the desired design intention, as seen in figure 104. The sketch in figure 105 below illustrates how size and depth can make a space either more public or more private.

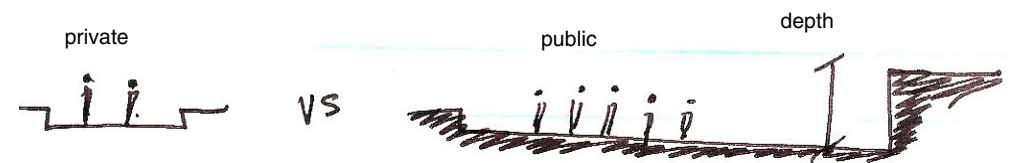


figure 105: The use of the footprint to create a private or public space.

Furthermore, the footprint is an important design theme in binding various forms and spaces, especially in a clustered form design. This is because it is a continuous element that runs throughout the building and creates space as well as transitional relationships between space, thus uniting the entire design (fig. 106).



figure 106: Relating cluster and form from plan to section and elevation.



figure 107a: Outdoor linking courtyard. Correa. National Crafts Museum. Delhi, 1975-1990 (Correa, 1996:34).



figure 107b: The street as a metaphor. Correa. National Crafts Museum. Delhi, 1975-1990 (Correa, 1996:40).

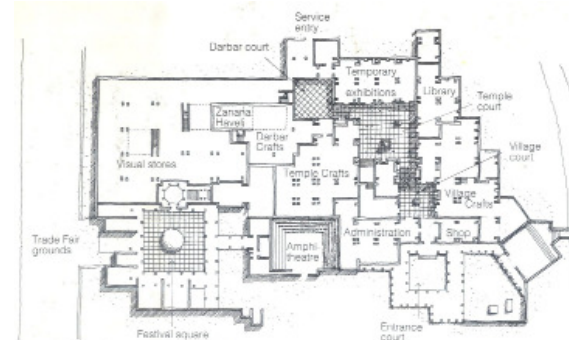


figure 107d: Plan. Correa. National Crafts Museum. Delhi, 1975-1990 (Correa, 1996:34).

The section of Correa's National Crafts Museum, in figure 107c below, illustrates the principles of using footprint to create a variety of interactive spaces/places that transition from one functional requirement to another. This transition of space is also affected by zoning and whether or not the space/place is for public or private use (fig. 107a).

The level change creates the impression of transition and definition of space, which contrasts with a flat, monotonous plane. Width and depth are very important in terms of proportions as these can affect the meaning of a space (fig. 107a, 107b and 107d). For example, as seen in figure 107c, in the courtyard spaces labelled 1, 2 and 3, space 1 is more private and intimate. Space 2 is more public and open, allowing for demonstrations, whereas space 3 is a more sunken and protected large space used for exhibitions.

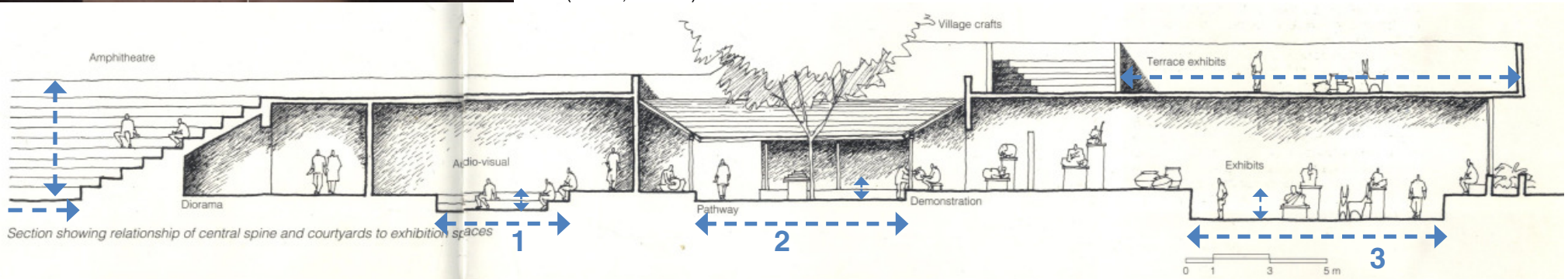


figure 107c: Section. Correa. National Crafts Museum. Delhi, 1975-1990 (Correa, 1996:34).

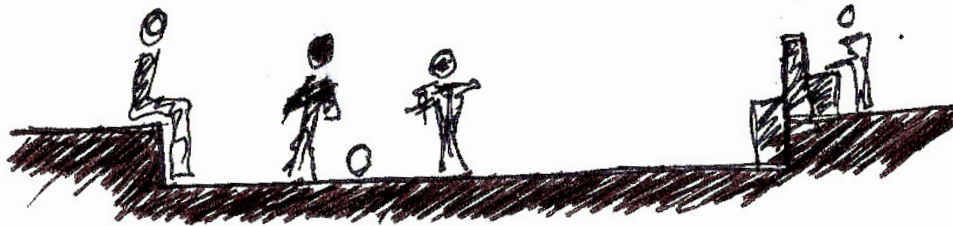


figure 108a: Observation sketch of children playing in pit (site visit, 2012).

The sketch and photographs on this page were my observations of some children's parks in Holland, in April this year. The children's parks there were of interest because of the details used to create variety in play spaces by using footprint. This can be seen in the sunken play pit in figures 108 and 110, and the opposite by creating small hills, in figure 109.

Textures and a variety in textures were evident in the play areas (fig. 108-112). Certain play areas were defined by using child-friendly textures. The textures were mainly rubber floor tiling, grass, sand, paving, gravel, timber, and in sport court spaces, concrete screed floor was used.



figure 108b: Children playing in pit, The Hague (site visit, 2012).



figure 109: Children's park: Rotterdam (site visit, 2012). **figure 110:** Children's park: Delft (site visit, 2012).



figure 111: Children's park: Amsterdam (site visit, 2012).



figure 112: Children's park: Amsterdam (site visit, 2012).

boundary

Boundary is a continuation of what the footprint has set up, for example, a step could evolve into a low wall.

Thresholds and sitting places can be created by very low boundary walls to form an interactive public space. A semi-private space could be protected by a low to medium height boundary wall, or for a more protected and private space, a high boundary wall (fig. 113a).



figure 113a: Height, width, spacing and scale can affect the zoning use of a space.

Furthermore, boundary walls can be very functional, for example, a wall with a window letting in light or a wall shaped to deviate wind (fig. 113b). A boundary wall can also form part of a play area or be a playful element itself. Materials have an aesthetic and functional role in boundaries, relating to the design as a whole. A few examples of this are discussed in the pages that follow.

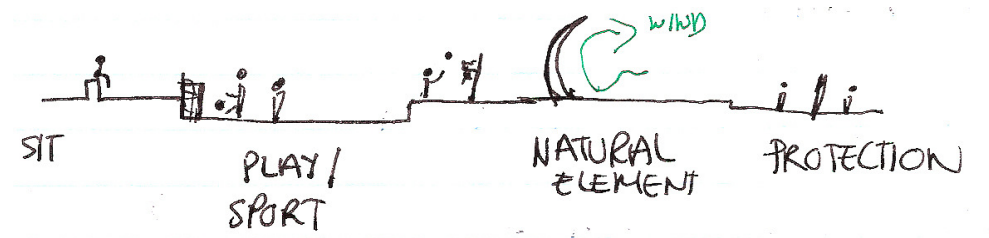


figure 113b: Different functional uses for boundary walls.

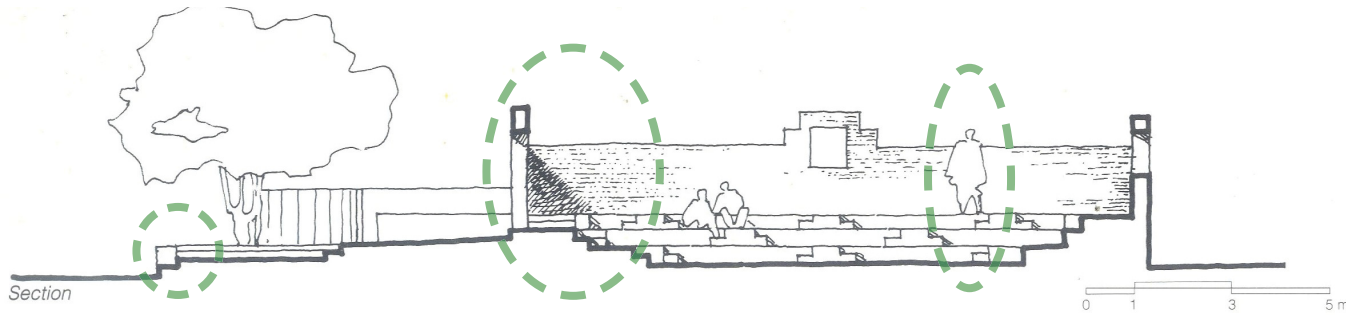


figure 114a: Correa. Surya Kund. Delhi, 1986 (Correa, 1996:186).

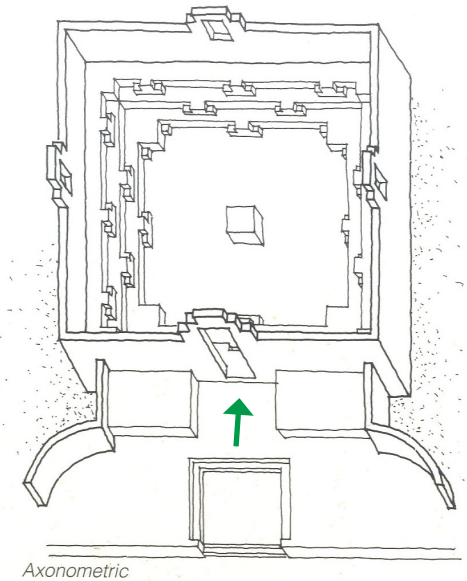


figure 114b: Correa. Surya Kund. Delhi, 1986 (Correa, 1996:186).

The kund is a sacred place where people come to worship and is normally situated next to a temple (Correa, 1996:186). There is simplicity in the way in which the footprint holds the space, which is further enclosed by boundary walls that are not too high and relate to the proportion of the body (fig. 114).

The proportions of the space, along with the levels of the floor and walls, tell us that this is a place of gathering, but for specific people, making it more semi-private (fig. 114a). This is further reinforced by the single main entry point for control (fig. 114b), unlike in an open public courtyard.

A humble scale can be felt in this space as everything is within proportion to the body (fig. 114). All these factors described are very important, especially in this thesis, because the architecture, places, spaces and form need to relate to the children.



figure 114c: Correa. Surya Kund. Delhi, 1986 (Correa, 1996:187).



figure 115: Aalto. Paimio Sanatorium. Paimio, 1933 (Suomen, 1998:22).



figure 116: Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).



figure 117: Aalto. Villa Mairea. Noormarkku, 1937-1939 (Suomen, 1998:58).

Figure 115 and 116 illustrate how light is a very important natural element to bring into the building, especially for persons undergoing healing (Suomen, 1998:12). The windows also enhance the relationship with outside spaces and nature – another important aspect for healing, as mentioned in previous chapters.

Figure 117 shows how, through poetic use of forms and material, boundaries can also enhance the nature of the divisible spaces within a building, thus adding to a desirable environment for healing.



figure 118: Children's park: Amsterdam (site visit, 2012).



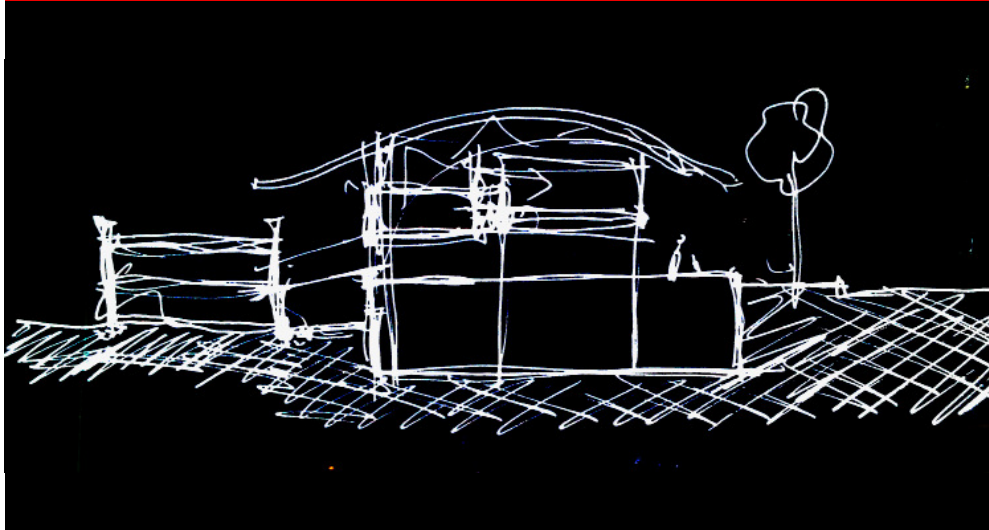
figure 119: Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).

Figures 118, 119 and 120 below and above are basic boundary elements used within playing areas for children. These photos show the humble proportions of these elements, which relate to children. Furthermore, these elements can be playful and become part of the play area, whilst still fulfilling their functional requirements of defining a space.



figure 120: Children's park between housing units: Amsterdam (site visit, 2012).

shelter



Shelter is the final form for enclosing a space. As the manipulation of footprint can alter the nature and privacy of a space, so can shelter (fig. 121a).

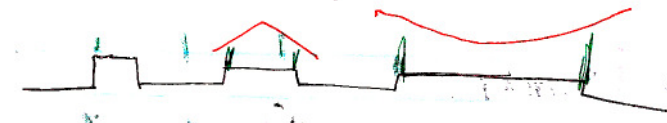


figure 121a: Form affected by function of shelter.

The height of the shelter can also create the impression of public and private spaces when it is altered (fig. 121b). Furthermore, as with boundary, shelter can be shaped by its functional requirements (fig. 121b). In a cluster form design there will probably be a variety of shelter types, and how they relate to each other in terms of proportion, function and materiality becomes an important consideration, especially how the clustered form reads as a whole (fig. 121c).

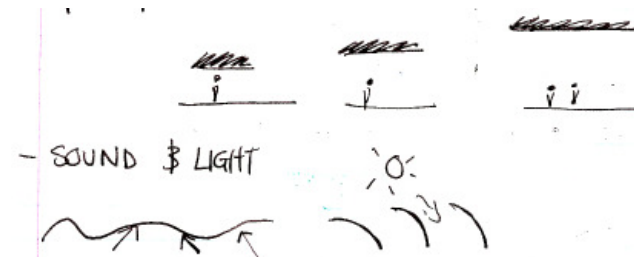


figure 121b: Height, sound and light shaped by shelter.

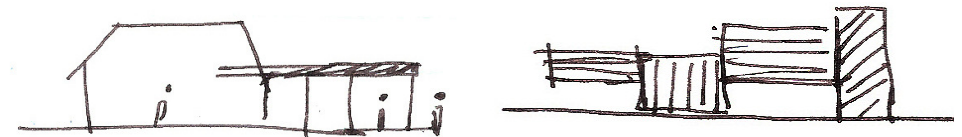


figure 121c: Important transition of space and form created by shelter.



figure 122: Piano. Kansai International Airport Terminal. Osaka, 1988-1994 (Jodidio, 2005:223).



figure 123a: Piano. Padre Pio Pilgrimage Church. Foggio, 1991-2004 (Jodidio, 2005:442).



figure 123b: Piano. Padre Pio Pilgrimage Church. Foggio, 1991-2004 (Jodidio, 2005:446).

Piano's case studies shown on this page illustrate how materiality, functionality and structure influence the form of the shelter, which further affects the nature of the space.

Creating a large public space was the main objective of the Kansai Airport Terminal (fig. 112), while bringing light into a place of gathering of people is evident in the form of the shelter of the Padre Pio Pilgrimage Church (fig. 123a).

The functionality of creating an acoustic sound space is evident in the form of the Parca Della Musica (fig. 124).

These shelter types are some examples of the forms that have been used in the design of Stepping Stones Rehabilitation Home, because of the diverse programme requirements.

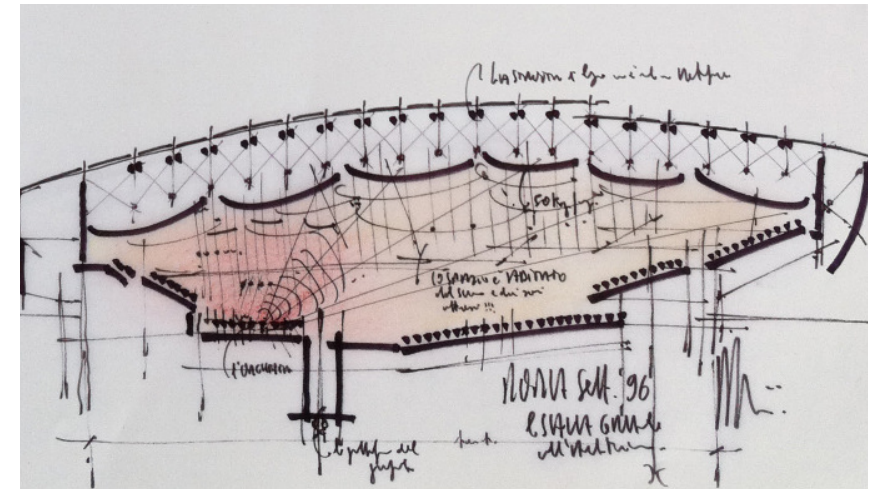


figure 124: Piano. Parco Della Musica. Rome, 1994-2002 (Jodidio, 2005:389).



figure 125a: Internal natural light. Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).



figure 125b: Light boxes. Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).



figure 125c: Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).



figure 125d: Small spaces for young children. Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).

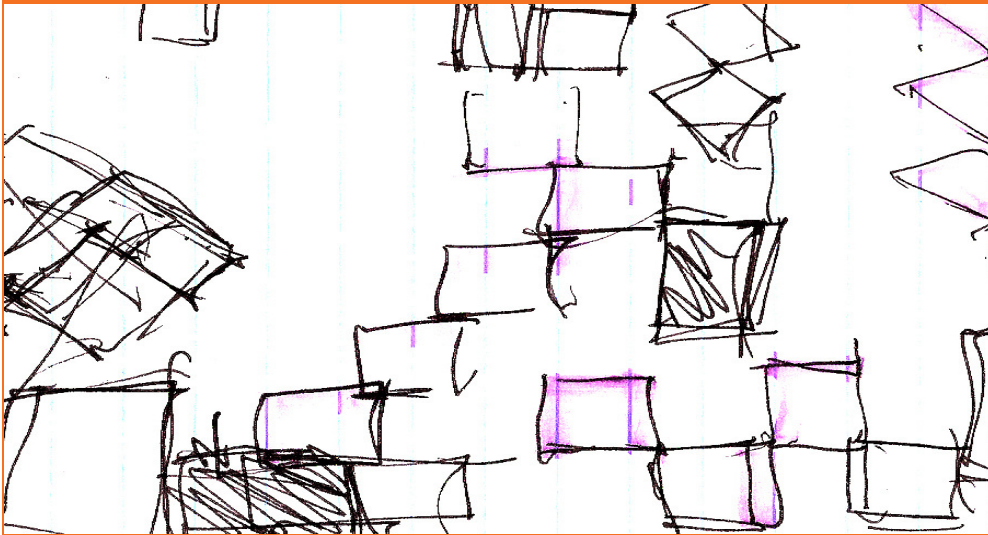
Hertzberger's Montessori School in Delft has a defining shelter feature that adds a tranquil quality to the internal spaces of the building – in the form of light boxes, skylights and high windows (fig. 125a, 125b and 125c).

My experience when walking through the school was that these light features definitely enhanced the nature of the children's classrooms and internal play areas, as seen in figure 125a. The light boxes were therefore a definite consideration for the children's rehabilitation home.

Given that this is a primary school that accommodates both young and older children, there is a variety in proportions of spaces for children created by lowering or raising the shelter in that space, as seen in figure 125d.

This attention to children's proportions was an approach that was incorporated into the design of the play spaces and living units of the children's rehabilitation home.

creating a sytem of spaces



Creating a system of spaces is what the collaboration of footprint, boundary and shelter aims to achieve in unity, especially in transition from place to place. The concept of creating a system is further explained by using the notions expressed by Charles Correa.

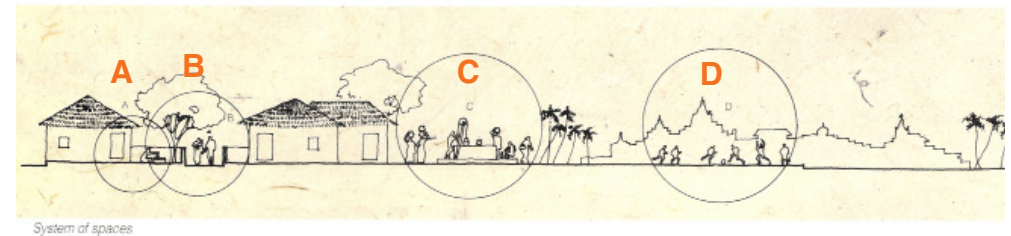
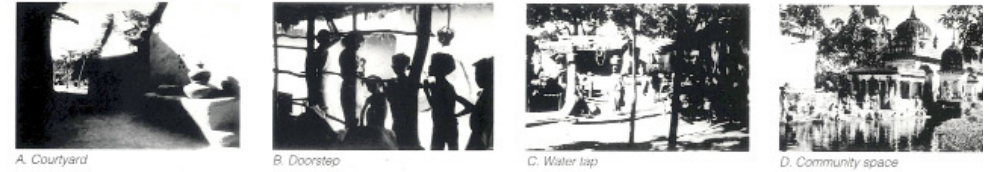


figure 126: Transition of spaces through creating a system of spaces (Correa, 1996:166).

Correa observed a housing development made by the people of Bombay (fig. 126) and noted that the transitional nature of the spaces was in fact made up of a system of spaces that were all influenced by functionality, privacy/zoning and context. Furthermore, these systems were enriched in unity by how the transition occurred from one space to another, in turn creating a system (Correa, 1996:166).

For example, Correa (1996:166) speaks of a transition from terraces and courtyards for private use by the family (fig. 126: A&B), to more public community spaces, like a village well and play areas (fig. 126: C&D).



figure 127a: Master plan and detail model – creating spaces from a variety of scales. Correa. Titan Township. Bangalore, 1992 (Correa, 1996:159).

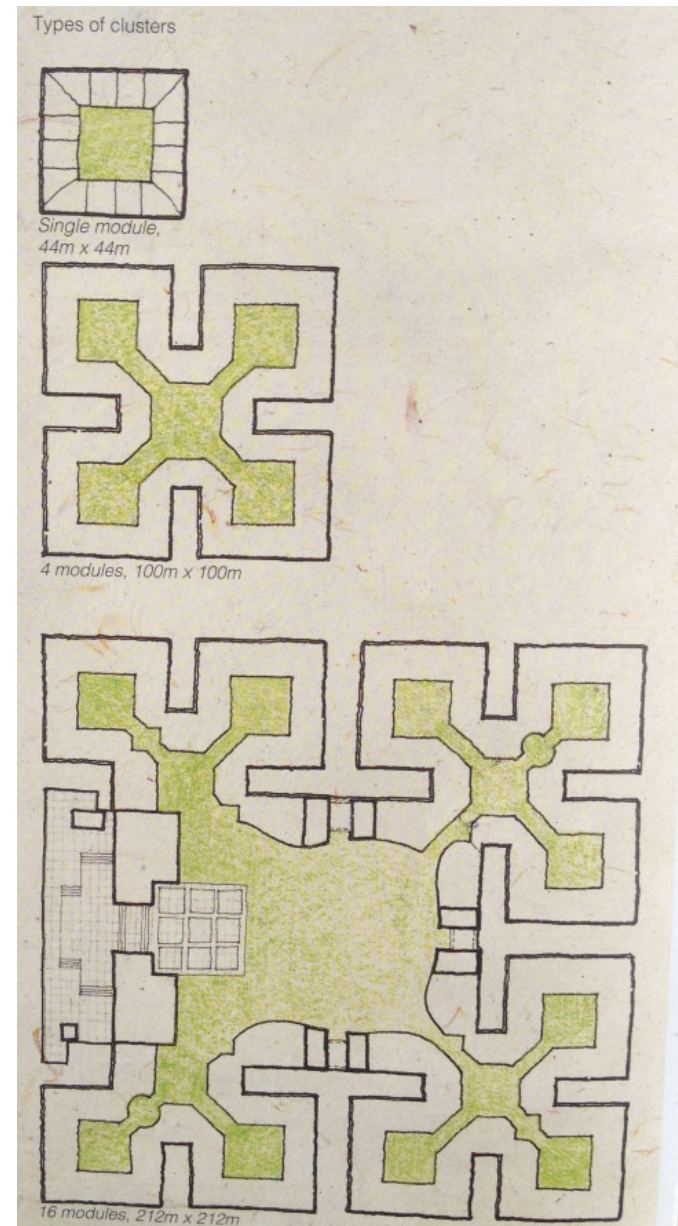
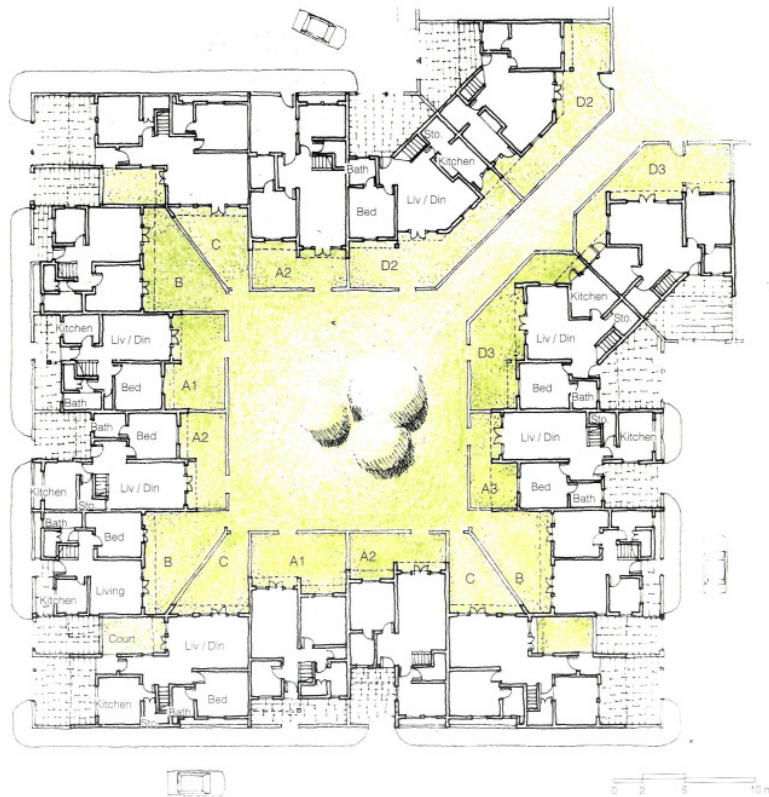
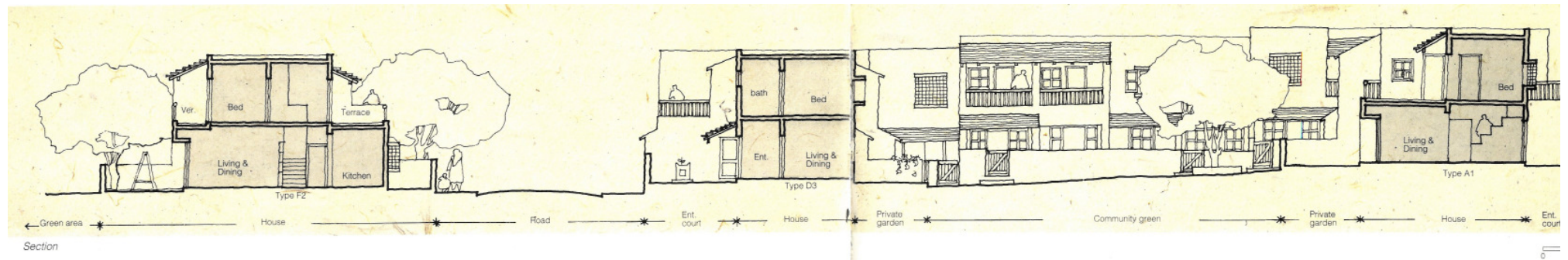


figure 127b: Module used to create clustered form. Correa. Titan Township. Bangalore, 1992 (Correa, 1996:158).



Correa took these lessons and applied them in his designs, as can be seen in the housing cluster units of the Titan Township (fig. 127).

The section shown in figure 127 depicts Correa's attention to the footprint, boundary and shelter in order to create a unified transition throughout the housing development. Each response in this design is based on design principles of function, zoning/privacy, form relationships and connection – which in their entirety create a system of spaces.

These design principles and the notion of creating a system of spaces are valuable concepts that were incorporated into the cluster design of the children's rehabilitation home in this thesis. Moreover, the clustered form was shaped by giving attention to the children and other users in relation to the spaces they use.

figure 127c: Correa. Titan Township. Bangalore, 1992 (Correa, 1996:160-161).

chapter 6:

design development

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design exploration: site & programme response
page 105

site & programme response options: study models
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developing design concepts: sketch design
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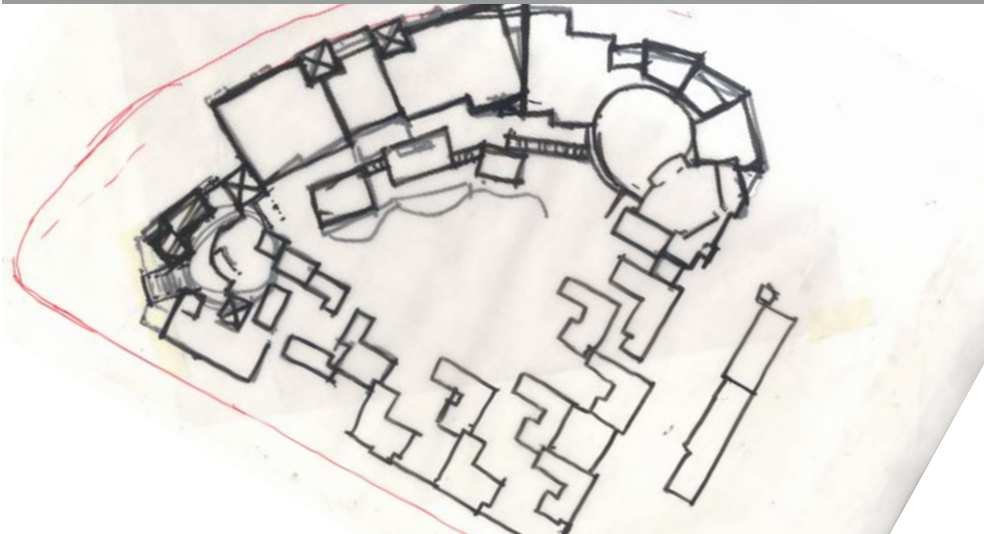
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design brief & developing the main concept



The design brief is based on the need for children's homes to be designed in a manner that encourages a variety of social interaction, based on recent research discoveries. Furthermore, Stepping Stones Rehabilitation Home is a specialised children's home that houses facilities for the treatment of child abuse-based trauma. The mixed programme is made up of four main components:

A

+

B

+

C

+

D

the children's home

clinical therapy

non-clinical therapy

rentable area (offices)

These programme components have specific users and privacy zones, which was considered in the planning of the whole development. Child safety and control were the main concerns in the planning of this specialised home. To achieve this, the programme was planned to create a united precinct that responds to the needs of each programme component, the site and the users. A polycentric layout/"small city" principle of various interaction nodes was the design's main driving concept, as seen in figure 128 below.



figure 128: The nodes created by applying the "small city" concept to the chosen site.

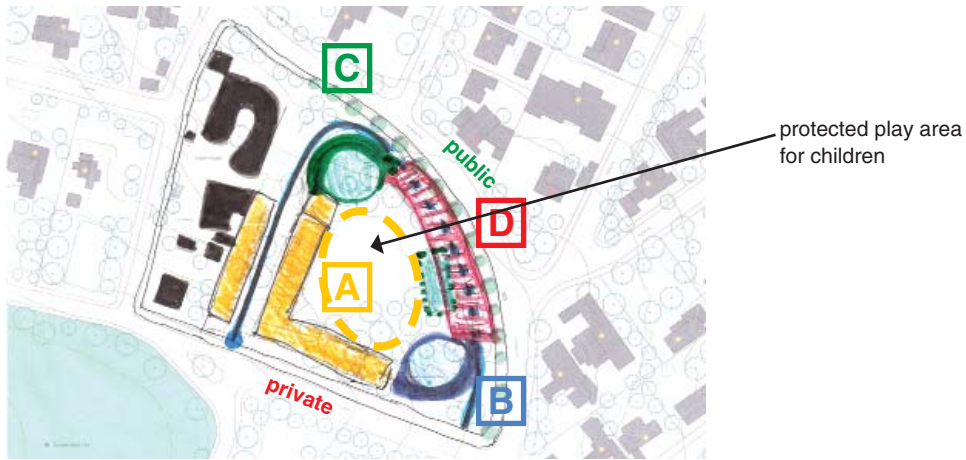


figure 129: Response to programme and edge conditions.

The diagram above (fig. 129) shows the final design response to the site edges and existing site uses, in relation to the mixed programme. The two site edges relate to their uses as well as their zoning type (public/private). In addition to the “small city” principle, the programme/buildings were used to create a protected environment to house the children, as well as to allow access to the necessary treatment facilities.

Figure 130 below shows a schoolyard in the city protected by buildings, not walls, to break away from a high-wall enclosed institution. This concept was applied in this thesis design to create a safe precinct for children.



figure 130: Schoolyard in Rotterdam, Holland (site visit, 2012).

The methodology used in this design process involved making many conceptual models to understand the nature of the site, as well as the different building components and how they fitted together on the site. These observations were further explored in hand drawings, as illustrated in figure 131 below.

The pages to follow discuss my journey through the design of this specialised children’s home at each major stage in the design process, as well as other responses and influences along the way, all of which led to the final design.



figure 131: Design methodology: switching between drawings and models.

design exploration: site & programme response



As explained in chapters 3 and 4, the programme placement on the site responded to existing site uses and users. Natural influences such as site slope and sun orientation also played a significant role.

