It is reasonable to expect the doctor to recognize that science may not have all the answers to problems of health and healing.
(Cousins, 1979)

THEORY: LAYERS OF HEALING AND GROWTH

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INTRODUCTION

Current perceptions of institutional and rehabilitative facilities have been that of very hospital-like, monotonous environments. This perception needs to be addressed, not only in terms of the physical environment of the facility, but also in the mind set of the patients, staff & visitors. It is believed that the first step to altering this perception is to address the name of such facilities (Carpman Grant, 1993:40). The name *'sub-acute'* brings images to mind of the clinical environments mentioned above, and it is proposed that such facilities should rather be referred to as *'centres for healing',* already bringing a better image to mind and allowing the start of a therapeutic, new building typology to be developed. This idea is further emphasized by Carpman and Grant where they highlight the importance of using familiar and appropriate terms to identify a building (Carpman Grant, 1993:40). Henceforth, the design will be addressed as a *'Centre for healing in collaboration with Louis Pasteur Private Hospital'.*

This chapter addresses how the design of a therapeutic, architecturally rich environment, in contrast to typical institutional settings, can alter this mind set and in turn have a positive role to play in the recovery of patients at the *Centre for Healing,* encouraging a healthier environment in which people can heal and grow.

CONCEPTUALIZATION

A therapeutic environment refers to a spatial experience that exhibits healing qualities (Smith, 2008:2). In order for a patient to be able to heal, they need to go through a journey of recovery, a process of growth rather than simply the realization of a destination. What is therefore necessary to create such a therapeutic environment? What type of environment and factors are required to facilitate this process of recovery, this process of growth?

As a patient goes through various levels of recovery and growth during their stay at the *Centre for Healing,* so should the building express the idea of these various *'layers of healing and growth'* in order for it to be able to assist in the recovery of the patients that it houses.

One could draw an analogy between a sunflower and the process of healing in a metaphorical manner: as the sun rises in the morning, the flower opens its petals and follows the sun through the course of the day. By midday, the sunflower is at it's optimal and idyllic stage, it stands up straight with all its petals open to the sun to draw nutrition from the environment. As the sun starts to set, the sunflower starts to close its petals on the world to maintain the nutrients it has absorbed and it holds every part of itself safe within it.

The building should offer the same 'daily cycle' that a sunflower offers. When the sun rises, the building should start to open itself to the world, awakening in a sense, as the staff begin to arrive, the patients wake up and the pedestrians start passing the site. By midday, the building and its patients are at a peak of activity and exposure, everyone is awake and moving around, rehabilitation treatment is taking place, visitors arrive and pedestrians begin to interact with the activities on the site. At this stage, the building should be at it's most inviting state, encouraging interaction between the facility, patients and staff. As the afternoon passes by and the sun begins to set, the building should (like the sunflower) start to close it's 'petals', encapsulating and protecting the patients within it. This is not to say that the building must close itself off to the outside completely as the sunflower does, but rather that it can allow the filtration of activity into the building where activities are internalized.
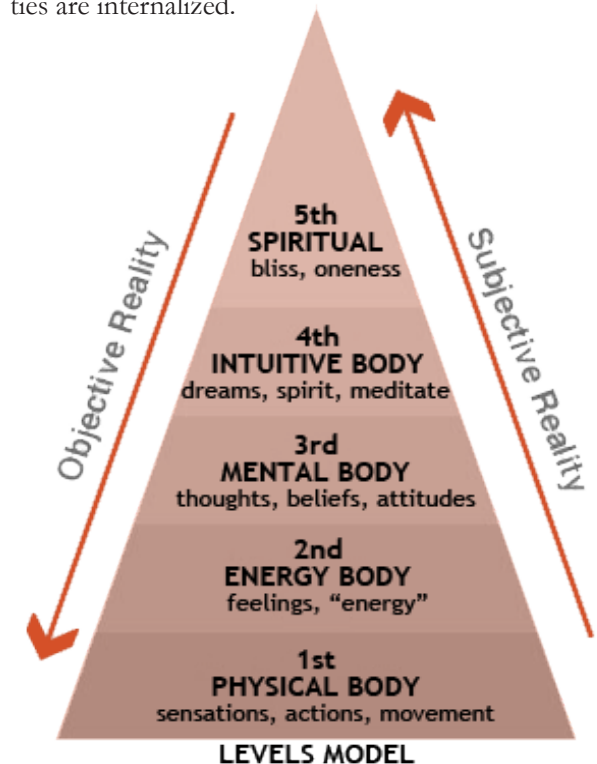

fig. 2.1

fig. 2.2 The 5 senses of the human body
fig. 2.3 Ripple effect of a central core on the surrounding
     environment

THEORY 1 - 5 LEVELS OF HEALING

THEORY 1 - 5 LEVELS OF HEALING

The human body exists within various dimensions at the same time. The physical body exists equally in a realm of invisible bodies which each have their own anatomy and physiology, and a profound interaction between these levels exists (Klinghardt, 2005:1).

Dr. Dietrich Klinghardt believes that patients need appropriate care and interaction on all these levels of their existence in order to fully heal (Klinghardt, 2005:1). By applying the ancient yoga sutras in a practical and contemporary way, he identified a 5 level healing system (see fig. 2.1) that practitioners can follow to achieve the full realm of recovery in patients.

Level 1: *The physical body*
This is not placed at the bottom of the pyramid because it is of least importance, it is rather referred to as the "foundation upon which everything else rests" (Klinghardt, 2005:1). It is also the one item/level that links the human body directly to the earth and is the body's physical energy source. This is the realm of human existence that experiences the senses, that which can see, feel, hear, touch and smell, and it's reach ends at the skin (see fig. 2.2).
    Healing:
Exercise, dietary requirements, balancing of hormones, detoxification, treatment of infections and supplementing the body with missing minerals.
    Architectural implication:
By creating an architecture that reaches out and touches the senses of individuals on various layers, the physical

body can directly be affected by the architecture. This is the foundation of healing, therefore the physical rehabilitation or gym can be seen as the centre of the facility creating energy for the other layers and forming the foundation of the building and the recovery process.

Level 2: *The energy body*
This level of healing includes the electric and magnetic fields that affect the nervous system from within the body and those that affect the body from outside (Klinghardt, 2005:1). The strength of these fields decreases as the distance from the centre of the body increases until infinity (see fig. 2.3).
    Healing:
Neural therapy, spending time in nature, minimizing electric and magnetic fields from the surroundings.
    Architectural implications:
With the architecture seen as the core of the facility, the functions and energies that occur around this central space can be considered to be the electric or magnetic fields that influence what outcomes are reached within the body. The overall architecture and site can be seen as consisting of a ripple effect of items and activities that are fed by the main core - the architecture (see fig. 2.3).
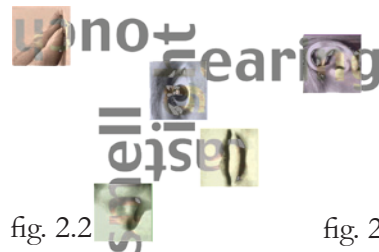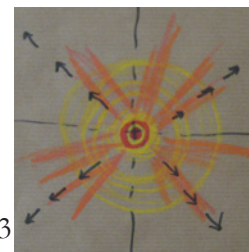

fig. 2.2

fig. 2.3

Level 3: *The mental body*
This level of healing extends even further out the body. This is the level where beliefs, attitudes and thoughts form and organise the healing of an individual and can affect the physical body (Geffen, 2006). It consists of the patients' own mental fields, as well as that which society has agreed upon. These ideas or thoughts may be detrimental to the healing process and should rather be disconnected from the patient in order to achieve the desired results on the physical level (Klinghardt, 2005:2).
    Healing:
Mental field therapy, counselling, therapy with patients and families to address the destructive consensus beliefs.
    Architectural implications:
Address and alter the beliefs, attitudes and thoughts of what people think such a facility should be like. Create an alternative environment to the current perceptions of institutional facilities. The beauty of being human is the ability to adapt and change; the architecture that houses these changes should in the same way be able to adapt and allow change.

