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[SPORT HAS THE ABILITY TO UNITE A NATION]
Nelson Mandela, 1995
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This project is a response to the author’s passion for sport and his curiosity about the architectural process that is necessary to understand and facilitate the interrelation of body, mind and soul.

The potential influence of physical exercise; its correlation with the metaphysical aspects of the individual and how this influence spills over into the larger context of society is investigated.

This dissertation attempts to form an architectural response that is indigenous to the local population, the climate and the existing urban condition. The investigation ranges from a thorough understanding of the community to the effective contribution that architecture can offer, based on the concept of ‘sport for development’ in South Africa.

The primary objective of the architectural response is to amplify the potential of sport as a means of building peace and self-actualisation within a society that suffers from the effects of crime and violence.

Although popular culture reinforces the belief in the potential of sport, Spaaij (2009:1109) identifies factors and conditions that must be met if the positive value of sport is to be achieved.

The dissertation incorporates these factors and conditions into a multipurpose ‘sport for development’ community complex. This complex aims to augment the existing ‘sport for development’ programmes in South Africa and serve as a prototype for future ‘sport for development’ centres, which ultimately includes everyone in the process of reconciliation.

‘Strong limitations offer an opportunity for strong architectural interpretation, if you are capable of sensing the spirit of your earth and skies.’

(VON MEISS 1997:7)

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1 It is common to mistake ‘sport for development’ as ‘sport development’. The latter implies the development and diffusion of sport itself, whereas the former implies using sport as a tool in development assistance, poverty reduction and peace building. According to the UNOSDP (www.un.org) its antecedents can be traced back to antiquity, when the Olympic truce was used to establish temporary peace between warring states.
fig 2. soccer player
“One of the cruellest legacies of Apartheid is its distortion of sport and recreation in our society, the enforced segregation of these activities and the gross neglect in providing facilities for the majority of South Africa’s people. This has denied millions of people and particularly our youth the right to a normal and healthy life.”

(African National Congress 1994)
The Norwegian architect, Norberg-Schultz (1926-2000) writes: "There are not different types of architecture, but rather different situations that require different solutions in order to satisfy humanity's physical [and emotional] need" (1980: 5).

The problem that architects in South Africa are faced with is to be able to respond to these different situations and still somehow attempt to create an architectural language that is indigenous to a larger South African context.

This problem of architectural language gave rise to the concept of "Lyf[Taal]". Architecture is a creative interpretation and reinterpretation of ever-changing elements that ultimately produce space and place. These spaces should then be able to continually communicate with the ever-changing morphologies of society. In order for this communication to take place, architecture needs to be a living, breathing, seeing and nurturing process and product that protects the people who use it. It is the opinion of the author that there should be harmony between architecture and the user—a symbiotic relationship that benefits both.

The well-being of people is a fundamental aspect architects should aim to address. Without the user, buildings do not communicate. Without users, architecture is irrelevant and lifeless. It is thus of utmost importance that the language of architecture is clear and understandable. Only then will architecture enable a building to require no justification for its existence.

The building’s envelope or skin not only contributes to its aesthetic appeal but is a medium for architectural communication. The building responds to surrounding structures and creates spaces in between. These in-between spaces form the introduction of every building and in most cases carry more value for the general public than the intramural. This carries significant importance to the building itself as well as the identity of its users. Finally, the architecture must communicate in a ‘local tongue’.

The South African architect Gawie Fagan (1983:50) wrote that “context and relation to the environment in the widest sense [is] the first rule of his architectural language.”

This dissertation strives toward the development of a vernacular language with a regional dialect. Vernacular architecture and the South thereof are examples of a native architectural language or ‘taal’. Apart from developing an architectural language, other nonnegotiable elements such as sustainability and resource-efficient design are an integrated part of good vernacular buildings.

The aim of this dissertation is to respond to the social and physical demands of people by creating vibrant flexible spaces that are not limited to their functional program but also representative of good architectural dialogue within its context.

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Ramón Spaaij is a Senior Researcher in the School of Social Sciences at La Trobe University, Melbourne, Australia, and at the Amsterdam Institute for Social Science Research, University of Amsterdam, the Netherlands.

Spaaij acknowledges the widespread belief that sport has the power to make a society more equal, socially cohesive and peaceful. The proof of which is in the public-private partnerships and in the ever-expanding efforts of organisations on local, national and international levels (Spaaij 2009: 1108).

He stresses the fact that the heralding status of sport as an agent of personal and social change has not gone unchallenged and warns that social development through sport should not be imposed on disadvantaged communities in a ‘top-down’ manner. One should rather focus primarily on community engagement and shared ownership. ‘Sport for development’ programmes should be voluntary and promote rather than enforce self-reliance and empowerment (Spaaij 2009: 1109).

It is important to establish an indigenous understanding of a place before taking an interest in the means and ends of the proposed development. One must understand ethical and moral issues as well as the practicalities of that particular region and not manufacture gross generalisations that might lead to prejudiced responses. Spaaij (2009: 1108) states that arguably, the main limitation is the absence of an understanding of processes and mechanisms which either produce, or are assumed to produce, particular impacts and outcomes. In other words, we should understand what processes produce what effects, for which participants and in what circumstances.

Spaaij (2009: 1108) believes that sport as a programme needs to be designed. I concur with Spaaij and believe that there is a void in the above mentioned equation for social change through sport, that could be successfully filled by architecture.

"...as part of this process, we have increasingly come to understand that sport as a program needs to be carefully designed for social benefits to accrue." (Spaaij 2009:1110)
Marion Keim is an Associate Professor at the University of the Western Cape, South Africa and is world renowned for her research on community development through sport. Her investigated theory by Keim centres around the role of sport in the development of South Africa and could be categorised into the past, the present and the future condition.

With regard to the past, Keim agrees with Allison that there are few countries in which sport have played such a formative role in the process of building a cohesive national character as South Africa. The very first democratic president of South Africa and world renowned humanitarian, Mr. Nelson Mandela said that sport has the potential to unite a nation. It wasn’t long before these famous words of Mr. Mandela were proved to be correct when South Africa won the Rugby World Cup for the first time in 1995 and years of political strife momentarily seemed petty.

In the present condition, Keim, with special reference to Harms (1982: 6), identified four aspects of sport that should be emphasised for sport to function as a tool of social integration and peace building processes between parties of different cultural backgrounds:

1.) Sport as non-verbal means of communication.
2.) Sports programmes as occasions for collective experience and direct physical contact.
3.) Sport as a medium which transcends divisions of class.
4.) Sport as an instrument of culture (Harms 1982: 6).

In conclusion, the author concurs with Keim’s theoretical argument by stating that the nature of our historic background has shown to withhold the positive influence of sport in our society. Despite this after a process of transformation, South Africa has first hand experience in the reconciliatory potential of sport and is the ideal host for a new ‘sport for development building prototype.’

In the future, Keim identified potential threats to the peace building process in South Africa. Ethnic prejudices, racism and xenophobia - attitudes ingrained by Apartheid- form obstacles from the past that might negatively influence the future.

In few countries could institutions of civil society (such as sport) outflank and manipulate what appears to be a powerful state in this manner, in no other country, perhaps, could sporting institutions have played so large a part in forming the direction that [South Africa] would take.”

‘There is a widespread notion that linguistic and cultural barriers are more easily overcome in sport than in other areas of social life. For this reason, sport is often referred to as the “conveyor of culture of the most accessible symbolism”’

(Greenblatt 1995:167; Harms 1985:63)

(A Allison 2000:69)

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Bill Hillier (2007:305) equates the activity of building or space making as the meeting point of two worlds: namely, our physical continuous material world of objects, which we occupy and move in, and the metaphorical discontinuous world of expressive forms, signs and symbols that we occupy cognitively.

Hillier refers to the physical world as the ‘real’ world, and the metaphorical as the ‘logical’ world.

Space, as result of building, is thus where the ‘real’ meets the ‘logical’. In architectural terms, ‘real’ refers to the physical built form and ‘logical’ refers to the social abstraction.

Hillier uses the example of a church that cannot be a church without a priest and congregation. We encounter a problem when we separate social institutions from the buildings they occupy because the one defines the other.

Hillier further elaborates that a social abstraction gives meaning to the building and the building gives substance to a social abstraction (Hillier 2007). Consequently, the space and the meeting point of the two worlds is a place of substance and meaning.

Hillier uses terms more common to genetics and describes the social abstraction as the genotype, and the building as the phenotype.

“Phenotype” refers to an organism’s actual observed properties, such as morphology, development and behaviour.

“Genotype” refers to an organism’s full hereditary information, even if not expressed - the genetic make-up of the organism.

Buildings and social abstraction are respectively the phenotypes and genotypes that form the living organisms of our society. By using biology as metaphor, Hillier helps us to understand how humans and built spaces interrelate. The life of built space and the occupants depends on the crossing of these two worlds.

Space as Place of Substance and Meaning

Space is the machine - A configurational theory of architecture
Bill Hillier - Architect

Conclusion

Buildings and social abstraction are respectively the phenotypes and genotypes that form the living organisms of our society. By using biology as metaphor, Hillier helps us to understand how humans and built spaces interrelate. The life of built space and the occupants depends on the crossing of these two worlds.

1 The social abstraction refers to the metaphorical and logical world that gives meaning to the built form.

2 Built form: the real continuous physical world that gives substance to a social abstraction.
Heidegger contemplates the meaning of dwelling and its correlation with the idea of building. Heidegger raises two questions that do not categorise the view of building as art or technique of construction but traces building back to a domain to which everything that is, belongs:

1) What is it to dwell?

