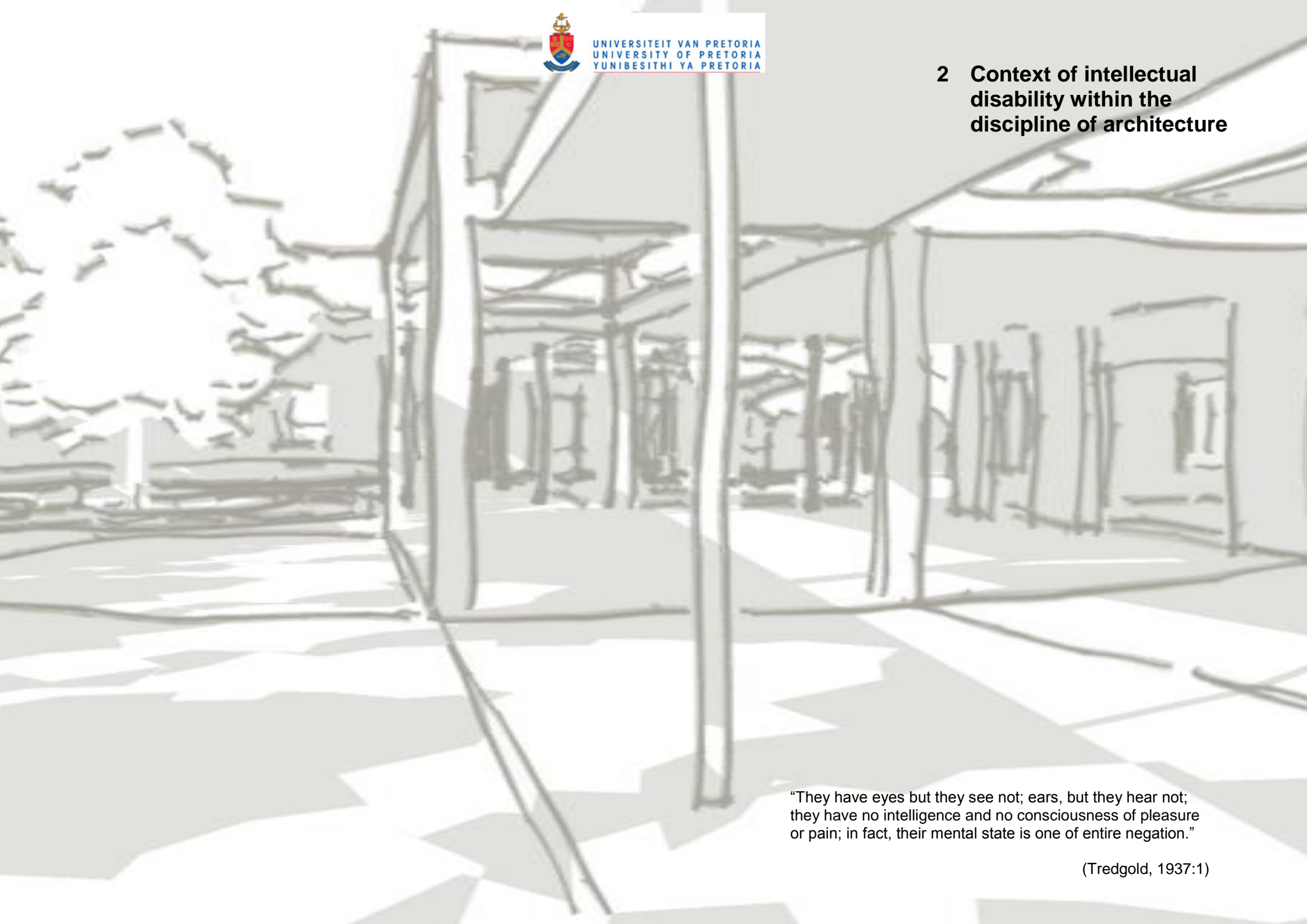## 2 Context of intellectual disability within the discipline of architecture

"They have eyes but they see not; ears, but they hear not; they have no intelligence and no consciousness of pleasure or pain; in fact, their mental state is one of entire negation."

(Tredgold, 1937:1)

2.1 Intellectual disability

As persons with intellectual disability are central to this dissertation a basic understanding thereof by the reader is essential.

2.1.1 Terminology and definition of intellectual disability

The terminology used when referring to persons with "intellectual disability" has evolved and changed as our attitudes, thinking and understanding of the condition have progressed. But this change has also in part been driven by efforts to remove negative sentiment attached by society to the terms of the day. While terms such as "dim-witted", "idiot" and "retard" were considered completely acceptable at some point in history, society has unfortunately latched on to these terms and used them in a negative context, to the point where the common interpretation was deemed as derogatory and thus not acceptable for day-to-day use.

In today's popular vernacular the terms "mentally handicapped" or "mentally disabled" are more commonly employed when referring to persons with intellectual disability. In South Africa the term "intellectual disability" is currently more academic but is slowly gaining broader acceptance and use, especially within the medical field.

While most people have a basic idea what intellectual disability may mean, a formal definition is important in clearly characterising the mental condition attributable to such handicapped persons. Two definitions of intellectual disability have been chosen and are listed. The first of these is a broad definition from Wikipedia (2007b):

Intellectual disability "is a term used to describe life-long disabilities attributable to mental and/or physical or combination of mental and physical impairments, manifested prior to age twenty-two. The term is used to refer to disabilities affecting daily functioning in three or more of the following areas:
- capacity for independent living
- economic self-sufficiency
- learning
- mobility
- receptive and expressive language
- self-care
- self-direction

Figure 6 - Impacted capabilities of intellectually disabled persons

It reflects the person's need for a combination and sequence of special, interdisciplinary or generic care, treatment, or other services that are lifelong or of extended duration and are individually planned and coordinated. [Intellectual] disability is a modern replacement for the term mental retardation. [Intellectual] disabilities are usually classified as severe, profound, moderate or mild, as assessed by the individual's need for supports."   In America the preferred academic term is 'developmental disability', hence ''intellectual' has replaced the term 'developmental' in the above definition.

This 5 level scale, based on the Wechsler Adult Intelligence Scale (WAIS), upon which intellectually disabled persons are classified is tiered according to the person's IQ. These tiers are defined in
  Table 1

Table 1 – Intellectual disability rating (Encyclopaedia Britannica 2007a)

Class	IQ
Profound intellectual disability	Below 20
Severe intellectual disability	20–34
Moderate intellectual disability	35–49
Mild intellectual disability	50–69
Borderline intellectual disability	70–79

The South African Mental Health Care Act (Act 17 of 2002:12) suggests that "…severe and profound intellectual disability means a range of intellectual functioning extending from partial self-maintenance under close supervision, together with limited self-protection skills in a controlled environment through limited self care and requiring constant aid and supervision, to severely restricted sensory and motor functioning and requiring nursing care.*"* According to Cleland (1979:3) the term profoundly intellectual disabled encompasses those who have an IQ of below 20. They rarely have any intelligible speech even at adulthood. The profoundly intellectually disabled people will more frequently than other people manifest sensory, skeletal and other physical abnormalities and sensory defects, skeletal abnormalities and other disabilities may co-exist. Total life support is therefore essential to

their survival with up to 40% of the profoundly intellectually disabled being bedfast or semi-ambulatory.