Component **A**: This is the main focus of the programme. North facing light as well as a more private edge were needed to satisfy programme requirements.

Components **B & C**: These two programme types had both private and public uses and therefore were placed at the two corners of the site. Component C also connects with existing cultural institutes neighbouring the site.

Component **D**: This component is placed opposite existing offices and creates a protective edge for the children from the busy street.

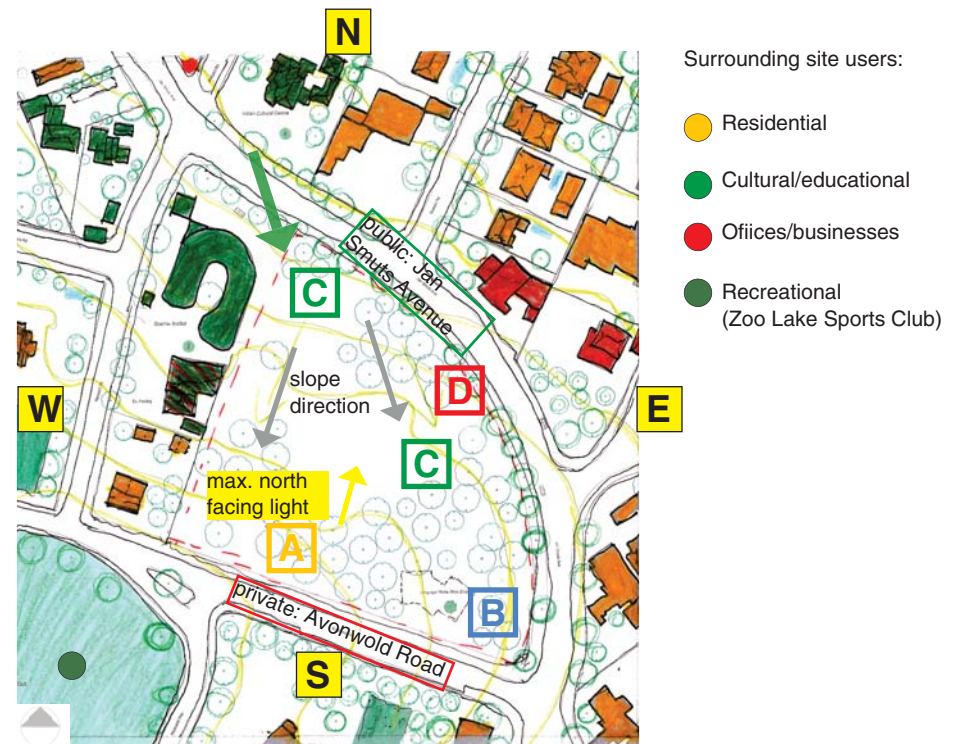


figure 132: Site responses and considerations.

site & programme response options: study models

- Vehicle access ●
- Internal road - - -
- Underground parking

figure 133a:
Option one.

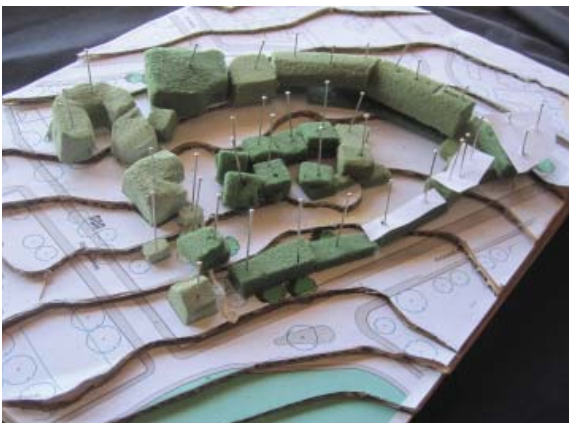


figure 133b:
Option two.



figure 133c:
Option three.



- Vehicle access ●
- Internal road - - -
- Underground parking

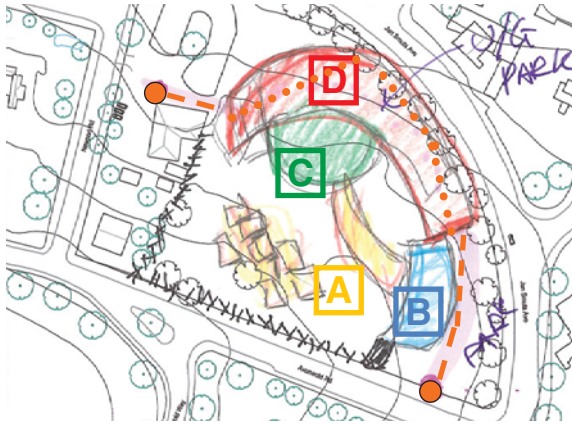


figure 133d:
Option four.



figure 133e:
Option five.

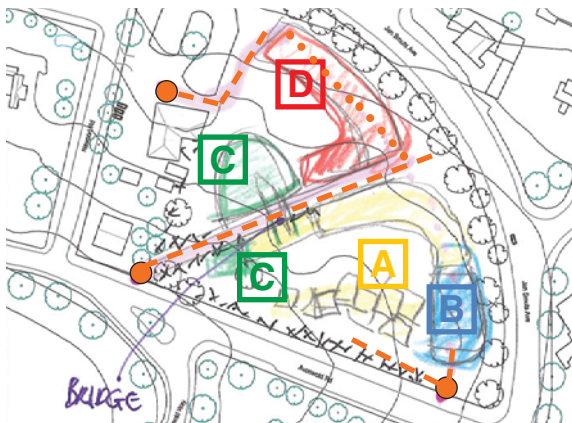


figure 133f:
Option six.



- Vehicle access ●
- Internal road - - -
- Underground parking



figure 133g:
Option seven.

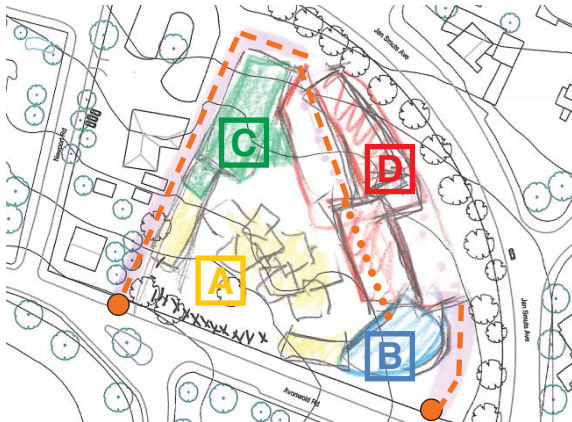
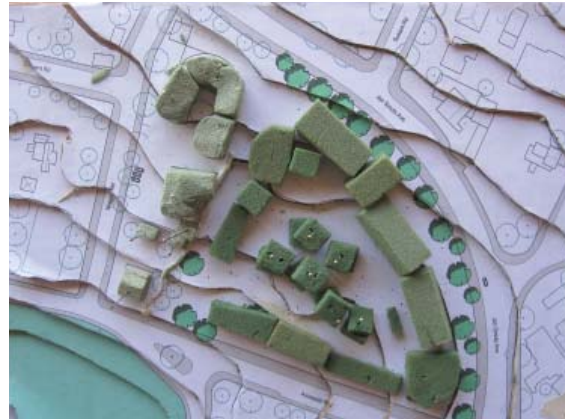


figure 133h:
Option eight.



figure 133i:
Option nine.



review 2: site & programme response



The planning layout from Review 2 created an enclosed precinct around the central play area. The children's home studio rooms (non-clinical therapy) were placed in the middle of this play area. However, the response to this sketch design was that the central area should read as a clearly defined space and the internal office's edge should be activated for the children, not just be a wall/barrier, as indicated in figure 134 below.

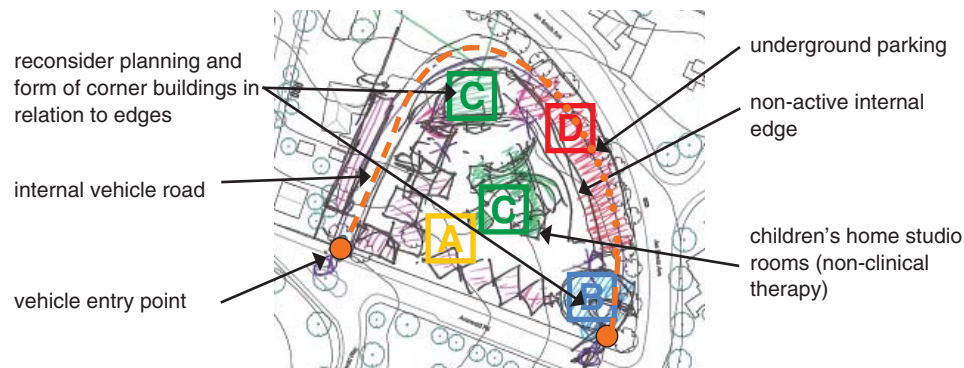


figure 134: Design approach and feedback from Review 2.



figure 135: Early process design sketches of planning before Review 2.

review 3: site & programme response



In response to the feedback from Review 2, Review 3 aimed to strengthen the clarity of the surrounding fragmented building/programme components by creating a clearly defined central open space that united the entire precinct, similarly to Piano's Parc Della Musica, as discussed on page 85. How the edges responded to this precinct internally and externally was also reconsidered in order to enhance the building's response to its specific users and uses. This concept was pursued and constantly refined up until the final design.



figure 136: Design layout approach aims for Review 3 and final design.

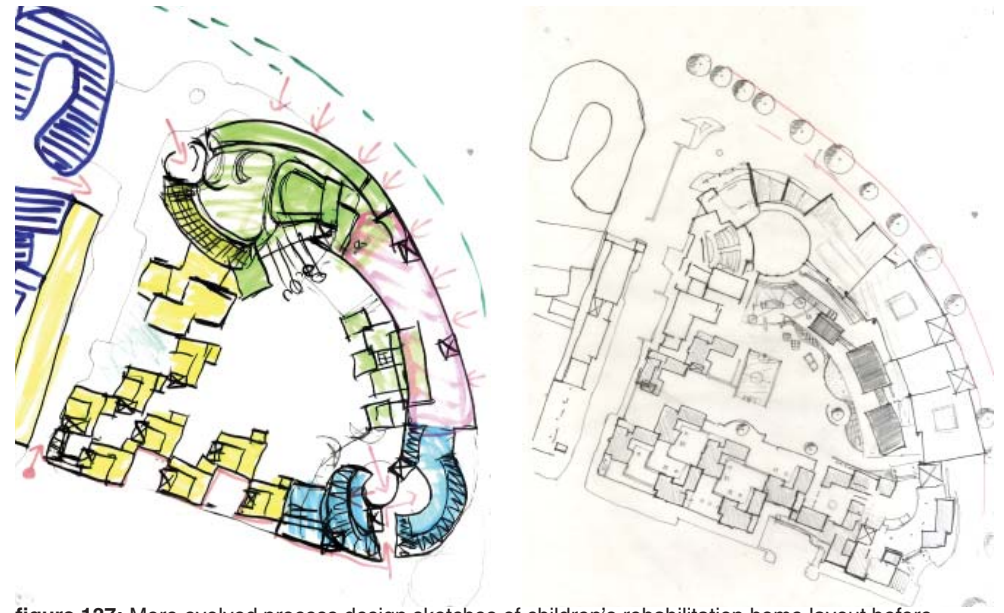
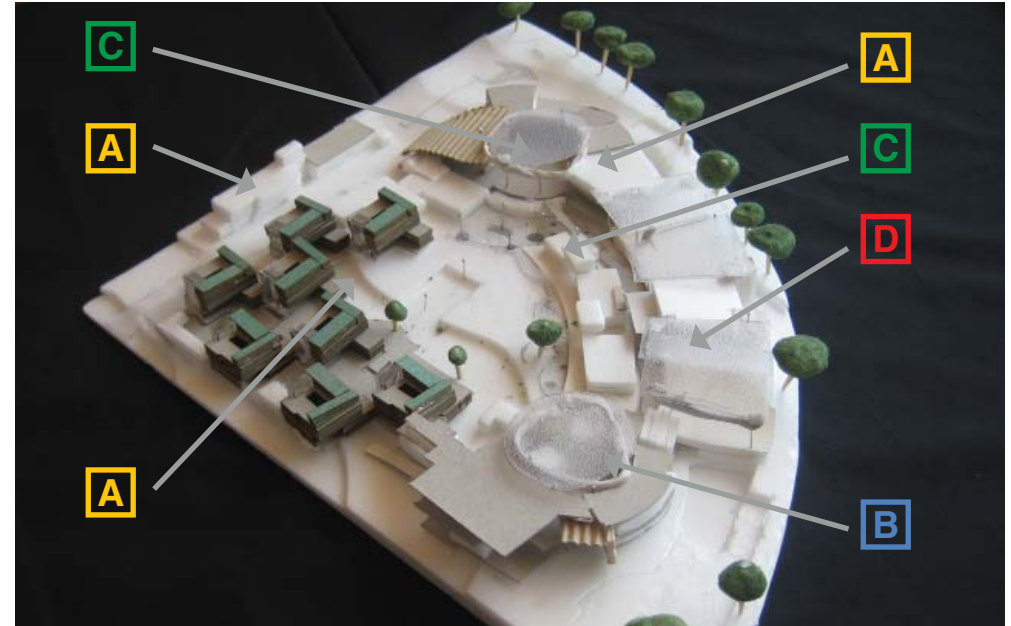
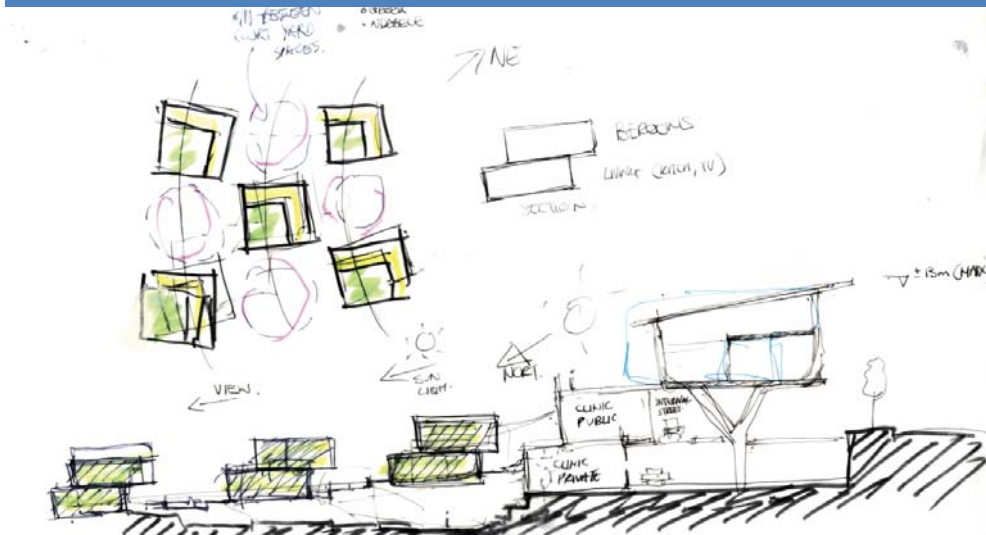


figure 137: More evolved process design sketches of children's rehabilitation home layout before Review 3.

developing design concepts: sketch design



Review 2 was the first sketch design presented to a jury in July, 2012.

The pages that follow illustrate process sketches as well as the first sketch design presented at Review 2.

In the design approach, the main concept of creating a "small city"/polycentric layout design was constantly being refined. There was a lot of exploration and experimentation in terms of form and layout combination, which was constantly being re-evaluated and critiqued. These lessons and feedback sessions further developed my design understanding and approach, which led to the final result.

In terms of the polycentric planning, the relationship diagram in figure 138 below was constantly kept in mind.

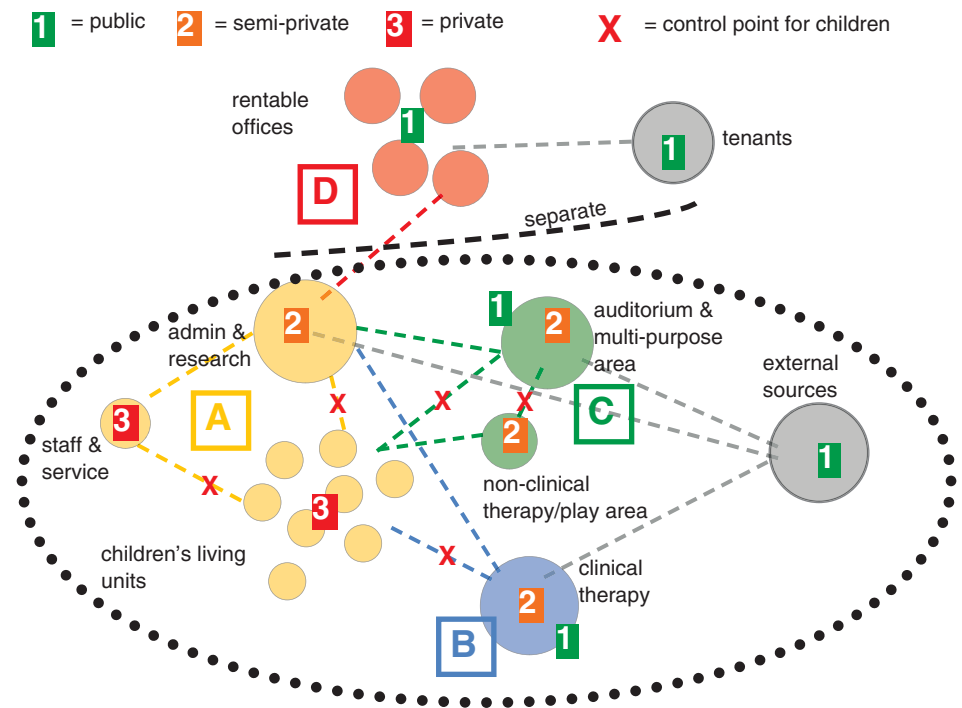
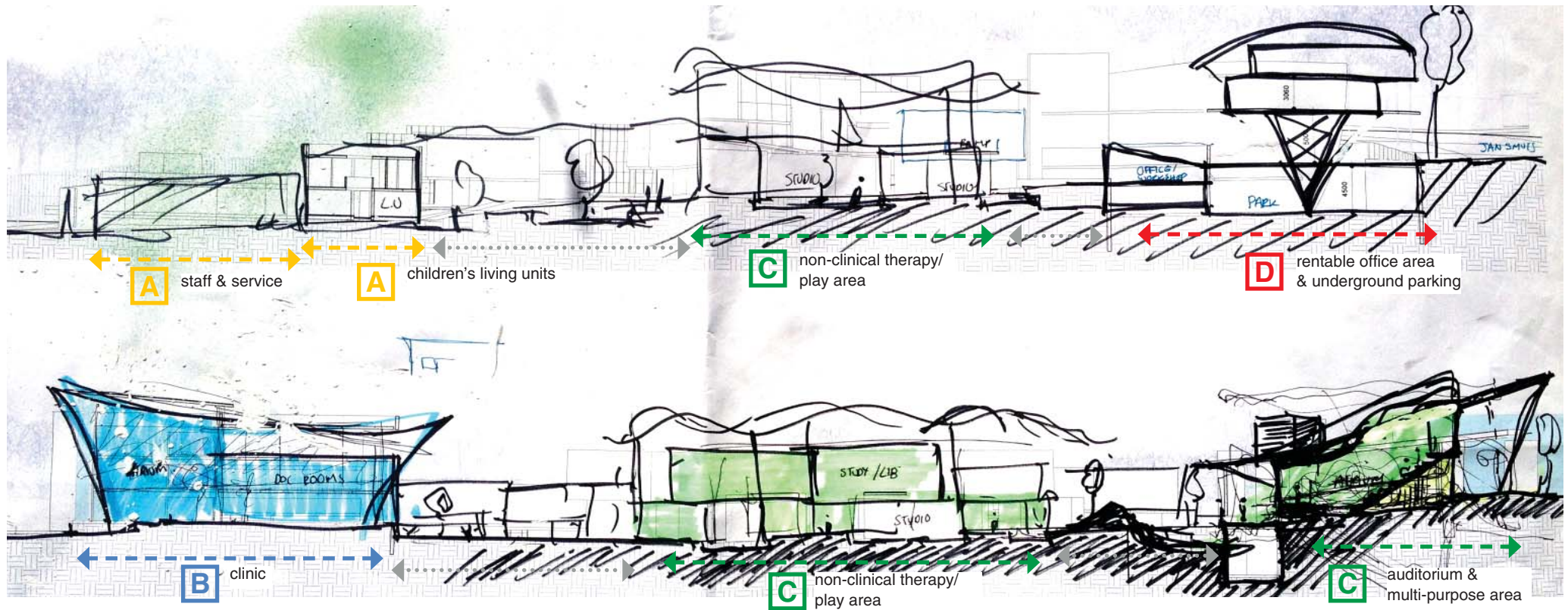
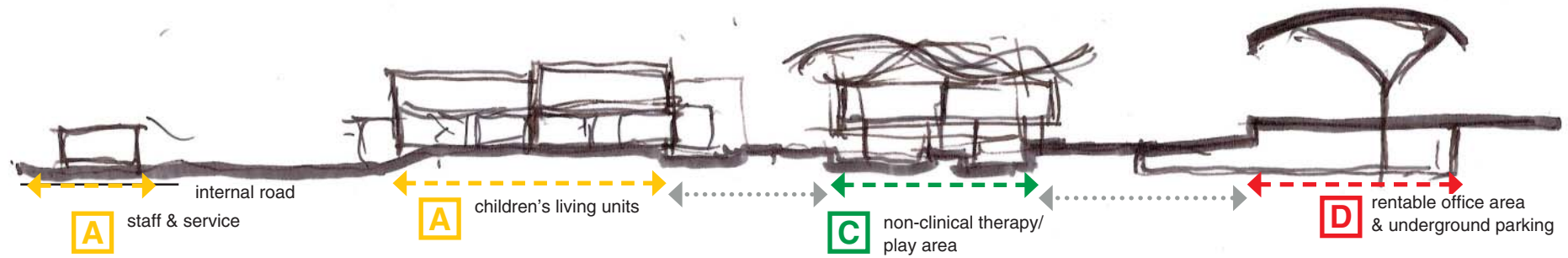
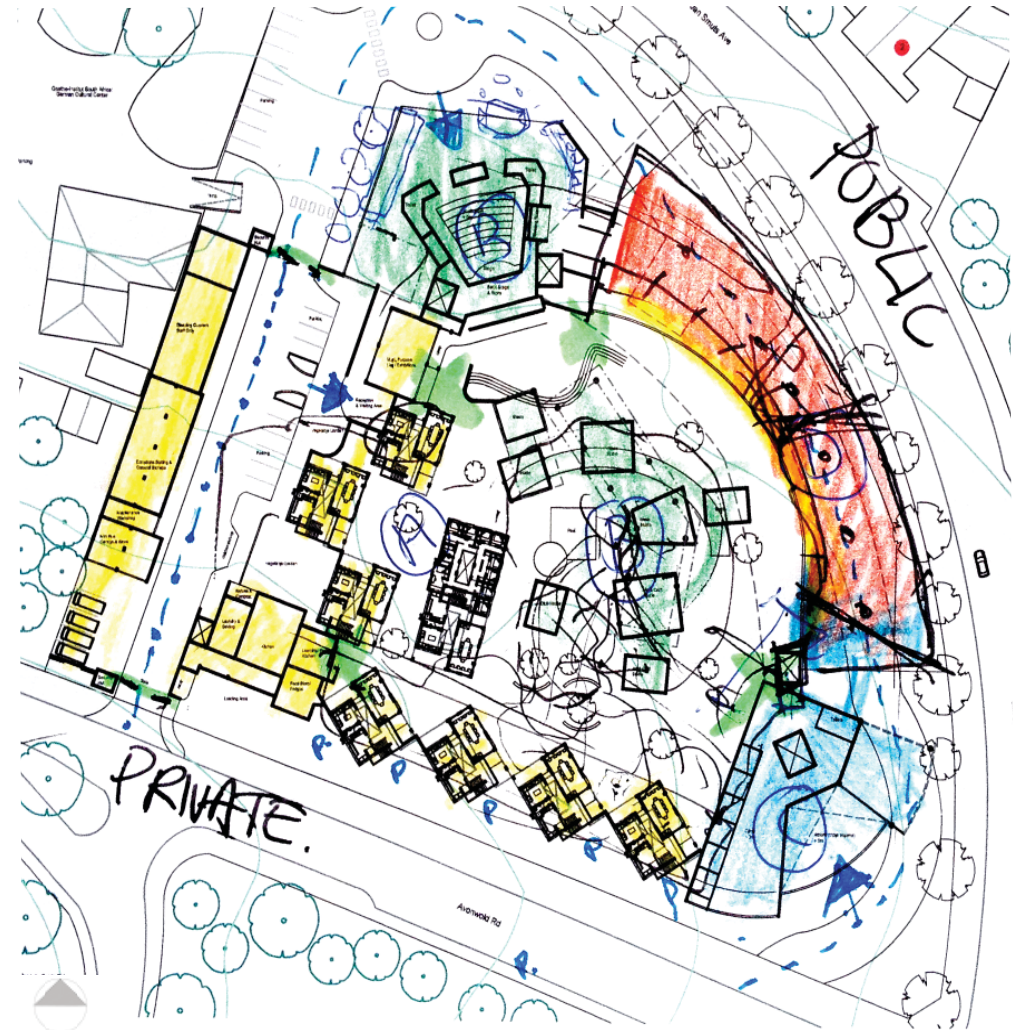


figure 138: Polycentric diagram structure used to refine the design layout.



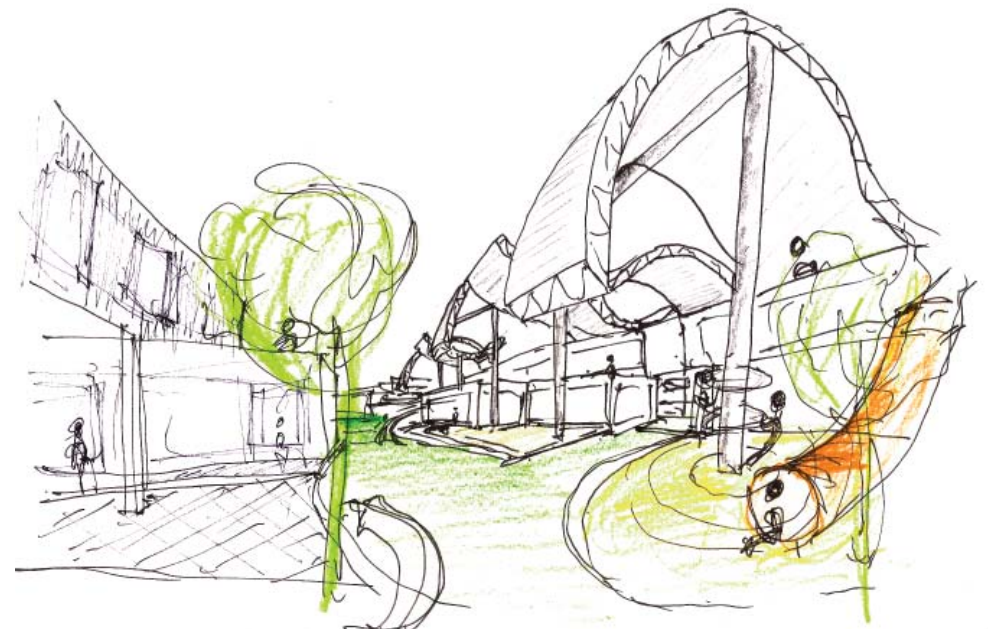




children's living units & play area



site plan



children's play area & studios (non-clinical therapy)

C
auditorium &
multi-purpose area

A
administration &
research

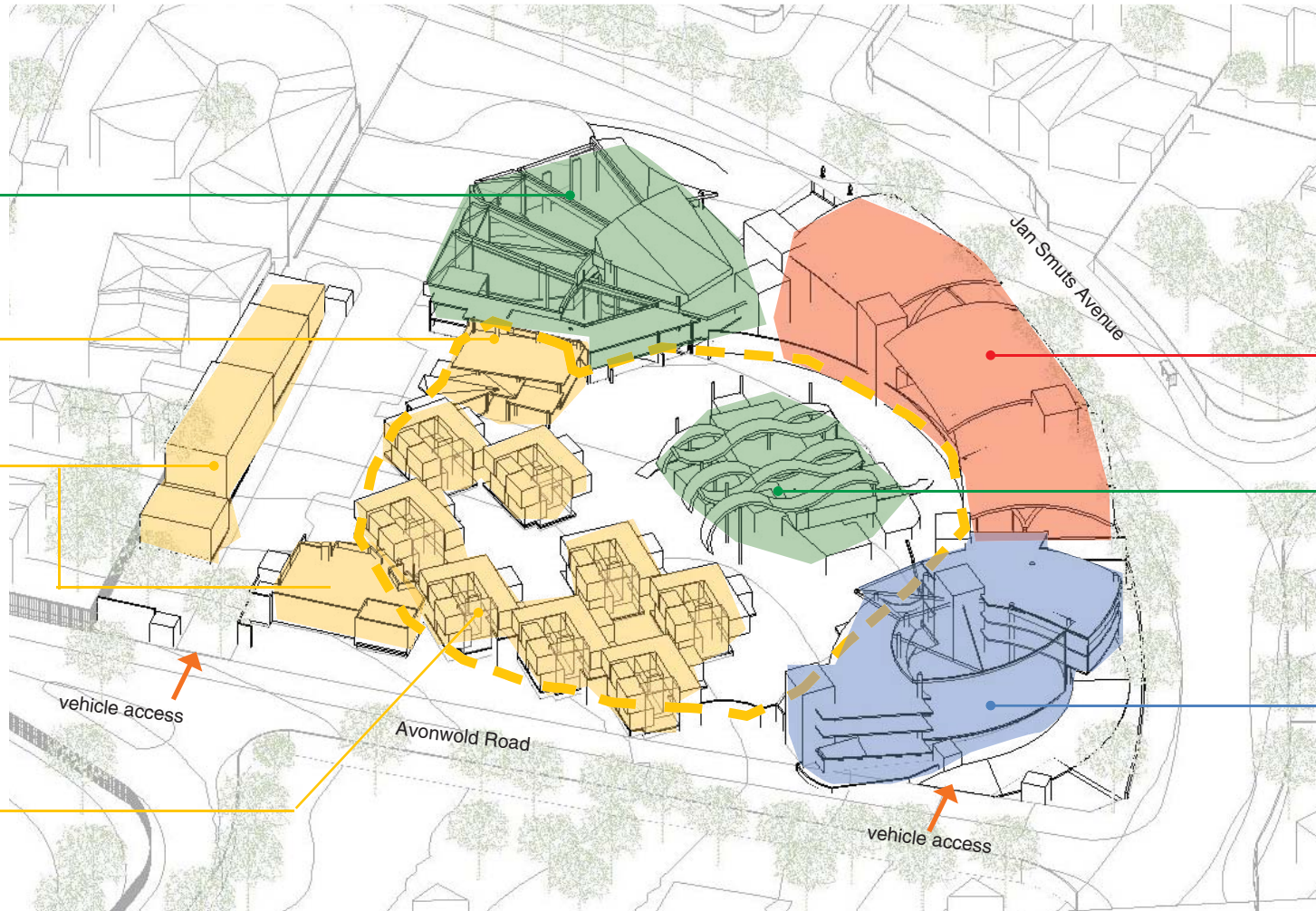
A
staff & service

A
children's living units

D
rentable office area
& underground parking

C
non-clinical therapy/
play area

B
clinic



programme components & relationships



- children's home
- clinical therapy: doctor's & therapists
- non-clinical therapy: studios
- rental income component: rentable offices

vehicular circulation & access



- internal vehicle road
- basement vehicle road
- loading/delivery: children's home
- loading/delivery
- basement parking
- other general parking

public, semi-private & private



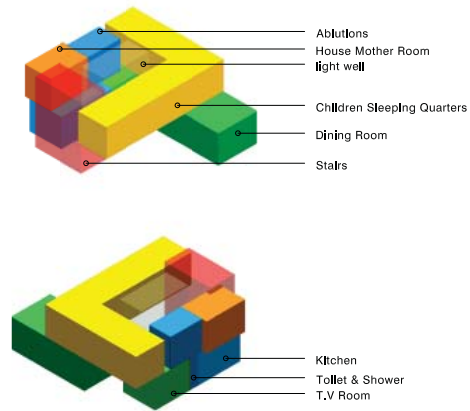
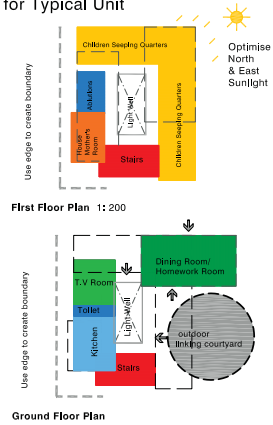
- public
- semi-public
- private
- pedestrian entrance public
- pedestrian entrance private

the children's home component A



- children's home living units
- staff quarters & service facilities
- admin & research offices: children's home
- control points for children
- play/children's safe zone
- vehicle control
- children vehicle pick-up

