

Introduction

List of Figures and Tables

01 Design Development

02 Context

03 precedents

03 Precedents

3.1 Apartheid museum

3.2 Behnisch

3.3 Freedom Park

3.4 Mount Grace Country House and Spa

3.5 Okavango Delta Spa

3.6 Rammed Earth Architecture, Rick Joy

3.7 Thanda Private Game Reserve and Wellness Centre

3.8 Women's Centre, Rufisque

04 Baseline Indicators

05 Technical Investigation and Drawings

06 Appendix

References



3.1 The Apartheid Museum Johannesburg

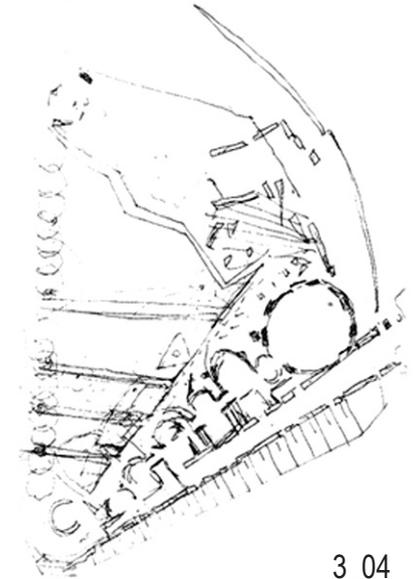
“The Apartheid Museum, south of Johannesburg, portrays a history of the city with a focus on the apartheid years from 1948 to 1994. The building itself, with its landscaped grounds, is a positive contribution to the city; as is the exhibition which offers the visitors a powerful representation of the journey we have travelled.”

The site is located between the Johannesburg CBD and Soweto, in a semi-industrial zone that also accommodates office and retail facilities.

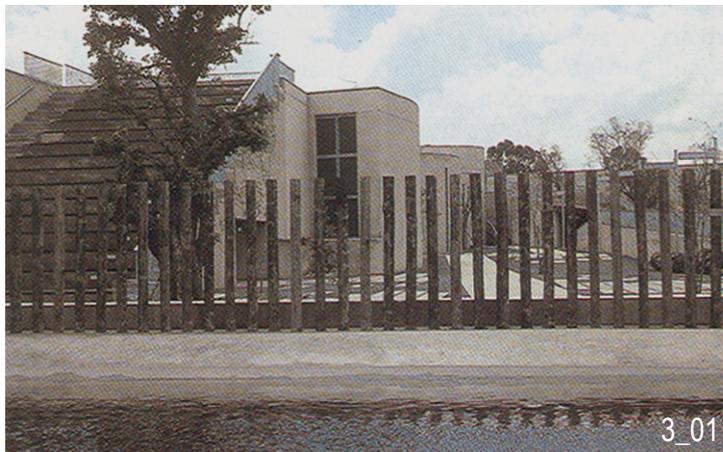
The guiding design principle is that the building is essentially African and at the same time of a quality that reverberates locally and internationally. The landscape is important, and the building appears buried, built out of a kloof carved into the land. Due to a difficult site, in the middle of suburbia, the building had to be screened and turned in on itself, to provide for a ‘spiritual building’.

Fundamental to the project was the need to restore the Highveld landscape. The sky and the veld are significant of the Highveld. The veld is stylized into sections; the long straight rows of tall thatching grass are interspersed with bands of kikuyu that carry the eye away from the building to the distant skyline. The kikuyu provides a practical public space where people can sit in comfort and picnic.

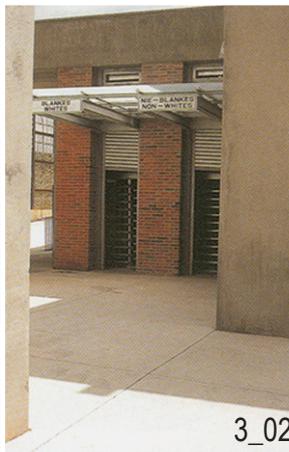
The complex is made up of three linear buildings which frame the internalised park. The main building is on the southern side, with a ramp up one side. This building comprises pavilions which are strung together with interlinking mood spaces, to accommodate a chronological history of apartheid as it has been witnessed in Johannesburg. On the opposite side of the building the land falls away to a small dam. An entrance wing, that parallels the parking area to the east, houses a ticket office, a restaurant, public toilets and a museum shop. An administrative wing, incorporating offices a library and archives is located against the western boundary.