Heidegger states that mortal man must be of the understanding that even though man acts as though he is the shaper of language, language still remains the master of man. Heidegger thus borrows the descriptive potential of Old English, German, Old Saxon, Gothic and Greek to formulate a conclusion by means of linguistic reasoning.

To dwell is the simple unity of saving the Earth, receiving the sky, awaiting the divinities and initiating mortals. These four elements are described by Heidegger as the FOURFOLD.

2) In what way does building belong to dwelling?

To formulate an answer to this question, Heidegger uses an example of the bridge. The bridge becomes the personification of the question. “The bridge gathers to itself, in its own way, the earth and sky and divinities and mortals” (Heidegger 1971:151).

Due to lack of a better modern word, gathering or assembling by linguistic research is translated as ‘thing’.

Heidegger explains that people tend to think of the bridge as merely a bridge but beyond the obvious the bridge occasionally expresses something else and in essence becomes a symbol. However, being a only a symbol does not suffice. Therefore, what makes the bridge significant and how does it substantiate dwelling?

Heidegger answers that the bridge is indeed a thing - an object of gathering and assembling - gathering and assembling the fourfold to distinguish a building from merely being a building and transform it into dwelling.

The Bridge as Dwelling

The bridge as Dwelling

Martin Heidegger - German philosopher

(September 26, 1889 – May 26, 1976)

The Bridge - (Heidegger 1971:152)

The bridge swings over the stream "with ease and power." It does not just connect banks that are already there. The banks emerge as banks only as the bridge crosses the stream. The bridge designingly causes them to be across from each other. One side is set off against the other by the bridge. Nor do the banks stretch along the stream as indifferent border strips of the dry land. With the banks, the bridge brings to the river the one and the other expanse of the landscape lying behind them.

It brings strong and bank and land into each other's neighborhood.

The bridge gathers the earth as landscape around the stream. To dwell it gathers and admits the stream through the meadows. Resting upstairs in the stream's bed, the bridge bears the name of the path that leaves the stream's expanse to run their course. The waters may wander on quiet and gay, the sky's floods from storms or those may disperse the pieces in tempestuous waves the bridge is made for the sky's weather and its fitful nature. Even where the bridge crosses the stream, it holds it up as if to let the sky play their scene onwards under the vaulted gateway and so setting it free once more.

The bridge lets the stream run its course and in the same time grants three ways to mortals so that they may come and go from shore to shore, bridges made many ways. The city bridge leads from the products of the castles to the vaulted square; the river bridge near the country town brings wagons and horse teams to the surrounding aldermen. The old stone bridge's humble breaking cover gives to the harvest wagon its passage from the fields into the village and carries the lumber cart from the field path to the road. The highway bridge is tied into the network of long-distance traffic; poised as calculated for maximum yield the city bridge escort the lingering and hastening ways of men to and fro, so that they may get to other banks and in the end, as mortals, to the other side.
Christopher Alexander with Sarah Ishikawa and Murray Silverstein.

reasons that in most cases the user knows more than the architect does about what a building should be. This reasoning led Alexander to the development of a pattern language (‘taal’) in an attempt to empower the user to understand the various possibilities and experimental influences produced by different combinations of architectural elements.

This theory corresponds to the theory of Bill Hillier when the combination of the physical morphology allows the social abstraction (the people) to give an even deeper level of substance to the building thus possibly creating the living and breathing architecture described earlier in the normative stance on architecture.

The main interest lies in Alexander’s ideas on the promenade. He regards it as valuable because in the promenade lies the simple fact that people want to see other people and be seen. It is a place where people with a shared way of life gather together to rub shoulders and confirm their community. As a result, the promenade becomes a place where people can become the player (be seen) or the spectator (see others).

This theory is found to be especially appropriate to the area of investigation as it responds directly to the problem statement, the linear social patterns of the client and the programme of the proposed intervention.

“People go there to walk up and down, to meet their friends, to stare at strangers, and to let strangers stare at them.”

(ALEXANDER 1977: 169)
Although hermeneutic phenomenology and structuralism form the basis of these ideas and the theorists are geographically and historically separated, these ideas are still relevant in the light of this project.

One cannot assume that one theory or one era or genre of thought alone could be enough to answer to the complexities of a specific, though multivalent problem such as this project poses.

The hybrid nature of these ideas adds to the richness of the approach and it expresses both our quest to understand humanity and their relation with the world in a meaningful substantial manner in the contemporary South African context.
Introduction

The name ‘Olievenhoutbosch’ is associated with graphic images of xenophobic attacks published in local media during December 2005 to February 2006. A streak of xenophobic violence was triggered by a fight between two men in a shebeen in the Choba informal settlement on the southern periphery of the township when a Zimbabwean man killed a SePedi speaking leader of the community.

Revenge was inevitable and after a two-week period of xenophobic violence during which 15 foreigners were killed and 36 South Africans arrested, Olievenhoutbosch was permanently branded as an area of unrest, crime, violence and murder.

Statistics

Olievenhoutbosch is a relatively new settlement area close to Centurion, previously known as Verwoerdburg, which until the late 1980's was an entirely white area. It wasn't until the mid-1990's with the relaxation of movement controls, that there was a sudden influx of black South Africans to the area.

What made and still makes Olievenhoutbosch so attractive, is the fact that it is conveniently located near several of the major urban and manufacturing hubs in Gauteng and is therefore an appealing environment for job seekers and people working in various industries in Pretoria, Centurion, Johannesburg and Midrand. Olievenhoutbosch was established in 1996 by the municipality of Centurion but designated to be a transit area with few permanent services. As time went by and the expectancy of RDP houses rose, it quickly became a growing informal settlement even though it was partially on illegally occupied private land.

According to the national census of 2001, the 8,605 individual households in 1998 grew to a total of 20,500 in 2001 and is still growing. 60% of the residents are under the age of 30 years, 20.5% of which are unemployed and 24% self employed- making bricks, washing cars, selling second hand goods or basic forms of entrepreneurship. Only 23% of adults have matric and 67% of the population falls in the poverty income group.
**Diversity**

‘Lievenhout’ (as the local residents refer to it) is a multicultural settlement, with many cross-provincial migrants that speak IsiZulu, IsiXhosa, Xhosa and Zulu, most of whom, according to the Chief Shikwakwa (the local school principal), have migrated here due to the lack of clean water and working opportunities in their places of origin. There are also significant numbers of foreign African migrants from Mozambique, Zimbabwe, Zambia and Malawi. Pelican Bay and other East Asian businessmen who run local spaza shops or other small retail stores have also settled in the area.

**Crime**

Current crime and violence statistics in Gauteng (March 2010 to April 2011) issued by the SAPS confirm that Gauteng is notorious for more than 10% of the crime in South Africa. In a period of a year, there were 2957 murders, 13887 cases of reported sexual crimes, 4104 attempted murders, 46689 cases of assault with intent to inflict bodily harm, 54477 common assaults, 18207 cases of common robbery and 11502 cases of robbery with aggravating circumstances (SAPS 2010). A major contribution to the high rate of crime and violence in Lievenhoutbosch is the abuse of alcohol. There are currently more drug-users in Lievenhoutbosch than any other social, spiritual or educational institutions. Given the very low employment rate, people suffer from boredom, which leads to alcohol abuse and consequently violence and crime.

A study undertaken by the South African Police Service in the Western Cape in 1996, it was reported that 64% of cases in which the victim was known and 24% of cases where the circumstances surrounding the murder were known, alcohol was involved (SAPS 1997). In a study by the Medical Research Council and the Institute of Security between 1998 and 2000, it was found that for 11% of crimes, the perpetrators were under the influence of alcohol at the time of the event. For 25% of weapon-related cases, 22% of rapes, 17% of murders, 14% of assault and 10% of robberies the arrested were under the influence of alcohol. Levels of alcohol-related crime are particularly high for family violence offences at 48% (Berry et al. 2004).

"The Townships Are Burning – And Foreigners May Be Next..." (Elsley, et al. 2010)
According to a local school principal of Philena Primary School, Mr. Clever Shikwambane, in a personal interview on 1 March 2012, the exceptionally high level of 98% school attendance is primarily due to the constant provision of food at the school. It is also because school is seen as an escape from the realities at home. “At school, children can play, learn and feel safe,” (Shikwambane). Unfortunately, schools suffer to accommodate children after school due to non-existing and highly inadequate sport facilities and after school programs. Due to long work hours of parents or possibly the high rate of domestic violence, children are forced to entertain themselves at rudimentary gaming arcades in shebeens and it is there where these children are exposed to violence and alcohol at a young and important phase of their development.

Lauren Landau (2007) describes Olievenhoutbosch in a paper on forced migration, as a post democracy ‘point of entry’ township. However, it is of the opinion of the author that the above mentioned problems that correlate with Landau’s definition of a ‘point of entry’ township should not be used as an excuse for the current rate of decay. It should rather influence the architectural response that will form a coalition with existing social efforts to shape the future of the people of Olievenhoutbosch from being a crime stricken township, to one that respects and cares for themselves, and one another - a community that sticks to the rules of the game.

"Strong limitations offer an opportunity for strong architectural interpretation, if you are capable of sensing the spirit of your earth and skies."
(Von Meiss 1997:7)
Response

When the broader statement is considered, it becomes evident that the unique community of Olivereswijk is in need of a collective response toward reconciliation and peace building, both within and amongst themselves.

The authors stress the fact that a response possesses the potential to be a tool for the community and a means to address the broader issues and challenges - an indigenous response which visibly encompasses the needs of the community. This necessitates that any further development of a peace building program will have the community's consent rooted in it as the principal idea and promises ownership that will deter aspirations and permit the development of the community and peace building.