Historically there was little if any distinction made between intellectual disability and mental illness. Although the history is a combined history, this study is aimed at producing a design for a facility to care for the profoundly intellectually disabled, who sometimes suffer from mental illness as a result of their disability, but not for the mentally ill who have no intellectual disability. Because the history of the treatment and care of persons with intellectual disability and persons with mental illness is combined, the following definition for mental illness is also included:

Mental illness is a "psychological pattern that occurs in an individual and is usually associated with distress or disability that is not expected as part of normal development or culture... Categories of diagnoses in these schemes may include mood disorders, anxiety disorders, psychotic disorders, eating disorders, developmental disorders, personality disorders, and many other categories" (Wikipedia 2007e*).*

2.1.2 History of the treatment of mental illness & intellectual disability

Disability and illness of the mind and body have always existed, and according to Walsh (1910) there are records of such cases in ancient Egyptian, Greek and Roman times. Little information about the care for the intellectually disabled or mentally ill is available apart from the mention made of medieval monastic communities taking care of the sick and disabled. Walsh (1910) asserts that even though most literature declares that the first establishments devoted to the care of the insane started around the thirteenth century, there were earlier establishments. He states that there are records of a morotrophium, or home for lunatics, in Constantinople in the fourth century.

Intellectually disabled people, along with mentally ill people, were sent to asylums. At first there was no distinction made between mentally ill and intellectually disabled. They were both put in

asylums, which were often located outside the community and hidden from society. These people were often forgotten about by society at large, a society that as Cox and Groves (1990: 122) say, was often inconvenienced by their activities. Families who had intellectually disabled members would keep this secret, it was something to be ashamed about.

Davies (1988) points out that the hospital, the asylum and the prison are building types with parallel histories and a shared common ideology. As will be shown in a later example, the Narrenturm Asylum, they also shared architectural expression.

Figure 7 –Bedlam by Hogarth, William. 1735. (Museum of London 1998)

According to information posted by the Museum of London, the Bethlem Royal Hospital, one of the first known asylums, was founded in London in 1247 as the priory of St Mary of Bethlehem. By the fourteenth century the 'insane' were also treated here. In

1375 it was taken from the priory and became a royal hospital. Bethlem was shortened to Bedlam in common speech and according to Walsh (1907) the housing of 'lunatics' here lead to the use of 'Bedlam' to mean a house of confusion. Every century there were several commissions of enquiry into the management of the asylum due to the abuses which occurred there. Walsh further states that the idle classes would go to Bedlam for their amusement, pay a penny and watch the antics of the insane.

Walsh (1910) notes that beginning in the latter part of the 18th and continuing into the 19th century, through the efforts of pioneers like Philippe Pinel and William Ellis, a doctor and an apothecary respectively, the introduction of more humane approaches and methods of treating the mentally disabled and mentally ill were introduced. These methods included amongst others:

- categorisation and segregation of patients according to type of disability and treatment
- reduction in the use of mechanical restraints and coercion on patients
- introduction of psychiatric methods of treatment
- therapeutic employment.

The first half of the 20th century could be considered as a partial reversal in the progress that had been made in the previous century towards more humane care and treatment of persons with intellectual disabilities. Due to the increased populations and overcrowding of institutions, there was a growing need to discharge patients as soon as possible which led to the development of some controversial and often inhumane treatments. Some of the best known and controversial include:

- frontal lobotomies
- eugenic compulsory sterilization
- shock therapy.

The latter half of the century however saw the exposure of these abuses in some part due to World War 2 conscientious objectors, assigned to psychiatric hospitals as part of their civil public service, and they were instrumental in the reforms of the 1940s and 1950s. The development of the first drug therapies around this time also changed the treatment and care regimes, provided

a more humane approach and encouraged the discharge of many patients into the community. The 1960s and 1970s saw a growing awareness by the broader public of mental institutions, their practices and the state of the institutions through the popular media. Some works like "One flew over the cuckoo's nest" and "Zen and the art of motorcycle maintenance" painted a very unflattering picture of mental institutions. This resulted in the deinstitutionalisation movement in which we find ourselves today.

Figure 8 – McMurphy (played by Jack Nicholson) receives electro-shock therapy in the movie "One flew over the cuckoo's nest" (Wikipedia 2007f)

## 2.1.3 Current trends and thinking

The deinstitutionalisation movement advocated a move away from the traditional policies and practices of the institutionalisation of people with intellectual disabilities. It was argued that mental hospitals and other similar institutions dehumanised and denied the people they treated their basic human rights through their segregation and confinement from society and day-to-day life. It called for the practice of normalisation of these people which essentially involved their integration into broader society in order to play meaningful and fulfilling roles, supported through community-based mental health services. The principles of the practice of normalisation were first defined and articulated in the 1960s and developed further in the 1970s. The practice of deinstitutionalisation of mental health services has been widely adopted across the globe (including South Africa) since then. Implementation thereof, especially by the early adopters, was not without its problems, particularly in situations where governments rapidly scaled back on building, staffing, operating and funding of large scale mental health services and infrastructure. These rapid changes led to the sudden closure of many mental hospitals and institutions, placing a largely unanticipated reliance on local community care. This unfortunately led to many former patients, instead of reintegrating successfully into society or receiving community treatment, simply ending up as homeless persons.

A key lesson learnt from these types of setbacks was that deinstitutionalisation and normalisation could not be applied as a blanket rule to all intellectually disabled persons. Each individual needed to be assessed to ascertain the degree and model of normalisation to be applied. It was however widely recognised that patients who were classified as having a profound intellectual disability still continued to require the long term care of an institutional nature, like that provided by the Little Eden Society. The application of this policy within South Africa is evident through policies which dictate that institutions like the Little Eden Society are only allowed to accept new residents who are classified as being profoundly intellectually disabled. If they choose to ignore this ruling, they risk losing their government subsidies.

2.1.4 The architectural evolution

Only around the time of the "reformation" in the treatment and care of persons with intellectual illnesses and disabilities, which happened towards the end of the 18th and into the 19th century, did the architecture of these facilities become a discipline in its own right. Prior to this, institutions were largely housed in non-purpose built structures like monasteries, jails and unused public buildings with a handful of dedicated structures in large urban centres.

With this change in thinking, the idea that the physical environment and surrounds of the patients were in many cases the motivation for as well as an essential ingredient in their treatment, gained popularity and recognition. The theory was that the building and its surrounding natural environment became important instruments of therapy. Architecture therefore became an important preoccupation in the field, and this is evident from the number of articles of an architectural nature in the professional medical journals of the day.

Figure 10 - The Narrenturm Asylum in Vienna, Austria (Wikipedia 2007h)
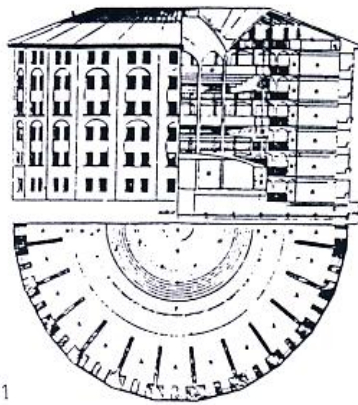
Figure 9 - Bentham's panopticon (Davies 1988:16)

The latter half of the18[th] century saw a wider recognition for the need for purpose-built structures to house the mentally ill and intellectually disabled. These first buildings however reflected the fact that the more enlightened thinking advocated by the likes of Philippe Pinel and William Turk had not been implemented nor become widely known and accepted. These buildings closely resembled jails or fortresses personifying the widely held view that their patients were the un-reformable rejects of society who were in most cases dangerous and needed to be locked up. A classic example of such a structure is Vienna's Narrenturm built in 1784 and seen in Figure 10

The Narrenturm or "fools tower" was similar to the panoptic prison designs proposed by Jeremy Bentham in the late 18th century. The Narrenturm comprised a fortress-like circular building with slot-like windows for up to 250 mental patients. The interior design reflected that of the exterior with lattice reinforced doors and rings embedded throughout for chains to restrain patients. However soon after its completion the structure was out of date with the emergence of new theories for the treatment of the mentally ill and intellectually disabled.

