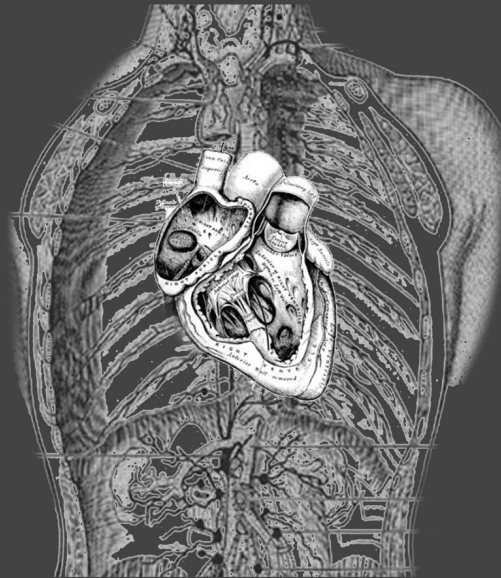
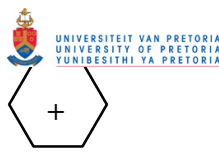

THE P_ΛACEMAKER

THE HYBRID CLINIC

The hypothesis that the combining of the western and traditional practitioners, both spatially and programmatically will cause the project intentions to be architecturally realised, gives rise to the proposed programme; **a hybrid healthcare facility.**

A hybrid, made by combining two different elements, is suggested in order to establish a middle ground between the way in which the two various medical environments are made.





DEFINITIONS & TERMINOLOGY

HEALTHCARE & CONTEXT

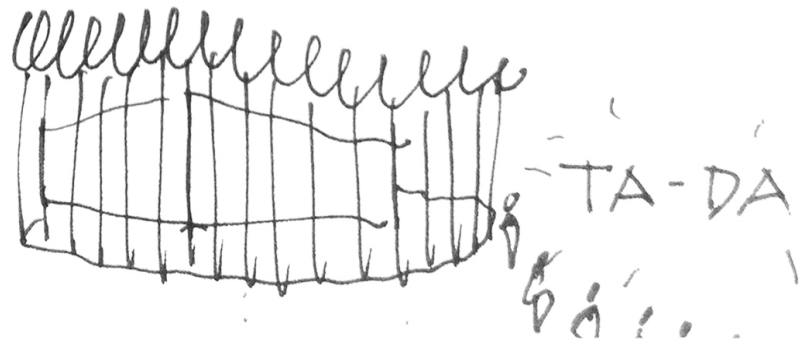
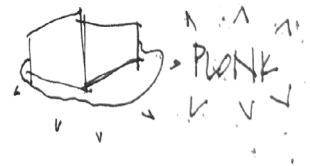
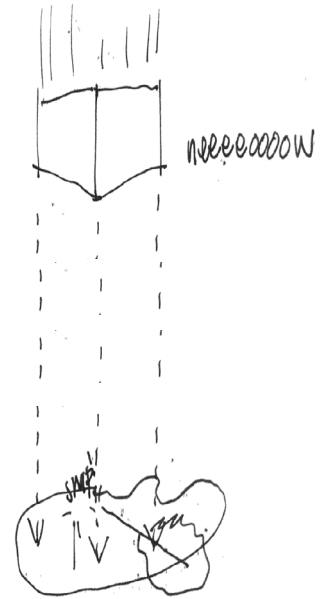
Spaza: a small trading stall - formal or informal - selling snacks, drinks and sometimes essentials, such as matches, or soap

Tavern - the colloquial term used to describe drinking establishments

[03] The P(l)acemaker

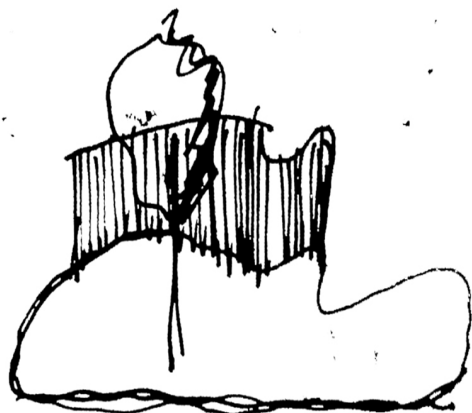
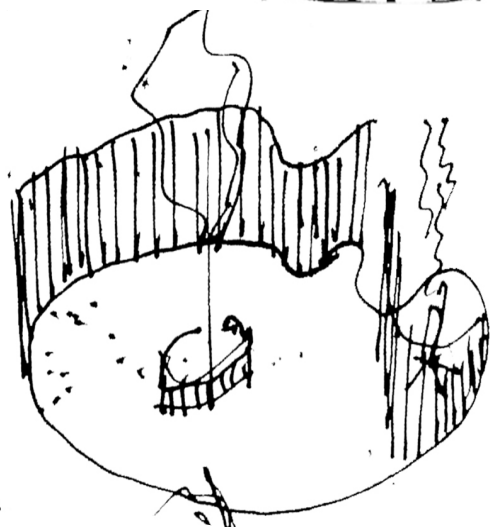
The Hybrid Clinic - Dissertation Programme

The analysis of the typical South African clinic showed that western facilities are inserted onto a site in a top-down manner. Their spatial layouts are functionally determined, resulting in internalised facilities, removed from and ignorant of their context. The functionality and practicality of these clinics results in poor spatial and patient experience. Alternatively, traditional healing spaces are derived from and respond to their context. They grow and adapt as needs arise, improvising and innovating with available materials, a bottom-up solution. Traditional practitioners however lack certain diagnostic facilities and treatment regimes. Each practice has something the other does not. This chapter analyses the pros and cons of each practice and their architectural manifestations. The conclusions drawn are compared to one another and, using the pros of the one to counter the shortfalls of the other, an accommodation schedule is generated.

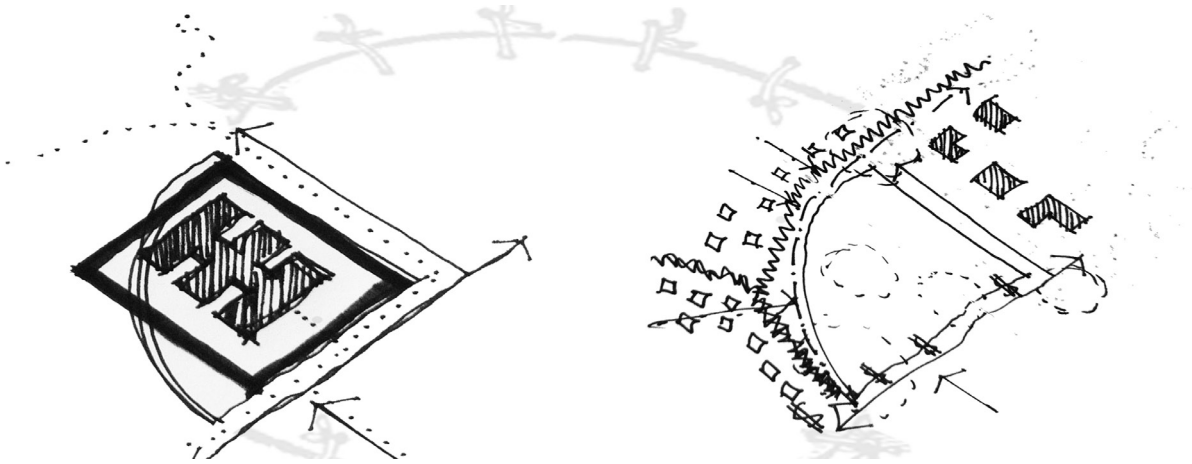




TA-DA
Bá...



03



[3.1] Injections & Incense

The Varying Practices of Medicine in South Africa

The history books are full of men claiming dominance over one another. Constantly trying to subordinate lesser civilisations, in attempts to be the dominant party. South Africa, is not excluded. Our turbulent history has brought us to this divided condition in medicine, where traditional practitioners are still excluded from the western medical fraternity.

In the 19th century, the healthcare offered by the Dutch medical missionaries, differed only slightly in outcome to that of the traditional healers. Biomedicine only became more effective following the scientific discoveries of the 20th century (Coovadia 2009). Patients visiting traditional healers were discouraged to do so by western practitioners and the two entities became, and remain, separated in space, time and philosophies.

In the build up to the disbanding of apartheid, it was hoped that traditional medicine would be recognised and included in the drafting of new health policies (Freeman 1992).

Unfortunately, this never materialised, and now, 362 years after the arrival of the Dutch, and 20 years of a democratic society – the state of the healthcare system in South Africa, remains divided.

With their cure driven anti-biotics, and vaccines, the western practice of medicine introduced a very specific, utilitarian architectural typology for clinics, hospitals and other healthcare facilities. Such buildings work by and largely for the staff more than for the patients. A healthcare system – driven largely by symptomatic solutions – has made major technological advancements, but to the detriment of the human quality of care, often reflected in inconsiderate health workers (Freeman, 1992)

This, in contrast to the holistic approach taken by traditional practitioners (Freeman, 1992).

Traditional healing involves the whole person, looking past the biological ailments of the patient and examining the social, psychological and spiritual aspects. Rather than symptomatic treatment – traditional practitioners tend to the cause and seek to promote preventative behaviour among community members. As such, traditional practitioners are often positively perceived and associated with health and healing. Unlike their western counterparts, who are largely associated with illness, pain and often, waiting.

There is an amount of referral from traditional healers to western practitioners, the opposite does not hold true, despite that is it clear that the two can benefit from one another (Krige, 1998).

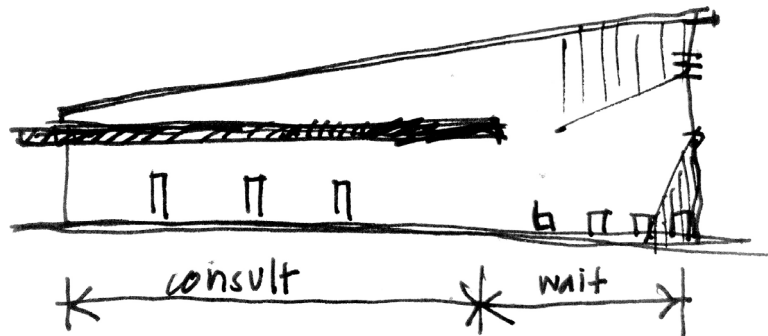


[3.2] Fortresses & Fences

Current western clinic design in South Africa

As previously established through the analysis of typical CUBP clinics, a visit to a primary healthcare facility is tedious, stressful and can be dangerous for patients, family members, as well as the staff. Anxiety caused by inefficient service is compounded by the over-crowding and poor environmental quality of the waiting spaces. Problems with the architecture of South African health-care, does not only influence the patients, but the staff too. The inflexibility and rigidity of these efficient designs has resulted in a number of undesirable situations found in such clinics today. The clinics were designed for a population and certain amount of urban growth. However, over the last 20 years, approximately 20.83% of rural dwellers have migrated to the city in search of better jobs and public amenities (SA, 2012).

There are however, a number of South African clinics, designed and built after the CUBP programme, which have recognised similar issues to those raised in this dissertation. The following examples of primary healthcare facilities were selected for their siting within informal contexts or their response to their urban conditions. These facilities were analysed using the same criteria that was used to critique the sample set and establish a typical clinic. These examples were also assessed from an architectural perspective, focusing on three key design aspects: siting, waiting spaces and ventilation. The building's relation to its urban context, its position on its site and building layouts; the quality of waiting areas, in terms of noise, light and ventilation; and the general ventilation of various spaces, were all analysed. The patient experience created through spatial hierarchy and layered thresholds was also considered in the analysis of these precedents.