A multifaceted problem cannot be addressed by a single, rigid and unadaptable response. The required response should involve NGOs, government and other statutory bodies to form an alliance with appropriate architectural design and ultimately build upon an existing established effort from the community.

In Olivereswijk the established effort comes into being by bringing together businesspeople and sport enthusiasts of the local community who decided to take matters into their own hands. Their approach was to harness the community’s love for a communal activity that endorses respect and discipline they find it in sport.

Project Aim

The aim of this project is to invest in the positive potential of sport as a tool for peace building and reconciliation in a conflict and crime ridden society. Furthermore, the project aims to give substance to the social aspiration of this society and to allow the community to give meaning to a proposed physical structure.

Summary

Proposed Facility

- Visitors participate in sport as non-verbal means of communication that transcends racial and cultural barriers.
- Visitors experience the potential of architecture and sport on the fourth dimension (time), to establish a continual routine in the process of reconciliation.
- Visitors engage in routine, also expressed in ritual and routes in the landscape. Ritual then further expressed in progressions of experience through physical spaces.
- Visitors engage in positive physical social interaction and attempt to continue the dominance of shebeens as primary social gathering.
- The facility provides infrastructure for the development of a community through sport, but also the development of individual esteem and self-worth. The building will become a beacon of growth and achievement and reflect the achievement of this community back onto itself.

Areas of play will eliminate the boredom factor and social interaction will draw children away from shebeens and keep them off the streets. These elements of play will be integrated into the landscape to foster integration.

Food has always been a catalyst for gathering in African cultures. The facility will provide space for social gathering by means of spaces for eating and encourage the participants on nutrition. The facility will incorporate fruit trees and vegetable gardens as the landscape to emphasise the importance of healthy nutrition.

The facility will house a medical clinic that attends to physical injuries, referring the pressure of a currently overcrowded medical clinic.
The role of the architect is to assist the clients in selecting an appropriate site and designing a multi-purpose ‘sport for development’ community centre for the community of Olievenhoutbosch.

The architectural intervention must provide a platform for participation, integration and reconciliation and facilitate the development of sport.

The intervention should respond to the existing urban condition, the climate and the socioeconomic circumstances as well as involve the community from design process to construction phase.

The proposed design should allow for spontaneous growth and future development to ultimately become a place that the community can share and call their own.

The aim is to create a facility that responds to the problem of high demand of positive social interaction and low infrastructure to supply it.

This facility will provide the community with a structured and multifunctional space where they can play social sport. It will also provide a facility where people can learn new skills, like swimming, which will improve their physical health.

The sport and recreational aspect will also include multipurpose sport facilities that can be accessed freely by all members of the public for recreational purposes and formal sport meetings.

The education field focuses on integration programmes between schools within the area and the education of coaches and trainers that will enforce mutual respect between all cultures and races.

The proposed design will also facilitate any individual sportsman or woman in his or her efforts to become a professional athlete.

The proposed design has been designed to develop roots within the community and result in the systematic burgeoning of a community’s potential to create new programmes that are not directly related to sport but create employment opportunities, potential realisation and contributes to a healthier community.

Ultimately, every program must have the ability to be addressed from within the community and aim to expand into a new set of opportunities which will build peace and reconcile a broken and unhealthy community.
Introduction
The Nike Football Training facility, situated in Soweto, was designed by a Canadian firm, RFJ Architects in collaboration with the Nike Global Brand Design over a period of only six months. RFJ Architects worked in close collaboration with South African firms such as SI Project Management, MWA Architects, ARI Engineering and Spemailer & Partners. The construction company was Rainbow Construction, and the graphic production company was Gold Worldwide.

The facility, currently owned by Nike, provides football training for 200,000 aspiring young soccer players and in collaboration with Grassroots soccer creates a valuable awareness about HIV and AIDS.

Strengths

Location: The buildings is ideally situated between community housing schools and transportation nodes. This makes the investigation particularly relevant, as it responds to a similar context than the proposed space for development intervention in Bloemfontein.

Architectural Premises: The building is designed to provide a rich progression of experience. Certain views are hidden or revealed as one moves from one space to another.

Optimisation of Space: Besides the general function of protecting the inhabitants from the elements, the roof structure also becomes an accessible elevated viewing platform for spectators.

Sustainability: Due to the project’s tight turn around time, RFJ Architects decided to focus on the basic principles of heating and cooling by means of sun shading, natural ventilation and reduced energy loads. The rectilinear, three-story building is constructed out of steel and features a double-walled air cavity covered with locally sourced sandstone that acts as a rain screen.

The building is oriented East-West to take advantage of the northern sun. Air-conditioned timber louvre structure suspended from the steel, acts as a sun-screen on the East, North and West facades, protecting the building from solar heat gain. The building is cantilevered over the edge of the two main fields, creating shade that keeps the gym and kitchen area cool (Figure 24).

Aesthetic Richness: The structure is clad with timber that provides an aesthetic quality. The simplistic design makes the building easy to understand and relate with and is accompanied by well executed rendering techniques (Figure 24c).

Conclusion
The Nike Football Training Centre deserves a lot of merits, especially if one considers the short time in which it was completed. However, the robustness and visibility of the building toward the public remains a problem. It is the opinion of the author that this building fails to successfully communicate its intended purpose, and the building will most probably be more successful in a more developed area as there is a gap between the image that Nike needs to maintain and the ability of the community to relate with it. It’s this ‘gap’ that ultimately leads to the misuse of the facilities in the building and the termination of daily access to the community of Soweto.

In conclusion, it seems to be said that the contribution of these high quality sport fields have given more potential users the opportunity to turn their dreams into reality.

The ability of the facility to withstand or overcome adverse conditions without selecting major damage.

*unless you think it is absolutely necessary. In some cases you may find yourself thinking of using facilities that are provided without necessary control or security.
Precedent Study 2

**Siyathemba Soccer Clinic**

**Somkhele, KwaZulu Natal, South Africa (unbuilt)**

**Background**

Siyathemba soccer clinic, designed by Cameron Sinclair & Swee Ng, is a response to a competition hosted by Architecture for Humanity.

The design is a combined soccer field and health-care facility that focuses on disseminating information on HIV/AIDS prevention and treatment and eventually as a service point for mobile health care within the area of Somkhele—an area with one of the highest HIV/AIDS rates in the world. The clinic is run by medical professionals from the Africa Centre for Health and Population Studies and will serve as a gathering place for young people between the ages of 9 and 14. It will serve as the home for the first ever girls’ football league in the area.

**Strengths:**

The Siyathemba project’s strength lies in its duality.

The project effectively harnesses the potential of playfulness and simultaneously provides education on HIV and AIDS. The duality becomes evident in the multifunctional design. Spaces respond in different ways to very different circumstances. The pavilion oscillates between being an expressive space of emotion during a football game to being a receptive space where people are being educated.

**Location:**

The Siyatemba project is situated in the rural community of Somkhele. This limited resources influences the upkeep and life span of the building and ultimately the impact it has on the community.

**Remarks**

**Strength:** The Siyathemba project’s strength lies in its duality.

The project effectively harnesses the potential of playfulness and simultaneously provides education on HIV and AIDS. The duality becomes evident in the multifunctional design. Spaces respond in different ways to very different circumstances. The pavilion oscillates between being an expressive space of emotion during a football game to being a receptive space where people are being educated.

**Location:**

The Siyatemba project is situated in the rural community of Somkhele. This limited resources influences the upkeep and life span of the building and ultimately the impact it has on the community.

**Range:** The number of people impacted is limited. The project focuses on women and children, which might lead to visual discrimination from the local men. This places the structure at risk for vandalism and destructive behaviour from excluded members.

**Conclusion**

Siyathemba is an integrated multifunction design that responds effectively to a specific problem at a specific place. However, the duality of the building could have been explored further in terms of providing a wider range of facilities that incorporate all ages and race.

**Duality**

Duality is the ability of the building to facilitate different programatic requirements in a single space. These requirements are often separated.

**Range**

The range refers to the depth or scope of the project's influence.

*Fig 25a: Siyathemba soccer clinic (Swee Hong Ng 2012)*

*Fig 25b: Siyathemba soccer clinic (Swee Hong Ng 2012)*

*Fig 25c: Siyathemba soccer clinic (Swee Hong Ng 2012)*

*Fig 25d: Siyathemba soccer clinic (Swee Hong Ng 2012)*

*Fig 25e: Siyathemba soccer clinic (Swee Hong Ng 2012)*

*Fig 25f: Siyathemba soccer clinic (Swee Hong Ng 2012)*
The architects of the proposed Football for Hope Centre, Steve Coombs, Victoria Ridge and Sam Austin aims to disrupt a rigid grid pattern and social divisions by creating a new social centre for the local community. The proposal is not only a single design but a strategy that produces different configurations from the specific conditions of each site allowing community involvement in its development and adaptation to changing requirements.

Their primary aim is to provide every person with access to clean water and a nutritional diet; only when these needs are met, will people benefit from new health, education and sports facilities. Indeed, helping HIV positive people produce their own fruit and vegetables is the most sustainable way to ensure the wholesome diet so necessary for their immune systems. Public spaces are defined by community buildings which are developed around water points and the centrally-located pitch. These spaces include a cinema and a public gathering or performance space, linear market, library, computer lab and health clinic. Recycling and sustainability also forms an integral part of the design. Drinking water is captured from roofs and grey water is used for irrigation. A power hub supplies electricity so that people can charge batteries, cell phones and other electronic devices.

