

Handi-Capable

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Mentor-Rudolf van Rensburg

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Introduction

The aim of the Psychosocial Adjustment Centre is a very basic one, which is to instill an optimistic attitude towards disability in the users of the centre as well as the general public. Such an attitude can be summarized in one of the statements of Stephen Hawking, a disabled scientist suffering from Motor Neuron Disease:

"...while I was in hospital, I had seen a boy I vaguely knew die of Leukemia in the bed opposite me. It had not been a pretty sight. Clearly there were people who were worse off than me. At least my condition didn't make me feel sick. Whenever I feel inclined to be sorry for myself, I remember that boy." Hawking (1994:20)

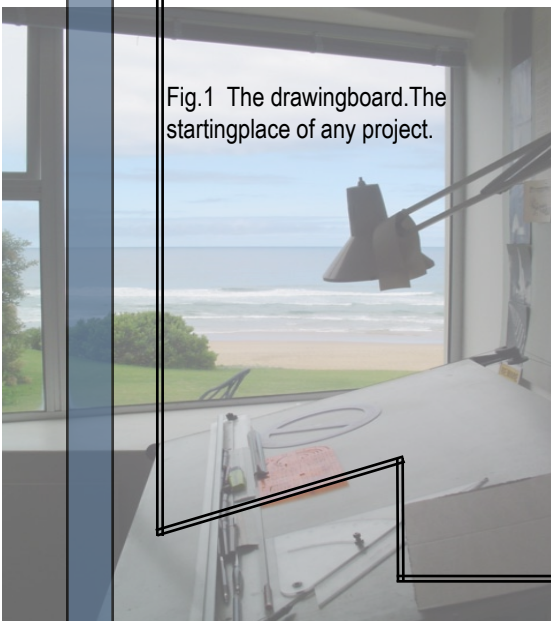


Fig.1 The drawingboard. The starting place of any project.

Brief:

1.2 Terminology:

Psychosocial- The psychological aspect of one's mind that determines the ability to interact socially

The facility- the planned psychosocial adjustment center

On par- Putting things, people in this instance, on the same level

Generator- Inspiration for the design and the creative process to be followed

Equalizer- an aspect of the design that makes everyone (the users) equal and makes him or her come face-to-face in the literal sense

Building segment-A part of the Psychosocial Adjustment Centre like the counseling block for instance.

1.3 The real world problem and the background thereof:

1.3.1 Problem statement:

Disabled people are so easily excluded from our society without anyone even giving it any second thoughts. The question that arises from this is why this can be seen as acceptable while the prejudice towards other segments of our society borders sin? The systematic vanquishing of the injustice of Apartheid serves as a good precedent as to which steps ought to be taken in order to confront the problem of exclusion head-on.

The facts of the so-called real world are that we do provide for physically disabled people but in such a way that they can clearly recognize our pity and our feelings of superiority. The workplaces we design for these people, and they are intelligent people at that, are of a lowly standard and it houses the type of work we will associate with people of lower intelligence.

The misconception of lower intelligence is a serious one since it crosses almost all the spectrums that physically disabled people has. How can you then help but become overly humble and have a feeling of worthlessness in such a society. Why is this acceptable while it is not acceptable to expect anyone else to live with such prejudices? The answer according to Hall, Imrie (2001:7) is that property development is seen as being hampered by inclusive design in the sense that designing an inclusive building is seen as expensive practice. Developers would rather spend money on developing their disability free image than build an inclusive building.

Disability is more often much more far-reaching than merely physical. Disability to adjust and become part of society is also largely psychological since people, especially adults, struggle to adjust to disability. Questions arise about who you are, what you are worth and how to over come these problems. There is a wide range

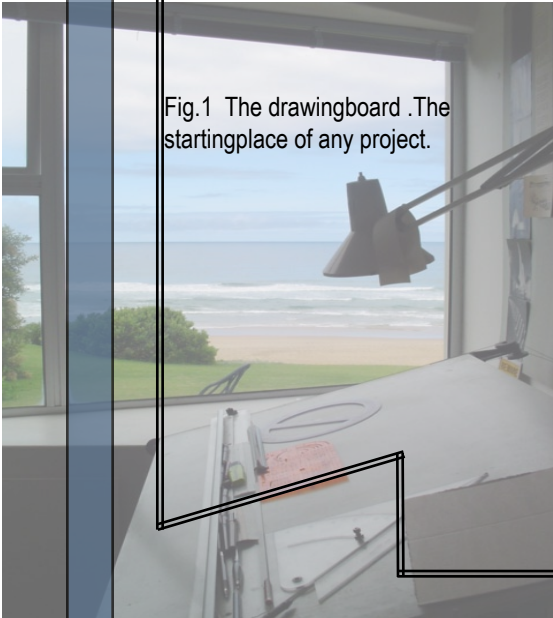


Fig.1 The drawingboard .The startingplace of any project.

of responses possible after having suffered a spinal chord injury: Anger, Humor, Sadness, Pride and frustration. The question arises as to how a building would be designed in order to create spaces that will aid in the adjustment process while following stringent standards of building.

This facility will not exclude any part of the disabled society from the resources provided but the main focus will be on adults with spinal cord injuries.

Spinal cord injury is much more common than we think. You might have a car accident one day and never be able to do anything normally again. This will be the most difficult thing that anyone will have to adjust to. Psychological and social adjustment is a major problem in the life of newly disabled people who had been used to doing everything for themselves. The designer of a facility should test these feelings for a while in order to gain some knowledge in this regard.

The design will attempt to provide a facility where people with spinal cord injuries can go in order to receive the necessary counseling and help in adjusting to their new physical and psychological state. The beginning of the person's life as a disabled is very crucial, especially in the case of adults who has the most trouble in adjusting. A new psychological base needs to be laid and developed in order for the psychological adjustment to aid in physical rehabilitation.

Social interaction between able-bodied and disabled people is probably one of the most important aspects that needs to be designed into the building for according to Gutman (1968:3) Physical immobilization along with social exclusion may result in depression and total withdrawal form the societal mainstream.

The bottom line seems to be that the main problem encountered by disabled people, can be drawn back to the various contexts relevant to their world.

The way in which able and disabled people perceive their particular overall context should also enjoy particular attention in the design phase. A thorough investigation of the contexts relevant to the disabled should ensue in which the effect upon the disabled and on other contexts can be examined(one should for instance know what the influence of the physical context on the social context will be and visa versa.)

1.4 Clients and stakeholders:

1.4.1The site:

The major clients in this project will be the Northern Gauteng Association for the Disabled, The Pretoria Academic Hospital (more specific the hospital's department for spinal cord injuries) and the government who's responsibility it is to provide facilities and equal opportunities for society. **Gov plan here!**

The only real requirement for the clients is that they should have a real objective to develop this much-needed facility for the physically disabled. They should therefore realize that it is crucial to provide for the psychological development of the disabled. The vocational rehabilitation programs run by the schools, the unit of the hospital and the association of the disabled could be incorporated into the new facility and the patients that has problems with psychosocial adjustment could be referred to the facility.

The Northern Gauteng Association for the Disabled currently runs a facility near Pretoria Academic hospital that provides work for disabled people. The other benefactors like Pretoria School for the disabled, New Hope school for the disabled, Unica School for the disabled and Alma training center will gain from this development in the sense that a much needed aspect of the disability, that of psychology, will be addressed. The most significant problem faced by these stakeholders is the sterile and hospital-like feelings created due to the fact that they are in the direct vicinity of the hospital and sometimes are part of the hospital complex itself. This sterile feeling needs to be removed especially if psychological problems are to be addressed. Moving psycho-adjustment to a facility outside direct hospital vicinity can do this.

1.4.2 Stakeholders:

The main stakeholders in this facility and the development thereof are the local businesses, Femina Clinic, SA Nursing College, Orthopedic hospital, Pretoria Technicon, Damsa International College, Pretoria Academic Maternity, the Public Works Department, the National Association of the Disabled, the GDE, Pretoria School for the disabled, New Hope school for the disabled, Unica School for the disabled and Alma training center. These stakeholders would be required to take part in active debate around the social responsibility towards the disabled and the question around the position of the new facility and the role it will play in the community.

1.5 Keyword identification:

1.5.1 The problem subject:

The idea behind the design is to provide a needy sector of society with the necessary services in order to rejoin society with the least difficulty possible. A Psychosocial adjustment center for people with spinal column injuries will provide an answer to this problem.

1.5.2 Keywords:

The keywords of the problem will aid in the analysis of the problem statement within a certain context.

- Social acceptance
- Site: where?
- Context: physical, social, cultural, medical, psychological, legal, psychosocial, skills, services, vocational, educational and medical.
- Environmental
- Disabled access
- The mind: reactions
- Physical adjustment
- Client
- Outside stimulation
- Thought: coming to terms
- Urban setting
- Functions
- Building components: psychosocial reaction dependant
- Standards

1.6 Grouping keywords:

(Triple baseline related)

1.6.1 Social:

Social acceptance

The mind: reactions
Physical adjustment
Outside stimulation
Thought: coming to terms

1.6.2 Location (physical):

Site: where?
Environmental
Client
Urban setting
Urban frameworks
Context: physical, social, cultural, medical, psychological, legal, psychosocial, skills, services, vocational, educational and medical.
Standards

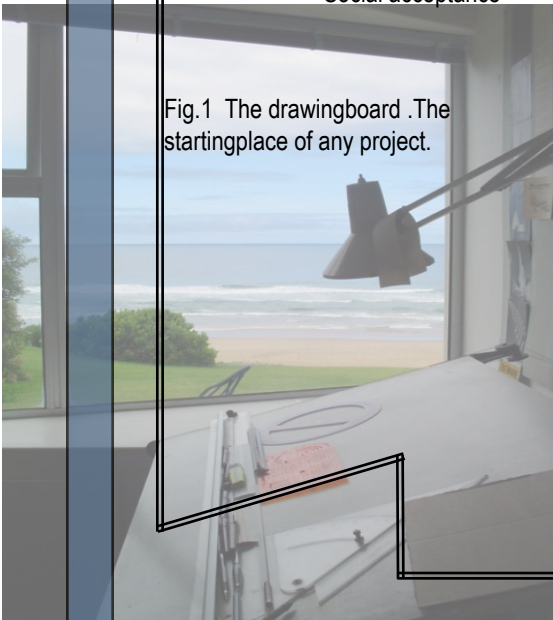


Fig.1 The drawingboard .The startingplace of any project.

1.6.3 Design baseline:

Disabled access

Functions

Building components: psychosocial reaction dependant

Interaction

1.7 Objectives and requirements for the study:

The response to the problem statement needs to satisfy some basic requirements and others that are more intrinsic. The objectives will serve as source to determine the goals that has to be reached in this thesis. These requirements are:

1.7.1 Who (Client substantiation):

The provision of facilities for the disabled falls into the hands of the government since they are obliged to provide for the whole spectrum of people that live in our beautiful country. The rainbow of our nation, as with every nation, also has its parts that do not comply with the rigorous standards we set for being in our rainbow.

The client in this instance will also be one of the already existing facilities for spinal chord injuries such as schools, workplaces and hostels. These will be stakeholders in the project since they will gain from the project in the sense that they will be able to make a decisive contribution to the lives of the newly disabled.

Having a centre as planned nearby will also make it easier for these institutions to gain from the centre since new facilities will be provided that will enable interaction between newly disabled and those born with similar disabilities.

1.7.2 Where (Site choice):

The choice of site relies heavily on vicinity to existing services, availability of land, exposure to society and the psychosocial needs of the clients (spinal column injured) and the urban framework and zoning.

Existing services that need to be in the vicinity:

- A community center for the provision of activities.
- Occupational and other therapists as well as medical staff.
- Theatres and other facilities housing the arts.
- Institutions that would be able to provide work for people coming from the center.
- Institutions of higher education and further skills training.
- Adequate housing to provide in this regard.

In looking at all these requirements for the proper site one needs also remember that the requirements will be much more far-reaching than just these few. It is only once the necessary interviews have been held and the right people have been spoken to that one can make the final decision about the appropriate site. The above-mentioned requirements are merely academic in nature. It is of utmost importance that the needs of the people themselves be considered and this can only be done by means of personal interview and questionnaires. The choice of site is a time consuming one and should be done with care and in such a way that the site can serve as generator for the design.

1.7.3 What (Type of building):

The appropriate type of building would be a psychosocial adjustment center that houses the necessary functions needed in order to cater for the physical and social needs of the patients. The type of building will be influenced by the design investigation which will aid in the decision of the correct response to pressing matters.

1.7.4 How (Design norms and standards):

The design would be generated from information relevant to all the parts of the building. The applicable generators need to be looked at in order to arrive at a proper solution to the problem. A significant problem facing disabled people is context. Almost all the contexts relevant to disabled people should be examined in order to generate a design that addresses the problems within them.

Design standards is directly related to physical standards like SABS and other regulations related to design for the disabled and more indirectly related to what is accepted as good and responsive design for the disabled, in other words, the intangible side of standards.

1.8 Design investigation (Generators of the design):

1.8.1 Physical design:

The way in which people with spinal cord injuries perceive proportion drastically change once they see everything from a wheelchair. Things that used to be within reach cannot be reached anymore. Big things are now super sized and present the patient with a strong feeling of being small and worthless.

The problem starts with the reduction in height, which a person in a wheelchair has to deal with as well as decreased mobility. Bearing this in mind we should design spaces that alters the perception wheelchair patients have of proportions and if possible put them on some sort of par with able bodied people. Able-bodied people literally look down upon wheelchair patients and act differently towards them. Interaction between people has to be designed for in such a way that the wheelchairs do not become a stumbling block.

One should bear in mind, when designing, that it is easier for an able bodied person to adjust to the perspectives of a disabled person than visa versa. Let the able person go through adjustment rather than the disabled person.

Textures and views are very important for these are two of the elements of a building that is often out of reach for people in wheelchairs. The architect would only understand the importance of textures and views once he/she experiences disability in some form. (see chapter of inclusive design in development)

The current social paradigms should be looked at in order to devise a design response to it. The design will be based on responses to a series of contexts, be they physical or metaphorical. These responses would lead to a set of generators, which will in turn lead to the design itself.

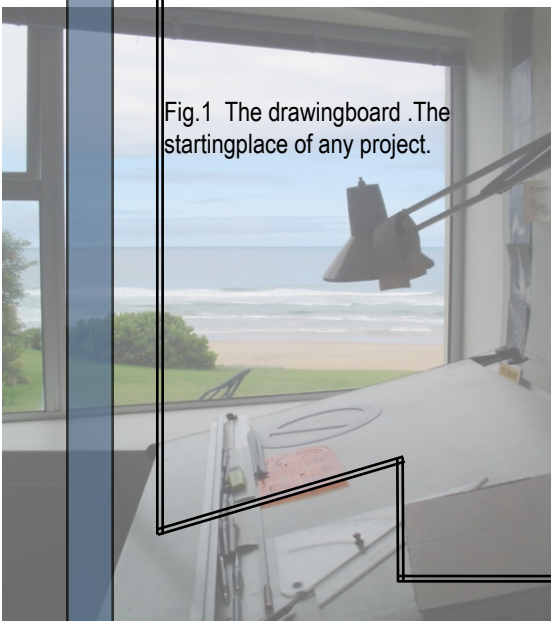
The site should satisfy the requirements flowing from the responses to the physical as well as metaphorical contexts. These requirements will be access, exposure to public, framework response etc. Access and movement in particular will serve to connect with the existing movement systems on site and in so doing, create a starting point for the design since movement is the greatest challenge faced by disabled people and should thus be the first problem addressed.

A more in detail discussion of the subject of perception and proportion as generator will be necessary. This subject is somewhat less subjective which will enable the designer to make wider use of proportions without losing meaning.

1.8.2 Theoretical base:

Having looked at the physical problems in design, it becomes the turn of the theoretical design paradigms at work globally and locally. The design paradigms at work in Pretoria (like the third vernacular) comes under the spotlight and are criticized in terms of response to the needs of the disabled. The way in which people designed buildings in the past have shown a tendency to exclude disabled people from the design as well as the construction phase. This is a fact that necessitates a deeper look as well as a response in terms of third party involvement.

Fig.1 The drawingboard .The startingplace of any project.



1.8.3 When (The best stage to intervene):

The best time to intervene with adjustment therapy into the life of a spinal cord injury patient is during as well as right after basic physical treatment and adjustment. The right time for intervention will however differ from person to person depending on how they are adjusting to their physical condition.

1.8.4 Why (Reason for social exclusion):

The most common reason for social exclusion and a general paradigm of pity towards disabled people can be blamed on our upbringing for it is in the early stages of our life that our parents tend to tell us not to stare and in this way guide our perceptions. We interpret this as a command to ignore which in turn causes ignorant actions like teasing and exclusion from anything that we deem "normal actions". The right thing to have been told would be not to stare but to look, to find out and to accept.

Social paradigms and reactions toward disabled people created (willingly or unwillingly) a number of barriers to the inclusion of disabled people into our society. The models of social thinking about disability would provide some insight into these barriers.

1.9 The working of the facility:

The facility will work on a phased system based on the psychological level of the entrants. The first phase will be the psychoanalysis of the entrants, which will determine the level of adjustment needed.

The second phase will be counselling in terms of legal matters, vocational matters, self-adjustment matters and social matters.

The other part of phase two will be physical analysis and treatment. Phase four will be social exposure and adjustment through interaction. The final phase will be placement into productive jobs, which will mean that the patient have sufficiently adjusted to go on with his or her life without much or any assistance. The design of the facility would be done in such a way as to enable this phased system.

The whole philosophy behind the facility can be seen as the analysis of the problem, treating the problem in an interactive way and finally the introduction into an active role in society.

The site currently functions as a parking lot for occupational therapy students. The site is extremely under-utilised, even as parking. The facility should be designed and oriented in a manner that would enable it to fill the urban void left by the site in a way that would be beneficial to the needs of the site as well as the people and other buildings in the vicinity.

The technical development of the facility will rely heavily on the inputs of a third party as well as on the inputs from personal experiences for this is the only way to really cater for the needs of disabled people.

1.10 Research methods to be used:

What is required of the data collected as well as the manner in which it is done, is that it should consider the needs of the public, the precinct, disabled people, the current frameworks and lastly, stakeholders.

1.10.1 Data collection:

The psychosocial stages that the patients go through needs to be taken into account, for this is what will guide the finer details of the design, the details that will aid the adjustment of the patients. Seeing that people have different responses to spinal cord injury, it will be crucial to conduct personal interviews with patients and other people in the know. Academic information do not always cover the entire basis, especially not that of personal perception.

Site data as well as data about the community will be gained through academic means as well as through personal interviews. It is evident that personal feelings are important in almost all of the development stages of this facility (third party involvement).

In collecting data about the physical environment, one should always remember that third party involvement is crucial in determining the applicability of the information.

1.10.2 Data analysis and interpretation:

Looking at the facts gained from interviews and academic sources and interpreting them into architectural responses will be the way in which analysis of the data will be done. Interaction between able and disabled people as well as disabled and disabled people will form the basis for analysis of spatial data.

The interweaving of psychosocial and spatial data will be done on site-specific scale, local scale and regional scale. The Psychosocial will play a demanding role in all of the contexts relevant to the facility.

Correlation research, experimental research and simulation modelling along with logical argumentation will form the base of the research methods used. The use of case studies will also be very important. The range of research methods to be used will have a more enriched and thoroughly substantiated outcome.

1.10.3 Correlation research:

Correlation research will be important in determining the correlation between precedents and the facility as well as between third party experiences and academic information.

1.10.4 Simulation research and experimental research:

These two types of research will be used in determining the value of simulations and experiments run on the building model and on other aspects of the design. Test subjects will be put in various spaces and situations in order to test their responses.

1.10.5 Logical argumentation:

This will be important in thinking for one self how a disabled person will react to certain environments and design decisions.

1.10.6 Literature:

The human mind is a very vast topic that may ensue a very lengthy investigation. The stages of feelings that people with spinal cord injuries go through (and especially the social effects thereof) is the base of research that has to be adhered to in order to gain basic knowledge needed for an informed design.

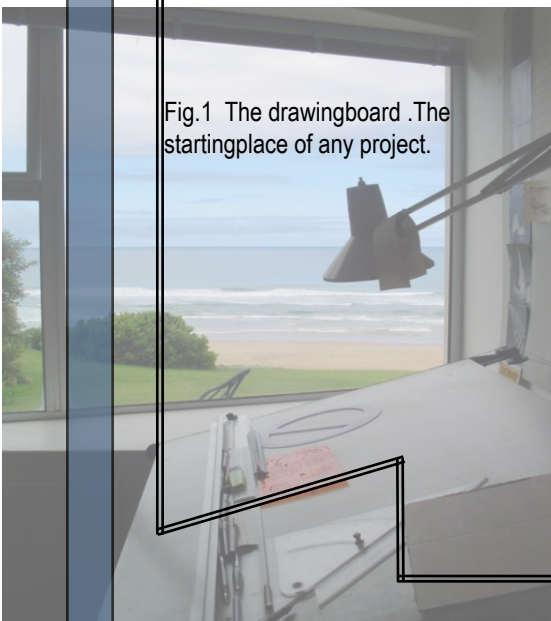
Literature study will provide the pragmatic requirements needed for a facility of this nature. These will only serve as a design guide and not as a sole generator. The SABS and other sources on the needs of the disabled will serve this purpose. The pragmatic requirements of other countries will be looked at in order to compare to that of South Africa and to determine how sufficient South African standards are in this respect.

A wide range of sources should be looked at in order to determine the most efficient way of providing systems and services for a psychosocial adjustment centre. The most recent sources will be taken more seriously in a modern context. This will be done especially on the pragmatic and psychosocial side of the investigation since there has been a lot of development in these fields.

1.11 Validity of material and research:

The fact that most of the sources used are very old necessitates that the information gathered from them be double-checked in order

Fig.1 The drawingboard .The startingplace of any project.



to determine whether the applicable facts are still relevant. Research in respect to experiments and simulations will only be relevant if it has been carried out on spinal cord injured subjects or if the results of the same experiments done on able bodied people have been discussed with disabled people.

The Internet will be a source of government policies on the disabled as well as statistics about injuries and the frequency thereof. The Internet will only be seen as a reliable source once books can prove the information gained from it.

Personal interviews will be used and permission will be gained before use in any form. This will also be the case for photographs of the site or experiment subjects. Any assumptions made from the interviews and experiments by the author will be discussed with the subjects in order to ensure accurate assumptions.

Referencing will be done by means of the Harvard referencing model and any direct quotes will be indicated and referenced clearly whether it is out of a book sources or from personal investigation. The use of second hand information will be avoided as far as possible in order to achieve the highest accuracy possible in terms of references and sources. Use will be made of previous theses and the information and quotes used from them will also be properly referenced according to the Harvard method.

1.12 Accommodation:

1.12.1 Training facilities for basic skills needed to cope with disability:

- Vehicular access and parking (500m²)
- Pedestrian access (clients and public)
Access to be covered and properly paved
- Dining area and lounge (100m²)
Dining area to be multifunctional as restaurant for aspiring chefs (150m²)
- Lecture halls and practical areas

Academic facilities for training in new skills (4*100m²)
Smaller classes enable better attention from teachers (50m²)
- Main administration and lobby

Serving as information headquarters and orientation
_Director (15m²)
_Secretary (10m²)
_Accounts office (15m²)
_Managers (4*10m²)
_PR officer (15m²)
- Storage

Instruments for music classes and materials for other practices (100m²)

1.12.2 Counselling facilities for problems such as employment, communication, social adjustment, legal and family counselling:

- Offices
_Intake and screening (2*20m²)
_Medical examination (100m²)
_Psychological testing and consultation (4*20m²)
_Social worker (20m²)
_Vocational counselling and placement specialist (2*20m²)
- Waiting areas (20m²)
- Staff room (30m²)
- Secretary (20m²)
- Toilets (4*20m²)
- Outdoor counselling areas (50m²)

1.12.3 Trial period housing:

- Garage or carport (25m²)
- Kitchen (10m²)
- Porch (10m²)
- Living room/dining area (15m²)
- Bathroom with stall shower (20m²)
- Bathroom with tub (25m²)
- Two bedrooms (20m²)
- Guest room (20m²)
- Garden (30m²)

1.12.4 Teaching facilities for driver training and other self-help training:

- Driving yard (parking)
- Nursery (100m²)
- Multi-use hall (150m²)

1.12.5 Vocational and therapeutical training facilities:

- Physiotherapy and swimming pool (50m²)
- Workroom (100m²)
- Gymnasium (200m²)
- Electrotherapy 9 (50m²)
- Darkroom (2*20m²)
- Pottery workshop (50m²)
- Exhibition facilities (100m²)
- Hydrotherapy (150m²)
- Occupational therapy (200m²)
- Technical drawing department (50m²)

1.12.6 Recreational facilities:

- Tennis courts (200m²)
- Television and multimedia room with pool tables and dartboards (75m²)
- Indoor Basketball court and Table tennis tables (150m²)
- Gardens (100m²)

1.12.7 Details:

- Walls
- Floors
- Ramps
- Windows
- Ceilings
- Toilets
- Doors
- Colours
- Patterns
- Texture
- Lifts
- Storage
- Chairs
- Tables
- Appliances
- Acoustics
- Illumination
- Heating and cooling

1.13 Context:

The context of the site is an institutional one. The site is surrounded by medical centres and facilities with the orthopaedic and spinal hospital nearby as well as maternal hospitals, Nurses College and Occupational therapy. The site and area is also zoned as medical and institutional by various urban frameworks. The area can be characterized as sterile since the sole function of the area is medical.

1.14 Precedents:

The precedents looked at would be of a physical as well as a theoretical nature. Practical experiments would also be used as precedents.

1.15 Conclusion:

Care must be taken not to produce a dissertation that is too pragmatic. This is the tendency in most of the dissertations about physically disabled people. The problem is however only solved once the pragmatic, the theoretical and all the other components of design (especially third party inclusion) has been looked at. There are not at present many such facilities in our country, which makes it rather difficult to look at local precedents as well as to talk to people who go to facilities like this. There are however a large number of schools and work institutions for the physically disabled that might be of use in terms of information and research. This will entail some travel in order to visit as many of these facilities as possible.

The existing precedents do not really have a strong social connection and certainly no markable consideration for it in the design stages. This makes the finding of a proper precedent rather difficult.

What can be seen as the single most important thing to remember in the design of such a facility is that everything you do has to work one hundred and two percent in order to be successful. The design must be legible as well as usable for a very wide spectrum of people, the design must correlate with the chosen framework, etc.

Fig.1 The drawingboard. The startingplace of any project.

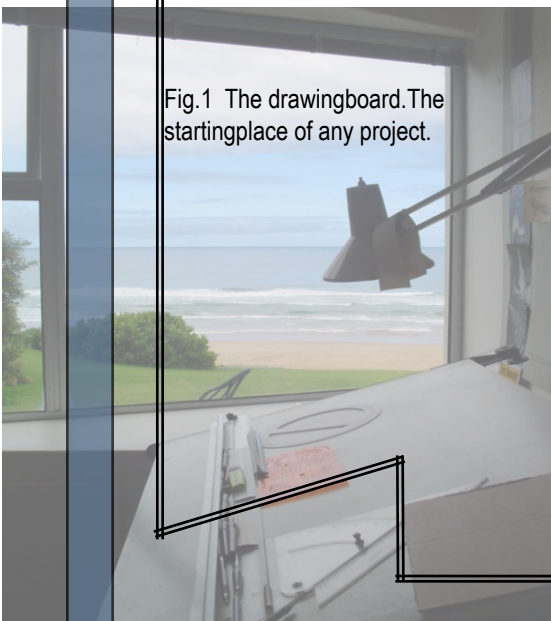




Fig.2 Disabled person in Kimberley



Fig.3 Divided access at the Big Hole in Kimberley-a positive experience for the person using the scenic ramp



Fig.4 Disabled person in Kimberley struggling to move

***Influence on design:**
Fig. 11 First concept model. A design philosophy based upon context response leads to the use of movement as primary design generator.

2.1 Design philosophy:

The problem with urban sustainability lies in the nature of our society and in the general aims it has. The aims of society like social equity, diversity, opportunity and quality of life can only be addressed by physical development if the current political and economic contexts serve in guiding the process. A holistic approach should therefore be adapted if we want to achieve the aims set out by society. The holistic approach should also be expanded to make specific mention of the needs of various groups represented in society.

2.2 Response:

The problem statement asks for a design response that removes the stumbling blocks that are most common in the relationships between able and disabled people. These stumbling blocks are based on a combination of pragmatic and functional requirements on the one hand and social, theoretical and philosophical on the other hand.

The pragmatic and functional design responses will be based upon those basic needs of the disabled person, which he/she relies on in order to function properly in a building. The basic needs flowing from the functions housed by the centre, which will aid in psychosocial adjustment will also be taken into consideration.

The theoretical design response will be based upon the inclusive design principles commonly accepted within the world of the disabled person.

2.3 Context (physical and figurative):

The environment in which a person finds him/herself often has a detrimental effect on the way in which they are perceived. People's personal attributes are sometimes the only thing that is taken into account when looking at someone's life.

People, who find themselves in environments that are adequate to their needs, are often perceived as being more competent. This is especially true when failures and successes are being considered. Newly disabled people need to perceive others in similar situations in order to see and know the things they can and cannot do.

The power of positive thinking flows from positive perception.

2.4 Physical translation (difficulties):

When difficulties are ascribed to the person, he/she becomes the locus of change. On the other hand, when difficulties are ascribed to the environment, the focus of alteration moves to the environment. The environment is often much easier to change than the person in it.

The physical environment, and not the individual, should therefore be the number one focus of remediation actions towards difficulties in the everyday environment. This will immediately take a fair amount of pressure from the disabled person in terms of necessity to change.



Fig.5 Disabled access in Kimberley



Fig.6 Disabled person in Kimberley in a negative context



Fig.7 Disabled access in Kimberley -a negative experience.

***Influence on design:**
Fig. 11 First concept model. A design philosophy based upon context response leads to the use of movement as primary design generator.

Wright (1983:47) makes five suggestions in an attempt to remedy common attribution errors:

- *“Always remember that behavior is a function of properties of both the person and the environment. When a problem is attributed to traits of a person, insist that a review of possible contributing environmental circumstances be made.”*
- *“Compare the behavior of the person in different situations, not only the behavior of different people.”*
- *“The environmental focus is more readily maintained when it is shown that an environmental change needed for a particular group is also helpful to people in general.”*
- *“Keep in mind that when change or help is indicated, environmental accommodation is as important as personal adaptation.”*
- *“Obtain the views of the person whose atypical needs and behaviour are being reviewed.”*

2.5 The importance of context: (Centrality as contextual function)

The moment that two or more traits are linked to one person, they will cease to exist apart but will become one in a dynamic interaction. This process does have some resemblance to a system. It is this whole system of relations between traits that will determine which will become central. The central characteristic will then give direction to the total impression and will in itself be influenced by surrounding characteristics, thus the meaning and function of the trait changes with the context. The importance of character-context in terms of perception is very prevalent out of this.

Context does not only refer to a network of personality or character traits. Context will also be the broader situation in which a person is viewed. A disability will for instance only become the central trait when it somehow becomes the focus in a certain situation like when the person is asked to do something that he/she is not able to. A disabled person might on the other hand come over as even more positive in terms of traits when viewed in the right physically enabling context.

People who come into contact with disabled people generally have two regions of presence in terms of traits, be they physical or environmental: The region of visual presence and the region of visual concern. The region of visual presence represents the region in which objects are perceived but not inspected. The region of visual concern represents the region in which the perceived objects demand inspection. These regions are greatly influenced by the visibility of disabilities since less obvious disabilities will fall in the region of visual presence for not being noticeable. The role of the design in this regard is to stretch the borders of these two regions in order to make obvious disabilities less obvious in order for people to focus on the person and not on the disability, thus shifting centrality.

2.6 Atypical physiques in positive and negative contexts:

This question is raised about the relative potency of positive and negative attributes and contexts. It has also become evident in some cases that people have a much stronger tendency towards negative reactions. Should this indicate a general pessimistic tendency or negative contexts?

Wright (1983:58) proposes several explanations of the negativity bias:

"First, negative information may become more salient than positive information because it arouses vigilance. Also, negative experiences do not let go of the person; the person ruminates about them, and in so doing their potency is increased. Moreover, the norms of society are positive: Anything that deviates sufficiently from these norms stands out and is perceived as being even more negative..."



Fig.8 A stumbling block



Fig.9 Uneven pavement



Fig.10 Historic building with poor access

Environments to strengthen negative perception

The negativity bias thus poses an additional threat in the case of a negative attribute like disability for instance. The context in which these negative attributes are perceived, assumes special significance because of it. The desired context for the perception of this negative attribute is that of a person whose abilities are appreciated in terms of what he/she can do and not in terms of what he/she can not do. This means that the built environment should enable this desired context for both able and disabled people if a general positive disposition is desired.

2.7 The stranger's view:

The obviousness of the disability becomes the outstanding characteristic in a relationship between strangers. Other characteristics like sex and age are so general that they most often carry little if any weight. This then is also the reason for people viewing strangers with disabilities as less fortunate than friends with the very same disabilities. In the friend or family member's case, the disability becomes just as general as any other characteristic. This type of thinking about a characteristic is called peripheral thinking.

Tests with prosthetic limbs showed that the limb proved useful in the sense that it enabled a proper first impression between two strangers. The limb did not feature as the central trait of the person wearing it. The built environment should function as a metaphorical prosthetic limb in the sense that it enables a proper first impression between strangers as well as strengthening family and friend ties.

Wright (1983:76) observed that others treated children in an everyday setting in a normal fashion. It almost appeared as if the disability has become an incidental trait. This is a very important fact to take into account since the creation of an everyday setting in a building like a psychosocial adjustment centre will then aid in the acceptance of the self and by the family. Designing an everyday setting would aid in the eradication of the sterility of the medical environment.

Tests have also shown that prolonged exposure may have a positive effect on the parties in both a stranger and a family/friend relationship. Both the parties become used to the nature of the abilities they both have. Prolonged exposure will be somewhat difficult to achieve in a setting like the Apies River, thus the initial focus should be on family and friend relations since this is where the social problem needs to be addressed first and foremost. The urban frameworks do however afford enhanced stranger contact in the future.

The psychosocial characteristics of stranger relations differ largely from that of known person relations. This is a difference that should receive specific design attention, each in its own way since these are the two basic relations on which the social interaction of disabled people are based.

Fig.12 Previous project by the author
Salvokop shed-context responsive

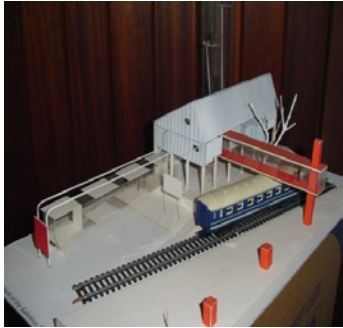


Fig.13 Previous project by the author
Parking garage-Movement context



***Influence on design:**
Fig.14 Permeable design goes hand-in-hand with providing for movement in a building. (a contextual response)



3.1 Context recognition:

No project or building is a freestanding entity for it is surrounded by a series of contexts, which interact with it in a loop-back system. A design would therefore only be applicable to site, requirements, users etc. if it takes the contexts in which it finds itself into account.

One of such contexts, which would be applicable to a normative position, is design philosophy. The design philosophies of both local (local vernacular) and foreign philosophers were taken into account.

3.2 The design problem statement:

The design problem statement needs to be looked at in totality and it should be seen as a problem with a particular balance between components. Physical and psychological treatment goes hand-in-hand, a fact which influenced the choice of site as well as the manner in which the internal spaces are arranged and designed in relation to the outside spaces.

3.3 The problem with design:

The most apparent problem with buildings designed for disabled people is the fact that they have overly defined boundaries as well as access possibilities. My aim is to design a facility that loosens boundaries and enables the disabled user to take control of his access on a physical as well as a metaphorical level.

3.4 The focus of the project in short:

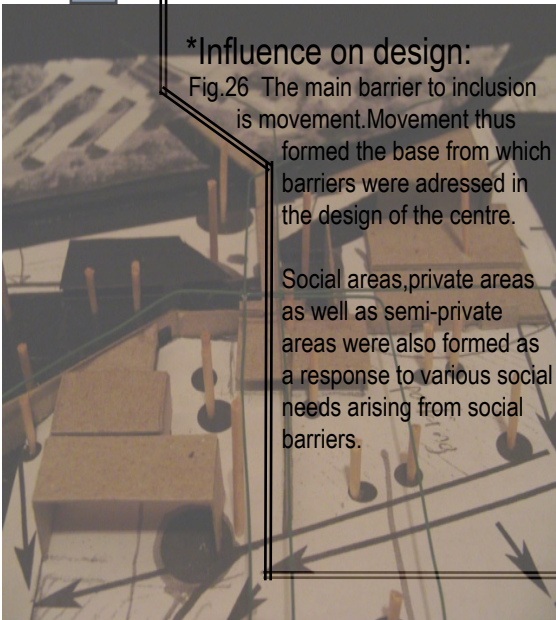
The focus of the centre will be to provide for the remediation of the signified for disabled people (their thoughts and psychological reactions), thus enabling them to interact and help change the signified that comes from society (prejudices and misconceptions).

The Architectural focus of the centre would be to provide for the access of disabled users within a building that recognises regulations but is not dictated by them.

3.5 Further reference:

The basic principles discussed here are substantiated in the appendices chapter.

4 Inclusion barriers



***Influence on design:**

Fig.26 The main barrier to inclusion is movement. Movement thus formed the base from which barriers were addressed in the design of the centre.

Social areas, private areas as well as semi-private areas were also formed as a response to various social needs arising from social barriers.

4 Perceiving disabled people and acting for them:

4.1 The physical condition of disabled people:

Disability is a highly contested as well as culturally fluid term since there is no singular term that transcends time and place. Disability is popularly perceived as mobility impairment and more particularly wheelchair-bound mobility impairment. Government documents like the building regulations for instance also tend to identify disability with wheelchair-bound mobility impairment. Wheelchair-bound mobility impairment is seen as the problem to be solved which entailed ignoring the needs of a wide variety of physical conditions.

4.2 Social barriers:

Disabled people have always been perceived as being outsiders, people to be controlled, degenerate or defective people. This entailed their loss of individual status as well as becoming almost invisible to society. Asylums became a common means of reaching society's goals with disabled people.

"The general culture invalidates me both by ignoring me and by its particular representations of disability. Disabled people are missing from mainstream culture. When we do appear, it is in specialized forms-from charity telethons to plays about an individual struck down by tragedy-which impose the non-disabled world's definitions on us and our experience." Morris (1991:85)

The World Health Organization declared that the problem in facility provision is essentially an attitudinal one which becomes a human rights problem on a political level. This fact links up rather well with the social and political context of South Africa, which is still in its infant stages of re-development and adjustment.