Level 4: *The dream body*
This relates to elements outside the mind of an individual. This is believed to be the highest level at which a physician can assist a patient with recovery.
    Healing:
Family orientated and individual therapy where three types of feelings are addressed; primary, secondary and displaced feelings. The idea on this level is not to directly improve the patient's symptoms, but to rather

create the idea of love, harmony and respect in the patient.

Architectural implications:
The idea of focussing on the meditative state of patients can be harnessed in the architecture. It should allow for intimate, quiet spaces where patients can meditate and reflect on themselves. People also have a primal need for relationships, community, security and connection (Klinghardt, 2005:2). The architecture should therefore not facilitate the centre for healing as an island in the city, it should rather act as an 'oasis' where community interaction and socializing can occur.

Level 5: *The spirit body*
This is a plane of self-healing.

Healing:
The healing process on this level relies on the individual relationship between the patients and a deity or spiritual belief and no practitioner can assist in this level of healing (Klinghardt, 2005:3). Any exploration on this level of healing is left to the patient.

Architectural implications:
Spaces can be created where spiritual or religious aspects can be focused on by the patients. These are extremely private spaces and should therefore be situated and treated as such in the design of the facility.

As mentioned before, true and lasting healing requires the simultaneous work/therapy on all 5 levels (Harris, 2009). The first three levels belong to the personal realm of the human body, where practitioners can easily aid in the healing process. Layers four and five relate to

the transpersonal realm, where practitioner interference is difficult (Klinghardt, 2005:4).

Each higher level influences the recovery of the levels below it, for example if something is improved on the mental level, it can cause a ripple effect on the energy body or physical body level. This does not, however, work in the opposite direction. For example, a physical recovery alone will not cause a positive effect on the mental state of a patient.

Healing is the greatest of all the joys. Whenever a client performs the miracle of the inner movement called 'healing', there should be gratefulness and humbleness, not only by the patient but also by the practitioner. When certain unwritten laws are respected, healing occurs much more frequently than otherwise.
(Klinghardt, 2005:5)

Conclusion:
Healing is a journey. One of ups and downs, periods of calm and tumult, and the power of the mind, heart and spirit play a major role in this recovery process. Architecture, as the capsule that houses the recovery process, can either hinder the healing process or it can aid positively towards a growth and transformation of the whole (body, mind, heart and spirit). By addressing the various levels of recovery and applying the same techniques into the architecture created, it will add a valuable layer to the therapeutic environment required for healing to take place.

THEORY 2 - LAYERS

As mentioned in the previous theory, there are many levels and layers related to the healing and growth process of patients in a centre for healing (Klinghardt, 2005:1). A multi-layered, architecturally rich environment, in which these patients are 'stuck' for an indefinite period, will need to be created. This environment will need to cater for all the layers required in a therapeutic environment - a *Centre for Healing*. This architecture, for public and private use, must incorporate the rich and vibrant patterns present in the city of Tshwane.

Christopher Alexander argues in *"A Pattern Language"* that designers need to create an architectural language built up from various "patterns" to create such an environment (Alexander, 1977:x). Such a language would create a coherent picture of an entire region, and would within it have the ability to create many different forms within the regions. He calls for the designer to choose from the patterns he has set out, and add any of the designers own patterns, to create a language for a smaller part of an environment. However he constantly warns the reader to focus only on those aspects and patterns that they are able to create within their discipline or ability. By overlaying the chosen patterns, the character of the final building will be given to it by the language decided upon (Alexander, 1977:xxxv).

Patterns will be extracted from the book that are relevant to the dissertation (see design development) from the three scales of design provided for in the book (town/community, the building & construction details).

According to Alexander, the 'town and community' patterns can never be designed by an individual person, and they are rather created over time as every individual always helps to create these larger ideas (Alexander, 1977:3). The existing city fabric and patterns will therefore be used as inspiration, adding to this level of the urban design.

The 'building' patterns give shape and a three dimensional field to the architecture and the spaces between them and their neighbours. These aspects are designed and are under the control of designers or small groups of people who can build up a specific area at the same time or under the same ideals (Alexander, 1977:463). Patterns will be overlapped from this section to look at the creation of an architecturally rich environment for the many layers of healing and growth that will occur on the site, as well as using these ideas to create public spaces between the new building and the existing surroundings.

The 'construction detail' patterns refer to the tectonic nature of the design and relate to how the building can be constructed as the designer has envisaged it.

Conclusion:
By addressing all these aspects while overlaying and redefining the building and the spaces around the building; multi-layered, architecturally rich environments will be created that the patients in the *Centre for Healing* can feel comfortable and at home with within the city limits; a place in which *"layers of healing and growth"* can occur.

THEORY 3 - THERAPEUTIC ENVIRONMENTS

THEORY 3 - THERAPEUTIC ENVIRONMENTS
According to Sandra and David Canter, in the book, '*Designing for therapeutic environments: A review of research'*, the creation of buildings for therapy can relate back to the need to remove or reduce the number of people that need to spend long periods of time in hospitals (Canter & Canter, 1979:1-26). This optimism, accompanied by improved medical practices, led to a recognition of the inadequacy of buildings, and raised the question of creating buildings that were appropriate to the new therapeutic approaches that the medical profession adopted at the time.

The authors raised the following concerns with regards to buildings for therapy; firstly they ask, what is the role of the physical environment in therapy? Secondly, how can designing a building for therapy make the physical environment more effective? (Canter & Canter, 1979:25)

To be able to design a therapeutic environment, the designer first needs to understand the goals and activities of that particular environment, and then relate these ideas back into the design. Not one aspect can, on its own, produce radically improved services, it is a collection of these goals, activities and eventually the design elements of the environment and how they work together that creates a successful environment. This idea of a successful environment is further emphasized by Cumings and Cumings in saying that the total "environment is (or ought to be) the major therapeutic agent in any therapeutic situation" (Cumings & Cumings, 1964) "Therapy is that which heals"-Canter & Canter, 1979

The location of a building that will provide therapeutic services is important, as is knowing and understanding the functional requirements of the facility to be able to achieve the organisational goals.

There are two main functions for a therapeutic environment (Canter & Canter, 1979:1-26):
1. An environment as the location of therapy, a place where people go.
2. An environment as a therapeutic setting; this is a place that people visit to feel whole/normal again due to the specific spatial qualities that are presented in that environment.

The proposal of the dissertation is to create an environment that provides both of the above. The *Centre for Healing* will therefore be a place where patients can receive therapy in an environment that encourages the healing effects in the spatial qualities it provides.