**Summary**

The architects of the proposed Football for Hope Centre, Steve Coombs, Victoria Ridge and Sam Austin aims to disrupt a rigid grid pattern and social divisions by creating a new social centre for the local community. The proposal is not only a single design but a strategy that produces different configurations from the specific conditions of each site allowing community involvement in its development and adaptation to changing requirements. Their primary aim is to provide every person with access to clean water and a nutritional diet; only when these needs are met, will people benefit from new health, education and sports facilities. Indeed, helping HIV positive people produce their own fruit and vegetables is the most sustainable way to ensure the wholesome diet so necessary for their immune systems. Public spaces are defined by community buildings which are developed around water points and the centrally-located pitch.

**Conclusion**

Space, structure and form was developed by a series of processes or strategies. These processes started with an understanding of the macro urban fabric and identity. This was followed by a thorough analysis of the site, the daily rituals of the user and an understanding of their basic needs. The designers incorporated their knowledge of the above and strengthened that concept by going in a layer of social interest, namely football. The process of analysis and community engagement lead to an architectural response that engages with the community and provides a platform for the community to engage with itself. Finally, this platform manifests itself in space and the space informed the nature of the structural built form.

**Strategy**

1. **ALLOTMENTS**
   - Portioning up the site into community accessible lots using the existing grid pattern that is common in urban areas. The existing grid pattern was identified by analysing the existing urban fabric. See “streeks[TAAL]” (Chapter 02).

2. **ROUTES**
   - The existing informal footpaths that are naturally formed due to the reticulation pattern of the community was formalised to appose the existing grid pattern. This means that the designers incorporated the user’s ritual into the design by investigating the language of the site. See “Werf[TAAL]” (Chapter 03).

3. **WATER**
   - Water is a basic human need and is especially relevant when dealing with sport. The strategic placement of water points at crossings near the borders of the site is an architectural response to this need. This informs space and structure.

4. **THE PITCH**
   - The football pitch is the catalyst in the process of creating this public space. The design focused on a communal interest to achieve and establish social interaction. The pitch is sunken one meter into the ground.

5. **PUBLIC SPACES**
   - Public spaces are located around water points. Thus, need leads to the creation of spaces.

6. **PUBLIC BUILDINGS**
   - The building sits within and around these public spaces forming the boundaries or thresholds between spaces.

7. **PLANTING OF FRUIT TREES AND VINYARDS**
   - This binds the site together.

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*Fig 26a. Section through site. (SEAM Architects 2008)*
*Fig 26b. Rendering (SEAM Architects 2008).*
*Fig 26c. Built form (SEAM Architects 2008).*
*Fig 26d. Allotments. (SEAM 2008)*
*Fig 26e. Routes. (SEAM 2008)*
*Fig 26f. Water. (SEAM 2008)*
*Fig 26g. The pitch. (SEAM 2008)*
*Fig 26h. Public space. (SEAM 2008)*
*Fig 26i. Buildings. (SEAM 2008)*
*Fig 26j. Fruit trees and vinyards. (SEAM 2008)*
Introduction

Today, the Community Centre at Steinkopf, designed by Boklok (Gauteng), Uitenbogaardt and Partners in 1978, is a classic example of South African mid-20th century architecture. It is one of the earliest buildings to incorporate the use of local construction methods and materials, and it was an innovative design that influenced many subsequent projects. The Steinkopf project was characterized by a combination of structural and aesthetic elements that made it stand out from other contemporary buildings in South Africa.

The Roof

A second challenge of the Steinkopf project was its necessity for roofs to span large distances. In the case of Steinkopf, the structural roof system is separated from the building body, allowing for greater flexibility in design and construction. The use of traditional materials and techniques made the project a model for future development projects.

The Floor

The floor of the community centre is stepped and terraced, providing a unique texture and visual interest. This feature allows for the integration of the building into the surrounding environment and enhances the building's aesthetic appeal.

Conclusion

Steinkopf in Rusties, but the architectural principles put in place by Uitenbogaardt served as a strong influence for the development of the Colleen Huberts project. The idea of using local materials and methods, as well as the emphasis on sustainability and community involvement, continues to be an important aspect of architectural design in South Africa.
fig 32. Context.

URBAN ANALYSIS + CONTEXT + FRAMEWORK
According to the United Nations High Commissioner for Refugees, the lack of structured and democratic governments, insufficient use of natural resources and low employment opportunities drives hundreds of immigrants over South African borders every day in the hope of finding a better livelihood. United Nations High Commission of Refugees 2013 (5).

Currently, Olievenhoutbosch houses foreign immigrants from Nigeria, Malawi, Somalia, the Democratic Republic of the Congo, Zimbabwe and Mozambique (SAMCR 2012). This vast diversity of cultures partnered with a very high crime rate caused the xenophobic reaction in 2005 and 2006. However, it is not only the international immigrants that cause the diversity of cultures within Olievenhoutbosch. A multitude of refugees from the East Coast of South Africa are currently being with family and friends within the township due to droughts in 2010 and 2011 (Shikhawana 2012).

According to Mr. Shikhawana, local school principal, this has particularly made the educational system very difficult. Schools haven’t tender for a variety of languages, including isiZulu, IsiXhosa, Tswana, Afrikaans and Zulu. Also, children are not forced to play with one another across cultural boundaries. It is the opinion of the author that the lack of sport programs at schools could provide prejudice between cultural groups. Sport is a language that transcends cultural and linguistic barriers and it is of cardinal importance to enforce intercultural exchange among school children from a young age.

Olievenhoutbosch, in Tshwane, South Africa will be the ideal setting for the proposed sport-for-development architectural intervention. NGO’s such as Telkom Learn to Swim, The United Nations High Commission for Refugees, Gautsoo Soccer and Fieldball South Africa are all situated within Gauteng and within range of the proposed facility.

Touring international teams will be able to use the facilities for training and competing against local talent.
**Historic Summary**

The illustration clearly depicts the morphological nature of Olivenhoutbosch from 2005 to 2011. This is due to the sudden development of informal housing on the western side of the RSS and the relocation of those residents to RCP. Currently, the only permanent residential area on the Western side of the RSS is Extension 4, as indicated.

For further analysis, the author will focus on the developing areas and their influence on the proposed site for intervention and architectural responses.

**Expansion + Development**

**Heritage**

Fig. 40a. Ruins of old settlement.

Fig. 40b. Ruins of old settlement.
**Transport and Schools**

**Intention**

The diagram depicts the disconnectedness of the western area of the township to the rest of the transportation nodes on the East. The intent is to create an internal transport system within the community that will not only link East with West but also North with South.

This proposed bus system will facilitate interaction among different cultural groups that tend to cluster together within the different respective extensions as well as interaction amongst schools.

**Proximities**

The reasons for the rapid expansion of Osekentrobesse lie in its geographic location with relation to Centurion, Midrand and Sandton.

According to the census of 2001, 60% of the population is 30 years and younger; 24% self-employed and 20.5% unemployed. This results in a powerful labour source that is dependent on public transport to the respective CBDs.

**Access**

**Roads**

The road conditions within the township is one of the primary reasons for the unbalanced distribution of transportation nodes. The figures above indicate the gradual transition of gravel roads on the southern areas to more formalised tarred roads on the northern hemisphere of the township. At closer investigation, the maps indicate that the primary pedestrian movement occurs along a East-West axis, especially along the strip of interconnected green spaces that form a belt across the width of the township, as shown in Fig 42.
DIVISION AND DENSITY

Current connecting route

The connecting route spans through different zones and reflects the inherent identities and road conditions throughout. These zones are divided by overhead Editions power lines and the narrowness RED road that is responsible for the death of the 10-host children in the last three years (Dhulwadaw 2015). Further analysis will occur along the analysis spine by identifying nodes and activity spines that run parallel to or interact with the chosen route.

The aim is to establish a connection between nodes by means of promenades, green spaces and pedestrian bridges that are informed by the investigated themes to make urban design decisions. These urban design decisions will ultimately add to the process of community building and provide a platform for the architectural intervention.

Analysis nodes

Public to private interface

Density change over nodes

Occupancy per lot (5 people)

Occupancy per lot (15 people)

Occupancy per lot (33 people)

At every analysis node, the interface between the public and private realms differs.
**Sections**

The sections are drawn to analyse the effect that architectural elements such as lighting, land differences, shifting width of walkway, scale and surface material has on the interface or threshold that determines public and private space.

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**Green Spaces and Existing Sport Facilities**

**Background**

Currently, most of the green spaces within the township are informal pieces of land around the floral area of two water springs. These green spaces pose potential for the establishment of recreational parks but are currently unused. Injuries and dangers in terms of crime and violence as well as occasional flooding. In 2010, two young lives were drowned during the rainy season when they attempted to cross one of the streams on their way back from school. The municipality caused the water streams to avoid casualties but this only increased the velocity of storm water and made these streams even more dangerous.

**Intent**

The Streams: Both streams on Dehavenbauckaapspruit stem from a sub-surface spring and flow in a easterly direction where it joins the Rietpoort river. The potential of these streams should be optimised by rehabilitation of indigenous plant life, aquatic and bird species and for irrigation of community gardens.

Bridges: As mentioned above, there is a need for bridges that create safe passage for people over the streams. These bridges will ultimately aid in connecting a divided community.

Survivel: The Ekurhuleni power lines currently divide the community in three zones. These three zones have very different identities and densities. The intention is to utilise the zones within the surroundings for agricultural purposes and multi-functional park space.

Existing Parks: The existing parks are used for play and performance by the local community. The intention is to explore these parks and connect them where possible with safe walkways that connect nodes with educational routes.