[3.2.1] The Yeoville Clinic

Yeoville, JHB. Schlapobersky Architects. 1998

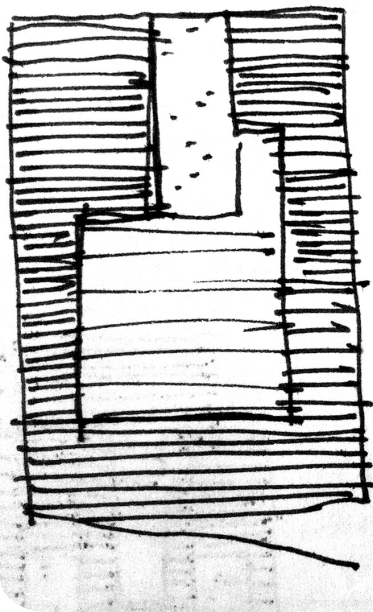
Designed in 1997 after and independently of the roll out of the CUBPs program, the Yeoville clinic sought to challenge the stereotypical clinic design of its time. According to the architect, the timing of the project, the client's attitude, and the nature of the recipient community offered a unique opportunity which demanded a responsive public building (Schlapobersky, 1998). Adjacent to public buildings built during the apartheid era, often designed to dominate their landscapes and appear unapproachable, the Yeoville clinic strove to manifest a humane approach to community healthcare (Schlapobersky, 1998). However, while the Yeoville Clinic was designed in close collaboration and consultation with the community (Schlapobersky, 1998), the resultant design does not achieve the urban responsiveness hoped for, in reference to the design intentions to inform good public space outside of the facility.

While the entrance is well articulated through the overall form, and is visible from main public areas, remains tentative in its presence within the public realm of the street. However, the sequence between the outside, public realm, into the interior waiting room, sees the patient moving through four spatial thresholds, enhancing the experience of moving from public to semi-private. This entrance sequence already creates a better patient experience to that of the typical clinic (REFER BACK TO IMAGE). The positioning of the reception desk, also allows for maximum surveillance by the nurse on duty, to both inside and outside, an important design consideration.

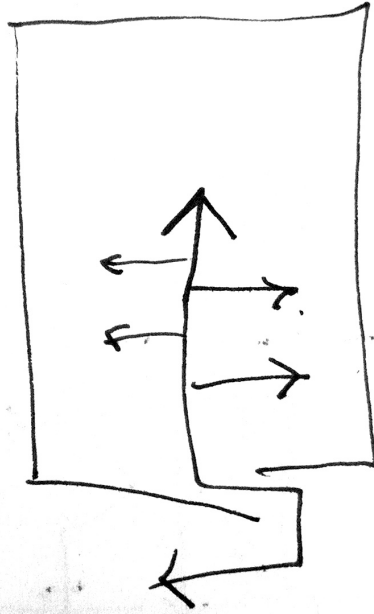
Through locating the consultation rooms directly off the main waiting area, corridors are eliminated, however this results in an abrupt transition from the waiting areas to the private consultation rooms.

The design of the waiting area, while still internalised, is improved by the construction of high ceilings and adjustable windows at the highest point, to allow for stale, hot air to be ventilated out of the space.

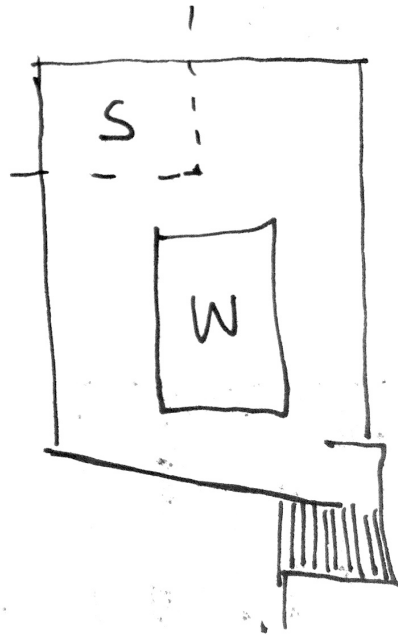
The design of the Yeoville clinic breaks away from the standard government issued plans and successfully minimises the amount of circulation space. However, it remains a largely internalised building, with no real interaction with or effect on the public realm in which it sits.



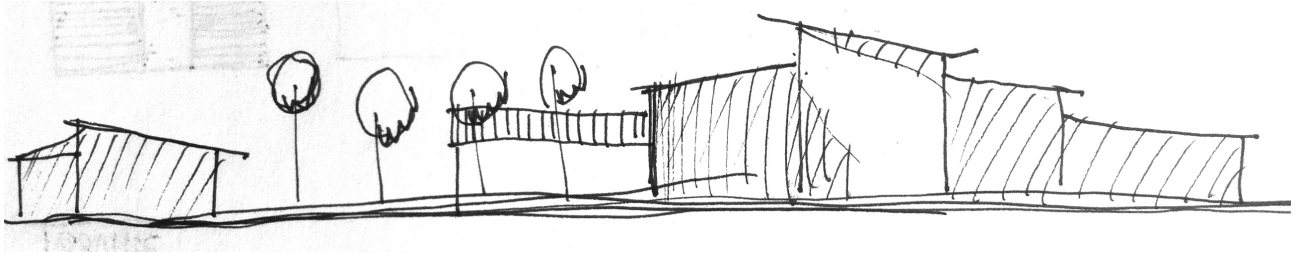
Buildings to Covered Space



Circulation Routes



Public Interface & Waiting area



[3.2.2] The Van Guard Clinic

Langa, CT. Lucien le Grange Architects & Urban Designers. 2001

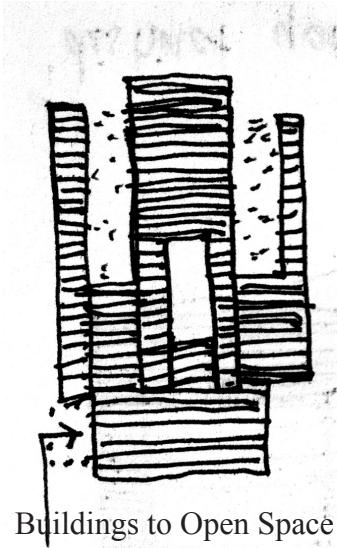
The Van Guard Clinic in Langa, Cape Town, is the best example of local precedent, which successfully divides waiting spaces, thus minimising the number of patients in each waiting area. Legibility and coherence are achieved, despite this division, through the varying scale of space. Movement spaces are interrupted by the shift in position of a wall, creating natural eddies and pause spaces. These waiting areas have a connection with nature – be it a view, or courtyard access.

From the large, primary waiting space (waiting for records receiving), the clinic is divided into four clearly articulated wings, each serving a different group of patients. This filtering separates out maternity, emergency and general patients.

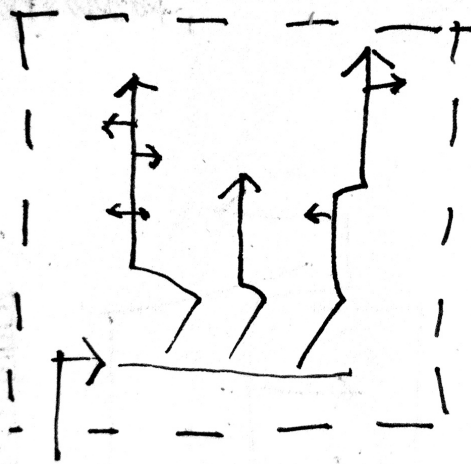
Screening elements are positioned slightly angled to the imposing grid and are used to guide patients out of the main waiting space and into an appropriate wing. The accessible courtyards create the boundaries between the wings and ensure that all spaces, be they congregational or private, have access to a view and fresh air.

As with the design of both the previous example, the main waiting area is articulated with a high ceiling and large openings for ventilation purposes. The roofs of the sub waiting areas are lower than those of the primary waiting area, and finally the consultation spaces are lower still, creating a legible transition from public to intimate space.

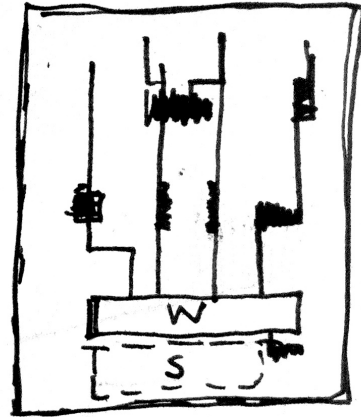
While the other two examples have an impact on the public realm in which they are situated, the Van Guard clinic remains an isolated, internalised building, isolated from its context by a car park and fence.



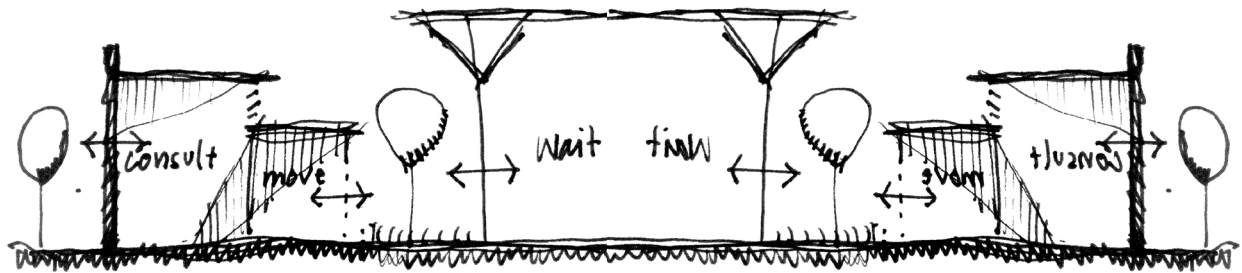
Buildings to Open Space



Circulation Routes



Public Interface & Waiting area



[3.2.3] Grassy Park Clinic

Grassy Park, CT. Amanda Katz Architects & Anesa Barbosa. 2011

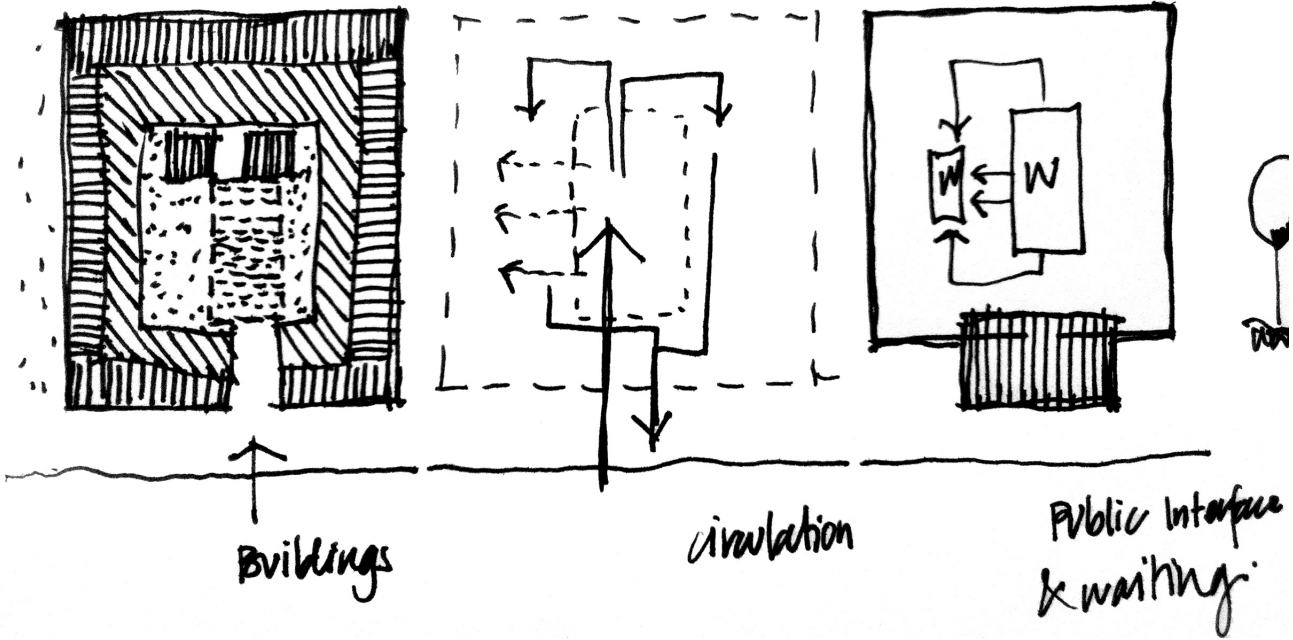
Completed in 2011 the Grassy Park Clinic, in Cape Town, is the most progressive of the three examples and explores the notion of Salutogenic design and healing environments within the design and deconstructs the typical clinic design, resulting spaces flooded with natural light and naturally ventilated. The waiting area and corridors have visual, if not physical, access to internal courtyards. (The concept of Salutogenesis is discussed in detail later. In short: it is a concept that focuses on the sources of health and healing, rather than symptoms and illness)