The shift in the architectural theory and practice in the early 19th century led to the construction of facilities that could be best described as stately, designed to communicate a message of "optimism and civic pride". The mental asylum had come into its own as a recognisable building type and become an integral public institution. The architecture combined large, imposing and monolithic buildings, more often Victorian but ranging in styles from Greek temples through to Gothic and Medieval castles, with extensive manicured garden surrounds. The location, also an

essential aspect in the theory, was typically outside of, or on the very outskirts of urban centres, removing the patient from society and their families. This removal from society and their families has since been seen as a common cause of many of the disorders as well as an undesirable interference in their treatment.

A prime example of such an institution based upon this thinking, can be found in the Hanwell Mental Asylum established in 1831 and located in Middlesex in England. (Rossbret Institutions 2007) The architect was William Alderson. His neo-classical design consisted of a central block with an octagonal tower, and projecting wings at either end. The east side of the central tower was intended for the male patients and the west for the females. Spacious grounds, laid out with lawns and avenues of trees, surrounded the buildings.
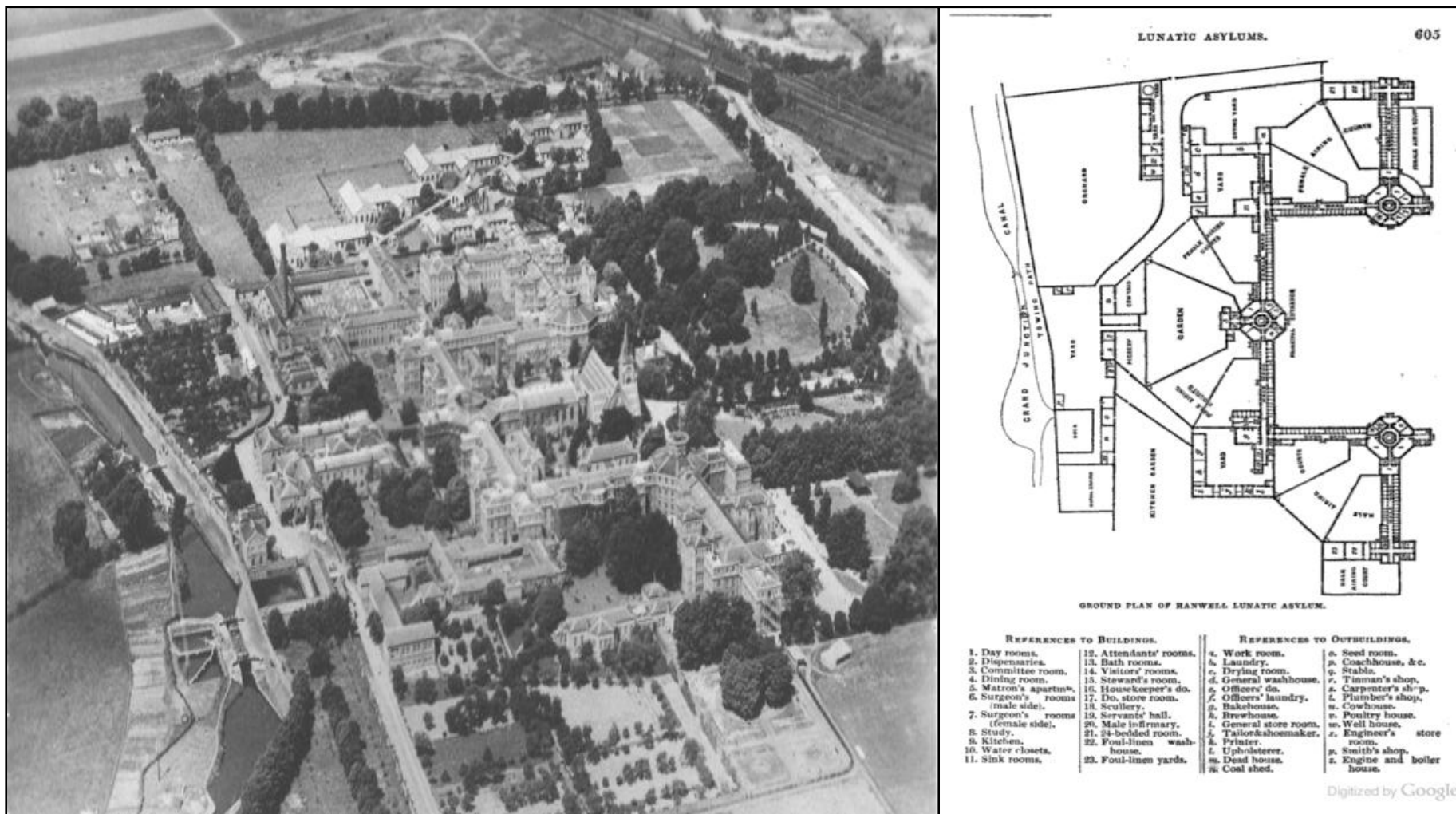

Figure 11 - The Hanwell Mental Asylum established in 1831 and located in Middlesex England (Wikipedia 2007c)

12

In an article written in 1834 Harriet Martineau (1834) he describes conditions that seem to be very different to those at the Hanwell Asylum:

"It is commonly agreed that the most deplorable spectacle which society presents, is that of a receptacle for the insane. In ... asylums we see chains and strait-waistcoats, - three or four half-naked creatures thrust into a chamber filled with straw, to exasperate each other with their clamour and attempts at violence; or else gibbering in idleness, or moping in solitude*."*

Martineau describes that the 'Hanwell Lunatic Asylum' was totally different to his understanding of mental asylums as illustrated in the above quote. Patients that came from these 'receptacles for the insane' and had been chained in confinement, were happy and content and allowed to roam around the grounds at Hanwell.

To illustrate the thinking of the time, it is considered appropriate to quote Martineau (1834) who said that "insanity is still considered as more disgraceful than crime, and that it is therefore made the immediate interest of the family of the insane to bury him in oblivion." He described how their behaviour had changed and how including them in the day-to-day functions of the asylum kept them occupied and content. From his descriptions it is obvious that activities and participation in the operating of the asylum and the group activities, as well as their access to the outdoors gave the patients a sense of belonging and ownership.

