KZ-NIA Journal | Issue 2/2010 | Vol. 35 | ISSN 0379-9301

Durban's New Airport

KZ-NIA

KZ-NIA JOURNAL · ISSUE 2/2010 · VOL 35 · ISSN 0379-9301
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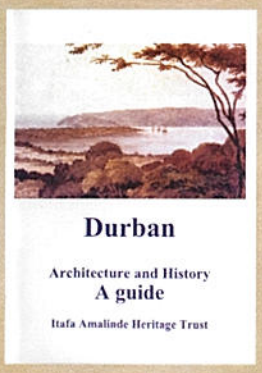
NEWS

PUBLICATION

Durban. Architecture and History. A Guide.
Designed and edited by Brian Kearney and published by Itafa Amalinde Heritage Trust, 2010.
Copies are available from the Trust (davis@burvest.com) at R80 incl postage.
THIS A5-SIZED PUBLICATION contains 63 pages and a fold-out map. Despite its title, it is essentially a history of Durban with references to relevant architecture. Its coverage is very wide with 'glimpses' of Durban's geology, geography, socio-cultural and economic history etc before reaching the architectural section. Interestingly, this is introduced by a chapter on townscapes and places, a welcome inclusion. Following that, the architectural section describes the constructed heritage of the city centre, Point, Berea and inner suburbs, the north, south and west of eThekwini, the municipal area in which Durban is lodged. It concludes with a summary of museums, galleries and excursions, the last with a list of criteria of which 'security' features topmost, and wherein Grey Street and, surprisingly, the Point fare worst.



Unfortunately, the illustrations are all thumb-nail sized, whether an aerial view of a part of the city or a single object and, somewhat unusually, the numbering of the illustrations moves left-to-right down the sides of the pages which, at times, is a little difficult to follow.

While any publication on Durban's architecture is to be welcomed, an extension to include the superb examples of modern architecture after WWII, with the decades of Izzy Benjamin, Hans Hallen and even the New South Africa, is surely overdue.
Walter Peters, Editor

Council for the Built Environment (CBE)

The above statutory body was inaugurated in July 2010 as the overarching Council of the six built environment councils (Architecture, Engineering, Landscape Architecture, Project & Construction Management, Property Valuation and Quantity Surveying). The purpose of the CBE is the promotion of good conduct within the professions, transforming them, and advising the government on built environment related issues. The sole architect member of the 19 person Council, whose term of office ends June 2014, is Phil Mashabane, principal in the Johannesburg-based practice Mashabane Rose and sitting President of the SA Council for the Architectural Profession.

CORRECTION Issue 3/2009: Peter Louis Award

The above Award is made by the Architectural Heritage Committee, successor to the KwaZulu-Natal Architectural Heritage Committee, a sub-committee of Itafa Amalinde Heritage Trust, formerly Durban Heritage Trust.

An 'Aerotropolis' for Durban

Editorial

After a gestation period of almost four decades Durban's third airport commenced construction in August 2007 and opened just 32 months later.

Following Stamford Hill Aerodrome at King's Park (or Eastern Vlei) just north of the city centre in 1921 and the attempt at using Durban bay as a flying boat base, Louis Botha, the later Durban International Airport, was opened in 1955 at Reunion, some 10km south of the city. As that site was geographically restricted and had long reached its capacity, the new King Shaka International Airport was located at La Mercy, 35km northward, precisely where construction was halted in 1973.

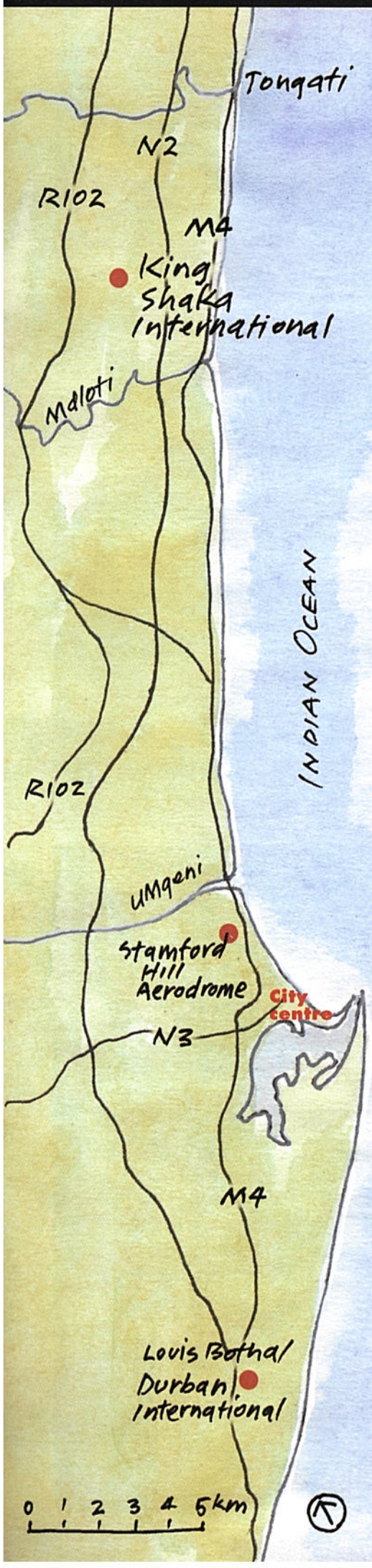
Gone are the days of the TWA terminal which expressed the optimism of a time when flight was a glamorous privilege. Today's terminals are functional rather than elegant, are big and rectilinear and designed for expansion. The world's best airports allow for clear circulation, and direct passengers through a retail concourse on one or two levels to a large column-free space often with a swooping roof supported by giant angled struts. There are kerbside drop-off and pick-up points and pedestrian and vehicular routes do not clash, but visitors cannot even see the planes. Durban fits with this generic typology and, while the pedestrian routes are long, the path is pleasant.