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**Context and Identity**

**Identity on Route**

A thorough understanding of the flavour\(^1\) and identity of the host community will provide the design with an intangible undertone that communicates with the subconscious of the user.

**Transport**

Considering the poverty rate within the township, it is not uncommon that most of the residents are dependent on public transport. Taxis are the most common means of public transport. But due to recent events of taxi violence in 2011, the government imposed a fine that ‘grounded’ taxis for a certain period of time.

\(^1\)The flavour of the community refers to the intangible elements that cannot be directly analysed but only understood when the architect allows himself to engage with the community and understand how they think, live and interact.
The Fans
(Umbrella Town)

What is striking when observing the community of Gifihuwankho is the amount of umbrellas, thus the author refers to it as 'Umbrella town'. Umbrellas are used in all weather conditions to protect the individuals from the elements, whether rain or shine. The umbrella has a flexible characteristic by which it transforms from an object into a space creator. These spaces can suggest directionality, safety, unity, romance and relaxation. These characteristics should amalgamate in the architectural response.
The Players
Olievenhoutbosch has a Top 8 league in soccer and Top 4 league in netball. Every team has five different age groups that compete with teams from Attrigeville, Despatch and Alexandra. Only two fields are available for the young teams to play and only on Saturday mornings, as the other members of the community occupy the gravel pitches on Saturday afternoons and Sundays.

The ‘Games’
For 24% of an estimated 180,000 residents, the ‘game’ is self-employment. This ranges from brick making, metal and plastic recycling, entrepreneurship etc. Some of the other more fortunate residents work as domestic workers (women) and builders (men) in nearby developing communities.
Urban Framework Design

Introduction

The most challenging aspect of township architecture, especially on a green field site, is the absence of permanent built form and structure. Existing built structure provides the architect with constraints and opportunities to respond to and essentially give form to the architecture.

Olievenhoutbosch started to develop in 1996 and given its adolescent state, the township has very few planes of heritage value. This deprives the architect of the opportunity to respond in the past.

This emphasizes the importance of the framework design. The framework allows the architect to respond to something that will eventually influence everyone. It creates the platform to design buildings that evaluate the present condition and respond to the future.

A public building possesses the inherent potential to become a node in a network of future developments and thus becomes the stimulus in the process of creating a new urban condition.

* A process by which molecules of a solvent tend to pass through a semipermeable membrane from a more concentrated solution into a less concentrated one, thus equilibrating the concentrations on each side of the membrane.
Site Analysis

Fig 65. Broken down bus on site.
The site is centrally situated on the eastern border of the existing formalised and serviced part of Olievenhoutbosch; between the two main entrances to the township and adjacent the R55 road.

R55: Opportunities

This road connects Sandton to Pretoria-West and links with the N14 that is used by the residents to travel to Centurion. This road is the primary route used by the community for travel but also the connector between more developed communities such as Sandton and Centurion. As one travels on the R55 South towards the entrance of Olievenhoutbosch, the proposed site is gradually revealed to the passer-by. The site is stretched out on a hill which further emphasises views to and from the site. The location of the chosen site thus plays a vital role in the enlightenment process of the rest of society, who are often detached from the challenges and efforts that occur within townships such as Olievenhoutbosch.

R55: Problems

As the analysis process and understanding of Werftaal (the site specific conditions) developed, it became evident that the R55 road divides the existing developed community on the East from the proposed future development on the West and that the site is ideally situated for the establishment of a pedestrian bridge that will link the old and new communities of Olievenhoutbosch.

Other influences

The site is ideally situated near schools, taxi ranks and pedestrian routes and motivates pedestrian movement along the proposed green educational strip that spans across Olievenhoutbosch from West to East. The site is currently a greenfield site but subtly communicates certain characteristics and traits that can only be perceived on the site.
Sensory analysis and orientation

A sensory analysis is of crucial importance, as it creates an understanding of visual impact, views to and from the site, traffic noise, general weather conditions, available materials and movement patterns.

Panoramic view toward site from R55

Fig 68. Panoramic view toward site from R55.
Sensory Analysis and Orientation

Panoramic View From Site

The famous American writer and poet, Gertrude Stein, understood that a view offers much more than an elevated visual connection to the surroundings.

Views provide the building with opportunities to conceal and reveal itself at certain strategic points, thus creating an architectural promenade.¹

¹ Architectural promenade refers to the progression in spatial experiences. It reveals and conceals certain elements and spatial qualities to emphasize their importance and inherent qualities.

'I LIKE A VIEW BUT LIKE TO SIT WITH MY BACK TOWARDS IT.'
(Stein 1998: 127)
**Topography + Orientation**

The topographic characteristics of the site is a major design generator that will inform orientation, response to views, external climate of the built structure, pedestrian movement, access and the protection of areas of natural value.

**Traffic Flow**

Vehicular Access To Site

Taxi Ranks And Pedestrian Walkways

**Landscape**

Hydrology and Primary Groundcover

The grass plays a vital role in the prevention of erosion on the slopes of the site. The presence of water on site should be optimised for controlled irrigation of sport fields and gardens but currently suffers under severe pollution.

Entrance to Olievenhoutbosch

Site for proposed intervention

Proposed educational conservation area and existing wetland

Traffic flow

Vehicular Access To Site

Taxi Ranks And Pedestrian Walkways

Hydrology and Primary Groundcover

The grass plays a vital role in the prevention of erosion on the slopes of the site. The presence of water on site should be optimised for controlled irrigation of sport fields and gardens but currently suffers under severe pollution.
Both Philena Primary School and Olievenhoutbosch Primary School have no formal sport facilities or designated play areas. The chosen site for intervention is within walking distance of both schools.

Olievenhoutbosch Primary
Number of students: 913
Classes: 22
Teachers: 24
(Interview by Jenni Bremner and Johanna Theunissen with Principal Shikwambane. 7/6/2011)

Philena Primary School
Number of students: 1,447
Classes: 27
Teachers: 40
(Interview by Jenni Bremner and Johanna Theunissen with Principal Shikwambane. 7/6/2011)

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T: Annual average temperature (°C)
TM: Annual average maximum temperature (°C)
Tm: Annual average minimum temperature (°C)
PP: Total annual precipitation of rain and / or snow (mm)
V: Annual average wind speed (Km/h)
RA: Total days with rain during the year
SN: Total days with snow during the year
TS: Total days with thunderstorm during the year
FG: Total days with fog during the year
TN: Total days with tornado or funnel cloud during the year
GR: Total days with hail during the year

Street Lighting
Sidewalks
Security + Safety
Existing structures
Macro Climate - Irene, Centurion. Approximately 13 km from Olievenhoutbosch
Street lighting
5 min walking circle
5 min walking circle
5 min walking circle
5 min walking circle
5 min walking circle

Sidewalks
Residential
Site
fig 78. Schools and walking circles.
fig 79. Schools and walking circles.
fig 80. Olievenhoutbosch Primary School
fig 81. Philena Primary School
fig 82. View of access road
fig 83. Climate. (http://www.tutiempo.net/en/Climate/Pretoria_Irene/682630.htm)
fig 84. Shack
fig 85. Concrete Remains
fig 86. Taxi Rank
fig 87. Church.
In the term 'Lyf[Taal]', 'lyf' refers to body and 'taal' refers to language: the tangible and intangible. If we overlay this concept on the site itself, the author states that 'lyf' refers to the physical characteristics of the site that are easy to measure and document. This includes topography, microclimate, street lights, orientation, plant species, movement, access, current structures, zoning, adjacent buildings and programs as analysed above.

The 'taal' refers to language: It is the intangible subtle monologue that the site expresses with elements that can only be experienced on site. It is the generative potential of elements on site.

Due to the greenfield status of the selected site and the minimal permanent built structure surrounding it, the 'Werf[Taal]' chapter identifies an unseen level of design generators that inspires the development of a FOUND ARCHITECTURE.

Forgotten Movement
- time
- decay
- heat
- colour
- feel

Captured Memory
- process
- ritual
- identity

Skin
- projection
- marriage
- joining
- lines
- capture

Movement
- texture
- noise
- layers

Reveal
- expose
- erode
- robust

Earth
- grains

Texture

Exploring Found Architecture
What is striking about the existing informal taxi rank is the slanting manner in which the sign posts protrude out of the landscape. The sign posts have been influenced by the presence of people on the site, the taxis and their movement patterns. This pattern of people is what gives the sign posts their unique aesthetic quality. The author is intrigued by this unique quality of human influence and how it developed a form of beauty in the imperfection.

The existing sign posts on site communicate the importance of wayfinding. Wayfinding refers to the ability of the user to orientate themselves in a new or unfamiliar environment. Wayfinding becomes a very important design generator and must be incorporated in the building design.

The site is currently used as a transitional space. People walk through the site to shorten their walk to and over the R55 road. The taxi rank is also a space where transition takes place between modes of transport.

The integrity of the site as liminal space will enable the architectural intervention to become a place where people walk through and not to.

Throughout the community of Olievenhoutbosch shacks and shanties are constructed with found materials. This direct use of found materials is what inspires the critical evaluation of a site language (werftaal) to reinterpret architectural generators that are found on site and recreate a FOUND ARCHITECTURE.

Skins and screens are wrapped around internal skeletons to give the existing structures on site their physical form. Skins and screens are used to protect the structure and inhabitants from harsh environmental elements and often create a collage of textures and colour that give the facade its aesthetic appeal.