Programme for Typical Unit



Connection Patterns



Outside: create wall with service spaces face onto public road

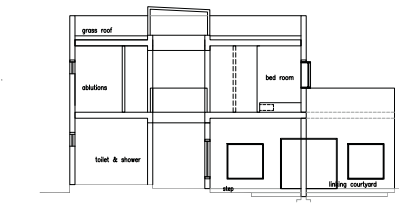
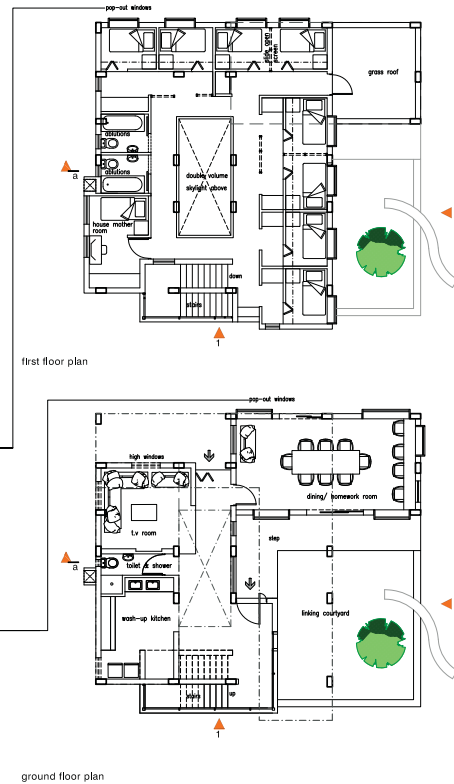
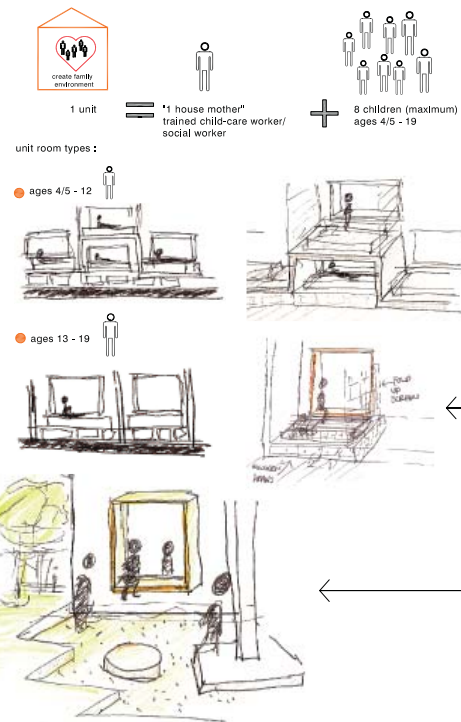


Inside: allow for interaction/ create courtyard space

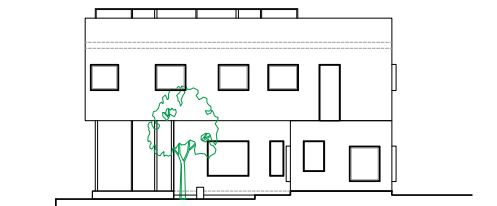
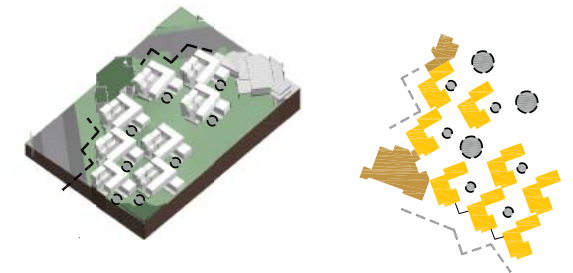


Children's Living Unit

How Children Living Unit work

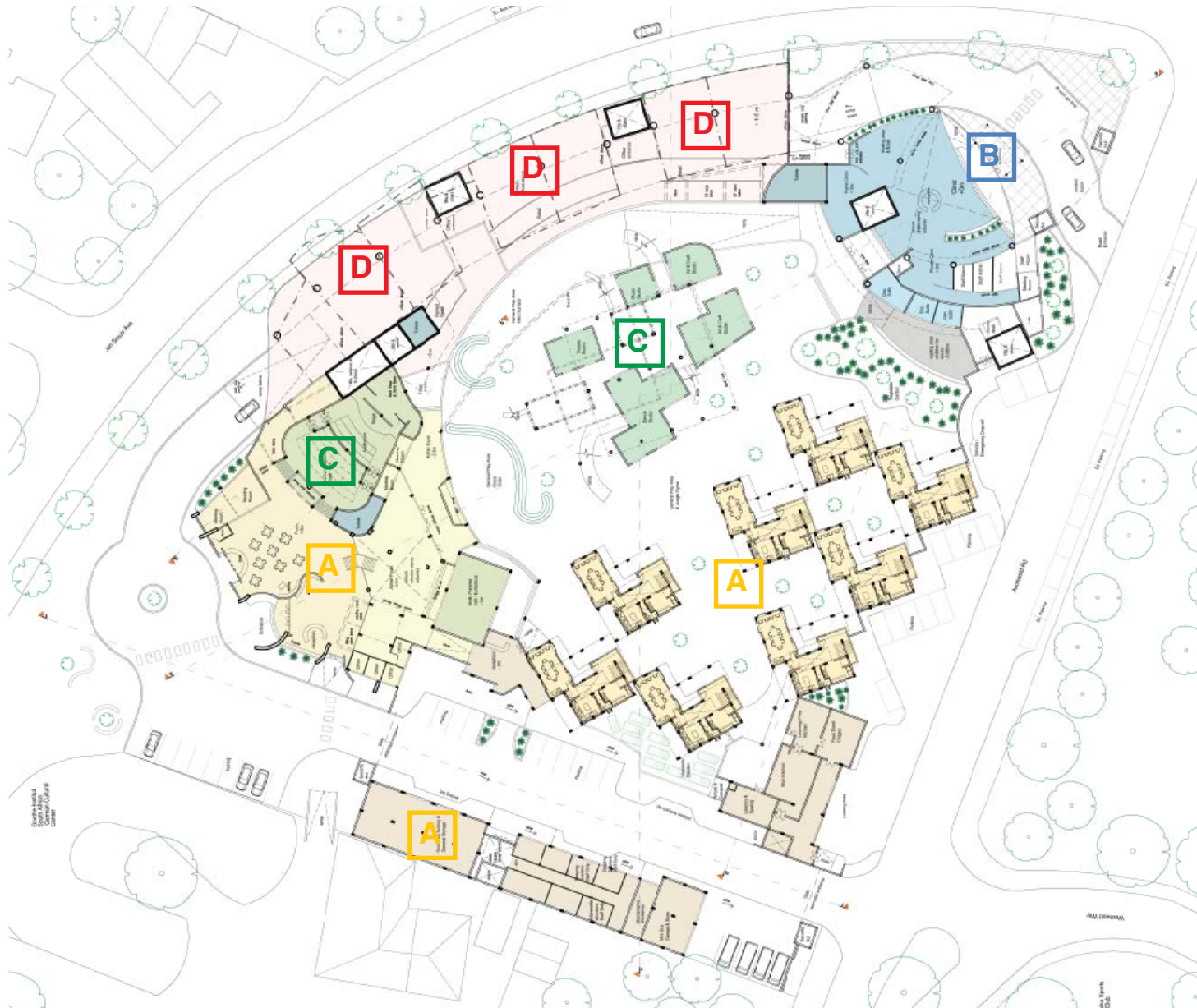


elevation 1

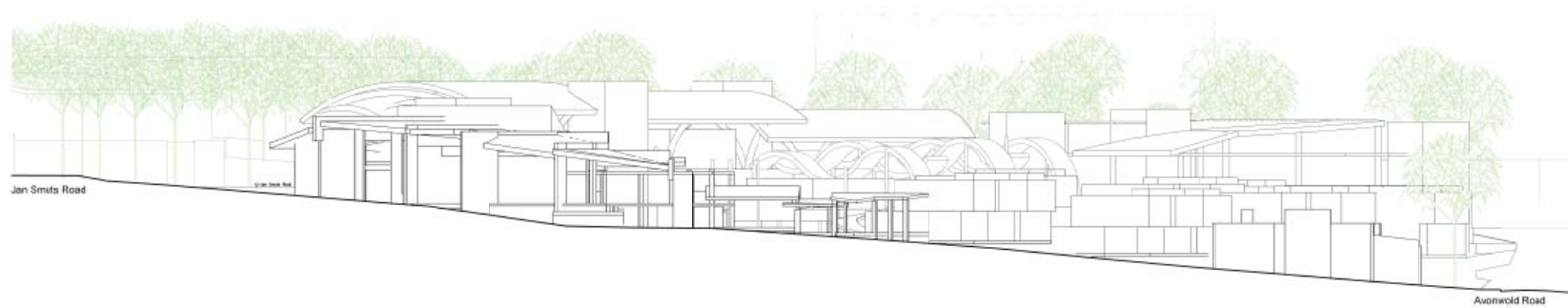
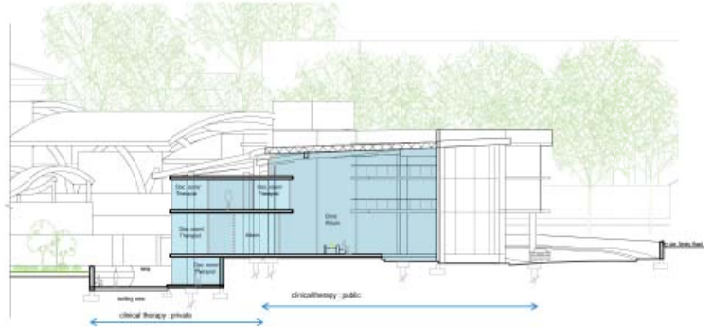


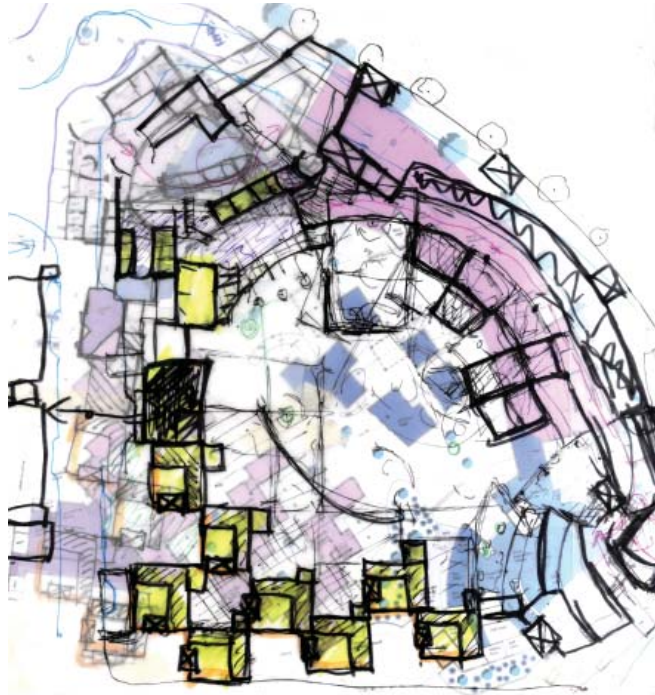
elevation 1

children's home: living units (in progress)

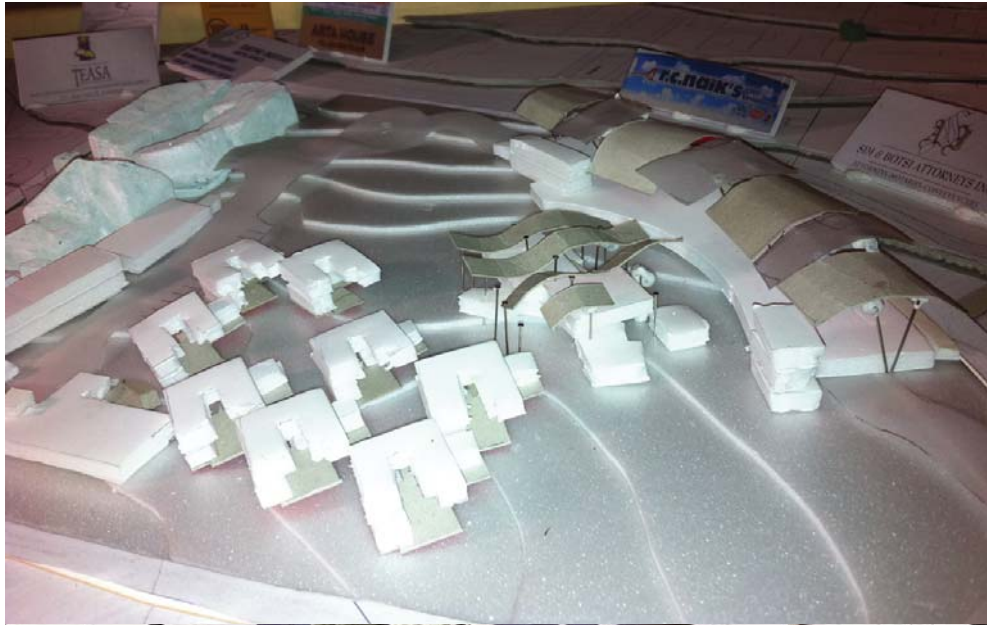


ground floor plan 1: 1000





study models



review 2: presentation model

refining the design



Review 3 was a further refinement of the design scheme and incorporated feedback from the sketch design presented in Review 2. Keeping with the main concept of the polycentric layout, the main objective was to strengthen the unity of the clustered form of this precinct by clarifying the central open space, as mentioned previously.

Furthermore, concerns were raised about the two corner buildings/nodes on the site, namely the clinic and auditorium/administration node. The comments indicated that these two nodes are important because they serve public as well as private programmes. Figure 139 below is a diagram of programme placement in relation to public and private design zoning requirements, which was used as a base concept layout for design refinement.

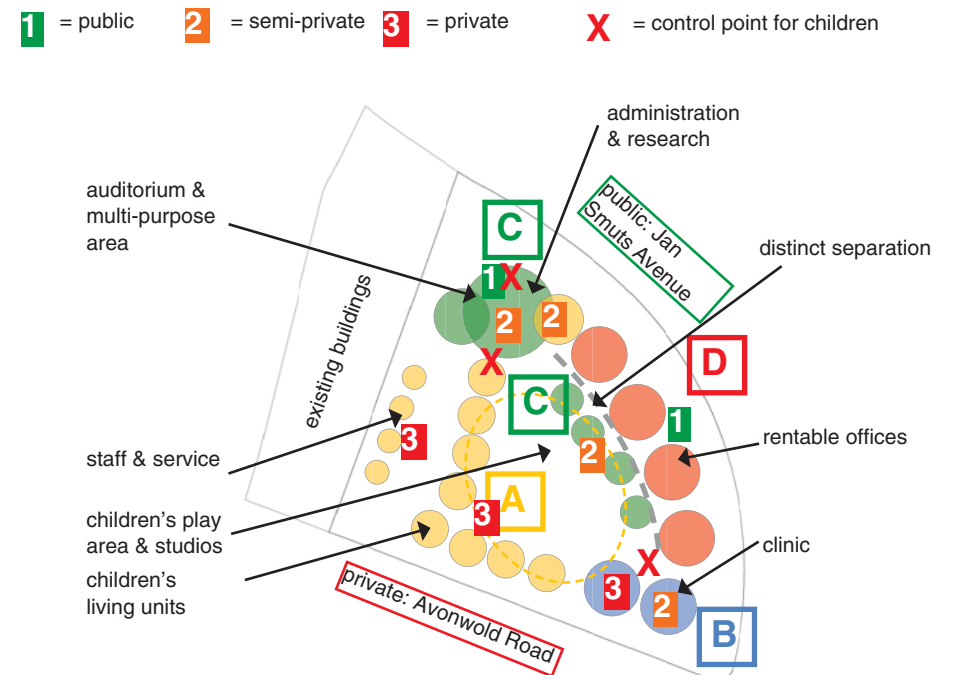
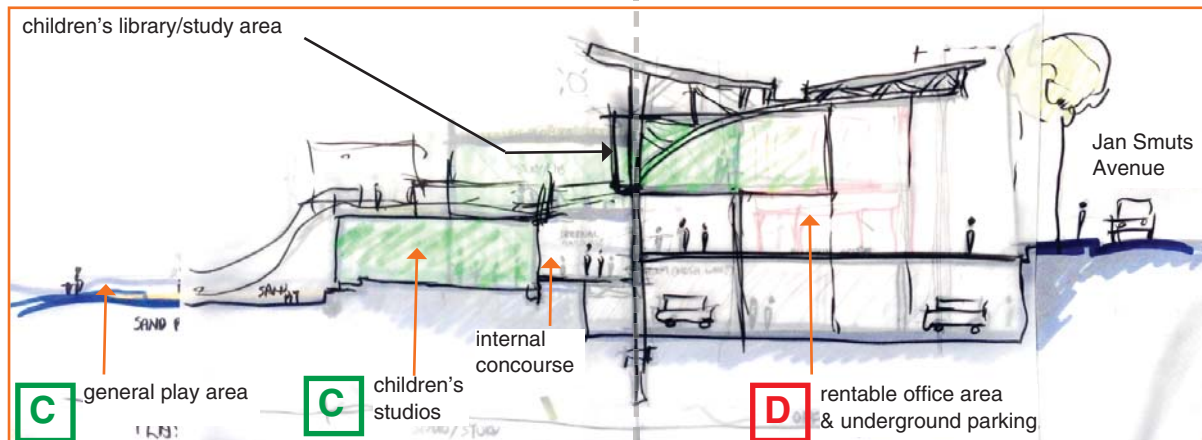
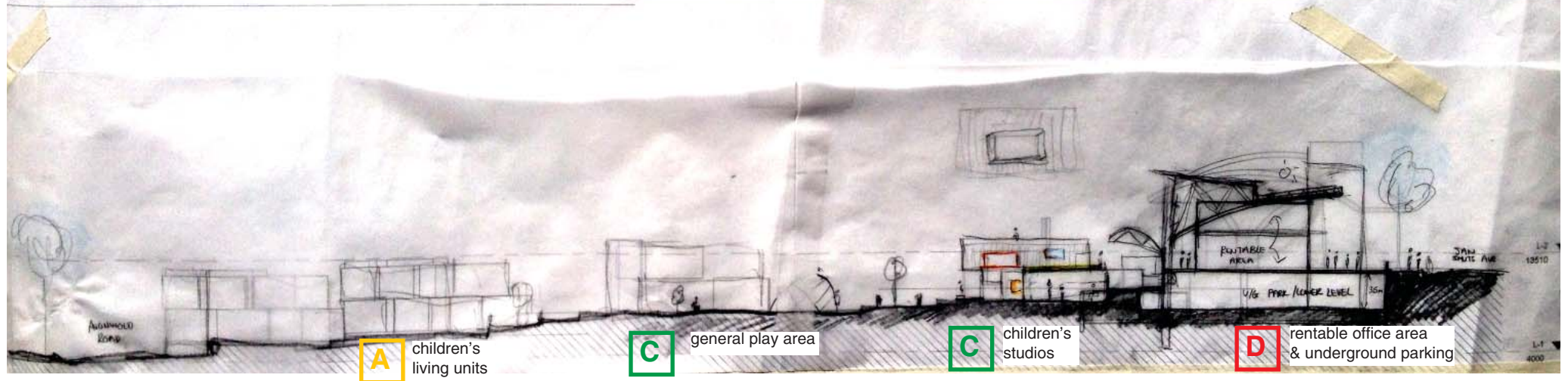
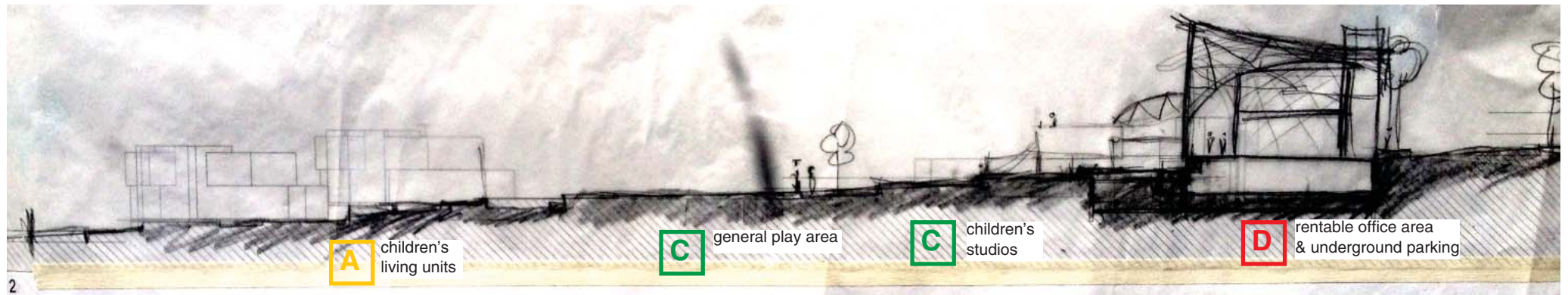
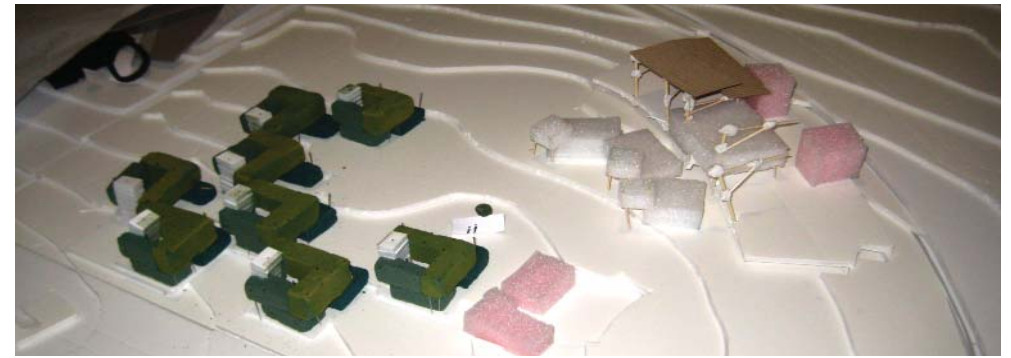
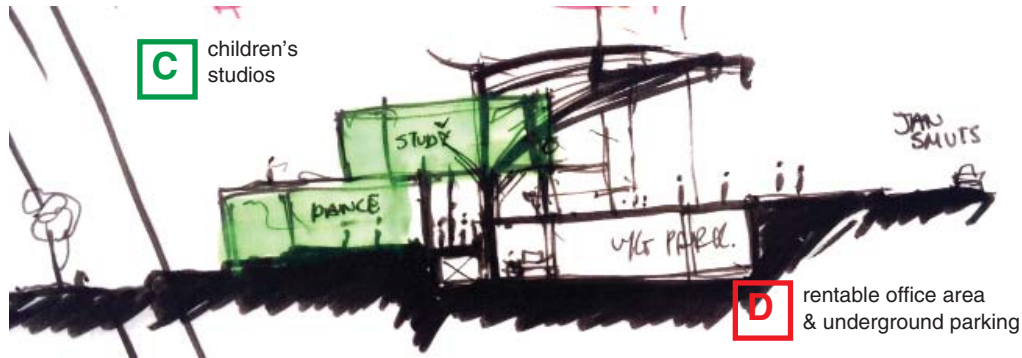


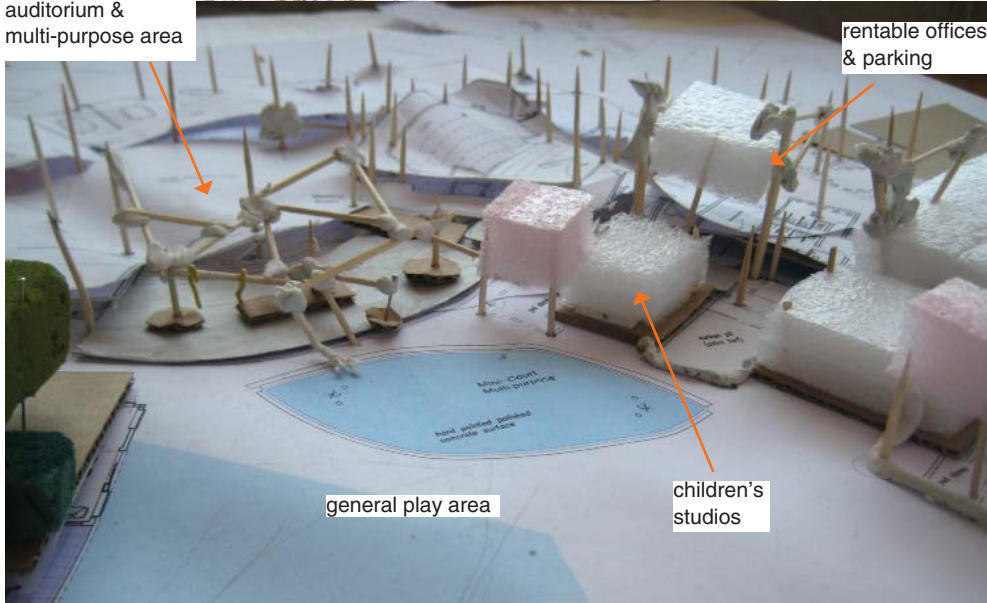
figure 139: Programme placement in relation to public and private zoning requirements.







auditorium & multi-purpose area

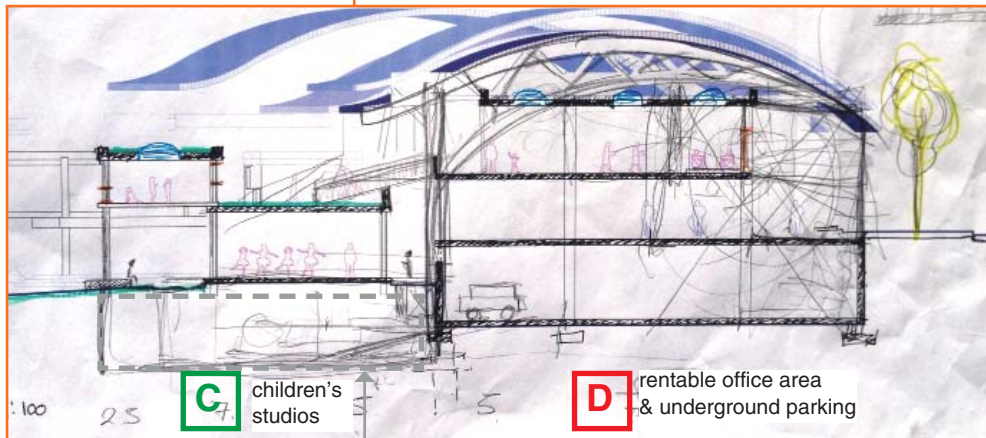
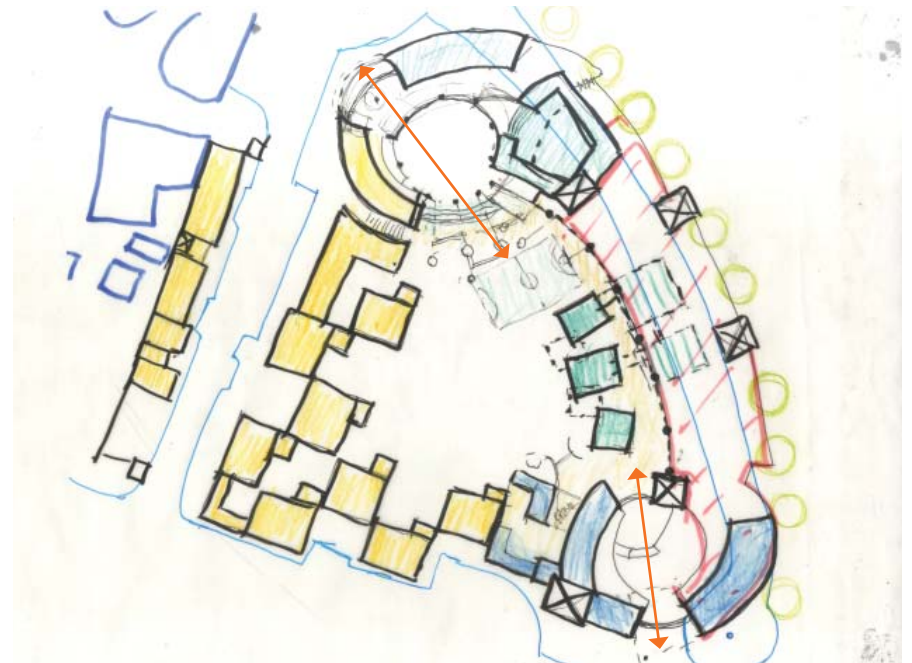
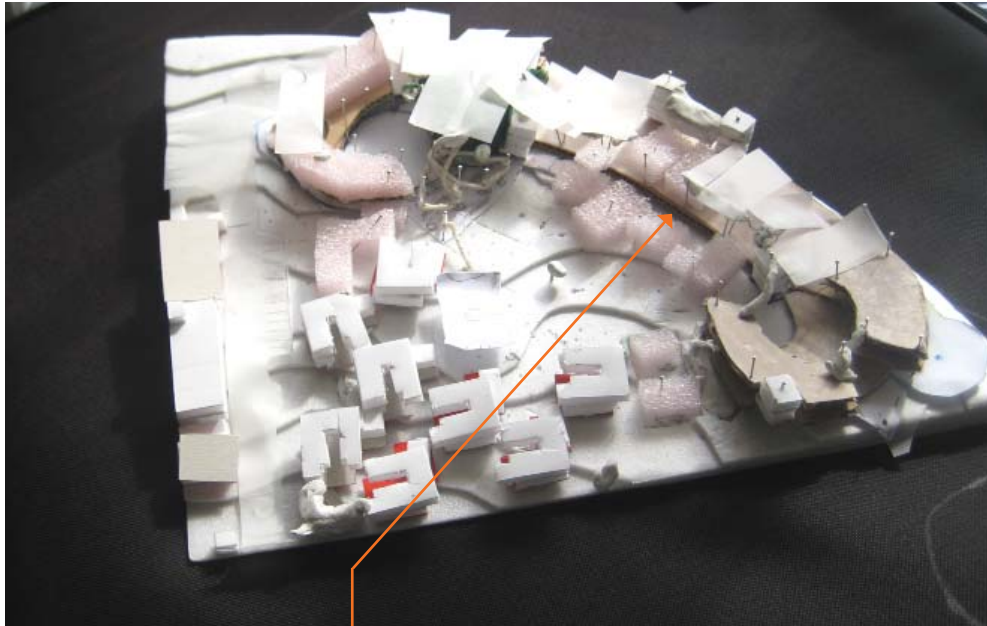


rentable offices & parking

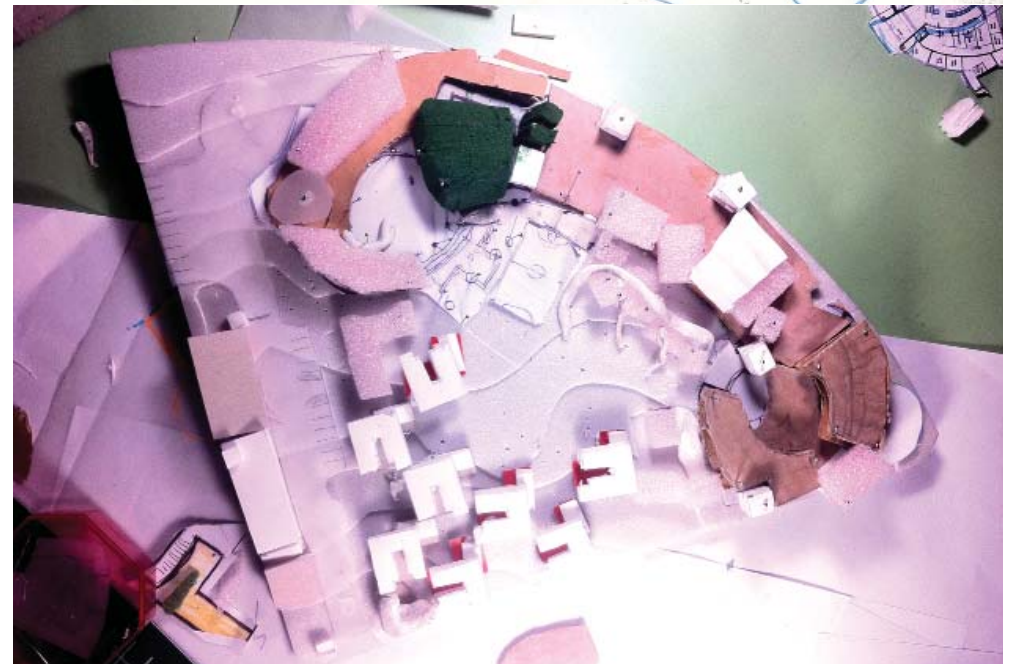
general play area

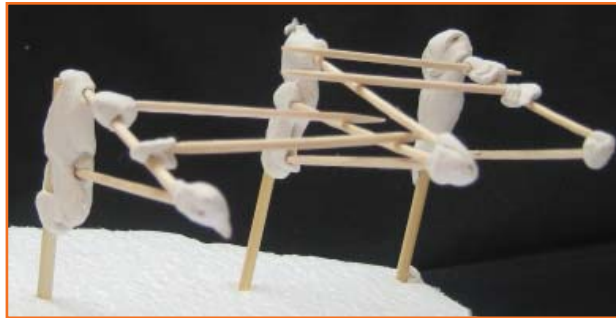
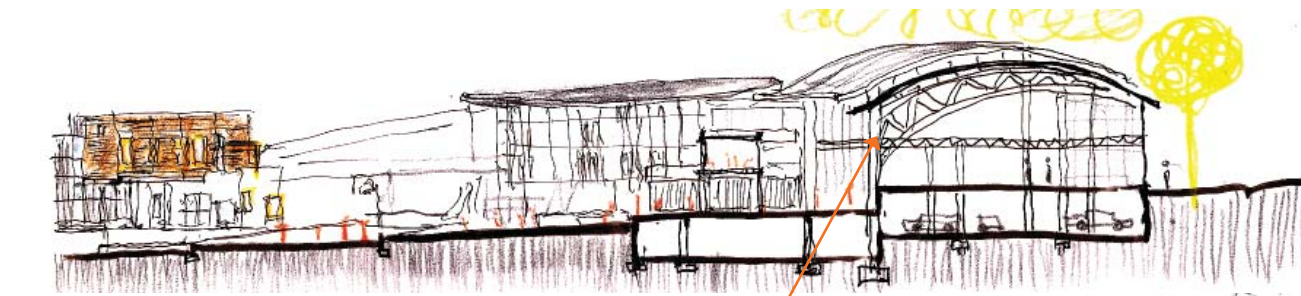
children's studios