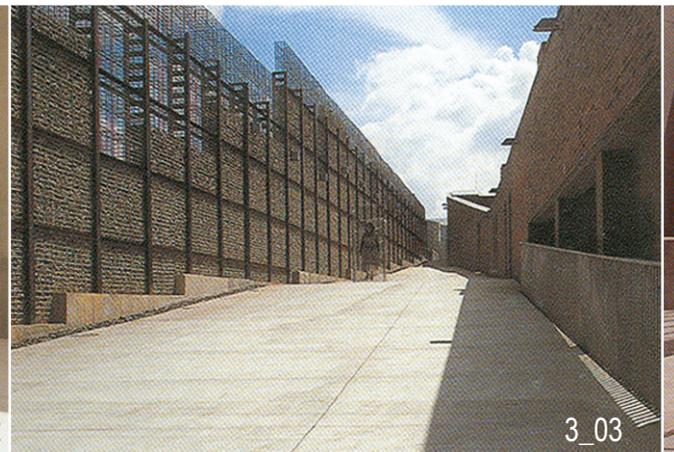
3_04



3_01



3_02



3_03

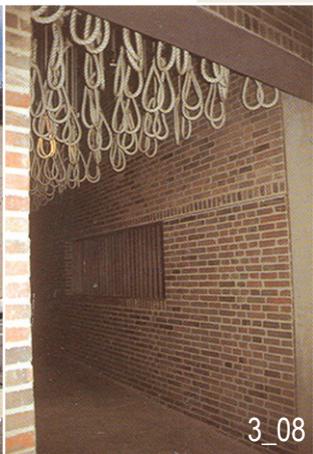
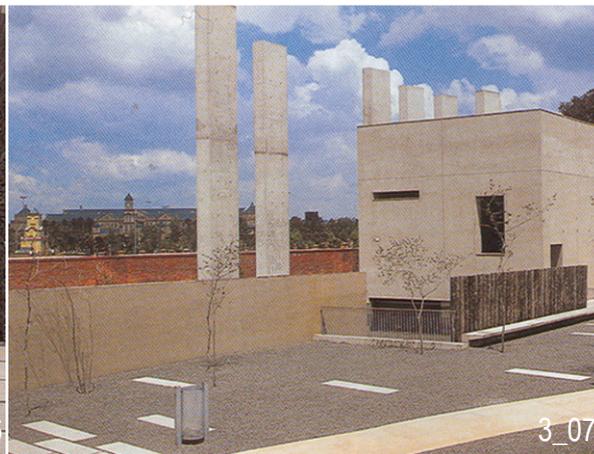
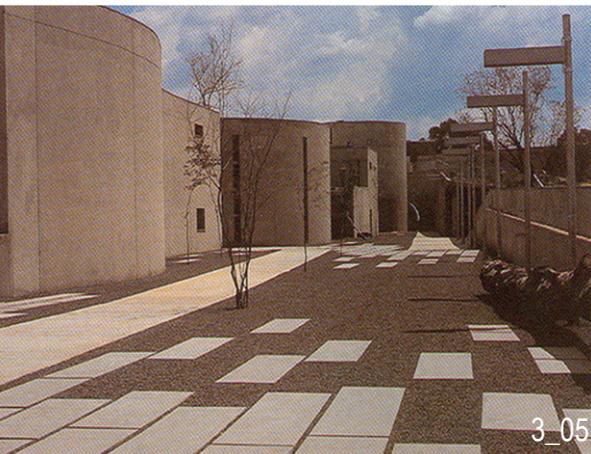
The restrained palette of materials and colours, the severity of stone and rusted steel, concrete, raw plaster and red brick, reflect the gravity of what the building is about. Yet despite the harshness, there is a sense of celebration in acknowledgement of the triumph of the human spirit over adversity. The exhibition spaces are largely devoid of finishes: bare concrete, raw plastered or red brick walls, screeded floors, exposed concrete soffits and conduiting carried in industrial steel cable trays. This raw interior contributes to a direct and unpretentious presentation. The rooms fragment as the story of division, tension, oppression and resistance is encountered. The transition out of the building is gradual via a hall of remembrance, into a treed courtyard. The landscape and grounds provide a contemplative space, stilled by the presence of the building, where one can walk or take a seat in the park, or leave passing the restaurant and shop on the way out.

Lessons learnt

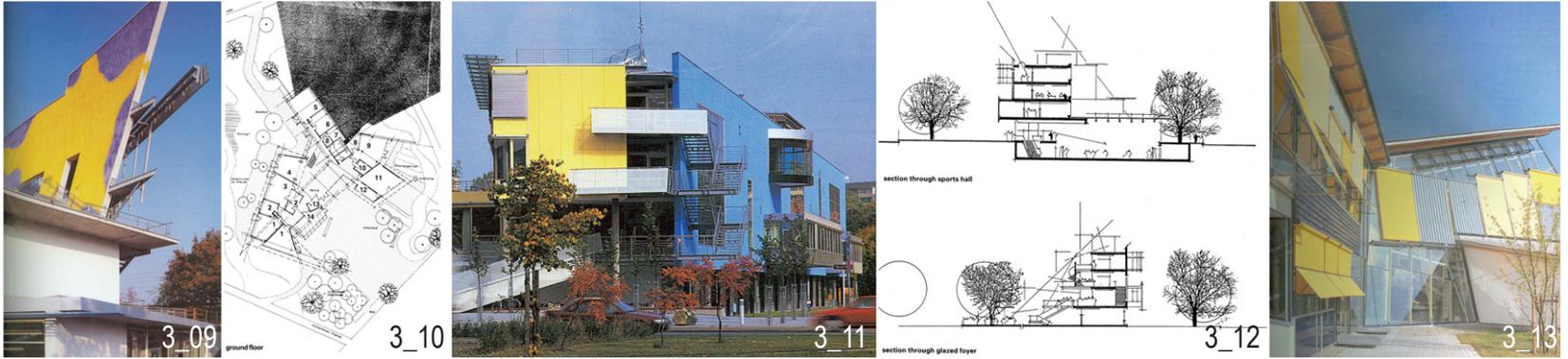
- + moods and emotions conveyed by the spaces in the building. The visitor has an emotional visit.
- + importance of the landscape surrounding the building.
- + screening and inward focus to provide a particular experience.
- + use of materials and finishes to enhance exhibition.
- + exit from the exhibition, transition into exterior courtyard and emotional contrast of the space: experience of hope on movement into grounds.