A key proponent and contributor in the United States was Thomas Kirkbride who, according to Ozarin (2000), devised a set of widely applicable planning principles detailed in his published work "*On the Construction, Organization, and General Arrangements of Hospitals for the Insane*" in 1854 for the design of facilities for the intellectually disabled, also known as the Kirkbride Plan. Ozarin (2000) explains that these principles based upon the thinking of the day called for:

- a central structure in which the administration and functions such as the kitchen and laundry were housed
- patient wings extending from the left and right of the central administrative structure
- classification and segregation by gender and type of disorder (males and females in opposite wings)
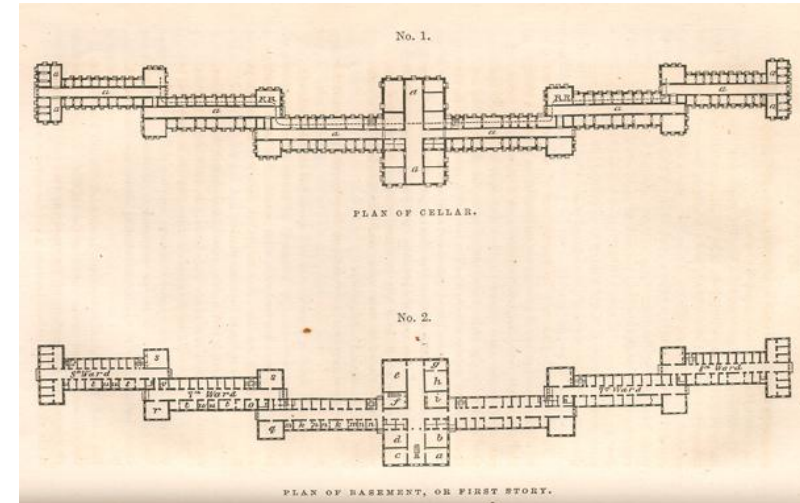
Figure 12 – The Kirkbride plan (Ozarin 2006)

- parallel wings set back from the front structure and joined by short cross sections to the main structure
- each wing and ward to be adequately distanced from the others to allow enough light and fresh air to circulate
- comfortable furnishings as well as facilities for occupational and recreational therapies.

His writing also defined in great detail the position of, for example, drainage, heating, ventilation, and windows.

The philosophy and principles behind the design continued to be adhered to into the late 19th and early 20th centuries. However the forms and styles of the buildings evolved and reflected to a greater extent the architecture of the time, being more austere and less ornate than the asylums of the mid 19th century. The structure's shape became taller as opposed to the long slender original design of the mid 19th century. This is evident in King Park Psychiatric Hospital in New York, which was established in 1885 and is shown in Figure 13

Figure 13 – The King Park Psychiatric Hospital in New York (Wikipedia 2007d)

By the mid-20th century it became clear that the monolithic asylums, which had been constructed in such numbers and with great fervour over the previous two centuries, had fallen well short of expectations. Most had failed to surpass their predecessors, suffering from overcrowding, neglect and in some cases patient abuse and squalid living conditions. The decline of their use could also be attributed to the changed thinking, practices and technology in the architecture and care, which in part was brought about by the failure of the asylum model. The theory that the environment could be an important factor in the cause, care and cure of the mentally ill and intellectually disabled, was largely disregarded and considered mostly irrelevant by many in the field of mental health care. Large, self-contained and isolated facilities were also no longer approved of by the broader public. The deinstitutionalisation and community integration movement all but saw the end and total shutdown of these facilities, where most were abandoned and many destroyed with only a few surviving operational facilities in the 21st century.

While in their day the large self-contained monolithic asylum buildings dominated asylum architecture, other thinking and design began to emerge in the late 19th century. Two similar concepts were developed particularly in Europe, the "cottage or villa plan" and the "pavilion plan". Both called for the fragmentation of the asylum into functional buildings distributed across the site in a pragmatic layout – this was in stark contrast to Kirkbride's monolithic design. What differentiated them was the manner in which the various buildings were connected. The cottage design had no formal direct connection in contrast to the pavilion design in which the buildings were connected by a series of covered walkways. A hybrid of this layout was developed in the United States of America and comprised a complex of individual cottages surrounding a traditional linear plan asylum. The layout of the Norwich State Hospital in Connecticut in the United States, which follows a pavilion layout can be seen in Figure 14
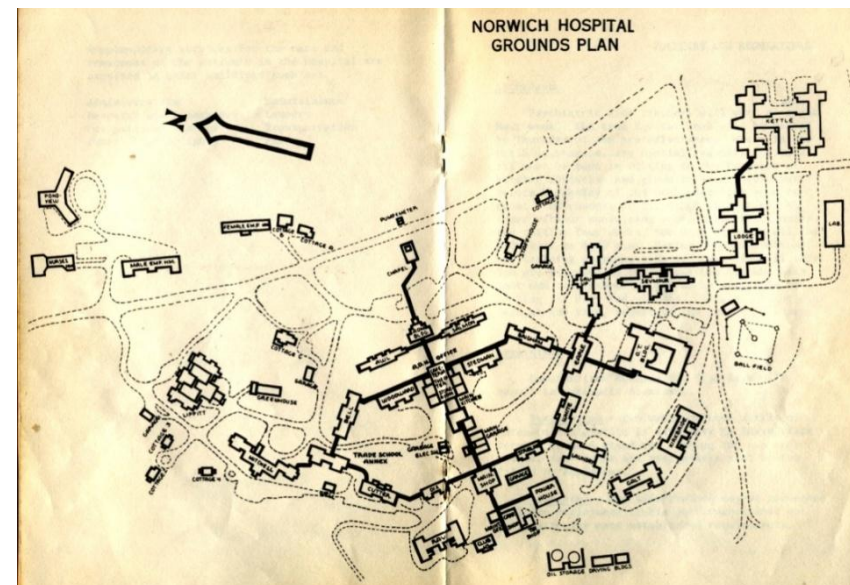
Figure 14 - Norwich State Hospital, Connecticut. Pavilion site layout

The rejection of the asylum model may have been seen by some as the end of the specialised facility. As discussed in 2.1.3 it soon became evident, that after a few disastrous ventures into the practice of purist deinstitutionalisation and integration into communities, some form of facility would still be required to care for the mentally ill and intellectually disabled. To address this need, the concept of smaller functional buildings grouped in a village layout was advocated. It was also at this time that a differentiation was made between facilities for the mentally ill and for the intellectually disabled.

Colin Davies (1988:15) explains how even though there is objection to the architecture of the hospital or asylum simply because it is institutional, "we are kicking against the coercive aspect of caring." While physical problems are treated with the patient's consent, in the case of mental problems consent from the patient is not obtained. In this case caring and coercion are interlinked. He says that even though they might submit to the 'coercion' of caring in order to get well, or in the case of the intellectually disabled person, without making the choice, they want to make it more pleasant by domesticating the architecture. However the methods for caring are not domestic. Modern medicine and interventionist caring methods require technology and specialised equipment and facilities. Health buildings and facilities, and more specifically to this study, the design of the new facility for the Little Eden Society in Pretoria, needs to combine the human or 'domestic' quality that is found to be so comfortable with the practical and technological requirements associated with 'institutional'.

Another issue associated with disability is access to buildings, to amenities to rooms. Disability is viewed as an abnormality and often seen as a disease, with disabled people requiring special provision. As Davies (1988:16) points out, disabled people are excluded from the term 'general public.' He explains how access add-ons are often seen as discriminatory with the stairs as the important access for the general public, while an added-on ramp or lift, often not present in the original design, could be seen as a special provision for abnormal people. While some may see this as hypersensitivity, he argues that at least in public buildings, access for able-bodied and disabled people should be included and given equal importance. As will be seen later in this study, access is an important driving force behind the design of the Prinshof home, and the circulation route becomes the main connecting element of the facility with the different buildings and elements feeding off it.