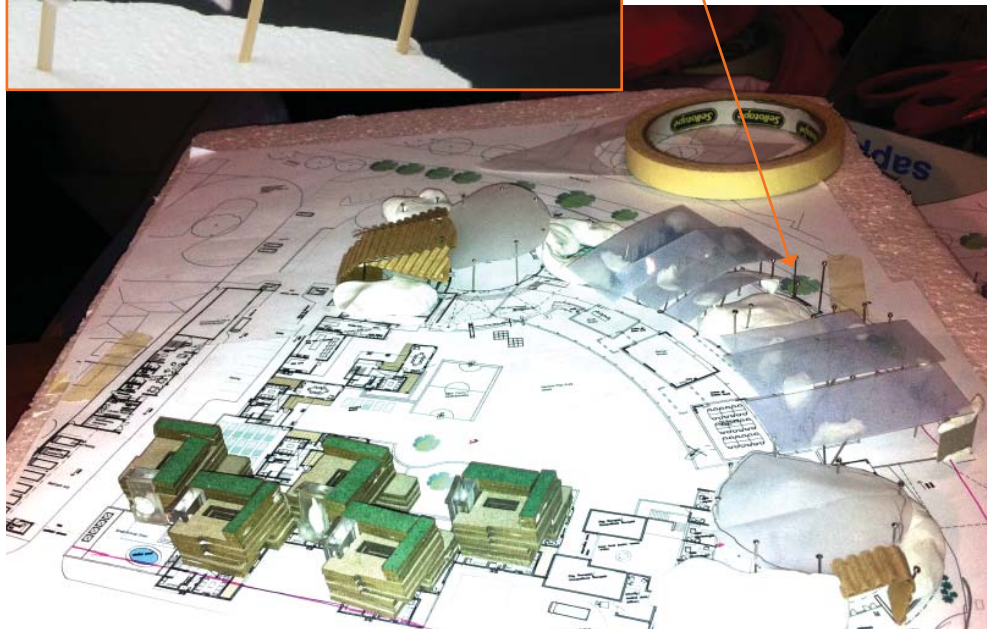


more parking needed as per requirements;
basement parking extended

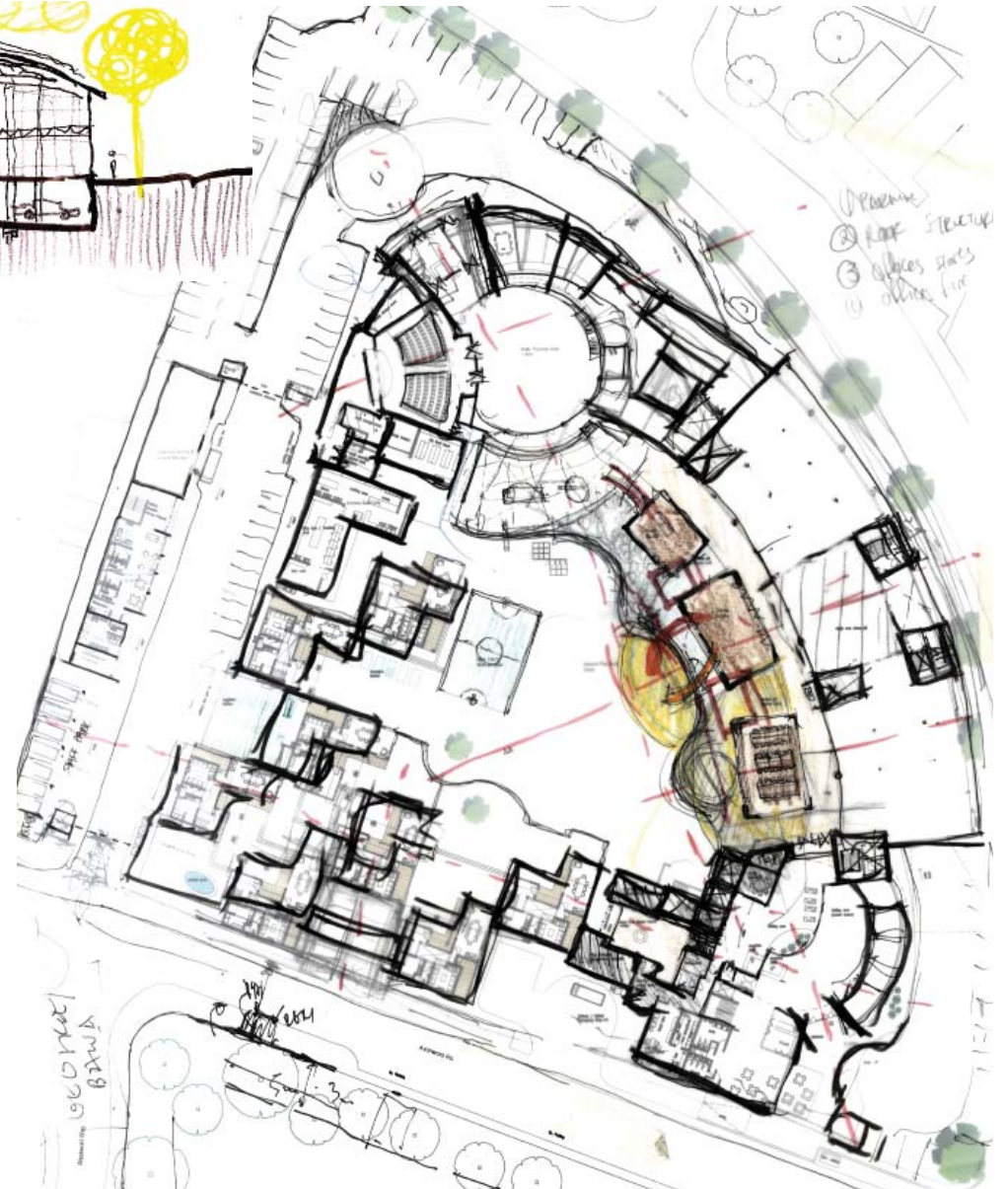




concept model for stepping
steel structure roof for
rentable office area



Roof concept model



Sketch of plan for Review 3



children's living units



children's internal play area

Goethe-institut
South Africa

A

staff & service

existing
residential house

A

children's living units

Zoo Lake Sports Club

C

auditorium &
multi-purpose area

A

administration &
research

D

rentable office area &
underground parking

C

non-clinical therapy/
play area

B

clinic

vehicle access

Avonwold Road

Jan Smuts Avenue



axonometric

Roof material key:

Opaque polycarbonate roof with steel substructure



Metal roof sheeting



Flat concrete roof with gravel cover



Flat green (grass) roof



 site plan



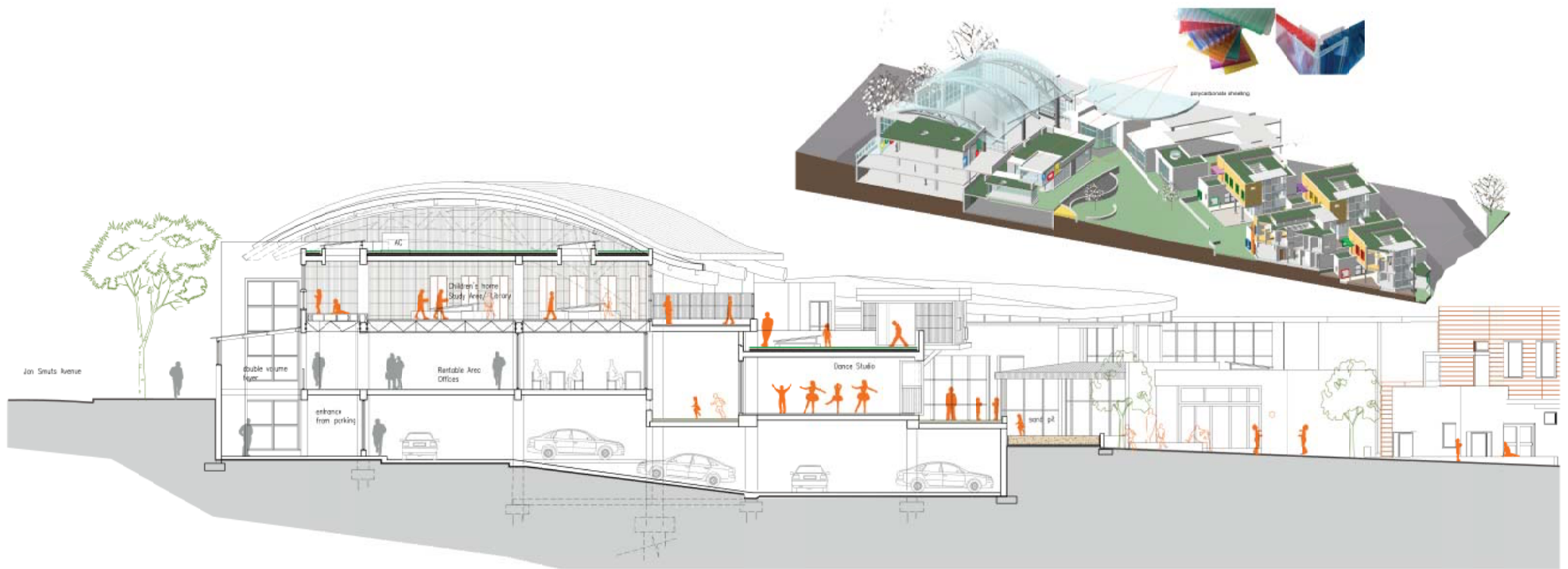
 basement plan 1: 1000



◀ ground floor plan 1: 1000



first floor plan 1: 1000



detail section n.t.s



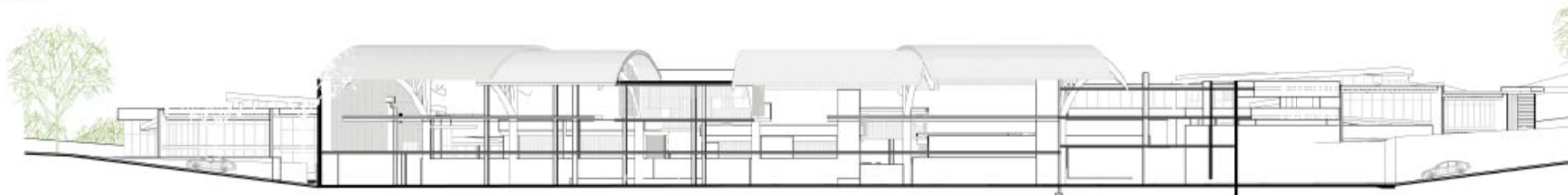
section b



section c

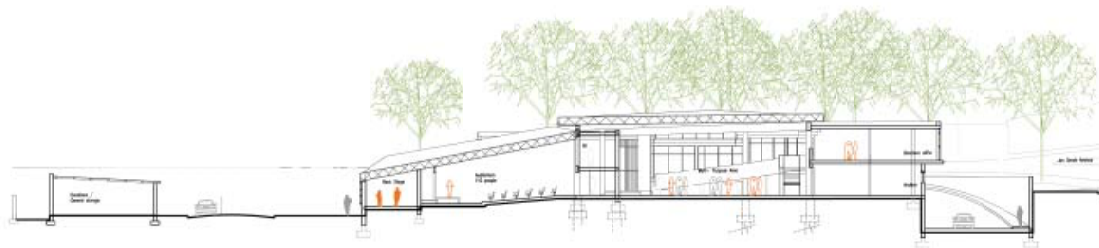


section d



section e

sections n.t.s



section f



Stepping Stones Children's Home: Multi-Purpose Area



Stepping Stones Children's Home: Internal play area

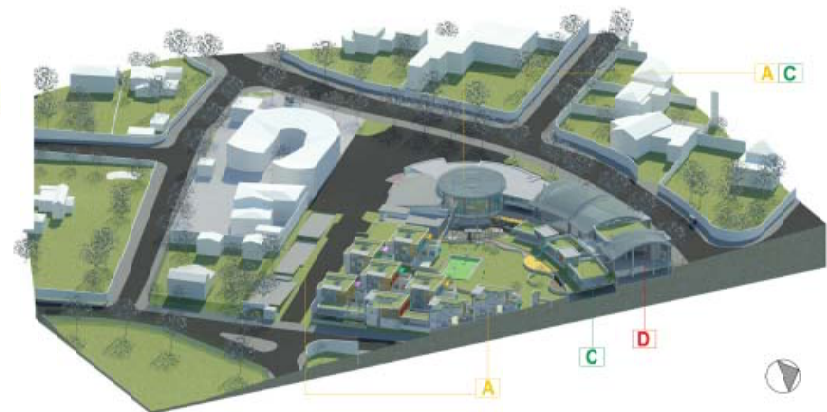


section g



Stepping Stones Rehabilitation Home programme

- A Children's home: administration & research block
- B Clinical therapy: therapists & doctors
- C Non-clinical therapy
- D Rentable area (income from home)





Specialised Trauma Clinic **B**
Jan Smuts Avenue elevation (business facade) 1:200



Rentable Office & Children's Home Library **D**



Stepping Stones Rehabilitation Home Entrance **A C**



Jan Smuts Avenue: Clinic/ Doctor Rooms



Jan Smuts Avenue: Stepping Stones Children's Home Admin / Main Entrance



Avonwold Road: Children's Home Vehicle Entrance



Jan Smuts Avenue: Rentable Office Area / Children's Home Library

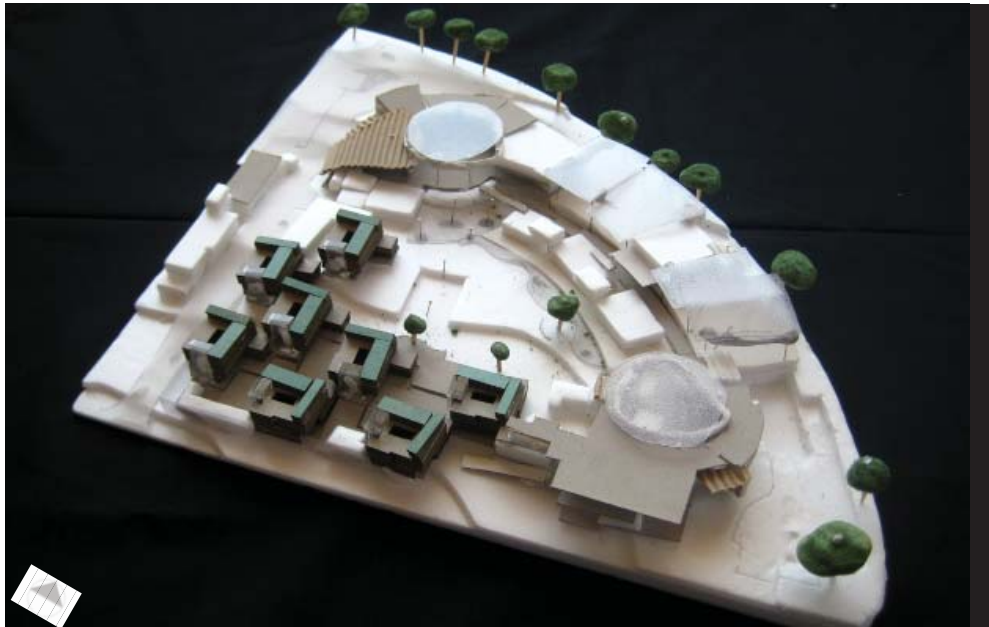


Avonwold Road elevation (children's home facade) 1:200

elevations n.t.s



Concept model for stepping steel structure roof for the rentable office area



review 3: presentation model



review 3: presentation model

points to resolve for the final design



After feedback from Review 3, the aim for the final design was to work on the following:

- consistent design language (material and forms)
- clarifying and unifying clustered form (form, proportion, junctions) in relation to central open space in plan (fig. 141)
- elevation treatment relative to function and edge conditions of the building – all with respect to architectural language (fig. 140).

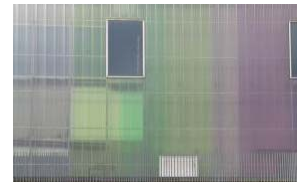


figure 140a: Glass and polycarbonate sheets.



figure 140b: Timber (saligna/pine).



figure 140c: Colourful aluminium pop-out windows.



figure 141: Sketches showing how materials that were used in children's living units were reinterpreted to create an architectural language for each project component.



figure 142a: Plan sketch for final design.

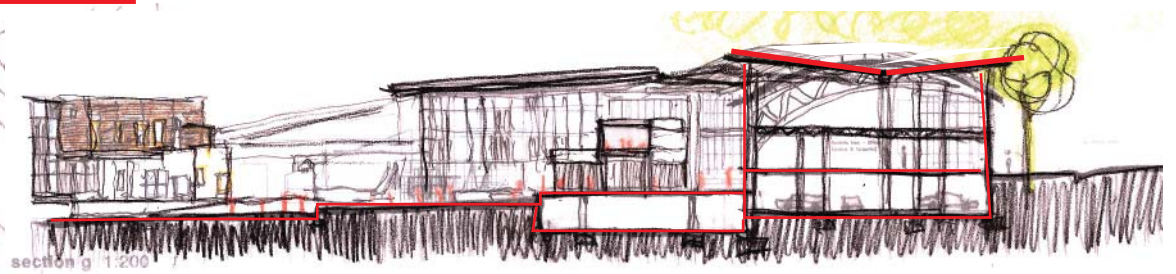


figure 142b: Process section sketch for final design, continuing the orthogonal language of children's living units.

The sketches on this page (fig. 142) were the first initiatives taken to enhance the design for the final examination.



figure 142c: Initial process plan sketch for final design.

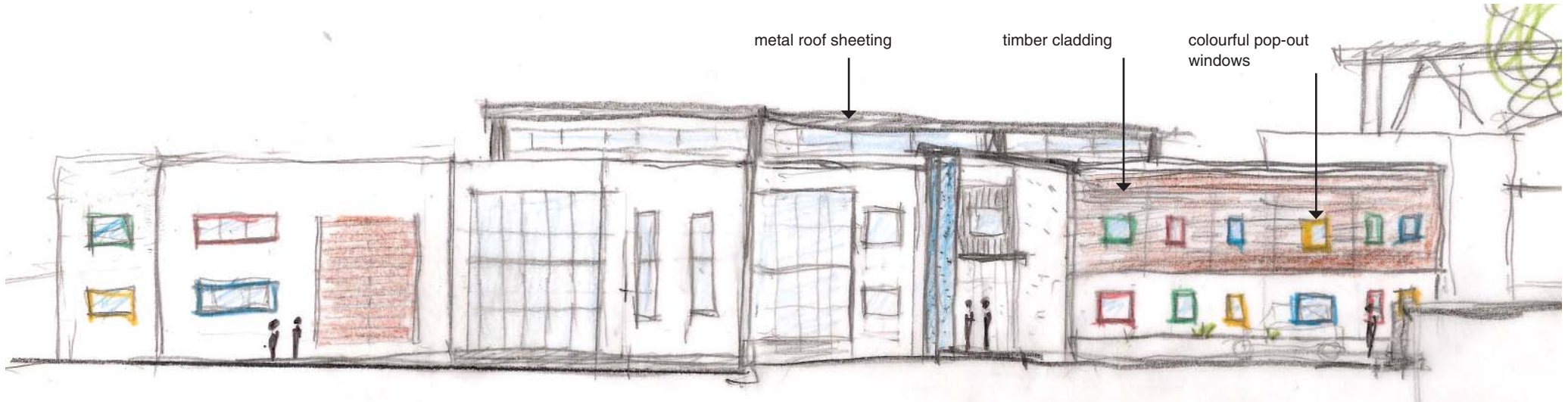


ground floor plan 1: 1000

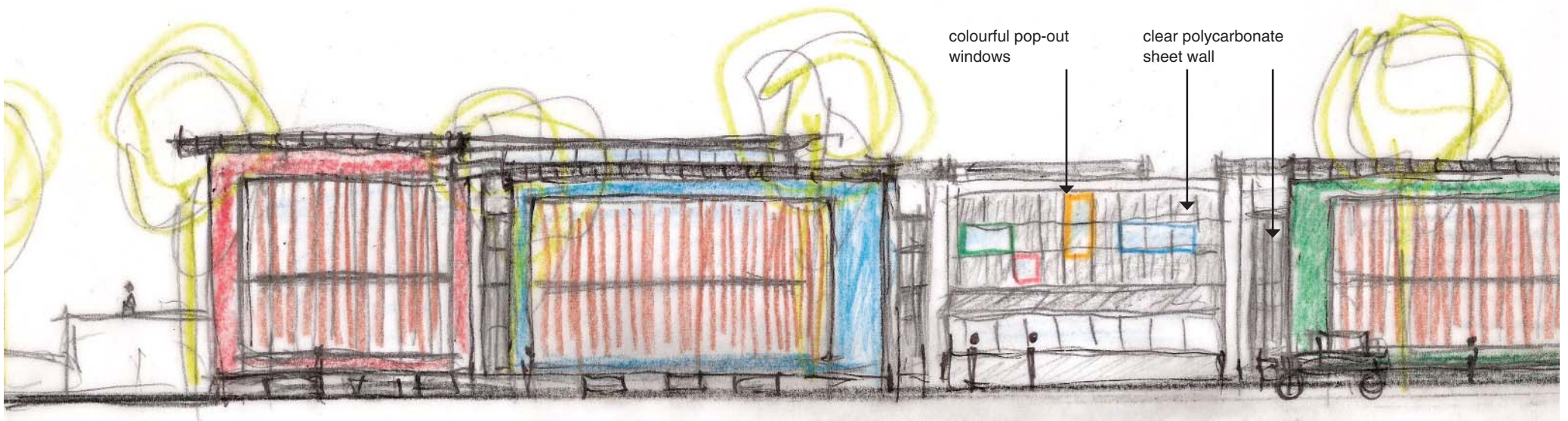


143





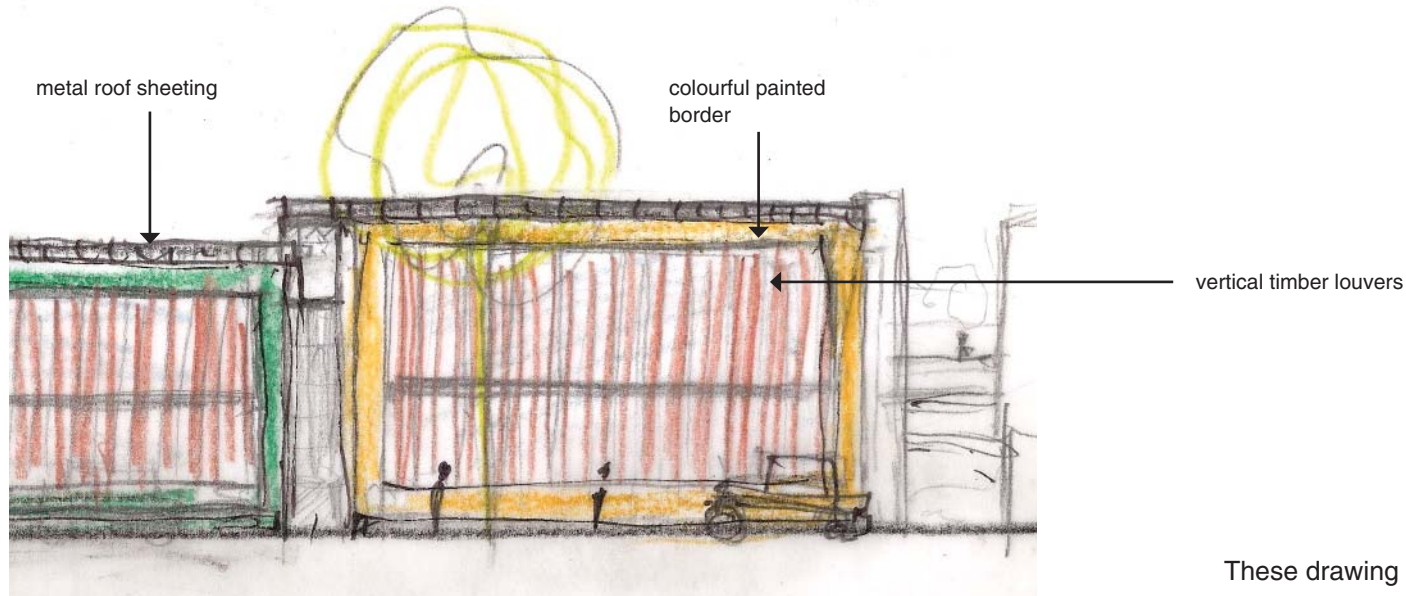
Jan Smuts Avenue: clinic 1: 200



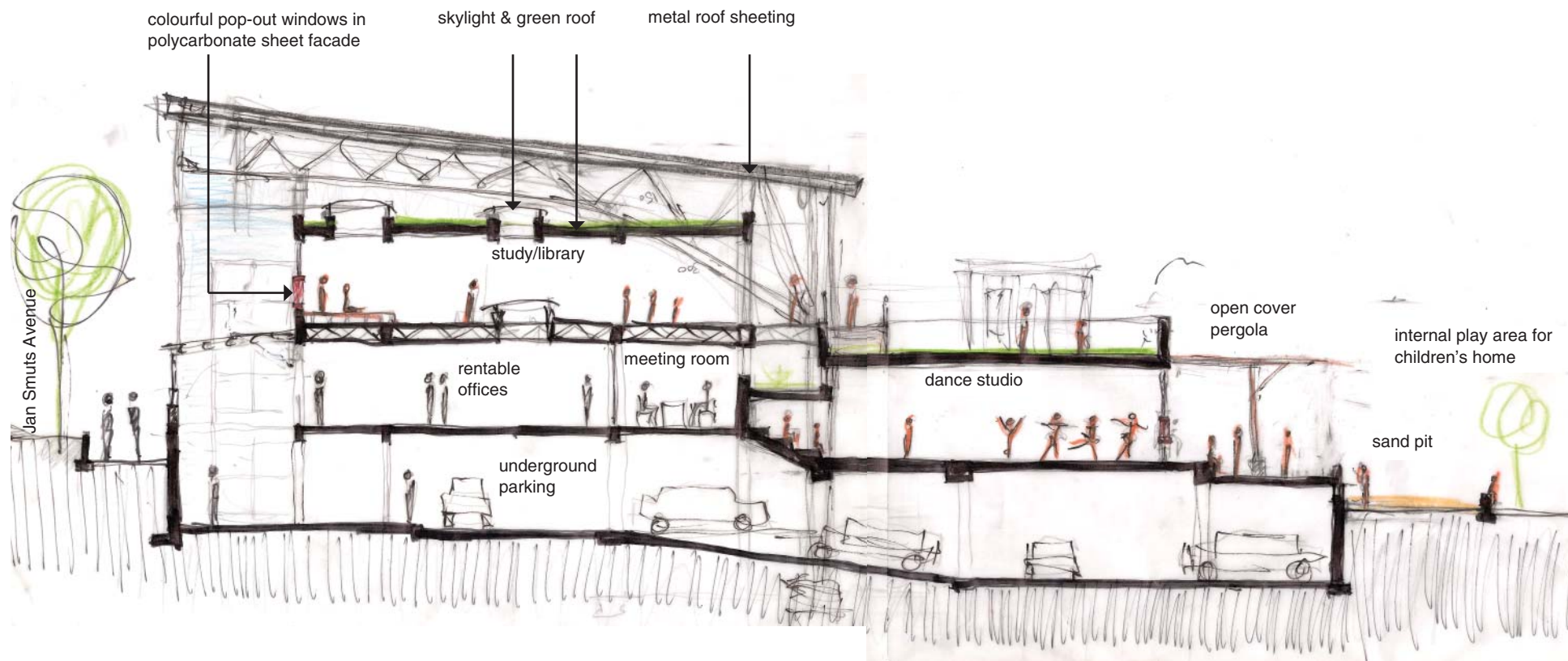
Jan Smuts Avenue: rentable offices 1: 200



Jan Smuts Avenue – children's home administration & auditorium entrance 1: 200



These drawing designs are the elevations facing Jan Smuts Avenue that will be worked towards for the final design.



section a 1: 200

chapter 7:

building technology

main detail section

page 149

child friendly facade & pop-out windows

page 155

green roof & skylight

page 161

steel structure

page 166

main detail section



The building technology explored in this chapter is a main detail section that focuses on the buildings and materials used along Jan Smuts Avenue. This section is indicated on the plan on the next page.

The buildings that face onto Jan Smuts Avenue are the rentable offices and underground parking for public use. On the internal edge of the buildings, the facade relates to the children's rehabilitation home (fig.143). The children's studio spaces were placed along this internal edge in order to give this edge back to the rehabilitative children's home to use, instead of being a plain barrier. There is also a library/study room that intersects into the rentable office area on a higher level, interweaving the two edge conditions. These studio spaces on the lower level/ ground floor house the dancing, arts and crafts, etc. for the non-clinical therapy. The main section cuts through the dance studio, which has technological requirements for the floor (fig. 143). The importance of the section lies in the collaboration of public and private programmes and users, as well as the building technology needed to combine all the functional requirements.

From a servicing aspect it was also found to be more efficient to have these buildings close together, creating a single unified building edge.

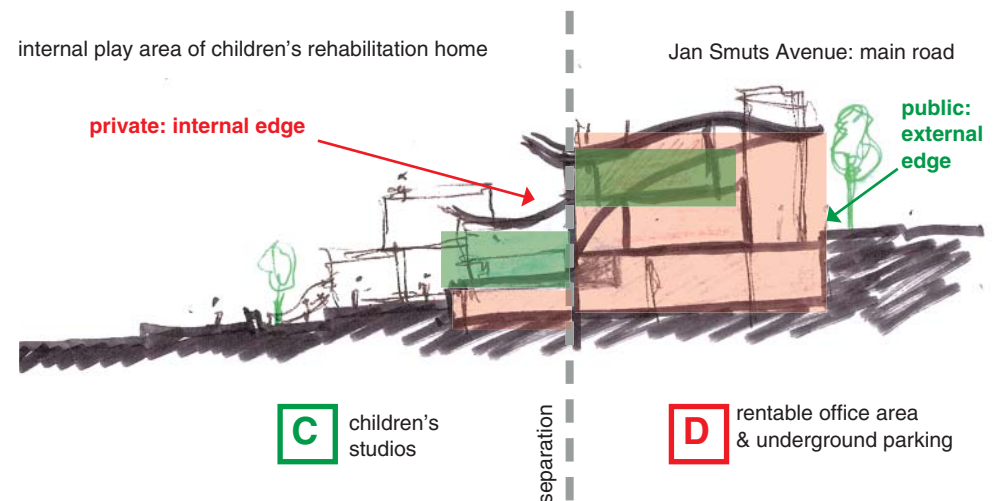
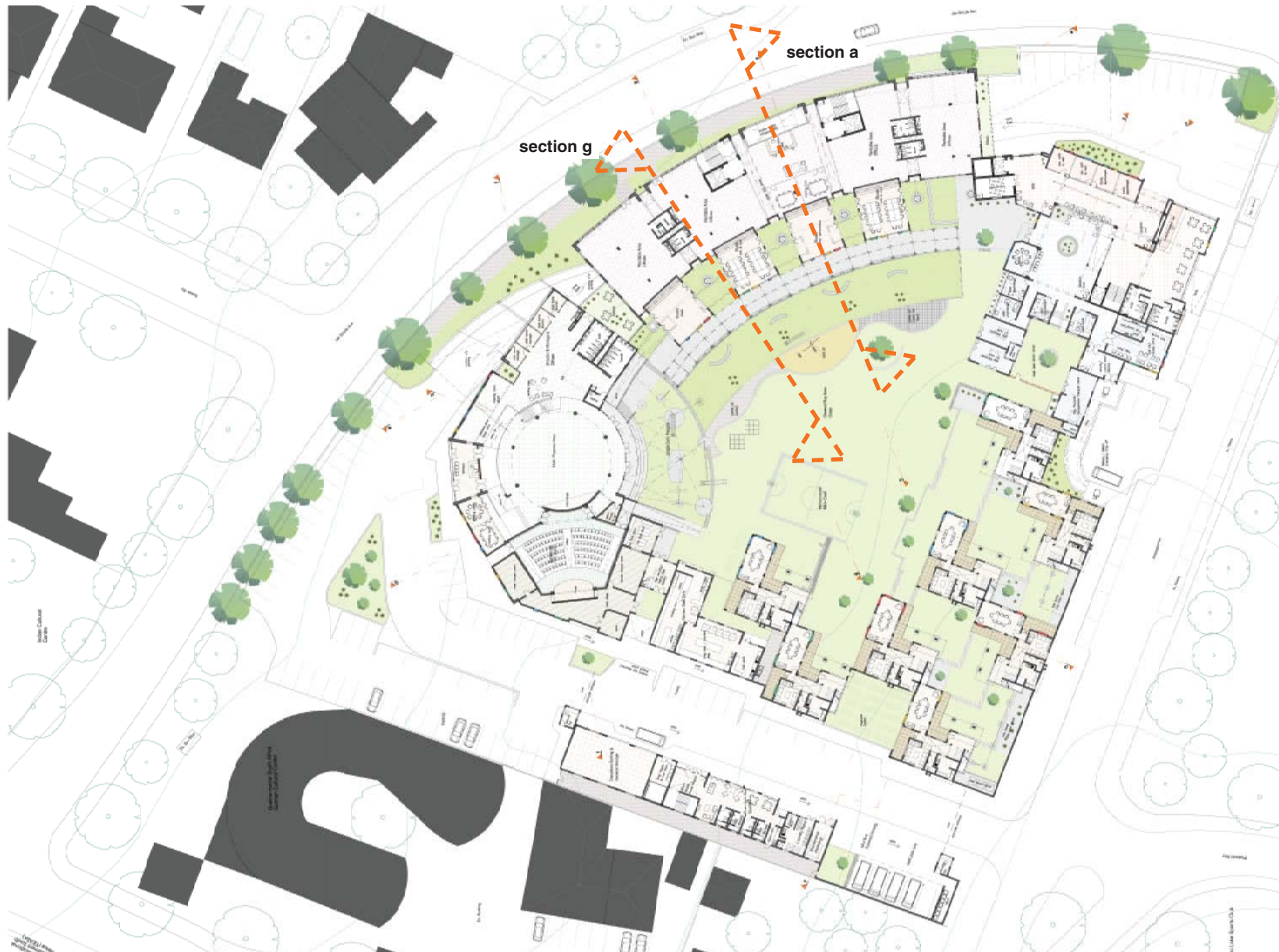
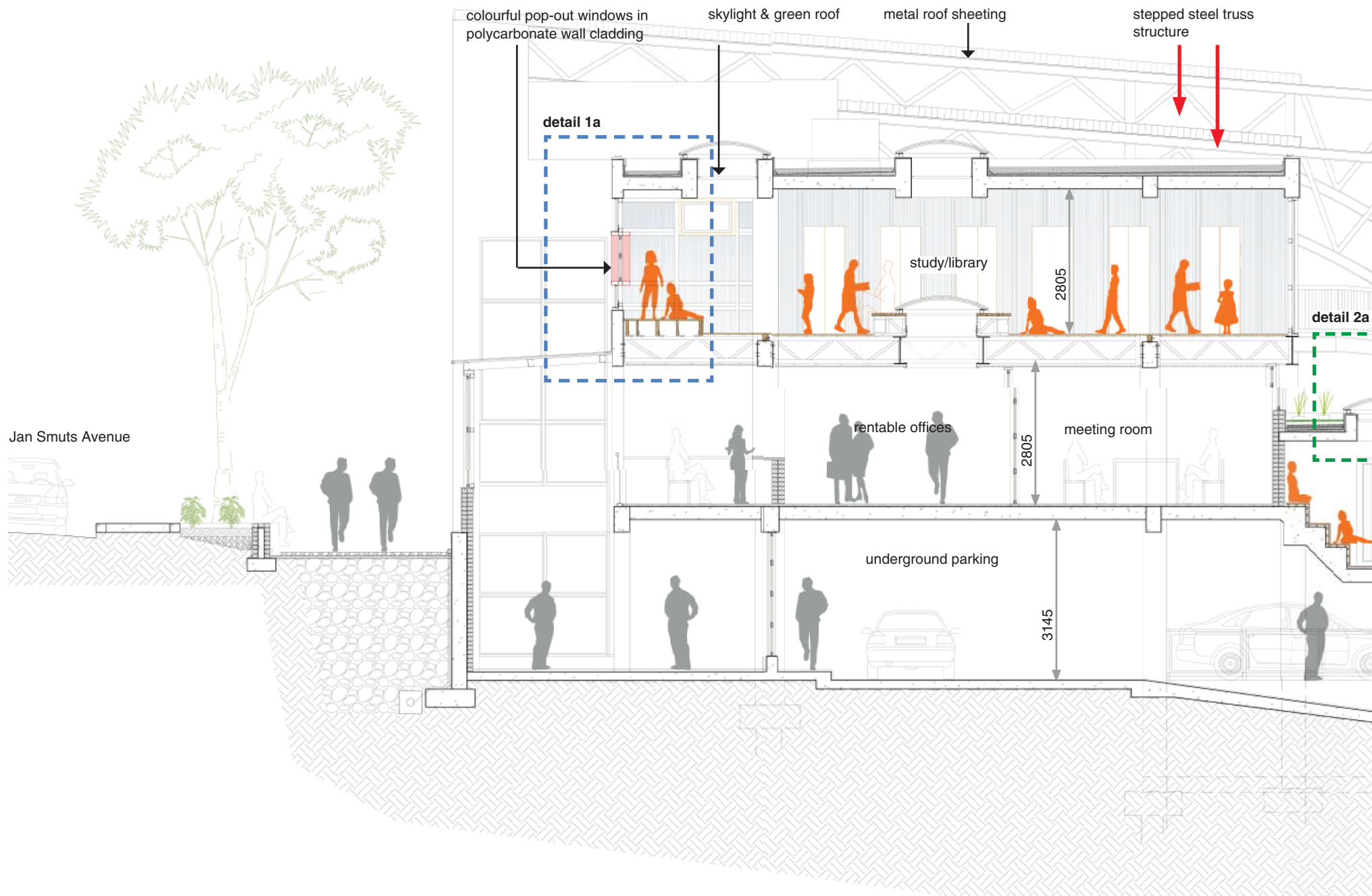