4.3 There arise two prominent models of conceiving disability and disabled people:

4.3.1 The social model:

The social model's understanding of disability cannot be reduced to either personal or interpersonal psychology. The aim is rather to seek the understanding of the manner in which values, attitudes and other related practices influence the lives and experiences of disabled people. This model further argues that a person's inability to access a building is rooted in thoughtless and inappropriate design that lacks knowledge and understanding of disability.

The proponents of the social model believes that disabling socio-attitudinal value systems can be found in most of the spheres, that disabled people move in.

An idea has developed about enabling justice, which describes new social spaces designed in response to the various social and psychological needs of various people. These spaces provide everyone with the basic material needs as well as satisfactory social and cultural participation. The aim of these spaces is to enable disabled people to satisfy their own needs within a network of mutual obligations rather than in a hierarchical system of obligations where they will satisfy their needs last. The aim is thus to negate the out-of-place feeling often experienced by disabled people.

*Influence on design:

Fig.15 The main barrier to inclusion is movement. Movement thus formed the base from which barriers were addressed in the design of the centre.

Social areas, private areas as well as semi-private areas were also formed as a response to various social needs arising from social barriers.

4.3.2 The Medical model:

The main focus of the medical model is the fact that a person's inability to gain access to a building is a function of his/her impairment. It is believed that the eradication of the impairment will solve the problem. The effect in architectural terms is that buildings are designed for able-bodied use only since all disabilities would be eradicated leaving only able users

4.4 Bio-sociological approach (the answer?):

The social model, like the medical model does have the tendency to be partial in emphasizing only certain aspects of disability.

Some of the problems faced by disabled people cannot be solved on social terms only. What is needed is an alternative conception, which seeks the development of an understanding of the relations between biological and social values and attitudes. This bio-sociological approach is still in its infancy stage but it is an attempt to remedy the dualities between the social and the medical model. The approach is in essence an anti-dualistic approach. The way in which the Bio-sociological approach aims to remedy the differences, is by recognizing the interactions between psychology, sociology, culture and politics (the contexts of disability).

The bio-sociological approach can be seen in the World Health Organization's new classification of disabilities (ICIDH-2). ICIDH-2 is based on the integration of the social and the medical models. A bio-sociological approach is used to capture the integration of the various dimensions of functioning. This is done in order to achieve a synthesis that will provide a coherent view of the different dimensions of health (biological, social and individual)

The bio-sociological approach also argues that the physiology of a person's body as determinant of his/her actions within the broader environment. These very actions are however constrained or enhanced by the socio-cultural makers of our society like demeaning or prejudiced points of view. The approach also notes that disability is usually reduced to a series of generalized and chaotic categories like vision, hard of hearing and mobility. This does little to reveal and explain the complexities of disability. Disability is not static or confined to certain parts of society. Disability is actually a contingent condition that depends on circumstances.

What this suggests then is that developers and architects, who are mostly resistant to change in the process of development, should respond to the needs of disabled people in a manner, which is flexible and adaptable to the wide range of possible disabilities, and their specific circumstantial needs. In doing this they will remedy the discriminating and patronizing actions which have become so characteristic of the development process of the built environment.

4.5 Conclusion:

(Providing for accessibility by adaptations)

The medical model of thinking is very apparent in attempts made to alter the built environment to a place that is responsive to disabilities. The popular beliefs are that the development of better technologies and adaptive devices will eventually lead to the liberation of disabled people from their social and economic constraints. This way of thinking recognizes the physical limitations of the body as well as the compensatory possibilities presented by new technology, but this is where the problem lies. It acknowledges only that. The use of such devices and buildings (in terms of the built environment) only aid in stigmatising disabled people even further since they stand out in society as being abnormal. This type of approach will therefore not be followed in the design of the Psychosocial Adjustment Centre.

The only way in which the right balance between the social and physical needs of disabled people can be struck is by means of a programme and framework that enables continued change and development in the technology as well as the socio-cultural field.

Adopting the bio-sociological approach as primary perception model entails the fusion of the physical and social contexts. The physical context in the form of regulatory guides and the social context in the form of interaction between the users of the centre and others. If an approach like this is not followed, it could happen in the worst case scenario that a site is designed to fulfill only a physical function like parking for example. The problem arising from this is that the spaces will be wasted once the site is no longer used in the way it was intended. If the site was to have a social function like a tuckshop for instance, it would still have a function irrespective of the loss of function as parking.



Fig.16 Showing a site that was designed with a singular function, parking.

5 Physical Context:

5.1 History of the area:

The Afrikaner inhabitants moved into the Pretoria region after Mzilikazi left the area, which had been his capital. The consequence of the Afrikaners moving into the area was the establishment of a small trade and religious settlement. The town was later named Pretoria after a Voortrekker leader named Andries Pretorius on 16 November 1855. The town became the seat of government in 1860. Pretoria eventually expanded into suburbs like Sunnyside, Arcadia and Brooklyn. This expansion took place in an east-west direction between two prominent ridges. The town received city status in 1931.

Three people drowned during the well-known Apies river floods in 1909, which led to the canalization of the river. The Apies River still runs in a sterile, and often dangerous canal, through the city.

The town was developed on a grid system but the grid changes to a more organic form around the Apies River that makes one realize the role the river has to play in Pretoria. There are urban design frameworks that address this role of the river as well as its surrounding areas in Pretoria.

The applied policies of segregation in the city started to disappear after the Democratic elections of 1994. This became noticeable in the change of use of the areas, like Skoonplaats and Marabastad, which was once used to segregate people.



Fig. 18 Marthinus Pretorius, founder of Pretoria. from <http://www.museumpark.co.za/burgerspark.htm>

5.1.1 History of places:

Church Square was founded in 1855. M.W. Pretorius ordered the brothers Devereaux, who were the initial town planners to design a square. This square would be for market and church purposes. The square also functioned as a sports field at times. The square's first church was finished in 1857. This church did however burn down in 1882. Thereafter the second Gereformeerde Church was built on the square in 1884-85 and was demolished in 1904-05. The Church eventually sold the square to the government in 1899. The government in turn handed it to the Town Council in 1905. (from <http://www.museumpark.co.za/burgerspark.htm>)

Central Mosque: The Pretoria Muslim Indians initiated efforts shortly after their arrival in South Africa towards erecting a mosque. This mosque would then function as the heart of the growing Muslim community. A group of muslim merchants purchased the land, in what can now be called the Pretoria CBD, from Mr David John Bower in 1887. Renovations on the structure was done in 1984 at a total cost of R92000 by Hajee M. Badder and his son. (from <http://www.museumpark.co.za/burgerspark.htm>)

*Influence on design

Fig. 17 Ramp configurations- Probably the main concern in terms of physical context due to the parameters set by SABS and the connection needs of the site itself.



Fig. 19 Church square. from <http://www.museumpark.co.za/burgerspark.htm>

Burgers Park houses several structures that are of historical importance. These structures are the Kiosk (a typical feature of parks created in the late 1800's). The park was designed by Vivian Sydney Rees-Poole in 1910. This was done to coincide with a visit from the Prince of Wales. The Bandstand is a fine example of the cast-iron structures that could be ordered from catalogues at the time. The bandstand came from Glasgow, Scotland. The bandstand was regularly used by the 24th regiment of Voortrekkerhoogte. Another use for the stand was to house official receptions held for Prime Minister General Louis Botha.



Fig. 20 both from <http://www.museumpark.co.za/burgerspark.htm>



5.2 Preamble to the site:

The site is Prinshof 349JR/R/41 and is zoned as institutional and medical. The site does not currently have any real function, which makes it an unsafe place. It has an embankment on the edge of the Apies River. Access to the site from the riverside is very poor since a makeshift wall borders the site on that side. Vehicular access is by means of Theodore Hove Street, which turns out of Soutpansberg Road, one of the main vehicular spines into and out of the city.

The site coverage by means of buildings may be 60%.
 The Floor Space ratio is 1,5 for blocks of flats and 2 for other functions.
 The height restriction for the site is 19m.
 The site has shade coverage of 40% coming from the nursing college to the north

5.3 Sustainable or not:

The architectural response to the problem of psychosocial adjustment must make a public investment and should make use of public resources in the best possible way as to benefit the widest range of people. In order to be sustainable, the facility would be inclusive to the widest possible variety of people and should also integrate the requirements of this range of people. These requirements will also be site specific, since people of different bodily functions will place different requirements upon the site.

5.4 Approach to the site:

The facility should cater for people from all walks of life and should also create a healthier lifestyle through a healthier urban environment. This is especially true for this site since it is a dysfunctional parcel of land within a functional environment. The site requires change and reclamation. The dysfunctioning of the site springs from a distantiation from the context. Thus the approach taken to the site as a physical entity is one of connection. The importance of the site will lie in the role it plays to connect itself to the context and to connect different precincts to each other.

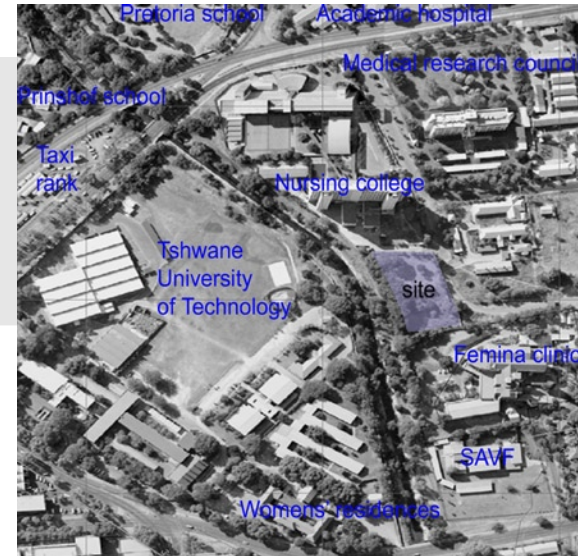


Fig.21 Site description



Fig. 22 Sustainable technology Dubai

5.5 Interpreting the city:

Our country has been dominated by many ideologies, two of which are separate development and Modernism. It can be said that the one has been used to strengthen the other in a way. The ideology of separate development has an un-official subdivision namely the separate development of disabled people.

The most significant impacts of the Modern Movement was that it introduced functionalistic thinking (form follows function). This in turn imposed a way of life upon the city which was dominated by efficiency and technological concerns. Efficiency was defined in terms of technology and the city and its parts were compared to a machine. The city and the life within it was compartmentalized which lead to the division of activities into various areas. The strongest central theme of the time was the spatial separation of these activities. This manner of development of the city lead to urban sprawl and the effect thereof was that great distances had to be travelled from home to work to play and visa versa. There is no measure of the impact this manner of development had on the disabled part of society for vicinity can be seen as the baseline for any form of development involving them.

A new approach to the city is needed if we want society to function as a whole. Dewar(1997:27) stated two major shifts in thinking about the city. The first of these was to scale the city on a model that used the pedestrian and public transport as baseline, and the second was to move from a programmatic to a non- programmatic approach to urban design. The programmatic approach to design, which entailed the assembly of predetermined elements with their own spatial requirements into a whole, did not have anything that held the whole together and thus a sterile environment prevailed. It is this sterile environment that became the enemy of the disabled person for he is in dire need of an environment that is rich in physical and psychological opportunities and choice if he is to function properly.

5.6 Frameworks:

There are five urban frameworks that are applicable on this site. These are the hospital framework, the Apies River framework, the Mandela development corridor framework, the ISDF (inner city development framework) and the Struben Street development framework.

Nelson Mandela development framework:

This framework considered here is the one upgraded by Urban Solutions. The framework included Nelson Mandela Drive, Esselen, Schoeman and Meintjies Streets and the areas around them. The project will span over five years and will cost about R1-billion.

This framework is probably the most important since it is very recent (demolishers moved unto site in April 2002) and it has taken physical form, something that cannot be said of the other frameworks.

One of the main aims of the Nelson Mandela framework is to upgrade the Apies River corridor to a pedestrian spine that has activities along the route that will attract people and create a certain feeling.

*Influence on design

Fig. 17 Ramp configurations- Probably the main concern in terms of physical context due to the parameters set by SABS and the connection needs of the site itself.

5.7 Rationalising the choice of site:

The proposed extension of Nelson Mandela Drive will not be taken into consideration for the first stages of the design but it will be taken into account in designing the later stages of the development since it might then be advantageous to the facility and the precinct as a whole.

The site is situated in a very important and advantageous position in terms of pedestrian, disabled, vehicular and public transport access.

If the pedestrian and disabled persons access character of the site is properly handled, the necessary access to the nearby taxi rank and the vehicular main routes could be provided. The

pedestrian and disabled persons access function of the site can add to the character possibilities of the site in order to provide a much more aesthetically pleasing and informative view from Nelson Mandela Drive.

If the requirements of the previously mentioned frameworks are adhered to, the site can have an urban as well as a park-like character. This will be advantageous in the sense that the disabled as well as the able-bodied users of the facility on the site can gain from the psychological as well as physical opportunities provided by the site.

The close proximity that the site has to the Technicon, Medical Research Council, Bone Marrow Research Unit, Pretoria Nursing College, Prinshof and Pretoria School, The "Moedersbond", the CBD and the Academic hospital, will ensure the needed social interaction between the users, that will come from the hospital and the schools, and outsiders passing by or through the centre.

The site could be reclaimed and given a function that will simultaneously aid in combating urban sprawl and enhance the park-like character of the site.

5.8 Spatial framework:

5.8.1 Legibility:

The legibility of the future facility will depend on how users and non-users interpret the building from the interior as well as the exterior. Spaces should be designed in such a way that the use of that particular space is clear. The façade facing the river should for example encourage pedestrian movement and participation in the building while the part of the facility facing away from the river should be used for private and other peaceful activities and it should read in this way. The parts of the facility that will be visible from Nelson Mandela Drive as well as other vehicular and pedestrian spines should convey the identity and function of the building in order to be perceived in context and for it to be clearly recognizable.

The term legibility means something very different to blind and partially sighted people. The centre and precinct should be designed in such a way that these users can know and understand where they are going without much assistance from others. A more legible environment will contribute considerably to the safety of the blind and partially sighted users of the centre.

5.8.2 Accessibility:

The fact that this particular site is very accessible from both a pedestrian and vehicular point of view has been mentioned before. This is however not the only form of accessibility relevant to the site. Accessibility for disabled people is something much more complex than mere movement. The building should have a very high level of accessibility, which might lead to the creation of a building that does not consist of clearly defined walls, floors and roofs due to the necessity of ramps throughout the centre.



Fig. 23 Precinct Pretoria CBD (Government archive)

5 Physical Context

The original slope of the site has been altered severely when the river was channelled through a culvert. In changing the river back to its former glory, the one thing that will have to be discussed with developers is the maintaining of the correct slope as far as possible in order to make disabled access possible.

5.8.3 Vitality:

“The facility should provide enough visual stimuli to capture the viewer’s imagination.” Fourie(2002:15)
This also entails that the level of detail provision for different people and ways of movement should differ. Wheelchair and sight impaired users should have more detail to experience than pedestrians than cyclists than motorists and in that order. One should also bear in mind that detail goes beyond the visible, it also includes the experiential.

5.8.4 Mass to space relation:

It is very evident from the figure-ground and ground-figure diagrammes that open space have the dominant role in the urban setting. The mass created by buildings do not have a demanding effect upon the open spaces,instead it only aids in defining certain spaces.

The open spaces are largely functionless and thus they need to be properly defined in a way appropriate to the nature of the space. This will be done in order to attribute some function to the spaces.

The site of the Psychosocial adjustment centre plays an unofficial orienting role since there are various movement routes that cross it en-route to other areas of the larger precinct. The function given to the site and emmediate surroundings according to the deductions made from the diagrammes should thus be one in accrodance with its current nature .

*Influence on design

Fig. 17 Ramp configurations- Probably the main concern in terms of physical context due to the parameters set by SABS and the connection needs of the site itself.

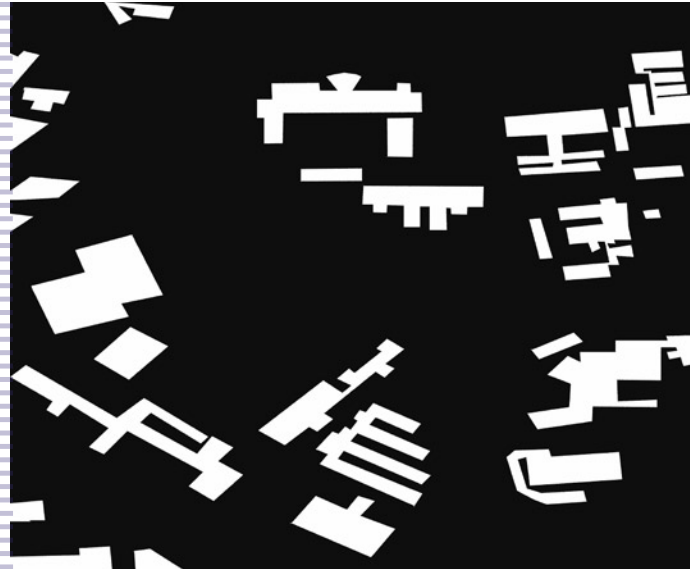


Fig. 24 Ground-figure



Fig.25 Figure-ground

5.8.5 Robustness:

The robustness of the facility refers to the range of activities the facility can accommodate. The planned facility will work on the principle of housing as many facilities that will enable psychosocial adjustment as possible. The human mind is an intricate thing and therefore it would be required that the facility provide for activities that might be necessary in future as psychology advances.

Advances in the medical treatment field will also be made, a fact that necessitates the creation of spaces that can accommodate these advances and the machinery involved. The created spaces will also allow for an

increase in the number of users accommodated at the centre.

The manner in which the design of the site is approached will also largely be influenced by the natural characteristics of the area. A site with a largely movement oriented function should for example not have temperature extremes or dangerous natural areas that may harbour crime or other dangers. A proper consideration of the natural parameters is thus of utmost importance.

5.9 Geological information:

5.9.1 Meintjieskop fault:

This is the fault that crosses central Pretoria and more specifically the southern tip of the site. The building of any structures in the southern end of the site should be avoided.

5.9.2 Hekpoort Andesite:

The soil produced by these formations is generally expansive in nature due to the presence of active clays in the soil. These soils are also characterized by various stages of decomposition of minerals. The soil tends to be more active in the upper profiles than in the lower profiles.

The greatest depth reached by these soils is 33m in places. The soils are much shallower on this particular site. One other feature of the soils in the region is that they will not produce significant heave due to the fact that moisture increases in content after the erection of a building on it. Moisture increase may however only occur when the soil is inundated locally. This behaviour of the soil indicates that a building that has stood for a long time might suddenly develop severe cracks due to a leaking drain.

5.9.3 Groundwater:

"The water table for this soil type is at a depth of 6-18m"(Purnell 1994:16)

5.10 Climatic information:

5.10.1 Temperatures vary between:

lowest min:-5,5 degrees celsius to average:12.1 degrees celsius
highest max:36.3degrees celsius to average 24.8 degrees celsius
(Meyer ,Pienaar,Tayob 1999:49;Schulze 1986)

5.10.2 Humidity:

min:57%@08h00-29%@14h00 (value for September)
max:75%@08h00-48%@14h00 (value for March)
(Meyer ,Pienaar,Tayob 1999:49;Schulze 1986)

5.10.3 Sun:

An average of 89 GigaWatt of solar radiation per year can be expected.
The prevailing summer sun angle is 88 degrees and the prevailing winter sun angle is 44 degrees.
(Meyer ,Pienaar,Tayob 1999:49;Schulze 1986)

5.10.4 Rainfall:

Precipitation occurs mostly during thunderstorms at a rate between 90 and 100mm/hour. Severe hailstorms have occurred in the past of which the 1949 storm had stones of approximately 142g in size. The region is one of summer rainfall (between October and April) The average rainfall of the region is approximately 674mm/year
(Meyer ,Pienaar,Tayob 1999:49;Schulze 1986)

5.10.5 Wind:

The prevailing wind direction is from NE in the morning and from NW in the afternoon. Thunderstorms are accompanied by turbulent wind patterns. Daspoort ridge can be expected to lessen the effects of morning winds and the pollution caused by them.
(Meyer ,Pienaar,Tayob 1999:49;Schulze 1986)

5.10.6 Cloud cover:

This may vary from 13% in July to 54% in December. The average however is 33%
(Meyer ,Pienaar,Tayob 1999:49;Schulze 1986)

5.10.7 Micro climate:

The site-specific conditions may be influenced by the proximity to the Apies River culvert as well as the Daspoort Ridge.

5 Physical Context

5.11 Expanded movement mapped:

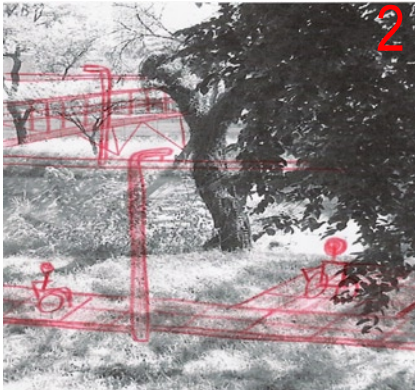


Fig. 26 Movement along the central axis next to the Apies River



Fig. 27 Bridge crossing the Apies River culvert

1 The movement along the river is an extension of the MDC pedestrian spine. The extended spine provide access to the taxi rank as well as a steady supply of social interaction.

2 Movement along the river are provided with locations where nature can be enjoyed while a person in a wheelchair is resting. This in turn further provides for social interaction and exposure.

3 The bridge over the Apies river forms a link to the Techicon campus which houses a host of activities with social enrichment potential These activities include are sports, studies and recreation.

4 A proper and safe link to the CBD is of utmost importance since movement in that direction will enable disabled people to enhance their feeling of independence. This feeling will grow from organising certain things for themselves while movng in places they are traditionally shielded from.



Fig. 29 Movement along the Apies River

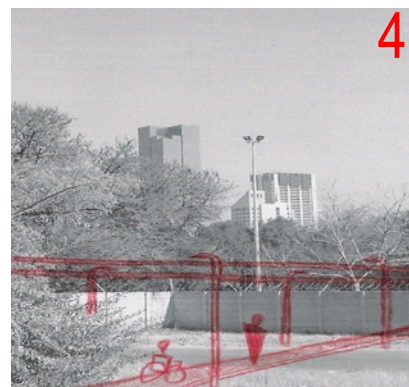


Fig.28 Movement towards the CBD

*Influence on design

Fig. 17 Ramp configurations- Probably the main concern in terms of physical context due to the parameters set by SABS and the connection needs of the site itself.

Fig.30 Hospital Precinct Defined



5 Sight-seeing is also an activity that one should be able to do by yourself. This then is the reason for links to various sights like the Union buildings, Church square and City Hall etc. The distances that needs to be travelled in order to reach these places are problematic since disabled do not have the stamina of a walking person. The implimantation of rest areas or rest stops is very essential since this will enable a disabled person to travel a greater distance.



Fig. 31 Movement towards the Union Buildings

6 Movement will make use of easily observable landmarks or buildings in order to guide a person in a seated position to the various areas of importance to his/her movement.

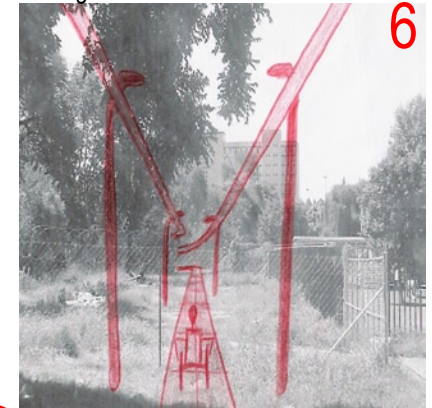


Fig. 32 Moving towards the Psychosocial Adjustment Centre

7 The extension of the Mandela Development Corridor (MDC) to include the pedestrian spine towards the taxi rank will create a larger interactive spine that will aid in defining the CBD as a place of progress.



Fig.33 Relations to the MDC in movement terms

8 Ease of access is vital to the movement of disabled people in a city. Raised crossings is only one example of a measure taken to enable people to access the city with ease.

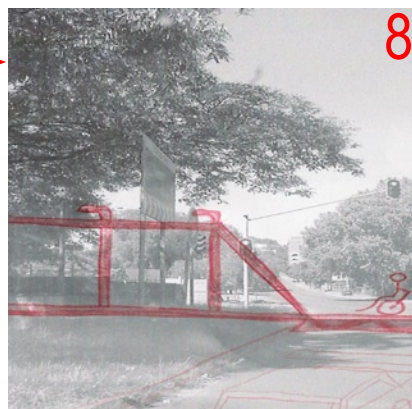


Fig. 34 Movement into the MDC



Fig. 35 Movement precedent: wooden pathways to provide easy access. The right balance of focus upon disability.

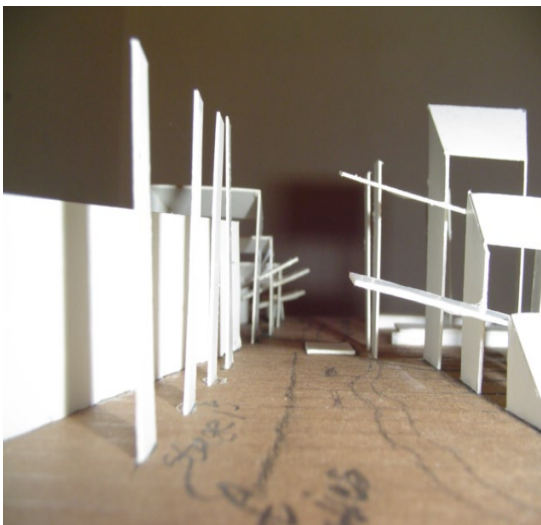


Fig. 36 Building mass to create a certain feeling when crossing between.

*Influence on design

Fig. 17 Ramp configurations- Probably the main concern in terms of physical context due to the parameters set by SABS and the connection needs of the site itself.

5.12 The nature of movement:

Movement to a disabled person is an intensely personal experience due to the restrained nature thereof. It is therefore essential that the feelings and thoughts experienced by a disabled person during movement be understood by the designer.

A disabled person's feelings during movement is directly related to the physical context in which he/she finds him/herself. There are a number of feelings that can be provoked by physical contexts:

- *One can feel overwhelmed
- *One can feel unsafe
- *One can feel left out
- *One can feel focussed upon.

(Information gathered from experiment done by the author)

There exists a fine balance between all of these feelings in any environment. The art of designing spaces for disabled people lies in striking this balance:

- *Building fabric need to be properly scaled in order to prevent the creation of an overwhelmed feeling.
- *Spaces should be designed to include places of refuge where a person can go to in order to escape from danger. Designing for passive surveillance will limit the creation of a feeling of loneliness in the user of a space.
- *There should also be a balance between over designing for disabled people and neglecting them. Inclusive design measures should be done in a very subtle way.

Over-designing for a certain disability will immediately place the focus upon that specific disability and the person harbouring it.

5.13 Levels of perception:

The manner in which a person perceives their surroundings are directly related to physical context and the built environment. The built environment should be designed while bearing in mind that it will be perceived from differing natural levels. The exposure of elements will be dictated by the level at which it will be perceived.

The design will be enriched even further by making use of the physical environment and the vantagepoints it creates. Certain details will for instance only be visible from lower levels on the site while others will only be visible from above.

Perception levels are especially important to disabled people since there is a distinct difference between that of able and disabled people. The Psychosocial Adjustment Centre was designed while bearing this in mind. There is various levels from which centre users can perceive their surroundings, thus enriching the overall experience of the building. Various details and elements become visible at different levels. Passers-by also become involved in the building due to their perceptions of the centre and the users thereof.

→ Perception relation to context
— Perception levels of the centre

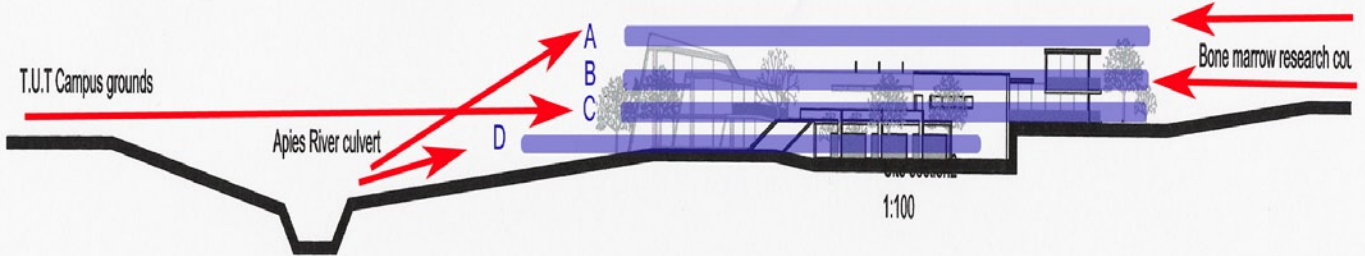


Fig. 37 Perception levels

→ Perception relation to context
— Perception levels of the centre

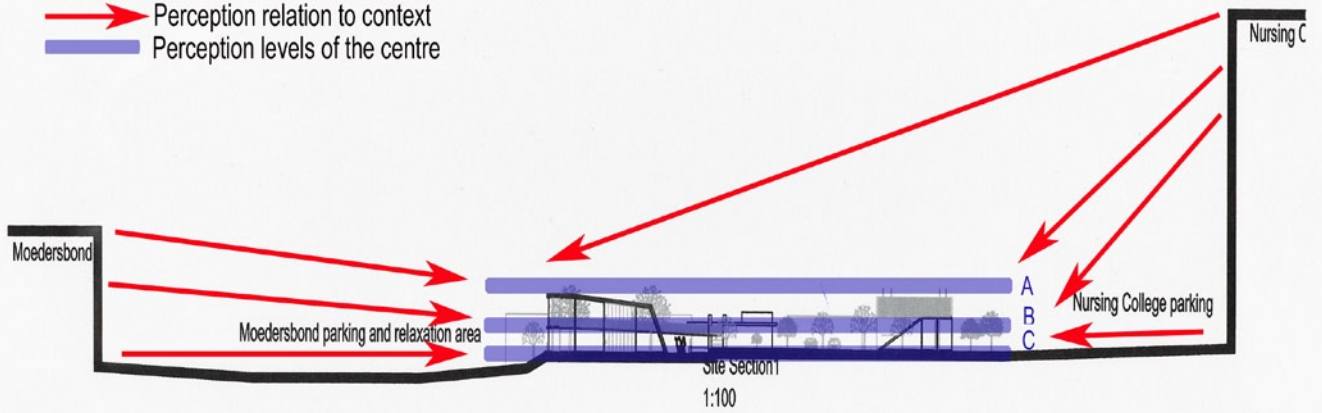


Fig. 38 Perception levels

5.14 Trees:

Trees have a very important role to play in the overall design of the centre. The feeling created in a certain area of the building is highly dependant on the particular trees in that area. The trees are not only a valuable resource in terms of the feelings created in a certain area, they are also of value in regulating temperatures. The centre have been designed to make use of the this fact. None of the indigenous trees on the site would be displaced from their original position during the re-instatement of the trees removed during construction. The trees on the site are all relatively young which means that the removal of the trees during construction as well as the later re-instatement will be possible.

The trees also aids in blending the building into the site. The centre seems less imposing due to the presence of trees throughout the spaces created by the centre. The trees can also be seen as a primary generator of design since they dictate the placement of functions as well as spaces. The trees play a further role in the design by bridging the scale gap created between the centre and the multi-storie buildings bordering it.

Q Waterpeer (*Syzygium guineense*)



S Ordinary Treefern (*Cyathea dregei*)



I Koorsboom (*Acacia xanthophloea*)



Q Waterpeer (*Syzygium guineense*)



R Jakaranda



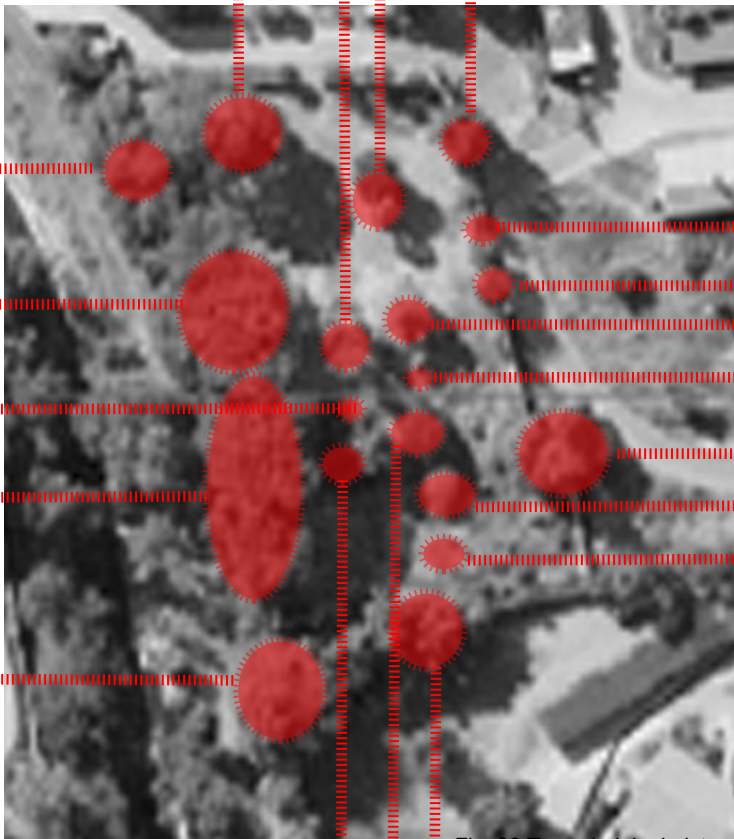
*Influence on design

Fig. 17 Ramp configurations- Probably the main concern in terms of physical context due to the parameters set by SABS and the connection needs of the site itself.

5.15 Conclusion to Physical context:

There are certain qualities of the physical context that can add to the overall design product. It is these qualities that will guide the deign in forming a building that is completely site responsive which will also entail that it blends in with the site on the appropriate level. The site and the larger physical context is a resource and the designer should realise this in order to make use of it. **5.15 Conclusion to Physical context:**

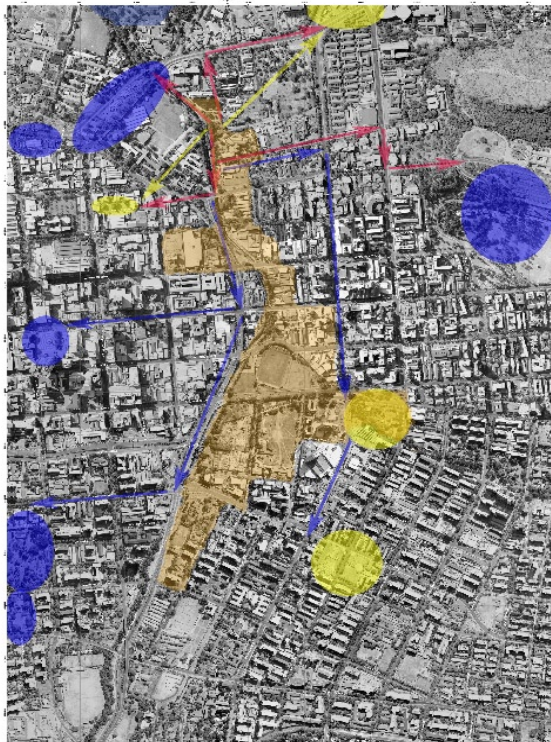
- ▲ Q Waterpeer (*Syzygium guineense*)
- ▲ E Mopanie (*Colophospermum mopane*)
- ▲ B Kinaboom (*Rauvolfia caffra*)
- ▲ A Moepel (*Mimusops zeyheri*)



- ▶ F Lekkerruikpeul (*Acacia nilotica*)
- ▶ O Driedoring (*Dalbergia melanoxylon*)
- ▶ H Bokappel
- ▶ N Waterpeer (*Syzygium guineen*)
- ▶ L Soetdoring (*Acacia karroo*)
- ▶ M Doringkatjeepering (*Hyperacanthus amoenus*)
- ▼ D Towerghwarrie (*Euclea divinorum*)

Fig. 39 Trees (original picture gathered from National Archive)

- ▼ P Karee (*Rhus lancea*)
- ▼ K Kinaboom (*Rauvolfia caffra*)
- ▼ J Kierieklapper (*Combretum hereroense*)



- Access possible with wheelchair
- Current squares and access to them
- Possible squares
- Mandela Development Corridor(MDC)

Fig. 41 Access and squares



- Most important buildings(attributing to site)
- Secondary important buildings
- Access routes

Fig.42 Building importance and Links

The framework proposes that the focus of the links shift from mainly vehicular to mainly pedestrian. It would however be more viable to strike a balance between the two. Including access for the disabled will aid in reaching the overall social aims set out by the framework.

6.2.2 Historic elements and destinations:

The historical elements of inner city of Pretoria contributes to the sense of place present in the city. The framework proposes that these historical elements be used as memory elements within the corridor.

It is very important to make use of memory or destination points throughout the corridor in order to aid in spatial organisation. The framework lacks the necessary consideration of the northern sites' role in organizing space around, and movement through destination points. The selected site next to the nursing college has the potential to serve a destination and dispersion role. The site will fulfill this role to the rest of the hospital precinct.

The Apies River serves as the boundary of the MDC and also represents a historical element. The problem with the Apies River as identified by the framework is that it has become uninviting, lifeless and mismanaged. The framework thus aims to enrich the urban fabric by restoring the river to its natural state and incorporating it into the corridor. This incorporation into the MDC goes hand-in-hand with the creation of tranquil spaces where people can escape to. There is after all a definite need for social as well as private spaces within the urban setting. This need is in accordance with the programme of the Psychosocial Adjustment Center which states exposure to both social and private environments.

6.2.3 Current challenges:

The framework speaks of the importance of urban open space where people can see and be seen, access amenities as well as interact with others. The framework addresses this importance by means of perimeter blocks, which will provide secure, semi-private, open space for public interaction. There is the possibility that this type of approach might become too monotonous since very little room is left for completely open, yet secure, public open space.

The removal of the park-like nature of open space from the MDC might prove detrimental to the whole development. Park-like open space is essential to the psychological health of everyone, not just disabled people.

6.3 Architectural spatial vision:

The key points set out in the following sub headings can be interpreted in a number of ways. The way in which it has been done here is in terms of the needs of disabled people.

6.4 A balanced movement network:

•The city as movement economy:

Economics is based upon expenditures and gains or savings. The very same can be applied to movement economy. Energy used must be balanced with energy saved. An out-of-balance system would lead to over utilization and underutilization respectively. It should be noted that there is a difference between the energy expenditures of an able and a disabled person. The balancing of movement economics thus requires further division into disabled and able-bodied economics.

•Natural movement and city layout:

Movement, be it by wheelchair, car or foot, is a natural action, which entails that the layout of a development be done in such a way as to enhance and compliment natural movement.

• Places for people to walk:

Disabled people, especially those in wheelchairs, interact much better with pedestrians than with people in cars. An environment that enables people to walk wherever they need to be makes that environment accessible to a greater number of people. Places for walking should however be designed while bearing in mind that walkable spaces are not necessarily spaces accessible by wheelchair.