2.1.4.1   Therapeutic gardens and the adventure playground

According to Marcus and Barnes (1999) gardens can have a healing and restorative effect on people for a number of reasons. This includes the aesthetics of nature, which creates a beautiful place that will entice residents to go outdoors. Stress relieving benefits of healing gardens can be achieved through experiencing sunlight, viewing trees and flowers and listening to the sounds of water and birds. They explain that the healing power of gardens is enhanced by how it is detailed to support activities other than just being in a plant filled space. This can include elements that encourage socialising, space to spend time alone or in groups, to move at a leisurely pace or more vigorous exercise and providing the choice to be in the sun or the shade. They state that a garden can be healing for the people who are actively involved in creating and maintaining it. Furthermore, they describe how paradise is symbolised by a garden in the Judaic, Christian and Islamic religions, "[w]hether one accepts religious dogma or views it anthropologically, religion, nature and spirituality are fundamentally bound." (Carey 1999:9). Taiocchi (2007) describes Little Eden as the 'earthly paradise' belonging to the intellectually disabled residents.

Wolff (1979:89) says that play is the most essential means of communication for the young and, by deduction, the intellectually disabled who are mentally 'young'. She says that play can help the person to realise that he or she has the ability to cause a change in the environment and thereby communicate something about him or herself. She states that play allows each person to "achieve personally significant meaning from their environment through direct physical and social interaction." Adventure playgrounds provide for physical play activities involving coordinated motor skills and large muscle development, promoting active participation through the use of novel, varied and complex stimuli. Wolff suggests possible playground equipment, besides the readily available jungle gyms, swings, slides and seesaws, should also include, amongst others, climbing apparatus with platforms and shelters, jumping decks with thick foam rubber pads below, a pond (with removable safety net), bridges, sandpit, climbing nets, earth mounds, tires and climbing ropes.

2.2 Precedent studies

2.2.1 Chapel of Light

*Location:* Campus of the University of Technology, Vanderbijl Park, South Africa
Architects: Comrie-Wilkinson Architects
Year completed: 1999
Description: The Chapel of Light was built as a multi-denominational facility to serve the religious needs of the university, and to accommodate up to 100 people. It is notable for its low construction cost.

Architecture & design: The chapel is set in a stark landscape of open fields, parking lots and uninspiring dormitories blocks. According to Deckler, Graupner and Rasmus (2006) the chapel therefore needed to create its own context. The first element of the building, which attracts attention is the tower and attached free-standing wall which create a focal point at the entrance of the chapel. The building is constructed mainly from red face brick with various concrete elements. The steel roof appears to float over the building and extends past it. This ties the various spaces and elements of the building together, as well as covering an outdoor gathering space at the entrance.

The red brick exterior is contrasted by the cool illuminated white interior. Deckler et al. (2006) state that this transition can be seen as a metaphor contrasting the hard reality of the world outside with the peace and sanctity of the chapel. The interior is softly lit during the day by indirect and reflected natural sunlight.
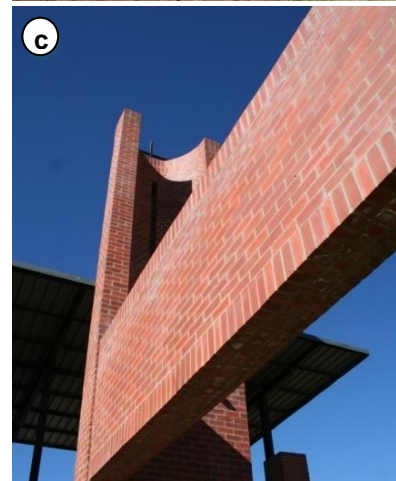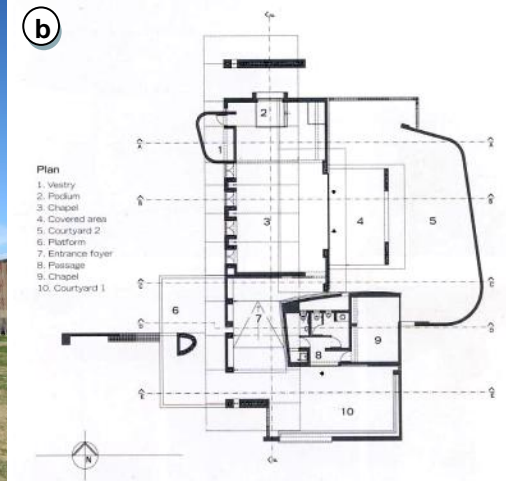
Figure 15 – Various views of the Chapel of Light – (a) external view from the north west of the building (b) a plan of the chapel (c) a low angle view of the free standing wall and tower (d) external view of the chapel office (photographs by author, plan from Deckler et al. 2006: 55)

Key takeaways: The following aspects of the architecture and design have been noted as being pertinent to this dissertation:
- The manner in which the face brick and concrete, as practical and often plainly employed elements, have been used to create an aesthetically pleasing building.
- The use of indirect lighting in the chapel to create a sense of cool, peace and sanctity.
- The use of the tower to focus the visitor to the starting point of their journey.
- The roof as a feature of the building, as well as a complementary element to the brick and concrete.