The big difference is that airports are now designed to maximise the strategic value of a runway and the surrounding land which can be effectively used for manufacturing and processing for export by air. Durban has included a trade zone, commercial support zone and an agricultural zone that is to cultivate and export vegetables, flowers and other perishables. These passenger and trade components make for more than an airport, but an airport city, referred to as an 'aerotropolis'. This is a term derived from 'metropolis', the cluster of commerce around a crossroad, in this case an airport, and illustrates how these facilities will shape future business location and urban development. In Durban the passenger terminal named after the most famous Zulu monarch (c.1786–1828) is owned and operated by Airports Company of South Africa (ACSA), but is only one element of the trade zone known as Dube TradePort which also built and owns the cargo terminal.

The move to La Mercy took place over the night of Friday, 30th April when eleven empty aircraft took the 60km or 5-minute flight northward from Durban International Airport ready for take-off on Saturday morning, 1st May from the new King Shaka International Airport. The budget was R7.8 billion.
Walter Peters, Editor


Photography: Russell Cleaver

COVER: Aircraft approach to King Shaka International Airport.



Durban's New Airport

King Shaka International Airport

Early in 1972 the then Department of Transport decided to pursue the development of a new airport at La Mercy on the north coast of Durban. It is important to remember that at that time South Africa was under international sanctions and that the establishment of a new sea level airport that would facilitate long haul flights that had to avoid most of the continental Africa airspace was well justified.

A 20.6sq km site was selected 30km north of the Durban city centre and about five kilometres inland from the coastline. It is located between the N2 on the east, the R102 on the west, the Tongati River to the north and the Mdloti River to the south.

Bulk earthworks were carried out during the 1970s and early '80s in order to create a large flat footprint required for the construction of the runway and terminal building, but the project was delayed by economic, political and administrative circumstances until the new millennium.

Durban's existing international airport south of the city was the smallest of South Africa's three international airports and had considerable operational and logistic constraints, including a lack of expansion opportunities and a runway that was too short to allow fully laden cargo planes to take off.

With the existing airport reaching capacity, and the opportunity to use the 2010 Soccer World Cup commitments as a catalyst, Dube TradePort (DTP) and Airports Company of South Africa (ACSA) embarked on the implementation of the project with the expectation that a DTP Multi-Modal Logistics Platform and the International Airport would lead to extensive economic opportunities in KwaZulu-Natal and the rest of South Africa specifically in terms of job creation, manufacturing, logistics, international trade and tourism.

It is envisaged that local and international firms will take advantage of the new infrastructure to develop their businesses and their share of global markets.

Site planning

An airport is a transport interchange facility that enables the movement of passengers and goods from private/public ground transport systems onto aircraft.

This is easier said than done.