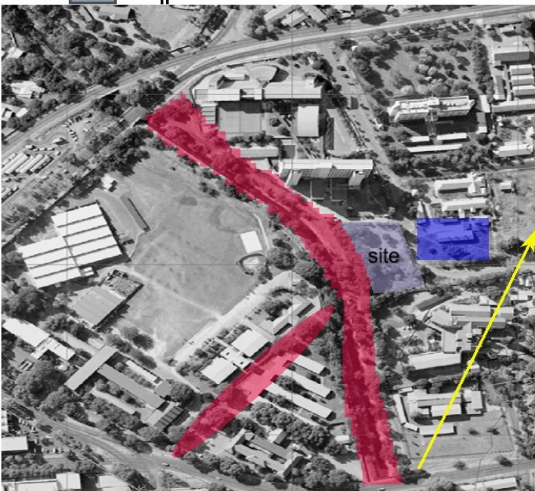
• Variety of routes to facilitate a variety of functions:

A wide variety of available functions are essential to the functioning of a Psychosocial Adjustment Center for it provides for the much-needed movement and social interaction of patients.

• Grid of streets:

A proper grid of streets aids in easier orientation for the users of urban space, irrespective of bodily functions. A grid of streets further entails shorter travel distances due to the defined city blocks created. The connection

between the centre and the city blocks will be based upon movement principles. The movement from one block to another is often destination based. The same principle will be used in guiding movement to and from the centre.



█ Proposed pedestrian spine
█ Regeneration of old buildings
█ MDC extension

Fig. 45 Proposed development



Fig. 43 transport routes

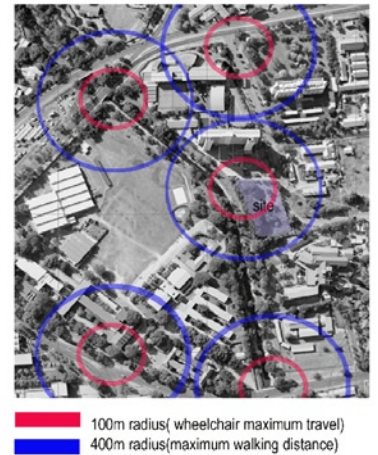


Fig. 44 400m radius

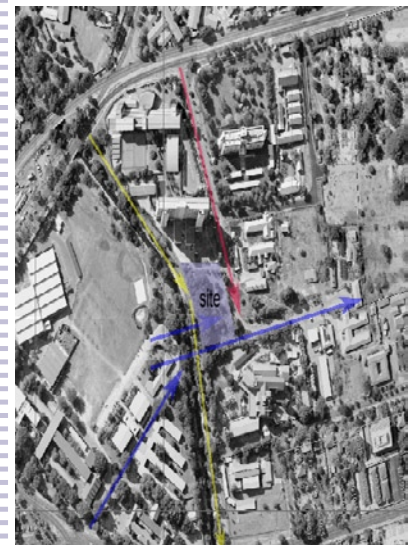


Fig. 46 Pedestrian movement

6.5 A local district network:

- Precincts as finite places

This has the advantage of the collection of functions within an easily recognizable area. Orientation and access to precincts would also become easier. A defined area (primary precinct) for functions benefits disabled people greatly since traveling distances is limited greatly.

- Oposing single-use complexes

Single use complexes tend to draw a minority crowd, only interested in the particular use housed. Enriching social interaction is thus limited if existent at all. The Psychosocial Adjustment Center must also be of a multi-functional nature in order to draw a hgreater variety of people who can then disperse to the northern regions.

- 24 hour cities

Areas that are dangerous to able-bodied people are twice as dangerous to disabled people due to their limited self-protection resources. The site for the center, in its current condition, becomes extremely dangerous at nighttime and this will only change if the site, as well as surrounding areas, become 24-hour activity zones. A 24-hour city will also have the advantage that nocturnal functions can be housed that will aid the economy, security and social interaction. The movement facilitated by the Psychosocial Adjustment Centre will provide a setting for 24 hour activity due to the larger influx of people into the area.

- Seamless developments

This term has much in common with the links previously mentioned. The only difference being that the links refer to a larger context,namely the MDC as a whole.The respective local districts should also be properly connected with each other by means of access routes etc.

6.6 Investment in the public realm:

- Creating memorable urban spaces

Memorable urban spaces can make a positive or negative impression upon the user. The creation of positive spaces that stimulates the physical and psychological needs of the user, becomes very important. A person in the process of adjusting to a physical disability will greatly appreciate any environment that leaves a positive impressiojn on him/her. The requirements for such an environment can be simple, it should merely be one with as little inherent stumbling blocks as possible.



- Dispersion nodes
- Park-like areas (social interaction areas)
- Public transport (dispersion means)

Fig. 47 local district layout



- Educational
- Institutional
- Commercial

Fig. 48 zones

6 Urban Context

The aim of the center would be to create a positive memorable space that serves as a destination within the framework. The centre can after all only be seen as a destination if the stumbling blocks in the movement towards it is removed.

- Urban form to support exchange

Able-bodied people often pity disabled people. Urban forms should thus be created where disabled people can perform certain tasks and functions that would enable others to perceive them as being both competent and positive.

- Architecture growing from local climate

The Pretoria vernacular made use of responses to various types of contexts in order to create buildings. The same approach will be adopted in the design investigation to ensure that both physical and figurative contexts are taken into account.

- Phasing

The phasing of a development will allow time for inputs from all the parties concerned. This is an essential part of inclusive as well as universal design since the only way to properly design for disabled people is to include them in the process and take note of what works and what does not.

- Equity/accessibility analysis

An equity policy along with an accessibility analysis will help determine who is being left out or discriminated against in the urban setting. This is a process not only beneficial to disabled people.

- Inclusive approach (integration of planning activities)

Integrating an inclusive approach with a holistic design approach would have a much more encompassing outcome than either of the approaches on their own.



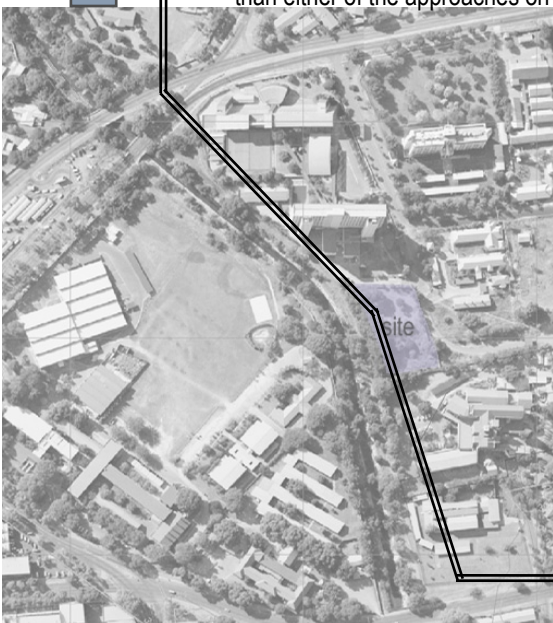
- Primary social areas
- Secondary social areas
- Access to social areas

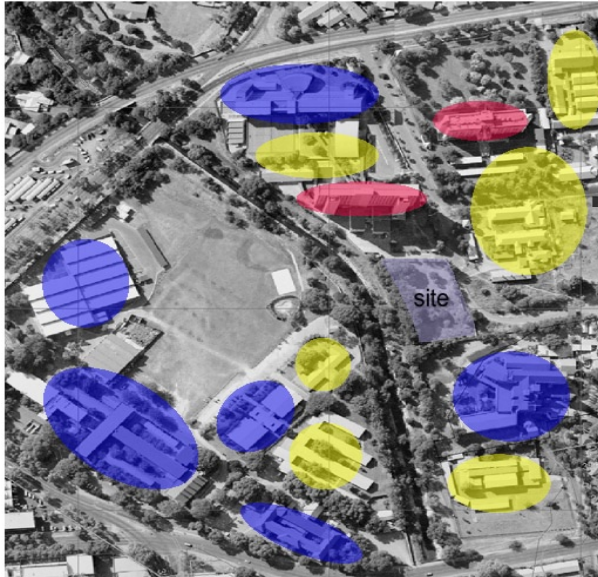
Fig. 49 important social



- Primary views
- Secondary views

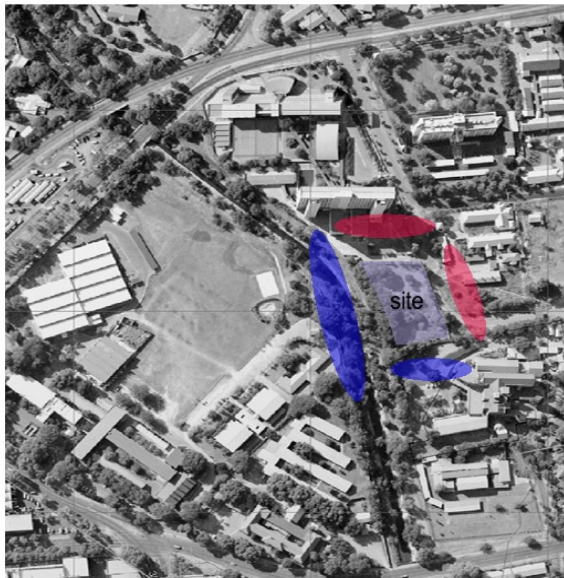
Fig.50 views





- High buildings
- Medium height buildings
- Low buildings

Fig.51 building levels



- Edges to provide to building
- Social edges to relate to

Fig. 52 edge relation

The encompassing outcome will also be representative of the parties involved in the design process.

(All bullet headings are as stated in the urban design framework by Urban Solutions)

6.7 Connecting Precincts:

The difference between local districts and precincts lies in the areas they represent. Local districts represent a larger area than Precincts.

There are a number of precincts and development zones identified by the city council of Tshwane:

- The Gautrain
- Museum Mall
- Sunnyside/Esselen Street precincts
- The Arcadia residential precinct
- The Union Buildings Precinct
- The Struben Street Government Boulevard
- The Taxi precinct
- The National Zoological Gardens precinct
- The River Park precinct

Of these developments the Union Buildings Precinct, the Taxi precinct, the National Zoological Gardens precinct and the River Park precinct are relevant to the site chosen for the Psychosocial Adjustment Centre. These precincts would receive primary connection from the chosen site while further away precincts receive secondary connection.

The framework proposes that the patterns of use complement each other. This would aid the first time user of the MDC to be more aware of his/her environment. The framework places further emphasis upon the hierarchical importance of the gateways and the public space as well as buildings that front them.

The importance of hierarchical spaces and buildings within a larger development lies therein that it aids in the creation of more legible environments. The northern part of the MDC has a definite problem in this regard since there is no hierarchical node or some other form of reference that guides the user from the T-junction of Edmond and Nelson Mandela Streets.

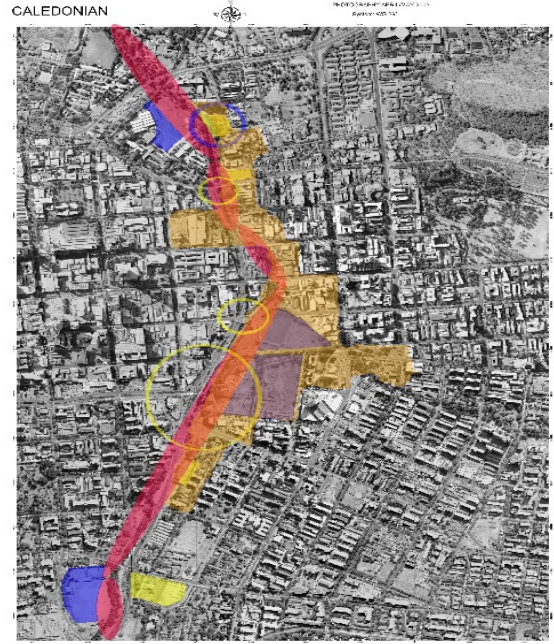
The Psychosocial Adjustment Centre will play a role in this regard by providing a visual node and active reference point at the northern end of the MDC. The term active reference point refers to a point that represents more than mere visual orientation.

6 Urban Context



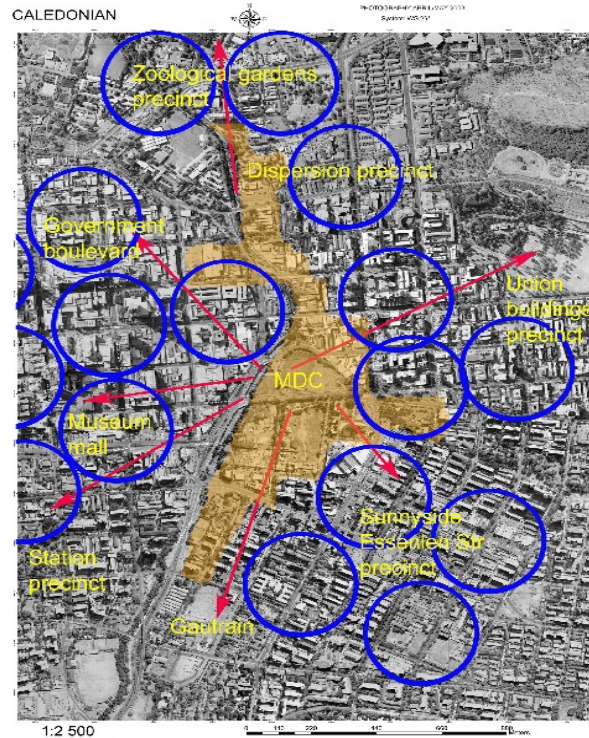
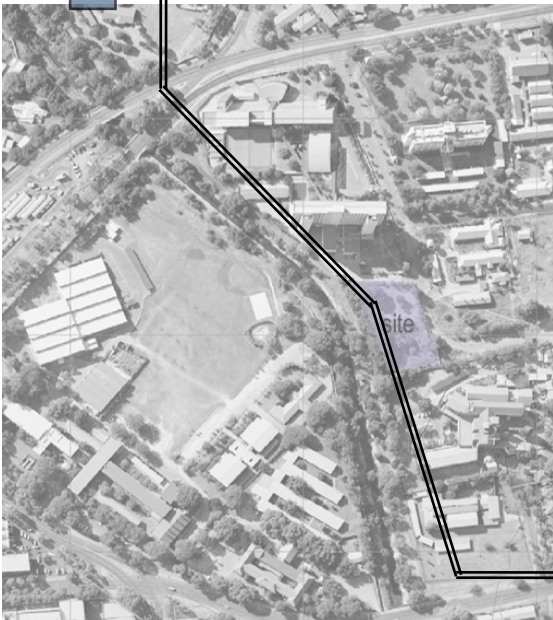
- Primary nodes (Access to greater city)
- Secondary nodes (Dispersion from site)

Fig. 53 Transport nodes



- MDC Spine
- Used open spaces (circle = chosen site)
- Un-used open spaces and possible destinations
- Mandela Development Corridor (MDC)

Fig. 54 Role in the city



- Access and links to local districts
- local districts extents
- Names of local districts
- Mandela Development Corridor (MDC)

Fig. 55 Precinct relation

7 South African Context

7 The question now is, how? (How to approach inclusive design)

The sources of the exclusion of disabled people from our environment have intrinsic links of which the policies, practices and values of the professionals involved in the design process represent a few. These developers have pre-determined ideas of what a family and other users should be like in terms of both physical and psychological stature. It must however also be mentioned that disabled people represent the minority and therefore they cannot easily contribute to a change in pre-determined ideas.

The people in this minority community are often dependent on assistance to move from one place to another and in some instances to do anything at all. Architects, in a poor response to this tend to perpetuate aesthetic ideas and practices that are based upon one-dimensional conceptions of the human form. These ideas are preoccupied with aesthetic pleasure rather than with functionality.

When we take a good look at the history of the architectural profession we will find that various attempts at putting the social at the centre of design theory have been silenced in order to maintain an image of professional theory associated with a depoliticised fine art. Louis Mumford (Rybczynski, W., 1992:25) noticed that modern design had become characterized by its estrangement from desires, emotions and needs of people. Frank Lloyd Wright once said (Rybczynski, W., 1992:40) that the so-called "plan factories" stands at the centre of the architect's loss of contact with the individual and his/her needs. Social architecture can thus be described as a range of ideas, which are committed to design which creates a culture that is capable of nurturing life in all its forms. This is what the aim of architecture should be if it is to be inclusive.

7.1 Social exclusion and the development process:

Mobility is fundamental to the liberty of the human body and the lack thereof become defining features in the lives of people with this shortcoming. The defining features of able people differ largely from that of disabled people and it is often this difference that offers the greatest design and social challenge.

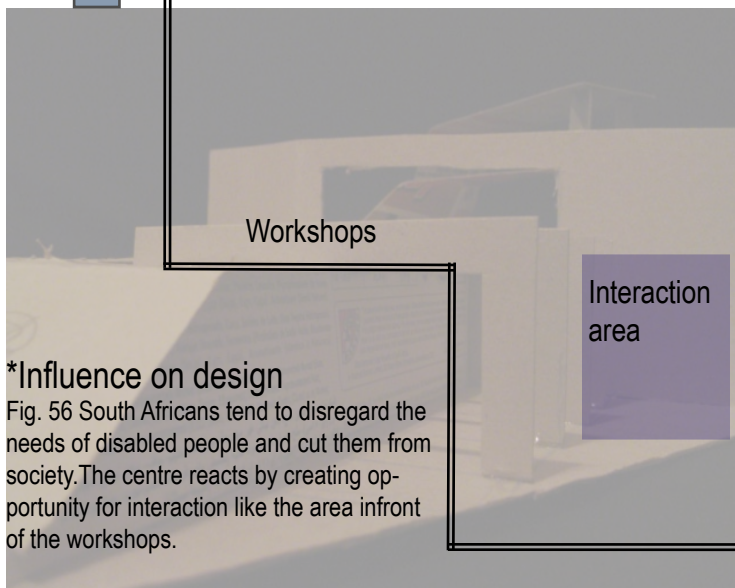


Fig. 57 Scenario 1-pure commercial construction. Mostly disregards context



Fig. 58 Scenario 2- Rural or constrained construction. A context responsive approach

The socio-institutional dynamics and the contribution it can make to the removal of physical barriers the disabled person has to confront had been largely ignored.

Third party participation in the design process is not common practice anymore and property values depend largely on profit signals and opportunities and not on the provision of non-profit uses and provision.

The fact that property developers are more prone to the provision of inclusive facilities in new facilities is due to the technical and cost restraints. Other factors that may influence the level of provision of inclusive facilities are the differences in local legislation from country to country, the attitudes and practices of key actors in the development field (like the general inclination towards inclusive design held by Architects) and the level of activity of local organizations for the disabled. It is evident that the whole provision problem is an intricate one and that it can only be remedied if all the players become aware that they can up the level of their game even further.

The larger spectrum of property development needs to be grasped before one could critique the system at all. Attitudes and other inclinations towards inclusive facilities only represent one aspect of the problem despite the fact that some can probably see it as the major root of the problem.

Specific buildings and functions are provided for at different stages of urban development and these buildings differ in the required level of inclusiveness. Each of the provision networks is demand and market specific and it responds to historically specific institutional and other social relations.

Property development needs to be provided with proposals and precedents in order to realize the possibilities. The property development system does not need direct answers.

7.2 Determinants of developer's response to requirements:

There are three basic aspects implicated in the estrangement of disabled people from the property development and building processes:

- The economics of real estate
- The legal frameworks underpinning the actions of developers
- The technical discourse and knowledge systems of real estate

Developers see the inclusive design of a facility as placing a limit on the marketability of the property and with this, the provision of ramps for instance is seen as giving an institutional feel to the development. This is partly what this dissertation is all about, proving that the provision of inclusive facilities need not give an institutional feel to a development. In doing this, a proper precedent will be established which will serve as a baby step to the eradication of such thought.

The provision of legal frameworks for the provision of inclusive facilities has taken place in most countries but South African frameworks tend to be very vague and misleading while also being one sided and lacking in the provision of statutes in terms of pragmatic requirements. Developers tend to get away with little or no consultation with disabled people in the provision of facilities. The legal system does little to force developers to do more than the very basics.

7.3 Defining disability in South Africa:

Previous definitions of disability have been limited to the medical model, which stresses the physical differences between disabled people and other people in society. Such definitions failed to recognize the nature of interaction that an individual might enjoy with society as well as the diversity of the human condition.

The United Nations Standard Rules on the Equalization of opportunities for Disabled People incorporate the World Health Organization's definitions, as they would appear in its Programme for Action Concerning Disabled People. The standard rules defines disability in the following way: The term disability encompasses a great number of functional differences and limitations that might occur in any population. People may be permanently or non-permanently disabled, be it physically, mentally or sensory.



Fig.59 discriminatory regulations

7.4 Disabled people and human rights:

The policies and practices set out by the Apartheid government served to ignore the rights of minority groups like the disabled. It also set out mechanisms to further the abuse and discrimination against these groups. The advent of democracy brought with it the introduction of mechanisms like the bill of rights, the human rights commission and the constitutional court, which all have the ideal to eradicate past inequalities.

The constitution:
(Equality Clause: Section 9:3 of The Bill of Rights:)

The Constitution automatically accepts that discrimination against a disabled person on the basis of their disability is unfair; it is therefore not the responsibility of the disabled person to prove the unfair treatment.



Fig. 60 access being denied to people in wheelchairs to the use of steps as the only means of rising

The standard rules of equalization:

The rules provide a framework for the creation of equal opportunities for all disabled people that form part of society.

These rules specify that in order for disabled people, as members of their societies, (to) exercise the same rights as other people, they have a moral and political obligation to remove the barriers that prevent them from exercising the same rights as any other person. The rules also state that the needs of every individual are of equal importance. These needs should be made the base for the planning of every society. The employment of resources also should be done in such a way as to ensure equal participation of everyone in a particular society.

Key focus areas:
(Legislation:)

South Africa's legislation fails to acknowledge and protect the rights of disabled people, thus discriminating against them. There have been some attempts to remedy this past discriminatory legislation, but all has been in vein since most of the previous legislation concerning disabled people still remains within our statutes. The four main areas within our judicial system that still remains discriminatory are the statutes, the interpretation of legislation, inappropriate administration and new legislation.

*Influence on design

Fig. 56 South Africans tend to disregard the needs of disabled people and cut them from society. The centre reacts by creating opportunity for interaction like the area in front of the workshops.

Socio-economic rights:

The basic and key social rights such as right and the denial thereof to a majority of disabled people have lead to widespread poverty and all that ensues thereafter.

Barriers to these rights (employment, education, housing, welfare services, health care, transport and social security) still prevents disabled people from becoming active members of the mainstream of society and its economic activities.

Vulnerable groups:

Certain segments of society like disabled children, women, elderly people as well as rural people are more vulnerable to discrimination. The nature of the barriers can often be seen as a lack of access, be it access to transport, information, rehabilitation, psychological help or social interaction. It is this lack of access that is addressed within the planned psychosocial adjustment center for it is here where disabled people will learn how to go about in assuring better access to the things they really need.



Fig. 61 The actions one does may one day lead to injuries that can cause disability



Fig. 62 The actions one does may one day lead to injuries that can cause disability

7.5 The nature of spinal cord injuries in South Africa:

Defining the disability:

The spinal cord consists of quite a number of nerve fibres that gives it the same function as a two-way communications cable that carries messages from the brain to the body. An injury to the spinal cord may result in loss of sensation, movement as well as bladder and bowel control. Such an injury might also affect breathing, sexual function as well as temperature control. These losses in bodily function should receive consideration in the design stage of any building for disabled people.

Damage to the spinal cord occurs when either the blood supply to it is cut off or it is severed or bruised by bone fragments. The spinal cord as a whole can also be severed or crushed, a fact that will lead to more permanent damage. The degree of the injury will determine the functions lost to the person. Complete injuries (quadriplegic) represent a complete loss in movement and sensation while an incomplete injury (paraplegic) represents a lesser amount of loss in movement and sensation.

The incidence of spinal cord injuries:

There are no specific statistics that states the nature of spinal cord injury in South Africa but it has been estimated that between 400 and 500 South Africans sustain spinal cord injury every year. Most of these people are between 15 and 29 years of age. There are also 5 injured males for every injured female.

The causes of spinal cord injuries:

The causes of spinal cord injury fall into two main categories namely traumatic and non-traumatic of which the most is traumatic. Statistics gathered from the USA and elsewhere indicate that the most common traumatic causes of spinal cord injury are:

- Violence 3.1%
- Rugby 2.5%
- Motor Vehicle, Motorbike and Pedestrian accidents 51.1%
- Falls 19.8%
- Water Sport 13.0%
- Crush Injury 5.3%
- Horse Riding 0.6%
- Other Sport 1.2%
- Other Trauma 3.4%

The South African situation is very similar to the above with the only real difference being that crime and political violence adds to the list.

The effects of spinal cord injuries:

- The Inability to sense when the bladder is full thus failing to empty it voluntarily
- The Inability to feel when the bowel is full thus failing to empty it voluntarily
- Muscle spasms below the level of injury
- Men often have erection problems as well as a decrease in fertility.
- The Inability to move one's limbs
- The ability to sense pressure, heat or cold in parts of the body below the level of injury diminishes. The blood supply to these areas should be monitored so as to prevent skin damage and bedsores.
- Too Low or high blood pressure.
- People with quadriplegia are not able to regulate body temperature below the level of the injury.
- The person's self-esteem and self-image changes severely.

The effects of spinal cord injuries:

People with spinal cord injuries will be unable to do to work, study, go home, cook meals or do most of the things they were used to. This will be the case for many months for a person with paraplegia. A person with quadriplegia on the other hand will find him or herself in this situation for anything from 4 to 12 months and even longer.

Dependence:

People with spinal cord injuries are highly dependent upon the acceptance and aid from others granted that they, the disabled person, have control over everything being done for and with them.

7.6 Employment Equity:

The South African Employment Equity Act that was passed in 1999 stipulates that any company with a number of employees larger than fifty should also employ people with disabilities.

This act will create a favourable environment for employers to realize the potential of disabled employees. Disabled people will also gain from the act since they should receive more opportunities to work in the mainstream environment. There is however a problem that arises from the act. This problem is one of skills since a lot of disabled people lack the skills to do mainstream work as well as the access to institutions that teaches these skills.

*Influence on design

Fig. 56 South Africans tend to disregard the needs of disabled people and cut them from society. The centre reacts by creating opportunity for interaction like the area in front of the workshops.

Access and transport once again prevails as the main problem generator in the environment of disabled people. Disabled people without proper access to the mainstream and its activities are in a sense more disabled than disabled people with access. It is this very lack of access to training that makes disabled people difficult to employ.

“So, I am still trying to discover while I am in my wheelchair, where is this disability? A bit of lateral thinking will make you realize that the very object that identifies someone as being “disabled” is actually the object that minimizes or negates the disability.” (<http://www.independent living.org/docs5/SANatIDisStrat2.html> visited on 25 February 2005 at 09:55)

The above statement gives a clue as to how the problem of employment equity for disabled people should be approached. Designing the access to various amenities needed by disabled people, one will enable them to be just as profitable as any other person for once their accessibility are catered for on the same level as other employees, they are just as able as any other.

One can after all only see employment as equal when one strives to employ the skill of the prospective employee and not the body of that person.



Fig. 63 Unequal employment leaves some people without the basics needed in order to survive



Fig.64 People might surprise their employers upon a mere opportunity to work

8 Universal Design

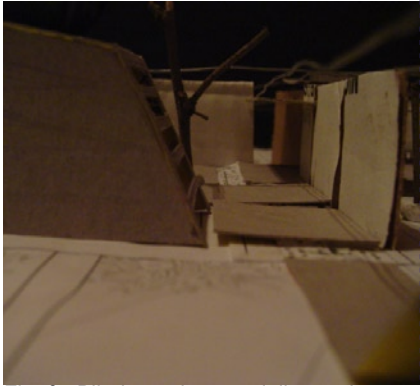


Fig. 65 Blind people especially need a sense of safety, hence the enclosed areas for ex.



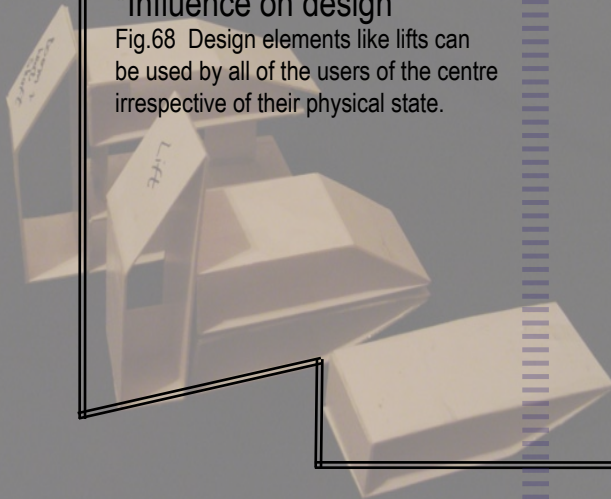
Fig. 66 Avoiding stark contrasts between outside and inside benefits all users.



Fig.67 Proper access is universally necessary

*Influence on design

Fig.68 Design elements like lifts can be used by all of the users of the centre irrespective of their physical state.



8 Universal design:

8.1 The popularisation of universal design:

The messages of social architecture are political and process oriented, and demand changes to physical infrastructure as well as to the social, political and attitudinal structures. Much of the radicalising edge of social architecture has eventually been blunted by other ideas, which have ascended to pre-eminence in the various debates about designing for the needs of the disabled. One of these other ideas is the idea of universal design.

Principle	Description
Simple and intuitive use	The use of the design is easy to understand regardless of the user's experience, knowledge, language skills or concentration levels.
Equitable use	The design does not disadvantage or stigmatise any groups of users.
Perceptible information	The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
Tolerance for error	The design minimises hazards and the adverse consequences of accidental or unintended fatigue.
Flexibility in use	The design accommodates a wide range of individual preferences and abilities.
Low physical effort	The design can be used efficiently and comfortably and with a minimum of fatigue.
Size and space for approach and use	Appropriate size and space is provided for approach, reach, manipulation and use, regardless of the user's body size, posture or mobility.

Source: Center for Universal Design, 1995.

Fig. Imrie, Hall (2001:15) *The basics of universal design.*

Universal design is a social movement concerned with the production of goods and buildings that are usable to the greatest possible range of people.

The proponents of universal design are often very critical about compensatory architecture where otherwise inaccessible buildings are made accessible in order to somehow compensate disabled people for the buildings' lack in functionality.

This so-called additive design is seen as drawing too much attention to the physical disabilities of a person, which in turn may lead to stigma and social exclusion. Design should not be additive in nature in order to be inclusive, it should much rather use inclusive principles from the beginning of the design stage. Design



Fig.69 Differing needs for different disabilities
Werner, D., 1998:1

should thus be more than accessible, for accessible design acknowledges that people have a right to access of the built environment but it doesn't go far enough in expressing social integration for this in its own has more than a mere physical element. Universal design counteracts this idea by seeking the integration of disability with the basics of design. The objective is to draw attention away from impairment as a source of possible social ostracism. The fact that the needs of people are never static is also recognized along with the fact that designs should enhance different personal qualities rather than inhibit them.

Universal design is seen as a complex system, which requires a team approach in order to transcend any one of many possible individual viewpoints. The focus also lies in saving as much energy as possible thus unnecessary expenditure of effort needs to be eliminated. This can be achieved by means of designing devices and organizing spaces in such way that their usage becomes simpler and their function more legible.

The psychosocial needs of disabled people would have to be designed for if universal design is to be successful in the quest for an inclusive environment. Disabled people do not often speak up for their psychosocial rights, a fact which may hamper the universal design system severely. The needs of people, including the disabled, change over time which means that designs and developed contexts should be more than inclusive to current needs.

It is also difficult to see how far the transformations in the lives of disabled people will occur without the proper instatement of a social or political programme for change. The core philosophies of universal design are not very helpful in this respect. The basic criteria of universal design is after all apolitical as it does not recognize the underpinning relationships between the social, technical on the one side and political and economic on the other. Environmental problems could for example only be solved with design.

Some people see corrective mechanisms as a means of "correcting" disabled people in order to make them live normal lives. The objective here is social integration and to make people part of the mainstream again. The correct manner of introducing corrective design is to do it in such a way that neither disabled nor able people will recognize the mechanisms in place. These mechanisms should often be of a legal nature.

Mainstreaming does however revolve around the standards set by the majority. When looking at universal design ideas from this angle, it appears that disability is something to be eradicated and overcome rather than be accepted as part of the traits of a person.

The proponents of universal design claim to be able to use adjustable design elements in order to accommodate the widest variety of users. Some critique about this statement has arisen. It would for instance be impossible to design for all possible users, thus universal design is not possible, at least in technical terms. It would however be possible to design for a smaller group of disabilities that in total encompasses the needs of quite a large group of disabilities. A set of guidelines could be set up which states the needs and design guides for the most encompassing physical, mental and social disabilities. A form of universal design thus becomes possible.



Fig. 70 Different needs need to be accomodated
Werner, D., 1998:283

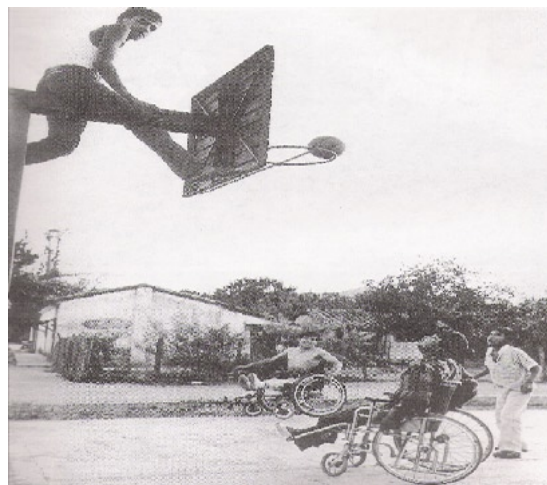


Fig.71 Physical states differs from person to person
Werner, D., 1998:236

9 Inclusive design in development:

Inclusive design reaches much further than a basic response to the technical needs of disabled people. It is part of a lineage of ideas, which has as its aim the satisfaction of the building users' views and values and to challenge the existing social, institutional and technical values of the design process. The inclusion of the views and values of disabled people into the design process is not a disability issue per se but rather a social equity issue.

Inclusive design has much in common with social design, which has as its aim the working with people rather than for them. Users gain more control over their environments through this manner of designing. The exclusion of any part of society can in fact be seen as a form of environmental injustice. The knowledge of the users in the hierarchical process of property development is rarely considered precious.

People, as well as their uses of the environment are multiple and extremely diverse. Designers should see themselves as part of the greater society and they should recognize the physical link there can be between them and disabled people. The body is an extremely fragile thing. We, designers should learn to understand the physical and psychological links that exist between disabled people and ourselves. I undertook a weeklong simulation experiment where the aim was to simulate as much of the environment of the disabled person as possible in order to gain a better understanding of disability and the correct way of design response to it.

9.1 Comparing non-inclusive to inclusive design:

<i>Inclusive design</i>	<i>Non-inclusive design</i>
Concern with meaning and context	Concern with style and ornament
Participative	Non-participative
Human oriented	Corporate or institution oriented
Client re-defined to include users	Owner as exclusive client
Low cost	High cost
Grassroots design approaches	Top-down design approach
Democratic	Authoritarian
Seeking to change design attitudes	Acceptance of prevailing design attitudes
Use of appropriate technology	Use of high technology
Use of alternate models of the development process	Development process controlled by corporate interests
Heterogeneity	Homogeneity

Fig.72 Imrie,Hall(2001:19)

Inclusive design should not preclude the possibility that it might be necessary to use special or exclusive design methods in order to provide for the needs of those with specific physical or mental impairment. One should after all remember that the safety of the user is of utmost importance in a building, and it is this that sometimes requires exclusive techniques.

It often happens that designers are reluctant to receive feedback from the users of their designs. Designers often do not realize the importance of evaluation and feedback from a completed project. Designers ought to appreciate every possible source of criticism relevant to a project in order to limit the making of the same mistakes in future. The level of participation in design and eventually the feedback will differ from project to project, depending

*Influence on design

Fig. 73 Certain "unknown" needs of disabled people like the strategic use of natural lighting can only be realised if they are directly included in the design

on the social role of the project. Seeing that a psychosocial adjustment centre has a significant social role to play, the level of required participation and evaluation will be high.

There is a significant resemblance between the issues surrounding inclusive and universal design. Both focuses on the inclusion of disabled people with the difference being that universal design has a much needed broad focus which is not specifically stated in inclusive design. The universal design principle of designing for all, results in guidelines that can also be used to address some of the challenges faced by inclusive design.

People often think differently about a certain project. The insights and inputs from various people can enrich a final product with various solutions to obvious problems. The experienced insights given by Jan van Wijk is a very good example of this.



Fig.74 Working in a groups has the advantage of a wide variety of inputs being given.

10.The influence of contexts, responsive design:

10.1.Specific Design measures:

The sketches of the design measures to follow are to illustrate which are the measures that will aid people with sight and physical disability respectively to use the building without much difficulty. These are very basic measures that are also easy to impliment in an existing building. This fact, along with the low cost of these measures are in line with the overall iam of the details in the building which is to be as basic and cost effective as possible.

All of these details were designed in consultation with a third party (disabled person). The resulting details are therefor more representative of the personal needs of the user. Designing details in consultation with the prospective users of a facility will therefor result in a more satisfied user.