2.2.2 Church of Light
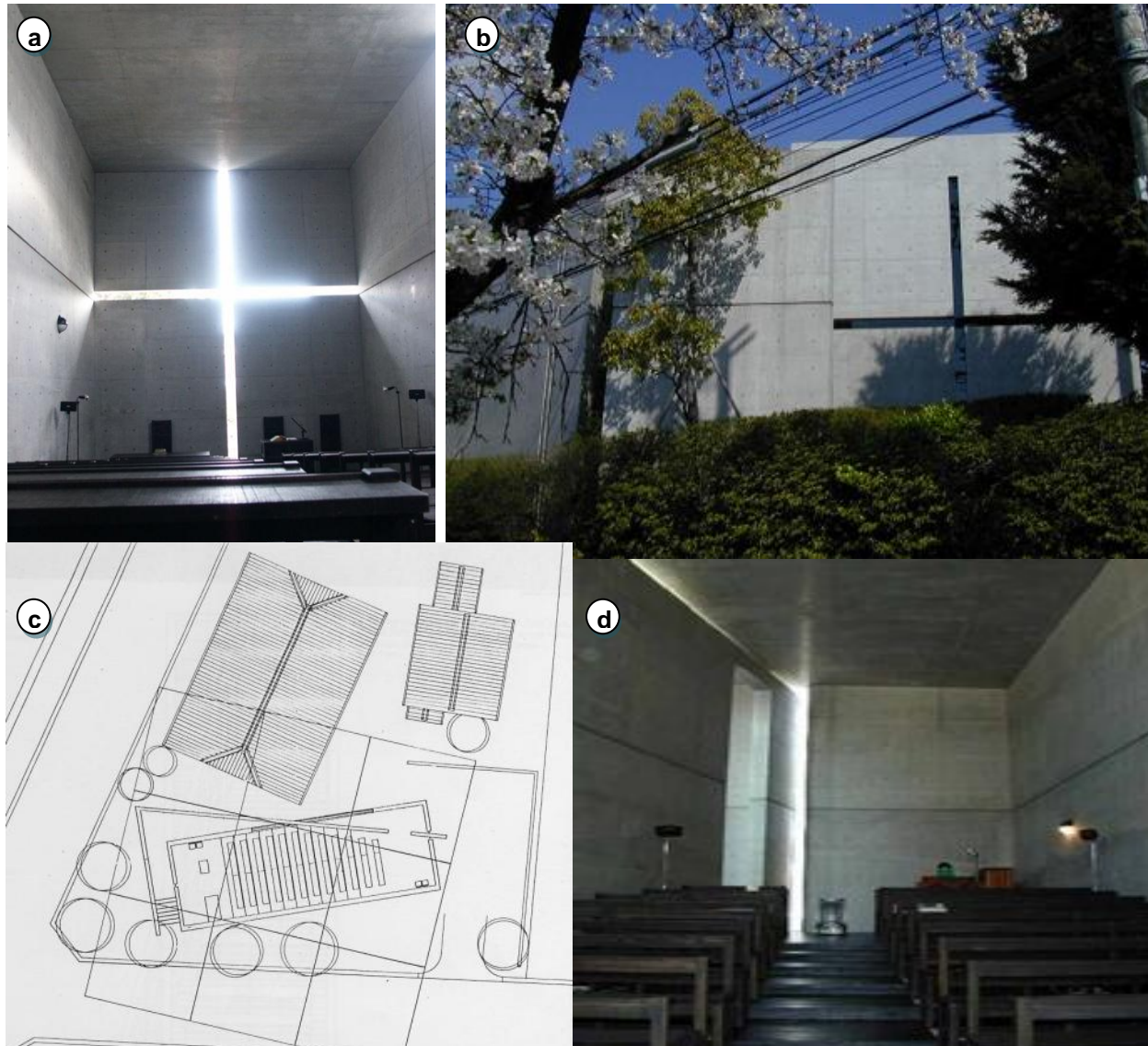
Figure 16 – Church of Light, collage: (a) a view of the cruciform cut into altar wall (b) an external view of the cross form in the east wall (c) a high level layout of the site (d) the Sunday school extension of the church (Wikipedia 2007a and galinsky.com 2007)

Location: Ibaraki, Osaka Prefecture, Japan
Architect: Tadao Ando
Year completed: Church 1989, Sunday school extension 1999
Description: The Church of Light is located on a small site in a residential suburb in the city of Ibraki on the corner of an intersection. The site originally accommodated a small wooden chapel and the minister's house. The church itself is fairly small by standards, only 113m2 in size.

Architecture & design: According to Ando (1991) the church comprises a concrete cube which is penetrated by an angled wall that separates the spaces between the church and entrance area. The building is constructed from poured reinforced concrete. Entering the church, the visitor is confronted with the defining cruciform of light cut into the concrete wall behind the altar, which is illuminated by sunlight in the mornings. The structure is designed to have presence, create a sense of lightness and conjures up a feeling of emptiness. It is designed to encourage a sense of separation and isolation from the outside world. Ando's intention is that there is room for the 'spiritual' to fill. Ando (1991) explains how, by making light an abstract element, and the only natural element in the space, nature becomes abstract and this purifies the architecture.

Key takeaways: The following elements within the Church of Light have been noted as relevant to the design of the Little Eden Society facility:
- The use of simplicity and clean lines in the design helps to focus the visitor's attention on the function of the building, which is a space for facilitating spiritual awareness and growth.
- The manner in which light is used as a feature in itself as opposed to just providing light for visibility.

2.2.3 Saheti School

Location: Senderwood, Johannesburg
*Architect:* Mira Fassler-Kamstra
Year opened: 1974
Description: Saheti is a private school providing educational services from grade 000 through to grade 12, with a Greek cultural basis. It has capacity for just over 900 pupils and provides facilities and services catering for the academic, cultural and sporting needs of its pupils. (Private Schools South Africa 2007)

Architecture & design: The school buildings include academic classroom complexes, a music centre, a sports centre as well as a Byzantine-styled chapel, surrounded by gardens and outdoor sports facilities. The buildings are mostly single storey with tiled hipped roofs, many of which are gabled hipped with clerestory windows on one side, which create interesting roof profiles as well as provide practical benefits around lighting and ventilation. The materials used are face brick, terracotta roof tiles and concrete beams and columns. The school campus layout is connected through paved walkways.