As with all clinics in South Africa, security is a concern and the clinic is protected by a boundary wall. However, the Grassy Park Clinic creates an invitational threshold through a clearly defined entrance structure which proverbially steps over the clinic boundary, making its presence known in the public domain. Considered seating is provided outside the clinic boundary, and the perimeter is well landscaped and decorated, thus even simply walking along the adjacent pavement is a pleasant experience. The seating and shelter outside of the clinic itself is evidence of consideration for patient comfort, preceding clinic opening hours.

In this example, the corridors are widened, to additionally serve as sub-waiting areas. These sub-waiting corridors are separated from the main waiting area by internal courtyards. This increases the threshold between the main waiting space and the consultation spaces, and allows for patients to exit without having to traverse the main waiting area again. This design feature relates back to the notion of healing environments, by creating a round route from sickness to healing, rather than the in and back out the same way route, typical of most clinic designs.

The Grassy Park clinic's consultation rooms are also designed to forge a new, less confrontational, relationship between patients and doctors. This layout allows for patients to sit next to, not opposite the practitioner, breaking down the typical subservient relationship created by past layouts. The main waiting area, while still predominately internalised, opens itself to gardens and large openings allow for the space to be well ventilated, creating pleasant waiting conditions. The forecourt's presence within the public realm of the street, the external landscaping elements and considered provision of street furniture, result in a clinic that influences and improves the public realm in which it is located.

This example realises the dissertation intentions to define public space, consider patient experience and mitigate inter-patient transmission of airborne disease.



[3.2.4] Similar Patient Cases

Conclusion

The examples discussed all challenge the typical clinic, in both form and planning. The architects have considered patient comfort and experience, as much as they have staff efficiency. All three waiting spaces are designed to better mitigate the risk of inter-patient disease transmission and for improved patient comfort within the waiting areas. These precedents prove that healthcare facilities can be more than places for (slow) service delivery – however none of them attempt to deal with or include traditional practitioners into the scope of the facility and still remain largely internalised. There are important lessons identified in each of these designs, but also limits that can still be pushed and further explored.

Among these clinics, there are still government-issued clinics being built. The Department of Health works in conjunction with the Council for Scientific and Industrial Research (CSIR) in attempts to improve healthcare delivery in the country.

Most recently (April 2014), the CSIR has produced the Infrastructure Unit Support System (IUSS) documents. These outline best practice design principles for healthcare facilities, based on understanding disease evolution and continual research surrounding healthcare facilities.

The document dealing with primary healthcare facilities (PHCs) highlights the need for such buildings to extend beyond the scope of their monosyllabic predecessors. Multi-purpose community halls and nutrition gardens are called for; passive ventilation design principles are encouraged to minimise the transmission of TB among users... but still – traditional practitioners are excluded.

The Deputy District General (DDG) for Health in the North West, Doctor Andrew Robinson (2014) has been trying for a number of years to integrate the network of traditional practitioners into the clinic structure. According to Robinson, (and statistics SA 2014) 80% of African community members still go to their traditional practitioners before they visit a western clinic (2014).

In Durban, Robinson managed to establish a reliable referral system – whereby traditional practitioners, working in the Warwick Triangle, would refer patients who had severe conditions or contagious diseases, on to the clinic in the same precinct (The Warwick Centre for Communicable Diseases). However, never vice versa. It was hoped that a reciprocal relationship would form between the nurses and traditional healers of Warwick, which would help to establish and strengthen the proposed health precinct between the clinic and traditional medicine market. However, this never transpired and the precinct is now another taxi rank (Robinson, 2014).



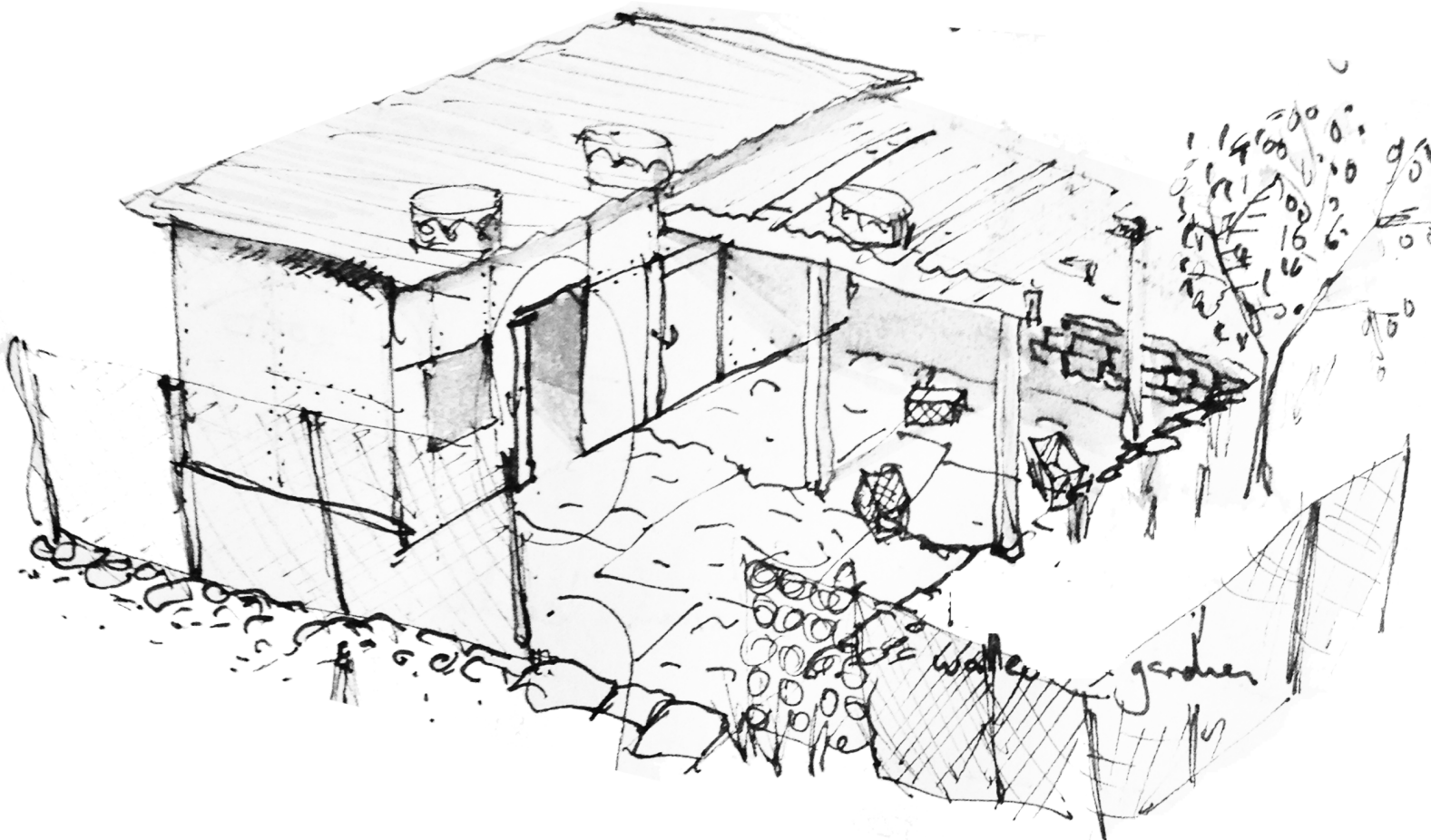
03

[3.4] Beads and Bones

Current traditional practitioner design in South Africa

Someone who is recognised by the community in which he lives as competent to provide healthcare by using vegetable, animal and mineral substances and certain other methods based on the social, cultural and religious background as well as the prevailing knowledge, attitudes and beliefs regarding physical, mental and social well-being and the causation of disease and disability in the community (Krige, 1998).

In the South African context, traditional practitioners can be classified into 3 broad groups: traditional doctors or *Inyanga*, Diviners or *Sangomas*, and Faith Healers or *Umprofethi*. Initial observations and interviews conducted within the settlement discovered that there are active traditional healers, of all three categories, practicing within the community. Treatment by traditional practitioners involves restoring harmony within the patient's body, as well as between the body and the cosmos (Krige, 1998). Patients are viewed within the larger context of their lives, and illness is understood to stem from imbalances therein.



While, unlike their western counterparts, traditional practitioners do not have any regulations or standard design guide lines for healing spaces, they do require certain spaces for certain rituals and for cultivation of medicinal plants.

Figure x is the diagrammatic analysis of one medicine man's practice and home from Alaska, while figure y is the drawing completed by two healers, when we asked them to draw their ideal practice space and what their spatial needs were. The entrance ritual is extended through a number of deep thresholds, before the patient is seated before the healer. The first being the property fence boundary; where the patient moves from an extremely public street, down a few stairs and into the semi-public forecourt. The spaces are soft, but distinct. It is clear that from the forecourt, the patient needs to move under the canopy, to remove his shoes, before entering the healer's home. In relation to each other, the semi-public external areas are much larger than that of the interior. There is a clear progression from the open street to the intimate consultation space.