References

Darroll L., 2001. Urban Roots: A history of Johannesburg, *Urban Green File*, December 2001, vol. 6, no. 5, p. 24-29.



3.2 Behnisch and Partners



Behnisch and Partners have a distinguished record in school architecture. Their distinctive free responsive planning, accepting acute and obtuse angles, has become synonymous with their office. Behnisch uses polygons to create dynamic spaces within a building. Along with this Behnisch uses elements and planes in contrasting materials and colours. Angled walls emphasis horizontal, vertical, and diagonal lines and planes within a building.

The skewed placing of the parts of the building derives initially from the orientation of neighbouring buildings, site boundaries, and paths. The angles are used advantageously on the outside to contain space and inside to direct movement. Contrasting orientations allow exploitation of views on the site, while shafts of sunlight play through the building during the day. The conflicting geometrical systems and skewed partitions give the rooms individual unregimented characters.

The central hall of the School is an important space to Behnisch, as this is the community space, a place for accidental encounters and social events occur, the identifiable hub and focus. The hall is designed as a well shaped in-between place, allowing interaction and movement.

Despite the angular and irregular nature of the buildings, Behnisch uses circulation and visual axis to retain cognition and orientation within the buildings. Circulation spaces are generous and well lit.

Behnisch uses layering, in the form of screens, glazing, wall surfaces, cladding and colour to add interest to building surfaces. Pitched roofs of corrugated steel sheeting are used on many of his buildings

Natural lighting is used to its fullest capacity in all the Schools designed by Behnisch. Large glazed facades allow generous amounts of light into the buildings. Excessive sunlight is controlled through shading devices, screens and overhangs. In atria and interior courtyards roof lights are used to allow natural lighting in.

Some well publicised buildings include schools in Frankfurt, Bad Rappenau, Germany and Dreseden Germany.

Lessons learnt

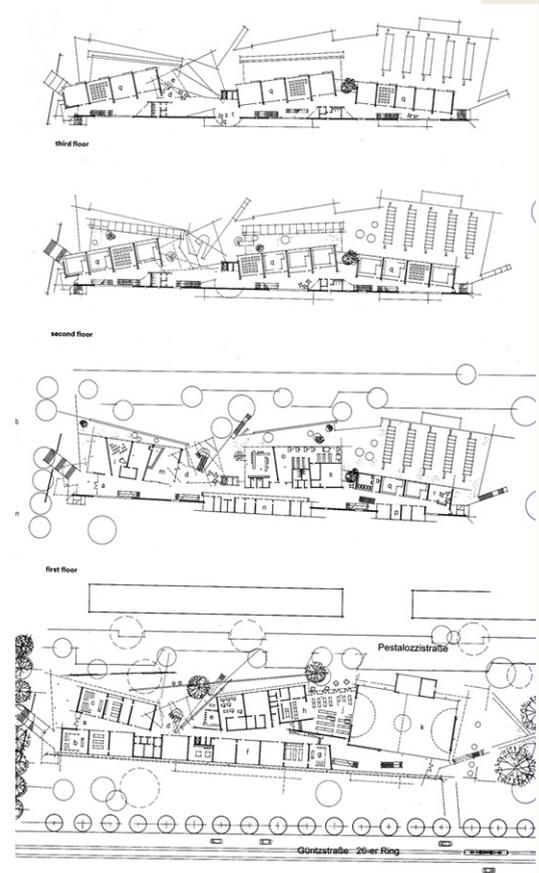
- + angular geometry used to emphasise spaces, views and circulation, as well as enclose and create space
- + contrast of materials and planes within a building
- + natural lighting
- + circulation and visual axis used to maintain orientation and cognition of the building

References

Blundell-Jones P, 1995. Behnisch in Frankfurt, *Architectural Review*, April 1995, vol. 197, no. 1178, p. 24-31.

Jones P., 1992. Good Bad Rappenau, *Architectural Review*, February 1992, vol. 190, no. 1140, p. 26-30.

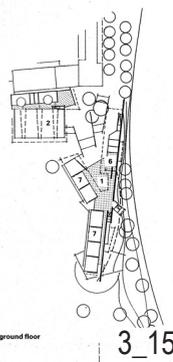
Miles E., 1997. Grammar Lesson, *Architectural Review*, January 1998, vol. 202, no. 1208, p. 38-45.



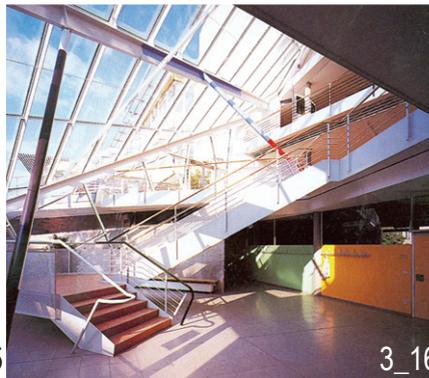
3_17



3_14



3_15



3_16

3.3 Freedom Park, Salvokop, Pretoria



“Essentially the rock is our home...in the mountains African people listened to the voice of silence. Mountains and hills served as a seat of governance for many royal kraals. Mountains were considered sacred by some groups who used to go there to pray for rain, or to bury kings in the caves...believing that the ancestors reside there...a step to the heavens and to our humanity.”