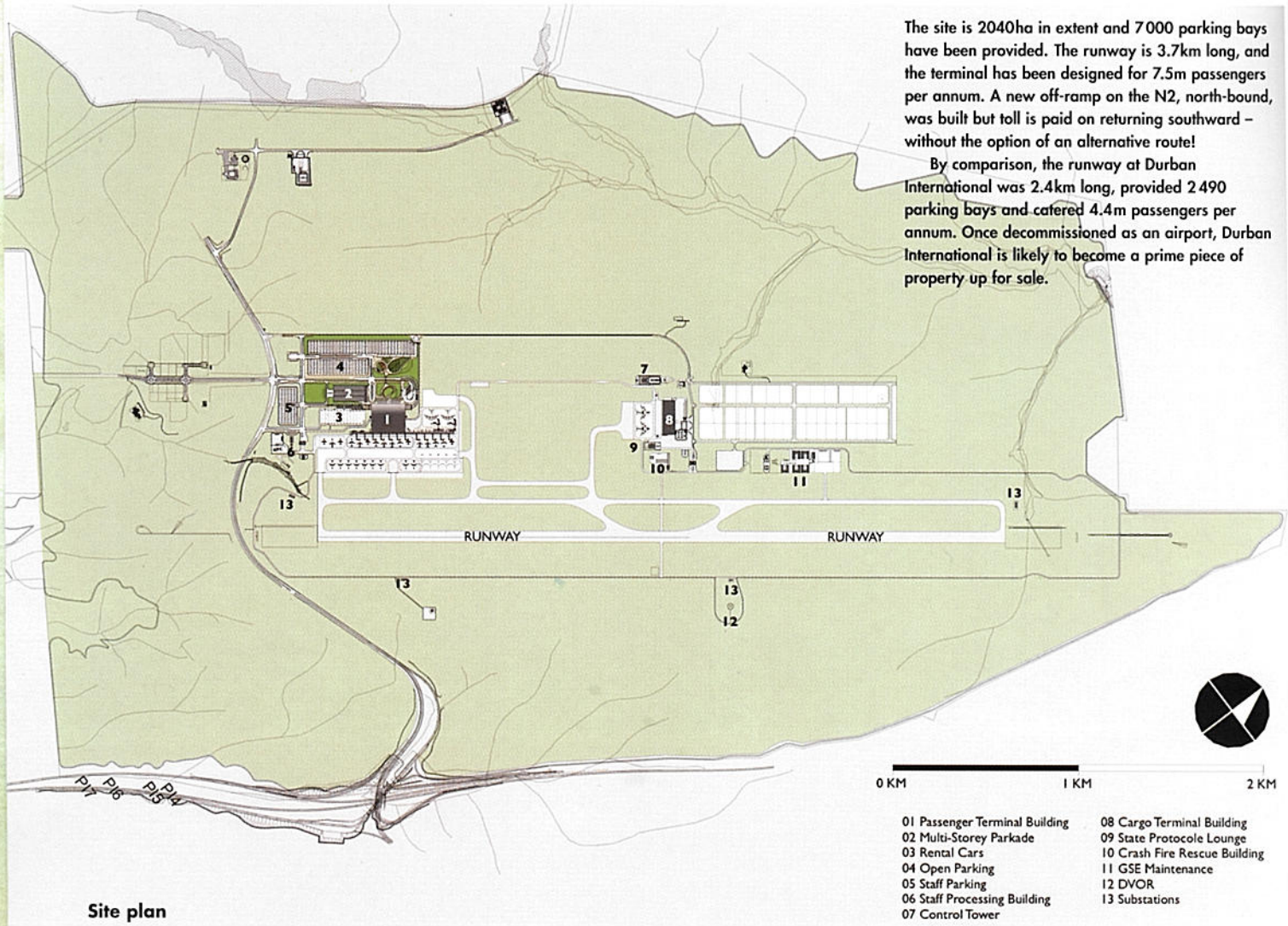
Issues of security, technology, build-ability, risk management, size, flexibility, growth, as well as economic, commercial, regulatory, operational and environmental constraints, among others make the design and construction of an airport into an operation of considerable complexity.

The site planning allows for the establishment of not only an international airport but a Multi-modal Logistics Platform that includes the following four main elements:

- The **International Airport** with an initial capacity of 7.5 million passengers per annum (MPA) to be developed in five stages to a maximum of 45MPA.
- A 36ha **Trade Zone** that includes 180000sq m of floor-space which will accommodate a cargo terminal with an initial capacity of 100 000 tons per year capable of expanding fivefold, a perishables centre, warehousing, light manufacturing facilities and office facilities for related business services.

The site is 2040ha in extent and 7000 parking bays have been provided. The runway is 3.7km long, and the terminal has been designed for 7.5m passengers per annum. A new off-ramp on the N2, north-bound, was built but toll is paid on returning southward – without the option of an alternative route!