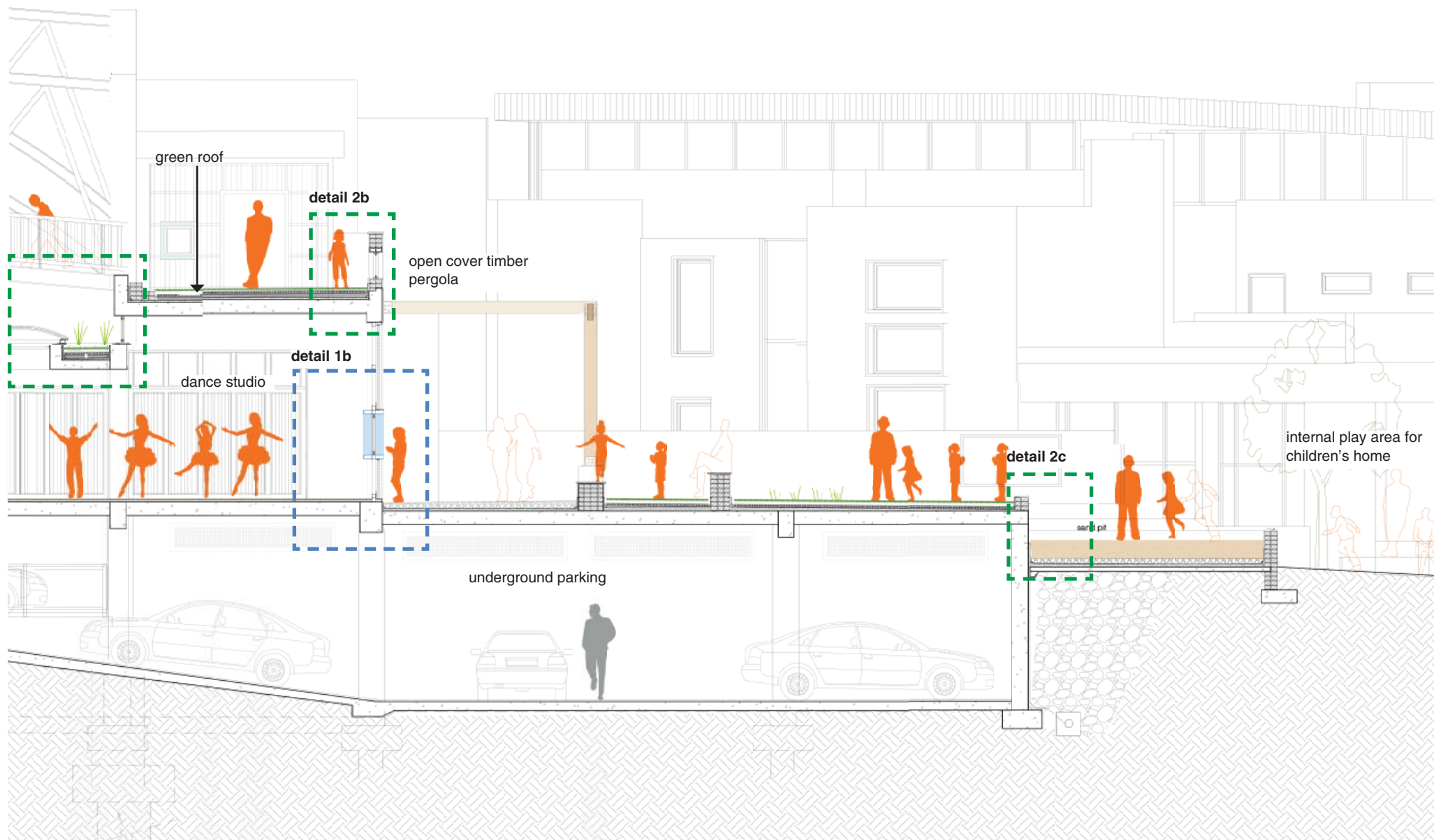
figure 143: Two-face building edge: section sketch through rentable offices and children's home studios.

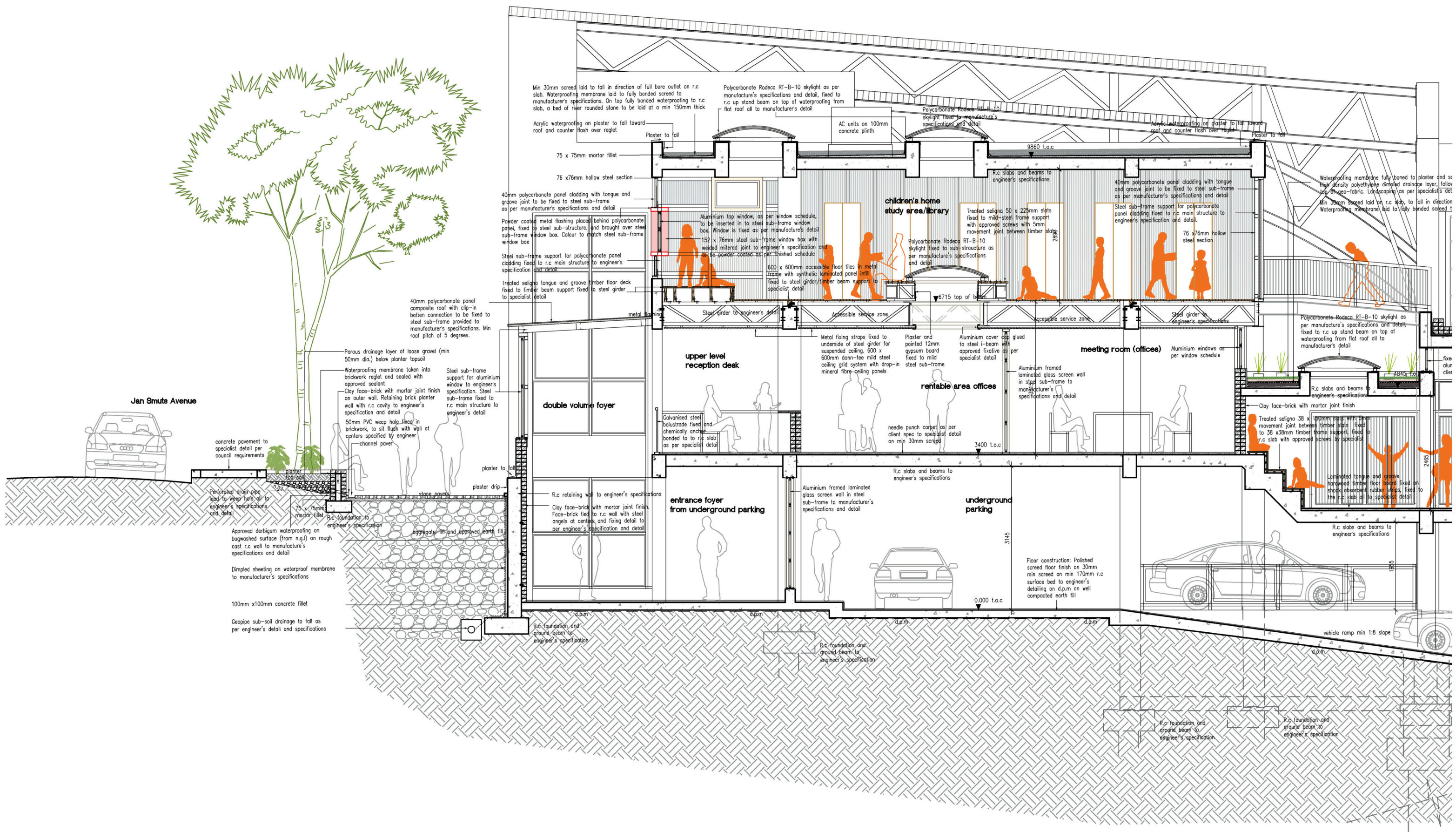


ground floor plan 1: 1000

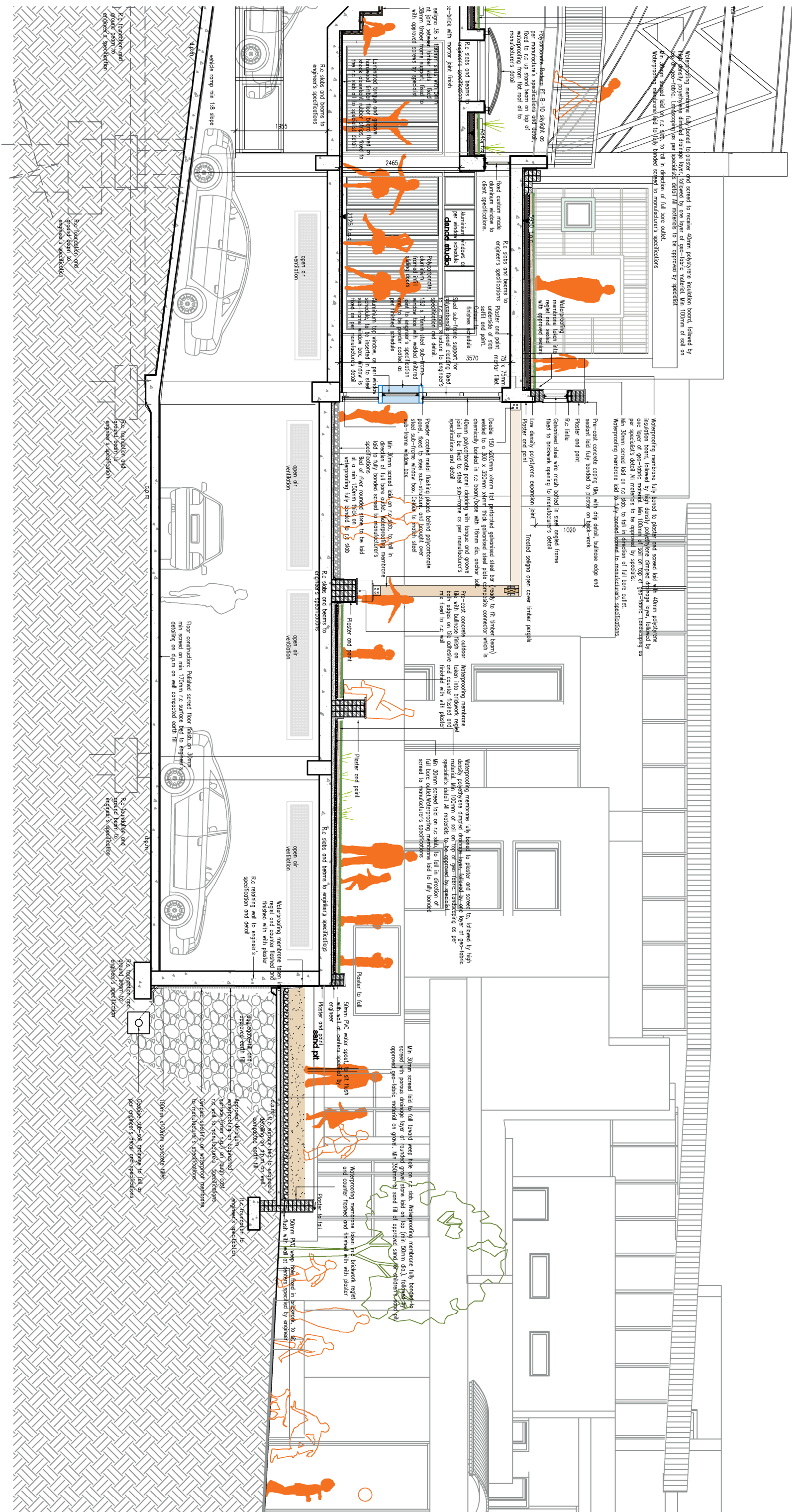


detail section a 1: 100





detail section a n.t.s



child friendly facade & pop-out windows



Polycarbonate panels are one of the main materials used in the children's home building component. This material was used because it has several advantages, such as:

- thermal insulation
- low maintenance
- no blinding light
- high quality of daylight
- durability/longevity (not easy to break)
- fire protection
- easy and quick mounting
- security
- environmentally friendly materials

(derived from Rodeca catalogue, 2010:2).

Polycarbonate corrugated sheets are commonly used in South Africa, however the polycarbonate panel is well known overseas and its popularity has also increased locally over the last couple of years. Figures 145, 146 and 147 show both local and overseas examples of using polycarbonate sheets/panels. The polycarbonate panel is more durable and has better thermal and durability performance than the corrugated polycarbonate sheet.

The aluminium pop-out windows are a playful element for the children and are constructed to fit into the polycarbonate panel facade (fig. 144 and 145). This technical method is explored in detail in the pages that follow.



figure 144: Sketch of colourful aluminium pop-out window in polycarbonate sheet facade.

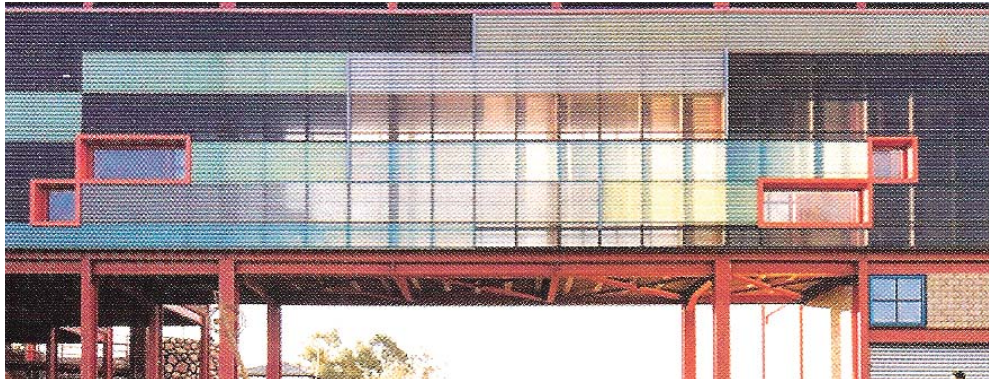


figure 145a: Rich. Alexandra Interpretation Centre. Johannesburg, 200? (Journal of the South African Institute of Architects, 2011:24).



figure 145b: Rich. Alexandra Interpretation Centre. Johannesburg, 200? (Journal of the South African Institute of Architects, 2011:25).



figure 146: Holl. Bloch Building Nelson-Atkins Museum of Art Expansion. Kansas City, 1999-2007 (Mosco, 2010:65).

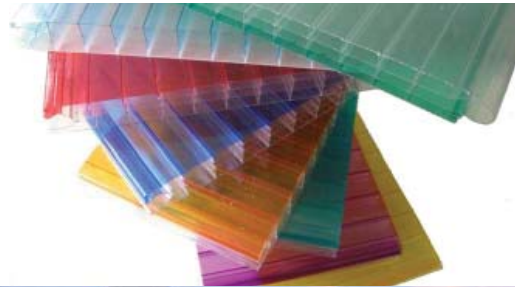
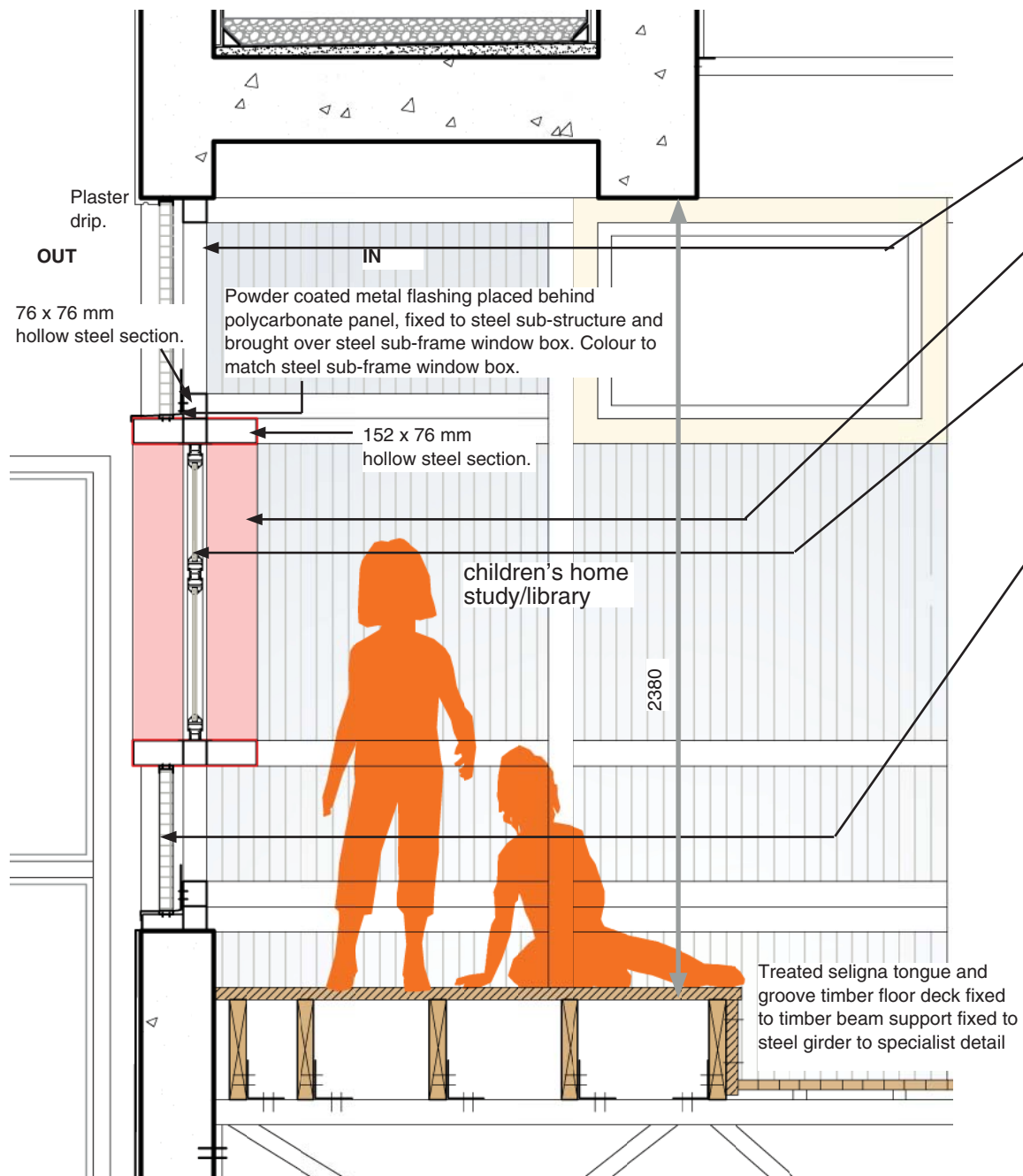


figure147a: Polycarbonate panel available in many colours.



figure 147b: Herzog & de Meuron. Laban Dance Centre. London, 2003 (Richards, 2006:208).



detail 1a 1: 20

Steel sub-frame support for polycarbonate panel cladding fixed to concrete main structure to engineer's specification and detail.

152 x 76 mm steel sub-frame window box with welded mitred joint to engineer's specification and to be powder coated as per finished schedule.

Aluminium top window, as per window schedule, to be inserted in to steel sub-frame window box. Window is fixed as per manufacturer's detail.

40 mm polycarbonate panel cladding with tongue and groove joint to be fixed to steel sub-frame as per manufacturer's specifications and detail.

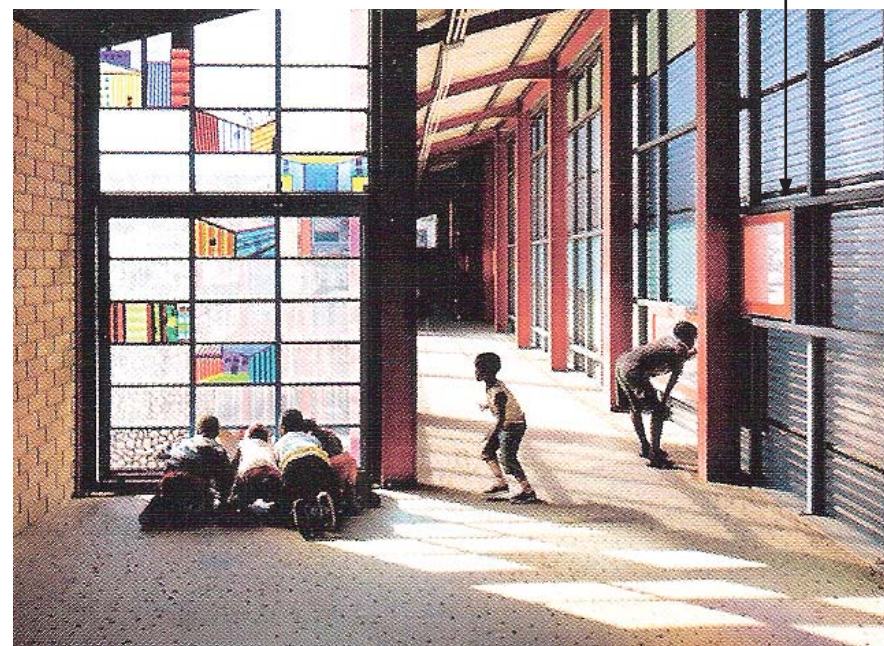


figure 148a: Rich. Alexandra Interpretation Centre. Johannesburg, 200? (Journal of the South African Institute of Architects, 2011:25).

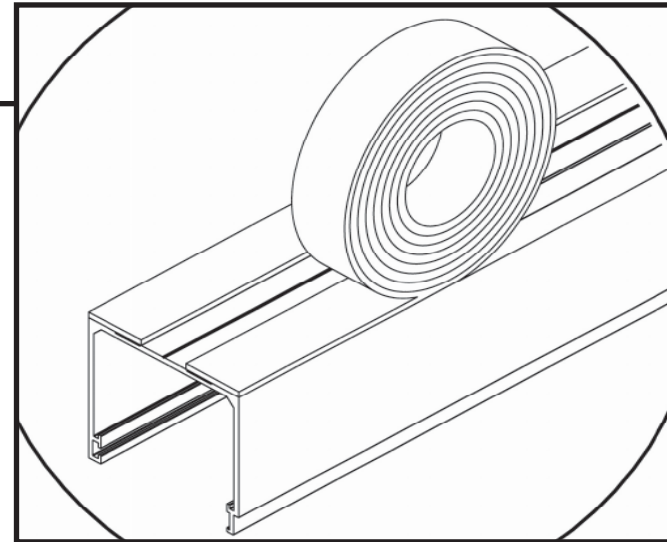
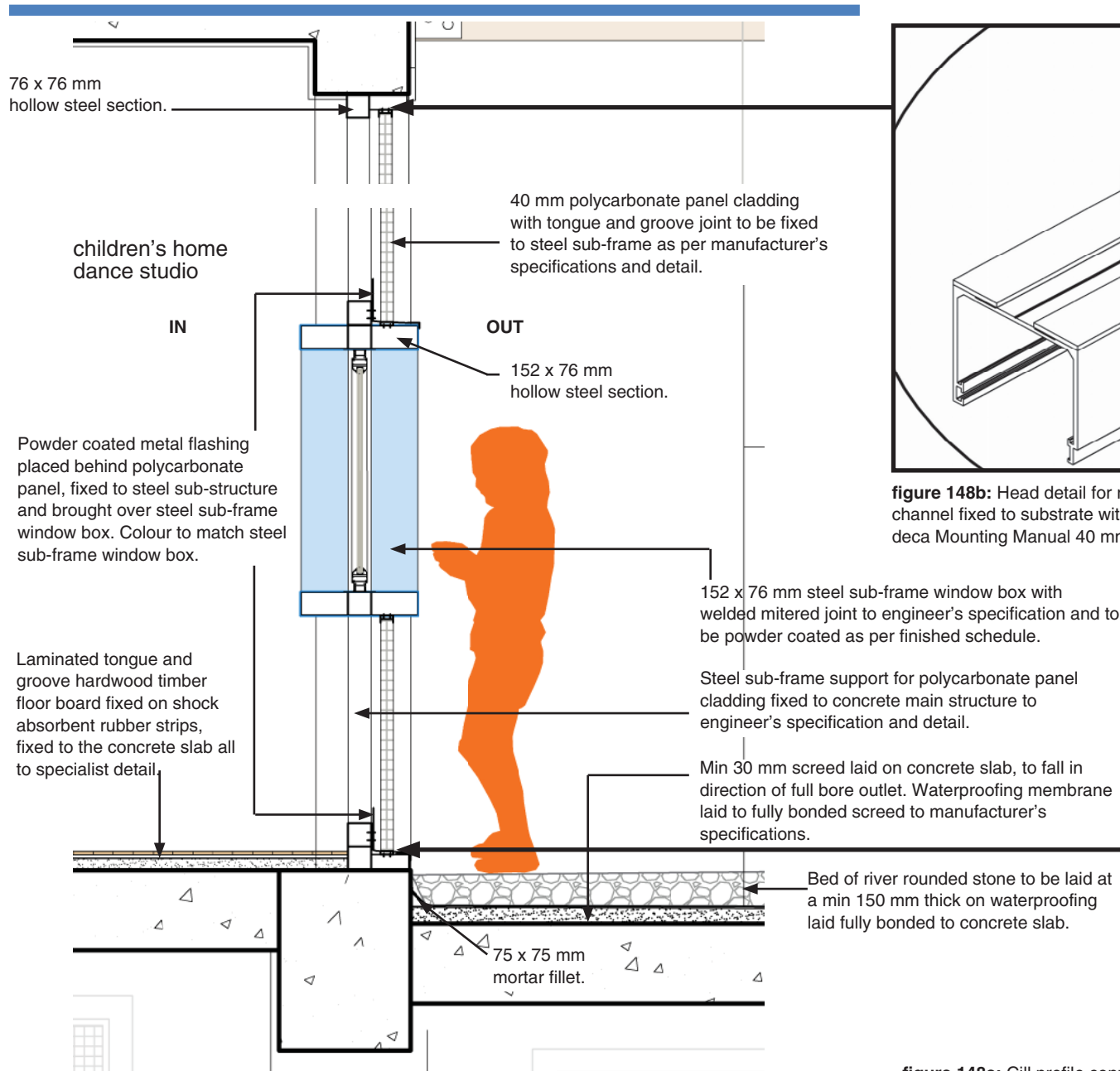


figure 148b: Head detail for receiving polycarbonate panel for wall cladding. Aluminium channel fixed to substrate with suitable sealing tape as per manufacturer's specification (Rodeca Mounting Manual 40 mm TBE, 2010:8).

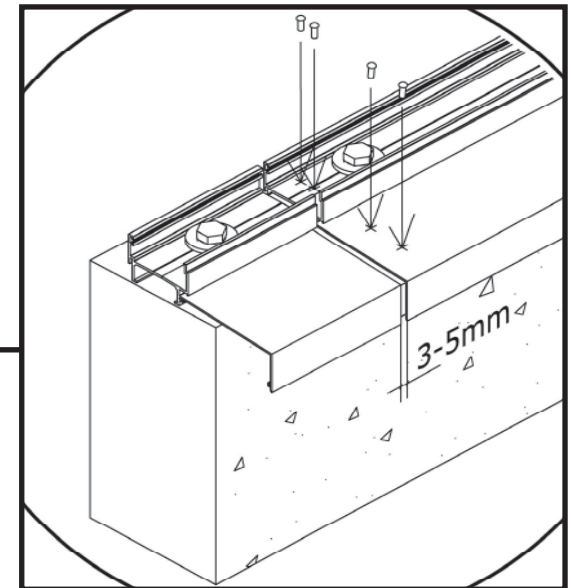


figure 148c: Cill profile connector with drip detail for receiving polycarbonate panel for wall cladding. Fixed to substrate with screws as per manufacturer's specification (Rodeca Mounting Manual 40 mm TBE, 2010:6).

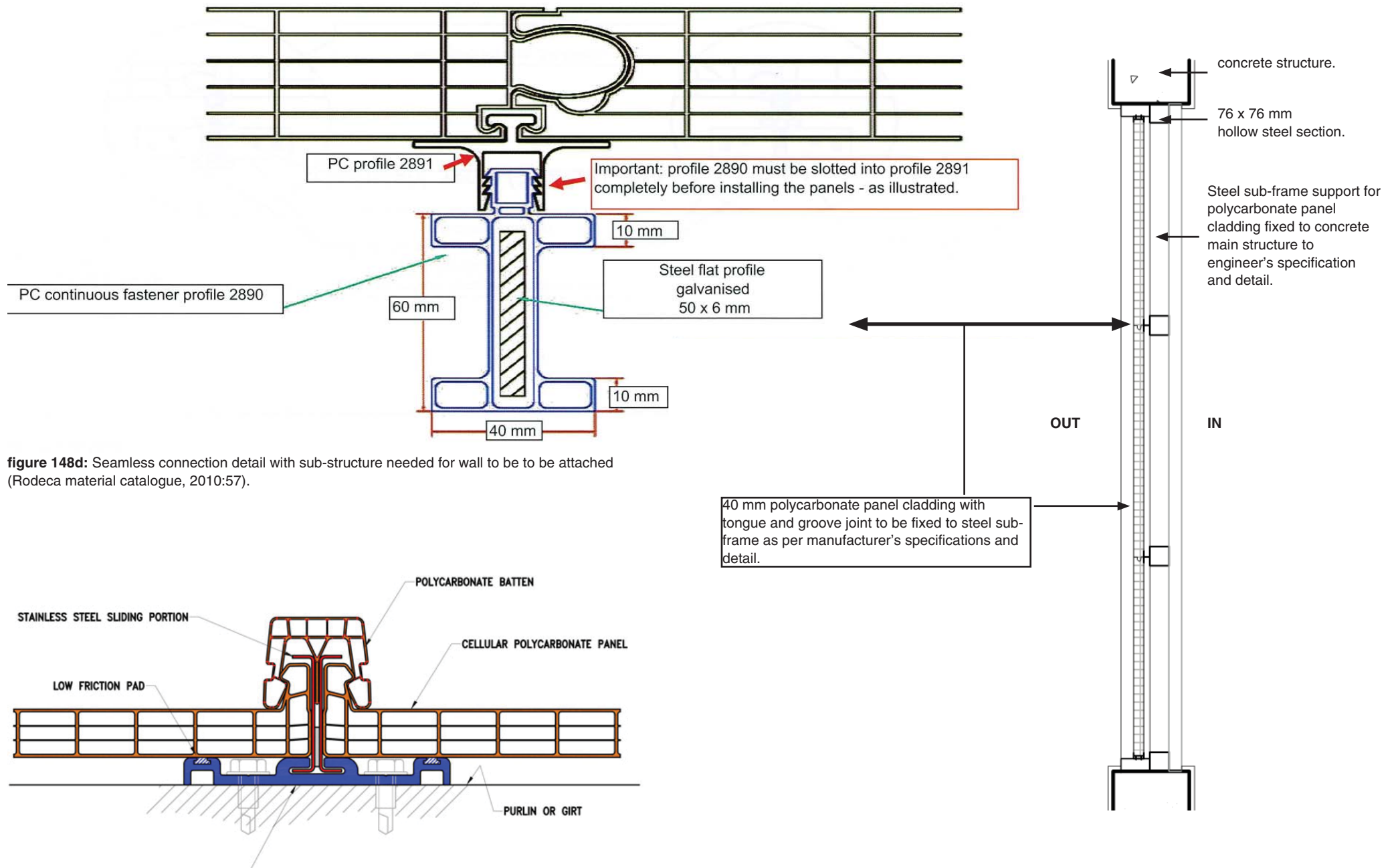
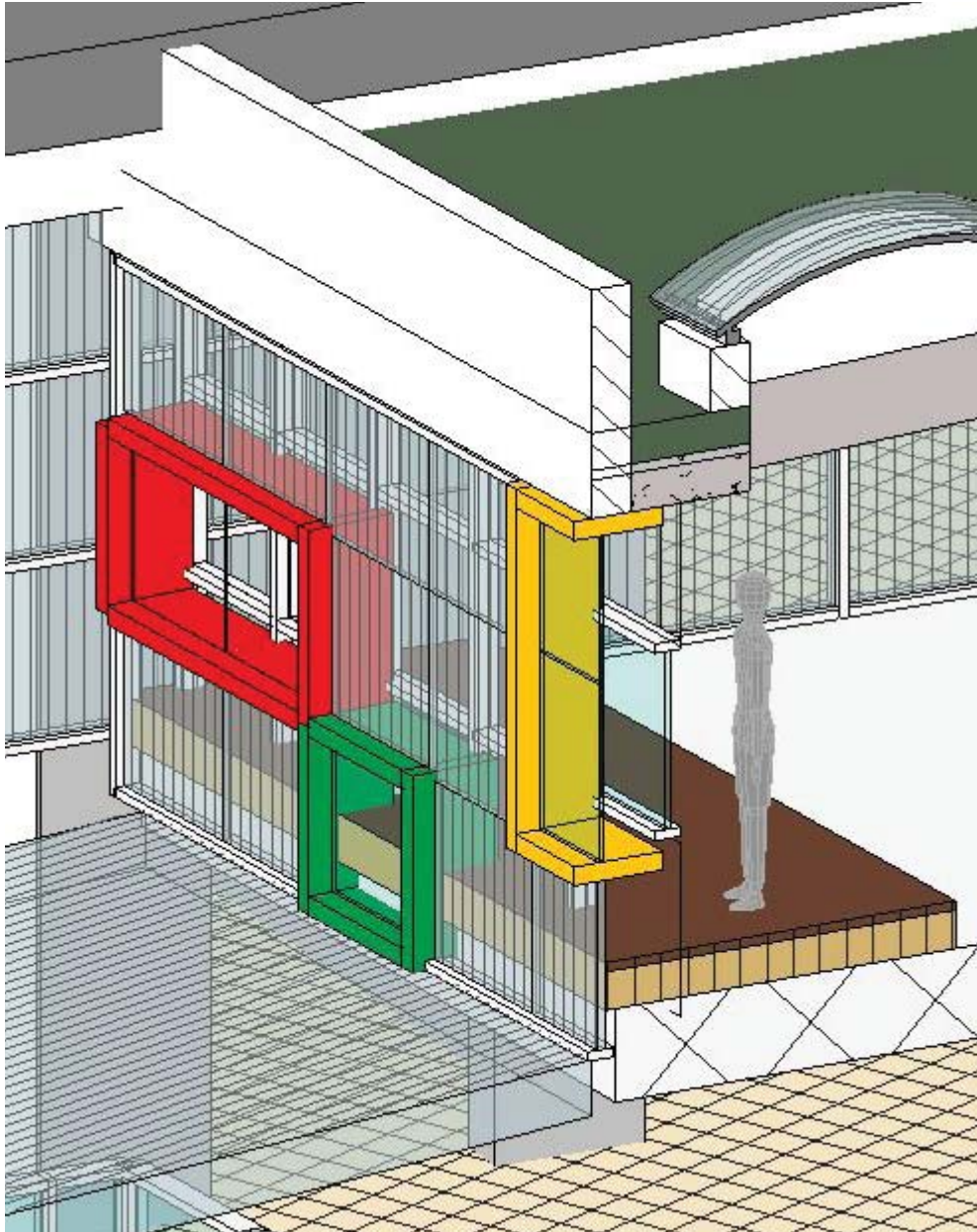


figure 148d: Seamless connection detail with sub-structure needed for wall to be attached (Rodeca material catalogue, 2010:57).

figure 148e: Detail of polycarbonate sheet connection spines, another connection option, especially for roofs (www.continuingeducation.construction.com).

detail 1b plan 1: 20



3D concept model of detail 1a. The polycarbonate panel wall cladding with steel sub-frame behind supporting polycarbonate panels with tongue and groove joint.