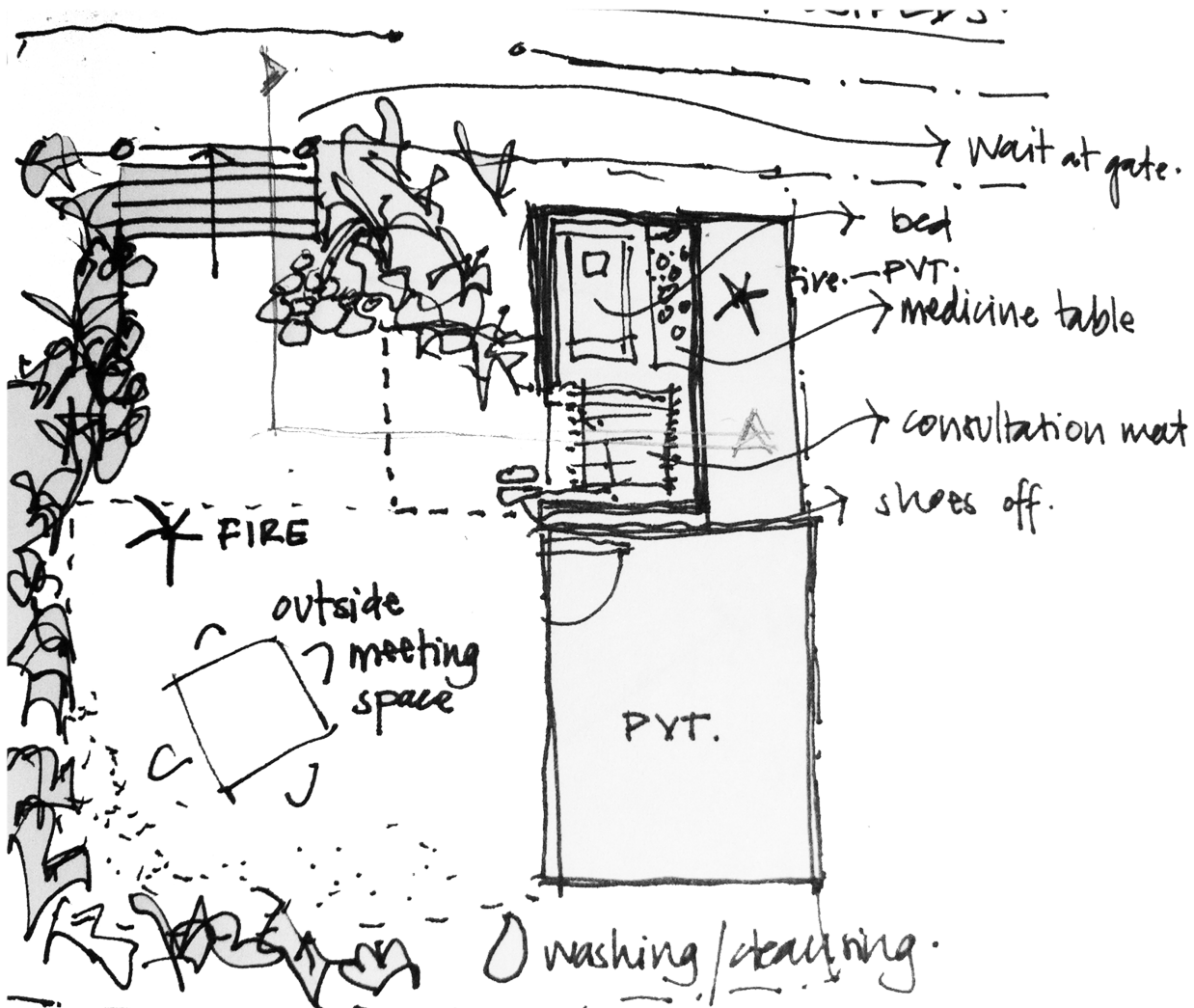
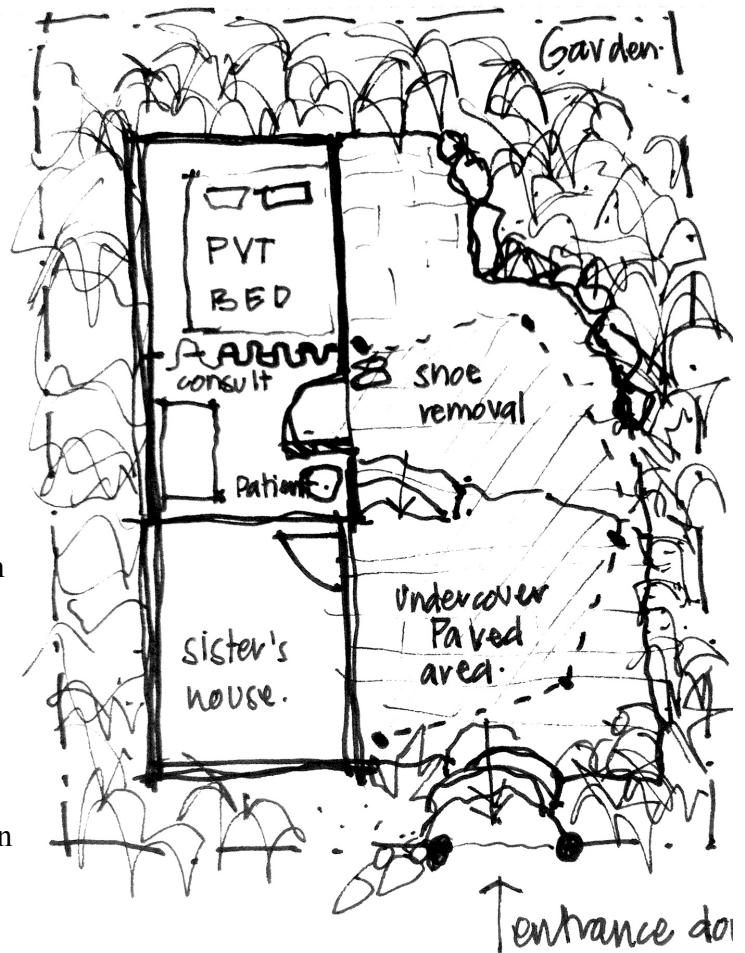


Figure a, b and c are also diagrams of traditional practitioners' homes and healing spaces, showing many similarities to that of x.

a, is a small faith healer located close to the landmark tree within the settlement.

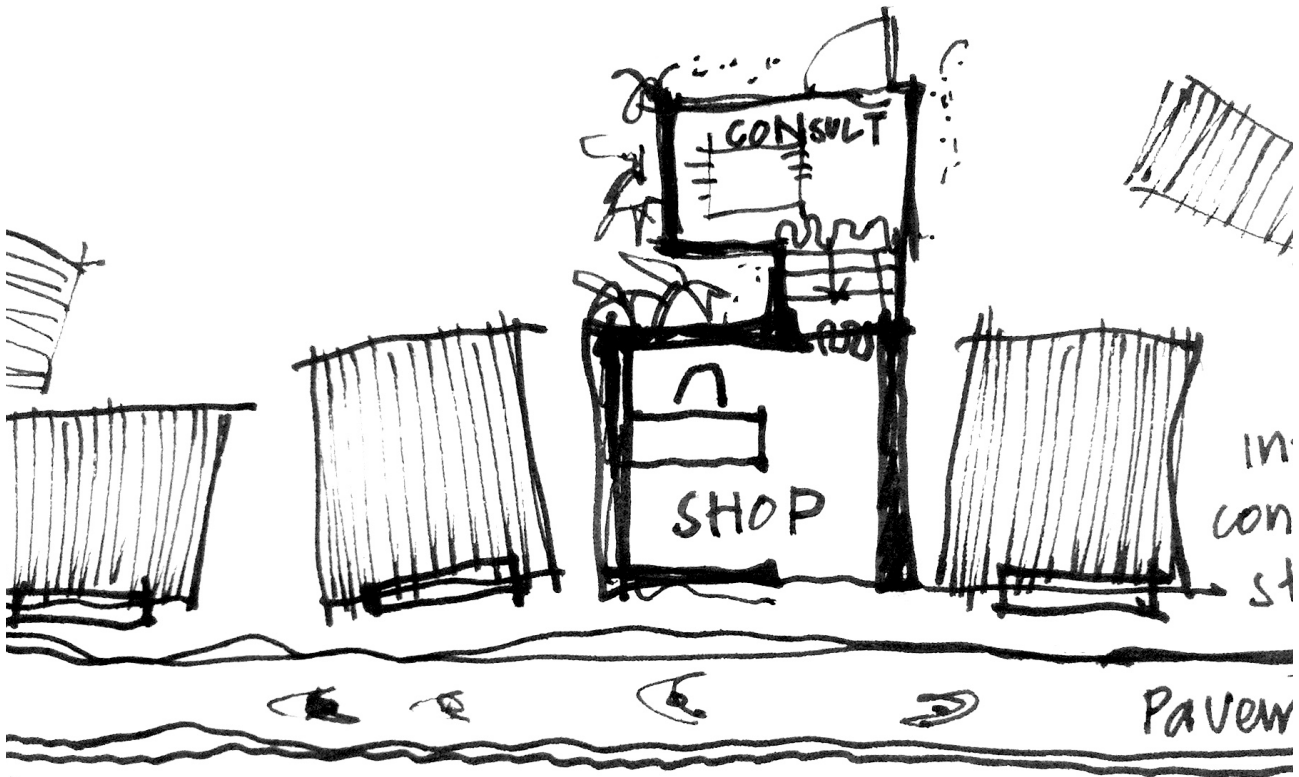
B is of a practitioner who gets most of his income from the sale of medicine. He runs a small practice out the back of his shop, on the main road into Alaska.

And c, is master of traditional medicine and runs a large productive park, on the top of the mountain. Although he is not directly within the context, the plants and herbs he produces are sold to a number of practitioners in the settlement. He runs a nursery for mass production of certain plants, but in addition, makes use of the layout of his gardens to help the healing process. Patients are made to meander through the serpentine landscape, to the herbal remedy they require.

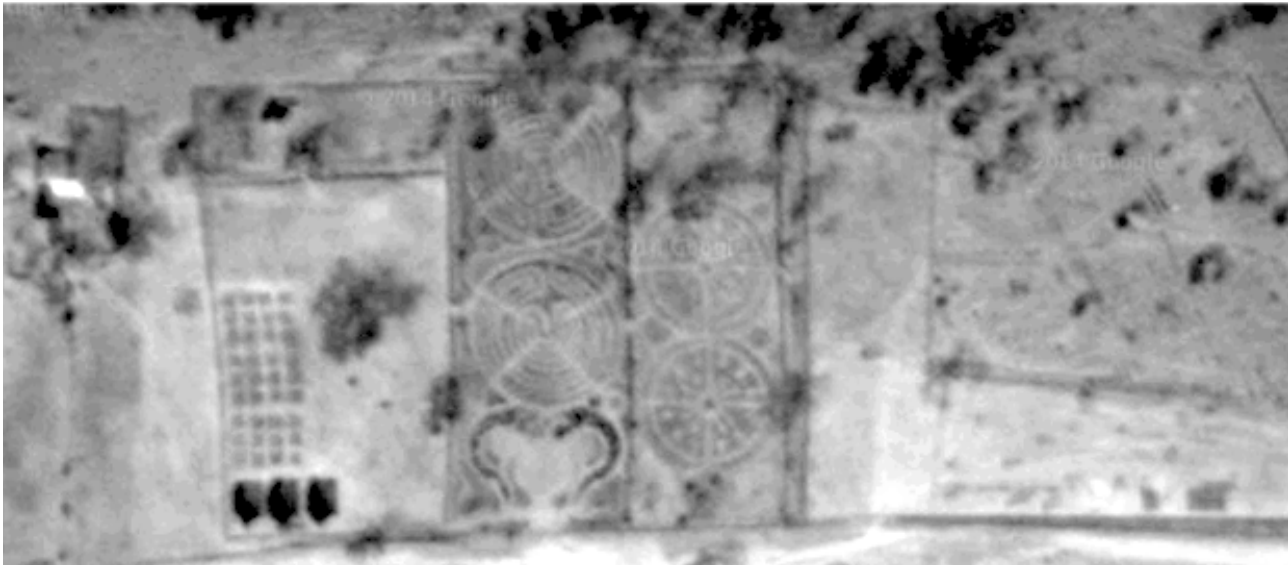


Often, traditional medicines are administered in a variety of ways. Teas, plant juices and some pastes are administered orally. Some powders and pastes are applied as an ointment; while others are dissolved into a bathing solutions, which are used by the practitioner to wash the patient. Medicines can also be inhaled, through snuff, smoke, or inhaling the steam of a boiling solution (Krige, 1998). The bathing and smoke rituals both require certain spatial requirements, which were expressed in the drawing exercise. Fig y shows the need for a washing area – where patients can be cleansed and the explicit need for an outdoor area, for smoke rituals.