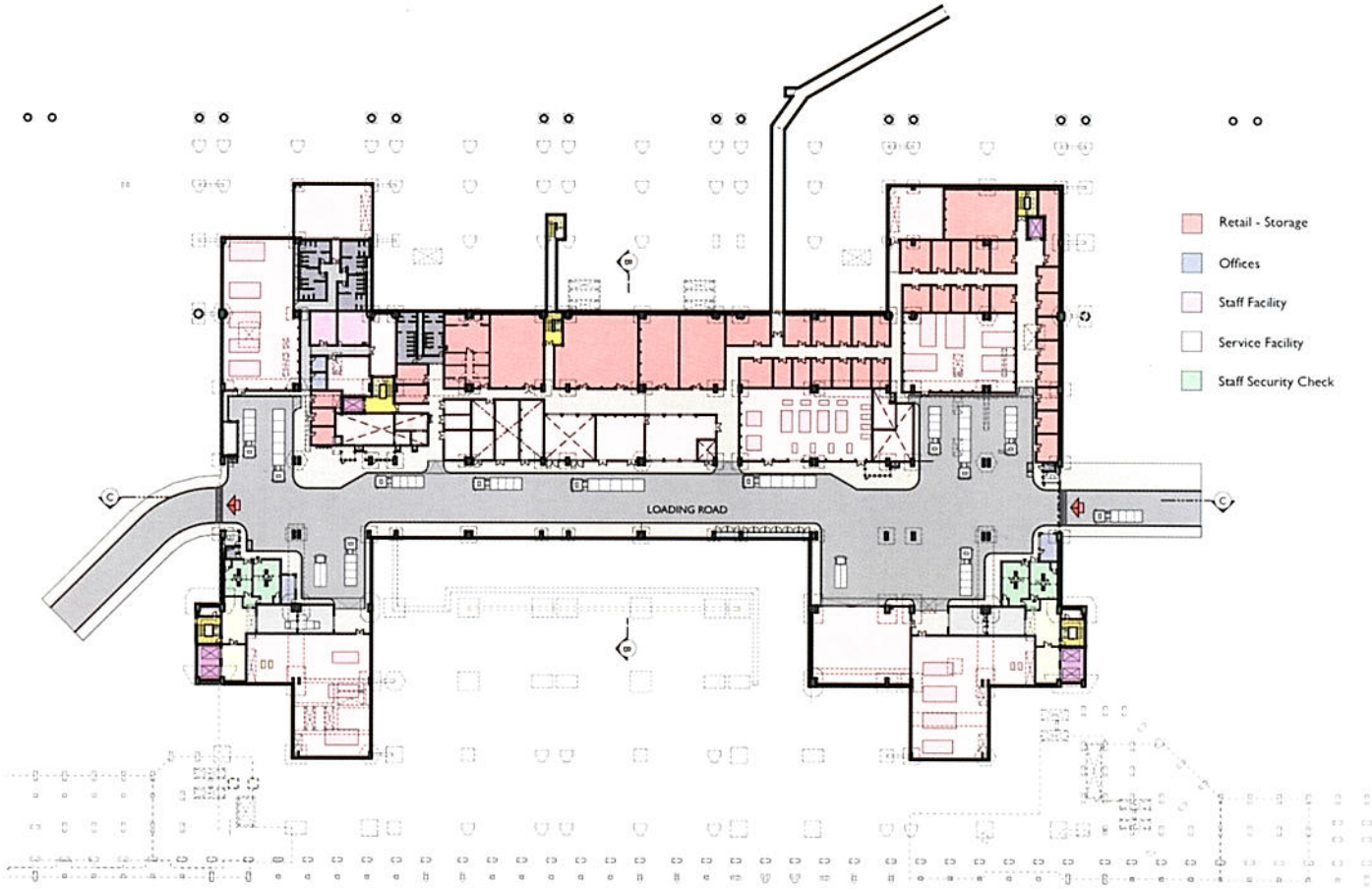
By comparison, the runway at Durban International was 2.4km long, provided 2490 parking bays and catered 4.4m passengers per annum. Once decommissioned as an airport, Durban International is likely to become a prime piece of property up for sale.