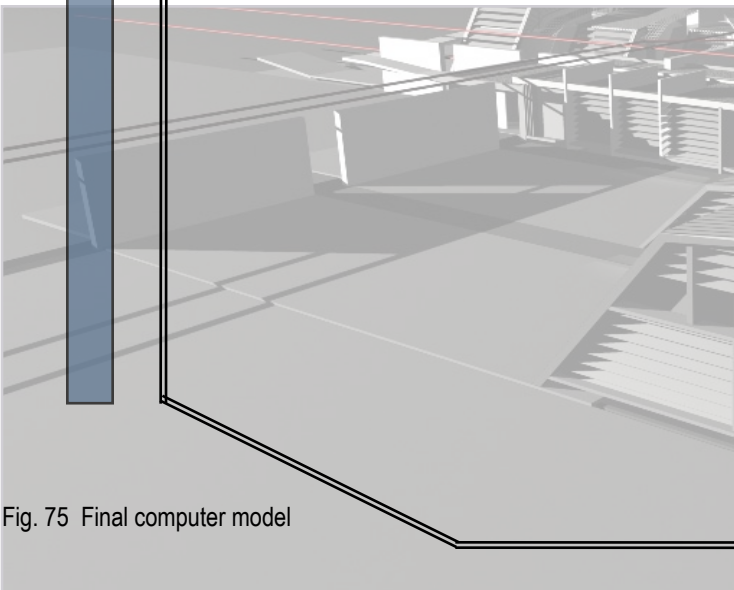


Fig. 75 Final computer model

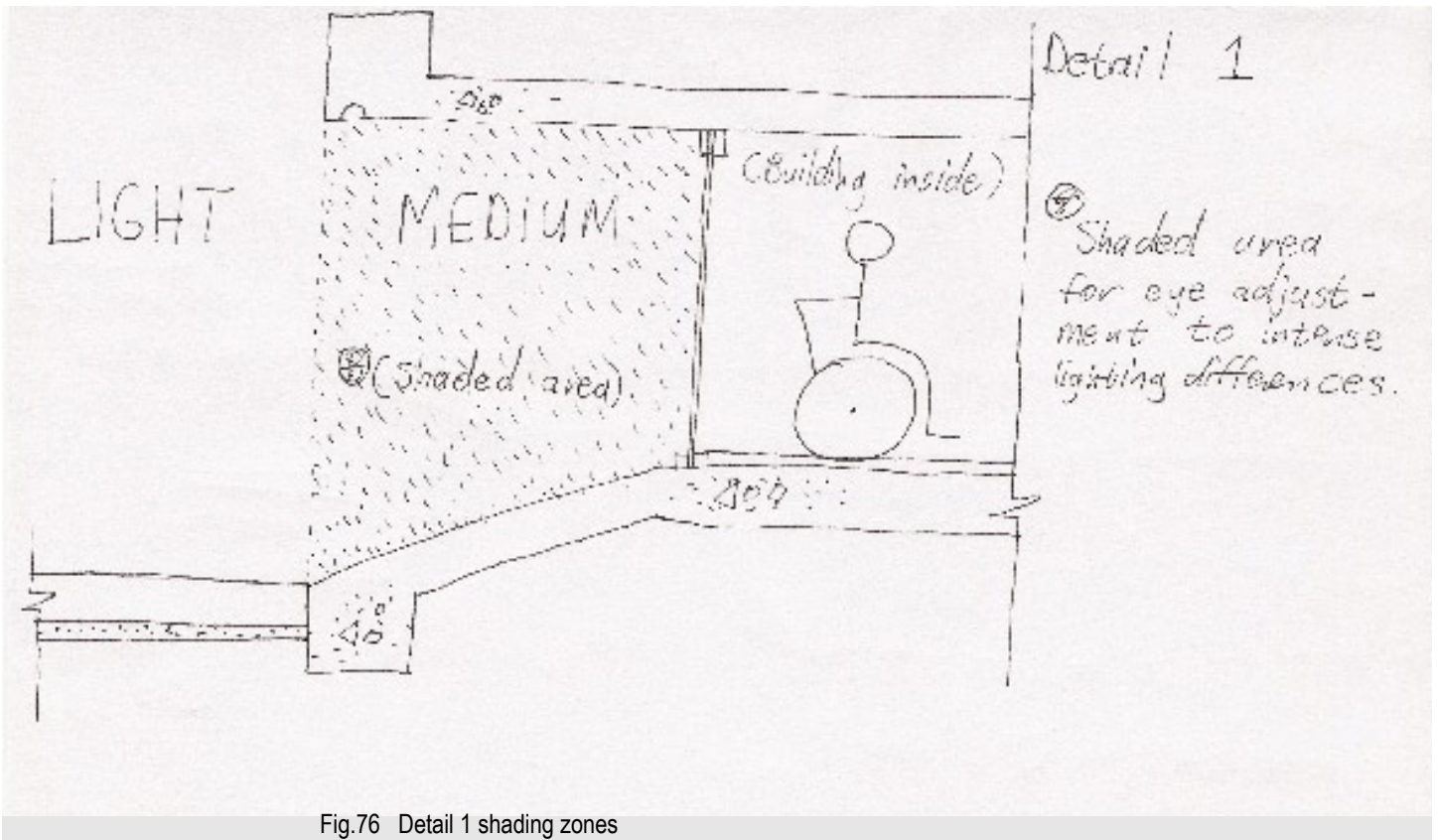


Fig.76 Detail 1 shading zones

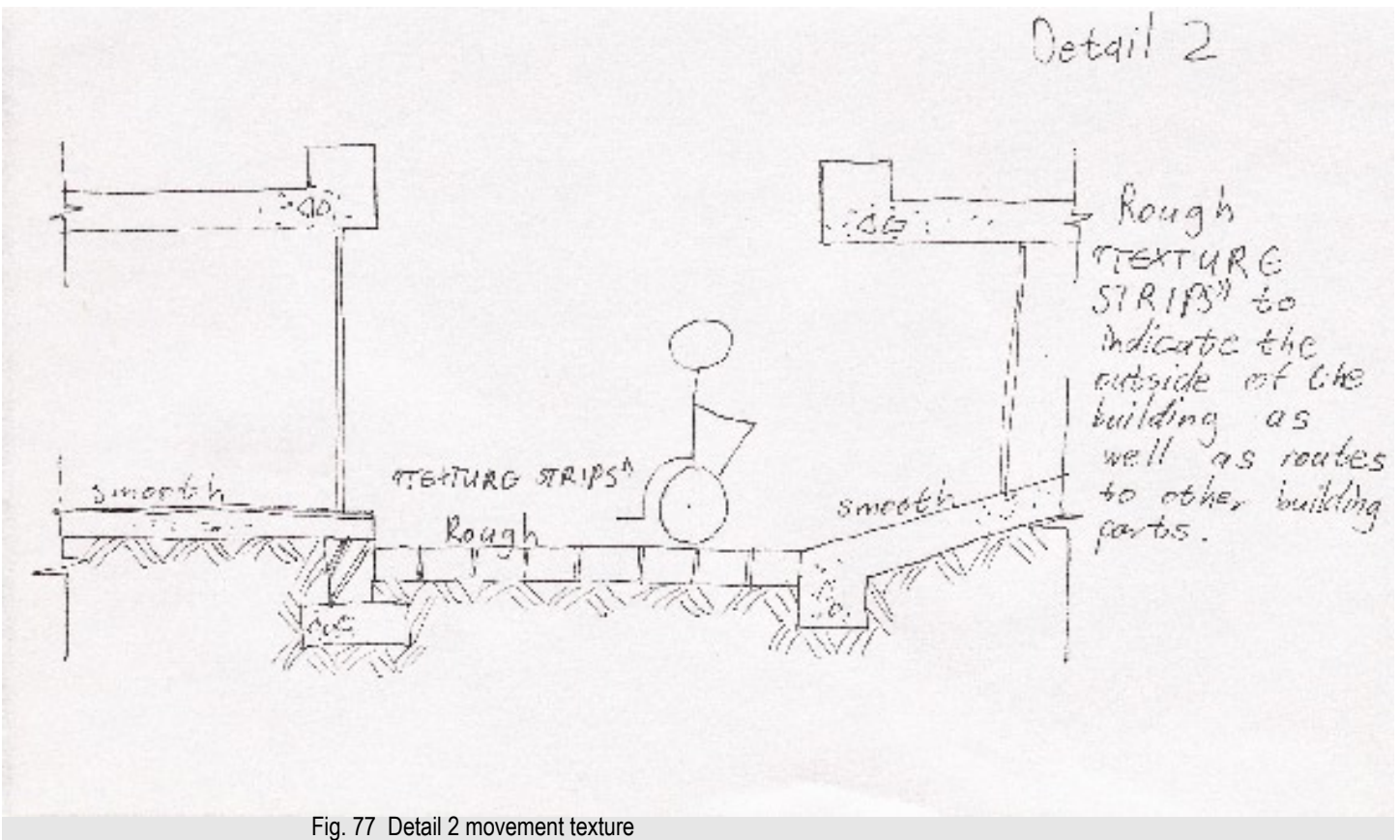


Fig. 77 Detail 2 movement texture

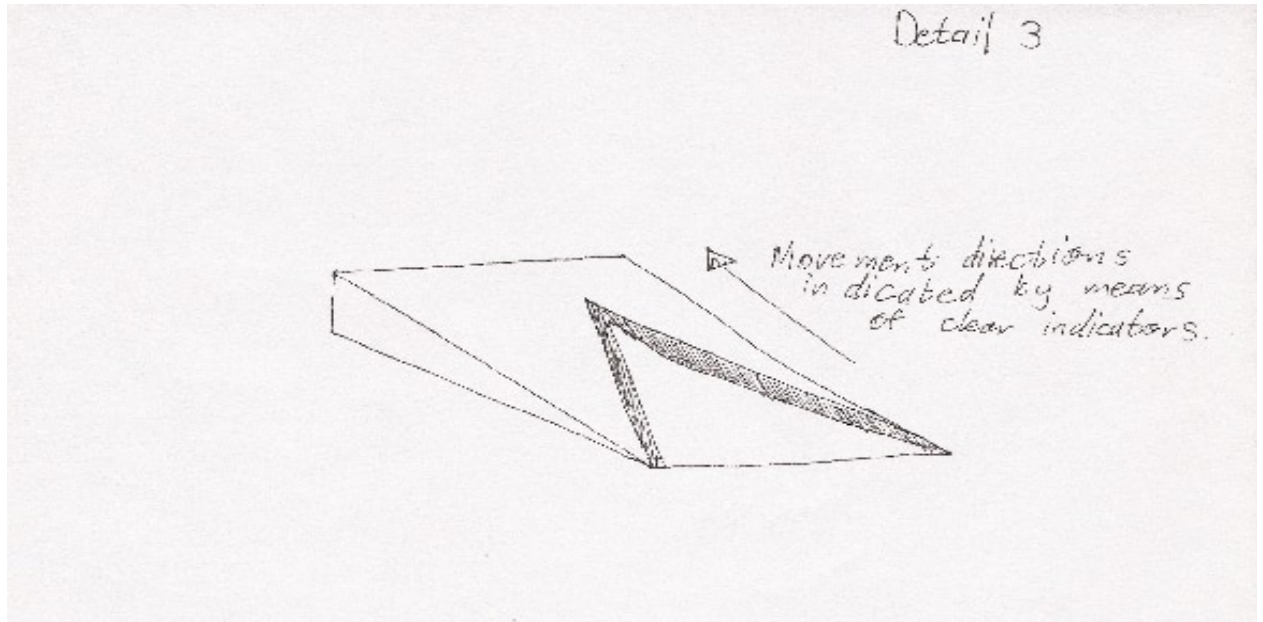


Fig. 78 Detail 3 ramp detail

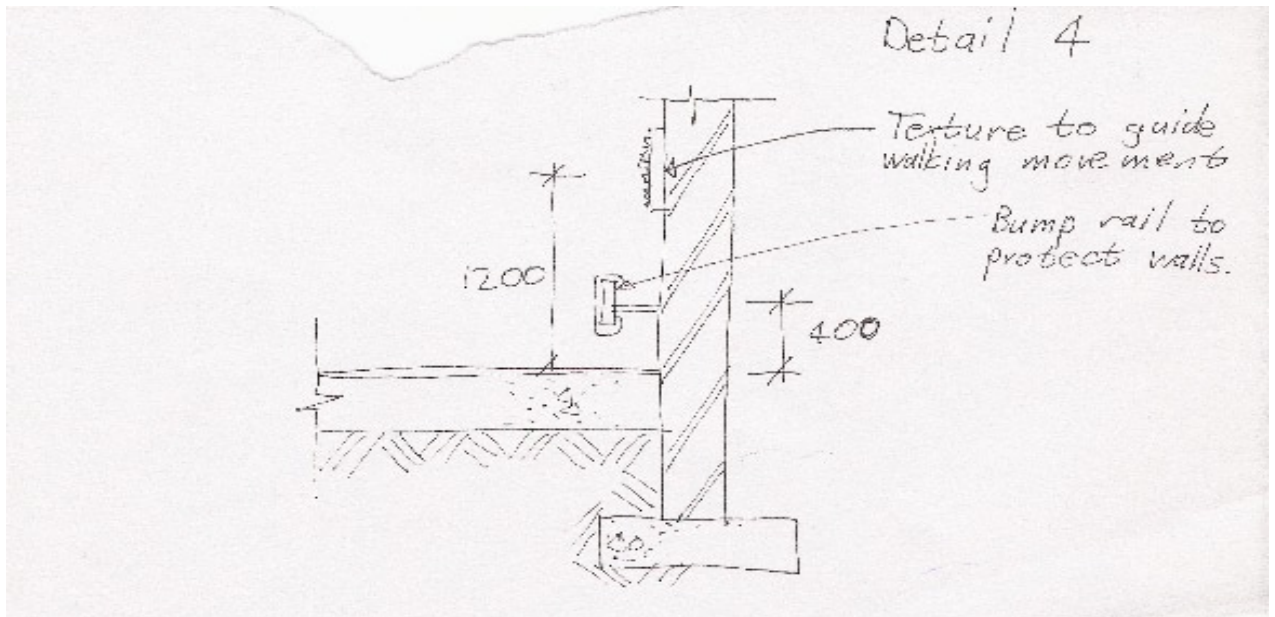


Fig. 79 Detail 4 bump rail and texture strip

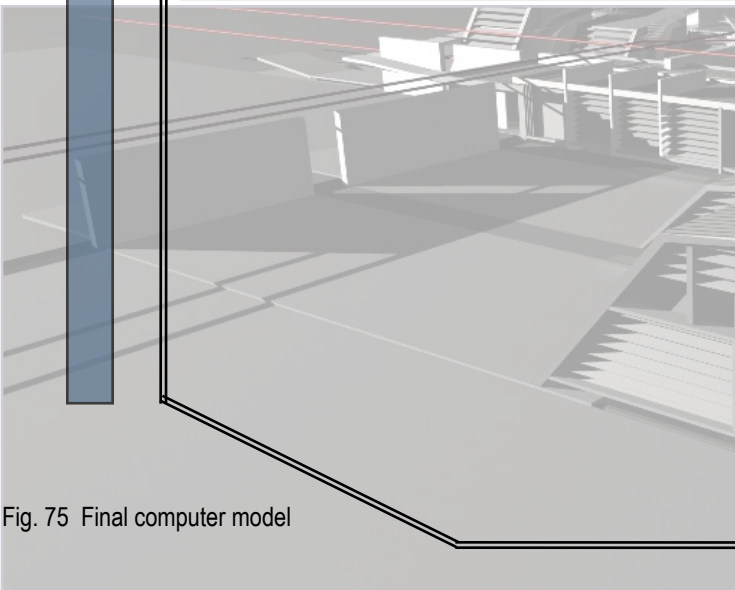


Fig. 75 Final computer model

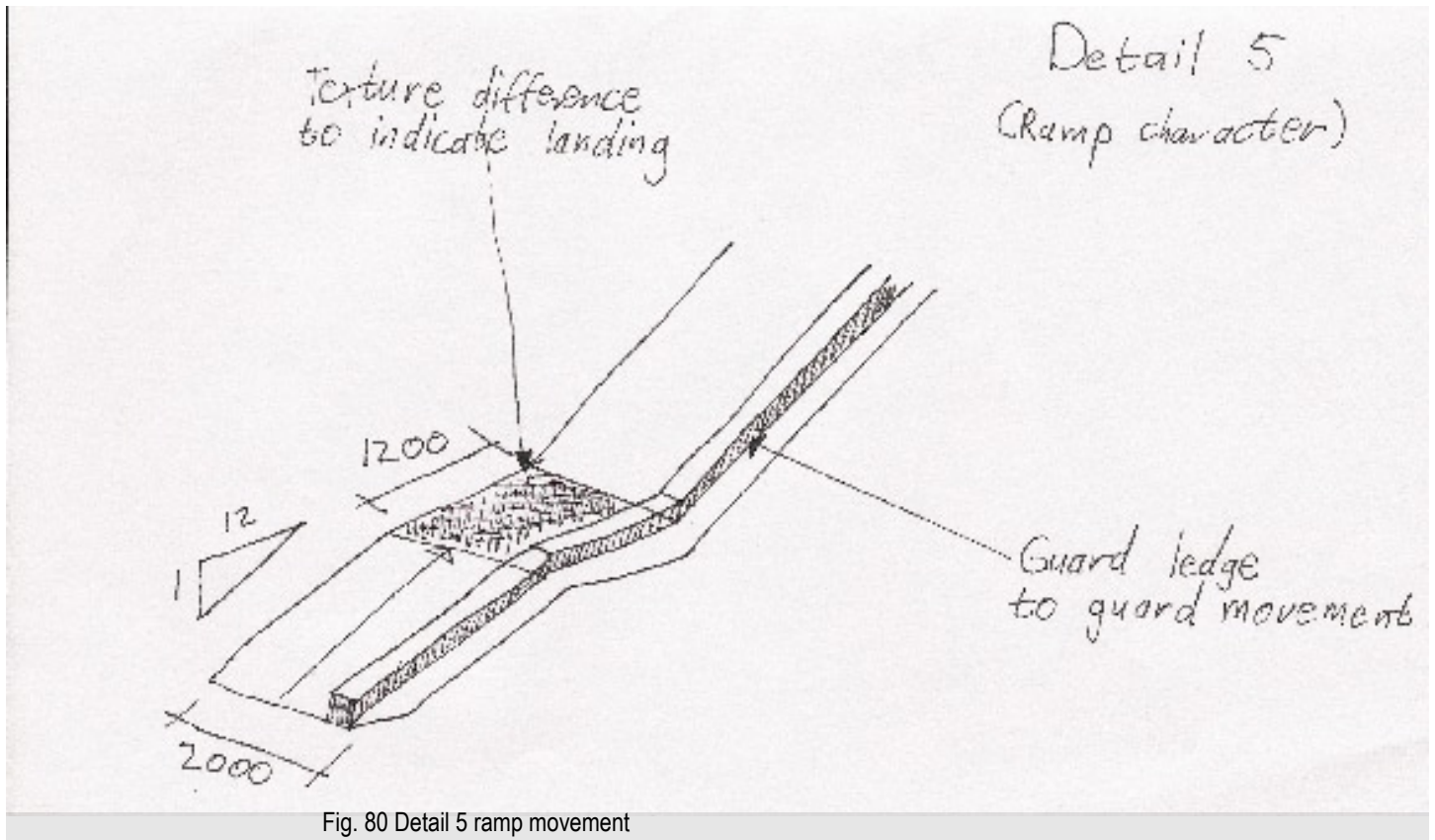


Fig. 80 Detail 5 ramp movement

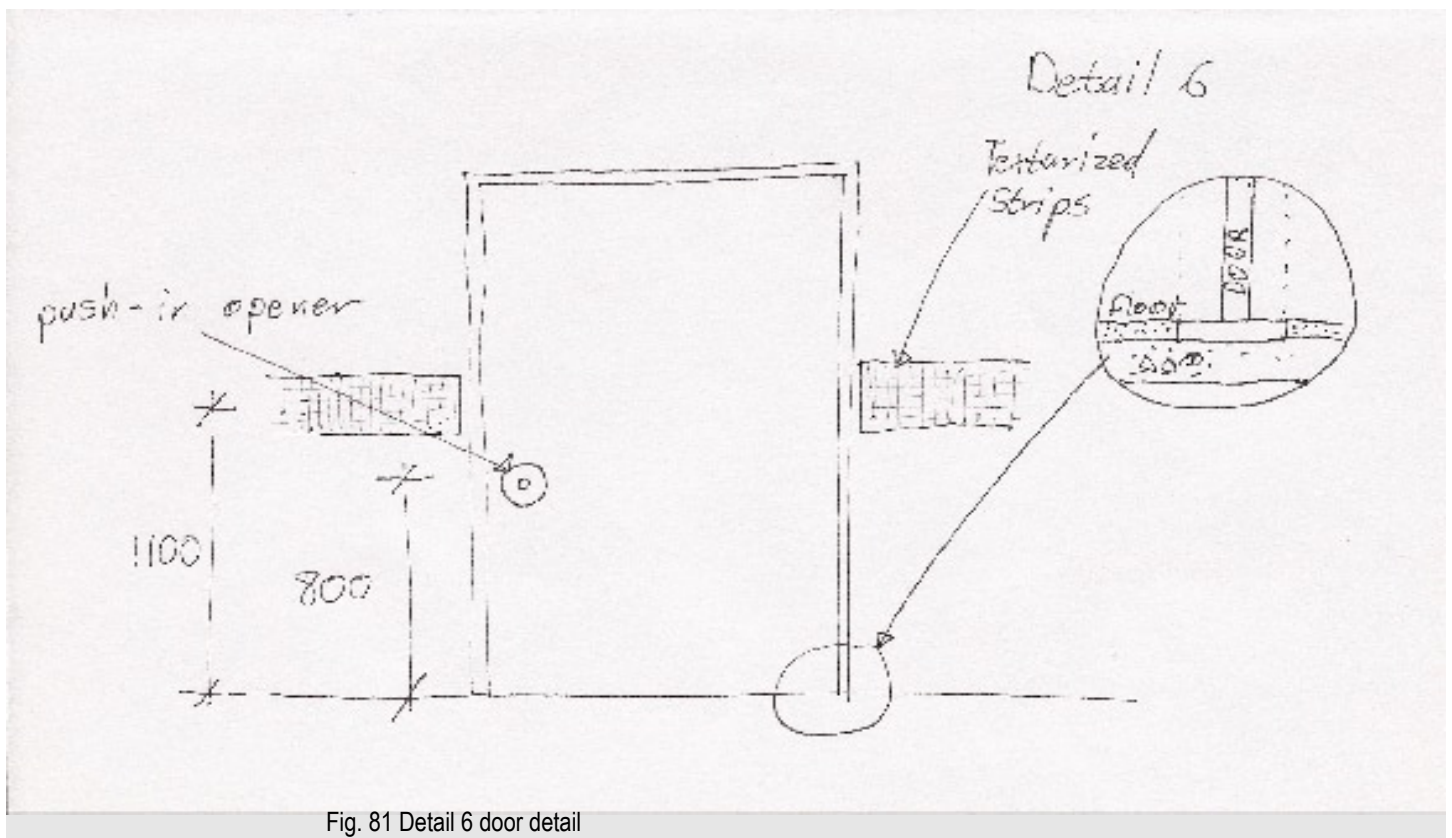


Fig. 81 Detail 6 door detail

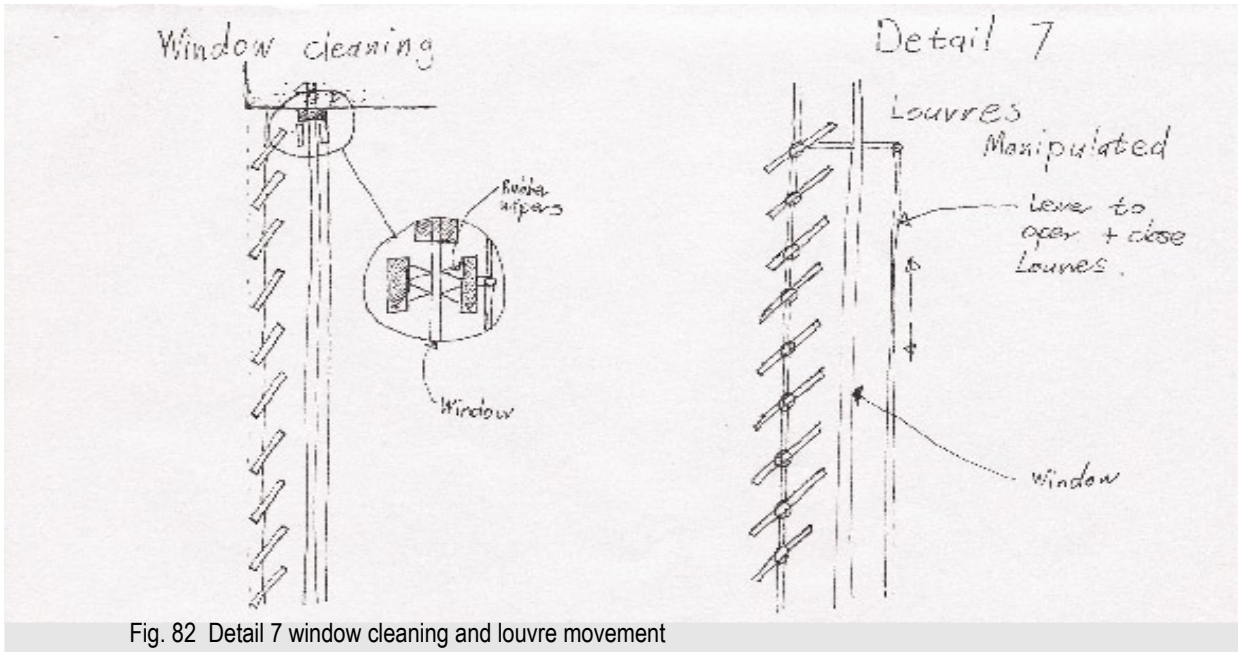


Fig. 82 Detail 7 window cleaning and louvre movement

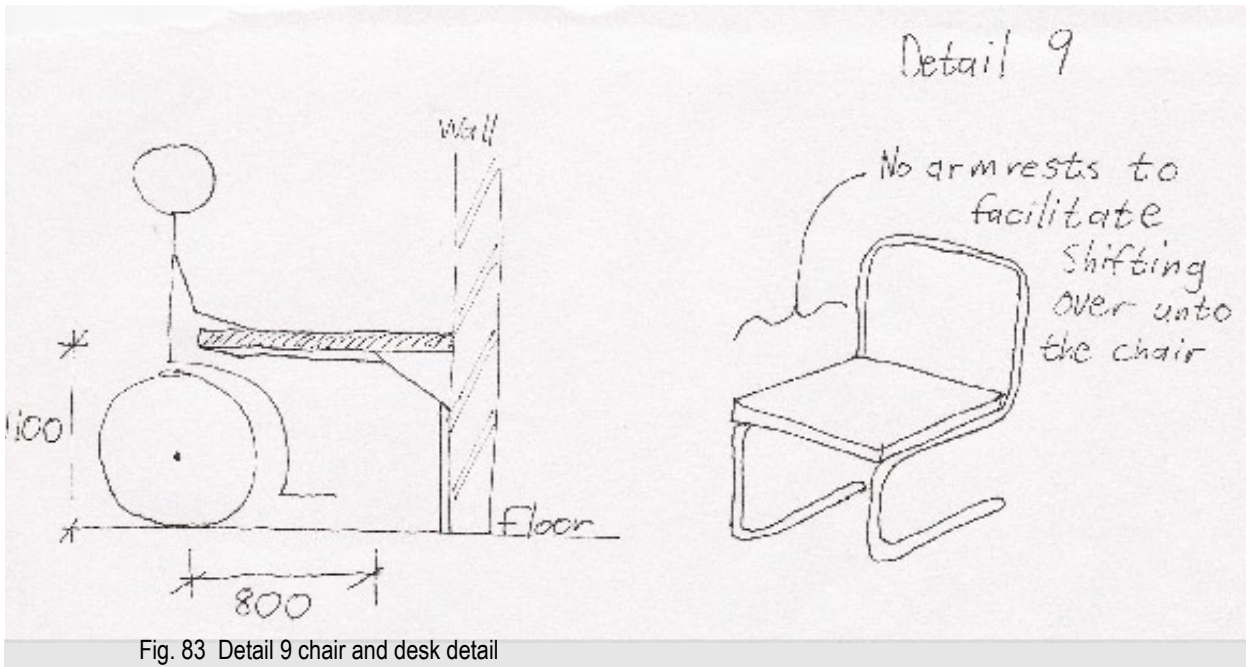


Fig. 83 Detail 9 chair and desk detail

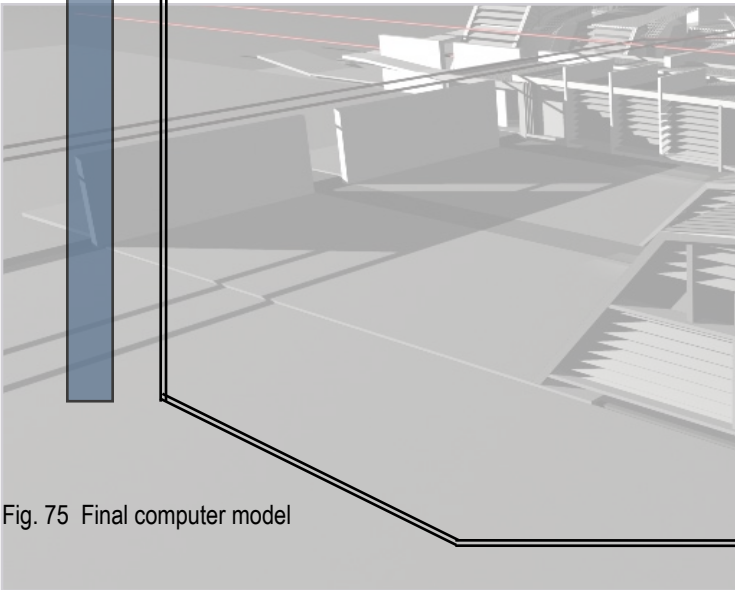


Fig. 75 Final computer model

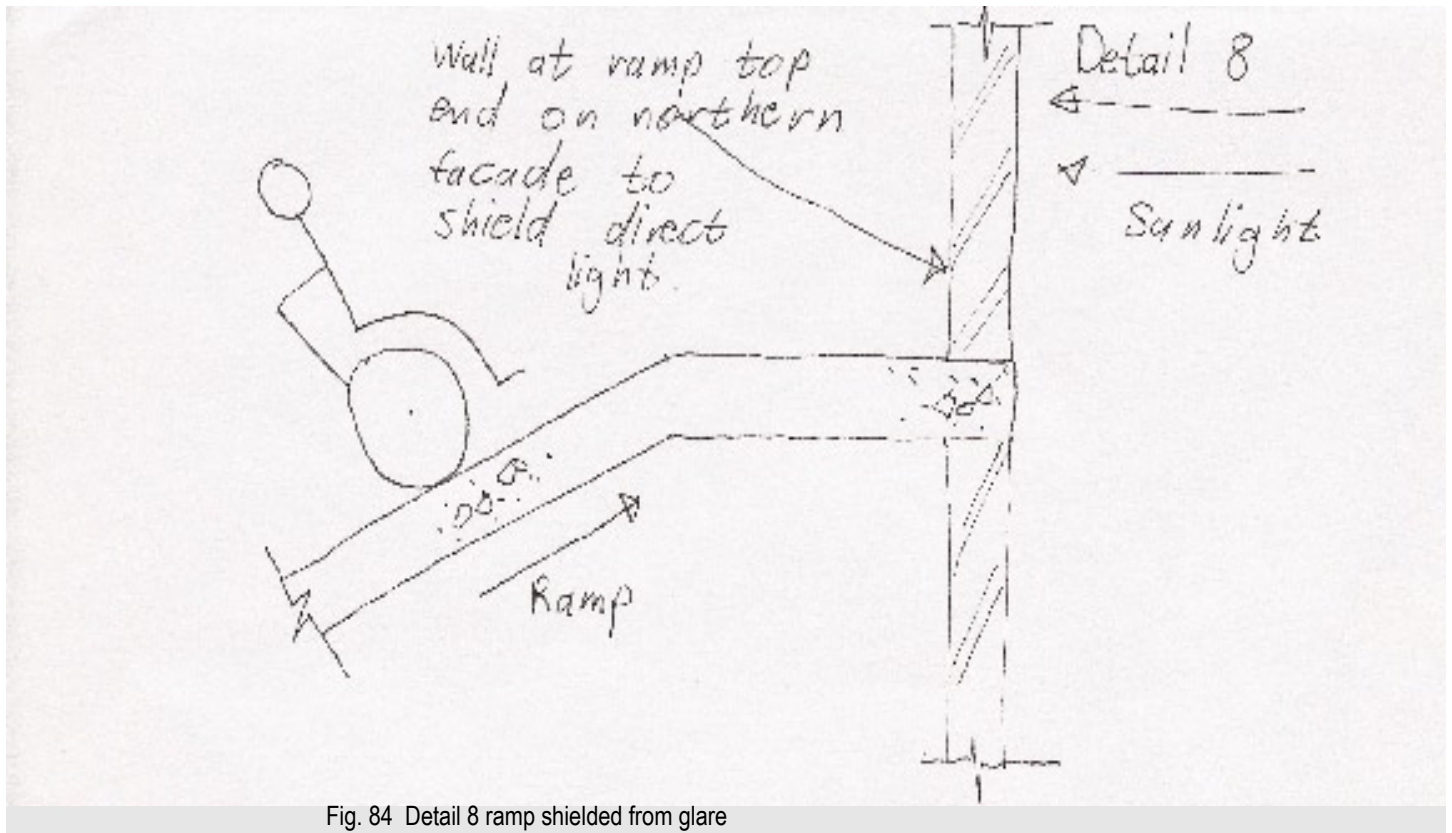


Fig. 84 Detail 8 ramp shielded from glare

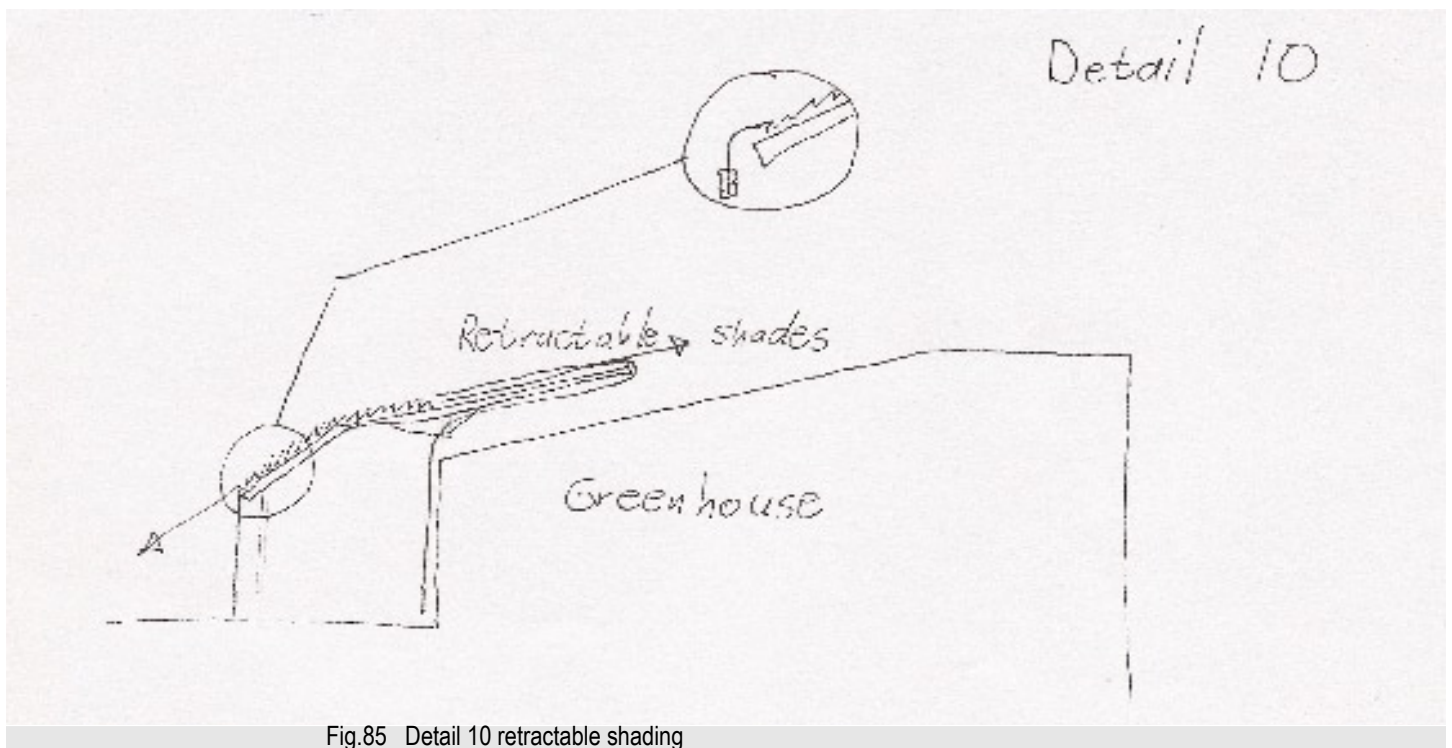


Fig.85 Detail 10 retractable shading

10.2 Physical context:

The physical context to which the centre responds had been divided into various response segments. These segments are: Views, Movement routes, Site scale and hierarchy, Climatic context and Physical connections.

10.2.1 Views to influence design:

The site is surrounded by a number of very significant views that adds to the centre's connection with physical context. These views are of significant building and landscape features like the Reserve Bank, the Nursing College as well as the Apies River Culvert.

These important views guided the design to include glass facades and viewpoints that enables a visual connection. The user must after all be able to place himself within his/her greater context. This fact is especially true to disabled people in wheelchairs seeing as they have to adapt to a new way of perceiving the world.

Views often evoke contemplation, a fact that were taken into account in providing restricted roof access. The roofs provides a means for people to escape to a quite place without having to leave the centre. This quite place then aids in contemplation, amuch needed activity for every person struggling with emotional torment.

The added bonus provided by incorporating views into the design is that the general security of the site is enhanced. Passive surveillance will be very effective on a site where there are people moving over and pass the site throughout the day.

The use of passive surveillance in combination with CCTV surveillance provides a further means by which the users of the centre can take control of the running of the centre.

The provided access to the rest of the city will also be pretty useless if a means is not provided by which centre users can be oriented or orient themselves. The accentuated views provides such a means. A centre user can easilly be pointed in the direction to move in order to reach a specific reference point in the city. These reference points need however be points that are visible from a wheelchair at every stage of movement towards it. The Reserve Bank is a good example of this.



Fig. 86 Viewconnection to Nursing College



Fig. 87 Viewconnection to bypass



Fig. 88 Viewconnection to PTA central



Fig. 89 Viewconnection to Apies River

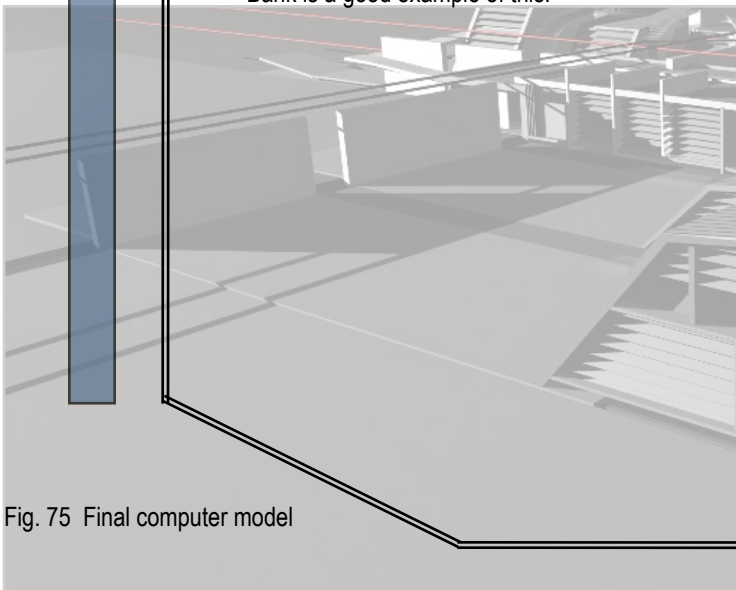


Fig. 75 Final computer model

10.2.2 Movement routes:

movement is a very important issue to disabled people due to the fact that it presents them with a significant amount of stumbling blocks, be they physical or psychological. Movement also tends to be that aspect of being disabled that tends to separate disabled people from society, since they cannot join them in places that are not entirely accessible. This problem was addressed by making movement patterns over and around the site the primary generator of design.