The understanding of the layout of traditional healers' homesteads is important to digest as an influential spatial model and design informant. The spatial layering places emphasis on certain pause nodes, such as at the door, before entering, when one is made to remove their shoes. The shaded semi-public space in front of the house is large in relation to the interior consultation space. This external area acts as both a reception and waiting area, and a ritual area for water and smoke rituals.



03



[3.5] Stethoscopes and Smoke

Literature Supporting the Integration

The ratio of doctors to people in South Africa is 1:40 000, compared to the ratio of traditional healers to people, which is 1:5000 (Colvin, n.d.). This statistic makes it clear to see that traditional healers are far more accessible to patients than western practitioners are.

In a study completed in rural KwaZulu Natal, Colvin (n.d) demonstrated the effectiveness of using traditional healers as TB drug distributors and medication supervisors, but they remain still, an untapped healthcare resource. (The Direct Observation Treatment (DOT) program requires the patient to consume their TB medication in front of a supervisor, who has to sign a register until the course is complete.)

In another study, investigating the health-seeking habits of people in sub-Saharan Africa, it was proved that there is a delay in patients accessing TB treatment. This delay is caused by patients seeing their traditional healers before seeking western medical care, and can be detrimental to the patient's response to treatment (Barker, 2006).

While the interviews with traditional practitioners in Alaska determined that patients are immediately referred to conventional clinics upon presenting with TB or HIV, the merging of the two disciplines will allow the practitioners to work more closely with one another and potentially reducing the risk of treatment delay through a more direct and mutual referral system.

Kate Robinson (2014), speaking at the Future Healthcare symposium, highlighted the delicate and symbiotic relationship that can be established between an AIDS patient's traditional practitioner and western doctor. During the early stages of Anti-retroviral treatment (ARVs), the nutritional support, through herbs and teas offered by the traditional practitioner is beneficial to the patient. However, once the patient's CD-4 count drops below a certain threshold, these teas can become detrimental to the patient. If traditional practitioners and western doctors worked together, within the same facility, the critical stage could be easily identified and patient risk reduced.

Western medicine need not be overruled by traditional, and traditional medicine no longer needs to be shunned by western fraternities.

In a paper exploring the range of options available when integrating traditional healers and western medicine, Freeman et al (1992) establish three strategies that could be adopted:

- Complete separation
- Incorporation,
- co-operation and
- total integration.

The incorporation approach would allow traditional healers to be integrated into a primary health-care system as ‘first-line’ healthcare practitioners. The World Health Organisation suggests that the inclusion of traditional healers would spread curative as well as preventative and promotive health-care, because of traditional healers’ availability and influence over communities.

Dissemination of knowledge to influence members of the community is essential to enlist their co-operation in modifying attitudes and in motivating people to carry out health promoting practices. [...] Not only are traditional healers influential, but they are acceptable to and utilised by a large part of the African community.

The co-operation, or collaborative, approach would not see traditional healers officially incorporated into the system, but rather establishes a mutual referral system between biomedical practitioners and traditional healers.

Finally the total integration approach would see the healing system evolve into a completely new systems, in which patients would receive a combination of treatments and practitioners would operate within the same facilities (Freeman, 1992).

These diverse studies and integration theories all offer support for the proposed program. The programmatic intention of the Hybrid Healthcare facility program is not to create an alternate health spa, but rather to create a facility that allows for Freeman’s (1992) co-operation approach. The intention is create a centre for the promotion of health. Where good hygienic living habits can be taught and instilled, where community members can receive advice on nutrition for various life stages, to create a place where children are able to learn about the importance of vaccinations, rather than to be instilled with a sense of fear for doctors, nurses and needles.

Krige (1998) highlights the role traditional healers play in health promotion and the influence they have within their communities. Thus including traditional practitioners within the healthcare facility could change both the perceptions of clinics and the very nature of the facility itself.

Through creating spaces that allow for health to be fostered within the community, the dependency on the clinic for every ache and pain could be reduced and simultaneously, the pressure on the healthcare system.

The traditional healer should be formally and legally recognised as a healthcare resource, but one that operates within totally different paradigms, each with its own code of ethics and criteria. The traditional and western healthcare services would (then) run parallel to each other with mutual recognition of the services each can provide. (Levitz, 1992)

[3.6] Pathogenesis & Salutogenesis

Design Principles

Salutogenesis, a word derived from the Latin *salus* or *salutis*; meaning health and Greek genesis; meaning origin, is concept focusing on finding and examining factors which are responsible for the formation and maintaining health (as defined by the WHO). Salutogenesis is not opposed to the wider known concept of Pathogenesis, but rather the healthy pole of a health-disease continuum (Buch 2006).

An ideal state of health is attained by addressing the root causes of unhealthiness, not by simply treating an illness - Aaron Antonovsky

Unlike the common pathogenic model, which treats infection and disease only once it presents itself, the salutogenic model works to prevent disease before it occurs. This model has been derived into a design approach for healthcare facilities. The approach involves identifying stressors (sources which prevent a state of health being achieved) in healthcare settings and reducing or countering them in order to create environments that make people more comfortable, healthier and happier (Owners perspective 2014).

From the analysis of the western and traditional healthcare models, it becomes clear that they are pathogenic and salutogenic models, respectively. The lessons gathered from the analysis of traditional practitioners' spaces and layouts can be understood as salutogenic design principles.

The three major issues identified and dealt with by this dissertation can all be understood as stressors within the healthcare context. And the corresponding project intentions to remedy the insertion into the context, and to create patient-centric, healthy clinic environments, can all be realised through salutogenic design principles.

There is no salutogenic 'norms and standards' or design guide book, therefore for the sake of this investigation, the dissertation defines Salutogenic design principles as a set of design principles that enable a state of physical, mental and social well-being to be fostered in patients, staff and greater community in which the healthcare facility is situated.

[3.6.1] Fresh Air & Natural Light

Evidence Based Design

Architects often note the healing potential and influence of their work on the human psyche. While it is undeniable that architecture has a profound effect on the way people feel, it remained difficult for designers to substantiate their claims (van den Berg, 2005). While contemporary medicine is more easily defined, tested and quantifiable; there is a growing body of evidence to support the healing properties of both architecture and nature. Evidence-based design (EBD) scientifically demonstrates the effects of architecture and validates the healing claims made by architects. Hamilton (2004) defines evidence-based design as the *architectural parallel and analogue to evidence based medicine*. This allows design practitioners to use the best possible evidence on the effectiveness of environmental interventions to make decisions on hospital design (van den Berg, 2005).

Intuitively, most people have a hunch of the healing power of nature, and recently, such hunches have been investigated and are now supported by scientific research. This research proved that reductions in anxiety, blood pressure and pain can be achieved through a patient's contact with nature (Ulrich 1999, in van den Berg, 2005).

In an attempt to make all the research and studies done on the healing effects of nature, more accessible, a systematic review of relevant literature was compiled and published in 2005, entitled: 'Health Impacts of Healing Environments; A review of evidence for benefits of nature, daylight, fresh air and quiet in healthcare settings'. The studies focused on the health impacts of daylight, nature, natural ventilation and noise. While the results indicate areas that need further, more stringent inquiry, they also offer guidelines and recommendations for the design of healthcare facilities. The primary design guidelines being:

- Provide a generous supply of fresh air,
- visual access to nature,
- sound-Absorbing ceiling tiles, and
- Allow for natural light (van den Berg, 2005).
-

[3.6.2] Flora and Vistas

Healing Landscapes

In her book, 'Healing Gardens', Cooper Marcus (1999) brings to one's attention three specific aspects of the healing process: relief from physical symptoms, stress reduction and increased levels of comfort, and finally, improvement in the overall sense of well-being (Cooper-Marcus, 1999).

In the garden, healing occurs as a result of a direct connection between the patient and the environment; this, in contrast to mediated healing that occurs internally, within healthcare facilities. The detail design of these healing, or restorative gardens, has an impact on their effectiveness. Visual privacy is an important factor when considering the design and orientation of windows onto the garden spaces.

[3.6.3] Dosage

Saltutogenic Design Principles

In response to and based on the project issues and intentions, the EBD principles, theories around healing landscapes and guidelines for healing environments suggested in the IUSS documentation, the salutogenic design principles for this project are listed;

- Design for users (staff and patients) satisfaction, dignity, privacy and respect
 - Visual privacy in consultation rooms
 - Acoustic design should ensure privacy between rooms and generally reduce noise within the facility
 - Comfortable public furniture and climatic appropriate weather shelters in waiting areas
- Provide views out of the building to natural spaces; distant views or into gardens
- Provide healing landscapes, which can also serve as community vegetable gardens
- Allow for maximum daylight inside clinical spaces (if appropriate)
- Additional interventions that serves the greater community; such as soup kitchens
- Include of traditional practitioners within the facility
- Provide a clinically safe and good indoor environment, through:
 - an ergonomic layout to avoid long distances for patients or staff
 - Legibility assisted by way finding devices should consider illiterate patients
 - Ventilation should mitigate the risk of inter-patient transmission of airborne pathogens



[3.6.4] Medical Tools

Accommodation Requirements

Each model - the pathogenic and salutogenic - requires various accommodation.

The requirements for consultation rooms, emergency facilities and other diagnostic facilities, used to treat patients who are already ill - the pathogenic accommodation - is determined by the scheduling guidelines in the IUSS (2014) documents.

While the number of required spaces will be adhered to, the spatial resolution of consultation room and waiting areas will be guided by salutogenic design principles, such as the inclusion of natural light, fresh air and views out of the building.

The salutogenic accommodation, the outdoor spaces, multi purpose halls and community spaces is also guided by suggestions made in the IUSS (2014) document and based on supporting existing activity in and around the site. These spaces will also be influenced by pathogenic design principles, such as infection prevention control and the use of anti-microbial materials.

The current estimated population of Alaska is 20 000 residents (Kriel 2013). According to Table 2 (IUSS 2014) 5 consultation rooms is required for every 10 000 patients. The clinic would thus require a minimum of 10 consultation rooms initially.

The geneology of the settlement is indicative of how the population may continue to grow.

10 consultation rooms should be the absolute minimum starting, with room for expansion, as the population grows - this is also in accordance with the design intentions to create a flexible, adaptable facility that is able to respond to changes in its context.