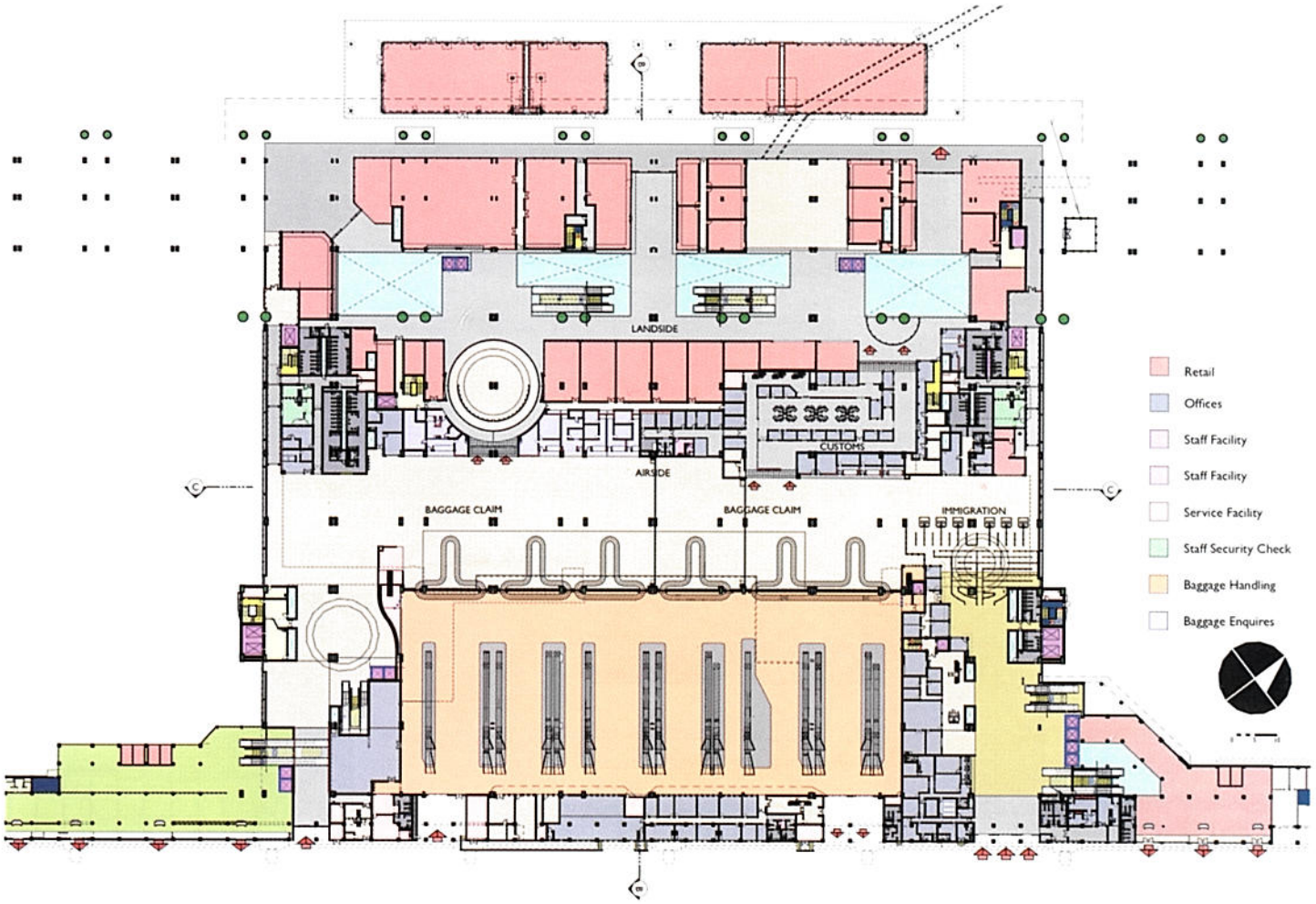
01 Passenger Terminal Building
02 Multi-Storey Parkade
03 Rental Cars
04 Open Parking
05 Staff Parking
06 Staff Processing Building
07 Control Tower
08 Cargo Terminal Building
09 State Protocole Lounge
10 Crash Fire Rescue Building
11 GSE Maintenance
12 DVOR
13 Substations

Site plan

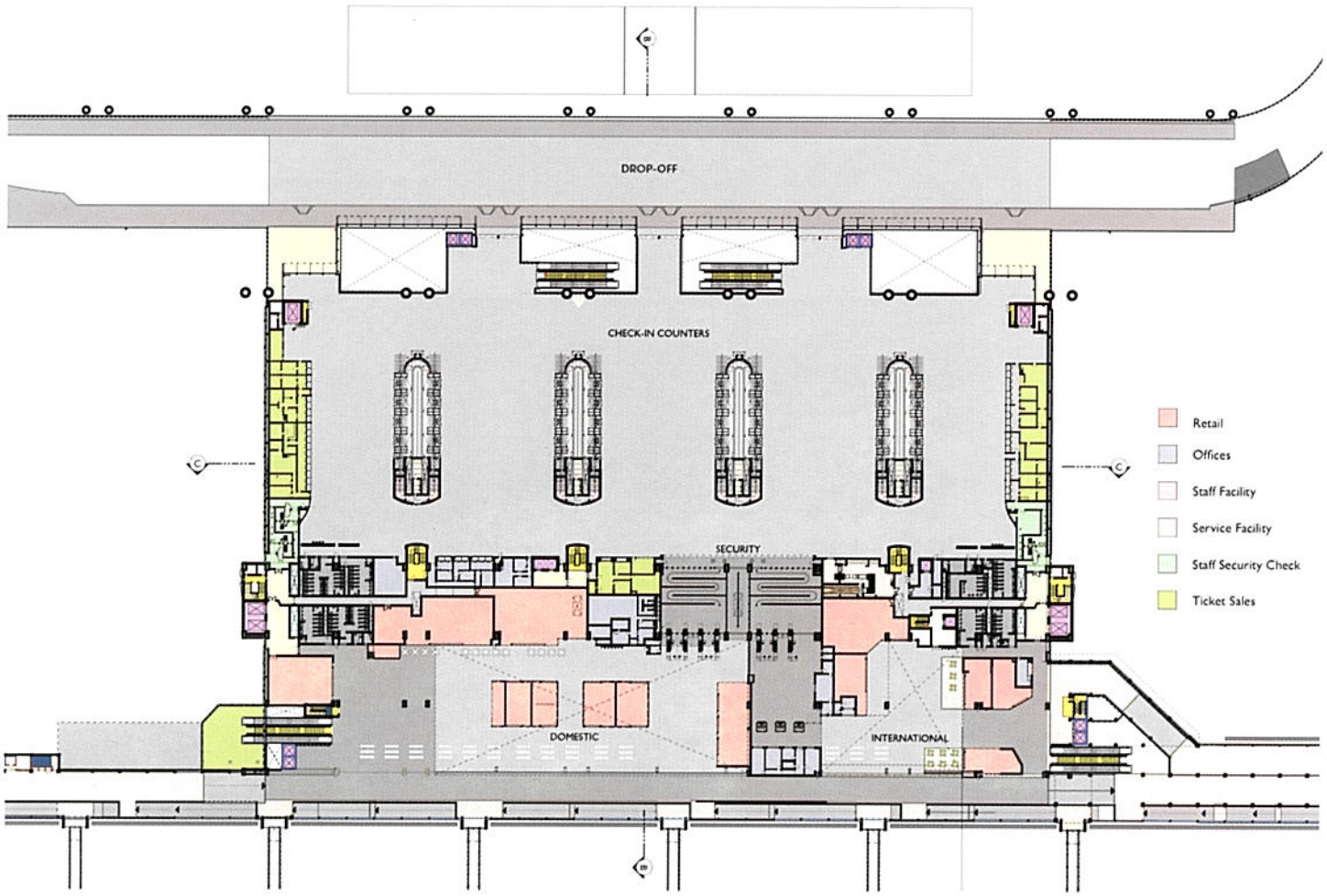
Aerial view from south-west.
Airside corridor: Ruben Reddy Architects.