There are specific elements within an environment that creates the particular ambience required. The surrounding environment can influence the way people in a facility will be involved and affected in the healing process. It is important to highlight these specific elements that have been identified by Ron Smith (Senior associate AIA Academy of Architecture for Health) and Dr. Nicholas Watkins (Director of research and innovation, HOK). The idea is expressed that healthcare facilities are not only designed to support and facilitate state-of-the-art medicine and technology, there are other factors such as patient safety, and quality patient care that need to be taken into account (Smith, 2008). Such

facilities also have the important role to embrace the patient, family and caregivers in an environment psychosocially supportive to all the parties involved. The environment that patients are in affects their outcomes, satisfaction, safety, as well as staff efficiency, satisfaction and organizational outcomes. The effects of an environment are either positive or negative, they are never neutral, and in the design of a therapeutic environment, the following are requirements:
1. The environment should support clinical excellence to receive good results on a physical level.
2. The environment should support the psycho-social and spiritual needs of patients, family and staff.
3. The environment should provide numerous positive effects on the patients' outcomes and staff efficiency.

Smith and Watkins continue to emphasise how hospital environments tend to create stress on a patient. Stress can cause a person's immune system to be suppressed as well as dampen emotional and spiritual resources, which in turn impedes recovery and healing. Patients in hospital environments are often fearful and confused. There are four key factors that can be followed to improve patient outcomes:
1. Reduce environmental stress
2. Provide positive distractions
3. Enable social support
4. Give a sense of control to patients

But, how is an environment created where fearful and confused patients can feel unthreatened, comfortable and stress free? Below is a list of elements that were highlighted as possible solutions to this problem, most of which are items that can be addressed through architectural design (Smith, 2008):

- Familiar & culturally relevant materials
- Cheerful and varied colours and textures
- Natural light or colour-corrected light
- Views of the outdoors (murals of the outdoors if this cannot be provided)
- Access to outdoors
- Bright, open, generously-scaled public spaces
- Meditation rooms/gardens
- Design of a "way-finding process" (Smith, 2008)
- Attention to proportions, scale and detail
- Homelike, intimate scale in patient rooms
- Reduce unwanted noise
- Visual and sound privacy
- Acoustic treatment of passages
- 'Off-stage' areas for respite
- Create family zones
- Create social interaction areas
- Accommodation for a family member
- Mini-medical library and computer terminals
- Give patients choices to make with regard to items in their rooms and other areas
- Background music
- Artwork
- Limit medical odours
- Maintain good indoor air quality

It is important that the representation of the organizational role and structure of a facility needs to be shown in the design of the functional spaces of a therapeutic environment (Canter & Canter, 1979:303-341). It has been noticed that "the patient who understands how the organization operates and where people can be found is likely to have a greater potential for active search to find help and care (Canter & Canter, 1979:303-341). Designers need to build up experiences of the individual users in the facility and relate this back to the design of clearly defined activities and experiences.

Canter and Canter continue to establish in their *"individual growth model"* (Canter & Canter, 1979:303-341) that a therapeutic environment is created to enable people to grow to their full potential despite any limitations they may have. This highlights what was said in the first theory of healing being a process rather than the discovery of an outcome. They do however also highlight that contact between the patients and other patients, public, staff and visitors can make an impact on the healing process (along with the environmental influences) and that this interaction is a key player in the healing process.

Conclusion:

There are no general solutions or a check list in creating a therapeutic, architecturally rich environment. However, it is clear to see from the above information that it is the setting as well as the people who make up the facility that in turn creates a therapeutic environment. Designers need to focus less on the goals and objectives of such environmental design and focus more on the variety of items within the layers and transition through the healing process and the architecture. Spaces should be created that relate to the experiences and functional requirements of the patients and from this the form will be determined and manipulated.

THEORY 4 - SENSUOUS ARCHITECTURE

THEORY 4 - SENSUOUS ARCHITECTURE

Juhani Pallasmaa observes in *'The Eyes of the Skin: Architecture and the senses'* that there is an increasingly large bias towards vision and a suppression of the other four senses in the way people conceive, teach and criticise architecture, with Le Corbusier even stating that, "I exist in life only if I can see" (Pallasmaa, 2005:29). This one-sided promotion of a sense in architecture allows the user to feel detached and alienated from their architectural experience. The entire body is in actual fact the centre of what we perceive and think and all the senses (with the body as the centre) should be equally moved by architecture. It is believed that any "life-enhancing" (Pallasmaa, 2005:11) architecture should address all five senses simultaneously, fusing the viewers image of self with that of the rest of the world.

Pallasmaa believes that we "see through our skin" (Pallasmaa, 2005:10) with the idea that all the sense specialized organs (eyes, nose, ears, tongue and skin) are specialised skin tissue, making all sensory experiences types of touching. We therefore experience situations through tactility, a sensual experience that has proved to have a higher priority and remembrance in our perceptual and mental systems, and allows human experiences within architecture to be unlocked and accessible to all.

Architecture has the ability to strengthen ones sense of self and belonging in the world. It is able to do this by not just creating images that are visually pleasing, but by creating architecture and spaces that "relates, mediates and projects meanings" (Pallasmaa, 2005:11). The true

meaning of architecture is beyond the building, it is a tool that directs our consciousness towards the world and towards the users sense of self and being in that world. It allows the user to orientate themselves within the world and the specific work of architecture.

It is this merging of sensual experiences through the body as the centre (Bloomer & Moore, 1977:1-5) that contributes to enriching a users experience and orientation within the world and a specific environment.

Sight:

Historically, vision has been regarded as the noblest of the senses, with many references to vision or sight as a metaphor for truth and witnessing (Pallasmaa, 2005:19). Pallasmaa identifies two different types of vision; the first being focused vision, and the second being unfocused vision. Focused vision is that which we see / observe directly, and it is this type of vision that allows the user to engage directly and consciously with the environment. Unfocused vision is peripheral and therefore includes one's surroundings, which a person is usually subconsciously aware of. This subconscious awareness of the surrounding environment is what is important in creating and enveloping effects, and it is this that eliminates the feeling of alienation from the environment.

Vision may have the ability to include a user in an environment, however it is still directional and renders one a 'viewer' in the world. It is the other senses that allow the user to unite and become one with the environment.

Touch:

The second most frequently mentioned sense is the sense of touch. This is the sense experienced through the skin and is the body's most tactile of the senses, as it is through this membrane/organ that we can 'feel' the world, allowing us for a time to be connected to the world and the environment. Rene Descartes described touch as being "more certain and less vulnerable to error than vision" (Pallasmaa, 2005:19).

Touch is an important medium to allow the user to be connected to the world and the surrounding environment because as the hands (or skin) touch, they think, and therefore stimulate the body learning and integrating with the environment.

Hearing:

In the 16th Century, it was believed that vision separated people from the world, however the other senses united them with the world. This was a time of folk tales and story telling and until written culture overpowered the oral word, hearing was the preferred sense of the human body.