Population requirements	
Community Health Centre	
Population Threshold: 60 000 - 140 000 people	
Clinics	
Population Threshold: 5000 - 70 000 people	
Sizes	
Small: 5000 - 20 000	
Large: 30 000 - 50 000	
Extra large: 60 000 - 70 000	

Calculating number of STANDARD CONSULTING rooms required for a general clinical service			
Catchment population		10 000	people
Access rate - all services (non-medical aid portion of population)	83%	8 300	people
Anticipated annual contacts (per person per year)	5	41 500	people consults per year
Assume 100% users use the consulting rooms; users accessing consulting room		41 500	consultations per year
Assume open 52 weeks per year: users per week	52	798	consultations per week
Appointment duration (average 12 mins)		0.20	hours
Users appointment time required per week (hours)		160	hours
Operation hours per week		40	hours
Room utilisation per week	80%		
Rooms available		32	hours
Number of standard consulting rooms required		5	rooms

(IUSS, 2014)

Quantity	Room/ unit name
10	CONSULTING ROOM, STANDARD
1	PROCEDURE ROOM
1	PHC EMERGENCY ROOM
2	VITALS ROOM ADULTS
2	SPUTUM COLLECTION CUBICLE – EXTE
MIN 1	COUNSELLING ROOM
MIN 1	OFFICES
MIN 1	MULTI-PURPOSE ROOM
MIN 1	CONSULTING COUGH
1	NURSE STATION
1	HELP DESK
1	DIRTY UTILITY
1	CLEAN UTILITY
1	CLEANERS ROOM
1	ADMISSION COUNTER
1	STORE – LINEN
1	SLUICE ROOM
1	WASTE DISPOSAL ROOM
1	STORE GARDEN
1	PHARMACY CLINIC DISPENSARY
1	RECORDS ROOM (Archives)
1	STAFF ROOM + LOCKERS
1	STORE – GENERAL
2	TOILET
	WAITING AREAS & SUB-WAITING
1	SICK BAY
	PLAY AREA
	AMBULANCE SHELTER
(OPTIONAL)	STAFF ACCOMMODATION

[3.6.4] Medical Tools Accommodation Requirements

The list of accommodation in table 3, provides the design with the requirements of a typical western clinic. Not included in this table are the salutogenic accommodation requirements.

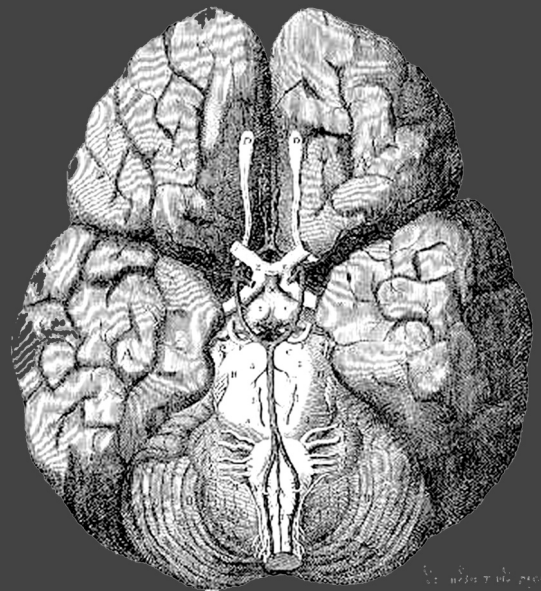
The design intentions to create a facility that defines a public space, to include traditional practitioners in the facility and salutogenic design principles outlined in 3.6.3 give rise to a number of additional spaces that are not included in this table.

- Open public square that can be used as a waiting space before the facility opens in the morning.
- Shelters for informal traders, adjacent to the public square
- Traditional practitioner consultation spaces - with access to private outdoor spaces, for certain rituals.
- Nutritional gardens (including medicinal herbs and plants)
- Community hall

THE PATIENT

ALASKA

The informal settlement of Alaska forms the broad context of the dissertation.



[4.1] Medical Journals

Theory of how to work with and within informality

The methodology chapter (02) discussed how the engagement process should occur with the community. Here three specific strategies of community engagement are briefly analysed and used as lenses through which the mapping of the physical context occurs. The approaches provide guidance on not only what to look for in the physical context, but how to read into direct observations and then how those lessons gained, may influence the design.

[4.1.1] P.E.A.S

Nabeel Hamdi

Nabeel Hamdi (2010) uses the P.E.A.S acronym to summarise his strategy. Provide, enable, adaptability, sustainability. Hamdi recommends *providing to enable (2010)*, rather than charitable provision. implying that what ever is provided, is done so in support of existing structures within the settlement. The provision the intervention, should allow for existing networks or activities to be strengthened and enhanced through it.

Enabling the community through this form of provision allows for the community to move from a state of vulnerability to one of resilience and self-reliance.

Adaptability, or loose fit, implies that whatever is provided, is able to change to continue to serve and enable communities as they change. And finally S, sustainability. Less associated here with the green environmental movement, the term is used to suggest that whatever is added, durable and long lasting - both in terms of the physical interventions and the intended effects on the intangible networks.

[4.1.2] Building for Communities, with Communities

Francis Kere

Kere focuses his process around four design principles:

- Building for communities, with communities
- Buildings of the context
- Innovative Twists
- Importance of education

When entering a community or new context, Kere looks for both unique construction techniques and common ones, which he employs in design in order to allow the local, unskilled community to construct the majority of the building. This means that local materials are used, which supports local

economies, creates a building that is one with its environment and becomes a cultural expression of the community.

Working primarily in rural environments, Kere minimally introduces abstract materials, such as steel and concrete, which allows the architecture to speak of the modern needs of a building, while still maintaining the integrity of the vernacular architectural language.

Finally Kere places an importance on education. A large number of his buildings are educational facilities, he also emphasizes the importance of a broad scale architectural education, taught to the community during the construction process, in which they are involved.

In terms of Hamdi's P.E.A.S, Kere's provision of the building enables the community through education and involvement in the design process.

[4.1.3] Turning Construction Process into Development Strategy

Mass Design Group

Mass design group is based in rural Rwanda and, like Kere, exploit the architectural construction to benefit the community.

In the construction of the Butaro District hospital, Mass employed over 2000 unskilled community workers (most woman) to mix and pour the concrete for the building. The building is located in the Rwandan mountains, inaccessible to cement trucks, and what started out what seemed to be a large design constraint, turned into an opportunity to empower the local community.

The designers noticed use of local volcanic stone, used in most of the local informal construction of dwellings. However, the stone was always painted over. The architects employed a few stone masons and through a trial and error process, were able to teach the masons to build with the stone in a different way.

The masons were taught a new skill and the building created a sense of familiarity through the use of a local material.

The various approaches and projects discussed, have all be examples of projects where the role of the architect has shifted from that of provider to enabler. This is not the end of architecture – merely an extension of it. Through the methodology, the dissertation sees the designer as an interpreter and mediator.

These three specific approaches all look for local construction methods, material use and interpret them in the design resolution. The mapping will thus focus on materiality and its relation to the context, patterns in construction techniques and interesting, unique objects, which are not typically construction materials, but could be interpreted by the designer into an architectural element. Such as Kere's use of local clay post as skylights (figs x&y).

(The documentation of innovation is done in the chapter 6: Refinement)





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[4.2] Dislocated Limbs

Alaska as a marginalised suburb

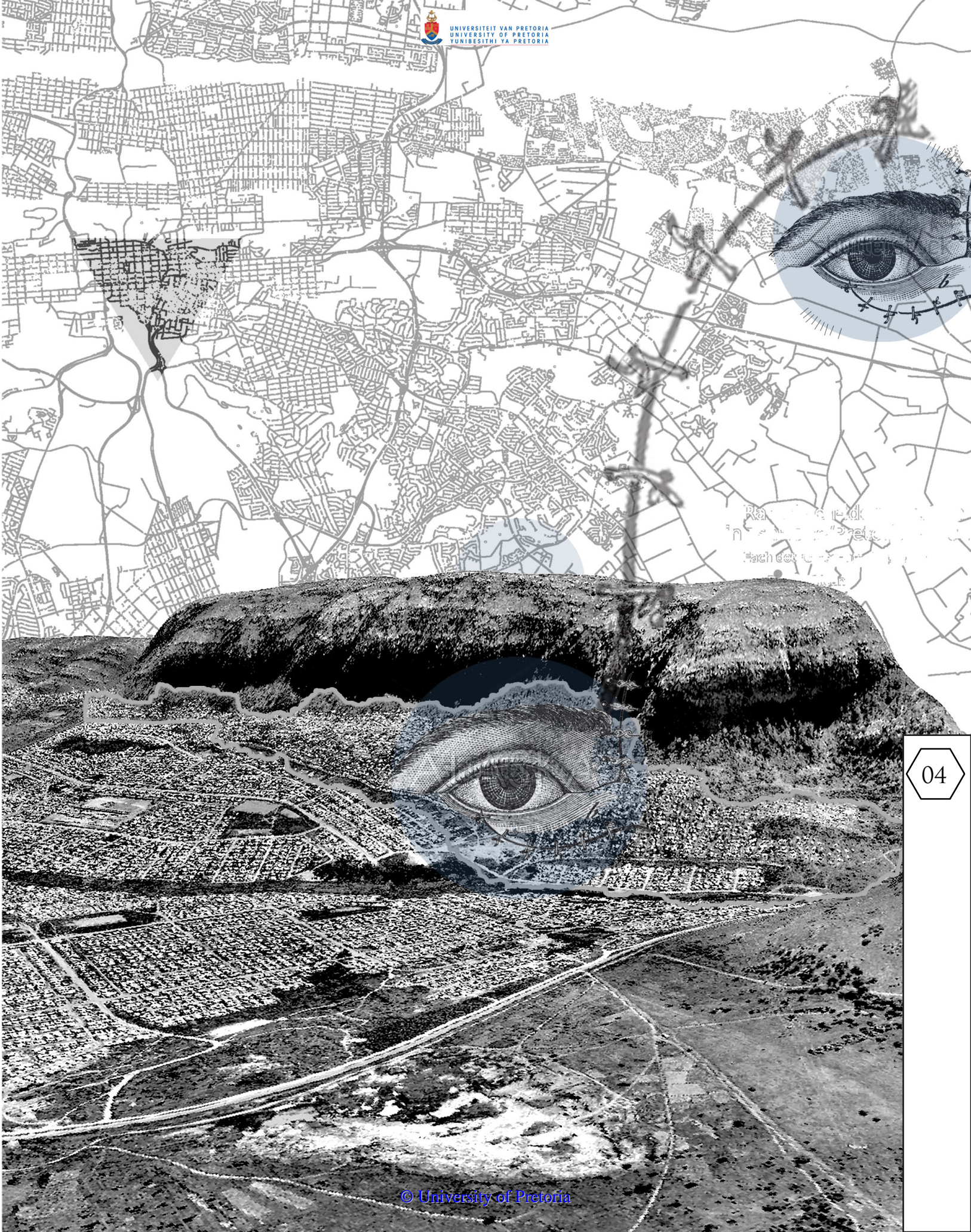
Based on the analysis of three architects' approaches to working with communities, it was established which conditions and patterns would be important to look out for when beginning the mapping process. The observations vary from the larger context of Mamelodi, right down to construction details of individual shacks. Both physical and social patterns are identified.

Some observers drew parallels to the former apartheid models, since vast tracts of houses were still being constructed on cheaper land at the edges of towns and cities. Being remote from job opportunities, the impoverished residents are burdened with transport costs, as well as the generation of inordinate bulk services. The worst indictment is the lack of identity arising from rows and rows of faceless houses, in nameless settlements, few if any communal facilities and arbitrary road patterns. (Harber 2011)

Mamelodi is Pretoria's oldest township and is home to 256000 people. (SAHistory 2014). During Apartheid, according to the Group Areas Act of 1951 it was designated as a black area. While the dismantling of apartheid rendered this law obsolete, the population demographic, as of the last census, remains predominantly the same. (Fig X-Z above)

The post-apartheid Governmental top down approach of housing and clinic provision has failed the majority of Mamelodi residents. Despite the annual provision of 200 000 monotonous Reconstruction and Development Program (RDP) houses, the housing backlog persistently increases and informal settlements continue to grow. The development focused on individual house provision, ignoring the in-between spaces, resulting in a lack of civitas in these new estates. Additionally, the location of such developments remains removed from business opportunities and public amenities, and thus the cycle of the urban poor is perpetuated. Spatially, apartheid is still intact.