The movement patterns over the site were divided into two categories namely primary (pedestrian) and secondary (vehicular) movement. Pedestrian movement was seen as most important since it closely resembles wheelchair movement and the possibilities for wheelchair movement.

The illustrated movement patterns formed naturally over the site, which means that they are the most comfortable in terms of movement.

The Psychosocial Adjustment centre was formed on the basis of these patterns. Building elements were placed to be followed across the site, thus forming destinations. The building elements and infrastructure accentuates the movement paths by bordering and defining them.

Social areas like squares are also situated along the movement path in order to facilitate the much needed social interaction between centre users and passers by.

Movement through the centre has been derived from the primary movement over the site.

A central node has also been derived from the movement pattern over the site. This central node serves as dispersion and orientation node to the centre users as well as passers-by. The dispersion node has the same function as a landing would have in a ramp system. This function would be to provide a place where people moving up the ramp can rest, orient themselves as to the rest of the ramp and communicate with others moving on it.

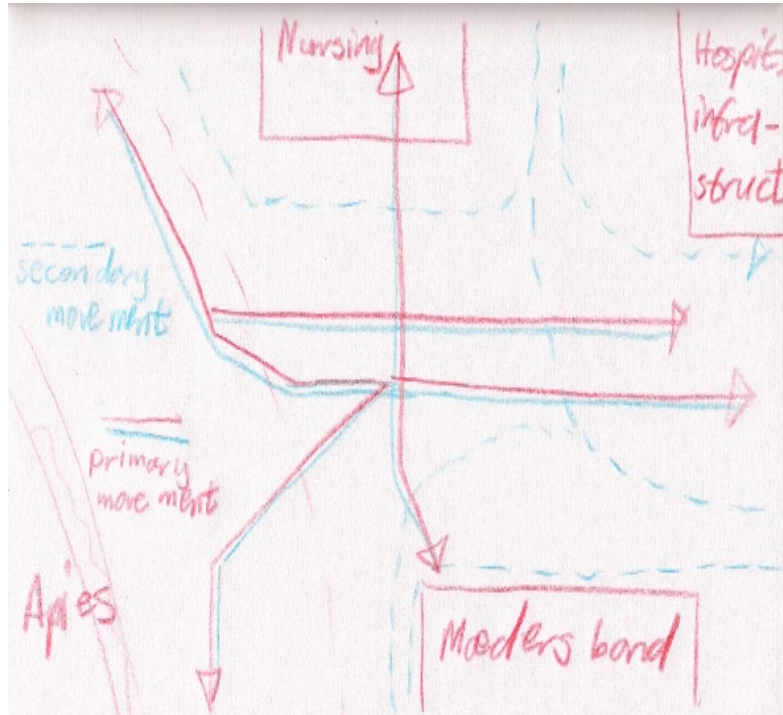


Fig. 90 Movement patterns to form primary design generator

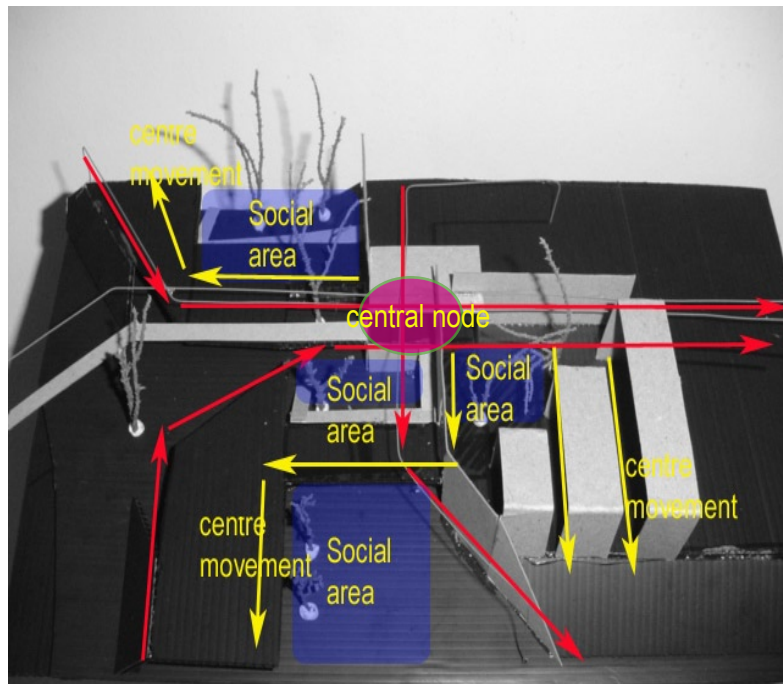


Fig. 91 Movement working as design generator

10.2.3 Site scale and hierarchy:

The scale of the site and the immediate surroundings can be based upon a series of levels of which the lowest form the river bank and the highest form the roof of the Nursing College at 11 Stories above ground. These levels of scale definition are carried over into the building by providing different levels on which movement through the centre can be observed. A passer-by can for instance, from one vantage point, see a wheelchair-bound person on groundlevel, firstfloor level and roof level, all at once. This manner of perception places disabled people in a light of movement capability.

People moving through the building will notice a perception change as different building elements are placed into different contexts while moving in a certain direction.

The necessity of access limits the height of the building to one level above and one level below ground. The centre has a low occupation which aids the reasoning behind a smaller facility. The small size of the centre (2 stories or 6m) gives it a lower hierarchy ranking seeing as the average building height of the context is 5 stories or 15m. The aim of the centre is however not to even out the skyline but rather to react to the contextual qualities of the site. The centre does this by means of height increases at strategic places. These strategic places are the building segments that front the Moedersbond and the Nursing College. These building segments have the maximum height of 2 stories above groundlevel while the central node consists of one story.

The recognition of a larger scale was not the only deciding factor that guided the heights of the various building segments. One other deciding factor was the views to which the building responds in the larger context. The views to Pretoria central as well as to the hospital precinct and the Unoin Buildings are very important to the centre and its orientation in terms of the larger context. Connection to these points or views within the city necessitates a higher elevation in order to facilitate a proper link to them. This fact is the other reason for having 2 stories at the counseling block and the physical therapy block.

Hierarchy:

The hierarchy applicable to the centre can be based on movement hierarchy, scalar hierarchy and visual hierarchy.

The centre plays a very important role in providing and accentuating access over and unto the site and therefore the centre is highest on the hierarchy in terms of movement. The Nursing College and the trial housing units play a secondary role in this regard for these are the places to which and from which movement are dispersed.

The centre is very small in proportion to the surrounding buildings. This fact places the centre low on the scalar hierarchy of the context. The connective role fulfilled by the centre increases the importance of the building since it enhances the overall feeling present in the specific context.

The centre was designed to be different to the surrounding buildings, but not out-of-place. The centre shares various forms of connectedness with the surrounding buildings. The materials used is one such link. The centre does not create the same feeling as the institutions next to it, a fact that aids in its outstanding nature. The centre is very important in terms of the visual qualities it gives to the overall context. The centre was designed in a way that will draw attention to itself and the users thereof for this will enhance the social interaction of the centre users.

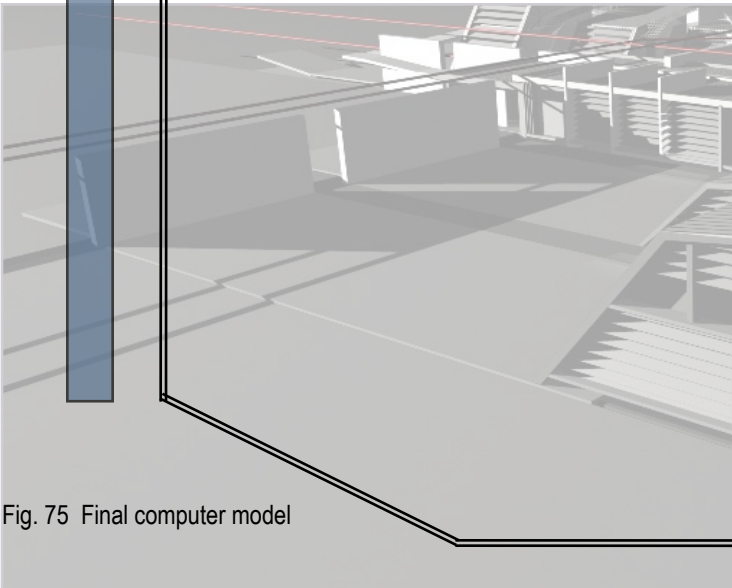


Fig. 75 Final computer model



Fig.92 View and scale connection to PTA central

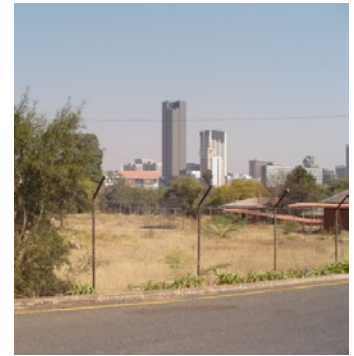


Fig. 93 Important buildings in terms of scale

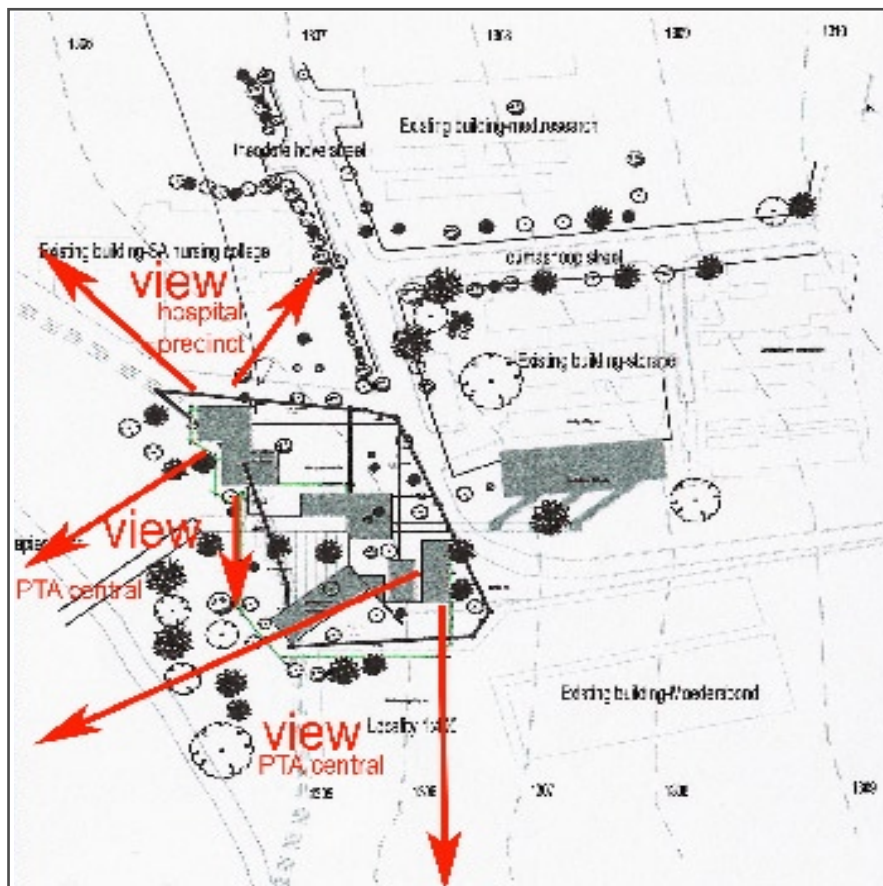


Fig. 94 Views from the Psychosocial Adjustment Centre



Fig. 95 Moedersbond scale



Fig. 96 Trial housing scale

10.2.4 Climatic context:

The climat of Pretoria is generally not one of extremes but the basic principles of northern orientation, thermal mass, cross ventilation and shading as well as stack ventilation still applies. These principles might have been enough in a building,designed for non-disabled people, but in a centre designed for disabled people who struggle with controlling body temperature, it becomes essential to incorporate HVAC systems into the building.

Northern orientation:

The northern elevations of the were tilted backwards in order to create a larger surface area for absorbing as much heat and light as possible. This action was necessary due to the fact that the site has quite a number of trees on it which might, along with the Nursing College in the north,hamper light and heat absorption on certain days. The extensive use of louvres also flowed from the need to control light and heat absoption. Shading structures have also been placed over the northern entrances of the centre in order to provide an adaptation zone in which people can adjust from stark light outside to dim light inside the building.

Thermal mass:

The floors of the northern oriented rooms serves as thermal mass since they are all constructed of concrete. The placement of the concrete floors behind and under the louvre structures provides a further means to control heatflow into the floors. Controlling the heatflow indirectly controls the heat release during the night.

Cross ventilation and shading:

The use of cross-ventialtion as a means to cool down certain segments of the building, limited the width of these segments to a maximum of 6m. The use of cross-ventilation provided centre users another means by which they could take control of their own environment. Door and window openings have been placed in positions that will aid in creating proper cross-ventilation.

Cross-ventilation serves a dual purpose which is to vent out stale and warm air from a room and to vent in cool air from cooler areas. These cooler areas can be found on the outside of the windows and doors that facilitate the cross-ventilation. The areas have been created by providing ample shade for the window or door to provide cross-ventilation.

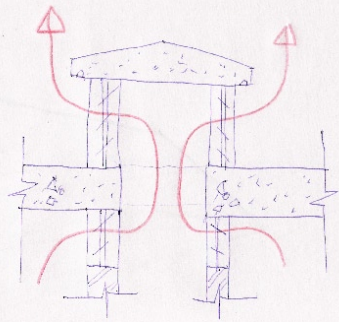


Fig. 97 Heatstack working

Stack ventilation:

The use of thermal mass and cross ventilation will be complemented by the use of stack ventilation to remove excess heat from those areas that are considered to be too warm for comfort. The most important aspect, as with every other passive system at work in the building, is that total control rests with the user of the centre. The situation is no different for stack ventilation since the user can decide when to open the stack ventilation hatch and when to shut it.

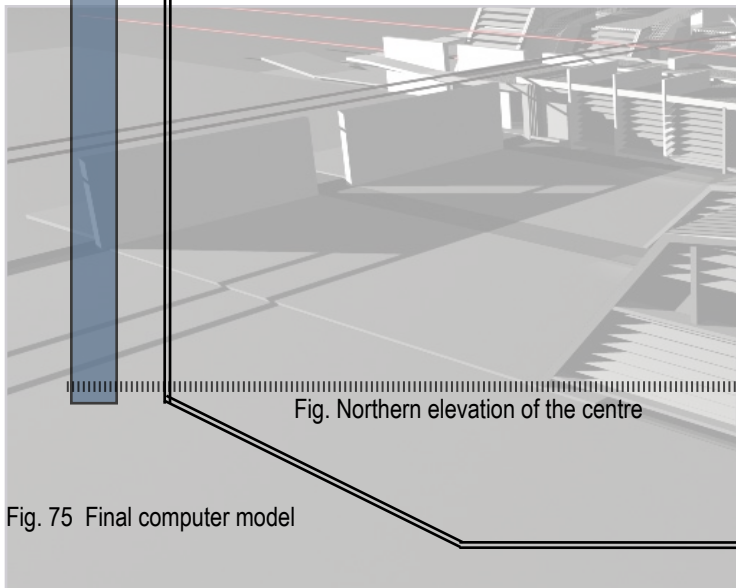


Fig. Northern elevation of the centre

Fig. 75 Final computer model



Fig. 98 Trees on site



Fig.99 Trees on site

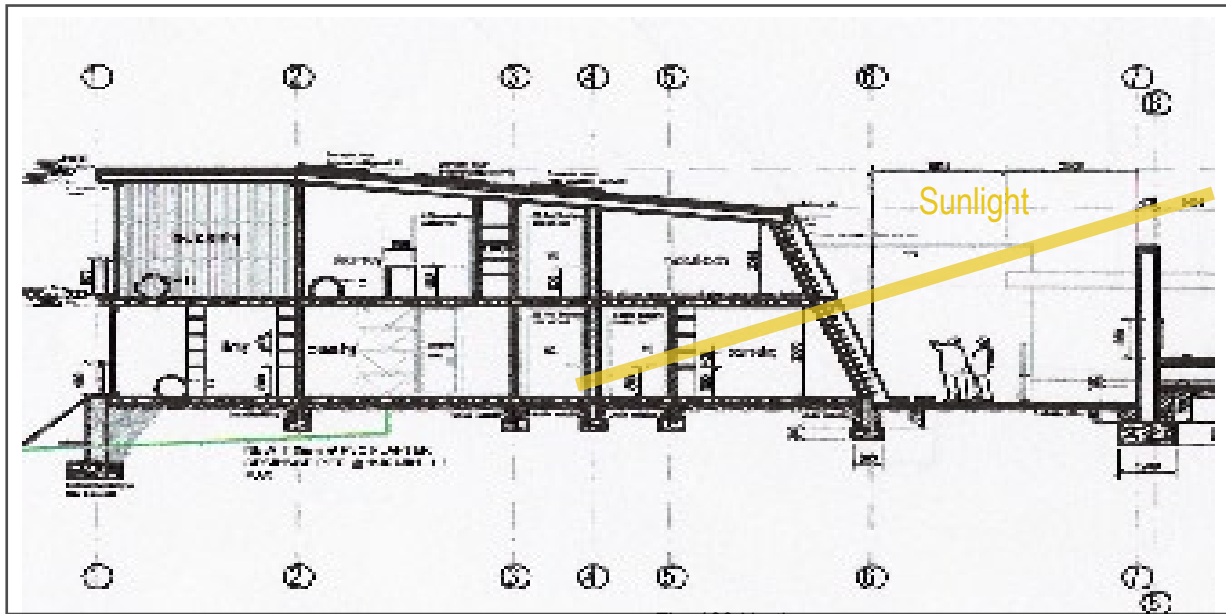


Fig. 100 Northern exposure

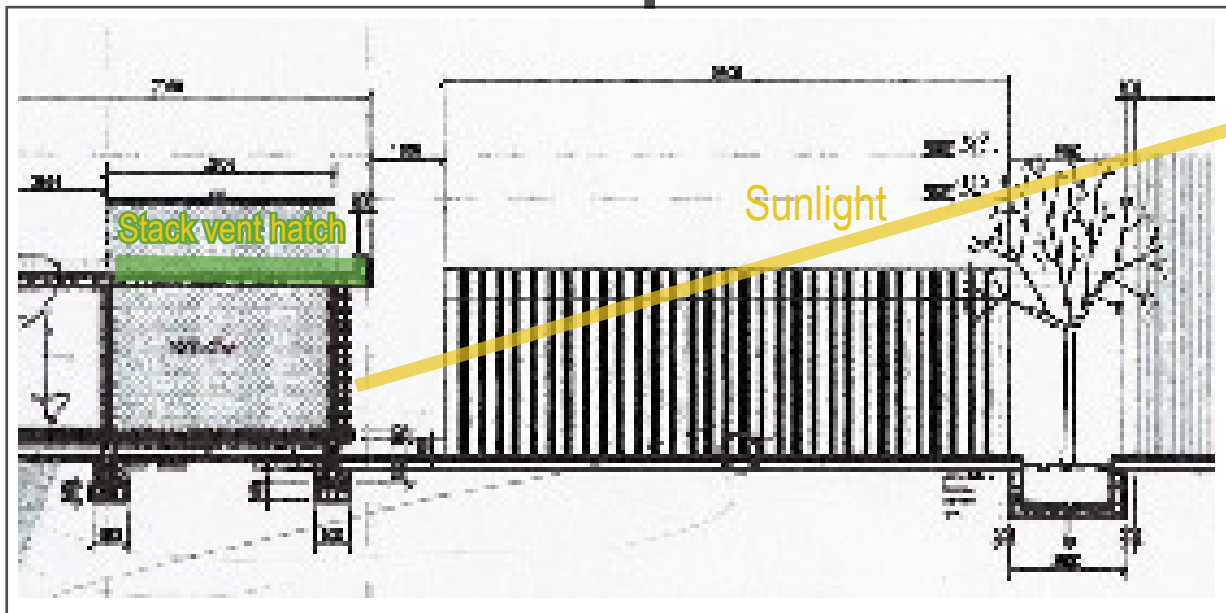


Fig. 101 Northern exposure



Fig. 102 Trees on site



Fig. 103 Trees on site



Fig. 104 Trees on site



Fig. 105 TUKS occupational therapy dept. north of site



Fig. 106 TUT ladies residence to south-west of site



Fig. 107 SA Womens Organisation to south-east



Fig. 108 Tissue Bank and Bone Biology to east of site

10.2.5. Inter-site connected-ness:

The centre is connected with the surrounding sites by means of tangible connection, interactive connection and function flow.

Tangible connection:

The centre's tangible connection with the surrounding contexts are by means of the steam pipes that run along the most of the boundaries of the hospital precinct. These pipes form a visual and physical connection between all the various segments of the hospital precinct.

The steam pipes are suspended from support structures which adds to the prominence of the pipe structures. The prominence of the pipe structures was used to the centre's advantage. The pipe structures were lengthened to follow the main movement routes created by the centre layout. The lengthened segments have the new dual function of supporting shade structures over and housing lighting for the movement paths of the centre.

The main movement axis through the centre (east-west) links up to a derelict pathway that goes past the prospective trial housing unit, past the parking area and up to the Union Buildings Precinct. The same axis also goes over the Apies River to the Tswane University of Technology Campus and beyond to the Zoo precinct. The east-west axis thus form a movement and visual link between the centre and two very important precincts.

The north-south axis links the centre with the Nursing College and the hospital precinct beyond. The importance of the connection with the hospital precinct lies in services needed from the facilities provided in the hospital precinct. The Psychosocial Adjustment Centre primarily provides for the adaptive needs of the disabled person, thus regarding the physical treatment to be done at the hospital and surrounding facilities. It can be gathered out of this that the location of the centre as well as the connected-ness form integral parts of the design.

Fig. 109 derelict pathway to union bldgs.

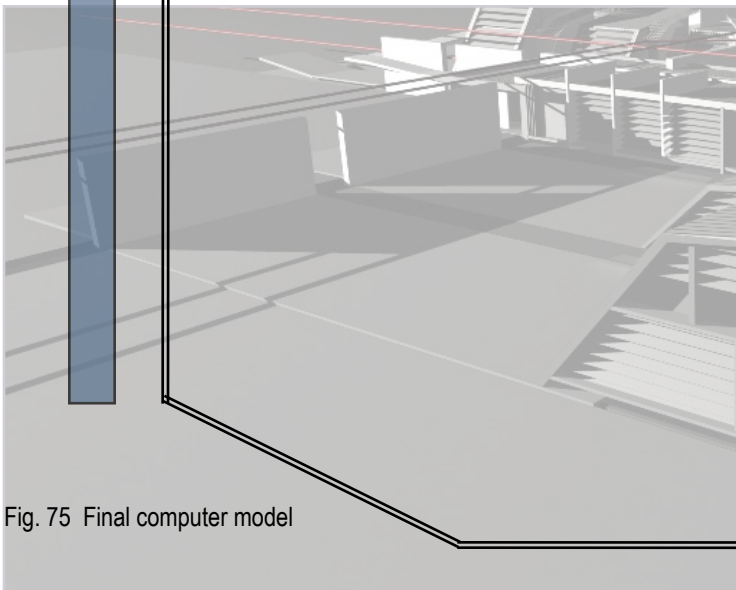
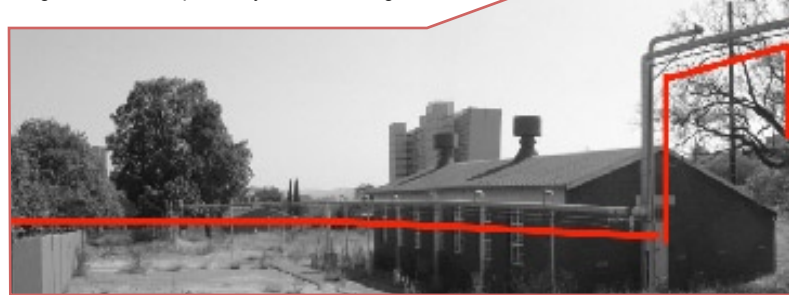


Fig. 75 Final computer model

Interactive connection:

The interactive connection between the Psychosocial Adjustment Centre and the surrounding contexts is by means of the movement of people from the surrounding precincts to the centre and visa versa. These people provide a service to the centre users and then go back to their particular precinct, be it hospital or educational etc. The services rendered unto the centre users is in aid of their adjustment to their new physical and psychological state.

The centre users will also move out of the centre towards the surrounding precincts, depending on their state of mobility. This movement might be to receive treatment or to provide a service to the facilities housed in the vicinity of the centre.

Function flow:

What is meant by function flow is that the services provided by the centre is housed in buildings or open spaces in the nearby precincts. This fact will passively force the centre users to move through the centre as well as the nearby precincts like the hospital precinct and the educational precinct.

These outside functions are the trial housing which is housed in a building across Theodore Hove Street, the main basketball and tennis courts which is housed at the Nursing College and the Tertiary education facilities which is housed at the Tshwane University of Technology campus.

10.2.6. Conclusion:

The physical context played a commanding role in the design of the Psychosocial Adjustment Centre due to the fact that the physical environment of the disabled person often present him/her with a very wide range of obstacles. The physical environment and the rules governing it should therefore be the number one consideration in predicting potential problems as well as solutions to them.

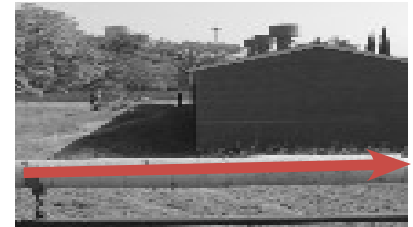


Fig. 110 Connection to prospective trial housing block



Fig. 111 Connection over Theodore Hove Street



Fig.112 north-south connection with hospital precinct



Fig. 113 north-south connection with hospital precinct



10.3. Handi-capable factors:

The psychosocial adjustment of a newly disabled person goes hand-in-hand with physical well being.

There are a number of activities a disabled person can do in order to better understand his/her physical state. The activities housed in the Psychosocial Adjustment Centre are:

*the workshops where a wide variety of objects will be built and maintained. A disabled person making use of the workshop

facilities will be taught the necessary skills needed to take control over the environment in which the particular user lives. There are after all a great number of changes that must be made to an existing residence in order to accommodate a newly disabled person.

*The scaled down sports facilities will provide the users of the centre a bridge by which they can become use to their new physical state. It would then be possible to move on to full scale facilities once they gap between old and new physical state have been bridged.

*The recreational facilities will provide for further skills development. Skills development is very essential since most newly disabled people find it difficult to continue the activities they were used to, like painting for instance. The recreational facilities will also provide the much needed social interaction between the users of the centre.

*Public areas play a demanding role in providing they other side of the social needs of a disabled person, which is interaction with able bodied people.

*The trial housing facilities will play a further adaptive role by providing a home environment that can be used for a limited time in order to better understand what is needed in one's own home.

A person will feel in control of his environment if he/she can take control over the manner in which it is used. A good example of this is the provision of pressure meters by which a wheelchairbound person can measure hi/her seat pressure. This activity will aid in combatting pressure sores. A nother example of control mechanisms are the provisions like window levers that enables a user to control his environment within the building.

The remaining facilities like the counseling and physical therapy facilities for instance, will provide a base for disabled people on which they can build the other aspects of their lives. These facilities will also be valuable in providing support during the adaption process.

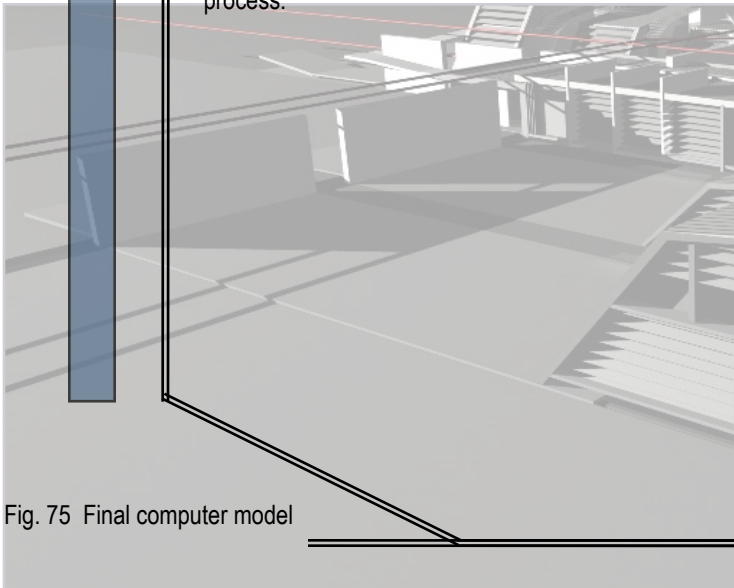


Fig. 75 Final computer model

Fig. 114 Social acceptance
Werner, D., 1998:1



Fig. P1

Conclusion:

The keyword in the Psychosocial adjustment of a disabled person is undoubtedly CONTROL. A newly disabled person feels as though he/ she doesn't have any control over his/her own body or the physical and social environment in which they are. Adapting is a process that should have as final objective the self-satisfaction of the person involved.

The users of the centre must however also realise that their families and friends are very much part of the adaption process. It is therefore essential that the all the facilities provided in the centre be accessible to families and friends as well.

Fig. 115 Building chairs
Werner, D., 1998:195



Fig. 116 Adapting a chair
Werner, D., 1998:205



Fig. 117 Social interaction
Werner, D., 1998:283

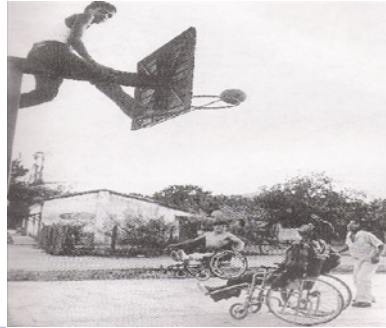


Fig. 118 Accepting yourself
Werner, D., 1998:306

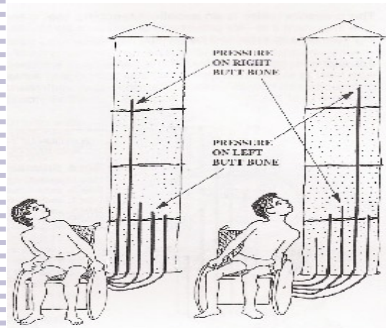


Fig. 119 Measuring pressure
Werner, D., 1998:161

Fig. 120 Accepting yourself
Werner, D., 1998:26



Fig. 121 Painting
Werner, D., 1998:314

Fig. 122 Accepting yourself
Werner, D., 1998:236



Fig. 123 Karate
Werner, D., 1998:262

Precedent studies:

The study of precedents that has bearing on a psychosocial adjustment center will be divided into two parts. These two parts are the physical precedents like appropriate buildings and the non-physical precedents like various other measures taken in the quest for an egalitarian society as well as psychological precedents that will aid in determining responses to different environments.

The main approach taken in precedent investigation was to look at precedents that do not necessarily have any bearing upon direct inclusive design. Designing a basic inclusive building is rather pragmatic in nature and can be resolved to a certain extent by just having similar buildings as precedent. The quest for designing an inclusive building with a difference can only be completed by looking at precedents that can add to the design and essence of the building rather than only to its pragmatic resolution.

11.1 Physical precedents:

- Buildings that can serve as a precedent as to a new way of designing inclusive buildings
- Psychological requirements
- Precedents concerning the Third vernacular
- Buildings and places that adds to the design quality of the center as a whole.

11.2 Non-physical precedents:

11.2.1 Difficulties during everyday life

One way to determine what the specific difficulties are that a disabled person experience is to place yourself in the shoes of such a person. The wheelchair experiment was done for this reason. Another way of determining difficulties would be to consult people in the know like therapists and disabled people for instance.

The results gathered from such experiments could guide a designer to the design of an inclusive environment that takes personal experience into account. It is often this personal experiences that are lacking in guidelines for inclusive and universal design.

A centre such as this one needs a client that can aid in the design process. The people consulted during the experiments could therefor be seen as the clients for whom the centre is designed.

11.2.2 Psychological

Seeing that psychology plays such an important role in a psychosocial adjustment center, it would be essential to look at precedents done with the purpose of evoking certain psychological responses. These precedents will also have a lot to do with proportion and the perception thereof since proportion differs from able to disabled people.

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deducted from the end product. Precedents aids in this regard by providing an example as to space treatment.

The works done by le Corbusier and Fibonacci as well as works done and essays written on the responses of disabled people to proportion will be looked at. One way of striving towards an egalitarian society is to create proportions in a building that puts able and disabled people on the same physical level.

Fig. 125 Work context -being able to perform everyday tasks
Werner, D., 1998:274



Fig. 126 Outdoor context-being able to perform extraordinary tasks
Werner, D., 1998:145

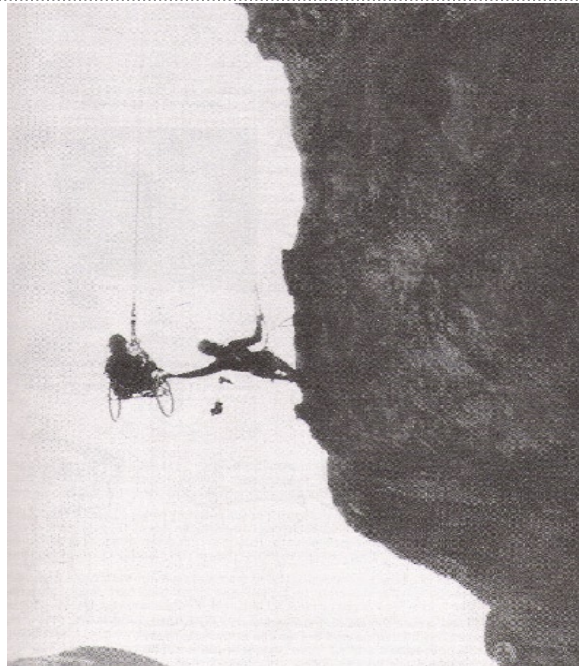


Fig..127 Home context-basic difficulties removed
Werner, D., 1998:151



Fig.128 Toronto Community Centre section
Diamond, Schmitt (1996:67)
Building designed by
A.J.Diamond,D.Schmitt
and company 1968-1995

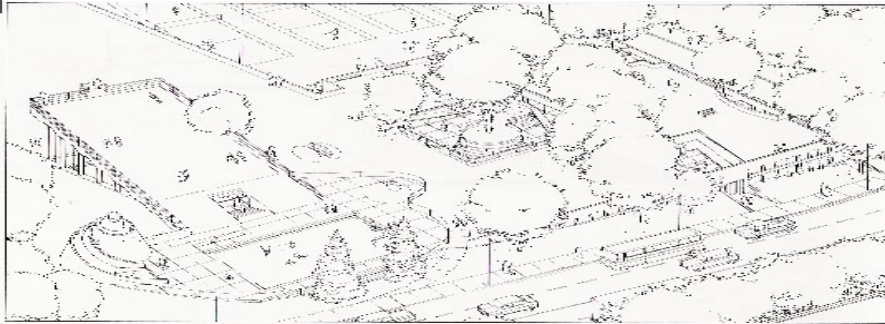
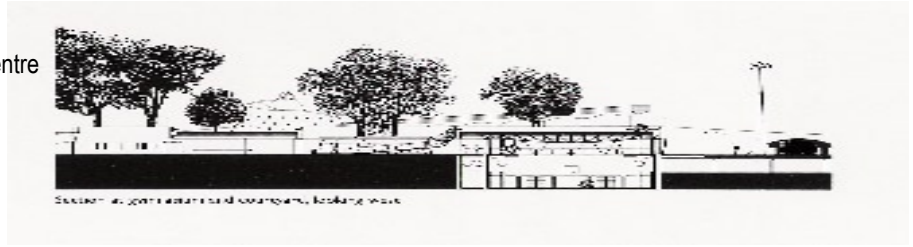


Fig.129 Toronto Community Centre aerial view
Diamond, Schmitt (1996:64)
Building designed by
A.J.Diamond,D.Schmitt
and company 1968-1995

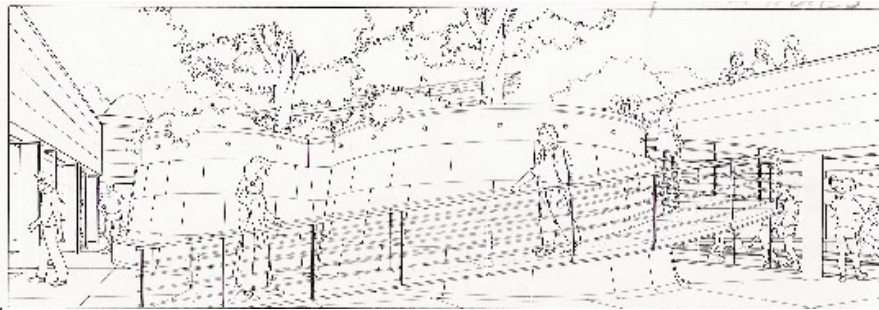


Fig.130 Toronto Community Centre ramp
Diamond, Schmitt (1996:64)



Fig.131 Newcastle Town Hall entry
Diamond, Schmitt (1996:61)



Fig. 132 Newcastle Town Hall facade
Diamond, Schmitt (1996:61)Building
designed by
A.J.Diamond,D.Schmitt
and company 1968-1995

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deduced from the end product.Precedents aids in this regard by providing an example as to space treatment.

11.3 The A.J Diamond, Donald Schmitt and Company competition entry for the North Toronto Community Centre (Toronto, Ontario, 1987) :

Loss of parkland:

The site chosen for the psychosocial adjustment centre is one rich in trees and natural features. The loss of natural features within any city (like Pretoria) is inexcusable. This fact might then necessitate an approach that has as its aim the preservation of as many natural features as possible.

The A.J Diamond, Donald Schmitt and Company competition entry for the North Toronto Community Centre took a mainly sub-terrainian approach with the central aim of retaining all the natural features provided by the site. The building thus became a park-like development. The Psychosocial Adjustment Centre (hereafter called PAC) will also benefit from retaining the natural character of the site. The positive effect a natural environment has upon both social interaction and psychological well-being must be realised and utilised. The east-west sloping nature of the site of the community centre helped to limit the underground feeling created by the building by exposing the eastern façade to sunlight as well as unhindered access. The PAC is also situated on an east to west sloping site and will embrace it in much the same way, thus benefiting from the site in the same way.