Freedom Park is located on Salvokop, a 52ha site immediately south of Pretoria. The koppie is situated at the interface between urban areas to its north and natural areas to its south. The hill was chosen for its symbolic historical and cultural significance. The location of the park is intentionally in view of the Voortrekker Monument, to juxtapose that history with the processes of moving forward as a united nation.

The principle elements of Freedom Park include a Garden of Remembrance, a museum, a memorial and gathering place. The first phase of the site, the garden of remembrance is intended to become a national symbol for reparation, a symbol of healing and cleansing, and a place where the spirits of those who lost their lives for freedom can rest.

Anchoring the garden of remembrance is a spiral pathway with contemplative spaces along it. This pathway will ultimately connect most of the buildings on the site. The pathway moves up the site in an easterly direction. East is significant as it is here that the sun rises, marking the beginning of a new day, and metaphorically the beginnings in the new history of South Africa.

Following the contours, the pathway reaches the *isivivane*, built on the southeast slope of the hill. The *isivivane*, meaning monument or memorial, is a sanctuary, “a final resting place for the people who fell in the fight for freedom in the eight conflicts that have shaped South Africa.” These conflicts include the colonial wars and wars of resistance and freedom. This contemplative space has been designed primarily with deference to African symbolism and belief systems, but intentionally contains universally recognisable symbols of hope and unity.

African cosmology gives special significance to stones, boulders and rocks. The fundamental layout of the *isivivane* was derived from an African homestead which traditionally encompasses the *lesaka*, burial place, and the *kgotla*, meeting place. A wide flat terrace has been created in the slope of the hill, supported by a retaining wall.

The *lesaka* is a circular structure where people are buried and where the spirits can come home to rest. At Freedom Park the *lesaka* is made up of flat stone, edged with brushed concrete. Around this circle eleven boulders have been placed; nine of these were selected and sanctified by each of the provinces and transported to the site with some soil from their home ground; the two larger boulders represent the local and national governments. Contained within the circle are stones from countries outside South Africa, symbolic of the exiles who fell while they sought refuge abroad.

A fine water spray has been designed into the *lesaka*, so that mist rises up to billow and drift across it. Smoke signifies the beginning of spiritual healing, smoke being indicative of the incense that is often burned in traditional and religious ceremonies to signify a holy place and to represent spiritual cleansing.

On the terrace a single Monkey Thorn, *Acacia galpinii*, has been planted. This signifies the *kgotla*. Nine Buffalo Thorn trees have been planted to form a backdrop to the setting. This tree is special to the Nguni people. When someone died far from home, the elders of the party would send someone to 'fetch the spirit' and would carry a branch from this tree to the place where they had died and call the spirit home.

A waterfall has been built into the packed-stone wall that frames the terrace. The water flows down the wall and into a shallow pool, reminding the visitor that "the spirit flows and cleanses like water." On the way out a 'spring' of water bubbles into a bowl carved into the top of a large boulder placed near the exit. Here visitors can wash their hands in respect of the place, after paying homage to those who rest here.

Lessons learnt

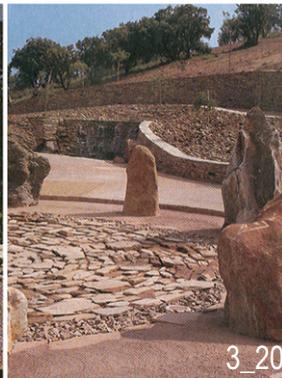
- + symbolic cultural and historical significance of the site.
- + zoning and development of the site according to ecological survey.
- + important African indigenous symbols; the east, stones, boulders, rocks, trees.
- + the symbolism of water and smoke in indigenous healing.
- + layout and placement of elements to increase significance.

References

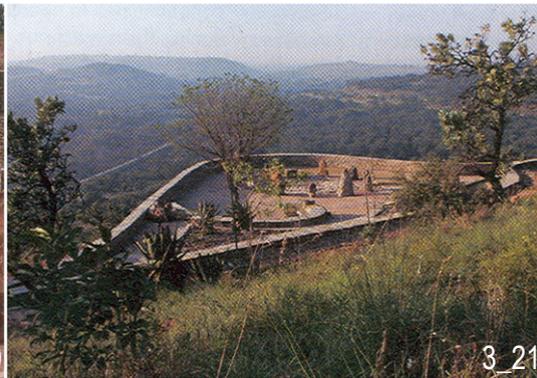
Young G. and Darroll, 2004. Freedom Park: A landscape narrative of South Africa's history and heritage, *Urban Green File*, June 2004, vol. 9, no. 2, p. 18-23.



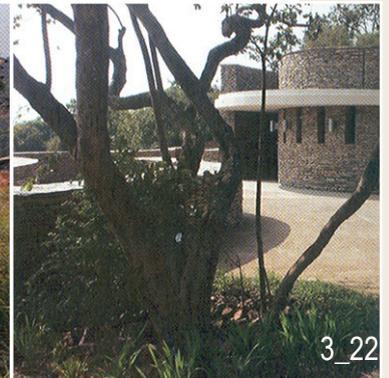
3_19



3_20



3_21



3_22

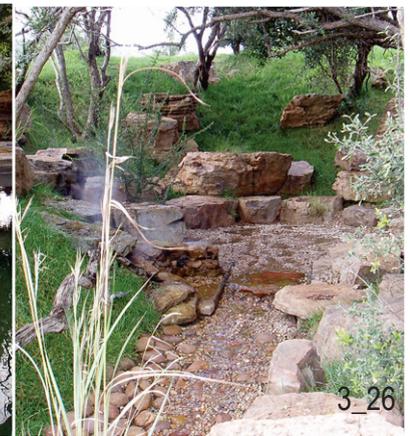
3.4 Mount Grace Country House and Spa, Magaliesburg

Mount Grace is situated an hour west of Pretoria, near the town of Magaliesburg, South Africa. The main building is of stone construction with a thatch roof. Reed ceilings, cane furniture and natural colours complement the stonework of the walls. The main building houses the reception, lounge, spa café and six treatment rooms. One of these treatment rooms has wet facilities, that is, a shower and spa bath.