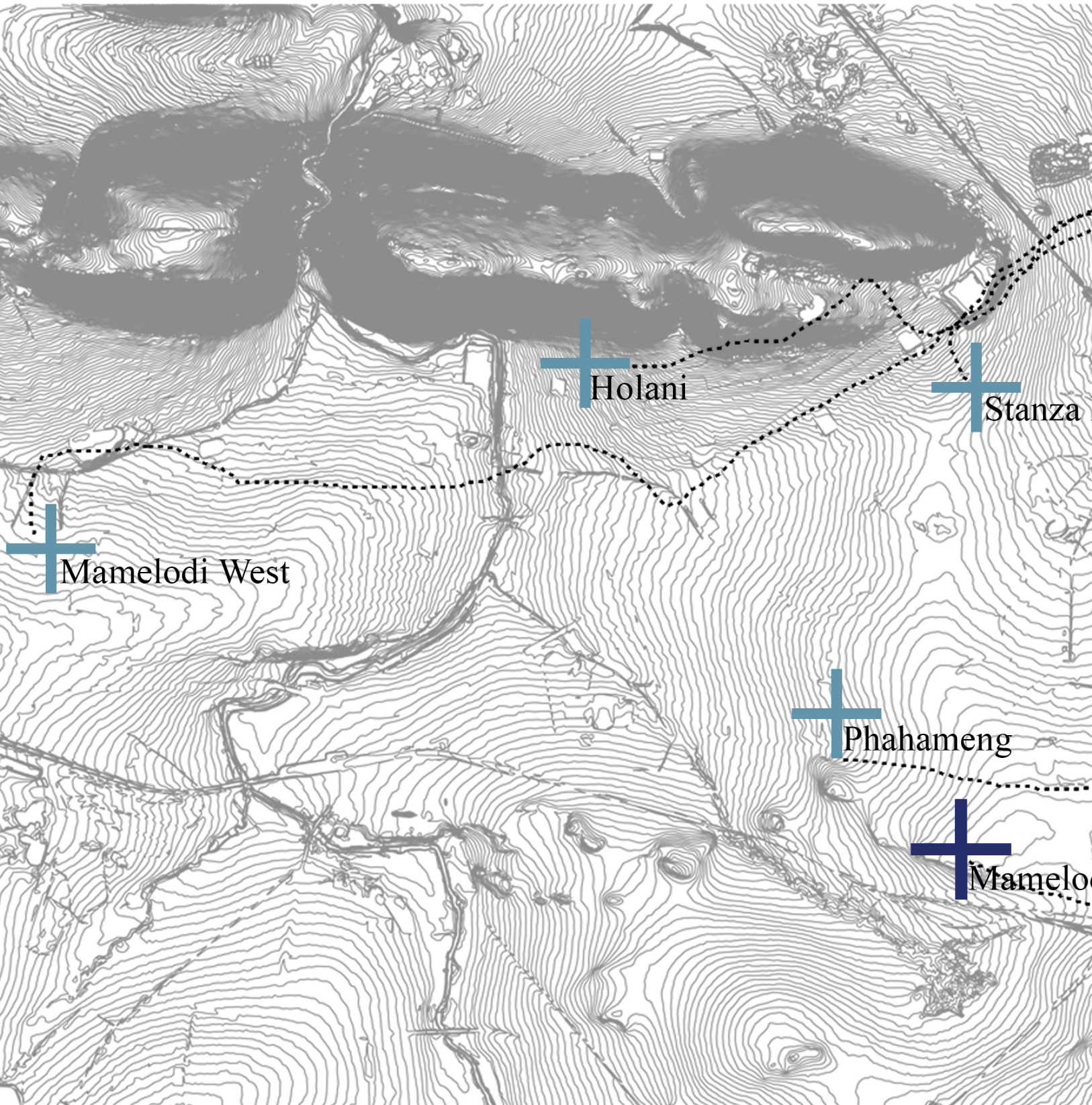
Alaska, the focal context, is a relatively young informal settlement, on the far Eastern boundary of Mamelodi. It is nestled on the slopes of the Magaliesberg, between the mountain ridge, Lusaka; an RDP development and the Elandspruit River. Living somewhat parasitically off the governmental services provided to Lusaka, Alaska is home to approximately 20 000 residents, most of whom are migrant workers from outside of Tshwane (REF).

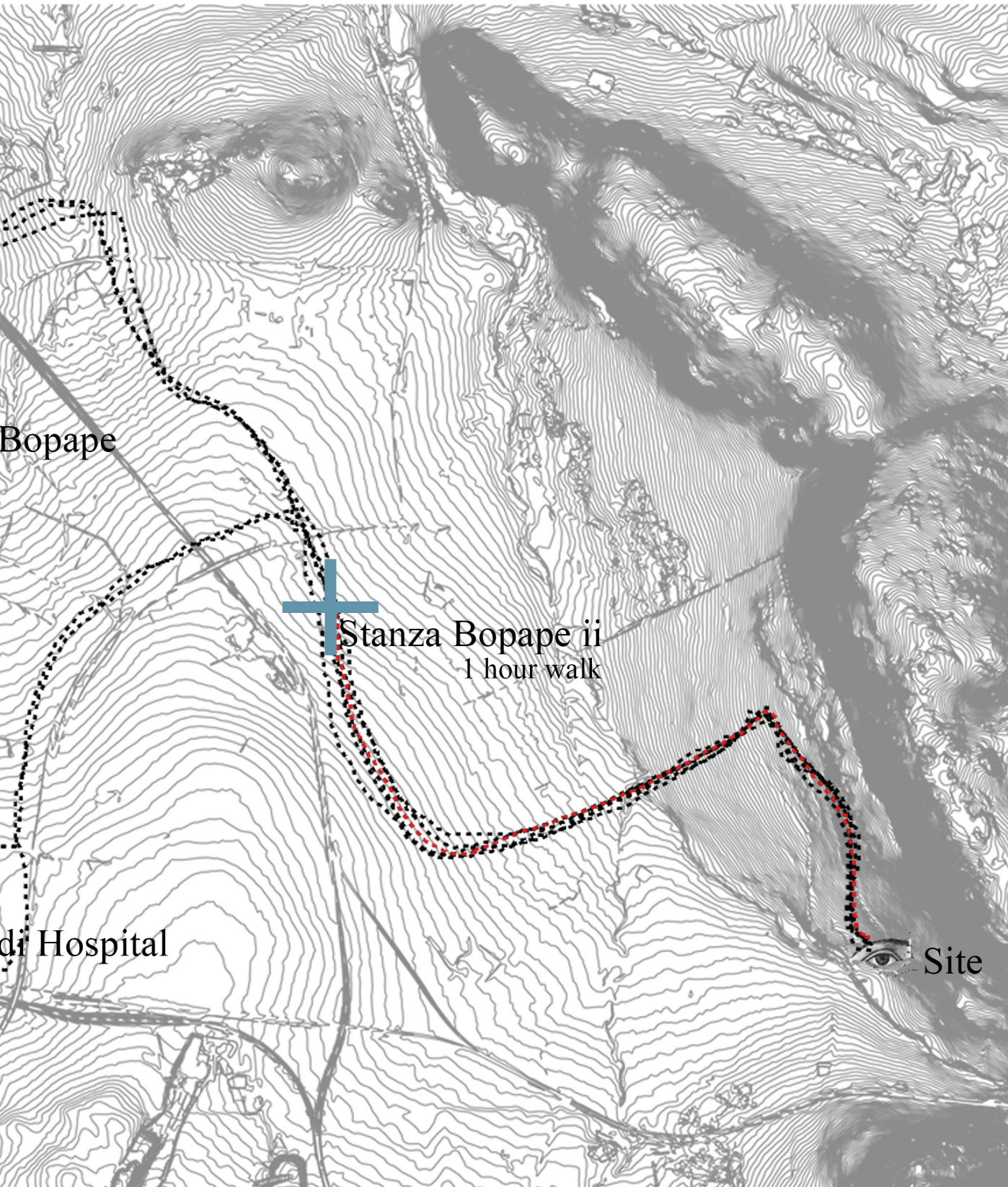


[4.2.1] Mamelodi Healthscape

Alaska as a marginalised suburb

The location of the nearest healthcare facilities.





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[4.3.1] Patient Measurements

Alaska: The mountain

The settlement is characterised by the Magaliesberg mountain, up against which the shacks are set. The mountain is a seemingly endless source of building material and the residents make use of the stone to build their platforms, walls and to hold down roofs (fig).

While the natural mountain vegetation around the shacks has been destroyed by the inhabitation of the slopes – the settlement is well treed. Many residents grow a small amount of sustenance vegetables and most take an exceptional amount of pride in the establishment and maintenance of their private gardens (fig.)

The roads accessible to cars are limited (See Appendix A for full contextual mapping), footpaths are predominately used to access the higher parts of the settlement. In some areas an effort has been made to pave or stabilise the footpaths, however by and large, the paths are left unkempt and as they are clear courses for runoff – are eroded. (fig)







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[4.3.2] Patient Measurements

Alaska: The Settlement and the Settlers

Initially, the migration of people to Alaska was controlled by a community governing body, a committee made up of a Community leader, supported by section leaders, then block leaders. Plots were cordoned off and were sold to new residents, generally with a water connection. The incremental growth of the settlement from its epicenter south, saw the establishment of sections A through C. Last year, the plots were clearly distinguishable and the movement routes between the blocks were legible. However, in the course of a year, as the density continues to increase, so the rigor of the initial grid disintegrates.

Figure X is an image taken in March of 2014. Figure Y is an image from October of the same year. Litter and refuse that was disposed of into open space, is displaced into the open water channel, to make room for the erection of new shacks.

This is rapid growth in population supports the need for a new healthcare facility in the settlement.

Economic opportunists make use of major movement routes and the intersection of routes to set up spaza shops. Small intersections attract single standalone stores, but the number of stores increases as the intensity of the intersection increases. (figs)

The usurping of what open space is left by new residents, decreases the amount of social, public space. As a result, foot paths, roads and islands cut off by desire lines are left for public gathering. The primary community gathering space, is landmarked by 3 tall trees – visible from almost anywhere in the settlement. The space is used for community meetings and public gatherings. A number of the shacks bordering the open space have added spaza shops or taverns to their property – taking advantage of their location.

Other gathering nodes happen on smaller scales throughout the settlement. Children make use of the roads to play, men gamble in the shade of the trees and often, gathering nodes are linked to an economic activity.

This example (fig) is a tavern and outdoor social space, high up the mountain, on a fairly major access route. Pallets have been cut and manipulated to form decking and seating and cord rolls are used as tables demonstrating a true expression of innovative recycling and adaptive reuse.



[4.4] Genetics

Cultural Influences on Building Techniques

The lack of services, resources and punitive planning regulations, results in a more organic space making process, innovative detailing, resourceful and efficient use of materials, novel recycling of materials and cultural expressions, similar to those of vernacular settlements.

Rahul Mehrotra, in his key note lecture presented at the UIA conference (2014), posed the question;

What is the context of the context?

His question implies that we should not take contexts on their initial face value; that there is another set of circumstances informing the context. The context of the context.