Key takeaways: The following architectural aspects of the school are notable and applicable to this dissertation:
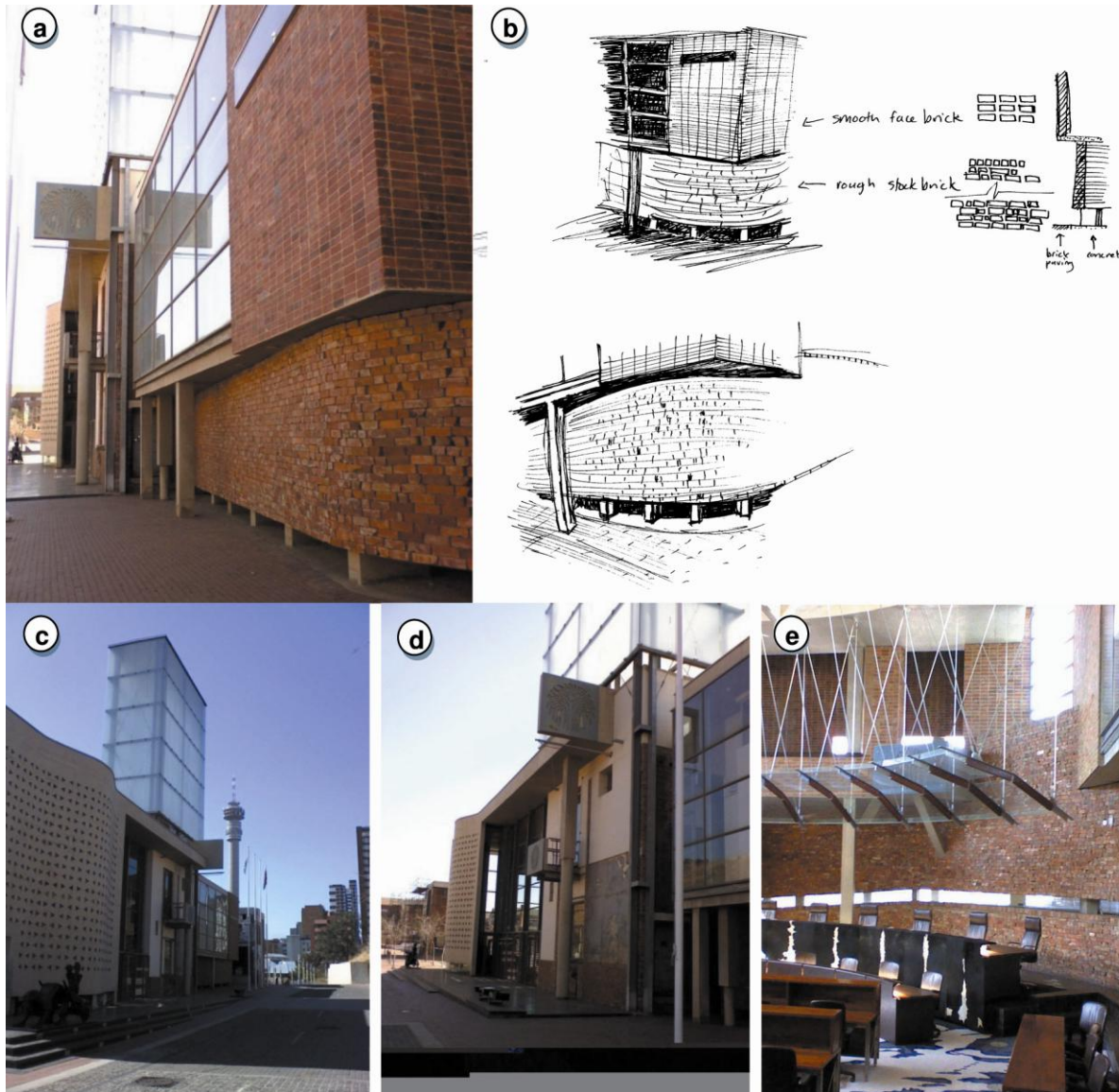- The pitched roofs achieve a number of benefits:
  - They give the school a more residential and friendlier feel as opposed to a clinical and almost oppressive, institutional look and feel which many school buildings suffer from.
  - The interesting roof profiles become a feature of the building as opposed to being only functional.
  - The roof overhangs increase the natural lighting and ventilation of the interior spaces.
- The concrete beam and column elements define the open spaces and courtyards as well as create visual interest.
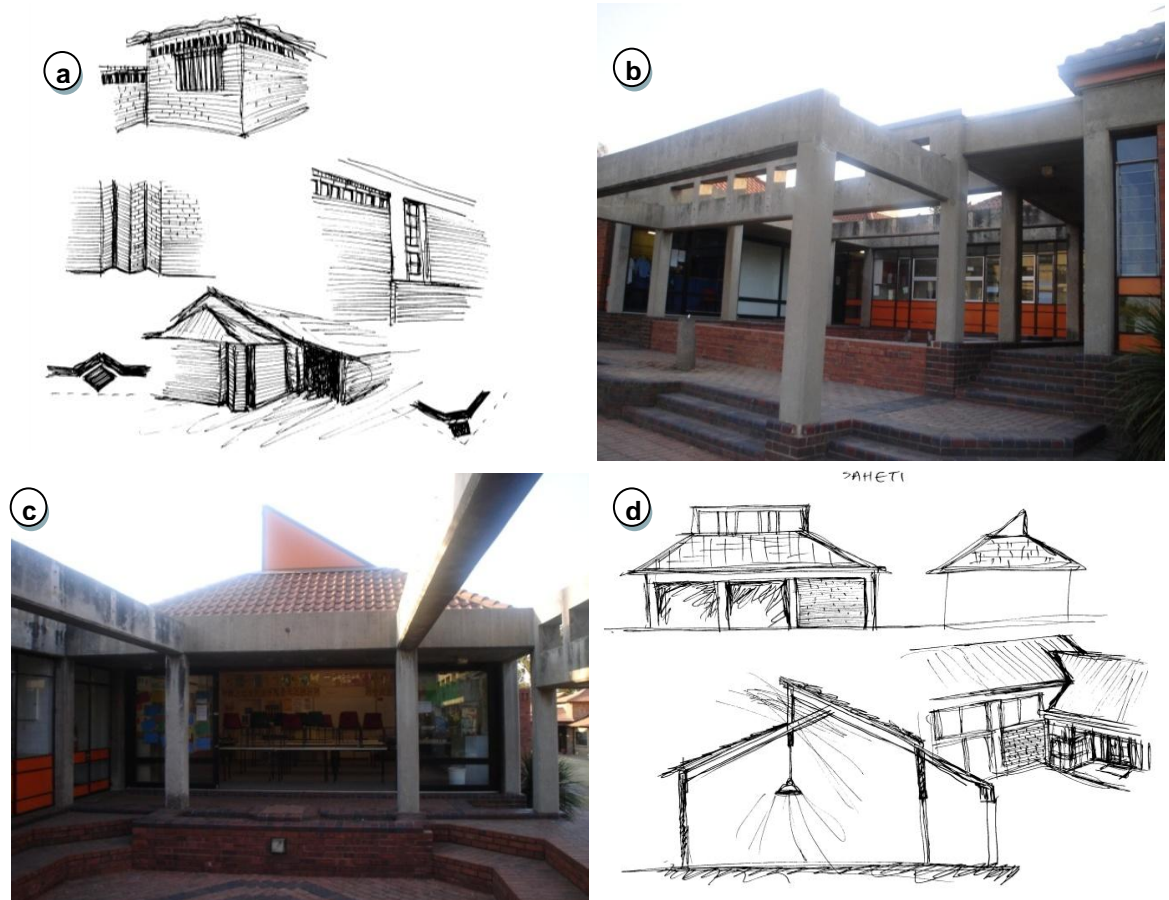
Figure 17 – Various views and sketches of Saheti School: (a) sketches showing brickwork and junctions (b) courtyard at classrooms in the primary school (c)view from courtyard of roof (d)sketches of roof design (e)sketches of screened courtyard with brickwork (f)new sports centre with splayed hipped roof and creative brickwork (photographs and sketches by author)

2.2.4 Constitutional Court

Location: Braamfontein, Johannesburg
Architect: OMM Design Workshop & Urban Solutions Architects and Urban Designers
Year completed: 2004
Description: The new Constitutional Court was built on the site of a notorious apartheid era prison, which once held Nelson Mandela as well as Mahatma Gandhi.

Architecture and design: The court buildings are located on the site of an old prison. Rather than demolish the prison and erect a new structure, parts of the prison have been transformed and integrated into the new buildings. The overall layout of the complex is open and accessible to the public while still offering the privacy of the internal courtyard wrapped by the courtrooms, judges' chambers and library buildings. According to Law-Viljoen [n.d.] the court building is made up of independently articulated parts. The materials used are brick, concrete, steel and glass. The facility has been designed to minimize environmental impact through the use of passive climate control, thermal massing through a subterranean rock store, effective ventilation and grey water system.

Key takeaways: The following design and architectural aspects of the Constitutional Court are considered applicable to this dissertation:
- The use of brick, concrete and steel.
- The environmental design considerations in terms of lighting, cooling mechanism such as:
  - the employment of grey water system
  - the extensive use of natural lighting
  - the ventilation design.