The café and lounge area are surrounded by water, which adds white noise, and large openings that integrated the café into the landscape. Below the café is the relaxation and tanning deck, as well as pools for swimming. Situated next to the café is the hydrotherapy spa garden.

The hydrotherapy spa garden consists of open air facilities. These are made up of a heated pool, a massage table, cold pools, a fountain and a reflexology path. The flotation pool makes up the last element, and this is a covered facility. The materials used in the garden are rocks and stone. Tree branches are used as handrails to enhance the natural quality. The circular flotation pool is surrounded by a heavy dry stone wall, with a suspended roof that is painted with clouds and sky.

The bush spa is situated a couple of hundred meters away. This consists of five treatment rooms, changing facilities and a central lounge area. All of these elements are separate units that are linked by timber walkways. Each treatment room has an en-suite toilet, and shower room. The construction of these units is a timber frame, lifted off the ground, with a thatch roof. Dry wall construction makes up the walls. The ambience of these treatment facilities is different from that of the main building. A gentle stream runs through the complex, winding along the pathways and providing a tranquil atmosphere.



Lessons learnt

+ spa garden is unique and well integrated into the landscape, the facilities are a feature that adds to the experience.

+ flotation pool is unique it mimics nature, and abandons previous types of machine like examples.

- circulation through the main facility lacks privacy and separation. Staff carry dirty linen through the lounge and café area to the kitchen and laundry.

- placement of the hydrotherapy garden is awkward. The kitchen walkway backs onto the spa garden, separated by a thin fence, that provides little sound insulation.

- entrance to the hydrotherapy garden is through the café and past the buffet area.

- no reference to the context of the facility is discernable from inside the treatment rooms of the main facility.

+ bush spa acknowledges its context, and functions as a removed, enclosed whole.

+ placement of the units and the natural trees provide privacy and enclosure.

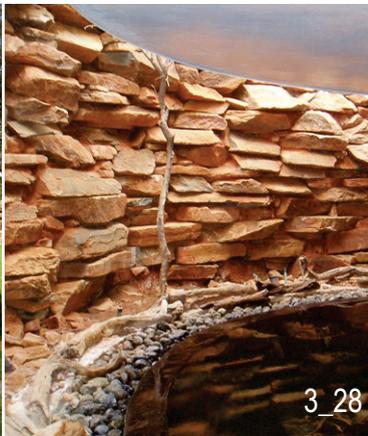
+ approach to the bush spa down a timber walkway, with the stream alongside, is very effective as a transition into the complex.

- client has to walk through the car park in their robe, unless they change at the bush spa, and then again once back at the main facility.

References

Site visit 17 April 2004, photographs and wording authors own.

www.grace.co.za



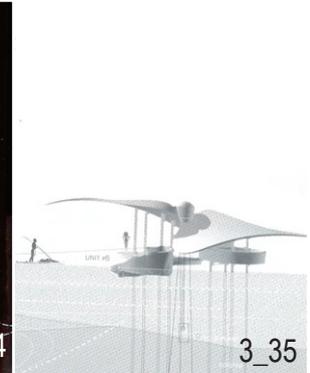
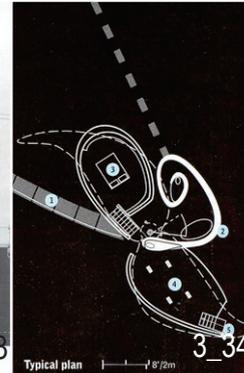
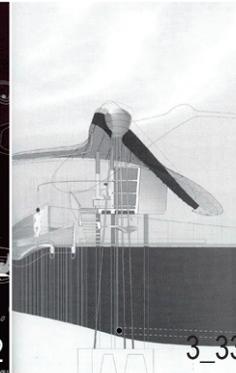
okavango river delta spa

3.5 Okavango River Delta Spa, Okavango Delta, Botswana

The spa integrates two current trends in tourism: the industry is responding to an increasing demand for ecotourism destinations, at the same time that marketing of stress has triggered a 'spa boom'. The site lies deep within the Okavango Delta. The spa is located in a perennial swamp, while the outer edges of the delta system fluctuate, water levels here remain constant.

The elements appear to float on the water, but are anchored to the delta floor with ebony wood pylons that sit in concrete footers. Buoyant wood and fibreglass tracks weave through the papyrus, connecting pairs of units to three termite islands. A nearby runway serves as the only means of access to the resort.

The spa comprises a series of fixed (bar and dining and guest units), tethered (buoyant fibreglass spa and tracks) and free elements. Four mobile meditation pavilions and a crocodile resistant lap pool are powered by low speed outboard motors and can be manoeuvred through the reed beds or docked in the shade of the bar/dining roof overhang. The lap pool, a steel frame lined with steel mesh, allows guests to swim in filtered delta water. There is also a bentwood deck for sunbathing.