The ‘Werftaal’ chapter is an attempt by the author to understand the language of the site and interpret it to create a found architecture. This will produce a design that is indigenous to the community and the natural environment. It allows local labour to contribute to the construction process, creates a sense of ownership and effectively prolongs the lifespan of the building.
**Introduction**

The design development chapter in a nonlinear process in which the author attempts to find the appropriate and contextual architectural response for the new sport for development community centre in Olievenhoutbosch. This chapter illustrates the process of discovering constraints and exploring opportunities with regard to architectural form and space and refines the product to mediate between all the design informants. These informants are referred to as hyperterms and are discussed later in this chapter.

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**The Parti**

The Parti diagrams illustrate the tectonic relationship of the building, the promenade and the sport fields. It further illustrates the relationship to views and the basic spatial understanding in every scenario.

Note that the promenade that links the taxi rank with the new pedestrian bridge is a constant throughout all the phases of development.

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1A hyperterm is described as an encompassing idea or umbrella concept.
**The Concept Model**

**March 2012 - June 2012**

The base: The base of the model is a found piece of timber from site. A witness to the history of Olievenhoutbosch.

The brazing rods under tension represent the tension amongst different cultural groups. The cables represent the lives of people and the fourth dimension - time.

**Architecture:** creating space of substance and meaning.

**Sport:** a language that transcends cultural barriers and brings the lives of people closer together.

**Cultural and physical barriers**

The concept model personifies the real-world problem of division and the amalgamation of the potential within architecture and sport. The cables that protrude through the steel plate, as indicated in fig. 102a, is indicative of a continuing process, a process were chaos is transformed into structure on a daily basis.

Physically, the model illustrates the linear nature of the proposed intervention and represents a material quality that is indigenous to local understanding.
First Conceptual Drawings

The first conceptual drawings came into being as a representation of the author’s initial response toward a critically regional and vernacular architecture within the immediate context.

Dewey Gest (1973:17) identified three distinct vernacular periods in the development of architecture in South Africa.

The first was the Dutch influence, later referred to as a Cape-Dutch vernacular. Gest (1973:18) suggests that it synthesized European, colonial and Eastern traditions with the local context.

The second vernacular extended the first through a Georgian influence brought to the country by the 1620 settlers where imported classical elements from pattern books were adapted by craftsmen through the use of local materials.

The third period is unconnected because the vernacular occurred in Natal where a red brick influence adapted the British Victorian style.

The author is of the opinion that the shack fits the criteria to be acknowledged as another form of vernacular architecture. The shack is built with local labour and knowledge, locally available materials and as immediate response toward climatic and socioeconomic circumstances.

Finally, within the rusted sheet metal and cardboard windows lies a underlying beauty in the imperfection which is explored further as the design development process continues.

The Promenade

The promenade was the first design strategy used to give the project a larger range and impact on urban scale. The promenade is the conglomeration of existing routes that run through the site between the old and new parts of the community of Olivenhoutbosch over the notorious R5 road. The promenade extends into a new pedestrian bridge that will prevent the regular occurrence of road accidents being knocked down by high-speed and high-velocity traffic when they attempt to cross the R5.

"It is really a foolish idea, this craze for isolating buildings..."
(Camilo Sitte, City Planning According to Artistic Principles, New York: Random House, 1965, p. 25 - 31.)
The street architecture design came about as a response toward scale, the proposed new promenade that extends toward the new pedestrian bridge, as well as the idea that a community centre should be a series of multifunctional spaces that interact with one another and thus gives the promenade a more vibrant nature. In this way, the entrances of the building create nodes which enforce a zigzag pattern of movement through the promenade, rather than the expected linear movement.

The critique on this project was primarily aimed around the preconceived idea with regard to township architecture and the fact that spaces created were of residential scale and not of civic scale. This led to the exploration of a new approach where a civic scale was to be achieved while simultaneously integrating the building in the landscape.

The Street Architecture

The Street Architecture Comments

In western cultures, the general understanding of social interactive space usually correlates to a destination. In other words, people of certain social abstractions meet at a certain destination to converge in conversation and social interaction. This gives rise to concepts such as coffee culture, street cafe’s and boutiques that thrive in settings inhabited by western cultures.

The Linear Community

Historically the African view of social interactive space was also connected to the concept of destination. People would travel long distances to meet under Acasia trees to tell stories and share ideas. However, the argument raised by the author is that a stronger bond was formed between the community members that walked together than with the people they met under the tree.

The theory is further emphasised by the real world situation that most people in the township depend on public transport or walking to go to work. The potential of the liminal space should be harnessed as opportunity for community building and peace building within Olievenhoutbosch.
Inhabiting The Wall

The third phase of design development was inspired by the idea that the building should create a civic scale and still sit at home within the landscape.

The sectional parti illustrates the concept where the building inhabits the space underneath the promenade in an attempt to ‘inhabit’ the wall.

This concept was inspired by the idea that the wall does not decide within the sporting environment but rather serves as the common denominator.

Irregular Columns Supporting Roof

The irregular columns that support the roof is derived from the local examples of building structures within the area that use timber columns, often irregular, to support the roof.

Precedent: Wakefield Market Hall - David Adjaye
The Collage Of Boxes

The collage of boxes is an exploration that incorporated the TentacleUser2 or urban characteristic of boxes that spiral and connect to one another. The facade of the building explores a latent quality that has the ability to change and adapt, a characteristic informed by the author’s understanding of sport architecture.

Sport architecture and TentacleUser2 are two of the five hypertimes that influence the final design as discussed in this chapter.
The five hyperterms

The continuation of the design development chapter will discuss the process of design development and focus on the five primary fields or hyperterms. These hyperterms govern the underlying ideas that give substance to the architecture. This chapter explains a complicated iterative design process in a linear manner and illustrates how it informs the architecture.

1. The Concept: Bridge
2. The New Urban Condition
3. Streeks[Taal]
4. Werf[Taal]
5. Sport Architecture
1. The Concept: Bridge

Bridge—developed as a result of an oscillating process of influence that originates from an initial idea and spans over a range of theoretical influences and real-world problems. Martin Heidegger uses the bridge to give substance to the elements that constitute a dwelling. Among others, he describes the bridge as a place of unity. In the context of the design, the bridge refers to the crossing over from one condition to another thus also becoming a place of unity. This is particularly relevant, as the problem within Olievenhoutbosch is division. This division manifests physically and culturally throughout the township and leads to a range of underlying problems and obstacles.

The Concept

Bridge developed as a result of an oscillating process of influence that originates from an initial idea and spans over a range of theoretical influences and real-world problems.

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The graphic above illustrates the range of influences that forms the development of the concept. Similar to this, the concept informs design and technical decision making.
The New Urban Condition As Design Informant

The new urban condition’s primary response is its reaction to the problems of division. As explained in chapter 2, the division within Wimbledonhoo is caused by both physical and cultural barriers. The physical barriers manifest in drainage channels and sewers, while the cultural barriers manifest as xenophobia, crime, violence and alcohol abuse.

Furthermore, the need for open space to facilitate sport fields and their expansion, the possibility to serve as a "display window" to passersby and finally the possibility to connect nodes with a pedestrian bridge over a barrier is what informed the nature of the new urban condition and the selected site for its establishment.

As explained in chapter 2, the new urban condition creates an opportunity for the building to serve as catalyst in the process of urban developments.

It is however not the intent of this chapter to explain the process of the urban design, but rather why and how the new urban condition informs the architectural form.

1. Given the linear nature of the urban response and the bridge concept, the urban design reformulates the building’s linear form.

2. The new urban condition includes a pedestrian bridge that crosses the RIS road. The building and the bridge communicate conceptual similarities that communicate a similar language. This unity, strengthened by Alexander’s theory on the promenade, provides the platform for integration and reconciliation.
Existing Urban Condition

Proposed
Streekstaal As Design Informant

Streekstaal is the study of the language of the existing urban fabric as seen in chapter 02, but the question raised in this chapter focuses on the role in the development of the appropriate architecture.

1. Scale

The pictographic style expresses the existing urban fabric and scale. It is the opinion of the author that the existing scale and spatial forms should be sensitively interpreted in the architecture as it will preserve the intervention with a familiar underworld and spatial understanding.

2. The spreading effect

The spreading effect coincides with the idea of sport architecture (see Sport Architecture, p. 108). It refers to the kinetic quality between those bases and their tendency to latch onto one another. This usually happens as a result of frictional benefits. This idea of an ‘umbrella’ house enables shocks and Moore that attach to its electrical supply.

3. Umbrella town

In chapter 02, the author refers to Olive in Chad as ‘umbrella town’. No matter the weather conditions or seasons, people are seen carrying umbrellas. This intrigued the author and after an analysis of the umbrella, it became evident that in addition to its basic function of protecting the sun from the rain, it has the unique ability to create and manipulate space. It has the ability to create directional and directional space, private or public space, to manipulate the height and way in which the umbrella is held.

This ability is carried forward in the architecture. The facade of the building has the ability to add certain qualities to space and the height of the roof is manipulated to create different spatial experiences.

4. Application

Informed by the spatial requirements of sport and exercise, and the spreading nature of the hypermorphic (Streekstaal), the building consists of a series of spatial boxes. The roof plan illustrates clearly how these bases either protrude into the the landscape or are blended together with the linear roof structure.
4. WERF [Taal]_

As explained in chapter 3.5, the Werf [Taal] refers to the language of the site itself. It is the subtle ideas that are communicated within the elements found on site. Werf is the hypothesis used to describe on influential ideas. These ideas are:

1. Beauty in the imperfection.
2. Imperfection.
3. The site as linear space.
4. Found architecture.
5. Skins and screens.

3. Beauty in the Imperfection

As explained in chapter 3.5, beauty in the imperfection is found where the process of human activity and a sense of community have unconsciously manipulated an object to become admired or 'imperfect' (see Fig. 137). This is often also achieved by natural processes such as weathering and decay.