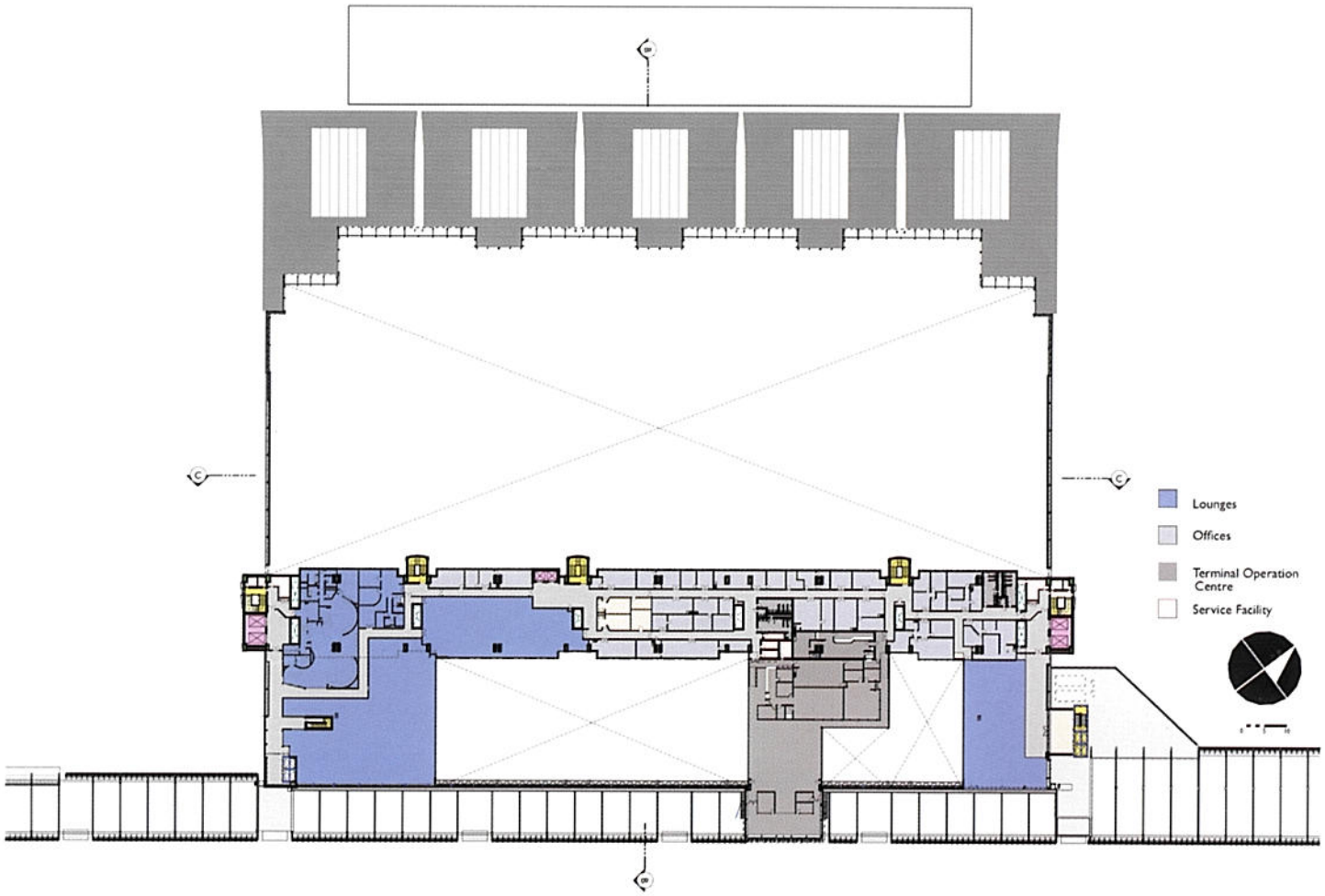
Basement level



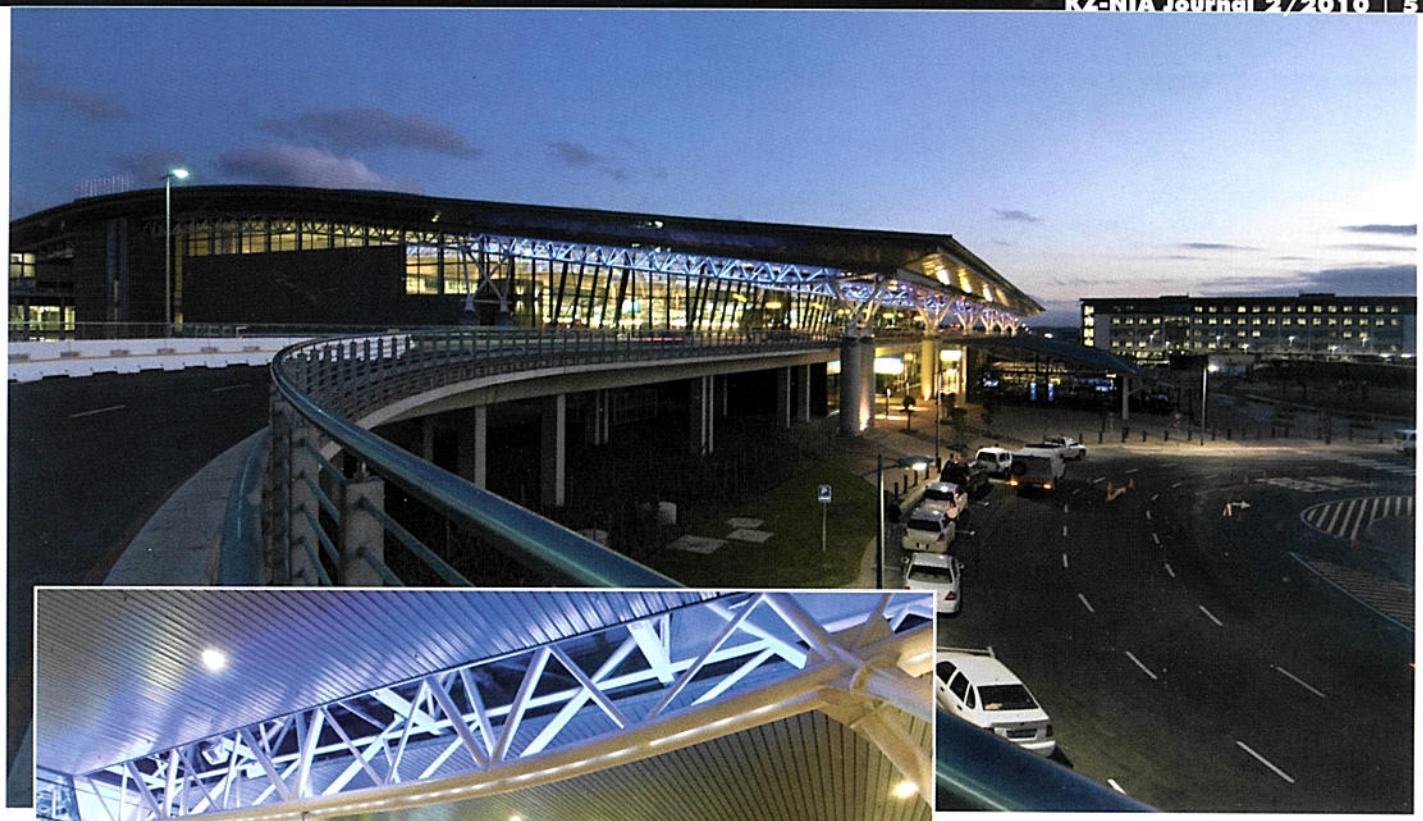
Ground/Arrivals level



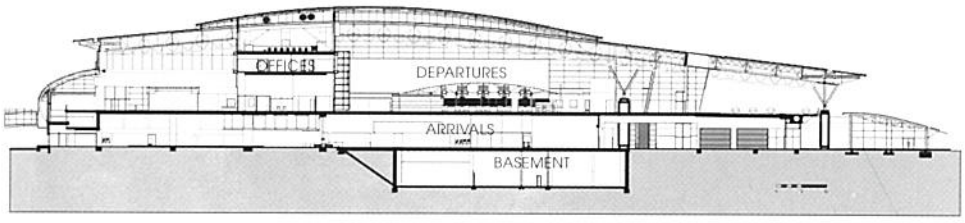
First/Departures level



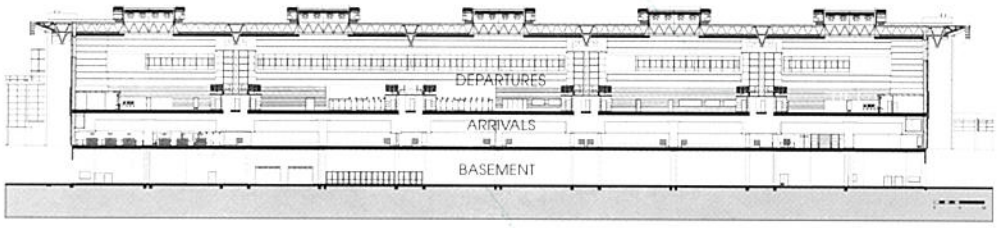
Mezzanine/Airline Offices level



CORRIDOR



SECTION BB



SECTION CC

- A 12ha **Support Zone** with 55000sq m of floor-space for office complexes, business parks, commercial enterprises, hotels, conference facilities, a government support services centre, trade and exhibition centres and vehicle service stations.
- An 80ha **Agricultural Zone** which incorporates an extensive area for growing export quality perishables, packing facilities and associated training facilities to provide producers with the necessary skills to meet international food safety standards.

The Airport

In terms of land use, the topography, disposition and direction of the runways as well as the interface with the surrounding road system constituted a determining factor in the basic layout of the site.

The infrastructure of the airport buildings is not limited to the passenger terminal and the first phase of the project includes more than 60 structures ranging from the main terminal to small substations and radar facilities spread over the site. These buildings are designed and positioned to best support and facilitate the numerous specific technical and functional requirements of an international airport and the staff and equipment necessary to run its operations.

Phase One of the project covers an area of 674.8ha and accommodates all the aviation infrastructure, services and support systems including the main buildings:
Passenger terminal;
Cargo terminal;
Multi-Storey-Parkade and Offices;
Control Tower and Offices;
Crash, Fire and Rescue Building;
Maintenance and Ground handlers' Buildings;
Apron staff processing building; and
Airside-Landside gatehouses.

Passenger Terminal