Sound is non-directional, it ripples or radiates from the source and therefore affects all the environments around the source. Even if there is not a particular item that is being listened to, the ear absorbs any background noise (or quiet for that matter) allowing the body to perceive what is going on around it. The ears absorb all that is going on around us, not just what we want them to focus on, as is the case with vision. Therefore,

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subconsciously, our ears are encompassing our bodies within the full realm of the environment. As Rasmussen points out, most people may highlight that architecture does not produce sound, therefore it cannot be heard. But it can be heard, our ears have the ability to perceive volumes depending on the quality of sound within a space. Therefore it becomes an important space making tool as the ear of a user will notice if the environment is uncomfortable.

Smell:

Pallasmaa highlights that all the other senses help the eyes remember (Pallasmaa, 2005:41). Smell is one of the human body's most persistent memories of any space, with every place and memory of an environment being related to a specific smell that the body remembers (Bachelard, 1994:5). Certain smells trigger certain memories and associations. Smell has an emotional and associative power with it that a sterile and life less visual image may not encompass. Smell has the ability to project full images of life within a space and should therefore not be neglected when trying to create an environment that all users can feel comfortable and connected to.

Taste:

Adrian Stokes refers to there being a "hunger of the eyes" (Pallasmaa 2005:59) and John Ruskin says he "should like to eat up this Verona touch by touch" (Pallasmaa 2005:29). There is clearly a connection between taste and all the other senses, as is evident in these two quotes. Certain colours and details that are seen, touched, smelled or heard can evoke specific tastes in a person's mouth, a phenomenon known as synaesthesia. Therefore, the sense of taste should not be forgotten when designing for the human experience of spaces.

Conclusion:

It is noticeable that no sense should be experienced in isolation. If we keep in mind that all the senses are effected simultaneously, an overlapping and more sensuous architecture is perceived and experienced by the users, allowing them to feel as if they are a part of that experience and environment rather than having the feeling of being a spectator in the world and alienated from it.

As Kent Bloomer and Charles Moore highlight in their book *'Body, Memory and Architecture'* the body has unique perceptual and emotional capacities (Bloomer & Moore, 1977:105-110). The body, as the most fundamental 3-D possession we have, encapsulates all the five senses and their organs. Should the body itself, not then be considered the central concern with regards to understanding architecture and the human connection to the architectural form?

THEORETICAL PRECEDENTS

THEORETICAL PRECEDENTS

The precedents found under this chapter are those that demonstrate the successful incorporation of the philosophies and ideas mentioned before into an architectural solution.

TRENTON BATH HOUSE
Louis Kahn
999 Lower Ferry Road, Ewing, New Jersey
1955

The history:

The Trenton Bath House was designed as a portion of a larger plan for the Jewish Community Centre in the Delaware Valley. It was the only portion of the larger plan that was eventually built due to insufficient funding. Ironically, it is not situated in Trenton, neither is it a bath house, it is in actual fact an entrance building and change rooms for the users of an outdoor swimming pool within the community centre (the rest of which was never built) (Ducat, 2009).

The building:

On plan, the facility is a simple orthodox cross shape with four square concrete block rooms which surround a central atrium (see fig. 2.4 and 2.5). The four "spartan" rooms were the women's and men's changing rooms, the "basket" room, and the entrance room leading to the raised pool. Each of these rooms is topped with another simple element, a square pyramid roof cut short at the top to provide a skylight that serves as an oculus (see fig. 2.6 and 2.8). These roofs each rest on four large open square columns (see fig. 2.7, 2.9 and 2.10) with the edge of the roof ending short of the

external wall to allow further external light to enter the building (see fig. 2.9).

Conclusion:

It is constructed of simple, inexpensive materials, yet the purity of form and monumentality of the building surpasses these materials. The use of simple geometric forms with basic intentions creates an elegant result.

Closer inspection of the building reveals not only the simplistic pure design elegance and aesthetically pleasing qualities of this building, but also highlights Kahn's ideas of the utilitarian purposes of the various spaces; this being his first design in which he articulated his ideas of spaces that serve versus spaces served.

From this came a generative force which is recognizable in every building which I have done since.
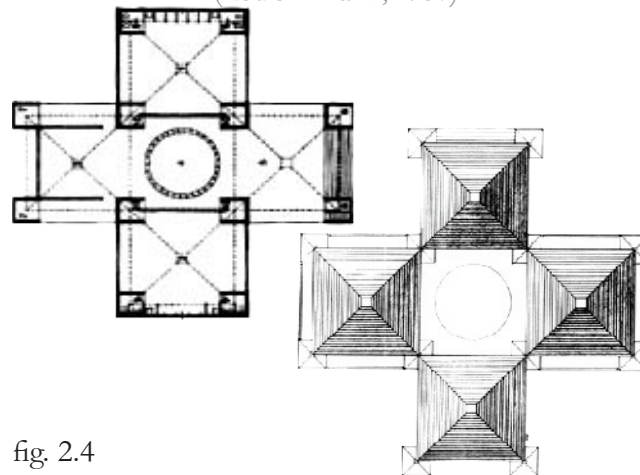(Louis I. Kahn, 1957)

fig. 2.4

The Trenton Bath House today:

In 2006 the Trenton Bath House changed ownership from the Jewish Community Centre to the Ewing Township as part of a community recreational centre open to all people. Unfortunately, due to lack of maintenance through the years, the Trenton Bath House is very run down and is in need of some work with restoration studies predicting a $486,000 project to repair and rebuild it (Ducat, 2009).

I'll never forget the excitement Louis Kahn's Trenton Bath House design evoked in me when I first saw it and I continue to be aware of its significant effect on my work.
(Robert Venturi, 1981)

I discovered myself after designing that little concrete block bathhouse in Trenton.
(Louis I. Kahn, 1970)

fig. 2.5

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fig. 2.6 A model of the roof showing the 'oculus' at the apex
fig. 2.7 A model of the roof and its supporting structures
fig. 2.8 Zoomed in view of the 'oculus'
fig. 2.9 Large open columns support the roof which ends short
    of the structure

fig. 2.10 External view of the open columns supporting the roof
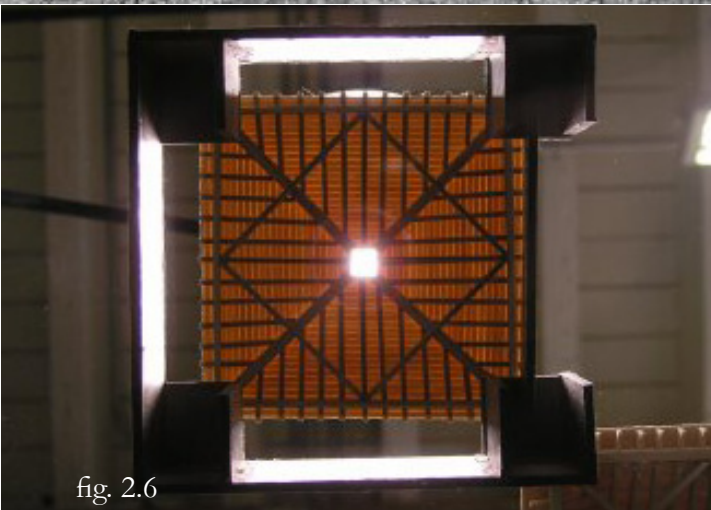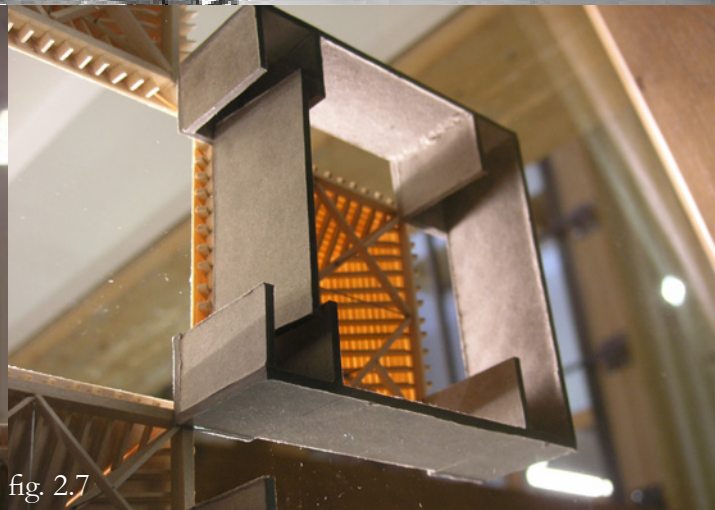