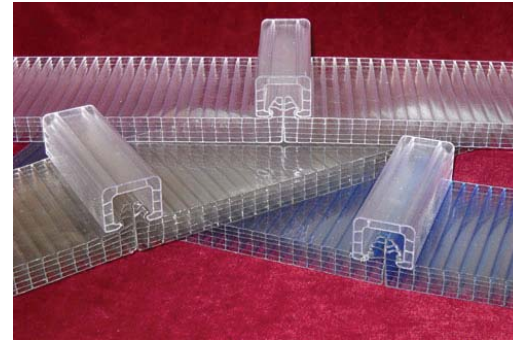


figure 149a: Polycarbonate panel connection batten.

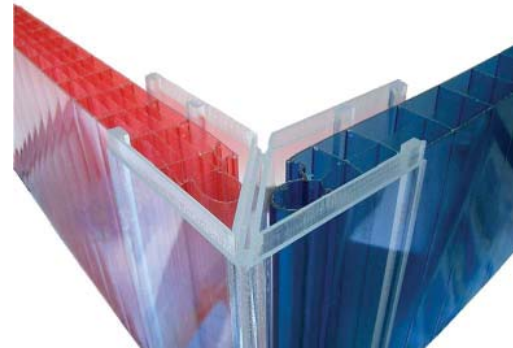


figure 149b: Polycarbonate panel corner connection piece.

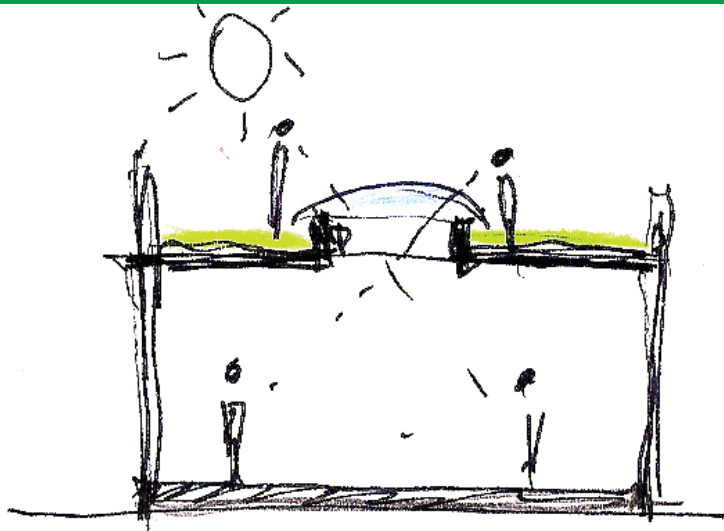


figure 149c: At night. Herzog & de Meuron. Laban Dance Centre. London, 2003 (Richards, 2006:202).



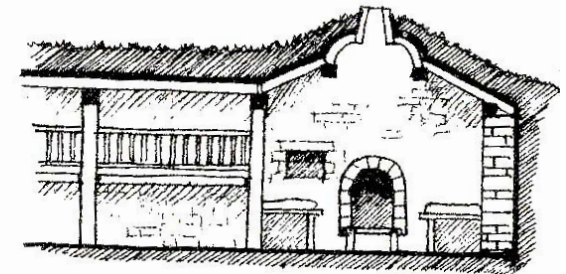
figure 149d: In the day. Herzog & de Meuron. Laban Dance Centre. London, 2003 (Richards, 2006:201).

green roof & skylight



The green roof is one of the main roofing applications in Stepping Stones Rehabilitation Home. One major advantage of a green roof is that it serves as natural insulation, which is a method that has been applied throughout history (fig. 150) (Taylor, 1983:7). The other advantage, alongside the non-clinical therapy, is that you can grow certain plants as a roof garden. An example of such a roof garden is shown in figure 151.

MANY EARLY DWELLINGS WERE PROTECTED BY A BLANKET OF EARTH TO ACT AS AN INSULATOR.



EARLY ARMENIAN DWELLING
THIS EARTH-SHELTERED STRUCTURE
ACCOMMODATED BOTH HUMANS (ON
THE RIGHT) AND ANIMALS.

figure 150: Soil as natural insulation is a concept that has been used throughout history (Taylor, 1983:35).



figure 151: Handel Architects. New York Rooftop School Gardens. New York, 2006 (Gorgolewski, 2011:174).



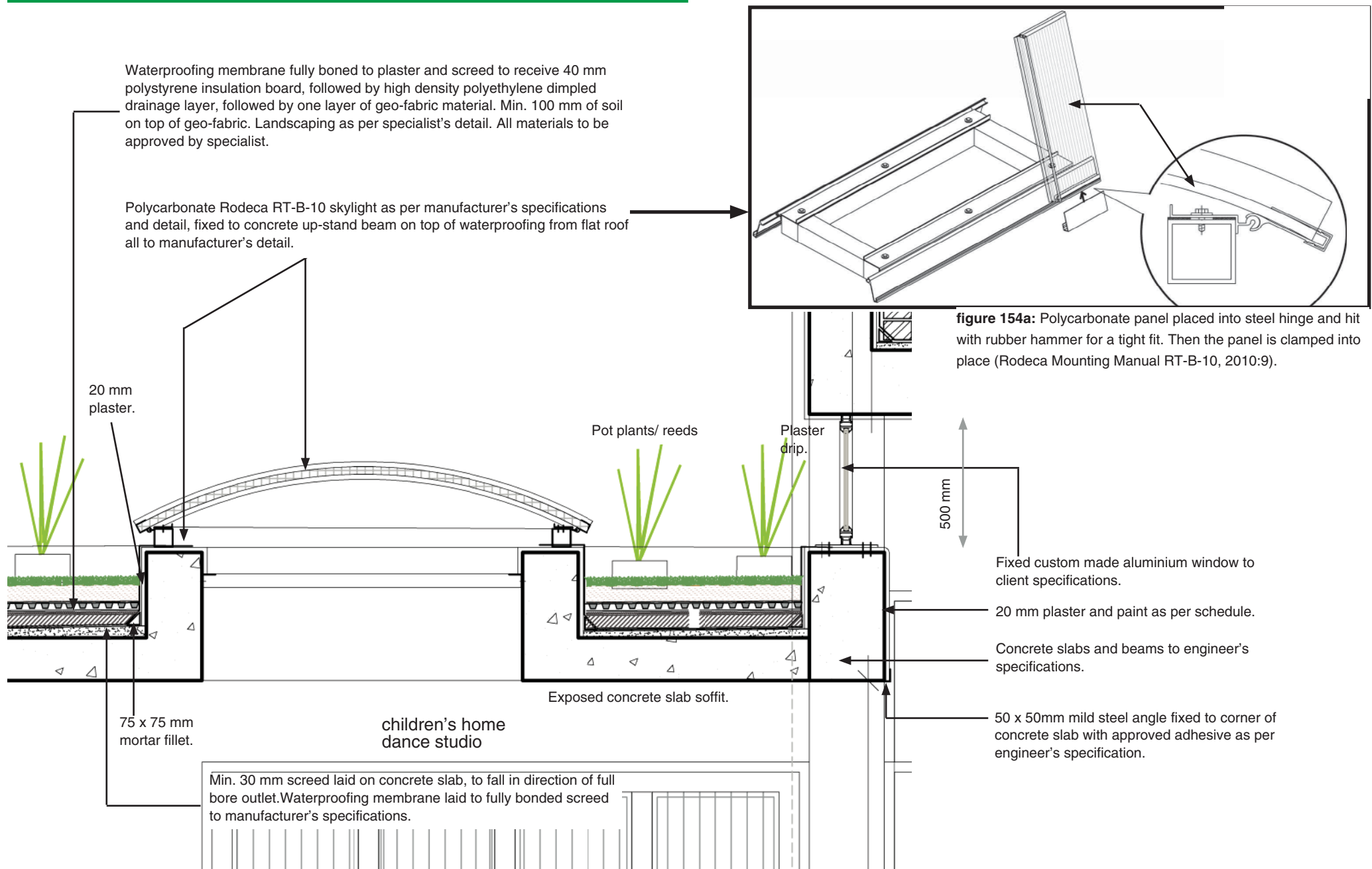
figure 152: Hertzberger. Montessori School. Delft, 1944-1947 (site visit, 2012).



figure 153: Aalto. Viipuri City Library. Vyborg, 1935 (Suomen, 1998:40).

The case studies illustrated on this page show the advantages of using small skylights/high windows bringing natural daylight into a space, especially a library/ study space.

The pages that follow include technical details of small-scale skylights and green roofs, highlighted from the main detail section.



detail 2a

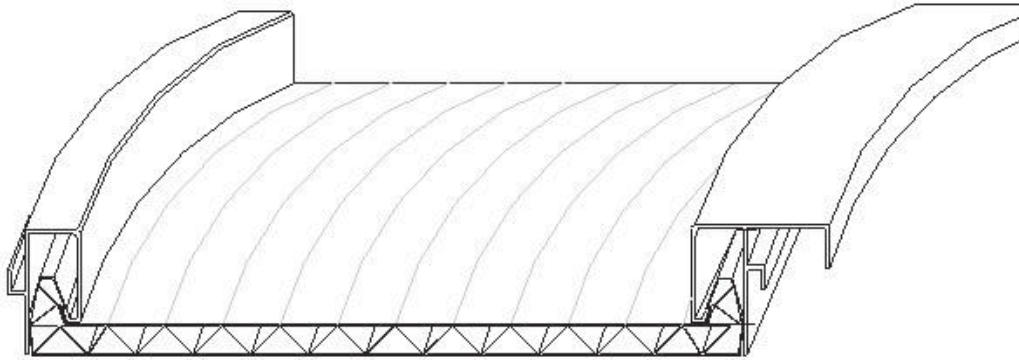
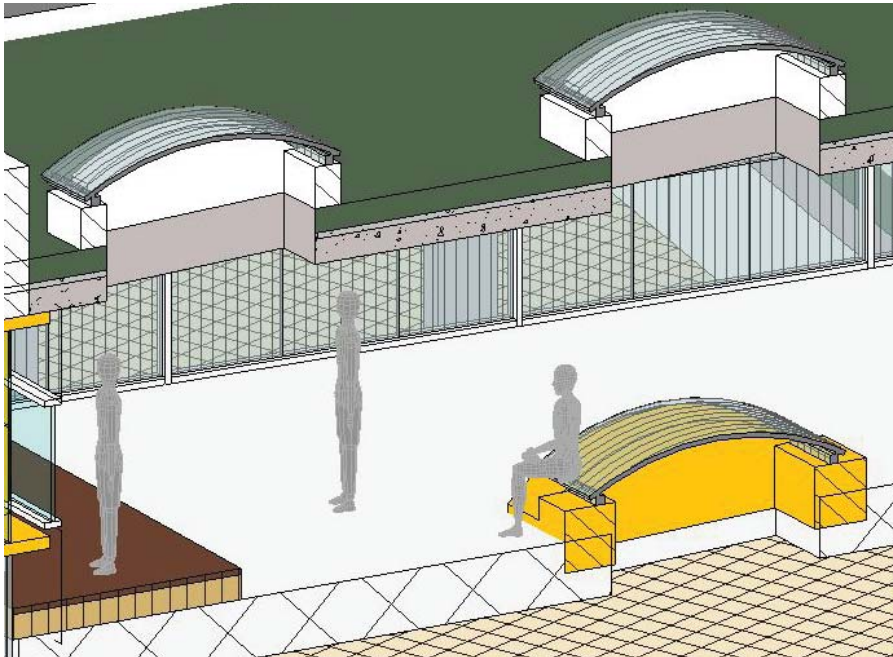


figure 154b: Curved aluminium connection profile to extend skylight length (Rodeca Mounting Manual RT-B-10, 2010:7).



figure 154c: Photo of Rodeca rooflight/skylight system (Rodeca material catalogue, 2010:4).



3D concept model of detail 2a. The durable polycarbonate rooflight/skylight with clip-on steel sub-frame as per standard product of Rodeca.

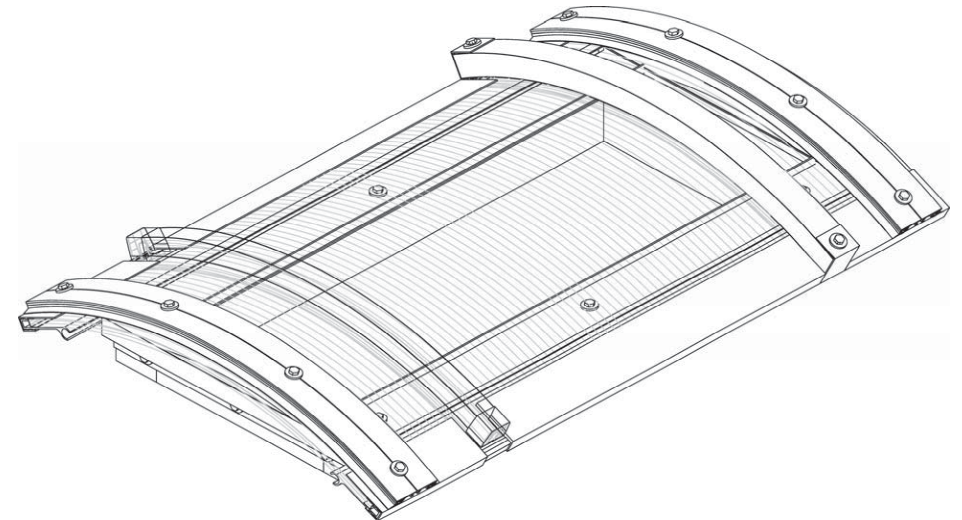
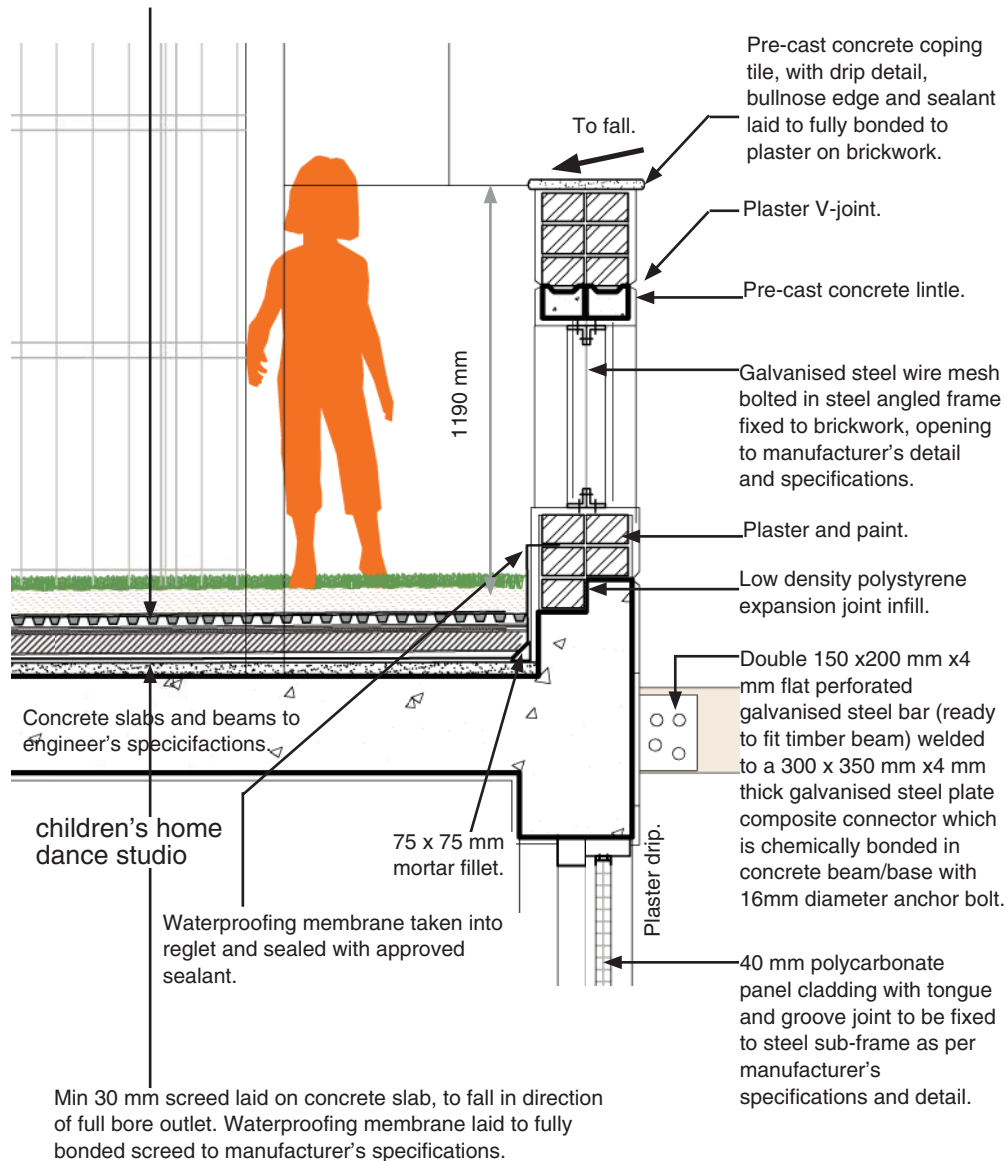
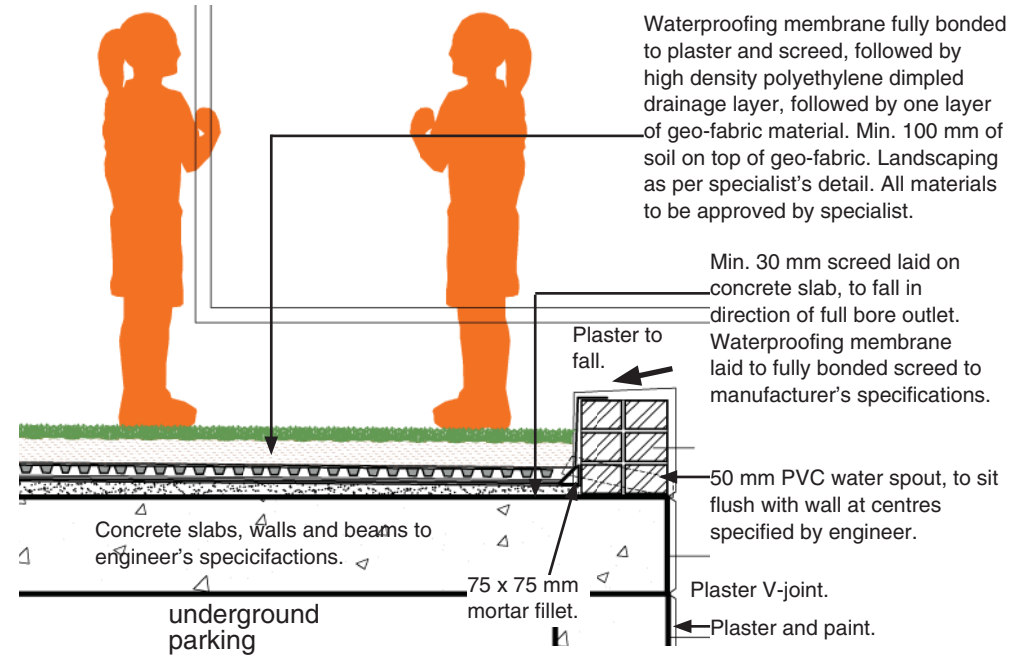


figure 154d: Complete assembled rooflight with connection battens, steel edge and steel sub-structure system as per Rodeca specifications (Rodeca Mounting Manual RT-B-10, 2010:1).

Waterproofing membrane fully bonded to plaster and screed laid with 40 mm polystyrene insulation board, followed by high density polyethylene dimpled drainage layer, followed by one layer of geo-fabric material. Min. 100 mm of soil on top of geo-fabric. Landscaping as per specialist's detail. All materials to be approved by specialist.



detail 2b 1: 20



detail 2c 1: 20

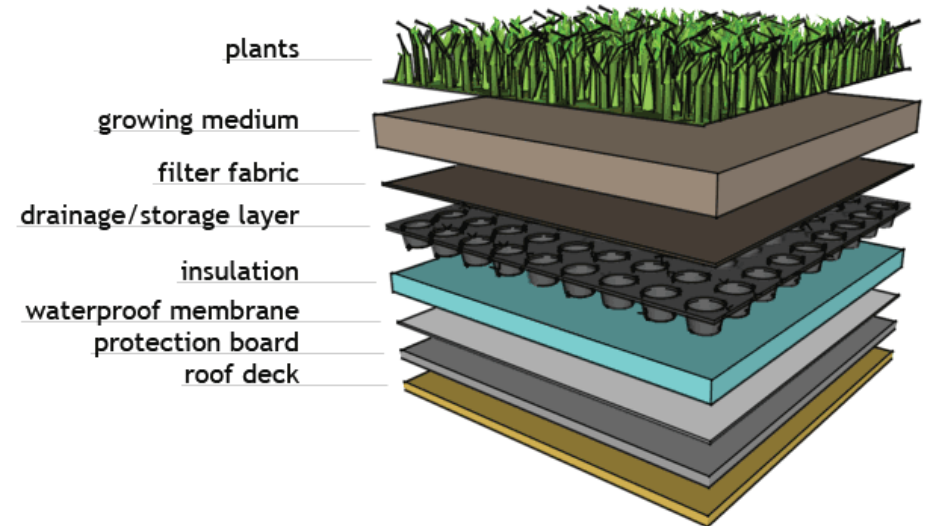


figure 154e: Principle of laying green roof materials onto a substrate.

steel structure



The steel structure is a bold feature that roofs the rentable office area as well as defining the Jan Smuts Avenue facade. This structure creates a permanent shell to allow flexibility in dividing the open-planned offices, whilst still containing the buildings' original form and scale with every new tenant. It is important to retain a low scale for these offices, not only for the surrounding residential nature of the site, but also for the children of the rehabilitation home (fig. 155a). The scale for the entire development was kept within a range of one to two storeys, like the surrounding neighbourhood.

The design language of Stepping Stones Rehabilitation Home speaks of fragmentation and unity (a clustered form). The composition of this steel structure expands on the clustered form design language (fig. 155b). The structure is made up of four bays, which step down towards the middle where the main circulation shafts are and the elevated children's home library/study room is. The technology aspect of this structure is explained in the pages that follow.



figure 155a: A study model of combining various structures in the design.

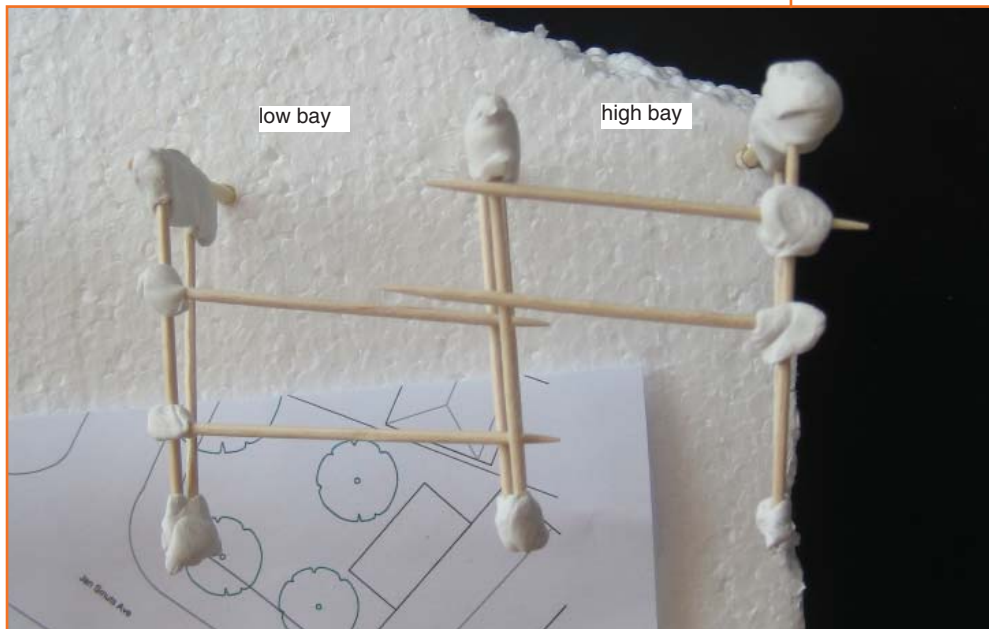
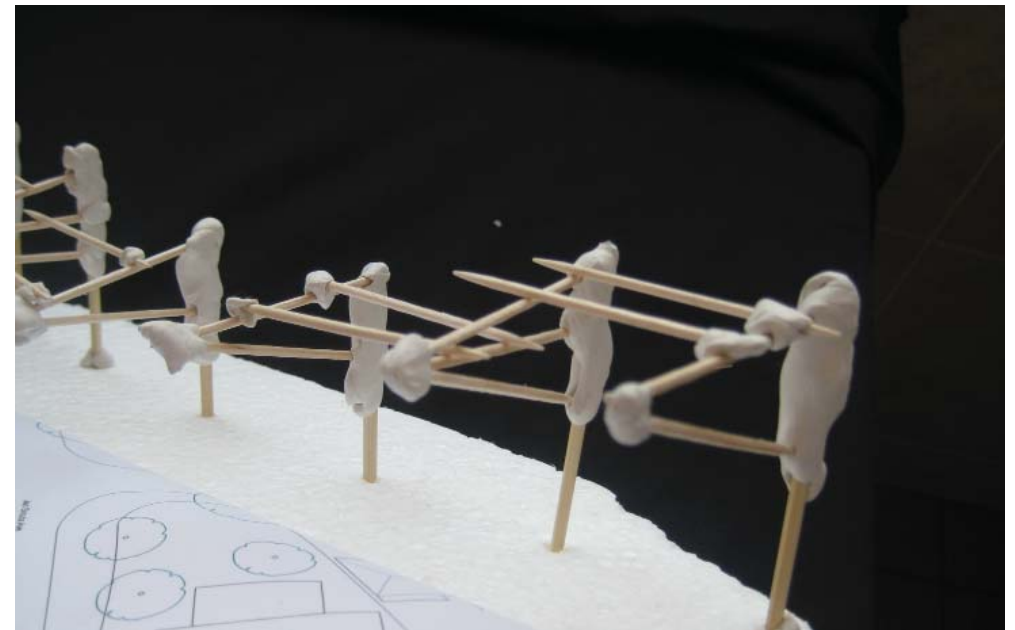
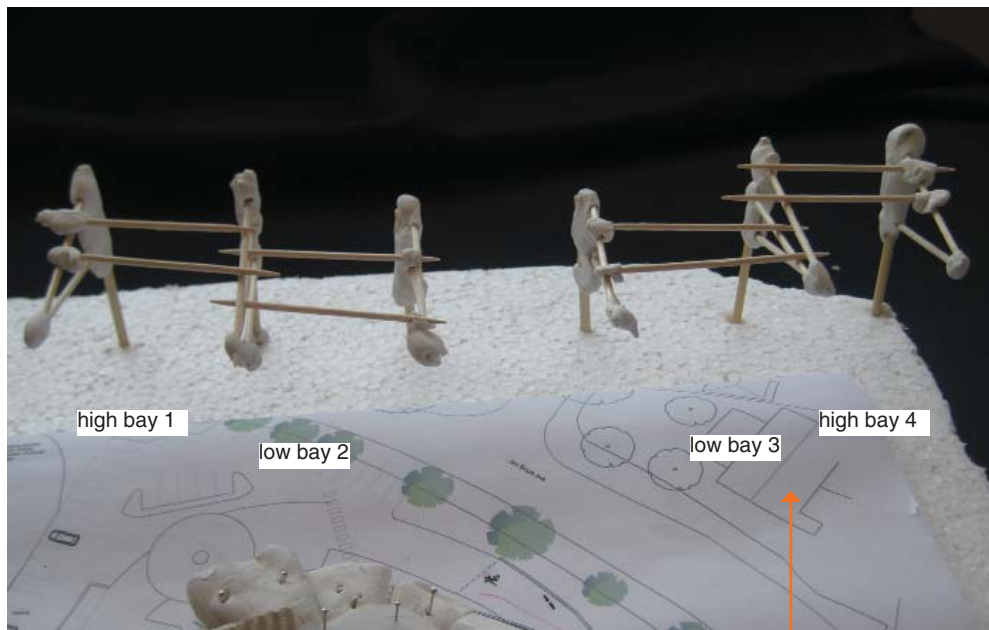


figure 155b: Early steel structure concept model for stepping steel structure roof for rentable office area.

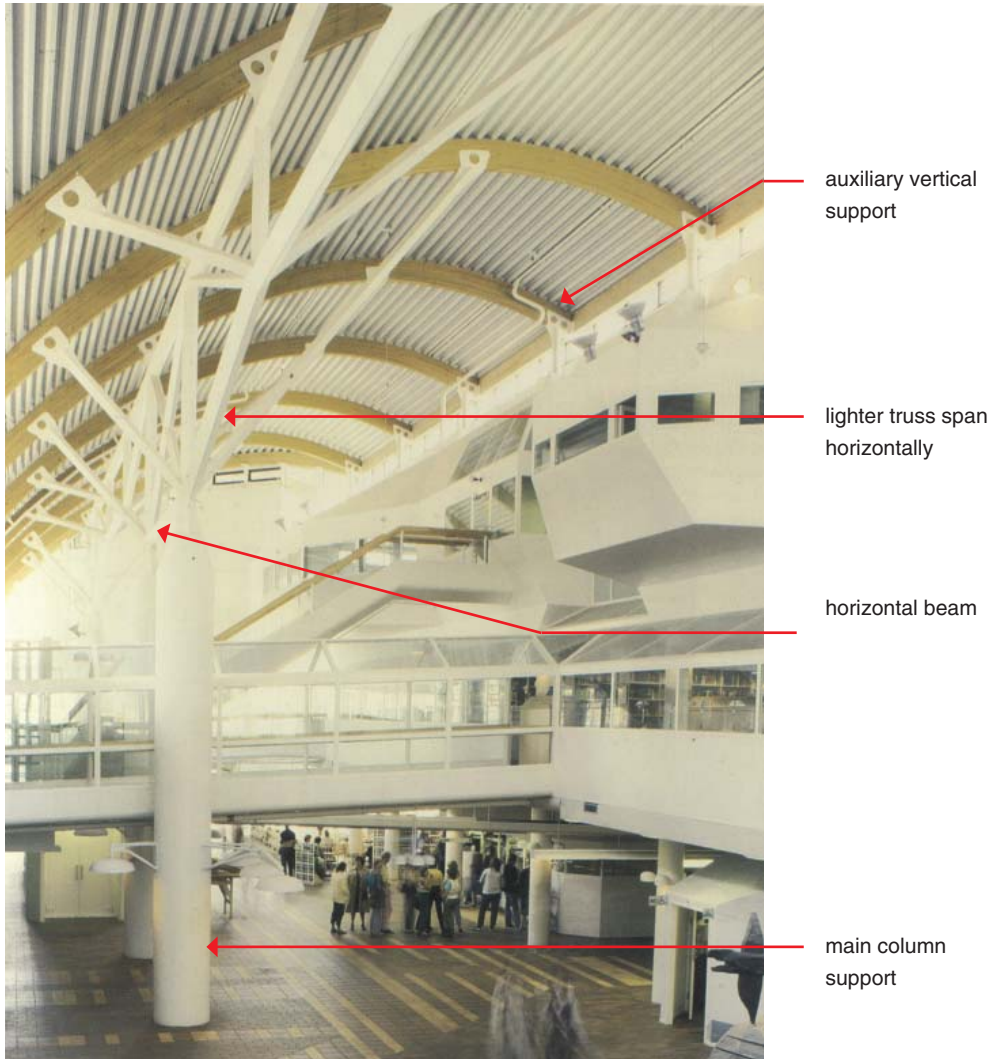


figure 156: Erskine. *The University Library*. Stockholm, 1980-1982 (Egelius, 1990:172).