The Passenger Terminal precinct includes the terminal itself, parking facilities for over 6000 vehicles, offices, car rental facilities, a public park and the road system that connects all its components. The terminal is the largest and most complex building on site and is divided into two main elements:

- The processor that accommodates all the facilities to process passengers and baggage as well as the retail, administration and technical spaces and the airside corridor that constitutes the circulation route and interface element between the processor and the aircraft.
- Structurally, the building is designed with a combination of a conventional reinforced concrete frame with 15mx15m spans and a long span steel roof. This approach allows for economy, speed of construction and the provision of large, column free spaces at the upper level public areas. It also facilitates the incorporation of roof monitors designed to bring natural light into the building.

The Terminal has a total area in excess of 100 000sq m divided over six levels.

Basement

The double-depth 12 620sq m basement accommodates access and security screening areas for staff and goods, retail storage, technical areas for electrical services, IT, chillers and air handing plant. Access for large delivery vehicles and the distribution of a vast number of layered services that support the lower levels of the terminal called for the construction of an eight meter deep basement requiring attention to the long term management of subsoil water. The area and perimeter of the basement was kept to a minimum for reasons of economy. Its layout is closely matched with the structural grid and the service nodes above to reduce the length and complexity of the service runs.

Ground floor

The Arrivals level has a total area of 33 005 sq m and is effectively the ground floor. It is also a double height floor that accommodates the areas for the processing of arriving passengers that reach the processor from the mezzanine level of the airside corridor or via the bus stations. This process