fig. 2.10

fig. 2.9

fig. 2.8

fig. 2.6

fig. 2.7

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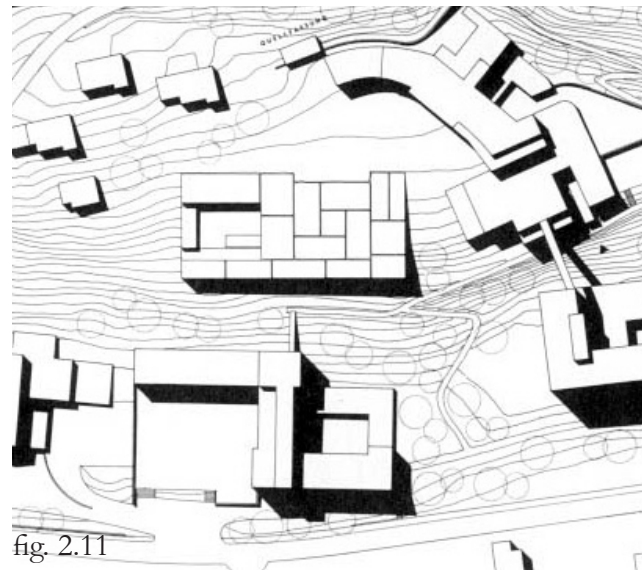UNIVERSITY OF PRETORIA
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fig. 2.11 Plan of the thermal bath and hotel complex
fig. 2.12 The roof of the complex erodes into the landscape to
    reveal the pool and sun bathing area
2.13 View of the building from the road below the complex

THERMAL BATHS
Peter Zumthor
Vals, Switzerland
1996

The history:
Vals is a village that lies half an hour from Chur, deep in a valley scattered with huts and the sound of cowbells. Below the village lies a tributary which meets with the Upper Rhine River. Over a century ago, hot natural springs were diverted for use in therapeutic bathing, and in the early 1960's a boutique hotel consisting of three buildings was erected to profit from the natural spa. However, in the 1980's the hotel suffered financial failure and the village commissioned an architectural competition to re-establish thermal bathing as an attraction for tourists. The winner was Peter Zumthor who was commissioned to design the new thermal baths, the building being considered a success in Switzerland and is listed as a protected building (Ryan, 2004:42-49).

The building:
From above, the building is almost invisible as it forms a terrace within the sloping countryside (see fig. 2.11). On this terrace (or field) are pieces of translucent glass and down lighters which can be viewed as mechanical sunflowers. The roof protects the building from the meadow alongside as well as from the hotel complex to the north, however it eventually erodes into the landscape to reveal the swimming pool and sunbathing area (see fig. 2.12). From the road below the complex, the building appears to be an embankment, a feature of stone with punctures as openings, appearing more as an

earth work than a building (see fig. 2.13). The concept was to 'dig up' and 'mound up' as the earth does naturally, creating a completely sensuous architecture.

Access to the baths is from the hotel through a sub terrain curved tunnel which is used to disorientate the user from the world outside. When the user reaches the bathing areas, a shadowy corridor echoed with the sounds of trickling water announces your arrival. To the left, a small glimpse of the main internal pool is allowed as well as a large view of the valley below, allowing the user to feel that the baths truly are one with the valley. The walls to the right are simple concrete with small indentations at particular intervals with running water over the surface flowing into a continuous gap between the wall and the floor (Ryan, 2004:42-49).

As the user comes towards the pools, they are confronted with a vertical surface of horizontally laid stone broken in five identical places - these are the change rooms, veiled with black leather curtains (see fig. 2.15). Behind each of these curtains are bright red rooms with lockers and chairs which is why the curtains are used, creating a sense of a neutral opening in the wall rather than to reveal the complexities of what lies behind them. Stepping out on the other side of the change rooms, the user finds themselves on a platform above the indoor pool where side facilities are easily forgotten as the users' attention is focused on the glistening surface of the water below (see fig. 2.16), aided by a play of light and the slowly descending stepped ramp that every one must follow (see fig. 2.17). The ramp creates the idea of a ceremony where every user slows down to enjoy and
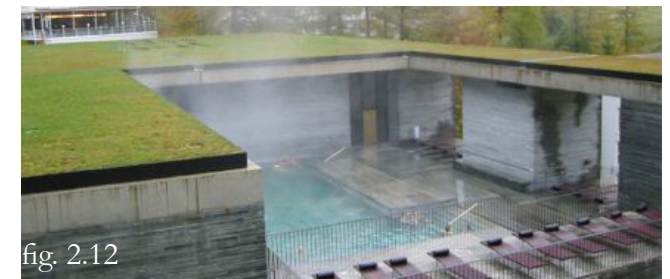
fig. 2.11

fig. 2.12

fig. 2.13

experience the environment (Ryan, 2004:42-49).

Above the pool is a gap in the roof which allows a bright strip of natural light onto the area directing the body to the deeper portion of the bathing pool as the user passes through a labyrinth of solids and voids which houses the spring water. Around the entirety of the pool are huge stone shafts that allow sunlight to penetrate the building, above which are bright blue skylights (those mentioned in the outside terrace earlier) allowing the structure to be "washed" with the light (see fig. 2.17).

The section of this building fixes it into the landscape and allows it to become one with the landscape. The plan, however, is one that allows a myriad of possibili-

ties with viewers craving to discover and experience what lies behind the next bend or in the nooks created (see fig. 2.18). The use of texture, sound, light and shadow is used throughout the architecture to help the user move through the building without the use of blunt signage (see fig. 2.14).