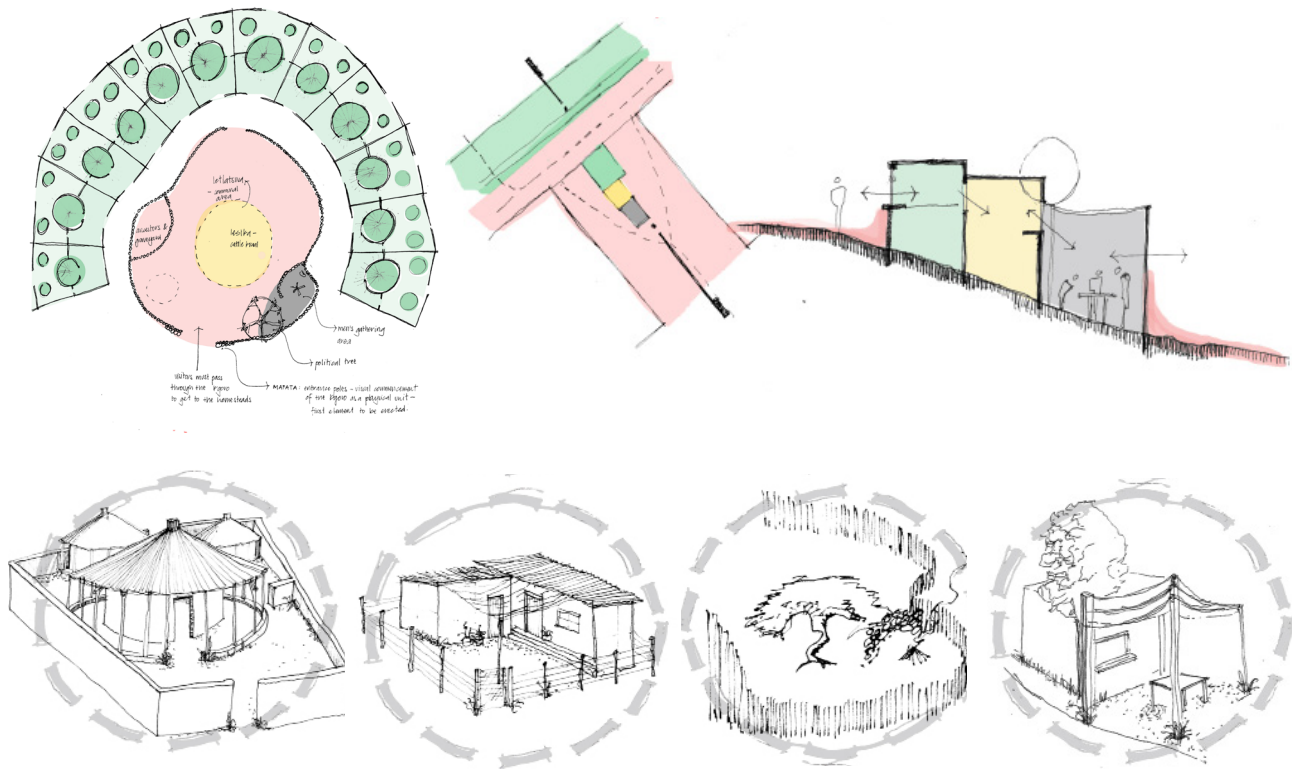
The understanding of this informant gives insight into the conditions that created the context and the cultural, social and economic forces at play.

Here the dissertation considers the cultural context underlying how buildings are made, arranged within the settlement and the spatial hierarchies that govern. The concept of Cultural Legacies (Gladwell 2009) illustrates how more than our physical DNA is inherited from our ancestors.

*The 'Culture of Honour' hypothesis says that it matters where you're from, not just in terms of where you grew up or where your parent grew up, but in terms of where your great-grandparents and great-great-grandparents grew up and even where your great-great-great-grandparents grew up. That is a strange and powerful fact. It's just the beginning, though, because upon closer examination, cultural legacies turn out to be even stranger and more powerful than that... **Cultural legacies are powerful forces. They have deep roots and long live. They persist, generation after generation, virtually intact, even as the economic and social and demographic conditions that spawned them have vanished, and they play such a role in directing attitudes and behaviour that we cannot make sense of our world without them.*** (Gladwell, 2008; 175)

Research conducted in the honours module (RFP 721) revealed that this concept holds true for how people build their houses, arrange, define and use space. The interviews conducted in 2013 revealed that 60% of the interviewed population were Pedi and came from the Limpopo province.

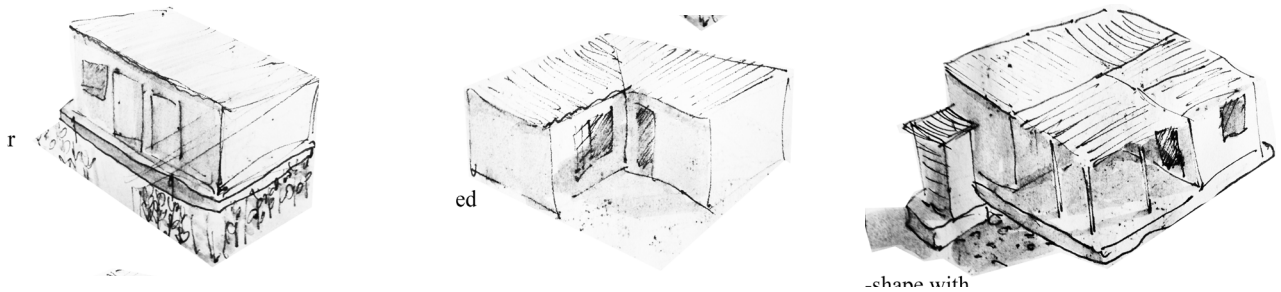
Traditionally, Pedi tribes were passive, pastoralists. Conforming to the central cattle kraal plan, individual, private homesteads were arranged in a circular pattern around the common public space, in which cattle were kept and secure. The entrance to the settlement was demarcated with large posts and similarly, but on a reduced scale, entrances to individual homes.



The detailed unpacking of the sequence from public to private of these homesteads was then compared to a site in Alaska. Both the traditional and sites within Alaska followed the same spatial layering and progression from public to private.

An individual home was also analysed in this manner and found to contain similar spatial and architectural devices. In Alaska, there is always a clear boundary definition. Sometimes, it is merely a line of stones, while in other cases; a large fence has been erected. The entrance is demarcated by a break in this boundary, again differing in intensity from home to home. The expression of the boundary is congruent in both the traditional and Alaska examples (fig). The layering of thresholds (sometimes subtle) and progression from public to private space in the Alaska example, matched that of traditional Pedi homesteads.

If spatial *cultural legacies* are as powerful as Gladwell suggests, then the familiarity created through emulating these spatial layering patterns and threshold series could result in an improved patient experience. The spatial lesson could also be employed to soften the transition from the main waiting area into the clinic and then again, on a smaller scale from the public waiting areas into the private consultation spaces.



Following on from this investigation, the evolution of the shacks and morphology of the spatial layering was explored to gain a better understanding of the cultural influence of the use and layering of space. Gaining an understanding of the reasoning behind these spatial decisions, offers the designer the insight to interpret the reason for and meaning behind certain design elements rather than merely mimic patterns within an intervention in the same context.

The photographs and images demonstrate how a home generally begins as a single rectangle, positioned center-back on a plot and almost always on a plinth. The plinth is made out of the local stone, but used and set in many different ways (FIGs x – y) and, while functionally, it provides a permanent level platform on which to build, it also acts as threshold between inside and outside and forms the beginning of the semi-public space which plays an integral part of the diurnal activities of these dwellings. (Figures)

From there a second rectangular wing is added, creating a semi-private forecourt contained by the two elements. Finally, this space is covered with a shading device of sorts, clearly defining the threshold between public and private, inside and outside. This plenum plays hosts to a number of various social activities.

Figure X illustrates the progression.





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There is an infinite variability of the shack configurations. The incremental and improvised changes occur on a progressive basis, so that the shacks can continue to fit and express not only the needs of the residents, but also their aspirations. The stone plinth is a permanent fixture and the typically corrugated iron roofs and walls are adaptable. The layer of permanence created by the plinth, allows the temporary super-structure to be manipulated and adjusted with time.

Figure X is an example of a pioneer of the next step in the evolution of shacks.

Figure Y is an example of the layer of permanence set up by the plinth and the layered entrance threshold it creates.





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Using this study as a baseline, one can distinguish various trends in the manipulation of the rule of thumb. These manipulations occur when a secondary function is added to original, and similar patterns and spatial devices are observed in functions that are the same.

Two examples of such manipulation are spaza shops and taverns.

Spaza shops are generally an extension of the house, and are typically characterised by a window and shelter, that protrudes into the public realm of the footpaths. Characteristically, there are stairs ascending to this sheltered window (Figs. x-x). Many of the shops are small and subsidiary to the dwelling, however in some cases, where the shops are clearly very successful, the dwelling becomes secondary to the shop. Here we find that the once, intimate public forecourt is extended and merges with the spaza shelter, as in figure X. The forecourt becomes a sociable gathering area for shop patrons.

Further on in the evolution, one begins to see these forecourts becoming enclosed – often accommodating taverns and pool tables. Typically plot boundaries are visibly permeable and semi-public space within the property is visible from the street. Taverns tend to be the opposite – the enclosed space is brought right to the edge of the plot, sheet metal forms the barrier and the internal social space cannot be visually accessed from the street.

A logical pattern – and design lesson – is that social gathering tends to occur around economic nodes.

The evolution of the shacks and manipulation to accommodate other functions, is indicative not only of the spatial legacies, but also of their ease of adaptability to changes in both context and individual need. The intention to create an adaptable facility, that could morph and change according to various contextual and disease fluctuations, is informed and influenced by this study and the spatial lessons.

Important lessons:

Ease of adaptability
through materials

Layers of permanence
and impermanence

Spatial expressions of
differing functions



[4.5] Compromise

Interpreting the Context

Having observed how community members make and then manipulate their personal space and having interpolated design informants from the observations, an important question came to the fall;

How does one apply the observations and innovations to a formal building, within this informal context?

Two examples of similar formal insertions into informal contexts were analysed and critiqued to answer the question. The two buildings interpret the context in opposite ways.

The Nelson Mandela Interpretation centre in Alexandra (Peter Rich Architects, 2010) is clad in a skin of eclectic corrugated sheet metal panels. The literal interpretation and mimicking of the local inventive use of a material does not allow the skill and spatial intelligences of the architect to raise the bottom-up innovations to a middle ground solution. The direct reflection of the context is not what makes a building contextual.

In contrast to this, the designers of the Ubuntu Centre, Field Architects, created an *vaward winning piece of architecture* (Findley 2009). While the designer allowed existing desire lines to inform the main movement axes on plan, he did not mimic the context in form. Familiar materials were used, but assembled and manipulated in diverse ways;

With the gum poles, we were using something that was so familiar, that has been used there for generations, so we could just design the method of fabrication to suit the skills the community already had. (Field in Findley2009).

The funder of the building, Jacob Lief recalls some people challenging the uBuntu NGO on the amount of money they were spending on the building, rather than using it for upliftment programs. The response Lief provided is profound:

Buildings are symbolic and this building shows the children of Zwide that they are worthy of everything the world has to offer - including ambitious architecture (Findley 2009)..

The latter example provides the designer with a good example of how existing materials can easily be fabricated in a different way, resulting in moments of familiarity within a foreign design, that respects and exalts the local innovation, materials and context.

This approach will be used to interpret the material and spatial lessons learnt through the observations of local construction within Alaska.



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