The first case study that assisted in the design of the steel structure was Erskine's University Library (fig. 156). Similar to the steel structure designed in this thesis, there is a main bulky column stem supporting the lighter truss attached, which spans across to an auxiliary vertical support.

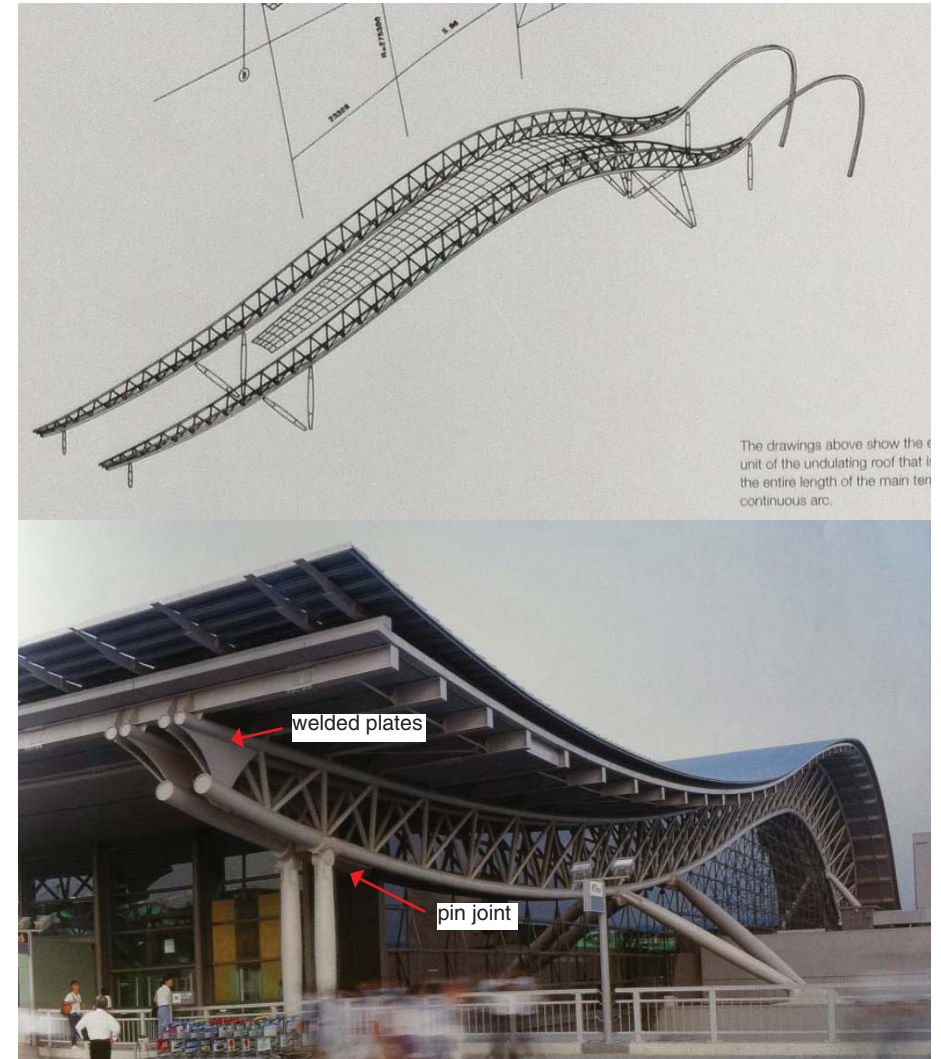
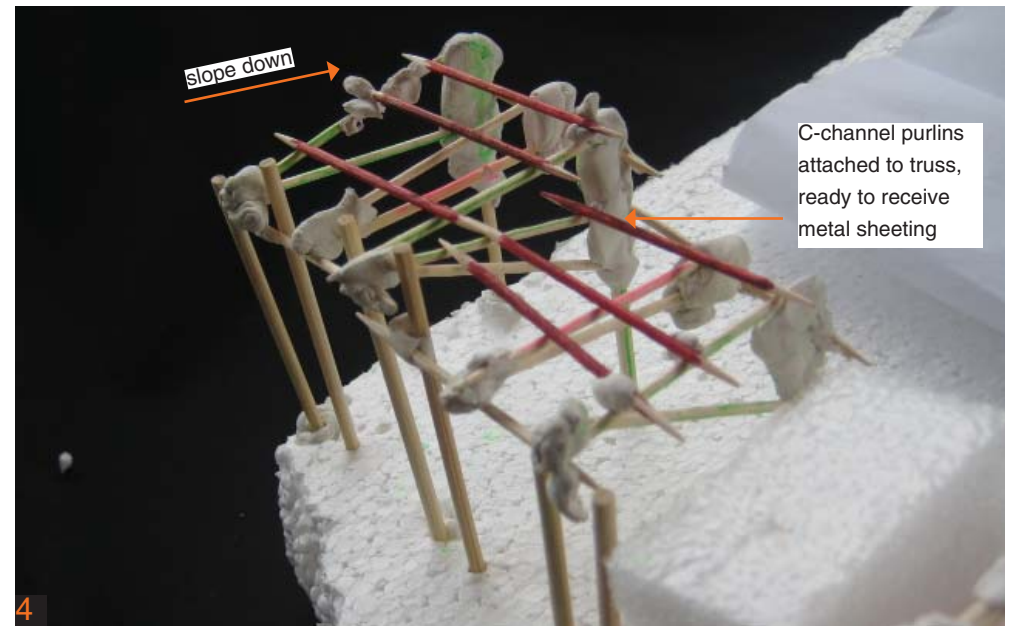
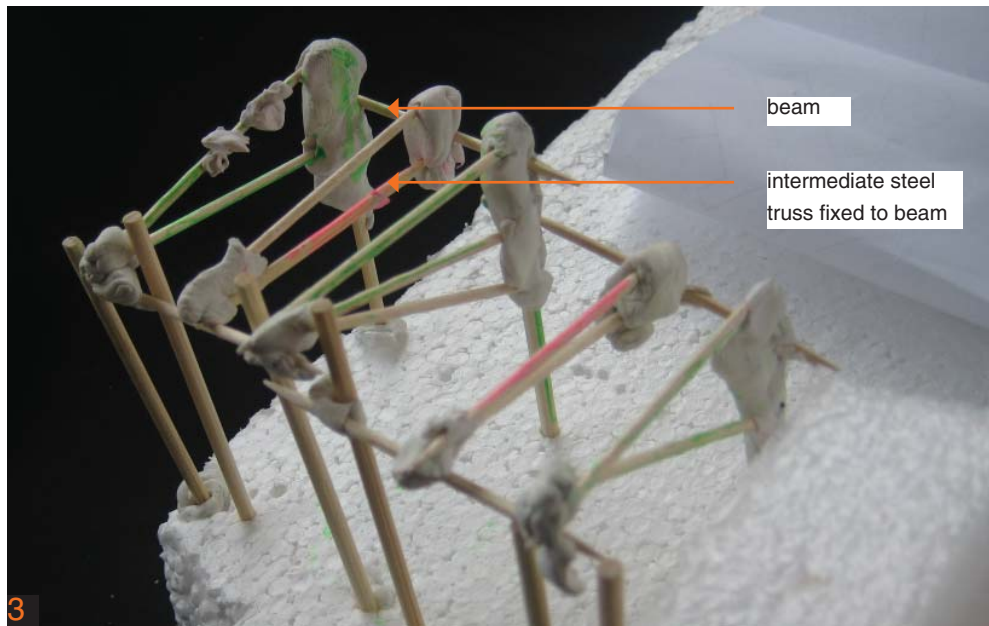
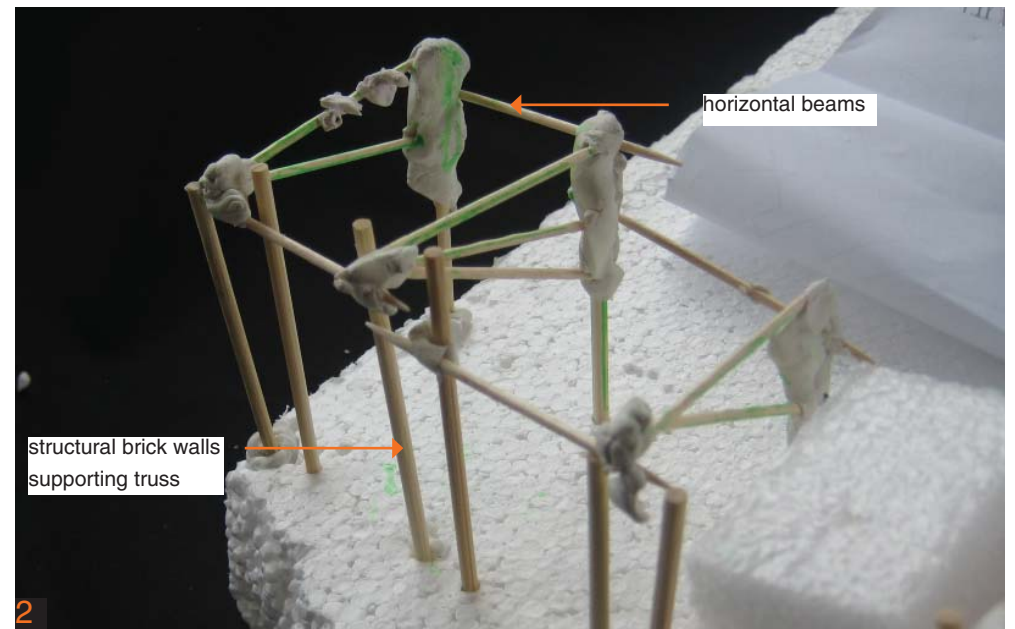
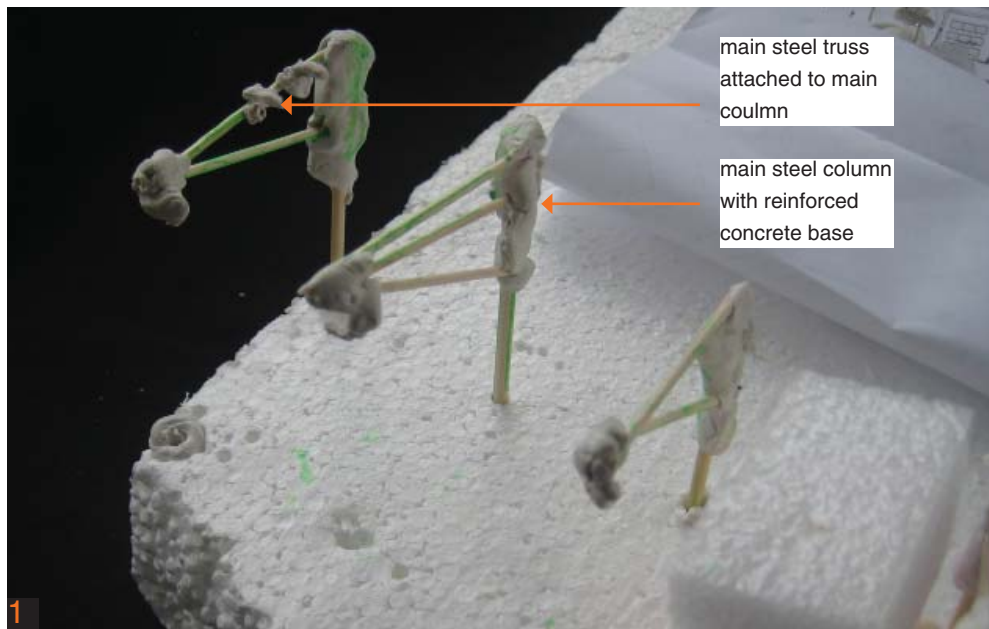
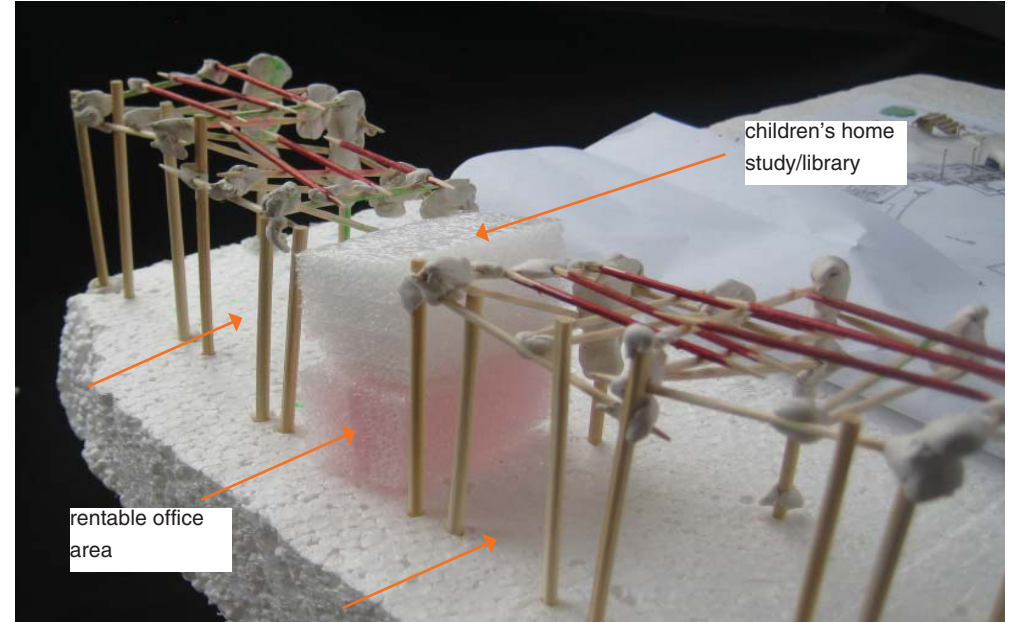
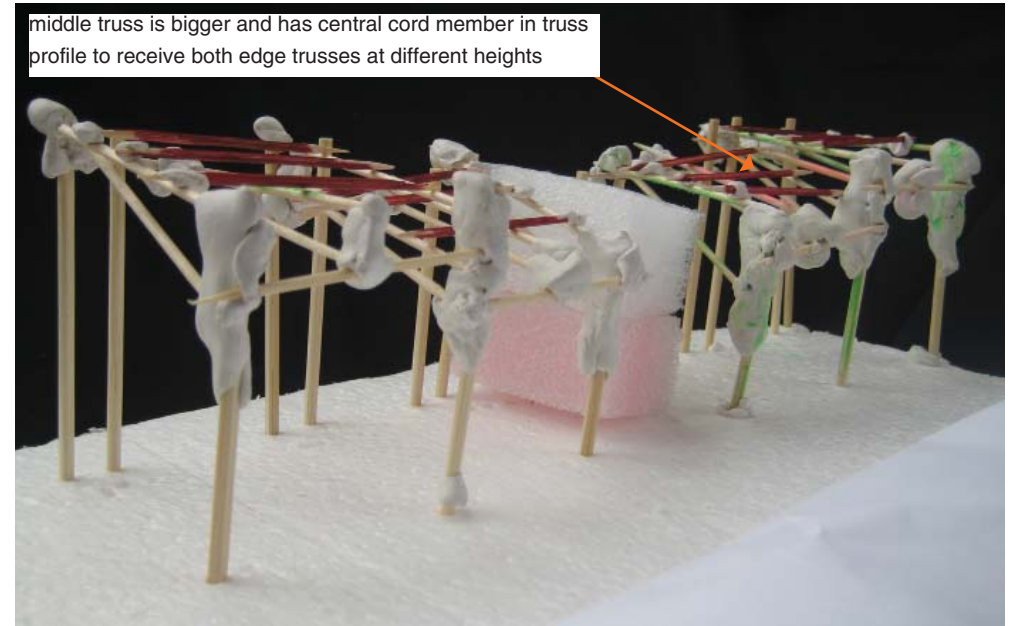


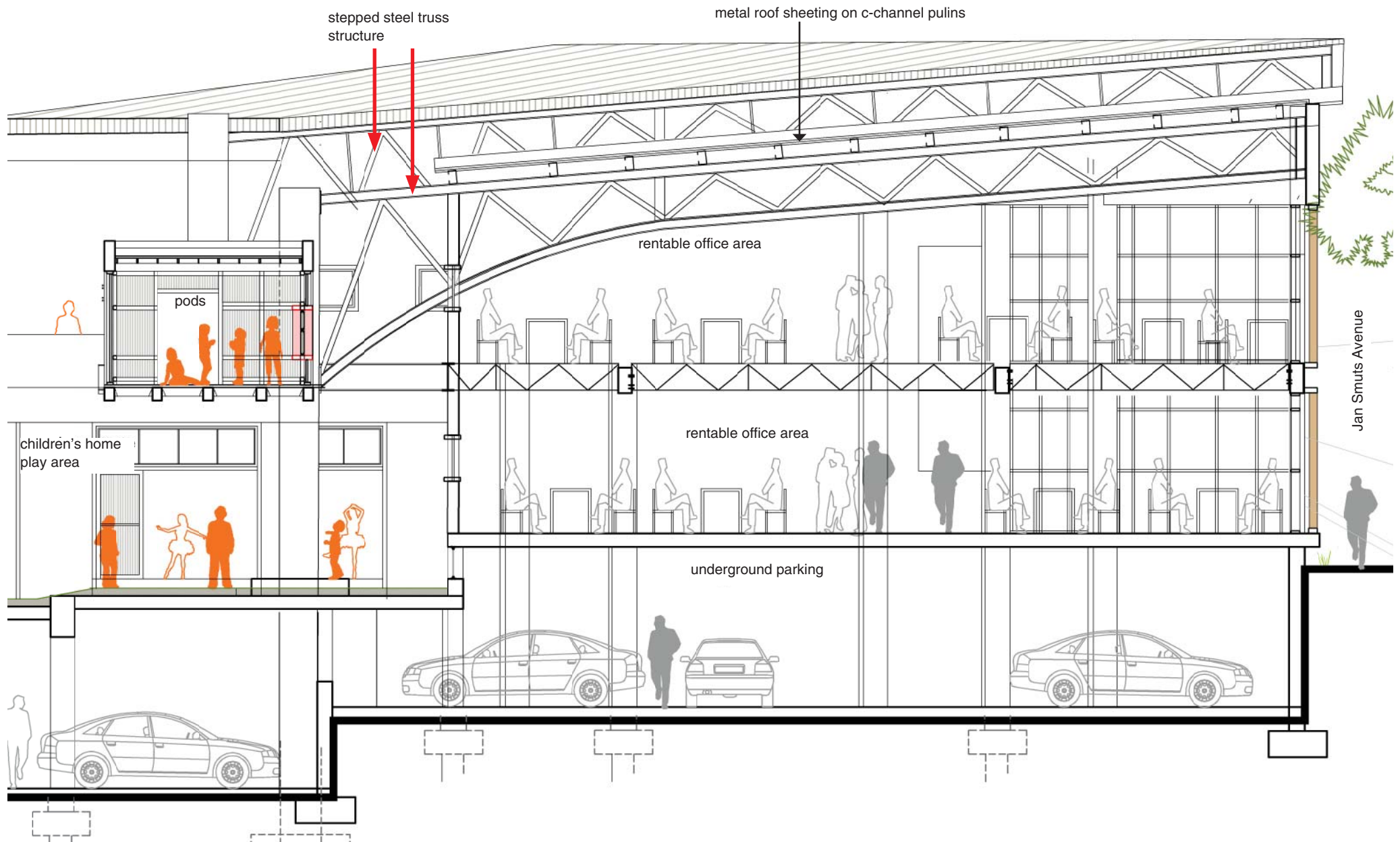
figure 157: Piano. *Kansai International Airport Terminal*. Osaka, 1988-1994 (Jodidio, 2005:223).

The steel structural concept of the Kansai International Airport Terminal (fig. 157) is made up of segmented bays, which combine to create a single form. The proportions and the manner in which each steel member is joined in the truss assisted with the technical resolution of the steel structure in this chapter.



Further refinement of the stepping steel structure roof.

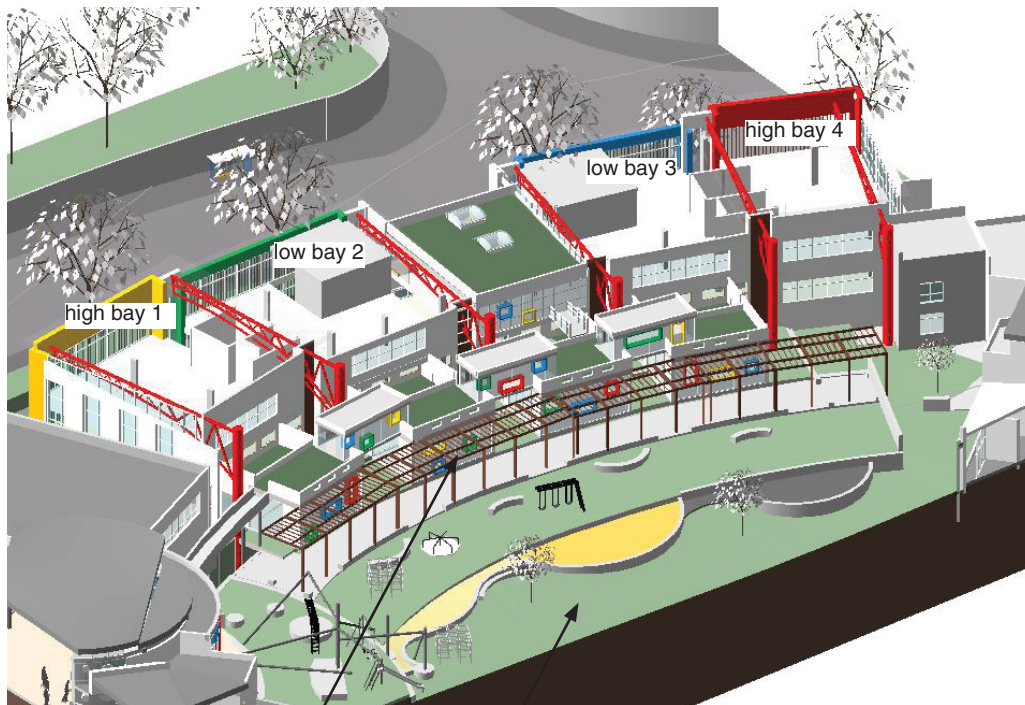




part of section g – detail 3 1: 100

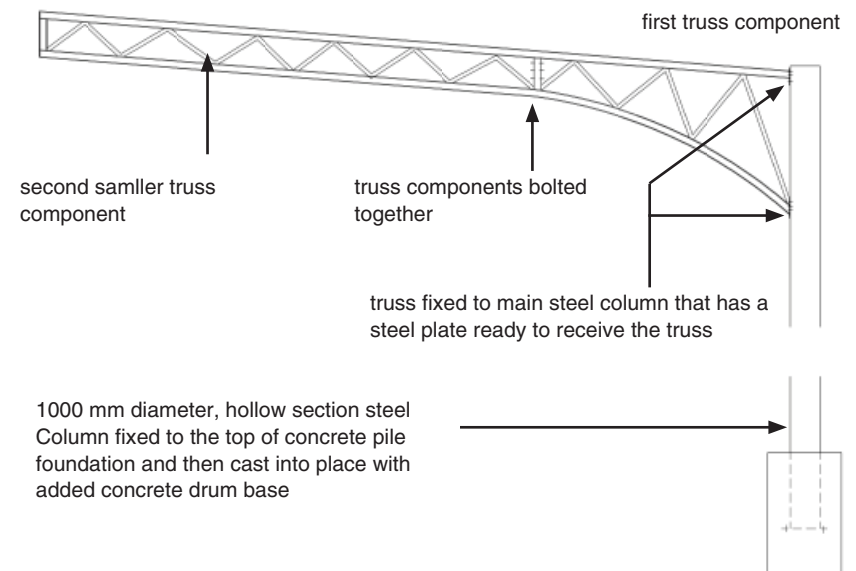


3Ds of main detail sections



children's home studios

internal play area



detail 3: truss concept 1: 200



detail 3: axonometric/concept models of truss system (highlighted in red)

chapter 8:

final design

Stepping Stones

Rehabilitation Home



Trauma Treatment Centre for Children



children's living units



children's internal play area

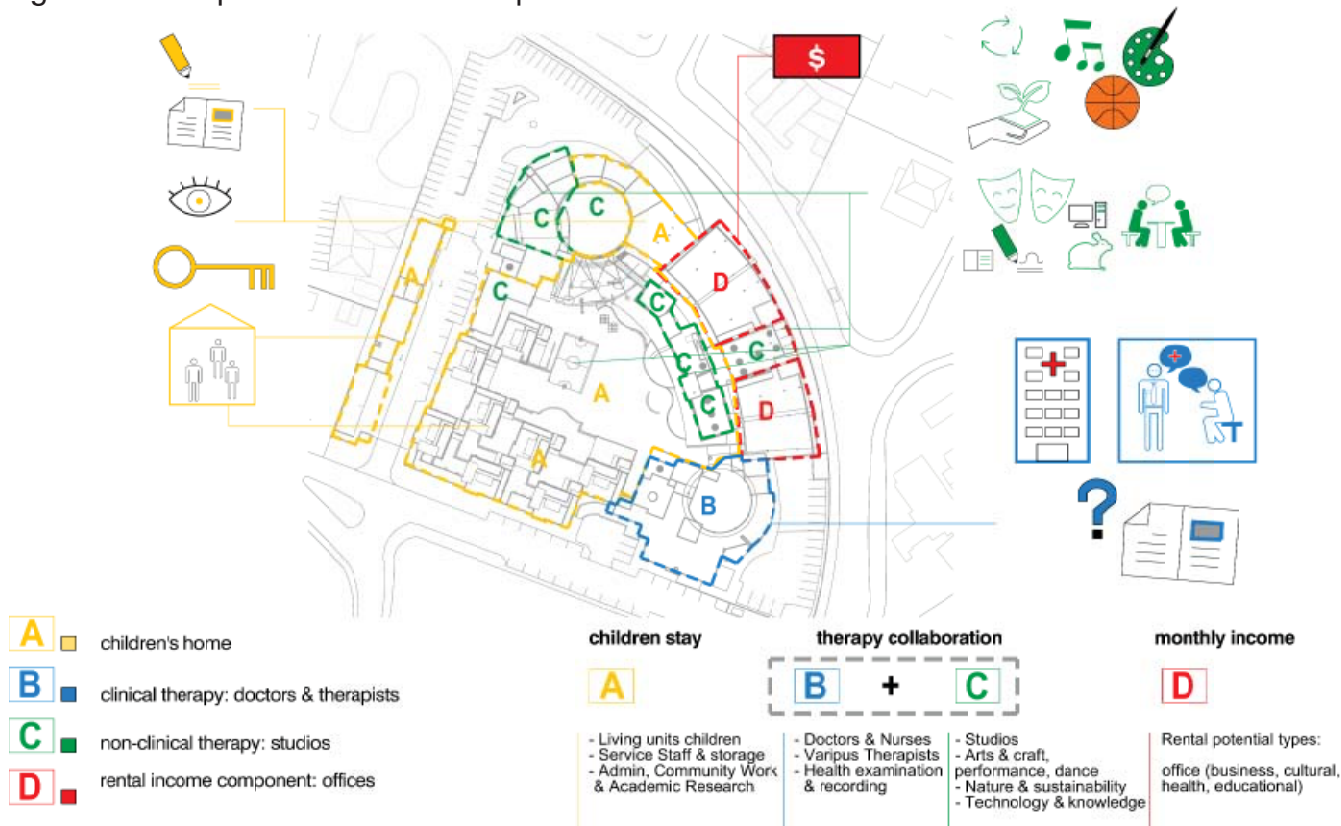


children's internal play area & studios

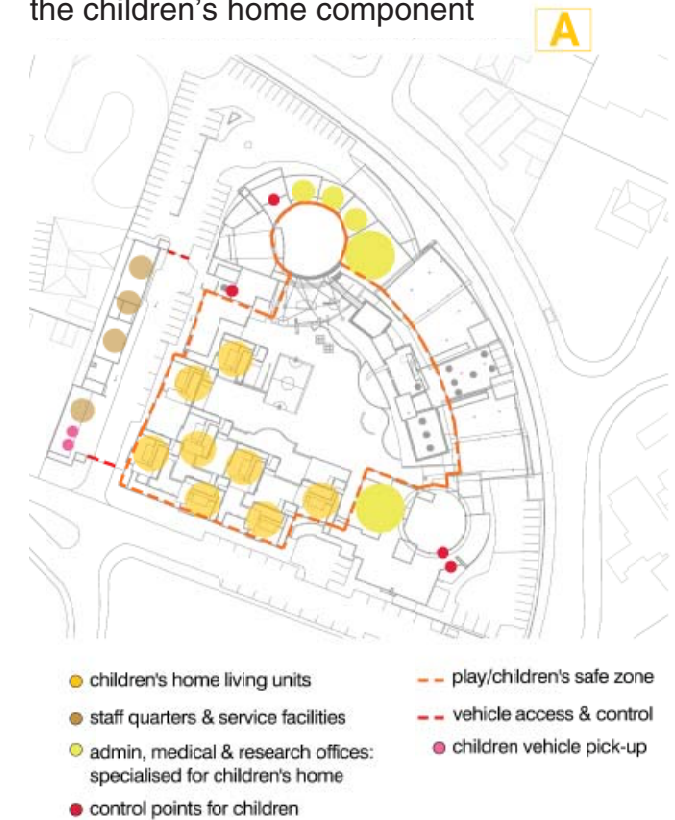


multi-purpose area: administration block

programme components & relationships



the children's home component



public, semi-private & private



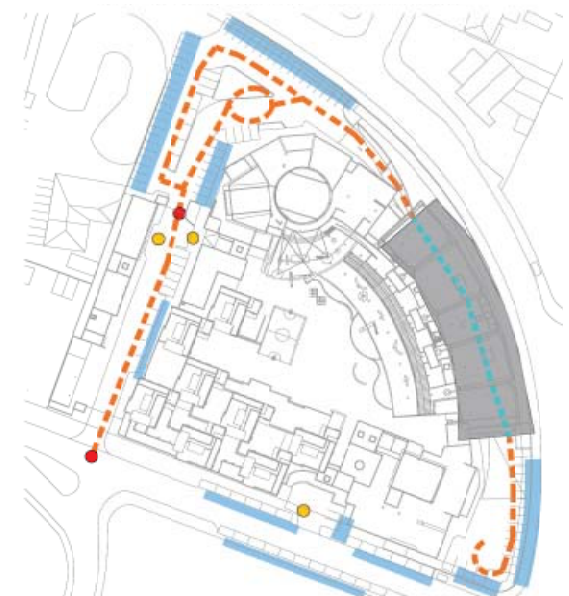
- public
- semi-private
- ... private

pedestrian circulation & control points



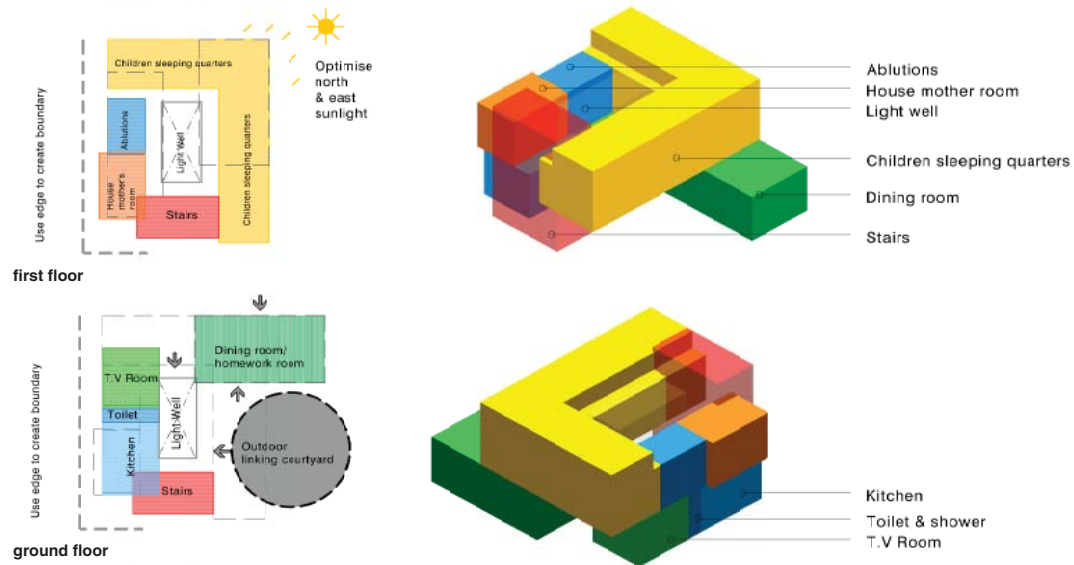
- pedestrian access public
- pedestrian access private

vehicular circulation & access

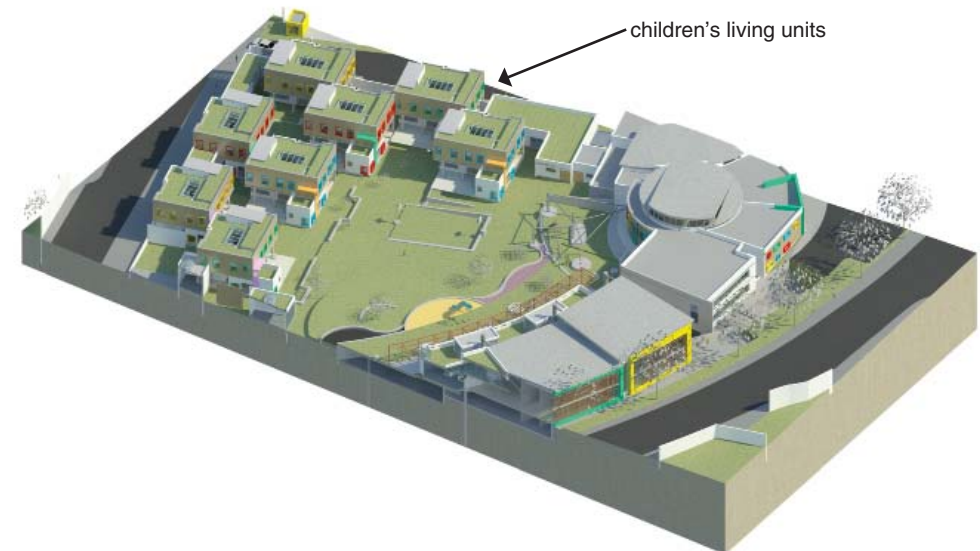
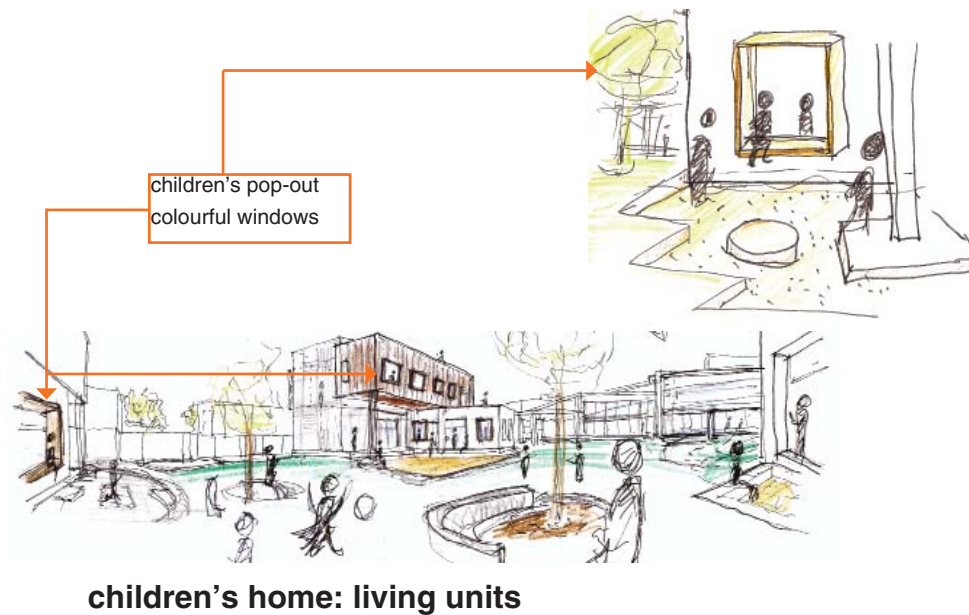
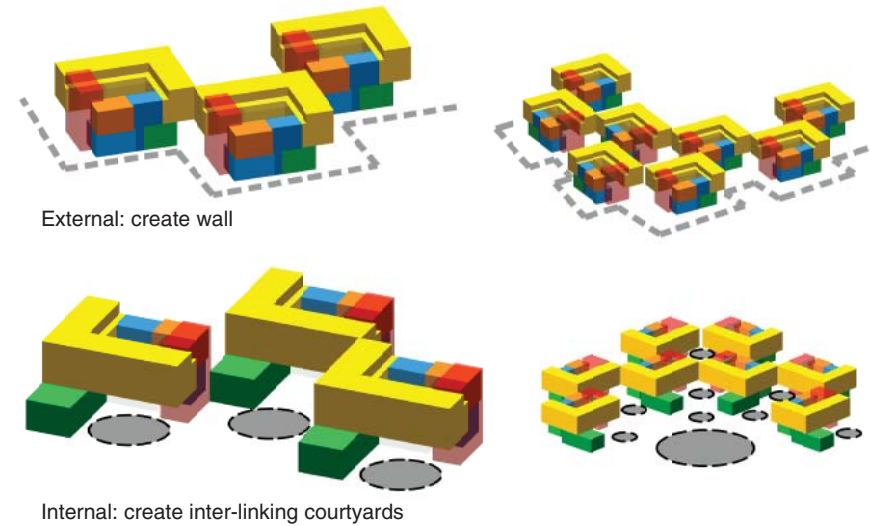