Each guest pavilion has petal-like thatch roof construction and is solar powered. Each tripartite pod comprises a wood framed sleeping quarter, a lounge-massage area and a floating, moulded fibreglass bathing facility. The units are placed in natural clearings in the papyrus beds, optimising views and breezes while maintaining privacy. A fibreglass spa is tethered to each unit. Water is filtered and pumped into a solar collector drum located on an aluminium tripod at roof level. Two pivoting arms feed heated water to the tub or shower and large sinks.

A grid of waste pipes (linked to septic tanks and pumps) is submerged and runs along the delta floor connecting to each unit. Waste water is pumped to a leech field on the main island. Below water the grid of waste pipes, tanks and pumps process and separate waste in accordance with environmental regulations.

Daytime temperatures during peak tourist season are high. Thatch roofs are orientated to maximise shade and take advantage of the shifting winds. The buoyant fibreglass spa moves with the fluctuating water level and is shaded by the roof. Extending overhangs allow for areas of water to be incorporated into the enclosed space.

Kitchen and other facilities are shaded by trees along the edge of the main island.

Above water, anchoring pylons secure the buoyant tracks at each termite mound island. The tracks flex with changing water levels. A solar powered light source on each island produces 'runway' lighting along the tracks.

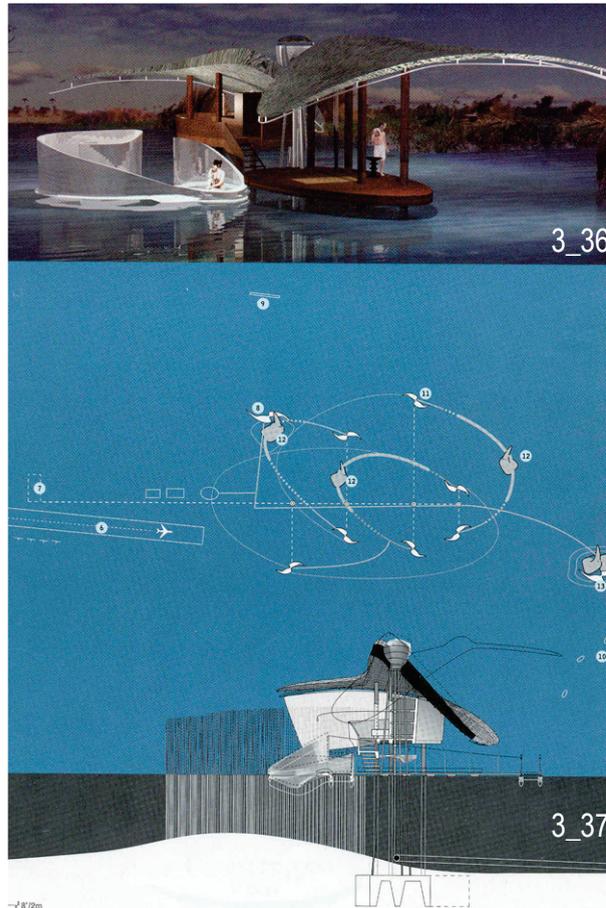
Lessons learnt

- + climate responsive construction of the units. Orientation of roofs and units is important to engage passive cooling technique and appropriate shading.
- + solar power, and care taken to remove and eliminate waste, shows high environmental regard.
- + energy efficient power makes the complex self-sufficient. Solar power takes advantage of the high level of sunshine that occurs.
- + filtering and use of Delta water uses the resources available on the 'site'.
- + waste water is pumped to a leech field on the main island. The containment, processing and disposal of waste water and sewage shows prevents these substances from polluting the surrounding delta.

The development and systems in the complex strive to have as little environmental damage as possible. This is an important feature.

References

- O'Connor M.J., 1999. Down on the Delta, *Architecture*, March 1999, vol. 88, no. 3, p. 44-45.
- Roy L., 1998. Coordination: African Delta Spa, *Assemblage*, August 1998, vol. 98, no. 36, p. 42-63.



rammed earth architecture

3.6 Rick Joy, Rammed Earth Architecture

Rick Joy designs with an element palette of light, space and soil. The Sonoran desert, around Tucson, contains a few of his buildings. Despite the violence of the sun and the stark profile of its mountains, the desert is visually fragile and easily thrown into imbalance by a jarring building. Joy has a history of using rammed earth structures, and expresses the nature of the material. The earth is packed into walls that reveal the strata of pours, giving surface texture. Joy uses the rammed earth as the majority of the building can be built without skilled labour. Skilled labour can be used in target areas to contrast with the shell.

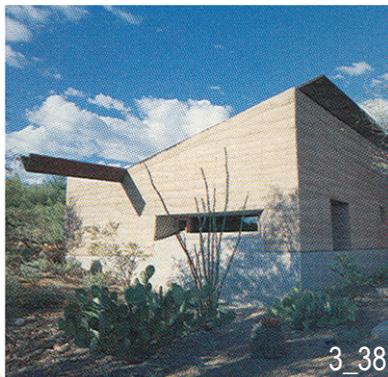
Joy's search for the origins of desert architecture have drawn on straightforward building traditions of the indigenous and Hispanic cultures that have inhabited the Southwest of America for centuries. At their core these traditions embody logic about how to build in and live harmoniously with this harsh environment. A typical indigenous structure has thick bearing walls of adobe that support a wooden-frame roof covered in corrugated metal. Colourfully painted, handcrafted doors and windows accent the simple palate.