The further advantage provided by this approach to the PAC is the possibility of enhancing security since more of the building can be seen at any one time, improved disability access due to the prominent use of ramps and lastly the possibility of better climate control due to the sub-terrainian nature of the building.

11.4 The Newcastle Town Hall, Bowmanville, Ontario, 1986:

Consolidating facilities (context response):

The Newcastle Town Hall consolidates government facilities in a building that is made up of the original town hall and a new structure. The retention of the old building provided an opportunity to achieve historic continuity.

The project is organised around a main organising element, which is a curved wall, which serves as a signpost for the whole project as well as a backdrop to the historic building. The wall can also be seen as a multi-linking element for it also links up (by means of extension) with an adjacent square, which is integrated with the civic centre. The PAC has at its centre the main access and Admin block which will serve to orient visitors and users. The admin block links up with adjacent sites and buildings by means of the dividing walls originating from it.

The new building (an office building) also links up with the existing building by echoing the cornices, window proportions and materials of it. The proper use of, and the play with proportions is very important in designing for disabled people for it not only links buildings and elements but also the user to the building. The presence of Third Vernacular buildings in the vicinity of the PAC provides opportunity for the echoing of some of the principles used in the design of these buildings, thus responding to context.

11 Precedents



Fig. 133 Jerusalem city hall Diamond, Schmitt (1996:73)



Fig.134 Jerusalem City Hall portico Diamond, Schmitt (1996:78)



Fig. 135 Jerusalem City Hall visual link Diamond, Schmitt (1996:78)



Fig. 136 Jerusalem City Hall social Diamond, Schmitt (1996:68)

Jerusalem City Hall building designed by A.J.Diamond,D.Schmitt and company 1968-1995

Newcastle Town Hall designed by A.J.Diamond,D.Schmitt and company 1968-1995

York University student centre designed by A.J.Diamond,D.Schmitt and company 1968-1995



Fig. 137 York Univ. section Diamond, Schmitt (1996:82)



Fig. 138 Newcastle Town Hall Diamond, Schmitt (1996:58)

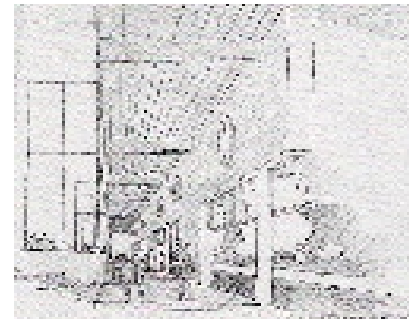


Fig. 139 York Univ. linking colonnades Diamond, Schmitt (1996:82)



Fig. 140 York University-natural lighting Diamond, Schmitt (1996:82)

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deduced from the end product.Precedents aids in this regard by providing an example as to space treatment.



11.5 The Jerusalem City Hall, Jerusalem, Israel, 1988:

Links:

The site for the Jerusalem City Hall straddles a ridge that divides the city into east and west. To the west is the Jaffa road and Jewish Jerusalem and to the east is the Damascus gate as well as Arab Jerusalem. The building thus has to serve a linking or bridging function in terms of regional relations. This is very relevant to the site for the psychosocial adjustment centre, which will play a linking role within the local district, created for it.

The three main challenges addressed by the Jerusalem City Hall was the use of the diverse and oddly positioned buildings to the best urban design advantage, the creation of an accessible yet contained urban square and lastly the designing of a building that would be prominent within the Jerusalem fabric without disrupting it. The PAC will also function as an urban square but to a smaller scale. This square will enable social interaction between centre users and the public. The PAC is a prominent building that takes the overall scale of the precinct into account and by this it does not disrupt the fabric of the precinct. The role of the PAC within the urban setting had been analysed in order to determine the proper response to the urban needs applicable to the site and the precinct.

The north-south axis, which is anchored at the old Jerusalem City Wall, threads through a series of renovated buildings, a small square, a garden and the main lobby of the city hall building. These, and other paths and connections provide coherence to the various pathways and spaces that dot the regions around the City Hall complex. The PAC needs to be properly connected with the city in order to facilitate the social interaction needed by the users of the centre. Due to the importance of the ramp and the path in the movement of a disabled person, it would be very appropriate to make use of pathways to connect the centre to the city.

The Jerusalem City Hall complex further play a significant role in relating to the pedestrian by providing details at eye level. This was achieved by using banded stonework on the lower levels of the building, where it would be most obvious. The emphasis of the pedestrian realm is very important to any building, the difference in the psychosocial adjustment centre will however lie in the extension of this realm to that of the wheelchair user. The user of the PAC will find connectign with the centre on a physical and psychological level much easier if there are detail provided with which he/she can relate. These details can take the form of textures ,drawings by disabled people, vistas etc.

11.6 The York University Student Centre, North York, Ontario, 1988:

interior perception:

The student centre plays an important role in the implementation of the campus master plan for it helps create a close relation between buildings, provides for climate-controlled linkages and also helps to define the entry green. The role of the centre within the larger context is very important. This needs to be remembered with the psychosocial adjustment centre as well for it falls within several urban design frameworks.

There are three elliptical light wells that penetrates the upper levels of the building in order to provide light to the rooms clustered deep within the building, provide visual access to the clubs housed in the building, thus increasing membership and safety. Areas that promote interaction and visibility can be very therapeutic to patients with spinal cord injuries for they become aware of each other as well as the new surroundings and people and visa versa. The use of passive design principles in conjunction with other, more basic, design principles in the design of the PAC will also create a degree of freedom which centre users can use to manipulate their own environment.

A variation of ceiling height according to the rooms can be found in the student centre. This aids in placing functions in the proper surroundings as well as to focus attention on what is needed in a room. The use of appropriate proportions is vital in the treatment of physically disabled patients for they have a different view of proportions. It should be noted here is that the use of appropriate proportions applies to the exterior as well as the interior.

11.7 The Solomon R. Guggenheim Museum, New York by Frank Lloyd Wright and the Pompidou Centre for Arts and Culture by Renzo Piano and Richard Rogers:

The manner in which the ramps of the museum has been designed is very relevant as a precedent since it has been done in an un-orthodox manner what ramps is concerned.

The ramp governs the largest part of the building, which is in fact the actual museum area.

The ramp is treated as a special design generator that influences the rest of the building.

Ramps should not be regarded as a burden or restriction to the designer, as it often is. Using the ramps (which is the main access providers of the centre) as primary generator provides a way to incorporate them into the early stages of design. This will in turn eliminate the hassles to be had with late insertion, at which stage there is little time left for lengthy considerations.

The inside-out approach taken in the design of the Pompidou centre is of particular relevance to the psychosocial adjustment centre. The prominence of access is a consequence of this type of approach. The prominence of access aids the user in understanding the way in which the building functions.

The Psychosocial Adjustment Centre will have the same approach to access and function definition. The nature and form of the modes of access will give an idea as to the internal working of spaces. A building with well-defined access also reads very well to new users, of which there will be quite a number throughout the lifespan of the centre.

11.8 The proportional system (Modular) used by le Corbusier:

Notre-Dame-du-Haut, Ronchamp, France is only one example where le Corbusier used this famed system of his. The system is based upon 2.2m which is the height attainable by an average height man standing with his arms raised.

The Psychosocial Adjustment Centre will also make use of a proportional system, seeing as it provides a way in which the user or occupant can relate to the spaces around him. The system used in the centre will however differ from the one used by le Corbusier since it will be based upon a man seated in a wheelchair. This proportional system will influence ceiling heights, door lever position, table heights, passage widths etc.

11.9 Symbolistic art:

The symbolist artists order, connection as well as the form of their verbal still lifes to the scrutiny of the observer. They also experimented with the multi-sensory experiencing of paintings by considering smell, sound and even taste. The baseline was to experience an entity by means of that sense not usually associated with it. This manner of experiencing something is known to psychology as Synesthesia.

The use of various senses to experience and understand the PAC will be very important seeing as users with differing physical disabilities will use the centre. Each user and type of user will have a different grasp of the building, depending on the senses he/she will rely on to orient him/herself. The visual resources like vistas will for instance have great meaning for those able to see. The sensation of touch will on the other hand be a much more relevant sense to blind people. Touch will aid them in knowing how they are moving and when they are changing zones for example. Centre users must also learn to make use of alternate sense for guidance especially if they are suffering of sight impairments. An adequate range of sensory resources will aid this adjustment to the use of alternate senses.

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deduced from the end product. Precedents aids in this regard by providing an example as to space treatment.

Fig. 141 Guggenheim Museum New York-York movement central. Fleming, W (2001:655) Building by Frank Lloyd Wright



Fig. 142 Guggenheim Museum New York-movement central. Fleming, W (2001:656) Building by Frank Lloyd Wright

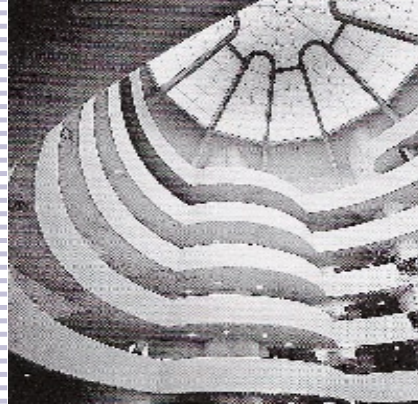


Fig. 143 Notre-Dame-du-Haut, Ronchamp, France. Modular used. Fleming, W (2001:656) Building by le Corbusier

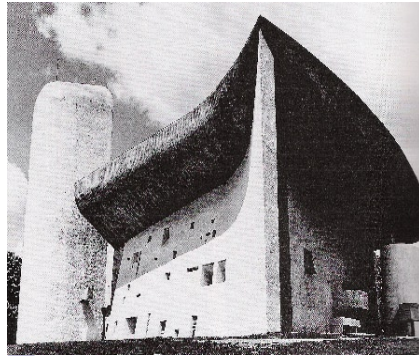


Fig. 144 Pompidou National Centre for Arts and Culture-movement clear. Fleming, W (2001:660) Building by Renzo Piano and Richard Rogers

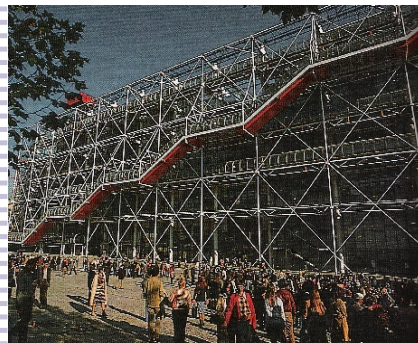


Fig. 145 Mont Ste.-Victoire-sensory experience. Fleming, W (2001:574) Painting by Paul Cezanne



Fig. 146 Pompidou National Centre for Arts and Culture-movement clear. Fleming, W (2001:661) Building by Renzo Piano and Richard Rogers



11.10 Personal interviews:

11.10.1 Elsabé Brand and Elsabé du Plessis :

(Physiotherapist and Occupational therapist respectively at Elizabeth Conradie School for the physically disabled, Kimberley)

- Which disabilities, from the perspective of a therapist, are not being catered for in design?

Designers often neglect the fact that there are a wide variety of disabilities. People in wheelchairs may be blind or deaf or both. Buildings need to cater for the needs of as wide a variety of disabilities as possible.

- How do children with injuries cope with having a disability? (Newly disabled people) How do children cope with therapy?

The reaction depends on personality. Some of them resist the fact that they are now disabled while others might be depressed, depending on their and their family's history of depression.

One way in which to approach the problem is to let the person understand the total scope of his/her disability, he/she need to face the reality of people staring and He/she will struggle to get by. One should also avoid pampering the person.

Adjusting things in the person's environment in such a way that he/she cannot recognize any differences makes the process of adjustment much easier. It is also essential that the person receive personal attention.

- Does the school satisfy the specifications and regulations in terms of design for disabled people?

The school is the best of its kind in South Africa and it has excellent facilities that cater for all the needs of what can be termed "basic physically disabled people", In other words, people with body disability only.

The major problem with the school is that it does not satisfy the needs of physically disabled people with hearing and sight impairments. The school has a widely spaced layout, a fact that makes commuting difficult.

- Do the children like to go to town and go to the movies etc.?

Yes. They might be disabled, but they still like to socialize.

- How should you say could one protect and strengthen the rights of disabled people in South Africa?

One way would be to train people to be indirect contact with the government departments in order to make them aware of the rights and needs of disabled people.

- What is your position on a psychosocial adjustment centre?

The idea is always good but you need to remember that it would always be more beneficial to link such a centre with physical therapy since people differ in the stages they need therapy in. Some might need it during physical therapy already. You would also have to instate a follow-up programme that people can attend in order to monitor their physical and psychological state, the principle of Alcoholics Anonymous springs to mind.

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deduced from the end product. Precedents aids in this regard by providing an example as to space treatment.

It would be important to work with everything he/she has left in his/her life and develop it further. The family would also need counselling, as physical disability will have an effect on them as well. Exposure to the outside world could be very important to the social adjustment process, therefore it would be important to provide access to the outside world.

- Which aspects of specifications are often not adhered to?

Bathroom doors are often too narrow and they often lack in enabling return access. Showers are better and applicable to more people than baths. If a bath is used, it should be built up to a level that co-ordinate with the level of a wheelchair. Light switches and wall sockets should be at the right height. Cinemas often represent a problem since the available seats or positions for disabled people are situated in places that make viewing awkward, even for people without disabilities.

Conclusion:

Designing for disabled people requires a deeper understanding of disability as well as attention to detail. One cannot change the context of the disabled with a singular project. Change is a process but it will only start if someone decides to set some sort of change system in motion.

The fact that a person is disabled does not make him/her useless; it merely represents a change in the makeup of the person's context. Design should be responsive to this new context and aim to enhance and develop it as far as possible. Design should always take physical as well as psychological context into account.

11.10.2 Dorothy Ann Howitson :

(Vice Chairperson for The National Council for Persons with Physical Disabilities in SA and a quadriplegic herself)

The crux of what she said:

The home is the comfort zone of the disabled person and a place where he/ she should feel safe and supported. This is where change and adjustment to the building should start. One should also remember that the person has only changed physically, his/her soul and personality has not changed at all. Working with what the person has left will offer him/her the opportunity to feel needed and worth something.

The paradigms in South Africa need to change. The departments of Trade and Industry, Education, Technology and Science as well as land affairs need to recognize the rights and needs of the disabled as well as implement strategies to accommodate them. We still distinguish between black, white, brown and yellow in this country, why is it such a problem to add disabled to the equation?

Society needs to be made aware of the fact that inclusive environments are just as accessible for them as it is for disabled people and such environments will not be detrimental to them, as they would like to think.

Inclusive design does not only mean response to parameters and specifications, it also means the inclusion of disabled people into the activities of society.

11.11 First time wheelchair experience:

Shopping:

- Certain things are too high on the shelves
- Heavier objects on the floor like Coke bottles cannot be lifted
- The use of a trolley or basket is out of the question, which limits the amount of things that can be bought
- When paying for products, one cannot see the price on the till screen from a sitting position
- The payment isle is too narrow
- Shaded veranda cannot be accessed. One can only move in the sun, in the road behind dangerous cars
- People ignored me sometimes, only to gossip behind my back
- When I'm in the way of someone he/she did not even bother to say: Excuse me. They just stretched pass me
- Dog food cannot be bought by oneself
- I could not pass between two people standing next to each other in an isle
- Chest freezer lid too heavy

- The bottom most objects in chest freezer cannot be reached
- The meat at the back of the fridge cannot be reached, the fridge is too deep
- Pyramid type shelf arrangements is troublesome
- My hands got dirty from the filth on the floor
- Pay points with shelves in front of them is inaccessible
- Doors are difficult to enter especially double doors with the one side closed. These doors are too heavy as well
- Small thresholds with a little ramp on the one side and a loose rug on the other is problematic
- Ramp shortage has the effect that one has to move long distances in order to get unto higher levels
- Crossing a busy road takes much longer than for able people. When an object is dropped into such a road, picking it up makes the crossing even more dangerous

Spent the day in- and around the house:

- Cupboards too high and too low
- It is not possible to reach for anything from sitting in a wheelchair
- It is impossible to navigate loose riding surfaces (garden becomes inaccessible)
- Roof fans unreachable
- Light switches difficult to reach, especially when above something like a cupboard
- Conversation difficult since you have to look around a lot.
- Using an "average" toilet is impossible.
- It happens often that you fall forward
- Average doors and hallways are much too difficult to navigate (turn-rounds can only be done in doorways)
- Small skirting on the floor causes instability
- Carpets navigates and turns difficultly
- Working surfaces are too high
- TV's and coffee tables are too low
- Can't pick things up from the floor
- Can't pet animals
- Dishes can't be washed unless sink level changes
- Unevenness on pavement becomes difficult to navigate
- You tend to drift from a wheeling surface that is not completely horizontal
- People expect you to be able to do more than you actually can
- A small little pet becomes a good centre of attention in conversation
- Getting on and off a bed takes upper body strength which is not always possible for variant disabilities
- It is impossible to open windows unless you can position yourself right next to it.

Showered or bathed:

- Getting into and out of a regular bath requires a lot of upper body strength and you can hurt yourself when climbing in
- Climbing out of the bath is dangerous since the edge of the bath becomes very slippery

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deducted from the end product. Precedents aids in this regard by providing an example as to space treatment.

Visited friends at their homes:

The same barriers apply here as in one's own home when it comes to access and the use of spaces that are not properly adjusted to facilitate use by a disabled person. Your friends are often reluctant to make drastic changes in order to accommodate you and feel it unnecessary. The lack of knowledge on their side complicates the matter even further since they rarely know what to expect of you and how to handle the fact that your level of mobility had been altered.

This all plays a significant role in making a visit to your friend's home an unpleasant experience. It would in fact be better if the friend come to visit you instead, something which he/she might perceive as laziness on your side. It often happens that friendships are broken up due to misunderstandings.

Played sport (Basketball):

- It is impossible to catch passes if they are not very well directed
- It is very difficult to chase after a ball
- Scoring points is very different and even difficult since perspective of the goal has changed
- There is always a risk of falling out of the chair. This is dangerous and it hurts
- Handling the ball and the chair at the same time is an art
- It is very easy to misjudge distances
- The ball often travels too fast for a person in a chair
- You get very tired from wheelchair basketball
- Your neck and back needs support
- Doing pre-determined moves is impossible (if it's the same moves as the ones you were used to do)
- I only lasted ten minutes at this

Spent a day in town:

- Storm water grids must be two way and not one way grids
- Polished floors are difficult to navigate
- It is difficult to manoeuvre the wheelchair over the electric chord of the floor polishers and other machines used in shopping centres
- Sidewalks should not be laid at an angle for it pushes one off course when riding on it
- Riding through town and manoeuvring all the obstacles makes you very tired and sweaty
- The floor layouts of shops are not disability responsive at all
- Fridge doors, especially sliding doors are often too heavy to move
- Being friendly to other people certainly changed the reaction others had towards me
- People in busy and larger shops have a tendency to overlook you
- The people walking with you in town tend to walk away from you
- Able people have no problem walking up a 1:12 ramp but anything steeper than that, even little ones, requires a great deal of effort to manoeuvre onto

Visited a restaurant:

- The raised levels in restaurant cannot be reached unless a proper ramp is provided
- Tables are too low for the wheelchair to fit under
- Being in a wheelchair places one on a higher level than the other people around the table
- The smoking sections are often on a raised level as well which means that a disabled smoker cannot smoke in a restaurant unless a proper ramp is provided
- Going to the toilet is impossible (raised level and regular WC's)
- The fact that the tables are too low has the effect that one must sit and eat at an awkward angle in respect to the table
- The fact that only certain parts of the restaurant is accessible to disabled people means that services like the television cannot be accessed

Used a lift for disabled people:

- The lift requires a helper in order to set the thing in motion for there is a key that has to be fetched from another location
- Riding onto the lift platform is very unsafe since the little ramp that must be used is much too steep for riding (you tend to topple over on the ramp)
- The remote that has to be used to navigate the lift would be difficult, if not impossible, for a person with a hand defect to use
- The lift is very slow, for safety reasons, but this exposes the person on the lift to people watching for a longer time span
- You cannot put down the safety rails by yourself
- The lift has a tendency to break
- The waiting period for mechanics to arrive is about ten minutes
- The lift platform is too high of the ground
- The most significant fear for a disabled person is possibility of falling out of his/her wheelchair

- The lift is very under utilized but who could blame disabled people for not using something that proclaims their disability to the whole shopping centre
- The lift gives the impression that disabled people cannot help themselves

Made Coffee (basic exercise):

- The wheelchair needs to be perfectly oriented for every action since actions on the opposite side of the working hand, cannot be done
- Kettles are heavy
- Serving the Coffee is difficult since balancing a cup or a tray is dangerous seeing that hot Coffee can spill all over your lap
- Making Coffee requires a lot of manoeuvring, especially when the fridge and the kettle are far apart

About the experiment:

The basis on which the experiment worked was to do everything I am used to do. The only difference being that I was in a wheelchair. I documented my experiences with the help of a psychologist who aided me in analysing my feelings about my adjusted abilities. The bottom line was to find out what precisely had changed, how much it changed as well as the effect of the changes.

One should think in the broader context of design when looking at actions done in a wheelchair. The broader design context in this instance included the possibilities of variants to wheelchair bound disability, the social aspect of being disabled etc.

When a person is at home, in the environment that is supposed to be supportive to him and representative of security, it becomes problematic when that very same environment becomes the main stumbling block in the life of a person. This is what happens when people with spinal cord injuries and other new disabilities have to face their old environment that is not at all designed or built to accommodate their new physical condition.

The social impact of a general inability to function properly in one's own home is significant for it is near to impossible to be part of society and feel safe there if one's own home does not provide these things anymore. Your home needs to be an extension of you and not present any stumbling blocks. Newly disabled people need to know exactly which steps needs to be undergone in order to adjust their current homes to their specific needs and in some cases, they need to receive guidance in buying a new house.

*Influence on design

Fig.124 The manner in which spaces are treated during design can be deducted from the end product. Precedents aids in this regard by providing an example as to space treatment.

12 Technical Investigation:

12.1 Movement ,Access and Security :

The movement through the building is based upon the basic movement patterns over the site, created by daily pedestrian use. These patterns serve to generate the basic layout of the building. The building elements (counseling block, admin block, sports centre and conference centre) are placed along the paths that will be used by pedestrians and centre users alike.

The movement through the building is designed in a way that will enable disabled people to access the whole building in more than one way. The movement elements consists of SABS 0400 regulation ramps as well as gravitational lifts. The users of the centre will have total control over access and movement since they can learn to build and maintain the lifts themselves.

Natural security:

The placement of the building elements along the movement paths ensures passive surveillance all through the day as the different segments house different functions that are active during differing hours of the day.

A further means of security is provided by the gatehouse situated on the vehicular movement spines that run over the site. The gatehouse provides for excellent passive surveillance of these spines.

Artificial security:

One last safety measure is that of CCTV surveillance and security doors. These elements will be strategically placed in spaces that are most likely to provide a safety threat like more remote parts of the buil.

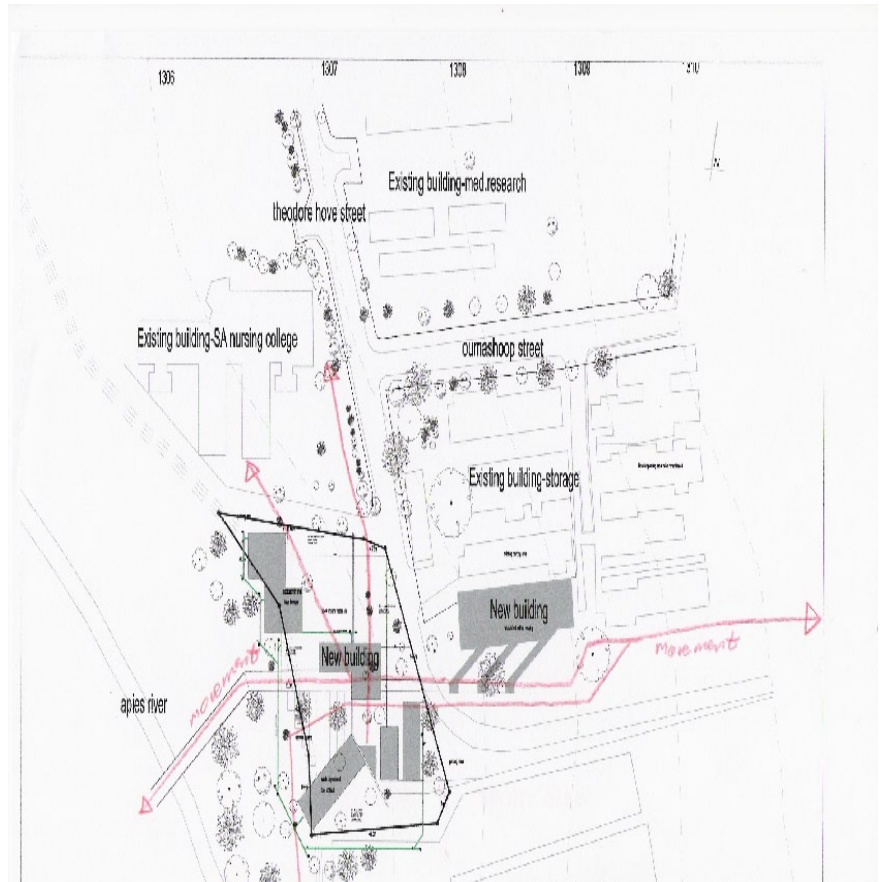
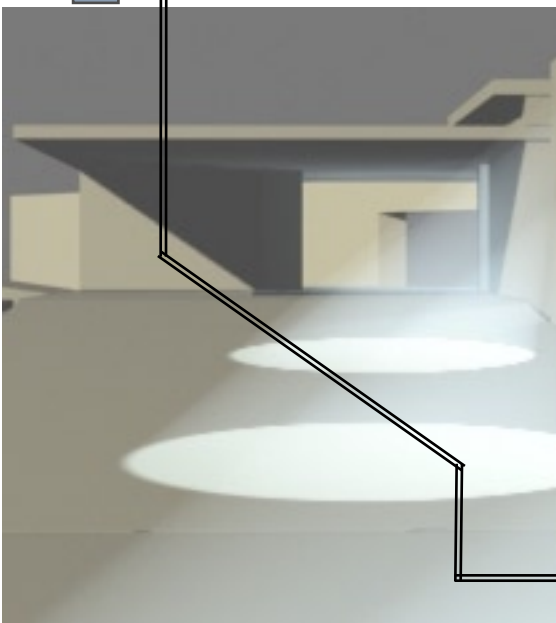


Fig. 147 Final concept model

Fig.148 Final concept model



12 Technical Investigation

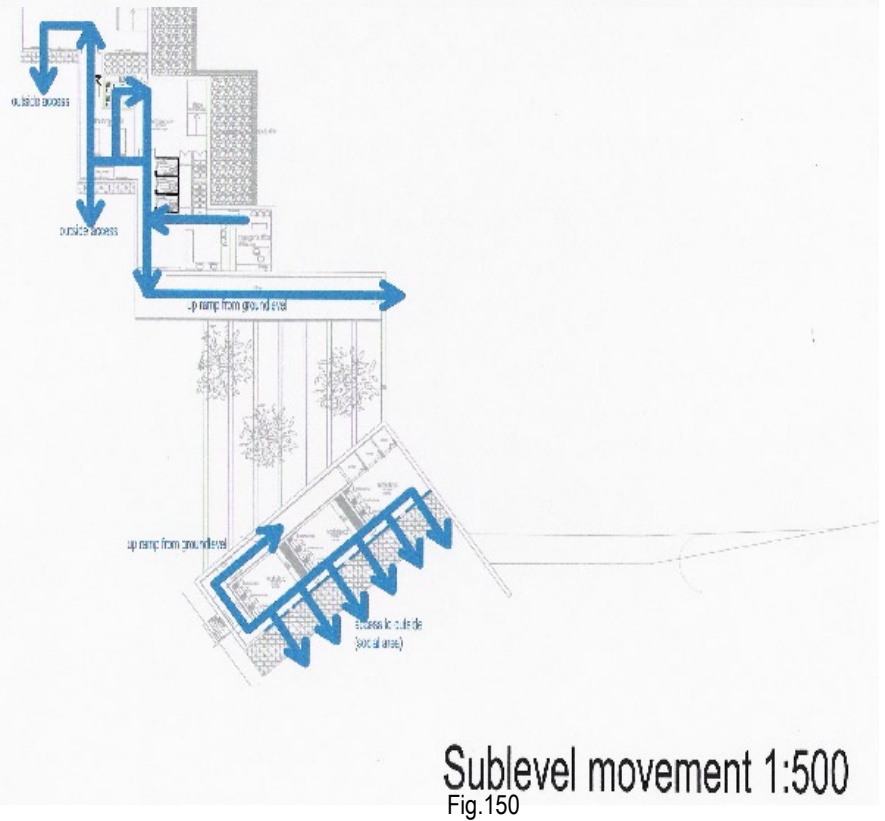
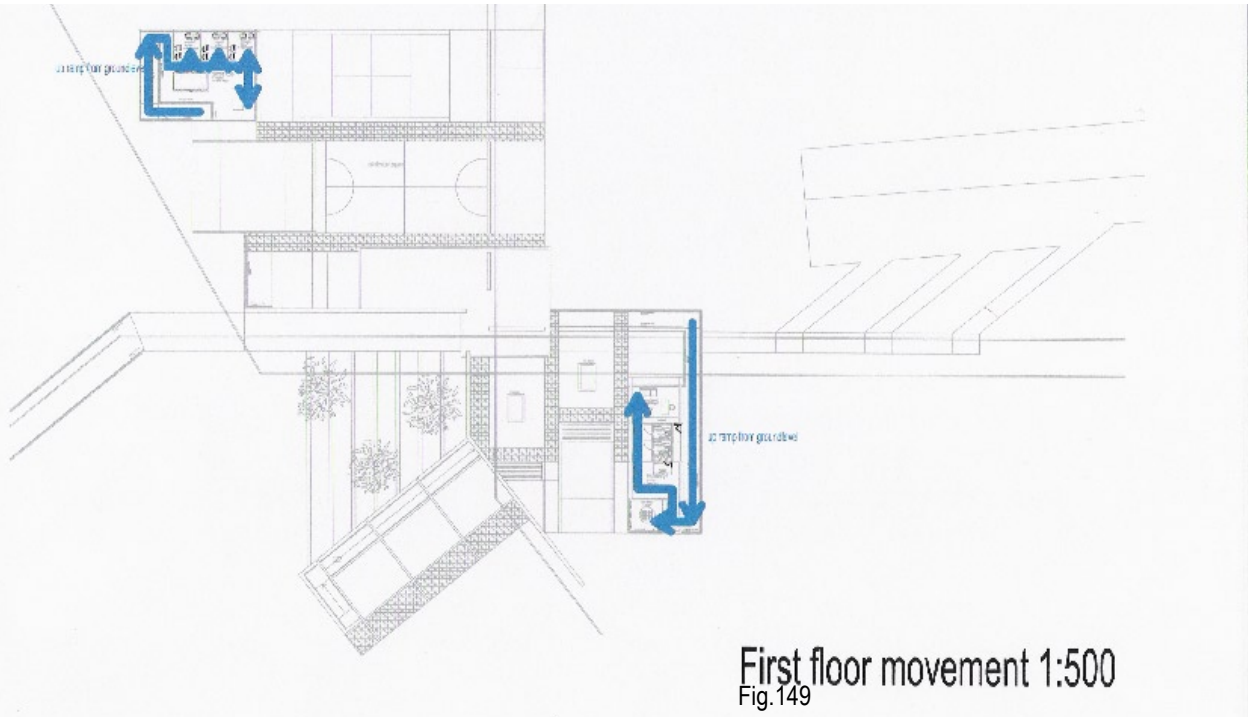


Fig. 151 Materials-gravel

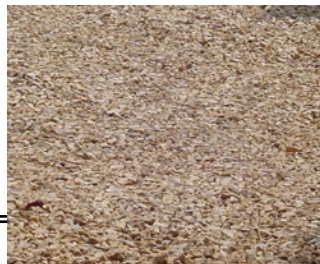
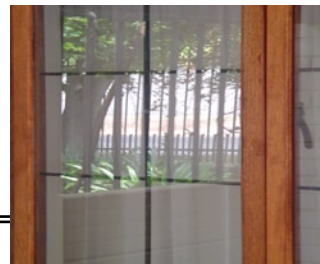
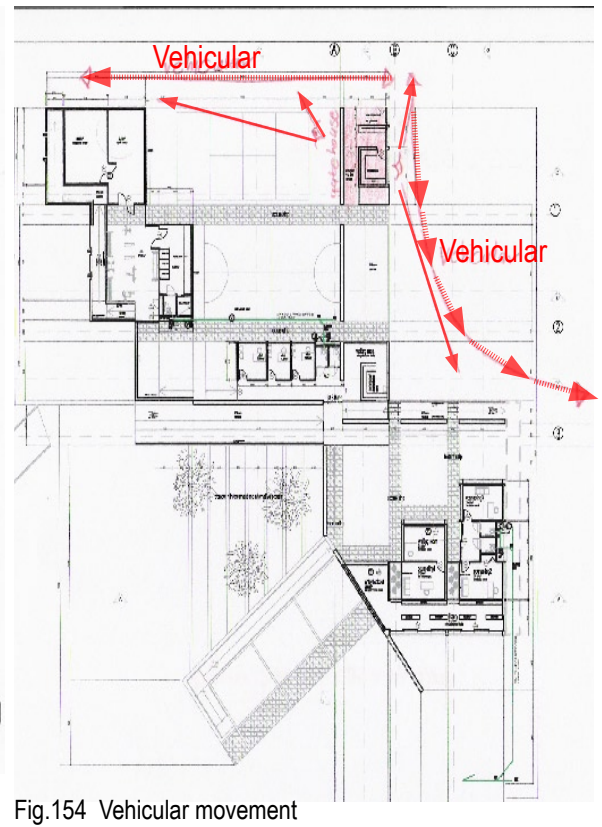
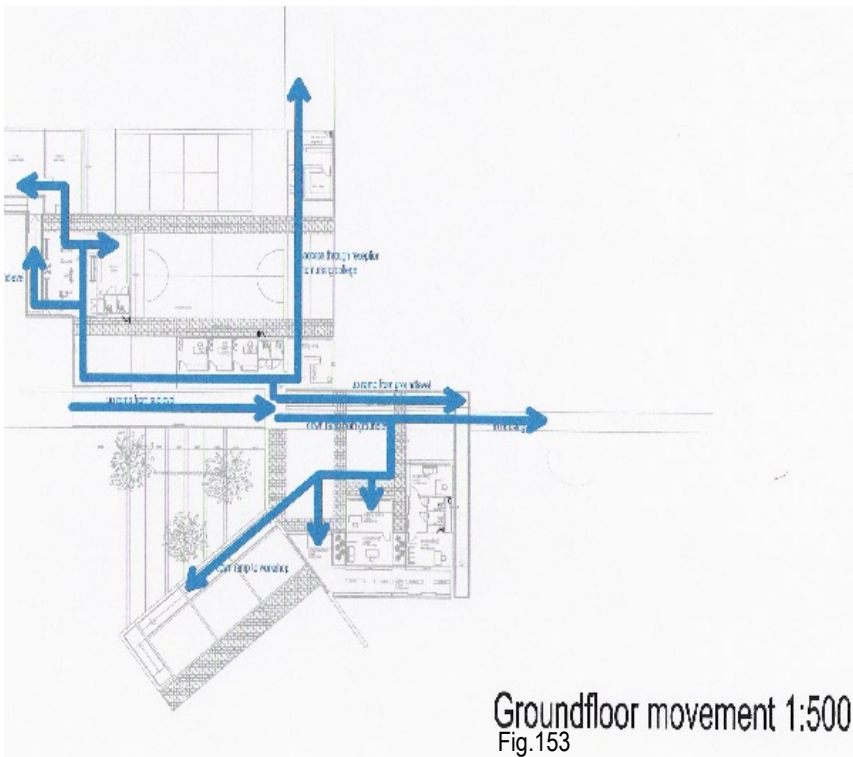


Fig. 152 Materials-glass



*Fig. 158 Influence on design
There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means



12.2 Materials used:

The materials used to construct this building are of a very basic nature. The materials (steel, concrete, brick, glass and galvanised steel sheeting) can also be found in the surrounding buildings, forming the physical context.

The most prominent building in the vicinity of the centre is the College of Nursing building erected and designed in 1965 by Joubert, Owens & van Niekerk. This particular building is a fine example of the Brazilian architectural influence in South Africa as well the Pretoria regionalism to a certain extent. A reaction to physical context should thus include a response to the materials used by the Pretoria regionalists.

Footings:

The nature of the substrate of the site differs from the higher levels to the low lying levels of the site. The low lying substrate is of an active nature which thus necessitates the use of raft foundations for the single storey building elements. The footings that support upper levels must be pile foundations due to the larger load having to be carried.

Due to the possibility of movement in the substrate, it became necessary to provide a movement section between the two segments of the physical therapy block. The passage between the gym and the physical therapies serves this purpose.

The segments of the building on the upper levels of the site will be built on ordinary strip foundations due to the more inactive nature of the substrate there.

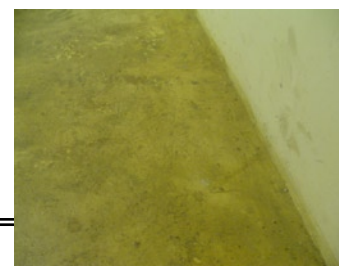
Fig.155 Materials-galvanised steel



Fig.156 Materials-brick



Fig.157 Materials-concrete



Roofs:

The shapes of the portal frame roofs are derived from the required movement over them (gravity lifts) as well as the need for maximum exposure to the sun (needed by solar water heaters)

The use of portal frame roofs provides a large amount of flexibility since it allows for fixtures to be fastened to it in future. The roofs of the segments of the building that houses all day activity like the physical therapy and the counseling block, must also be flexible in terms of housing airconditioning and service ducts without taking up too much headroom.

Floors:

The use of fibre cement infill floors in the physical therapy segment was due to the fact that large open floorspace is needed for the particular functions housed on the different floors (conference centre on sublevel and physio on ground-floor). The spans of the large open spaces to be spanned are kept to a maximum of 8m. The floor in the counseling segment differs from the above due to the presence of adequate floor support in the form of dividing walls.

The floor of the admin block is re-inforced with re-inforced concrete ribs due to the elevated nature of the floor.

The floors of the entire sublevel is re-inforced due to the active nature of the substrate.

Dividing walls and basement treatment:

The partial subterranean nature of the sublevel of the building, spelt out the need to treat the walls against the penetration of moisture. The most economical way to waterproof a one level basement would be by means of the tank method. The basic structure of the wall consists of the 400mm outer dividing wall with openings to let moisture through, a 50mm cavity and a 230mm brick wall with sealant to the side of the cavity.