Conclusion:

An architecture is created that is truly experiential and encompasses the inclusion of the user throughout the process/ceremony through the building. An architecture where the user feels important and thought of, rather than alienated, as they pass through the ritual of bathing. It is a building full of sensory richness allowing the user to feel an almost primal pleasure in wanting to use the baths.
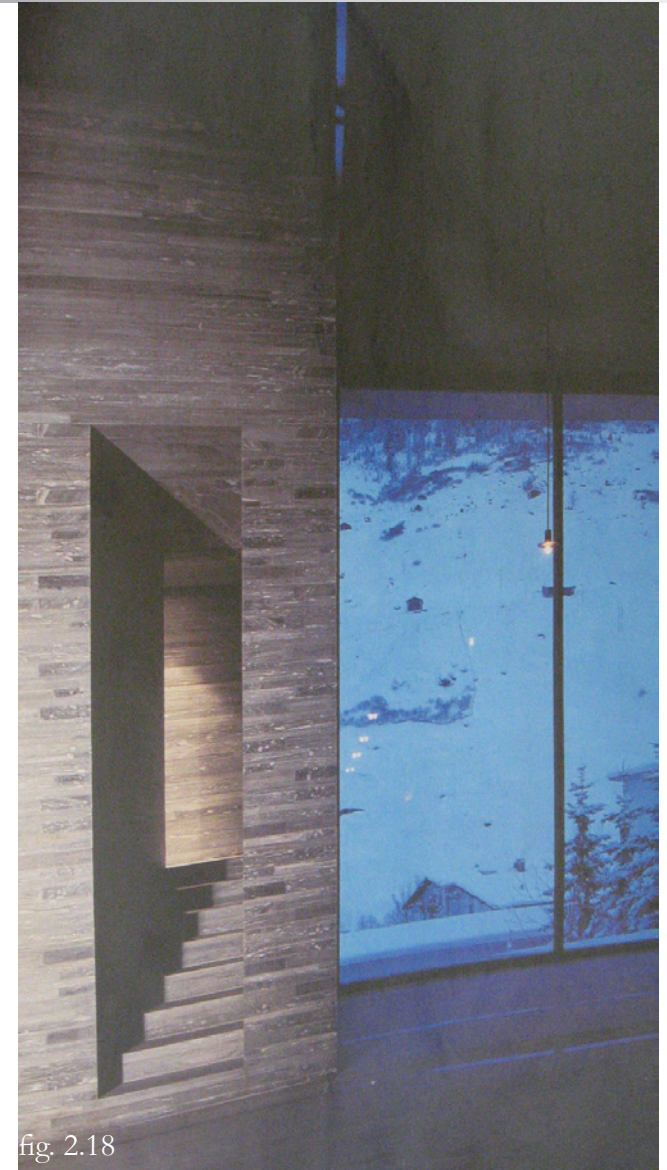

fig. 2.14
fig. 2.15

fig. 2.16   fig. 2.17

fig. 2.18

fig. 2.19 Main entrance to BCSC on the left, the central atrium
and the McGovern Institute on the right
fig. 2.20 Entrance to the Picower Institute

MIT BRAIN AND COGNITIVE SCIENCES COMPLEX
Charles Correa Associates with Goody Clancy
Massachusetts Institute of Technology, Cambridge,
Massachusetts
2005

The history:
In the last 10 years, the Massachusetts Institute of Technology has undergone many transformations, and not since the mid-20th century (Alvar Aalto's Baker House) has the 90 year old campus seen so much adventurous new architecture, the latest being the Brain and Cognitive Sciences Complex (BCSC). This seven storey, 412 000 square foot building is the world's largest centre for neuro science research and is considered a leader in state-of-the-art and new-age laboratory design (Levinson, 2006:138-143).

The program:
The design of this building specified about 50 laboratories (housing specialised equipment) as well as communal areas that would support other activities.

The building would also house two extra centres, the McGovern Institute for Brain Research and the Picower Institute for Learning and Memory, which had to have their own appearance and be noticeable within the building.

The triangular site chosen also posed some problems. To the north is a major road, Main Street, that would require the building to act as a gateway to the campus. To the south is an iconic building of the campus, a tough act to follow. The site is also bisected by an active railway line.

The building:
The problems highlighted above were confronted head on by the use of formal and technical ingenuity (Levinson, 2006:138-143).

To accommodate the three departments, the site geometry was carefully manipulated with each Institute being housed in one of the three corners of the site with their own separate entrances (see fig. 2.19 and 2.20) and multi-storeyed lobby areas (see fig. 2.21).

In the centre of the three departments, and the triangle, a five storey glass roofed atrium was created to unite the departments as well as bringing daylight into the centre of the building. The atrium is also used for large social or educational gatherings, allowing interaction between the three departments. Other such facilitating environments include the conservatory, a double volume library (see fig. 2.22), seminar rooms and many tearooms.

To accommodate the trains on the site, the building bridges over the railway line, and the supporting piles were driven down to bedrock level to protect the laboratories from any vibrations (see fig. 2.23) (Levinson, 2006:138-143).

The interior:
To create interesting facades and spaces outside and inside the building, Correa uses the technique of livening the walls and facades by creating large cutouts and bays - what he calls "urban windows" (see fig. 2.24 and 2.25). This allows the users of the building to interact with and see what is happening in the larger, communal areas of the building as well as avoiding the monotonous,

fig. 2.19

fig. 2.20

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fig. 2.21 Plans indicating the position of each department in a
   corner of the site with separate entrances
fig. 2.22 The double volume library at the facility
fig. 2.23 The building bridges over the railway line

fig 2.24 - 2.25 Interior spaces of "urban windows" to break
   monotony and allow interaction

clinical spaces of labs.

Conclusion:

This building proves that facilities do not need to be
designed to show the function of the building entirely;
and institutional buildings do not have to be clinical,
monotonous buildings. It also highlights the fact that el-
ements of design can be utilized to overcome program-
matic, functional and site problems creating environ-
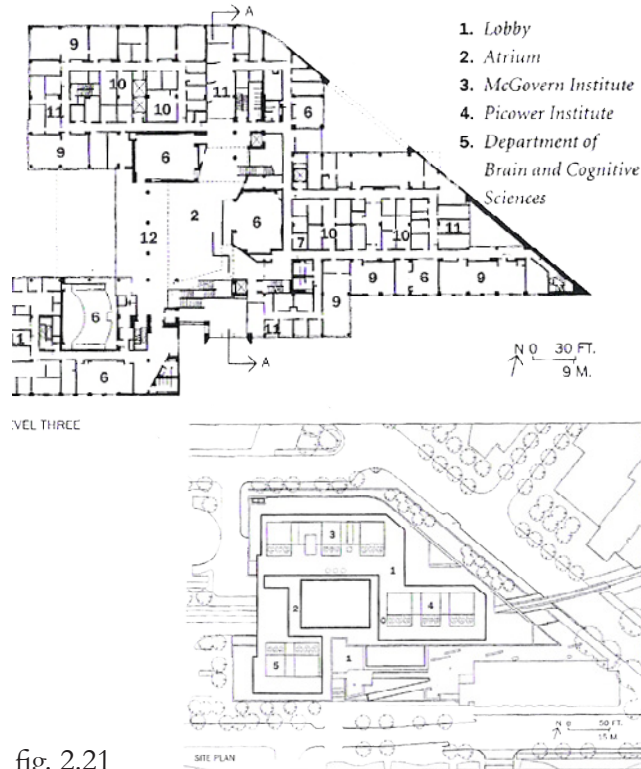ments that are pleasant and interactive in nature.