This beauty is also found in the use of local materials, local technology, and local labour over foreign imports, even though they are limitations. It is often these limitations that produce a unique quality and aesthetic in the case of vernacular design.

2. Wayfinding

Wayfinding and signage is becoming increasingly important in architectural design but more than that, the building itself should be able to guide the user through the building, indicating moving and sitting areas.

3. The Site as Linear Space

Currently, the site is a space of movement. It is used by the community to reach the R5 road or cross to the other side. This design allows for a linear site to keep this identity of the site. The potential of the site as linear space will be interpreted by means of a promenade. After careful analysis of community formation in Clarens/Outshoorn and other township cultures, it becomes evident that the community interacts most effectively and actively on their way and away from certain activities or destinations.

4. Found architecture

Found architecture refers to the critical re-interpretation of materials that are common within the community and relates to the existing fabric. Thus, the proposed building responds by attempting to personally make it in the use of existing corrugated sheets, timber and brick tiles.

5. Skins and Screens (interwoven borders)

As mentioned in chapter 3.5, the skins of sheets and shutters wrap around an internal frame to give the building its physical form but also to protect the inhabitants from the environmental elements and keep the inhabitants safe.

Interpretation in the spirit for development building design, skins and screens are used to protect the building in the same manner as the existing local structures for the purpose of security, safety and environmental benefits. However, the use and interpretation of skins and screens possess a greater underlying symbolism with regard to the larger reconciliation task at hand within the specific context, namely, dressing borders.

5.1 Dressing borders

As the borders imposed by apartheid began to fall, concrete walls and fences began to arise not only in white towns but also in black townships all over South Africa. ‘Walks of fame’ as described by Peter Marais (1990: 55) increasingly defined property lines as self-imposed system of separation. Given the juvenile state of Clarens/Outshoorn, it is the latest effects of the apartheid regime that has impacted a similar mindset between population groups.

This is compounded by the devastating effects of HIV, housing shortage, crime and violence as well as the notorious string of xenophobic attacks on foreigners.
5. Sport Architecture

Sport architecture is interpreted by the author as the architecture of the horizontal surface. This manifests throughout the new design in the way the landscape has been manipulated to form spaces where people can be seen and see other people. The horizontal platforms respond to the natural slope of the site with terraces and steps to create vantage points and elevated sitting and walking platforms.

The roofs of the building have a minimum pitch for rain water collection but still responds to the nature of sport architecture and the horizontal line. The author identifies two areas where the potential of the horizontal line has a blending quality:

1. The Pitch

The sport for development community centre is intended to grow and develop over time. The author made use of a pitch that defines the edge of the precedents. The pitch will also blend

future community oriented buildings with the proposed sport development main building as they share the same street in the area of the pitches.

2. The Roof

The long low opening roofs with the terraces within the building together and extend over the edge of the building to create opportunity for spontaneous and internal use by the community.

In conclusion, sport architecture requires the designer to think about the ritual of sport and attempt to capture the process in the structuring of the spaces related to the event.
The utilitarian and functional requirements in the technical resolution of a sport for development community centre within Olievenhoutbosch generally include robust and durable surfaces and components that can withstand the kinetic nature of the user and the sport being played. A third requirement is the ability of the technical resolution to include local skills and labour and create opportunities for community participation – an aspect that is of fundamental importance within a community such as Olievenhoutbosch.

Thus, it can be said that robustness, durability and a platform for community participation stands central to the technical resolution, however, it is in the linguistic (taal) dialogue between the tectonic and stereotomic that a building gives meaning to the social abstraction of society and ultimately becomes a work of architecture.

Materials to be robust and durable to withstand the kinetic nature of sport and sporting equipment such as balls and special shoes.

The basis of good nutrition is fresh water. Fresh water source have throughout history been a place of gathering and interaction.

Willing community members to stamp down their identity by contributing in the process of construction.

This early design sketch illustrates the tectonic concept and response to site.

Structural Synthesis

Foster Lomas
Artists’ Residency Italy

MYD Studio, Dominus Winery
Napa Valley, California

The winery exemplifies the potential of the gabion. The winery is a gabion building by Herzog & De Meuron. It was built to integrate into the landscape, almost disappearing, allowing the winery to be what it should be. The buildings’ skin is made of rough rocks that allow natural light to filter in the entire building, while keeping it naturally insulated, and especially cool in the extreme summer heat of the Napa Valley.
Mahiga High Rainwater Court
Mahiga, Nairobi Area, Kenya

The Rainwater Court is a multipurpose, full-size basketball court designed for the St. Joseph Mahiga Primary School and community of Nyeri, Kenya.

The relevance of this project as technical precedent lies in the simplistic systems and processes that respond to the immediate need and context of the community namely: Sheds, Water, Light - Materiality and Community participation.

The facilties include a shade structure that has integrated rainwater collection and UV purification system with solar panels for the water system and night lighting in areas without electricity.

The full-court configuration is a 510 m² playing surface covered by metal roof with gutters and six water downpipes to collect an estimated 40,000 litres of water per year. 25,000 litres of rainwater is purified by UV purification and stored on-site.

Community Participation
Community participation is regarded as a very important technical quality as it is a technique that is used to project the life span of the building. This principle establishes a shared sense of ownership and responsibility toward building with ultimately relates to more efficient use and architectural success.

Rain Water Purification

The rain water is purified by a u.v. purification system. Water pumps and the UV light is powered by a solar panel that is exposed to the sun between 11 am and 3 pm. This water purification system is a very relevant technical precedent in this proposed sport for development community centre as Health and nutrition is one of the four main-focus points of the project.

Materiality

The materiality of the building has an inherent vernacular quality as all the components are locally available and erected by means of local construction teams and other local labour. The materials provide a special quality that is familiar to the context.

Bright colours contrast the white columns that dominate the landscape to vinify the importance of certain elements, such as the rain water down pipes and the storage tanks.

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TECHNOLOGY AND MATERIALS (PRIMARY STRUCTURE)

WALLS

Introduction to Walls

What is the wall in sport architecture? This is the question raised by the author in an attempt to understand what the walls want to be and what it wants to be made of. As explained in chapter 14, sport architecture is the architecture of the horizontal surface and thus explores the horizontal roof that binds the spaces and layers of space together, but what is the wall?

In any form of sport, the wall is very rarely an object that stands between opponents, but rather the common denominator in the sport being played. Furthermore, when, for example, a squash ball is hit against the wall, the wall will always hit it back. The wall in this scheme does not want to be a divider, but rather a common denominator, an active participant. The wall wants to push, pull and carry the landscape and the structures on it.

Masonry Walls

Load-bearing and non-load-bearing masonry walls are to be a composite of 446, 350, 220 and 119mm thick facing/tail walls with flush mortar joints as well as plastered and pointed wall. The masonry for the pointed walls are to reflect light in internal spaces that require adequate natural light to bounce of the surfaces.

Concrete Walls

Concrete walls are not used often throughout the buildings but when the concrete is exposed, the finish of the wall will be horizontally off-shuttered with rough sawn timber plans to coincide with the concrete columns.

Gabion Walls

Manipulating the landscape is the point of departure in the construction process of the sport facilities on a site. Gabion walls are used to create a series of horizontal level differentials and to retain banks and slopes and even used as to create the face of certain structures.

Gabion Walls - Continued

The gabion wall is often categorised as a cheap engineering solution to maintain river banks, canal embankment systems, bounded that the gabion offers much more than just its effective functional value. The beauty of the gabion lies in its simplicity. The nature that is, the colour, the texture and the pattern.

In the context of the new sport and development community centre, gabions are used to as retaining walls that often form vegetated terraces for watching sport. Furthermore, the construction of the gabion provides ample opportunity for community participation, as filling the wire baskets is a labour intensive job.

Gabions generally require little maintenance, are cheap to install and also provide thermal mass if used in any build form. 1

1 A gabion wall is a wire mesh container that can be filled with stones or soil and placed where needed. It can also be used for retaining walls and river bank reinforcement.
Concrete Columns

The concrete columns work in collaboration with load bearing walls to carry concrete floor slabs. Column sizes range from 220 - 240 mm to 400 - 500 mm. All concrete columns have a rough sawn off, chipped concrete finish.

Steel / Timber Composite Columns

The columns that support the pavilion roof are a steel and timber composite. The bridge concept manifests itself in the combination of the materials to form a collective aesthetic. The steel interior core consists of 10 mm steel flat bar welded together with a baseplate at the top and bottom to form the structural core. 280 mm diameter timber are sawn to make quarter rounds and fixed to the steel to give the columns its aesthetic appeal. The single 300 mm steel column branches into four diagonal columns that carry the overhead roof structure. The diagonal braced steel columns attach to the truss and bottom columns with 10 mm shop welded galvanized steel flanges.

Concrete-Steel Column Composite

The concrete and steel composite columns carry the roof structure over the pool and gymnasium. Again, the composition of different materials is a response to the concept and a personalization of teamwork and community building.
COLUMN DETAILS

Steel / Timber Composite Column Detail
Zincalume Roofing

Zincalume roof sheets are selected rather than galvanized mild steel. The Zincalume alloy coating on steel imparts corrosion resistance of up to four times the corrosion resistance of galvanized steel.

The roof pitch over the pavilion is 5 degrees, pitch Zincalume 188 profile sheets. The roof over the sports complex has a pitch of 2 degrees. Zincalume Clip lock sheeting and placed at 2 degrees, clad with 8.8 mm Zincalume Clip lock profile roof sheets. In both cases, sheeting are fixed to steel purlins that are spaced at 1200 mm centres. Roof to receive gutters and rainwater downpipes that lead to storage tanks. Zincalume Roofing has a life expectancy of well over 40 years.