Rick Joy Studio, in Tucson has been reduced to similar essentials as the indigenous architecture. It consists of one enclosed volume surrounded by rammed-earth walls that rise from the boundaries of the small site. The volume is divided longitudinally by a glass window wall that creates an interior studio to the south and an exterior courtyard to the north. The entrance to the courtyard is located beneath a lone tree, through a pair of rough hewn, plank-and-steel gates.

The decomposed granite floor, water feature and earthen walls all lead to a series of encounters with light; the desert environment being defined by extraordinary light. Inside the studio a narrow skylight traces one of the walls, and combined with the light from the courtyard, the studio has soft ambient light.

Palmer/Rose House in Tucson is a one bedroom house, divided into three segments, according to its function. The massive rammed earth walls act as the house's shield from the harsh southern and western sun. The walls support corrugated steel butterfly roofs with inverted gables. The rusty v-shaped roofs recall the profile of the surrounding mountains, and the entire mass lies low in the landscape.

The living areas have views of the mountain panorama with wide floor-to-ceiling structural glass. The valley of the butterfly roof compresses the space on the south side and releases it to the views on the north face. Other small windows are punched out of the earth surface. Full advantage of the walls thermal properties are exploited, and the walls are kept closed to the south, with openings on the north.



Convent avenue studios is a collection of four houses, on a narrow site in Tucson. The houses have identical wedge-shaped plans and are arranged in a tight matrix of private and semi-private courts and pedestrian access ways.

The simple volumes of the houses are derived from abstraction of the traditional long narrow sheds in the area. The rammed earth walls are powerful elements, and assist in passive cooling of the studios as well as shading. The earth was carefully chosen from three different local sources to provide desired consistency and colour. To contrast to the walls, Joy uses timber finishes inside the studios.

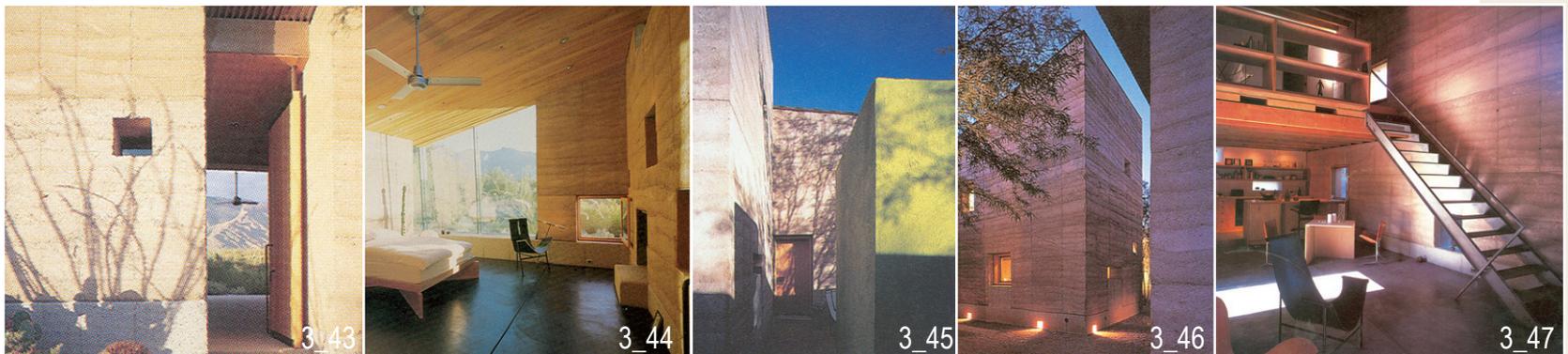
Garden walls are plastered concrete blocks, and garden fences of pre-rusted steel. Joy has coloured the concrete walls in a striking green. This may not be fashionable, but it works well to offset the steel and striated earth to define and clarify the maze of external spaces, and provide numerous moments of surprise and delight within the small site.

Lessons learnt

- + rammed earth construction
- + response to site and the environment
- + climate and orientation, passive systems
- + use of materials and their properties
- + use of traditional building techniques, with adaptation to contemporary needs
- + use of natural light

References

Giovanni J., 2000. 400 South Rubio, *Architecture*, January 2000, vol. 89, no. 1, p. 78-83.
Giovanni J., 1998. Earth Work, *Architecture*, November 1998, vol. 87, no. 12, p. 90-97.
Pearson C., 1997. Houses, *Architectural Record*, April 1997, vol. 97, no. 4, p. 70-75.
Seal M., 1998. Twist of Lime, *Architectural Review*, November 1998, vol. 205, no. 1221, p. 47-49.



3.7 Thanda Private Game Reserve, Wellness Centre, Mkuze

Thanda is situated in Northern KwaZulu Natal, 23km north of Hluhluwe on the N2, towards Mkuze, approximately 300km north of Durban, South Africa.

Guests park at a main car park, and are taken into the lodge on a game drive vehicle. This decreases noise, vehicular circulation, and enhances the transition into the bushland. The building complex consists of a main lodge, nine bush villas and a spa. The building complex is joined by a series of timber walkways.

The spa is situated centrally and surrounded by the accommodation units. The materials used in the construction are mainly timber, stone and thatch. The facility is circular in shape. At the core is the circular steam room, with a passage way to the south. Off this passage are two treatment rooms, one for massage, and the other for facials and pedicures. The hydro bathroom, change rooms and storeroom open off this passage. On the northern side is an open fronted lounge, entrance, and outside treatment area.