Details:

The design of details for the centre was done while bearing in mind that South African craftsmanship is not always up to standard. Details were consequently kept very basic in terms of material use and construction method. Basic details have the added bonus that maintenance will be easy and limited.

The more intricate details like the sliding doors can be reverted to a more basic (manual) operating option. The gravity lift as well as the lighting structures will be manufactured in the centre's workshops which has the advantage that the centre users will be able to repair and service these elements themselves.

12.3 The working of the facades-heating and lighting:

The northern facades were all treated in the same manner which is to shield the selective translucent glass surfaces with a system of 150mm wide treated wood louvres that can be manipulated from the inside of the building. There is a 100mm ventilation gap between the glass surface and the louvres to facilitate the removal of excess heat from the glass surface.

Seeing as the heat absorption of a glass surface increases when dirt accumulates on the surface, it is of utmost importance to keep the outside window surface as clean as possible. Cleaning the outside surface of the window can be done by the use of the cleaning wipers that are operatable from the inside.

Counseling block thermal movement and ventilation:

The mini greenhouses between the two segments of the counseling block serves the purpose of heating the rooms of the block that face south. The air in the greenhouses heats up, provided the shading structures overhead is retracted.

Fig. 159 Final concept model



Fig. 160 Final concept model



*Fig. 158 Influence on design
There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

The heated air can then be routed into the rooms adjacent to the greenhouse in order to heat up the southern rooms. The added bonus that the presence of plants have for a space used for counseling is that it has a calming effect on people. The rooms directly adjacent to the greenhouses also receive natural lighting through the glass surfaces.

The lighting of the back rooms next to the library is done naturally by means of small, east oriented full-length windows. These windows are shaded by the ramp on first floor and the roof respectively. This window configuration can also be found in the conference centre where the only difference is the western orientation.

The ventilation through the block is from east to west, or right to left as on the sketch. The width of the block segments is restricted accordingly.

12.4 Lighting for the workshops and admin block:

The window heights above ground level is very important if one strives to achieve the best possible natural lighting within a building. Some calculations have been done in order to determine what the guideline heights will be for optimal daylighting.

The use of natural lighting differs in function from building segment to building segment. The segment of the building that houses practical work like the workshops, lecture halls and the admin block as well as the counseling block, will have natural lighting as an alternative to artificial lighting rather than the only source of lighting since the lighting qualities required by different users will vary.

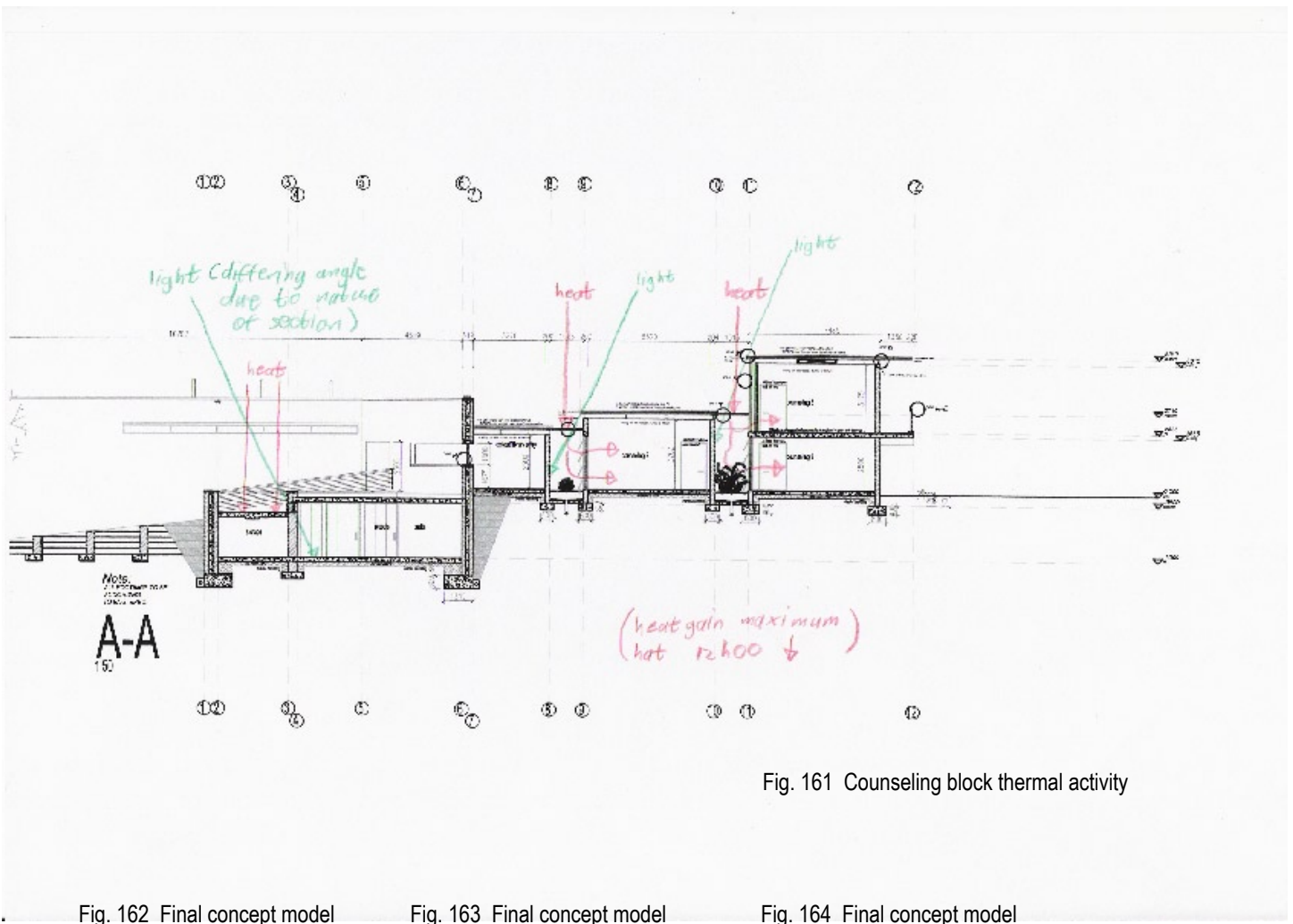


Fig. 161 Counseling block thermal activity

Fig. 162 Final concept model

Fig. 163 Final concept model

Fig. 164 Final concept model



12 Technical Investigation

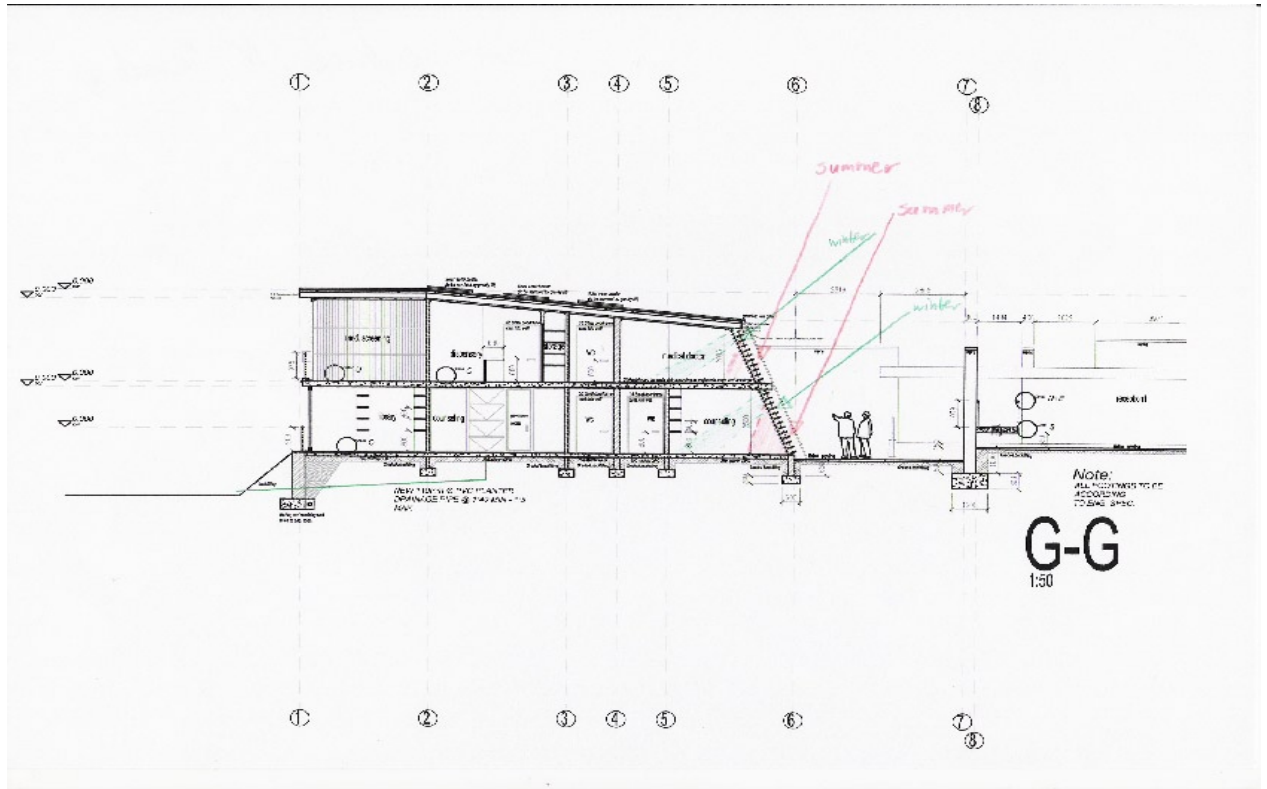
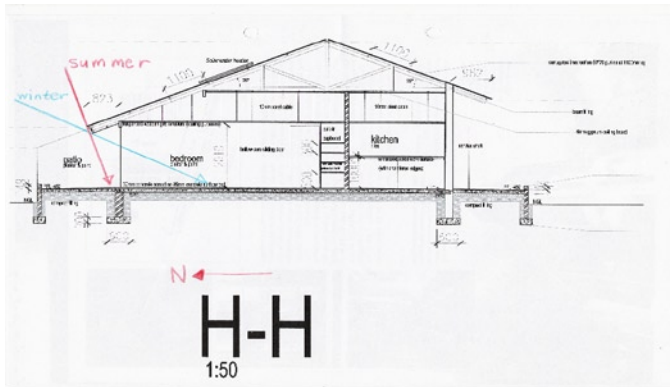


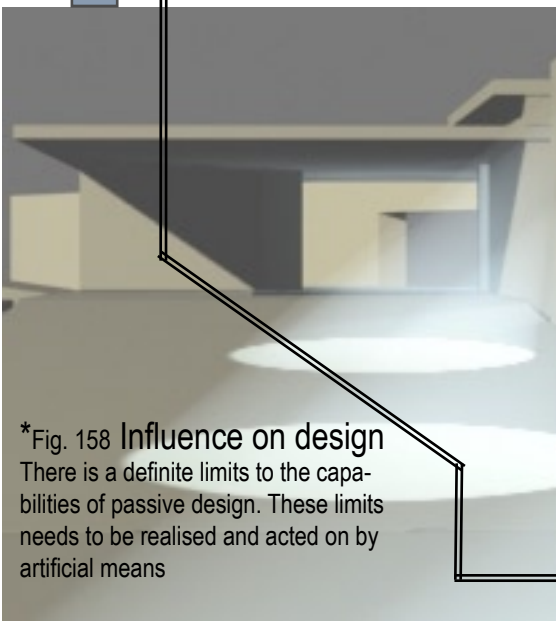
Fig. 165 + 166 Northern facades working



The building segments housing functions that requires little or no light in order to function will have natural lighting as primary light source and artificial light sources as backup.

The presence of trees on the site will have a profound influence on the working of natural lighting in the building. Natural lighting as well as heating will diminish due to the shade cast by trees in the summer. The re-planting of trees must done while bearing this fact in mind.

Trees that shed their leaves in winter must be planted in places where natural heating is necessary and where natural lighting does not play a very demanding role.



*Fig. 158 Influence on design
There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

Calculating window height for lecture halls in order to achieve the correct daylighting

$$\begin{aligned} DF &= \frac{\sqrt{\text{int}}}{\text{Vext}} * 100 & \text{EOBF} &= 0.4 \\ & & \text{GF} &= 1.1 \\ & & \text{VHF} &= 1.4 \\ &= \frac{160 * 100}{14953} & \text{ODF} &= \frac{DF * GF * VHF}{\text{EOBF}} \\ &= 1.07 & &= \frac{1.07 * 1.1 * 1.4}{0.4} \\ & & &= 4.12 \text{ take as } 4.5 \end{aligned}$$

$$\% \text{window} = \frac{\text{window length} * 100}{\text{length of wall}}$$

$$= \frac{2488 * 100}{10000}$$

$$= 25 \text{ take as } 30\%$$

For ODF of 4.5 , 30% window and 10000 room:

$$\text{Roomdepth} = 4.5$$

Windowheight

$$\underline{5.4 / 4.5 = 1.2\text{m above floor level}}$$

Calculating window height for rooms and workshops in order to achieve the correct daylighting

Workshops:

$$\begin{aligned} DF &= \frac{\sqrt{\text{int}}}{\text{Vext}} * 100 & \text{EOBF} &= 0.5 \\ & & \text{GF} &= 1.1 \\ & & \text{VHF} &= 1.4 \\ &= \frac{160 * 100}{14953} & \text{ODF} &= \frac{DF * GF * VHF}{\text{EOBF}} \\ &= 1.07 & &= \frac{1.07 * 1.1 * 1.4}{0.5} \\ & & &= 3.3 \text{ take as } 3.5 \end{aligned}$$

$$\% \text{window} = \frac{\text{window length} * 100}{\text{length of wall}}$$

$$= \frac{2488 * 100}{10000}$$

12 Technical Investigation

=25 take as 30%

For ODF of 3.5 , 30% window and 10000 room:

Roomdepth =3.5 **5.4/3.5=1.5m above floor level**
 Windowheight

Rooms:

$DF = \frac{V_{int}}{V_{ext}} * 100$ EOBf=0.4
 GF=1.1
 VHF=1.4

$= \frac{160 * 100}{14953}$ $ODF = \frac{DF * GF * VHF}{EOBF}$

=1.07
 $= \frac{1.07 * 1.1 * 1.4}{0.4}$

=4.12 take as 4.5

$\%window = \frac{window\ length * 100}{length\ of\ wall}$

$= \frac{1500 * 100}{6200}$

=24% take as 30%

For ODF of 4.5 , 30% window and 10000 room:

Roomdepth =4.5
 Windowheight

5.4/4.5=
1.2m above floor level

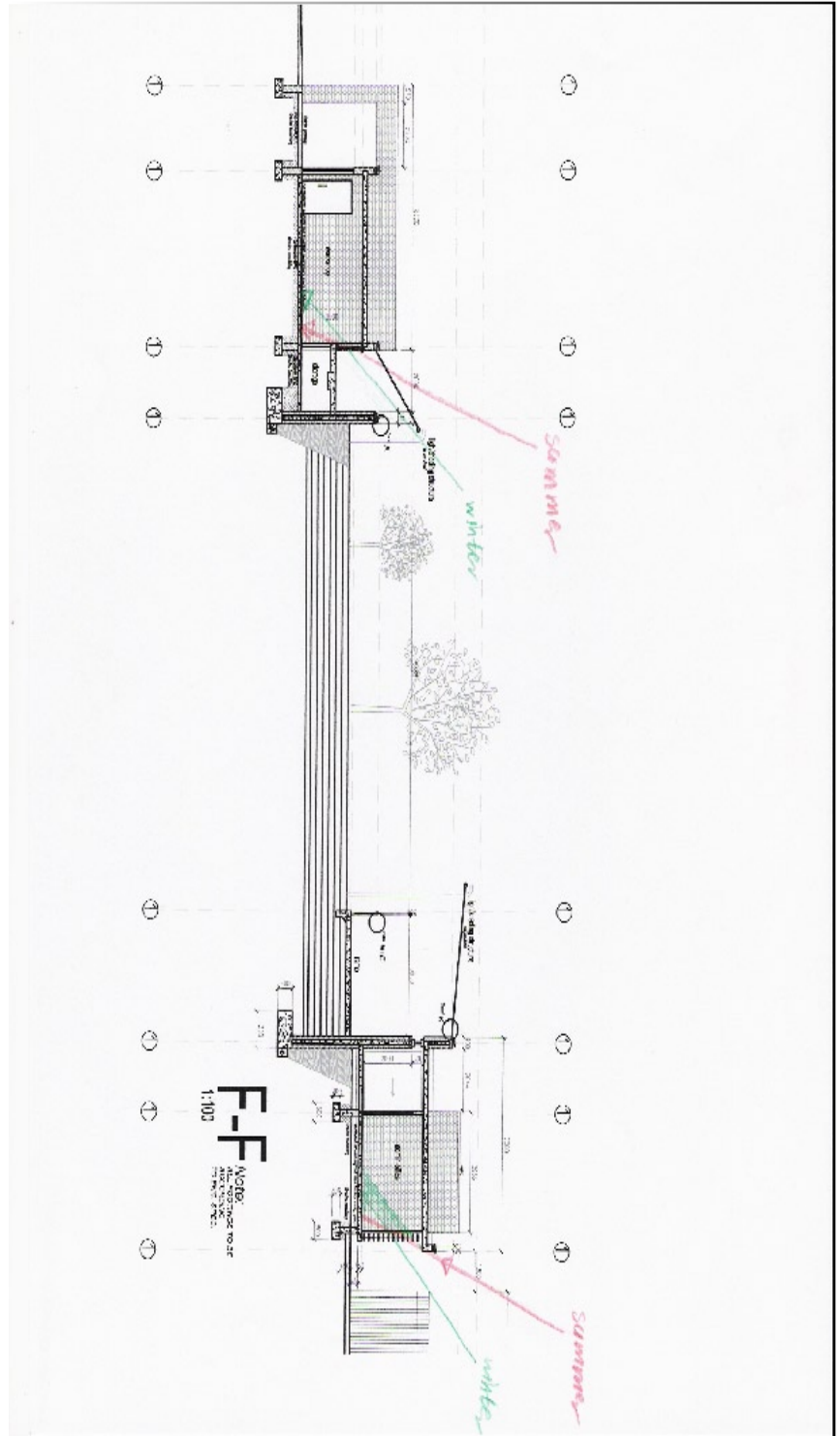


Fig.167 Lighting of workshops and admin

*Fig. 158 Influence on design
 There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

12.5 Acoustics between segments:

The openings or divisions created by the need for raft foundations and provision for movement, could pose a problem if the acoustic behaviour of the building is not properly understood. Take for instance the possibility of sound movement through the greenhouse area towards the library and even to the next door offices. The confidential nature of the conversations being held within the counseling block needs and environment that makes the user feel safe and private.

The calculations done is an emulation of a very similar situation as that of sound movement between the workshops and the library. It is very obvious that the acoustic qualities of the workshops must be of an insulating nature or at least a diverting nature in terms of sound movement.

The conference facilities need special attention in terms of acoustic qualities. The nature of the rooms necessitates the use of reflective materials on the first half of the wall nearest to the stage, and absorptive materials at the back of the room. A reflective screen might be placed behind the speaker in order to aid those hard of hearing (in hearing what is being said.)

The objective is once again to achieve the best possible acoustic qualities by the simplest and least expensive means. The most important requirement to which insulative materials must adhere is that of robustness. Wheelchairs moving past the wall can easily damage the materials on it.

12.5.1 Classroom acoustics:

Room: 10000*5400*3000

Floor: smooth concrete

Walls: plastered brick

Roof: flat concrete

Windows: 2* 4mm glazing dimensions: 2488*949

Door: hollow core (1.0*2.0)

Pupils: take 10 seated on hard chairs as average.(amount of pupils and chairs will vary)

Octave band		250	500	1000	2000
Workshop sound power levels at 6m	LW	29.4dB	23.5dB	19.8dB	17.6dB

		250	500	1000	2000
Absorption coefficients					
Floor		0.01	0.01	0.02	0.02
Walls		0.02	0.02	0.02	0.03
Roof		0.15	0.08	0.04	0.07
Windows		0.25	0.18	0.12	0.07
Door		0.004	0.00425	0.00425	0.00425
Pupils		0.25	0.38	0.30	0.35
Air		0.001	0.003	0.006	0.011
Absorption areas					
Floor	54m ²	0.54	0.54	1.08	1.08
Walls	77.3m ²	1.546	1.546	1.546	2.319
Roof	54m ²	8.1	4.32	2.16	3.78
Windows	4.7m ²	1.175	0.846	0.564	0.329
Door	2m ²	0.008	0.0085	0.0085	0.0085
Pupils	10	2.5	3.8	3	3.5
Air	162m ³	0.162	0.486	0.972	1.782
Total absorption		14.031	11.55	9.33	12.8
Total room surface	192m ²				

Reverberation times= $0.161V/-2.3S\log(1-\text{average absorption coefficient})$	0.17s	0.31s	0.41s	0.39s
Average absorption coefficients =total absorption/total surface area	0.07	0.06	0.05	0.067
Room constant	14.45	12.25	10.10	13.8
LW -Lp(from table)	6.2	5.5	5.2	6.0
Given sound power level	29.4 dB	23.5 dB	19.8 dB	17.6 dB
New level	23.5 dB	18 dB	14.6 dB	11.6 dB
A-weighting	-8.6	-3.2	0.0	1.2
dBA- noise levels @ 6m from source	14.9 dBA	14.8 dBA	14.6 dBA	12.8 dBA

12.6 Air conditioning:

The problem that physically disabled people have with controlling their body temperature is one that was addressed from the start of the project. There are various mechanisms in place that enables the centre users to control their own environment. These mechanisms include movable louvres, manipulatable openings, greenhouses, shading structures, cross-ventilation and correct orientation.

It is however a fact that passive means for heating and cooling is not always sufficient and should thus be complemented by artificial means like airconditioners. The possible placement and working of airconditioners were looked at in the following diagrammes.

The use of airconditioners is very important in the conference centre since the underground locality of the centre will make it a place with temperatures in the lower ranges . This fact is advantagous in the summer but might prove problematic in winter when the conference facilities still need to be cool but not cold.

The rooms underneath a portal frame structure might also become very hot and uncomfortable since cross-ventilation might not function well enough on wind still days.It is this very fact that justifies the occasional use of airconditioners.

Aircon dependence:

The airconditioners will all be powered by the solar panels and the backup energy they generate in order to prevent the exaturated use of airconditioning. The airconditioners could also be connected to the main power supply in order to facilitate further usage.

*Fig. 158 Influence on design

There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

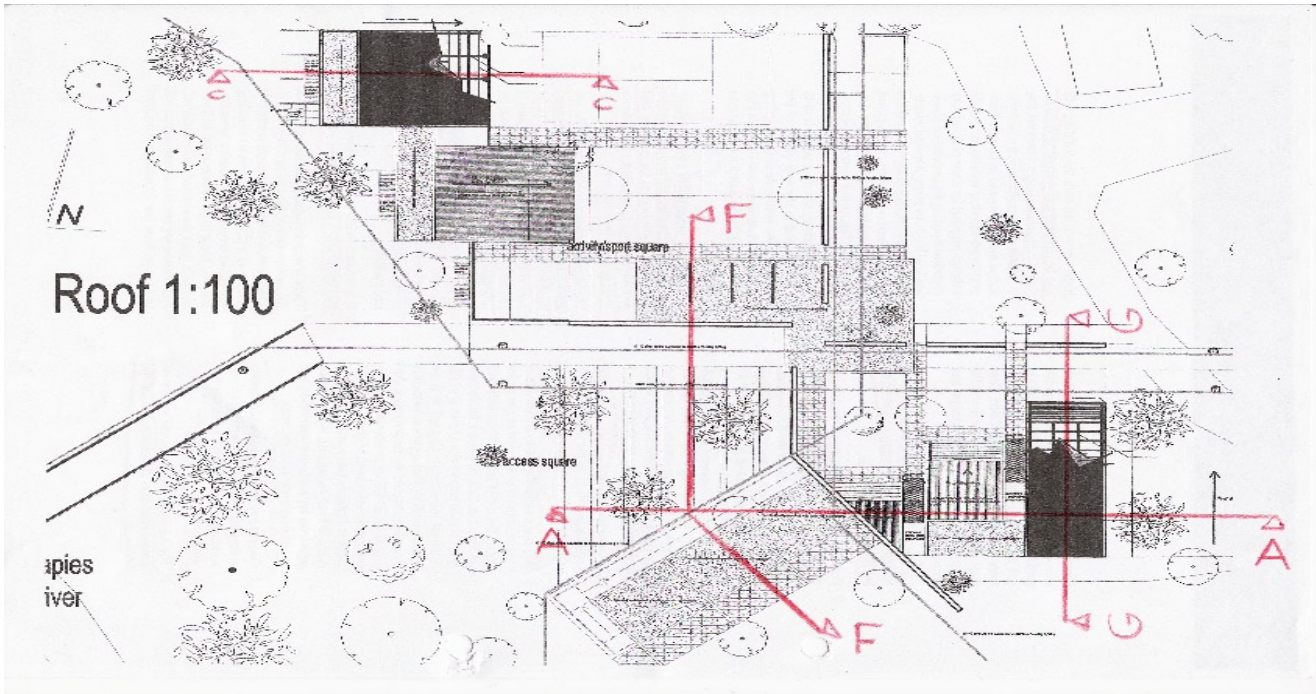


Fig.168 Key section for aircon discussion

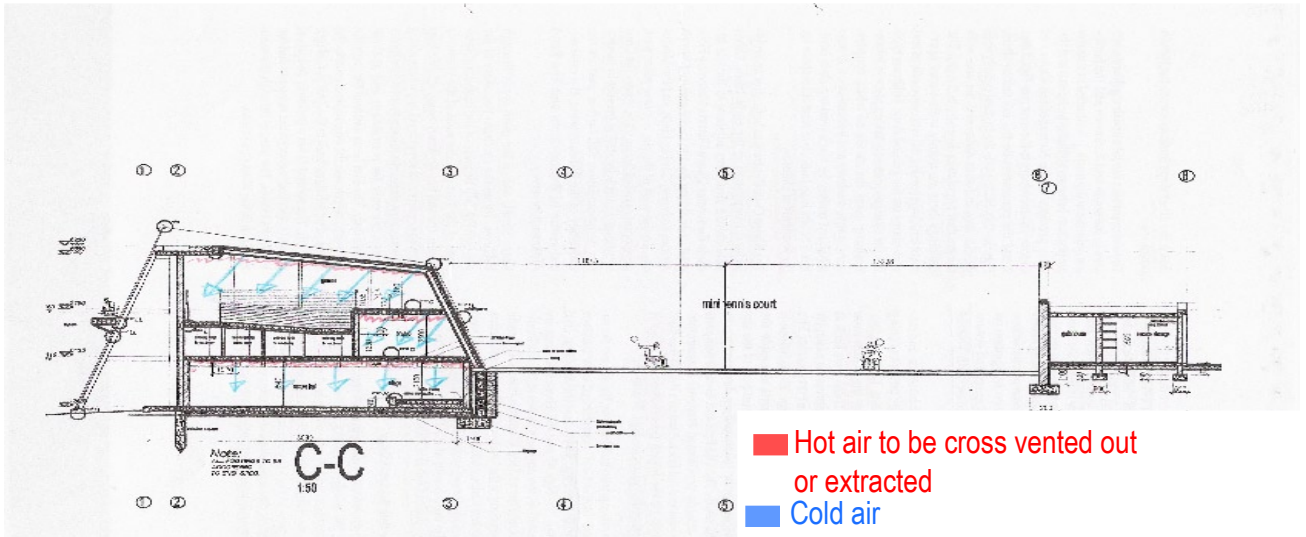
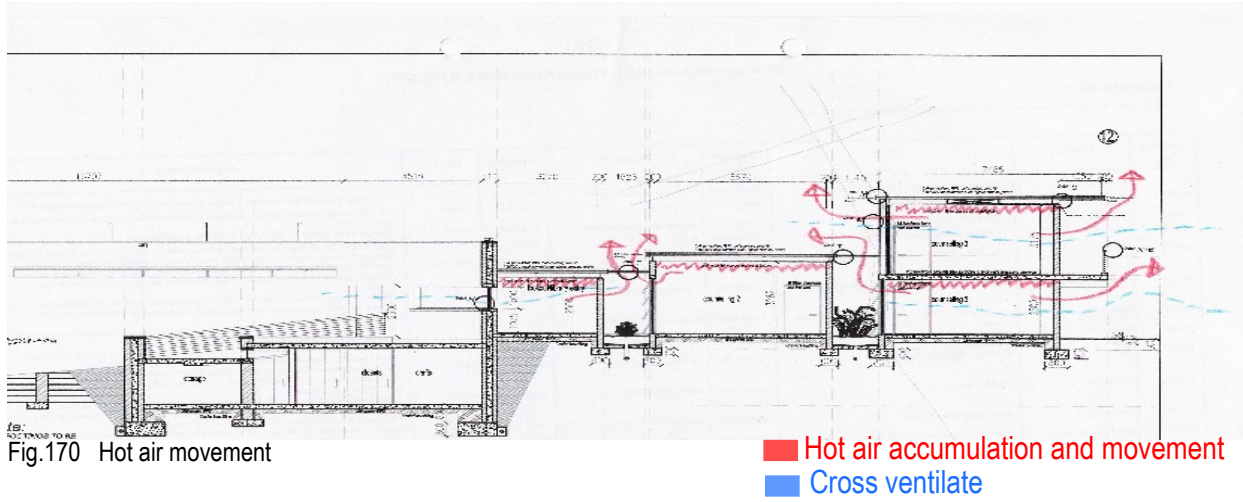
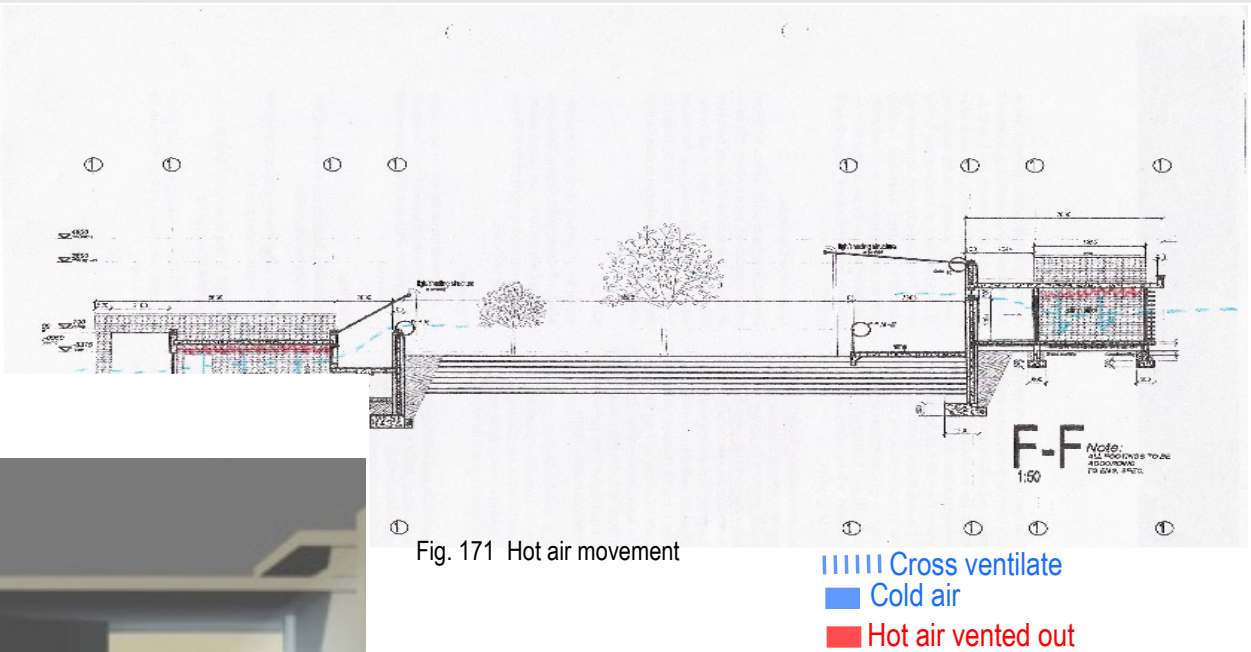


Fig. 169 Aircon

(The warm air that accumulates at the ceiling levels of the different floors can either be cross-ventilated out of the building or removed and recycled by the air conditioners. It is because of this reason that the air conditioners will be installed along the roof and floor lines. The use of a larger aircon system is proposed since the spaces within this block will house larger numbers of people on a scheduled system. The occupants will thus have more collective thermal needs)



(The openings in the facades ,at ceiling level,works in conjunction with cross-ventilation to remove the accumulated hot air from the building. The stack effect is thus used towards the outside of the building)



(The width of the building segments was kept to a 6m maximum to facilitate cross- ventilation)

*Fig. 158 Influence on design
There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

Hot air to be cross vented out
Cold air

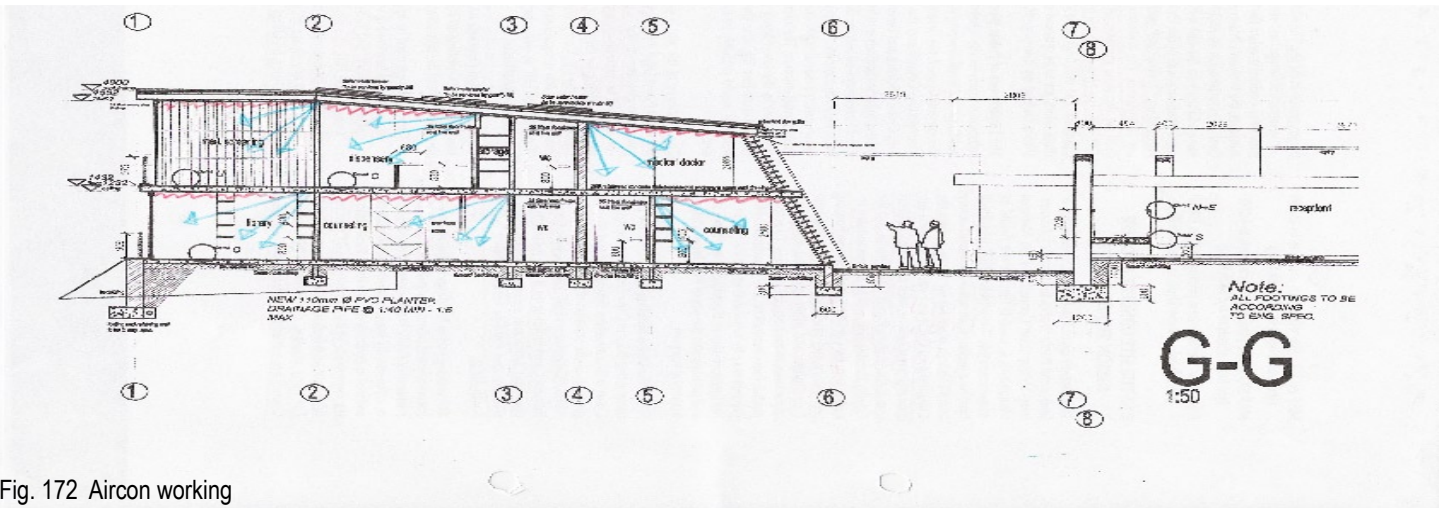


Fig. 172 Aircon working

(The use of localised airconditioners is proposed for use in the Counseling Block since it will house a wider variety of occupants during different times of day, all of which will have different thermal needs.)

12.7 Solar Panels and heating

The solar water heaters on the roofs of the trial housing and the Counseling block will provide warm water for use in the wc's and the kitchens of the centre respectively. This system will once again serve a complementary function seeing as it will work in conjunction with a conventional water heating system that could be used on days with little direct sunlight.

The location of the solar heaters is very important. They should be oriented in such a way as to receive maximum exposure to northern light. The roof of the counseling block is especially suited for this as it's roof has a large surface exposed to northern light. This roof can also be used to install multiple solar heaters in order to feed the rest of the building. The water from these heaters will be distributed to the rest of the centre by means of additional pipes that are added to the lighting structure piping.

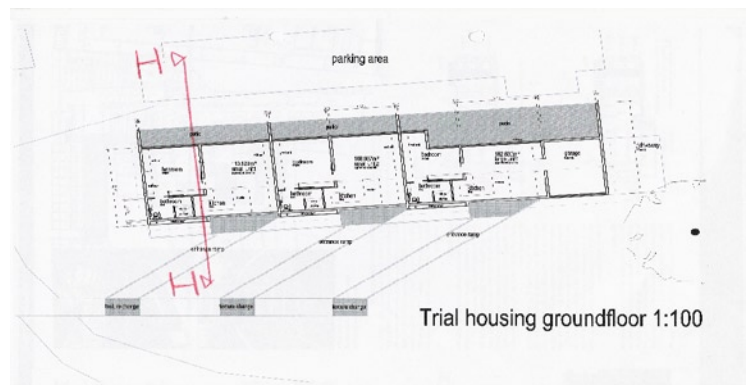
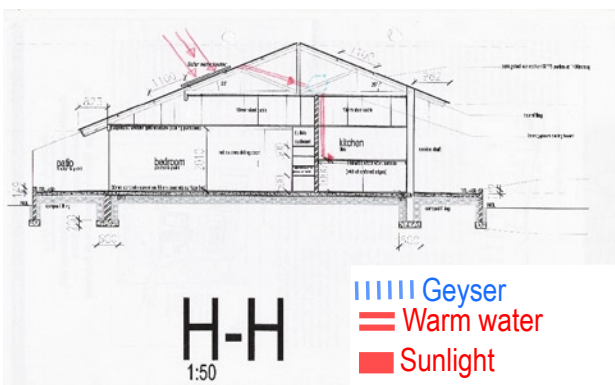
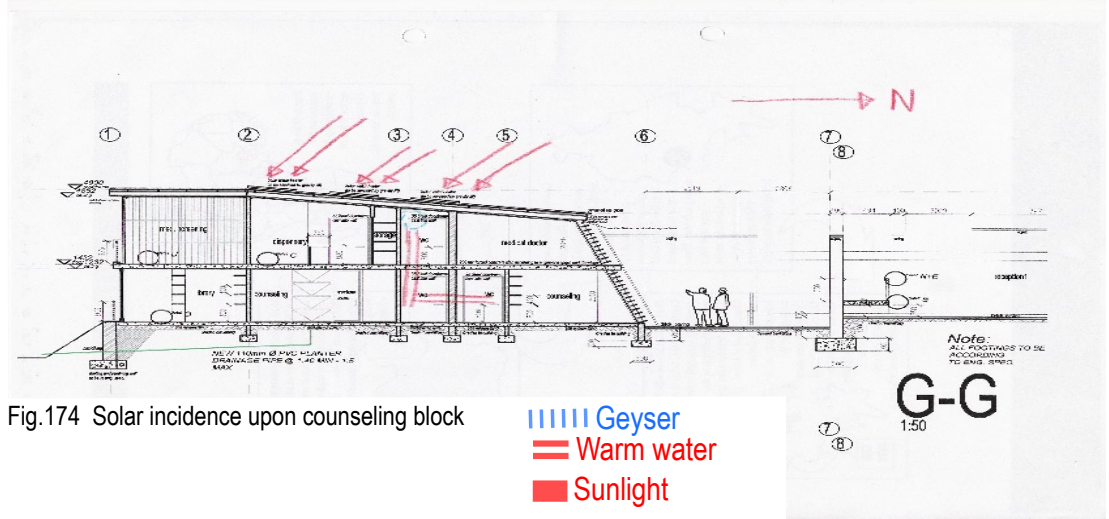


Fig. 173 Solar panels working



12.8 Water movement:

The ramps will largely be kept clear of water by means of the shading structures. The ramps will however have a very slight cross sectional slope towards a gutter that flows along the length of the ramp.