1. Lobby
2. Atrium
3. McGovern Institute
4. Picower Institute
5. Department of
   Brain and Cognitive
   Sciences

fig. 2.21

fig. 2.22

fig. 2.23

fig. 2.24

fig. 2.25

fig. 2.26 Plan of the assembly complex divided into 9 squares as
          is the Navgraha Mandala.
fig. 2.27 Overall view of the complex
fig. 2.28 Main entrance to the complex
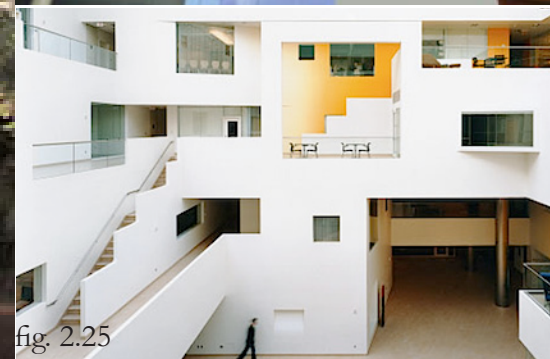fig. 2.29 Navgraha Mandala - the universe & its 9 planets

ASSEMBLY COMPLEX
Charles Correa Associate
Bhopal, State of Madhya Pradesh, India
2005

The complex:
The Assembly Complex for the state of Madhya Pradesh is formed by an amalgamation of elements from history and culture intricately woven together in the context of India.

The building is one that has many important connotations, symbolizing both equality and self containment. It is a building that has found many echoes of Bhopal's history and combines a modern sensibility with themes and devices derived from traditional architecture in a harmonious way (Digby-Jones, 2004:50-55).

This complex, about 400 miles south of Delhi, consciously takes its form from the biggest of its assembly chambers, (the Vidhan Sabha). Viewed from any side of the complex, the building is seen as an impressive element by its light footedness and effervescence.

The building presents an extremely pleasing vision with its powerful curves and straight vertical and horizontal lines (see fig. 2.26 and 2.27). Similar buildings often fall into the trap of purely being a monumental structure, however the extreme simple lines and geometry of the complex allow for an architecture with higher value.

As a break from Modernism and Post-Modernism, Correa has developed a deep cultural understanding of the Vedic principles of architecture from which he has created a synthesized architecture of tradition and modernity.

This idea is seen in design elements like the main entrance to the Vidhan Bhavan (see fig. 2.28). An entrance to a building is usually associated with a constant buzz of movement , however, traditionally the movement into such a place is that of a slow transition in order to contemplate the sky above. It is also a place to sit and rest whilst admiring the magnificent tribal wall paintings (Digby-Jones, 2004:50-55).
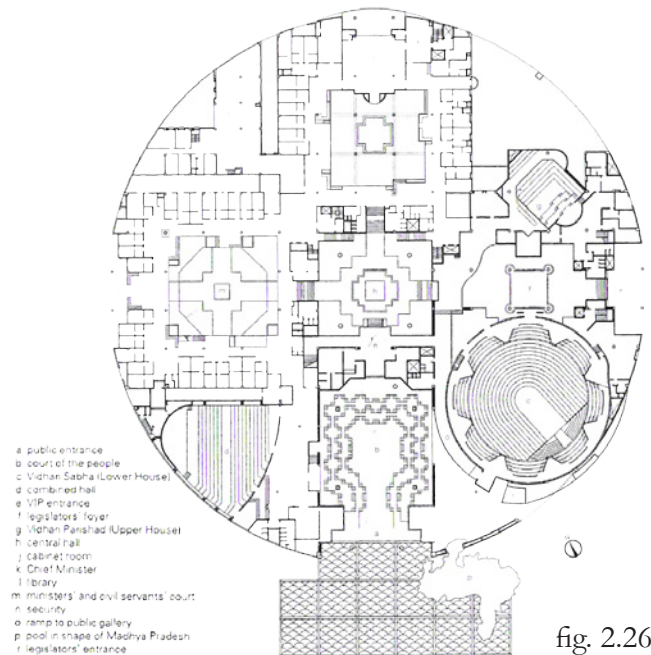
The Vidhan Bhavan is divided into nine compartments of squares (see fig. 2.26), another traditional elemental reference used in the building, that of Navgraha Mandala (Hindu pattern of 9 squares within a square describing the universe with 9 planets)(see fig. 2.29). Each square here encloses in it a pattern of gardens within gardens. The five middle squares create a hall and courtyards which form gathering points and house the offices of the complex (see fig. 2.30). The four corner squares house specialised functions, and any other non-legislative function which might be organized by the assembly.

a public entrance
b court of the people
c Vidhan Sabha (Lower House)
d combined hall
e VIP entrance
f legislators' foyer
g Vidhan Parishad (Upper House)
h central hall
j cabinet room
k Chief Minister
l library
m ministers' and civil servants' court
n security
o ramp to public gallery
p pool in shape of Madhya Pradesh
r legislators' entrance

fig. 2.26

fig. 2.27

fig. 2.28

fig. 2.29

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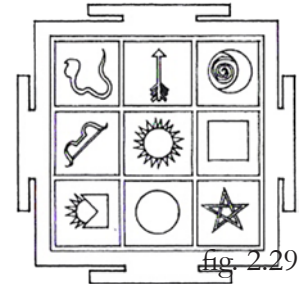
fig. 2.30 The main complex courtyard created in the middle
    square surrounded by offices and halls
fig. 2.31 The three entrance gates into a hallway to the complex

Access and entry to the building is through three main gates (see fig. 2.31), one is for the general public, one is for the members of the legislature and ministers and the third is for the Speaker of the House. There is also a smaller entrance for the Chief Minister and Ministers attending cabinet meetings.

Not only are there traditional symbolic elements in the building, Correa understands and applies various environmental considerations into his designs as well. For instance, in the hot climate of India, it is best for users to be outdoors in the early morning and at night, therefore creating spaces outdoors that can be used for activities at these times of the day (see fig. 2.30). He understands the variations of light and ambient air as one steps from a closed room to a verandah and then to an open courtyard, and his design of the assembly shows this as he creates transitional spaces from the inside to the outside (Digby-Jones, 2004:50-55).

Conclusion:
Correa understands and applies various environmental considerations into his designs and uses these to highlight any symbolic meanings that the building may address at the same time. He shows how plays on space can have both an environmental as well as a symbolic meaning for the users of a building.

From the above explanation of the complex it is clear to see how architecture can interpret the many levels on which a human being goes through and interprets life as spaces related to such a life. In a similar way,

architecture should be able to express and address the various levels of healing, growth and needs of the patients in the facility designed.

fig. 2.31

fig. 2.30

fig. 2.32 The 'land therapy' room
fig. 2.33 Change rooms
fig. 2.34-2.35 The above ground therapy pool

FLEX PHYSICAL THERAPY AND FITNESS CENTRE
Pierluigi Serraino
Oakland, California
2006

The history:
Physical rehabilitation can be a long and arduous process with invigorating and life enhancing end results. Serraino was able to create a functional yet graceful space using vibrant aesthetics in order to highlight the enthusiasm in the building to reach such life enhancing results (Weathersby, 2006:188-193).

The building:
The variety of planar geometry and juxtaposition of bright colours envelope this compacted facility to create an ambience that pushes the patients to reach their recovery goals. The main goal of the centre is to "insert joy in the path towards recovery from ailment" and indeed with the elements mentioned above, this goal is clearly seen through the architecture and interior spaces.

Although Serraino had never designed a physical rehab centre before, the architect claimed that the program and the mechanical requirements alone were intriguing elements that he tried to highlight in the design of creating a modern landscape within confined spaces that went beyond these enclosed spaces. The forms and materials used through the design create a visual relationship with each other and the user, and show clearly how they are constructed.