The outside treatment area has two pools on separate levels. The top pool is the heated jet pool, and below it the cold plunge pool. A reflexology path runs alongside the two pools. The relaxation and tanning deck lies in front of them. Off from the lounge area is an outside massage area. Due to the high temperatures normal to this region, the indoor treatment rooms have to be air-conditioned.

The walls of the steam room are built of smooth river pebbles, and this element is a focal point of the building. The floors of the facility are concrete, the walls plastered, and the roof is thatch. Lath fences act as separation and privacy elements.



Lessons learnt

- + facility blends into the bush environment. The use of natural materials helps to enhance the ambience and unobtrusiveness of this facility.
- + integration of the outdoor wet treatment facilities into the landscape, as a water feature.
- + indoor treatment facilities have large window openings, with sweeping views of the surrounding bushland.
- + facility acknowledges its context and setting, and exploits it for the benefit of the client, and the experience as a whole.
- + facilities of the spa are well planned, relate well to one another, with good circulation.
- + natural trees, shrubbery and partitions enclose separate areas.

References

Site visit on 20 March 2005, photographs and wording authors own (apart from where specified).

www.thanda.com



women's centre

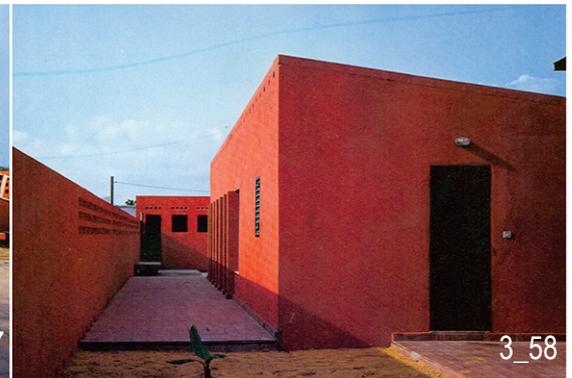
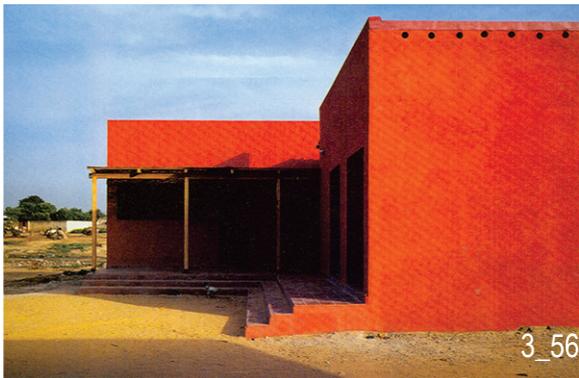
3.8 Women's Centre, Rufisque, Senegal

Rufisque is a port on the Atlantic Coast, to the east of Dakar. This port is undergoing traumatic transformation with the impact of modern technology and a surge of immigration from the countryside. Women's groups are not new, and have a long tradition in Africa. The women's centre is a focus for local groups, a reception organisation for rural immigrants and a powerhouse for empowering women in a traditionally male orientated culture.

Built on a site that was donated by the city of Rufisque, the design responds to the scale and massing of the low, dense buildings on the surrounding city blocks. The centre is modelled on traditional compounds in this part of West Africa, with a strong perimeter surrounding buildings turned inwards to a private communal court. The baobab is one of the few trees left in an area starved of wood, and it shades the entrance to the communal hall. The other public entrance is on the north-west corner of the compound and is an attempt to make a small public square, onto which the centres shop and restaurant open.

Inside the compound a paved courtyard is enclosed by an orderly rhythm of the piers of the communal hall to the right and the workshops of the other side. The red building is massively constructed to exploit the flywheel effect. The buildings have wide overhanging roofs to provide shade, using arcades, eaves and shutters, and are open to the maximum amount of natural ventilation.

The goal was to employ as many local materials as possible. The structure is in-situ concrete frame filled in with concrete blocks, cast and cured on site. One of the largest cement factories in West Africa is located near by. The roof is corrugated metal on steel beams. For ventilation, an open space is left between the roof and ceiling, which is made of thick straw matting to bring a warm, textured surface to the interiors. The matting was chosen due to its insulating properties and to resurrect a fast-disappearing local skill.



The use of wood has been reduced, as it is a scarce resource. The windows and doors are made of steel, and the reinforcing was made of recycled metal. Some of the ventilation ducts use wheel hubs from old vehicles as protective grilles. Bottle bottoms have been used in some places to make 'glass brick' windows. The craft centre is largely open between its piers to allow the poisonous gases of the dying processes to be dissipated.

The only indulgence was colour. The walls are painted a powerful red, a dramatic departure from the greys of the surrounding buildings.

The centre is intended to facilitate the development of women's groups and help improve the women's live as well as through the economic and social initiatives, the life of the greater community as well.

Lessons learnt

- + response to scale and mass of surrounding buildings and context.
- + use of passive systems in building functioning.
- + use of local materials, recycling of building materials, and sensitivity to scarce resources.
- + upliftment of the community.
- + use of colour.

References

- Lang Ho C., 2003. Collective Construct, *Architecture*, September 2003, vol. 92, no. 9, p. 70-75.
- Anstruther A., 2002. Women's Rights, *Architectural Review*, July 2002, vol. 212, no. 1265, p. 50-54.