The downpipes from the fullbores is located on the outsides of the particular wall that supports the lowest end of the roof structure. The downpipes will run along the support structure of the louvres in front of the windows in places where the pipes run in front of windows.

The location of the downpipes is done in such a way that the disabled users of the centre will be able to fix or replace the pipes if problems should arise. The downpipes was designed to be integrated with the respective facades.

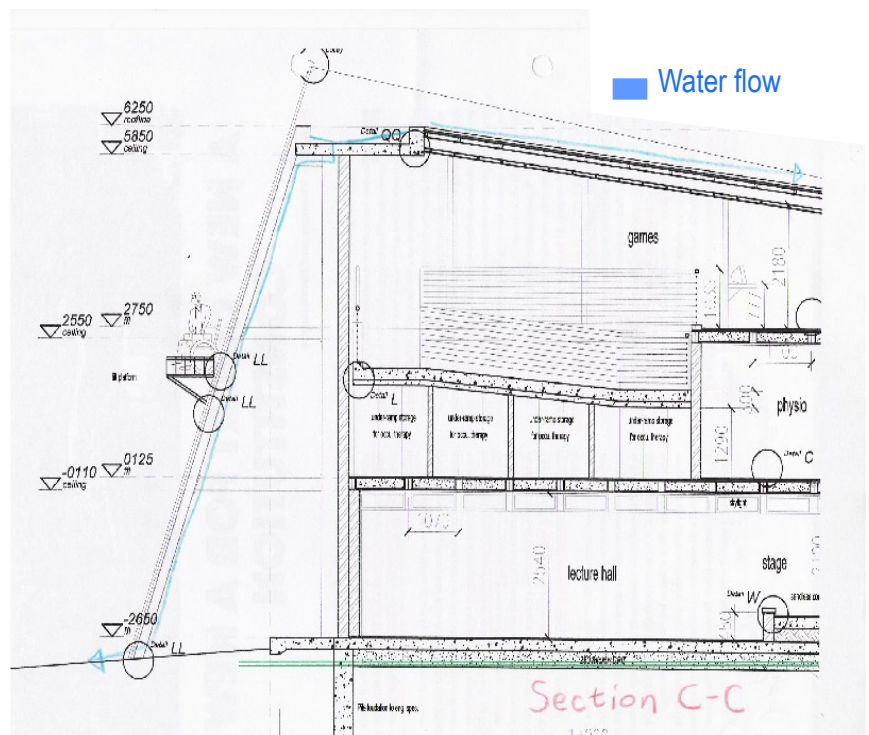


Fig.175 Water flow from sport segment roof

*Fig. 158 Influence on design

There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

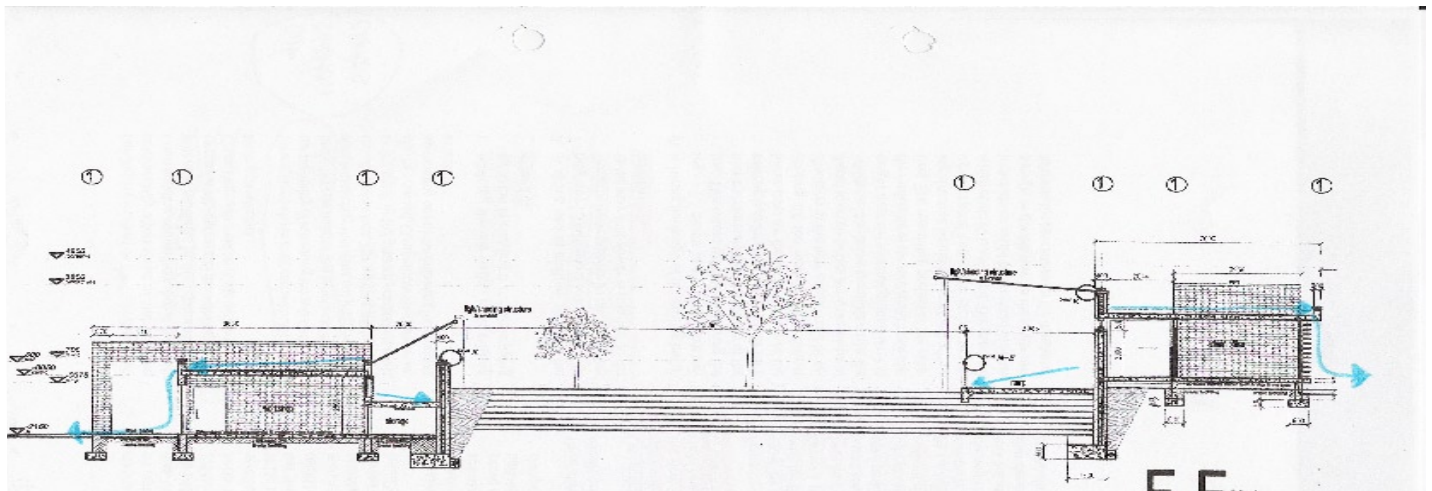
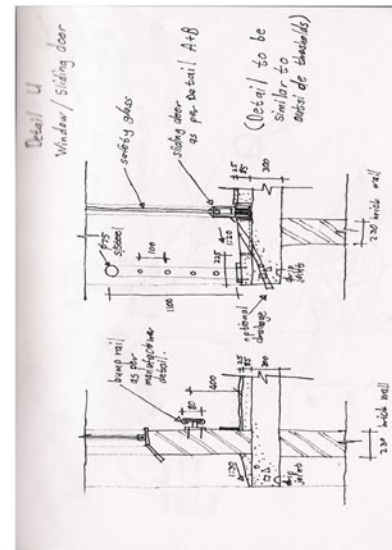
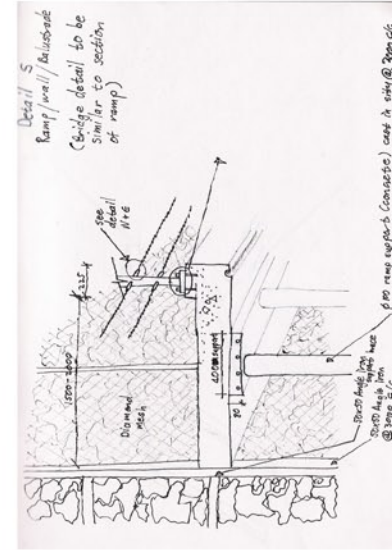
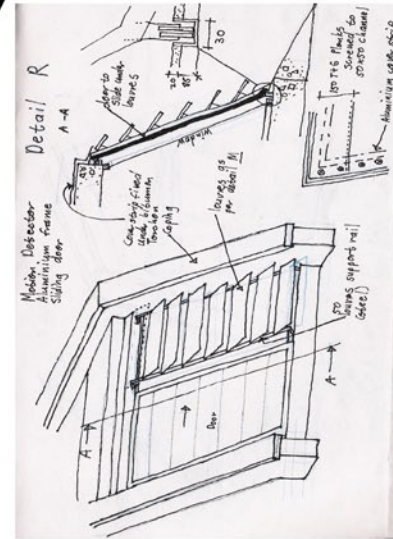
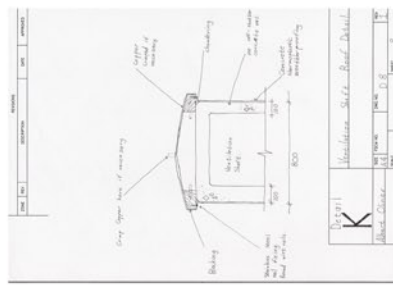
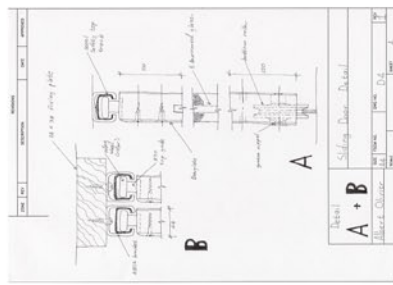
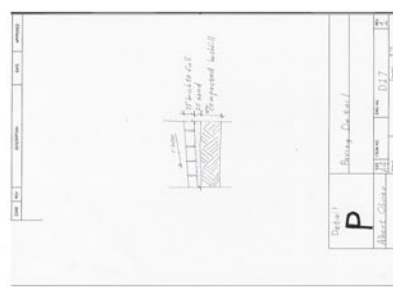
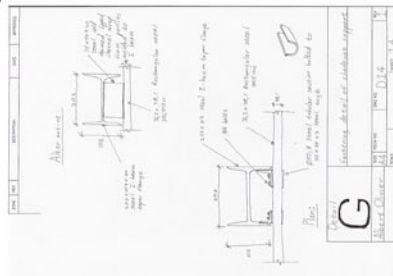


Fig.176 Hot air movement

Water flow to gulleys and fullbores

F-F
1.50
Note:
ALL DIMENSIONS TO BE
ACCORDING
TO ENR 570C

Handwritten notes in a rectangular box at the top left of the page, containing technical specifications and material requirements for the window and door details.



14.1 Materials:

14.1.1 Pretoria Regionalism, a Brazilian influence:

"It could be argued that a regionalist architecture will be generated by the designer directly responding to the following aspects in a place-specific way: climate, materials, site, defence, economics, religion. To this could be added the particular cultural expression of the community. These factors, as generators of form and style of the vernacular house, could be extended to all building types, which have a regionally specific character. It could also be argued that any change in the circumstances of any one or more of these factors will lead to a change in the manner of this response, and that a different regional building character or "style" will emerge." Greig (1971:18)

The particular vernacular of Pretoria could be termed a third vernacular since there were two previous vernaculars in the history of South Africa namely the Cape Dutch of the 18th century and the Georgian of the 19th century.

The Pretoria regionalism had a particular way of responding to nature and the landscape through the use of natural materials and industrial materials with specific climatically responsive characteristics. The third vernacular is considered as a precedent mainly because of this consideration it gave to context in the design process. Following are some examples as to the contexts considered by the third vernacular, be it knowingly or not.

14.1.2 Materials of the Vernacular (materials context):

Pretoria established the brick aesthetic through the Public Works Department. President Kruger imported Dutch architects who were well versed in such aesthetics. These bricks were supplied by Kirkness, a Scottish contractor who made bricks and other decorative elements on the southern slopes of the Muckleneuk Hill. Buildings as far apart as the Groote Schuur Hospital (Cape Town) and the Post Office in Salisbury (now Harare) have been built with Kirkness bricks.

The phase in South African history, which saw Afrikaner Nationalism accumulate power, can be seen as the phase that attracted people of Nationalist sympathies to the Dutch and the National Socialist Germans. This attraction can also be seen in the Architecture of the time. The early practitioners of the Amsterdam style managed to establish an aesthetic and a sympathetic following of Transvaal architects at the same time. Berlage built his *Beurs* in Amsterdam with brick on a large scale in combination with steel and structural daring. De Klerck used brick in a much more expressionistic manner in his housing projects while Dudok exploited the cubistic properties of the material.

The question that arises here is why bricks had such appeal? Schinkel used the material because of its honesty and demonstrated its worthiness for Civic structures in his *Werder Kirche* and his *Bauakademie*. The proponents of the Arts and Crafts movement would laud the commonality and availability of brick. The adherents of the Amsterdam school would praise the classlessness and the democratic attributes of brick. The practitioners of functionalism, like Mies van der Rohe, demonstrated the inherent geometric qualities of the material in his country house project. All these aspects would find sympathy with the modern movement architects.

Norman Eaton was a great proponent of the use of brick in building. It must however be born in mind that he was working in an established tradition. He was responding to and honouring the context of Church Square when he convinced the Dutch to use brick in the Netherlands Bank.

*Influence on design

There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

Fig.11 Foro of the author.Taken by the author

Norman Eaton also used Schmickl (an immigrant from Germany) for some projects which in turn enabled him to bring influence to these projects. Schmickl had a special touch with gum poles and thatch, materials of which Eaton deemed him the master. Other materials also became fashionable especially since it had become difficult for people to have buildings built. Some of these materials were malformed bricks and Pelindaba Slate. The use of these materials also ensued the use of local craftsmen.

Brick was an old material that received new significance and did not present the regionalists with much of a challenge. The challenge came from the local availability of materials like steel, concrete and glass which all had to be designed into buildings following the industrial revolution.

The Zuid-Afrikaansche Republiek were all for the local manufacturing of materials because of the fact that this signified a diminishing dependence on overseas resources. Cement was produced locally (*Eerste Cement Fabrieken*-Eduard Lippert) along with corrugated iron (*Iskor*), which dramatically replaced the use of thatch.

Corrugated iron allowed for a lower slope of roof but the horizontality of the International style required a flat roof. The Style required more innovative materials of which concrete roofs was the first. The fact still remained that corrugated iron roofs were cheaper and thus more applicable to South Africa. The box rib profile later came to the rescue of the stylists for it offered an even lower slope than corrugated iron and it was not that expensive.

Apart from prefabricated roof sheeting, the other factor influencing the local stylists was window frames, for window frames only came in the modular size of 3 foot 4 inches. The later availability of catalogued window frames did not guarantee cost effectiveness since cartels were established which had the effect that it became cheaper to make use of purpose made window frames. This suited Jooste and his associates rather well since it gave them the opportunity to make use of le Corbusier's *Mudulor*. This made their task of applying modern movement principles to design somewhat easier.

14.1.3 Economic context:

The *Helpmekaar* (Mutual Help) organization raised R400 000 in 1914 to assist the boers suffering economic hardship following the Anglo Boer war. The helpmekaar fund was replaced in 1917 by Santam (South African National Trust and Assurance Company) The establishment of AVBOB and Sasbank soon followed. Volkskas and Uniewinkels also followed soon.

These newfound possibilities for economic wealth spread quickly to the countryside with the effect that the new institutions of the countryside had to build new facilities. This spelt opportunity for the modern movement proponents.

The use of local materials and craftsmen started to become very popular since it strengthened the local economy by creating employment. This unique response to economic and world context showed how

resourceful the architects of old have been. They showed that even the most unwanted materials could have some liberty. What is needed in the psychosocial adjustment centre is that there is a response to as many possible resources, be they unwanted or not, and contexts as possible. Buildings do not just spring up out of nothing; they come to be out of a wide variety of influences and limits.

14.1.4 Climatic context:

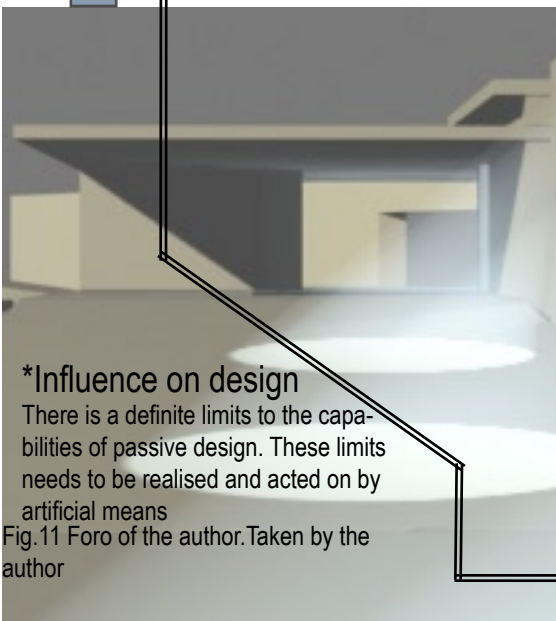
Le Corbusier initiated the climatic responsiveness of the modern movement with his *brise soleil*.

The planning style that typified the Pretoria regionalists was dispersed pavilion-like buildings with protected interstitial spaces. Deep eaves and verandas gave the buildings an aesthetic typical of hot areas. The "stoep" received some negative criticism because of the fact that some saw it as a colonial influence.

*Influence on design

There is a definite limits to the capabilities of passive design. These limits needs to be realised and acted on by artificial means

Fig. 11 Foro of the author. Taken by the author



The fact of the matter is that the “stoep” played its own specific part in the development of a regional architecture. The “stoep” did for instance address the differences in climate from the northern to the southern hemisphere. The “stoep” offered the inhabitants of the building a choice of sun and shade, depending on their position around the house. Architects tended to be of two minds as to the proper material for their verandas or “stoepe”. The ugliness and increased temperature underneath it, made corrugated iron the less chosen material for verandas. The use of thatch on the other hand offered a lower temperature underneath it as well as a better aesthetic value. The increased availability of corrugated iron did however have the effect that this material became the choice of the regionalists.

Another example of a climatic responsive move was the change from street-oriented designs to designs oriented in a site-specific sun related manner. The Pretoria students quickly understood the importance of the moves toward climatic responsive design. With the research support of the National Building Regulation Institute (NBRI) and the Council for Scientific and Industrial Research (CSIR), instruments like solar charts and solar scopes could be used to aid design. Although the focus of climatic research had been housing, the focus later shifted to research concerning any possible type of building and site.

The psychosocial adjustment centre should also be very climatically responsive since disabled people often find it difficult to control their body temperature.

14.1.5 Physical context:

The approaches that the regional architects had to the landscape and the joy it brings to whoever take time off to enjoy it, had an effect upon their particular architecture and that of those to follow. The regionalists made an attempt to make use of local materials only, and if possible, as natural material as possible. This happened because of the sentimental link they had with the landscape and others, like artists, who enhanced the possibilities it offered to society.

The Afrikaner, historically, always had a close relationship with and understanding of nature. The fact that the Afrikaner had to rely on nature in order to live during the Great Trek initiated his dependency upon it. The connectedness the Afrikaner farmer had with his livestock and crop furthered the idea while modern day scientists still state our dependency through publications like the *Huisgenoot* and other periodicals.

The Regionalists could be criticized for this focus upon the natural, due to the fact that it might lead to a lack in urbanity, which in some cases it did. This fact was blamed on the view the Afrikaner had of nature:” For the Afrikaner, the God-forsaken wilderness was the city while the farm, the tamed wilderness was God-imbued...” Meyer (1993:23)

The view the Afrikaner had of nature should also be seen in another light, namely that of the contributions and devices of Norman Eaton for example. The devices Eaton used in order to create spaces were aimed at creating qualities that he derived from his knowledge of African architecture and places. The lack of urbanity in this instance allowed for the emergence of an African urban form or in other words, a “Regionalist Urbanism” Fisher (1998:139).

14 Normative position:

14.2.1 Who am I:

I am Albert Olivier, only son of Dr. Allan Olivier and Mrs Bertha Olivier from Kimberley. My father is an English teacher and my mother retired from teaching. I'm an active person by nature for I like all kinds of sports, especially mountain biking and Rugby.

14.2.2 Why Inclusive design and spinal cord injuries in specific:

The reason for my inspiration to study inclusive design is foremost personal and sentimental. My mother specialized in special education for disabled children, which enabled me to have contact with disabled people throughout my life. I developed a strong sentiment towards them as well as a drive to help them where I can.

After much consultation with various experts in the disability field, it became apparent that there is a definite need for a centre that will fulfill more than just a physical or just a psychological function. There is a need for a place where injured patients can learn everything they need in order to adjust to their feelings and physical and their social surroundings.

14.2.3 Dualistic thinking :

Modern society often have a tendency to divide subjects of discussion into parts in an attempt to better understand the situation or problem. Dualities are thus created.

The dualities of most importance to disabilities are those of abstract versus figurative, social versus private and mind versus body. The mere fact that there is a definite separation between the entities comes in conflict with the nature of disability which is that it exists as two inter-related and co-existent components, namely the physical and the psychological components. These two components must be addressed as a whole in the Inclusive or Universal design process.

The hierarchical division of any of the components of disability is impossible and it would be impossible to treat the one without consulting and monitoring the effect it has on the other (they should be equal).

*Influence on design:

Fig. 177 Permeable design goes hand-in-hand with providing for movement in a building.(a contextual response)

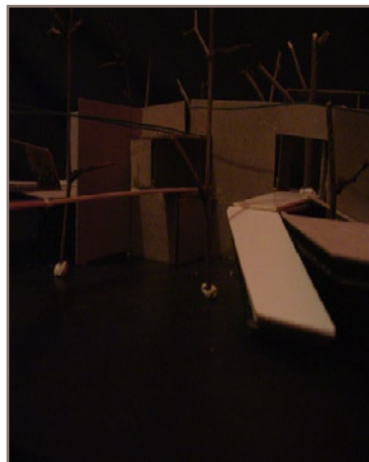


Fig. 178 Concept model no.1 western elevation

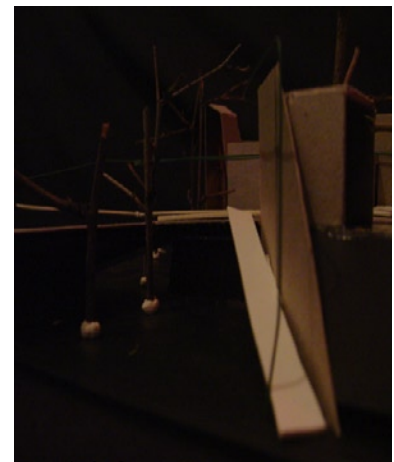


Fig. 179 Concept model no.1 southern elevation

14.2.4 Influence on normative position:

The centre should provide a setting that is in contrast with the sterile environments in which the patients find themselves most of the time during treatment, but in such a way as to not disregard the linkage with the precinct. A prolonged exposure to a single type of setting, a sterile environment in this instance, will inevitably have a lasting effect on you. This effect might be positive or negative.

14.2.5 Modern Philosophy:

Descartes (1650) emphasized subjectivity in his dualistic thinking through stating existence over mind while still acknowledging the existence of the idea. The product of the mind of the subject became more important than the mind itself. The role and needs of the subject is very important in thinking about disabled people.

If the extent to which a person is read can be seen as an indication of his importance, then Hegel must be the most important modern philosopher. The deconstructivists targeted his ideas partly because of this fact. Hegel was a dualist as well. He also furthered the subjective duality created by Descartes.

Hegel stated that subject and object were unified at the creation of man. He also stated that there was no opposition between God and nature. This unity proclaimed by Hegel was not seen by Derrida as being true unity for it excluded the possible existence of diversity.

The proponents of deconstructive thinking, like Derrida for instance, hammered Hegel (and Plato) for the fact that they did show the preference they despised (voice over writing).

The problem with the deconstructivist mindset on the other hand, came to the fore when people realized that the deconstructive mindset had to acknowledge the fact that both the self and the other existed and thus the philosophy had a flaw since it did not place total emphasis on one of the aspects as it claims. It is this very flaw that signifies the way in which thinking about disability has to be approached.

The positive aspect of the whole debacle is that people became aware that the only way that anything can be unified is when it encompasses all the necessary and applicable fields of the particular life subject.

14.2.6 Influence on normative position:

Useless and self-contradicting critique should be avoided. People tend to make comments for the sake of making the comment. What this holds for the normative position is that the selection of a third party to aid in the design process should be done very carefully. Overly pessimistic third parties will not make any helpful contributions to the eradication of common design problems concerning disability.

*Influence on design:

Fig. 177 Permeable design goes hand-in-hand with providing for movement in a building. (a contextual response)



Fig. 180 Concept model no.1 main entrance



Fig. 181 Concept model no.1 plan

14.2.7 Modern Movement:

The Modern Movement has its fair share of intrinsic dualism in the form of figure versus abstract, functional versus dysfunctional, signifier versus signified etc. The modern movement can be interpreted as preferring the meaning over the creator of the meaning, the signified over the signifier.

The modern preference for the abstract was believed to enable us to go beyond the absolute and so the search for deeper meaning started. Some had even gone as far as stating that the open canvas, and in architectural terms the un-built, is the furthest away from the figurative. When looking at this from an inclusive design point of view, the un-built will actually be the best, if however drastic, solution to the problem of accessibility.

The modern preference for the one over the many may aid thinking about disability in the sense that the individual became more important. This in turn will enable personal contact and a better understanding of the needs of each individual. This leads to a one-on-one approach, one that has been used in schools for the disabled for years already. The focus on the many will only have the figurative as a product for abstract qualities can seldom be ascribed to a large number of people in the same way it can to one.

The reaction to this way of thinking came from the post-modernists and deconstructivists in the form of an emphasis on the link between the abstract and the figurative. The link between the abstract and the figurative becomes just as crucial if one is to consider treatment as a corresponding system between the abstract (psychological) and the figurative (physical).

14.2.8 Nietzsche:

Being one of the proponents of modern thinking, Nietzsche accepted the point of view that reality is in essence meaningless, thus a Nihilist way of thinking. In his book called *The Birth of Tragedy*, he tries to explain Greek culture. The Greek culture was full of conflict with itself and its neighbours. The conflict between Apollo (god of structure and harmony) and Dionysus (god of drunkenness and frivolity) also comes to the fore. Modern artists saw themselves as being part of the Apollonian mindset since they strived towards order and harmony.

The contexts in which people found themselves played a significant role in determining what they strived for in terms of ideas. The traumatic context of the First World War saw people striving towards the abstract while a more relaxed context saw people striving towards the figurative (the years following the war). This can be seen as one of the reasons for the conflict between the Apollonian and Dionysian mindsets.

14.2.9 Influence on normative position:

Context plays a very significant role in the life of a spinal cord injured person for it will determine which response he/she will have towards the healing and adjustment process as well as the ideas he/she will tend to follow (Apollonian or Dionysian)



Fig. 182 Previous project by the author



Fig. 183 Concept model no.1 plan



Fig. 184 Concept model no.1 bridge

The context is one aspect over which the architect has significant control and thus he/she must strive towards the creation of a context that will be supportive and beneficial to the largest number of people.

The conclusion that can be drawn here is that the architect has within his/her power the ability to swing the dualities between figurative and abstract needs and positive and negative contexts in which ever way is best for the occupants of the building.

14.2.10 Design culture (the modern movement +third vernacular South Africa):

Disabled people and their bodies have never been the norm of design in any way. This is evident in books like Neufert's Architects Data and the Metric Handbook which clearly propagates the fact that the bodies architects design for revolves around a range of physiological norms which lacks variety.

The overall design process has failed in recognizing and responding to the needs of the disabled. This has given rise to the disablism nature of design today. Disablism in urban design is most evident in the modern movement of which the broad and enduring value bases have had a major influence in twenty first century design practice.

Modernism was predicated on the process of breaking down the social divisions and differences of society, conversely the close alignment with an abstract engineering aesthetic, which propagated the intellectual purity of the rational, did however lead to the exclusive nature of design both then and today. The modernist ideology promoted (post Second World War) certain conceptions of design and space, which failed to acknowledge social differences while claiming to be inclusive and neutral.

The claimed neutrality of modernist design, with its claim to de-contextuality, standardization and a homogenous public, is often not much more than a mere affirmation of the mainstream, white European male, norms, which exclude the disabled. The architecture and design conceived of on the basis of these norms was then based on a highly specialized system with a set of pre-determined technical goals instead of on the basis of a social art, which responds to real human desires and feelings.

The estrangement of disabled users from the design process was heightened by the inability of modernism to break with past ideas, especially that which saw architecture as artistic expression. Architecture as art was an abstract visual art and not a body-centred art. This gave rise to the emphasizing of architectural aesthetics and not human needs, a problem since buildings are supposed to be designed for humans and their needs. Doesn't the power of art lie in the feelings it exerts from the beholder thus in architectural terms, from the user?

*Influence on design:

Fig. 177 Permeable design goes hand-in-hand with providing for movement in a building.(a contextual response)



Fig..185 Previous project by the author sustainability



Fig. 186 Previous project by the author.housing

The broader process of development and design has however shown some development in terms of the relations between the social and technical demands placed upon a building. Robert Venturi reflected upon the legacies of modern design as well as the machine aesthetic. Following this reflection, he called upon architects to recognize the complexities of modern life and to address multi-functional needs and programs. The Finnish architect, Alvar Aalto, was of the meaning that responsible architects should design buildings that would be of no harm to any user, nor should they be unsuitable for use by them. The provision of natural light in a building that harms the user is a form of reactionary architecture at the cost of the design and constructional qualities of that building.

This striving towards a social architecture was a reaction against that of abstract, one-dimensional, architecture, which had quite a list of documented failures in terms of unmet building and functional requirements. Aalto noted that:

"The only way to humanize architecture is to use methods which always are in combination of technical, physical, and psychological phenomena, never any one of them above the other" Venturi(1997:11)

A variant to this idea is what Harris and Berke(1997:backcover) calls the "architecture of the everyday". This type of building is anti-heroic and un-monumental, an architecture that draws its inspiration from everyday life and common routines. This type of design approach has particular relevance to the disabled person since the focus lies in creating buildings that satisfies everyday requirements of the inhabitants. Buildings do not become commodities or utopias, which are only accessible by the "elite few".

14.2.11 Influence on normative position:

The centre will be designed on the basis of reaction to the relevant contexts surrounding the site as well as disabled people today. The physical as well as psychological needs of disabled people will be one of the contexts considered as a design generator. A design reaction to the needs of the site and precinct will aid in creating a more holistic design, usable by a number of people.



Fig. 187 Previous project by the author
PIA

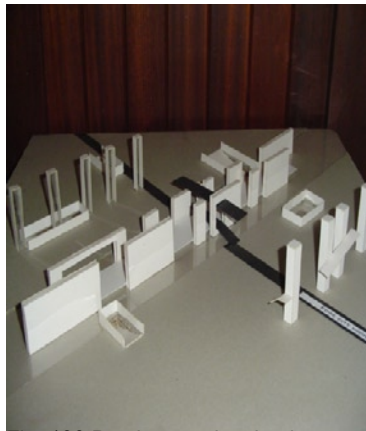


Fig. 188 Previous project by the author
Des Baker

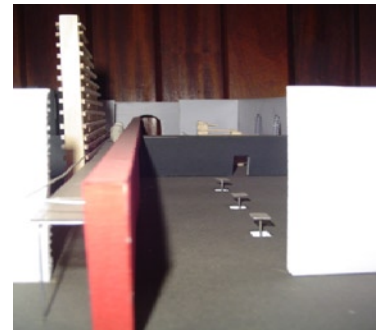


Fig. 189 Previous project by the author
exhibition

14.The influence of contexts, responsive design:

14.3.Pragmatic restraints:

14.3.1 Occupation:

The classification of the Psychosocial Adjustment centre according to table 2 of section A of SABS 0400 (1990:35) is a combination between E2 (places of treatment), A3 (lecture halls), A1 (relaxation), D3 (low risk industry) and G1 (offices). The occupation of the building was worked out on the grounds of this classification.

Building section	Total floor area	SABS classification	Total persons
Counseling first floor	53.73 sq.m	G1(1 person per 15sq.m)	3.582 persons
Counseling groundfloor	180 sq.m	G1(1 person per 15sq.m)	12 persons
Workshops	100sq.m	D3(1 person per 15sq.m)	6.67 persons
Physical therapy	151 sq.m	E2(1 person per 10sq.m)	15.1 persons
Games room	86.6sq.m	E2(1 person per 10sq.m)	8.66 persons
Conference /classrooms	370sq.m	A3(1 person per 5sq.m)	74 persons
		Total occupation	120(120.012) persons

14.3.2 Influence on design:

The size of the site as well as the number of newly disabled people during the year(see precedent studies) dictated the size of the building. The fact that there are about 500 new disability cases each year meant that the building must be able to accomodate at least a quarter of that amount at any one time of day. The amount of 120 persons fall within this parameter. The sizes of the building segments where designed in such a way as to keep the building as compact as possible due to the above parameters as well as the need for shorter travel distances.

14.3.3 Sanitary:

Disabled people have very distinct needs in terms of sanitary requirements. Proper provision have been made in order to accompany those people who are not yet used to the new state of their bodies. The sanitary requirements according to table 6 of section P of SABS 0400 (1990:126) is 3 wc,s for men and 9 wc's for women. There should also be 5 washbasins for women and men respectively. The parameters set by the SABS was followed with the exception of urinals, which will be use- less to wheelchair-bound disabled people.

Influence on design:

Access had to be provided to wc's on all the floors and building segments in order to facilitate easy usage. The segments that houses the most activity as well as the largest number of people received the most attention in terms of sanitary provision.

14.3.4 Facilities for disabled people:

The nature of the centre entails that the whole building must be designed and built according to regulations for facilities for disabled people. All the floors as well as the access to them must responded to the regulations set out while still remaining true to the specific function housed on that particular floor. The regulations as set out by section S of SABS 0400(1990:152-155) are summarized as follows:

Fig. 191 Final computer model

Regulation aspect	Aspect summary
Ramps	A ramp must have a slope of maximum 1:12 if the height to be reached is more than 400mm above ground level, which it is throughout the building. The surface must be at least 1.1m wide and slip-free. Landings every 1.5m rise. Doors opening onto the area at the lowest point of a ramp must not hamper the movement on and from the ramp. Any landing should be at least 1.2m long. The ramp should have a railing if the height to be reached exceeds 600mm. This railing should be between 850 and 1000mm above ramp level.
Lifts	A lift should have a minimum inside measurement of 1.1m in width and 1.4m in length. The lift should have a door with a width of at least 800mm and a railing with a height of between 850 and 1000mm on two sides of the lift.
Doors	A door should have at least an opening of 750mm at 90 degrees to the movement direction. Door handles should be of the lever type and should be situated a maximum of 1.2m above ground level. Any height differences brought about by door structure must be a maximum of 15mm.
Toilets	A disabled person should move a maximum of 200m from his location in the building to a toilet facility. Buildings can be fitted with unisex facilities, providing the total number of facilities are sufficient. The door can be a sliding or a pivot door. A pivot door must open to the outside and must be fitted with a means to indicate occupation. The surface area of a compartment for use by disabled people must have a minimum surface area of 2.9 sq.m and a minimum plan measurement of 1.6m. Approved support handles should be placed on the walls behind and next to the wc. The distance between the centre of the wc and the wall next to it should be 450-500mm and the distance from the front of the wc to the back of the compartment should not be less than 660mm. The seat level of the wc must not be higher than 480mm from ground level. The wc must be servicable by wheelchair-bound users. The handwashbasin should be wall-mounted with no footing. The maximum height of the basin should not be more than 830mm. There should be a vertical open space of 680mm underneath the basin. Taps must be of the lever kind and must be reachable from the wc from a sitting position.
Auditoriums	The SABS has various regulations about auditoriums with fixed seats but states nothing about auditoriums with loose seats. The psychosocial adjustment centre has open auditoriums with no fixed seats. This fact has a positive effect on the seat organisation for it creates a number of possibilities that rules out the problems with fixed seats.

Obstructions in movement paths	Any difference in floor level of more than 25mm must be provided with a proper ramp for access. Obstructions that protrudes more than 300mm into a movement passage should be indicated as a movement hazard if it starts at a maximum of 300mm above groundlevel..
Partking	Parking bays should have an approved length and a width of at least 3.5m. Parking bays should be as close as possible to the access points of a building. The parking provided for the psychosocial adjustment centre are all accessible and usable by disabled people. This is done because of the fact that non-disabled people adjust more easily to disabled access parking than the other way around. The site and immediate surroundings also have ample space for larger parking bays. The fact that the centre caters for a rather small number of people aids in rationalising the use of fewer, but larger bays.
Signage	The SABS states little in connection with proper signage for movement for disabled people through a building. The signage in the psychosocial adjustment centre was done in a manner that is legible and as descriptive as possible about the movement and tasks at hand. Signage for disabled persons must also be done in a manner that enables people with sight and hearing disabilities to use the building.

14.3.5 Fire regulations:

Escape route provision:

Section T of SABS 0400(1990;182) states that a building with a height of up to three levels and with 45m as a maximum travel distance to the nearest escape route need not have an emergency exit route in addition to the escape route. A building with an upstairs population of more than 25 must be provided with at least two escape routes. The psychosocial adjustment centre falls within these parameters. The centre need not have emergency exits.

Exit doors:

Section T of SABS0400 (1990;183) states that a room with a population of less than 25 people be provided with exit doors of at least 800mm. All of the rooms in the centre falls within these parameters and thus they need only have 800mm wide doors. The doors have been designed to be 1.1m wide due to the fact that a wider door facilitates easier movement.

Section T of SABS0400 (1990;183) also states that rooms with a population of more than 25 have at least two exit doors. These doors should open in the direction of movement and should have a width of at least 1.1m. The conference facilities of the centre falls within this category and thus the facilities have been provided with two exit doors per room.

Measurements of components:

Section T of SABS0400 (1990;183) states that an escape route should have a constant width as well as a headroom of at least 2m.

The access ramps of the centre forms the exit and escape routes. This fact entails that ramps should have a constant width as well as proper or sufficient headroom.

Fig. 191 Final computer model

Widths of escape routes:

Table 9 of Section T of SABS 0400(1990;185) aids in determining the proper widths for escape routes by relating building population to route width. A building with a population of 120 people should have escape routes of at least 1.1m.

The ramps (that form all the escape routes) all have a width of at least 1.5m due to the fact that they must be able to accommodate the movement of two-way wheelchair movement. This width is then also conveniently sufficient for use as escape route.

Level changes along an escape route:

Section T of SABS 0400(1990;187) states that the distance between any change in the floor level and the center line of a door opening in an emergency route be more than 1.5m. This fact also holds true for the distance between two changes in floor level in an emergency route.

External routes and ventilation:

Section T of SABS0400 (1990;185) states that buildings may only have an external emergency route if the building does not exceed a height of 18m.

The psychosocial adjustment centre never exceeds a height of 18m and therefore use may be made of external emergency routes. The use of external emergency routes will also contribute to proper ventilation of the routes. This principle was followed in the centre design seeing as the centre has quite a number of external ramps.

Lighting of exit routes:

There should be lighting installed 100mm above the floorlevel of a particular escape route according to section T of SABS (1990;190). This light source must provide at least 50 lux of illumination. Section T also states that an emergency light source must be provided for buildings with an occupation of more than 100 people.

The centre provides for these basic requirements by means of lighting installed at 100mm above groundlevel in all movement passages as well as by means of the external lighting pipes that are connected to the solar panels on the roof of the counseling block.

Portable fire-extinguishers:

Table 10 of Section T of SABS 0400 (1990;193) states that a building with similar occupation to the psychosocial adjustment centre should have 1 portable extinguisher per 200 sq.m.

The centre has a surface area of 1800 sq.m. which entails the installation of 9 fire extinguishers at appropriate places throughout the building.

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