The intention of the design was to create easily under-

standable spaces that users could move through with the aid of visual elements and colour to guide them while creating a procession through the building (and through metaphor, one through the healing process).

Once the users pass through the entrance hall and reception area, they enter an exercise room and massage area (called the land therapy room) that can be used for both group therapy and exercise sessions as well as be closed off for individual treatments (see fig. 2.32). The equipment in this room is not hidden away in a cupboard as you would normally expect, instead the spaces have been designed to highlight the equipment and their mechanical properties (Weathersby, 2006:188-193).

From here, the next room has an above ground therapy pool (see fig. 2.34 and 2.35). The pool had to be above ground as the facility is in a leased space, however the idea was welcomed to create interior elevations (almost a mini-architecture) within the confines of the room. In the same way that the exercise equipment was highlighted through the design, the mechanics of the building itself (plumbing etc.) were also used as design elements, exposing the true nature of the building and the spaces.

Colour has clearly been used as a space and plane dividing element throughout this design, however on a second level it also creates theatrical backdrops against which the play of mending the body and spirit is celebrated.
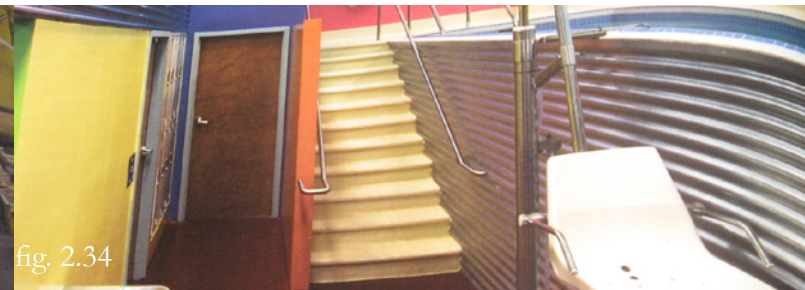

fig. 2.32

fig. 2.34

fig. 2.33

fig. 2.35

THE WHITE TOP CENTRE
Nicoll Russell Studios
Dundee, South Africa
1994

The history:
The White Top Foundation was established in the 1960s to provide care for persons with physical disabilities. About 10 years ago, a gap in the provision of care for such individuals that were older than 18 was seen, and therefore the foundation commissioned a design competition for such a facility in the Dundee area.

The building:
The concept for the new facility was to provide day care, as well as associated medical and therapeutic care, for patients with severe physical disabilities. To enable the patients and users of the facility to experience various environmental activities, the building has been integrated into the surrounding landscape as well as bringing landscape elements into the building (see fig. 2.36). For example, as you enter the facility you pass across a bridge that moves over a waterfall (see fig. 2.37), many planters are found within the facility and at the centre of the building is a courtyard garden.

The concept of the architect was to constantly question the idea and the preconceptions that every one has of "what is normal and appropriate?". Therefore, from day one certain qualities and functional requirements had to be set out to be able to provide the environment that was desired by the client. It was highlighted that the design should have a sense of place, be a warm, welcoming and reassuring environment. It was also stated that the building should contain a rich mixture of stimulating and therapeutic experiences throughout.

There needed to be a clearly understandable architecture, ordered by form and having key elements and features to allow orientation and a familiar environment for patients and visitors to read. There needed to be a protective quality to the building, however room needed to be given for some individual growth and movement to aid the healing process. The most important idea that needed to be followed through in the design was the fact that the building should not in any way have an institutional feel and it should rather create a "pleasant, relaxed, light, airy, natural setting with a scale appropriate to the low viewpoint of many of it's users" (Hunter, 1994:29-36).

Another important element for the centre, as well as the architect, was to create a sensitive integration between the users/patients and the community. Being close to a street, the site allowed this, however a problem came in to create enough private space for the users.

To promote awareness of the centre to the general public and promote activity, a public pedestrian path was created linking the street to a student accommodation alongside (Hunter, 1994:29-36).

Conclusion:
Overall, it is believed that this project is a success and the design of such facilities in the future should follow the ideas and beliefs of this centre as a cornerstone to the design of therapeutic and caring institutional buildings.

fig. 2.36

fig. 2.37

fig. 2.38

fig. 2.39 Use of natural light and shadows
fig. 2.40 Use of ambient lighting at night
fig. 2.41 Access and views of outdoor spaces
fig. 2.42 Use of fresh rejuvenating colours
fig 2.43 Creation of home-like environments

LANZERAC HOTEL AND SPA
Christo Wiese
Stellenbosch, Western cape
2005 (renovation)

The philosophy:

'Wellness' has become a way of life and at the Lanzerac Spa, the facility prides itself on being able to create an unforgettable experience and not just another day at a spa. Attention is paid to all aspects of personal well-being in a holistic manner with a belief in one-on-one therapeutic procedures, interaction and client care.

The services provided:

8 Therapy rooms
Fully equipped personal fitness studio
Juice Bar
Ladies & Mens Saunas & steam rooms
Indoor Heated Swimming Pool
Heated Indoor Jacuzzi
Various body therapies and treatments
Hydrotherapy
Rejuvenating Skin Care Clinic

The history:

Lanzerac is listed amongst the most prestigious luxury hotels in the world and extends a warm local and international welcome to long and short term guests, inviting them to experience the finest hospitality and heritage the Cape has to offer while in a therapeutic setting. The building itself is one of the region's most distinguished examples of Cape Dutch architecture found on a 300-year old estate. The facility houses many variations in accommodation with all rooms having access and views to the vineyards, mountains and gardens.

The interiors:

The overall internal feeling (and access to the outdoors) of the hotel and spa creates an incredible therapeutic environment in which a person feels rejuvenated just by being there. The rooms and facilities provided for at the spa are very similar in nature to those required for physical rehabilitation at the wellness centre. Therefore, some key aspects in the design of spaces can be taken from such an environment:

•   Continuous use of natural light and shadow to orientate people and create a relaxing ambiance (see fig. 2.39).
•   Use of ambient lighting at night (see fig. 2.40).
•   Access and views to outdoor spaces. (see fig. 2.41)
•   Use of fresh rejuvenating colours to minimise the clinical feel of treatment rooms and help with the therapeutic process (see fig. 2.42).
•   Background noise or music to emphasise the relaxing ambiance of the facility.
•   Creation of home-like accommodation facilities (see fig. 2.43).

fig. 2.39

fig. 2.40

fig. 2.41

fig. 2.42

fig. 2.43

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CONCLUSION

A therapeutic environment is not something that can be created by simply aiming to achieve a set goal. It is a process through which the environment, peoples' mind sets, peoples' wellbeing and facility goals and structure come together to form an environment that meets the requirements and desires of the users.

Such an environment needs to consider and accommodate the healing process of the users, it needs to allow these multiple layers to exist and interact with each other to form environments that contain healing qualities and remove any qualities or elements that may hinder the healing process of an individual. Such an environment should be accessible to all individuals, to be able to experience the total environment with all the human senses, with the body of the users and the building that shelters them the central core from which all healing comes from. Recovery is not a result, it is a process through layers of human healing and growth.

From the textual and precedent studies, one can conclude that the more the built environment elicits multi-sensory responses and interaction with embodied human beings, the more likely it constitutes an environment that enhances well-being.