Concrete Roofs

The Concrete roof covers the dance studios provide thermal mass to keep the space cool in the hot climate. Openable vent allows warm air to escape and provides cross ventilation. Concrete roofs are to be made waterproof to specified spec.

Various flooring systems are used throughout the design, ranging from mosaic bathroom tiles to concrete crowds and grapes in storage facilities. The most influential flooring systems will be discussed.

1. Everroll PUR High Performance Flooring Systems

Given the nature of the building, especially the locker rooms next to the field and the gymnasiums, the floor required a finish that can withstand the impact of weights being dropped and provide comfortable anti-slip surface for walking on with soccer or rugby boots.

The Everroll flooring range is a collection of rubber flooring colour combinations using high recycled rubber content and manufactured using combination of different elastomers which gives the floor its kind of wear resistance and flexibility.

The Everroll floors installed in the gym and secondary locker rooms are generally installed in 4mm thickness but increased to 6mm thicknesses in high impact areas. The floor is also moisture resistant which makes it effective in bathrooms installations.

Other advantages of PUR flooring:

- Uniform flatness reduction of up to 10% depending on thickness.
- Anti-slip: it provides a safe surface for running and jumping with sufficient gripping capacity to allow for stopping movements.
- Absorbs the impact force of falling objects such as dumbbells without incurring any damage.
- Bears the load of fitness equipment placed on the flooring and prevents it from digging down. These impact loads range to 15 to 20 dB depending on the thickness of the material.

2. Timber Laminate Flooring

Dance studios require a smooth floor finish that allows for a certain sliding ability. Timber laminate flooring will be applied in the fitness and dance studios.
The Pavilion Facade

The pavilion’s western facade is one of the most important facades in its frame a canvas backdrop for the basketball and softball courts and perceived from the main access road. The facade frames a walkway and protects the spectator watching football from the harsh late afternoon sun.

The facade is constructed from reused salvaged scaffolding planks. The scaffold planks are essentially fixed to ship bent I-beams that transform from walk to roof as they stretch from the concrete footing next to the pedestrian walkway to be supported by the composite timber and steel columns. The scaffold planks are reused in their materiality and represent the community involvement in the process of construction. The scaffold planks are also a strategy of getting organization involved in funding and sponsorships, as scaffold planks can be sponsored by companies and individuals to ultimately represent an integrated whole. The facade is essentially a woven timber blanket that partially passes at regular intervals to reveal the curing structural steel columns that gradually transforms from columns to trees.

The aging character of timber is seen as an opportunity rather than constraint as it provides opportunities for employment and skill development.

The screen facade west and is designed to offer sun shading for the spectators in the late afternoon. The screen is designed to allow the sun to partially filter through from 1700 pm in summer afternoons when the temperature drops.

As seen in Fig. 174b, the treated scaffold planks are angled at 5 degrees to achieve the desired solar aspect and to guide rainwater away from the walkway underside.
The Gymnasium Facade

1. Light strips
Poly carbonate GRP sheeting are used with the stepped roof to bring southern light into the building. The poly carbonate sheeting is cheaper than glass and has an excellent strength to weight ratio.

2. Screening
Screening on the South of the building with turned 100mm diameter gampoles. The screening acts in front of the glass curtain wall to protect it from impact and to give the facade a warm aesthetic appeal that responds to context and the regional identity.

3. Curtain wall
The curtain wall is framed with aluminium millennium. Aluminium is used for its longevity and strength to weight ratios. The aluminium framed curtain walls are built in between concrete columns.

Rainwater harvesting

Rainwater are to be collected from roof by means of gutters and rainwater down pipes and to be stored for:

1. UV purification and supplying fresh drinking water for athletes.
2. Irrigation of lawns and gardens.

To calculate required rainwater storage capacity, we need the following info:

1. Rainfall collection area
2. Daily water requirement

Formula: 

\[ V = \frac{Q \times R \times 87,600}{240} \]

where:

- Q = average rainfall in the month
- R = a collection area
- 87,600 = number of minutes in a year
- 240 = average efficiency factor
- B = mean rain loss factors

After careful spatial, respiratory and aesthetic consideration, provision has been made for the storage of 40,000 L of rain water to surpluse the existing demand on municipal water.

Revisits have been made for the roof surface storage of 60,000 L of rain water to surpluse the existing demand on municipal water to irrigate park lawns.

**Calculations for water storage to ingeniously designed campus Northern side of a puddle**

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<thead>
<tr>
<th>Storage</th>
<th>Volume</th>
<th>Design</th>
<th>Description</th>
<th>Efficiency</th>
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Rainwater purification

Given the problem of drier wetlands, Grootesbosch and its runoff as one of the fundamental generators of the intervention, it is the attempt of the author to create community by means of the visual act of harvesting and purifying rainwater for the purpose of drinking. Furthermore, the drinking fountain is situated at a crossroads where people meet, gather and interact.

To remove dust and bird droppings, colour and other materials that might be in the water.

Position roof with treating area of 400 sqm, with potential of harvesting 100,000 L of rainwater per year.

UV distillation or the reverse osmosis process is process save harmful bacteria with in water is rendered harmless by means of exposure to UV light.

Warms and stale air escaping the building through vents in clerestory windows.

Thermal mass on Northern side of Building

Larger ceiling cavity on Northern side for insulation and airflow barrier.

21 mm board ceiling with glass wool fibers insulation.

Roofs snap away from the sun to utilize Southern light as primary light source and to avoid solar gain from direct Northern sunlight.

Air from shaded Southern side of building sucked in and blown over cold water pool surface.

Fig. 1.9. Cooling and ventilation 7.
The Site as System

The illustration below illustrates a series of systems that complement one another to cool the interior of the building in a natural and sustainable manner. The point of departure is to use the site as a system to minimize intricate, expensive, and unsustainable air-conditioning appliances.

The prevailing wind direction in Olivenhoutbosch is from the South. This brings cooler, moist air from the stream below up toward the site. In both buildings cool air is introduced from the Southern side of the building as it is generally more effective due to the buildings' shadow. As air moves over the cool water pond, the temperature decreases. For further cooling, air travels through a galvanized wall that retains moisture between the stones and cools the air as it passes through.

The predominant Southern breeze carries cool air from the forest up toward the buildings.
SEWAGE
All sewage to be treated with a septic tank system not closer than 12 m from source.

GREY WATER
All grey water from hand wash basins will be used for watering lawns and gardens. The soap in bathrooms and locker rooms are to comply with biodegradable standards.

WATER CLOSETS
The Lecico Reveira is a standard water-saving toilet, using just 4.5 litres for a full flush and 2.6 litres for a half flush. The Lecico Reveira water closet available at Plumlink at R1195. The saving compared to a 9 l toilet per 5 users will save R625 every year at current Tshwane water rates.

VEGETATION
Given the nature of the site, vegetation is included as a designed system that responds to environmental issues. Strategies are used that promote local bird life, require minimal irrigation and regulates cooling.

XERISCAPING
Xerophytes are plants that require very little water to survive and still have high aesthetic appeal. Xerophytes often have thorns that can be used as natural barriers.

TREES
Currently there are no trees on site. Ingenious trees are to be planted that represent the regional identity of the highveld, provide shade and motivate the habitation of local bird life.
Detail Section C-C

Not to scale
Scaled Model

The Process

Fig. 208: Night view from field

Fig. 209: Detail Model
Conclusion

The aim of this dissertation was to amalgamate the potential of architecture and sport and to investigate the reconciliatory benefits of this duality within society. Through the study of theories it became evident that certain architectural principles could augment the existing success of sport as tool for peace building. However the author stresses the importance of a thorough understanding of the context, site and local community. This encompasses both the tangible (lyf) and intangible (taal) aspects, as explained in the Streeks(Taal) and Werf(Taal) chapters. These investigations revealed certain patterns that provide opportunity for architectural interpretation and, given the solitary nature with regard to existing built structure, is of cardinal importance in the design process.

Concerning township architecture and the green field state of the site, the importance of the urban design cannot be understated. The urban design provides the architect with the opportunity to design a building that serves as a catalyst for a future condition as well as the potential for a wider range of influence. The architecture, governed by the five hyperterms personifies the intentions of sport as language that transcends racial and cultural barriers. The architecture enables the bridging of cultural and physical barriers. This ranges from physical bridging on urban scale to the use of material bridging in detail design and ultimately finds the beauty in the imperfections.
SUSTAINABLE BUILDING ASSESSMENT TOOL (SBAT-P) V1

PROJECT ASSESSMENT

Project title: Olievenhoutbosch Sport for Development Centre
Date: 25 Oct 2012
Location: Pretoria CBD
Undertaken by: Francois van Wyk
Building type (specify): Residential
Company / organisation: Pvt
Internal area (m²): 824792586, Fax: 824792586
Number of users: Email: franvwyk@gmail.com
Building life cycle stage (specify): Design

Social 4.2
Economic 4.1
Environmental 2.4

Overall 3.6

SUSTAINABLE BUILDING ASSESSMENT TOOL (SBAT-P) V1

PROJECT ASSESSMENT

Project title: Olievenhoutbosch Sport for Development Centre
Date: 02-Aug
Location: Pretoria CBD
Undertaken by: Francois van Wyk
Building type (specify): Residential
Company / organisation: Pvt
Internal area (m²): 824792586, Fax: 824792586
Number of users: Email: franvwyk@gmail.com
Building life cycle stage (specify): Design

Social 4.5
Economic 4.4
Environmental 2.7

Overall 3.9