Figure 18 – Photos of the Constitutional Court detailing: (a) different styles of brickwork to create different textures (b) a sketch impression detailing the brick work (c) and (d) external views of the southern side of the foyer and tower (e) the brick finish and windows at the external ground level of the main court chamber (photographs and sketches by author)

2.2.5 Legislature and Office Complex for the Mpumalanga Provincial Government

Location: Nelspruit, Mpumalanga
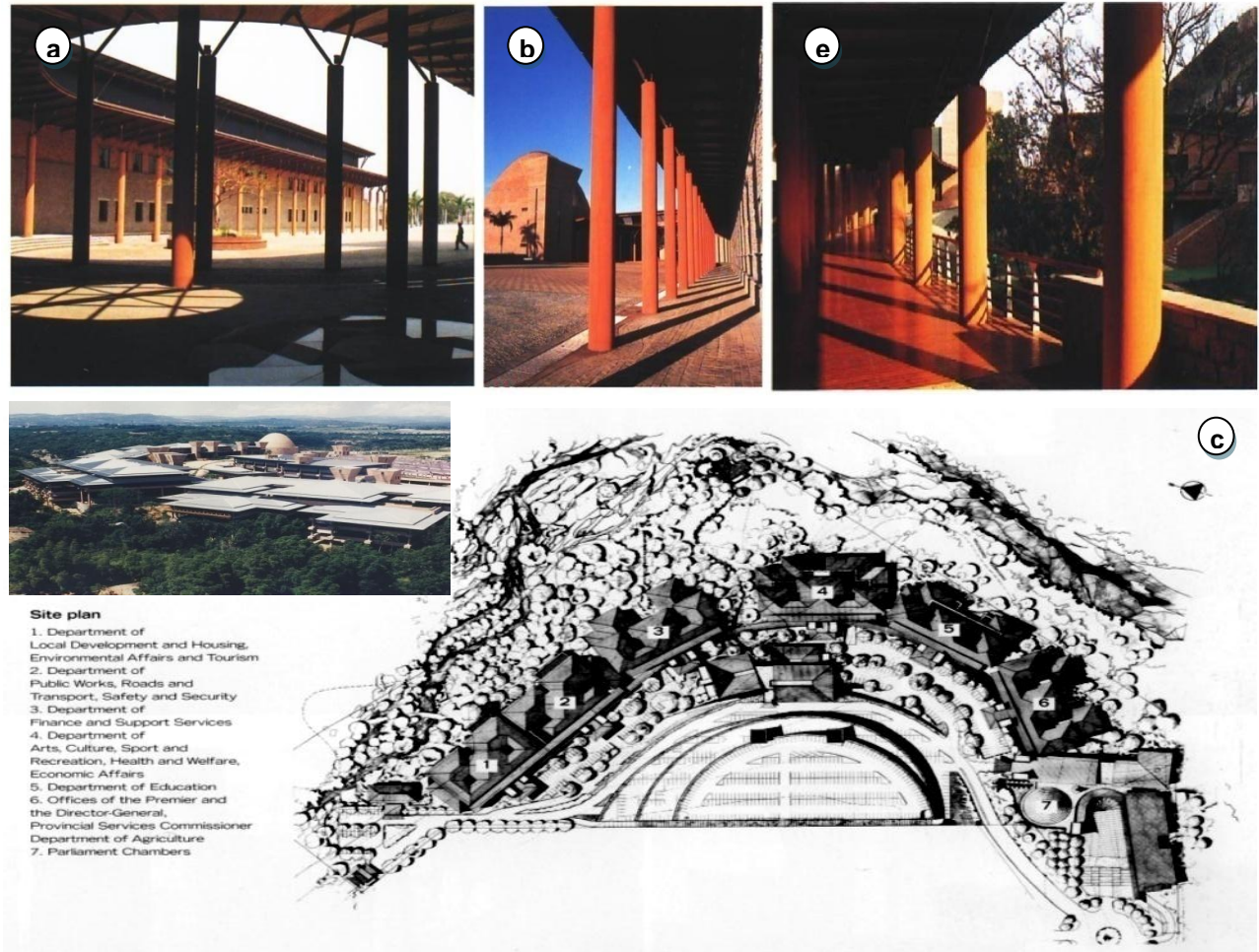*Architect:* Meyer Pienaar Tayob Schnepel Architects and Urban Designers
Year completed: 1997
Description: The complex is home to the chamber of parliament for Mpumalanga as well as offices for the various government departments of the Mpumalanga Province.

Architecture and design: The layout and design of the complex has clearly taken advantage of the site, its contours, views and vegetation. According to Deckler et al. (2006:15) the buildings are arranged as pavilions along the natural contours of the site embedded in and overlooking indigenous forests and rivers. What is also evident is that the circulation was a key consideration in the design and layout of the complex. The different buildings all attach to and feed off the circulation spine, which is a brick paved, covered walkway supported by concrete pillars with steel 'branches'.

Key takeaways: The aspects of the Legislature's design, which have been noted as relevant are:

- The strong and clear circulation of the complex achieved through covered walkways, which are a feature of the design as much as a function.
- The use of vegetation surrounding the buildings and layout to create a more tranquil and natural environment.
- The use of extensive roof overhangs and the close proximity of trees and vegetation as solar shading and cooling mechanisms.

Site plan
1. Department of
Local Development and Housing,
Environmental Affairs and Tourism
2. Department of
Public Works, Roads and
Transport, Safety and Security
3. Department of
Finance and Support Services
4. Department of
Arts, Culture, Sport and
Recreation, Health and Welfare,
Economic Affairs
5. Department of Education
6. Offices of the Premier and
the Director-General,
Provincial Services Commissioner
Department of Agriculture
7. Parliament Chambers

Figure 19 – (a) (b) and (c) – views of the walkway. (d) view of the complex (e) plan (Deckler et al. 2006: 14-16)

20

Figure 20 - Various views of the Baragwanath Public Transport Interchange and plan (Deckler et al. 2006: 14-16)
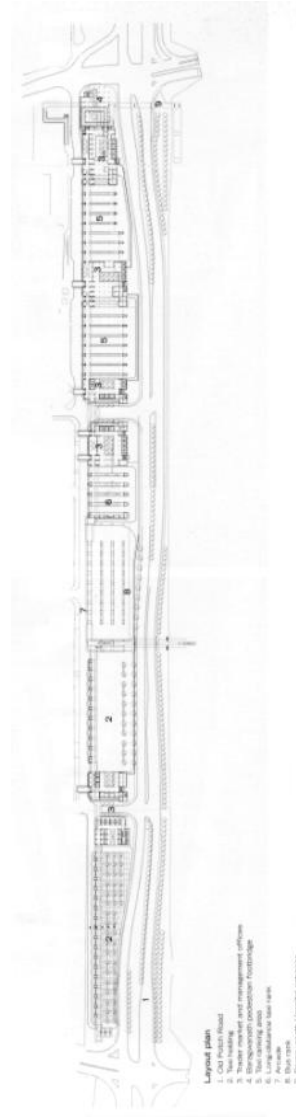
Location: Soweto, Gauteng

Architect: Urban Solutions Architects and Urban Designers

Description: The Baragwanath public transport interchange and Traders Market provide much needed transport infrastructure for the area and was developed as part of an infrastructure investment program for Soweto. A key challenge of the project was to combine the needs of taxi associations, bus companies and traders into a workable design. The interchange serves almost 70% of Soweto commuters.

Architecture and design: According to Deckler et al. (2006:67) the most notable quality of the facility is its rectilinear shape, being almost 1.3km in length, which was for the most part dictated by the shape of the site. Due to this a core
need of the design was to bind the various functional elements together through a strong pedestrian movement spine achieved by means of a covered concrete walkway. The danger of monotony in such a long facility, constructed and finished in raw concrete was overcome by sculpting the design of the concrete walkway. The extensive use of concrete was created by the need for a robust low maintenance structure. Intuitive navigation was achieved through the creation of landmark towers at entry and focal points.

Key takeaways: Relevant design aspects of the interchange to this dissertation are:

- The manner in which concrete has been used to create a defined, robust and interesting movement spine.
- The use of tall elements to create focal points at entries and starting points.
- The application of simple sculpted shapes and variations within the concrete form to avoid monotony.
- The integration of seating into the structure of the walkway