- internal vehicle road
- basement vehicle road
- basement parking
- other general parking
- loading area & delivery
- vehicle access & control

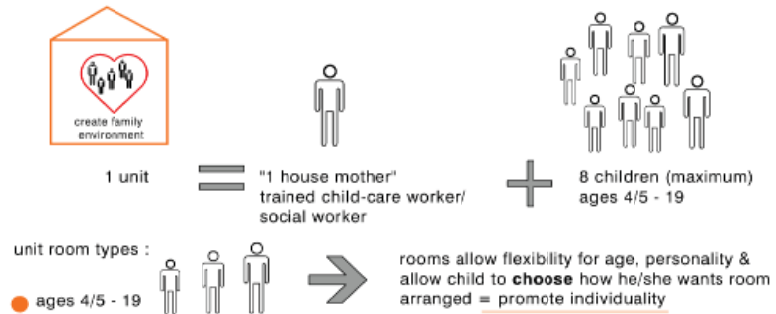
Programme for typical living unit



Connection patterns



Children's living unit concept



children's rooms arrangement options:

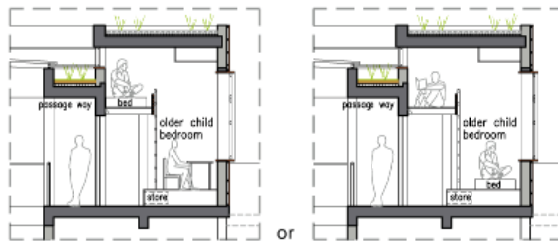
option 1: double versus single room

single: 1 person (older)

double: two children max (same sex)
- for young/new children to home



option 2: bunk bed set-up (older children)



option 3: lower bed for younger children



children's home: living units



section a

scale 1:200



elevation 1

scale 1:200

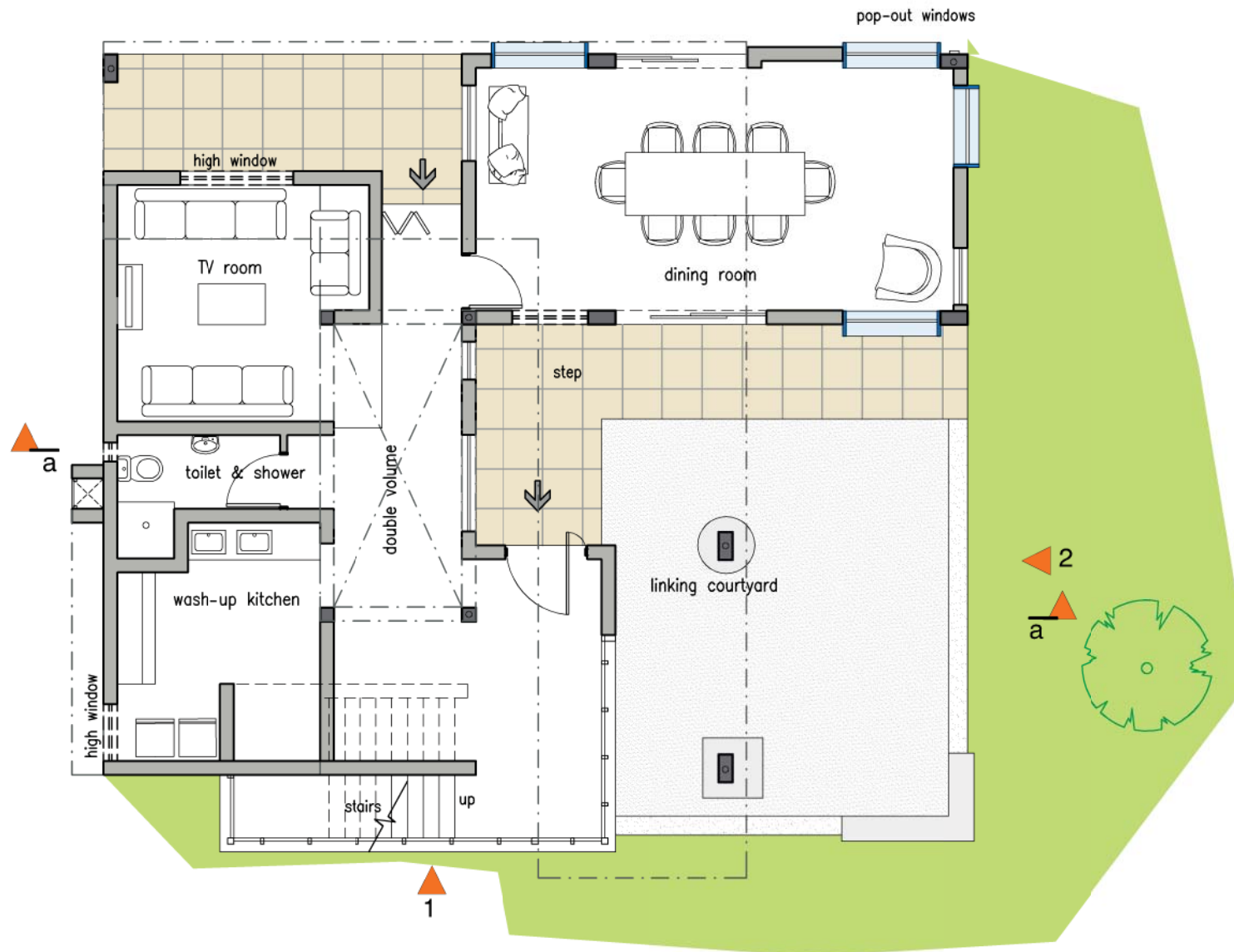


elevation 2

scale 1:200



children's home: living units



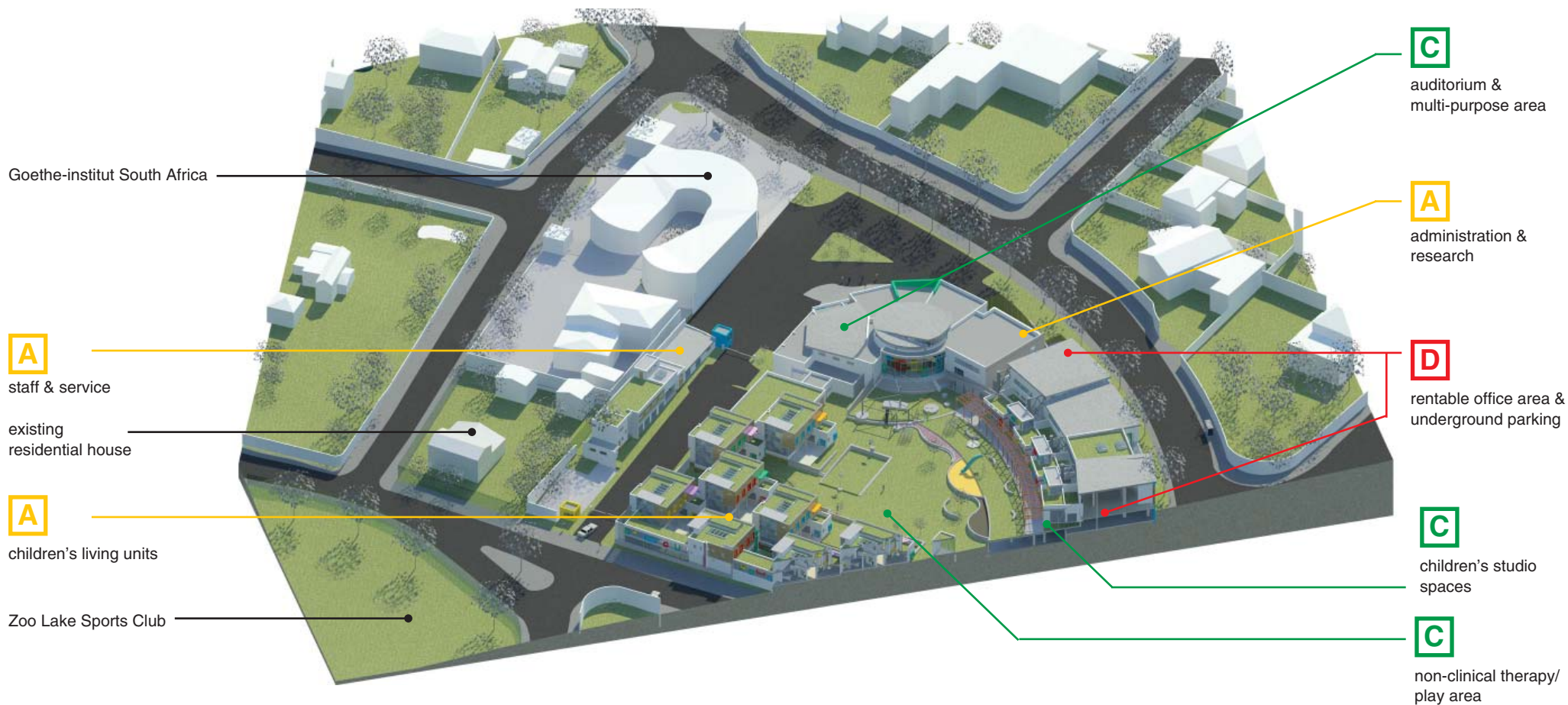
children's home: living units ground floor plan 1: 100



children's home: living units first floor plan 1: 100

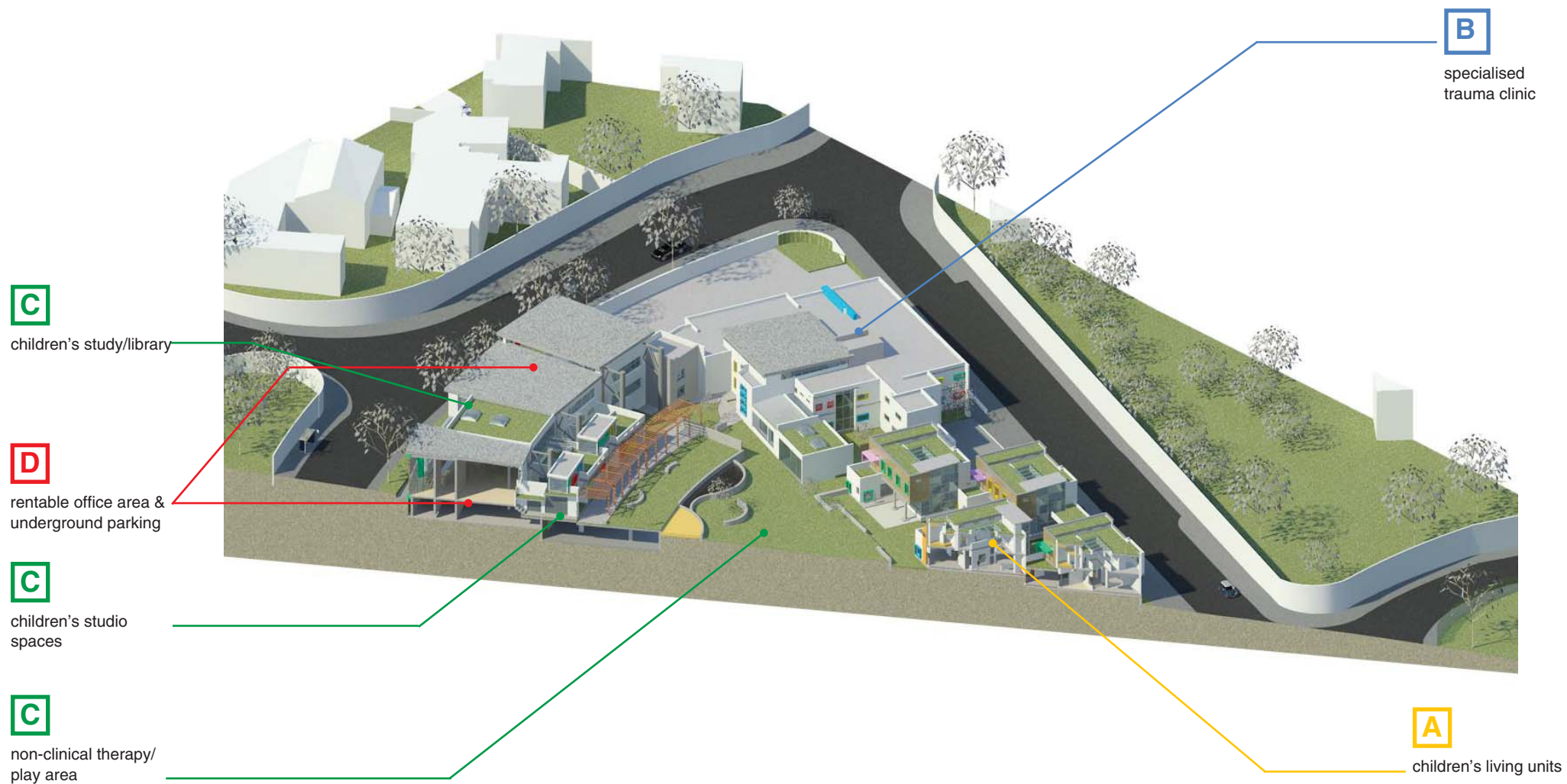


basement plan 1: 1000



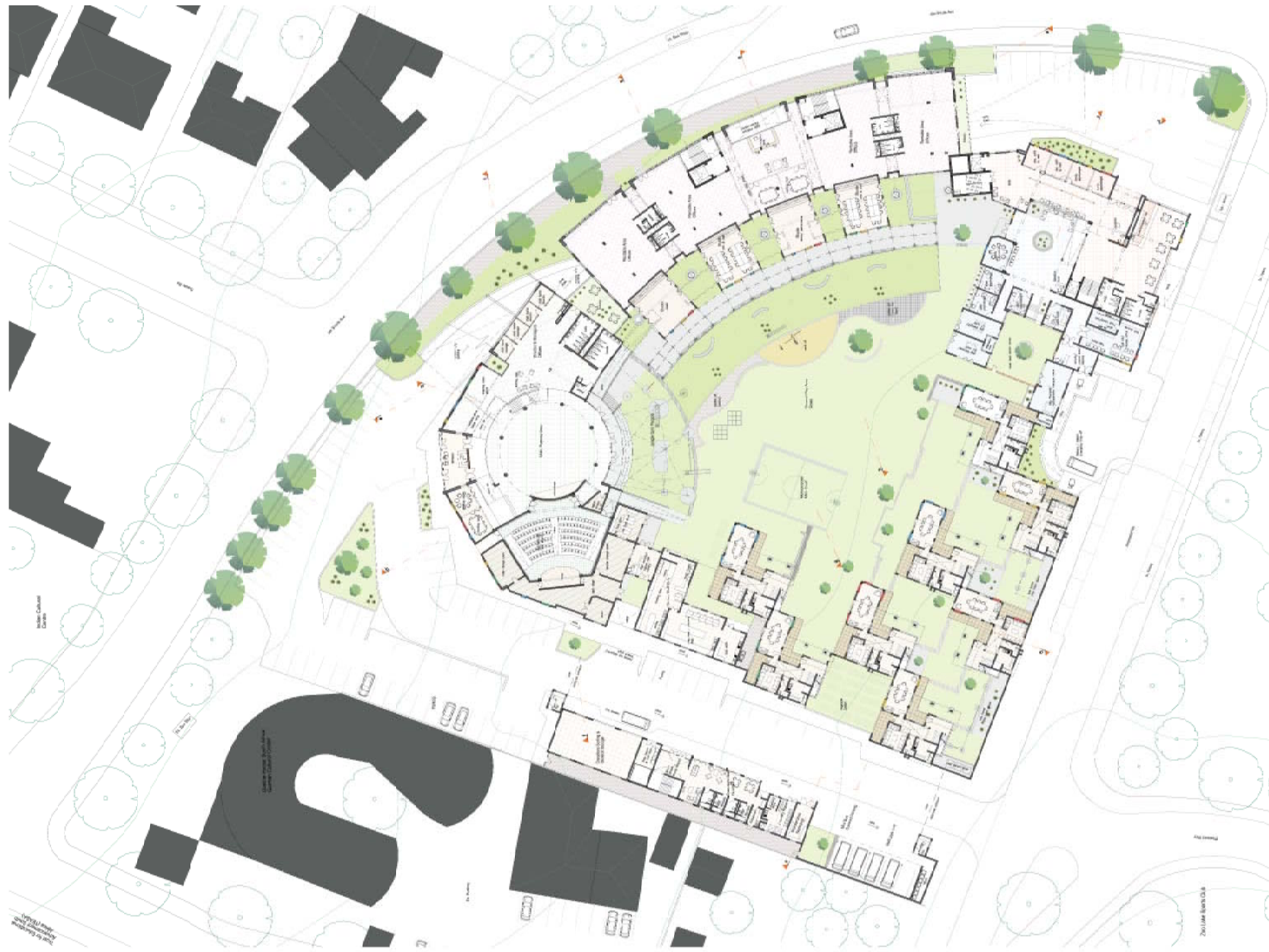
Stepping Stones Rehabilitation Home programme components:

- A** Children's home: administration and research block
- B** Clinical therapy: therapists & doctors
- C** Non-clinical therapy
- D** Rentable area (income from home)





 **site plan 1: 1000**



◀ ground floor plan 1: 1000



ground floor plan 1: 500

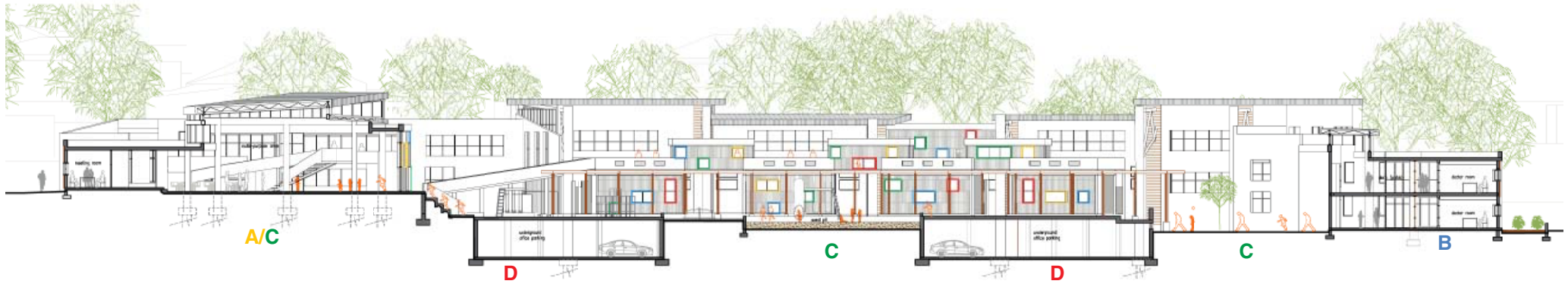


first floor plan 1: 500



- 2. Auditorium
- 3. Multi-purpose area
- 4. Meeting rooms
- 5. Administration, research & community work (children's home)
- 8. Overnight staff quarters
- 10. Security huts
- 11. Children's home living units
- 11a. Tree house/play rooms
- 14a. Children's pods
- 14b. Children's study area/small library
- 15. Rentable office area
- 17. Vertical circulation shafts
- 22. Family psychologists and other doctors' rooms
- 25. Clinic director & manger office
- 26. Staff quarters, meeting rooms & storage

 **first floor plan 1: 500**



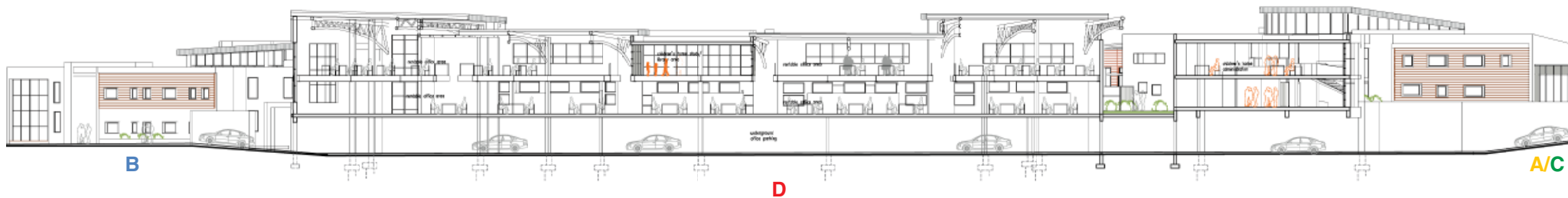
section b 1: 500



section c 1: 500



section d 1: 500



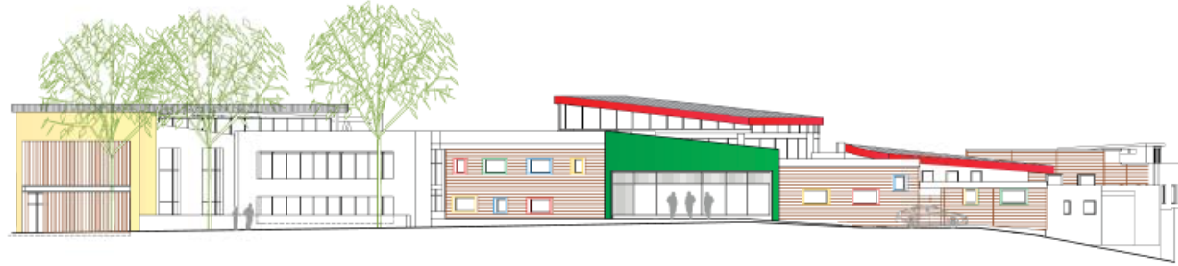
section e 1: 500



section f 1: 500



Jan Smuts Avenue elevation: children's specialised trauma clinic 1: 500



Jan Smuts Avenue elevation: children's home main entrance/administration block 1: 500



Jan Smuts Avenue elevation: rentable offices 1: 500



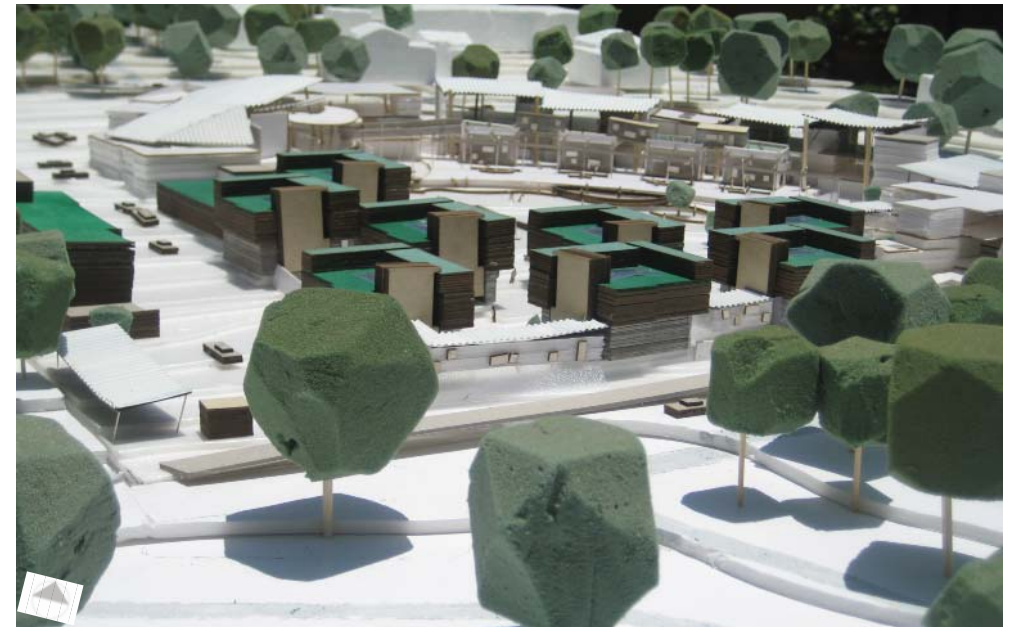


Avonwold Road elevation: Stepping Stones Rehabilitation Home 1: 500





final design: presentation model





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image references

Please note: all un referenced drawings and photographs are property of the author: Katerini Karandreas 0703740x.

figure1: Derived from Holman, 1994:239.

figure 2: Google Earth Maps 2011. Cited 01 April 2012.

figure 3: (No author). Mock courtroom mental preparation, Boksburg Kidz Clinic. INTERNET. www.wmaca.org.za. Cited 01 April 2012.

figure 4: Derived from Guild Cottage Treatment Programme, Parktown West, Johannesburg (Thod, 2012:interview).

figure 5: After Crime Report 2010/2011 from the South African Police Services (SAPS), 2010/2011:5.

figure 6: Derived from Holman, 1994:241.

figure 7: Author's own.

figure 8: Author's own.

figure 9: Author's own photo. Johannesburg Children's Home, Observatory. 15 March 2012.

figure 10a and 10c: Author's own. Photos and diagram derived from site visit. Johannesburg Children's Home, Observatory. 15 March 2012.
Guild Cottage, Parktown West. 09 March 2012.

figure 10b: Johannesburg Children's Home (1965), Observatory, Johannesburg (Saks, 2012:30-31).

figure 11a: No author. African dwelling. No date (Oliver, 1971:123).

figure 11b: No author. Ashanti courtyard house. Ashanti, 1819 (Oliver, 1971:155).

figure 11c: Diagram derived from site visits and Oliver, 1971:123,155.

figure 12: Modern day house (Ching, 2007:117).

figure 13, 14, 15: Author's own photo. Johannesburg Children's Home, Observatory. 15 March 2012.

figure 16a i: Lefaivre, 1999:68.

figure 16a ii: Van Eyck. Playground. Amsterdam (Lefaivre, 1999:36).

figure 16b: Van Eyck. Orphanage. Amsterdam, 1955-60 (Hanlon, 2009:186).

figure 17: Van Eyck. Orphanage. Amsterdam, 1955-60 (Strauven, 1996:18).

figure18a: Van Eyck. Orphanage. Amsterdam, 1955-60 (Strauven, 1996:6).

figure18a: Van Eyck. Orphanage. Amsterdam, 1955-60 (Strauven, 1996:7).

figure 18c: Ligtelijn, 1999:48,49.

figure 19a: Van Eyck. Orphanage. Amsterdam, 1955-60 (Lefaivre, 1996:40).

figure 19b: Döll, 2007:120.

figure 20: Kandinsky, W. (1923) Transverse Line. INTERNET. www.abstract-art.com .Cited 02 April 2012.

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figure 21a: Hertzberger. Montessori School. Delft, 1944-1947 (Hertzberger, 1993:33).

figure 21b: Hertzberger. Montessori School. Delft, 1944-1947 (Hertzberger, 1993:155).

figure 21c: Hertzberger. Montessori School. Delft, 1944-1947 (Hertzberger, 1993:155).

figure 21d: Hertzberger. Montessori School. Delft, 1944-1947 (Hertzberger, 1993:223).

figure 21e: Hertzberger. Montessori School. Delft, 1944-1947 (Hertzberger, 1993:203).

figure 21f: Hertzberger, 1993:203.

figure 22: Gaudi. Parc Guell. Barcelona, 1900-14 (Hertzberger, 1993:211).

figure 23a: Döll, 2007:14.

figure 23b: Children's dance studio. INTERNET. www.aiatopten.org/node/48. Cited 08 May 2012.

figure 23c: Brumleve, E. (no date) Using Art Therapy with Your Special Needs Child. INTERNET. http://www.disaboom.com/children-with-disabilities/using-art-therapy-with-your-special-needs-child. Cited 16 March 2012.

figure 24: Derived from Guild Cottage Treatment Programme, Parktown West, Johannesburg (Sheila, 2012:interview).

figure 25a: Little People (January 2012) Newsletter for the Friends of the Johannesburg Children's Home. (page 3).

figure 25b-c: Author's own. Johannesburg Children's Home, Observatory. 15 March 2012.

figure 26: Derived from Guild Cottage Treatment Programme, Parktown West, Johannesburg (Sheila, 2012:interview) & Johannesburg Children's Home, Observatory. 15 March 2012 (Govender, 2012:interview).

figure 27: Derived from Guild Cottage Treatment Programme, Parktown West, Johannesburg. (Thod, 2012:interview) & Johannesburg Children Home, Observatory, Johannesburg (Govender, 2012:interview).

figure 28: Google Earth Maps 2011. Johannesburg. Cited 03 April 2012.

figure 29: Google Earth Maps 2011. Johannesburg, Parktown. Cited 03 April 2012.

figure 30: Author's own. Zoo Lake. 25 March 2012.

figure 31: Author's own. Possible site investigation sketch.

figure 32a: Ndebele village near Pretoria, Transvaal (no date). Almasy (no date). INTERNET. www.britannica.com/bps/media-view. Cited 29 March 2012.

figure 32b: Wren, CB. (2008) www.flickr.com/photos/12969287@N05/2850211064/. INTERNET. Cited 29 March 2012.

figure 32c: Author's own. Greece, Imbros (July 2007).

figure 33a: A - Author's own photo. Lusito Association for the Mentally Handicapped, Johannesburg. 23 March 2012.

E - Herzog & de Meuron. [REHAB, Center for Spinal Cords and Brain Injuries](#). Basel, 1998. Spiluttini, M. (no date). INTERNET. archrecord.construction.com/projects/bts/archives/healthcare/05_rehab/overview.asp. Cited 30 March 2012.

figure 33b: A- Author's own photo. Lusito Association for the Mentally Handicapped, Johannesburg. 23 March 2012.

D - Author's own photo. Green Power House, Johannesburg. 26 March 2011.

figure 33c: A- Author's own photo. Lusito Association for the Mentally Handicapped, Johannesburg. 23 March 2012.

B - Author's own photo. Johannesburg Children's Home, Johannesburg. 15 March 2012.

D - Author's own photo. Green Power House, Johannesburg. 26 March 2011.

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figure 34a: A- Author's own photo. Lusito Association for the Mentally Handicapped, Johannesburg. 23 March 2012.

D - Author's own photo. Green Power House, Johannesburg. 26 March 2011.

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B - Author's own photo. Johannesburg Children's Home, Johannesburg. 15 March 2012.

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