involves immigration, heath and security screening, baggage collection and customs on the international arrivals side (north end) and baggage collection only on the domestic side. Both arrival routes discharge into "meet and greet" areas located within a generous retail concourse. This concourse also acts as the access route for departing passengers that reach the terminal on foot after using the airport parking facilities.

The baggage-handling hall is located on the airside of this level to eliminate the need for vertical transport of arriving baggage and expedite the delivery of processed luggage to departing flights. The strip located between the landside retail facilities and the airside arrivals areas is zoned for the accommodation of airline support services and government agencies. Located at the airside ends of the processor are the international and domestic departures bus stations that serve the remote aircraft stands. Dedicated circulation routes deal with the separation of airside and landside areas as well as segregation of international and domestic passengers arriving and departing. Staff and public areas are clearly demarcated and routes for the replenishment of trolleys from landside to airside are laid out in conformance to all applicable norms and procedures.

An international passenger transfer area provides a link up to the departures level for transit passengers.

The Arrivals mezzanine occupies a limited area of the upper section of the Arrivals level and is 11 058sq m in size. Its most important element is located within the airside corridor in the form of the circulation that brings arriving passengers to the processor. Also located at this level are fire escape routes and services and limited administrative space. The area above the baggage handling room is fully occupied at mezzanine level with the upper section for the baggage handling system including the x-ray on-line scanners and the level-four baggage screening and inspection area.

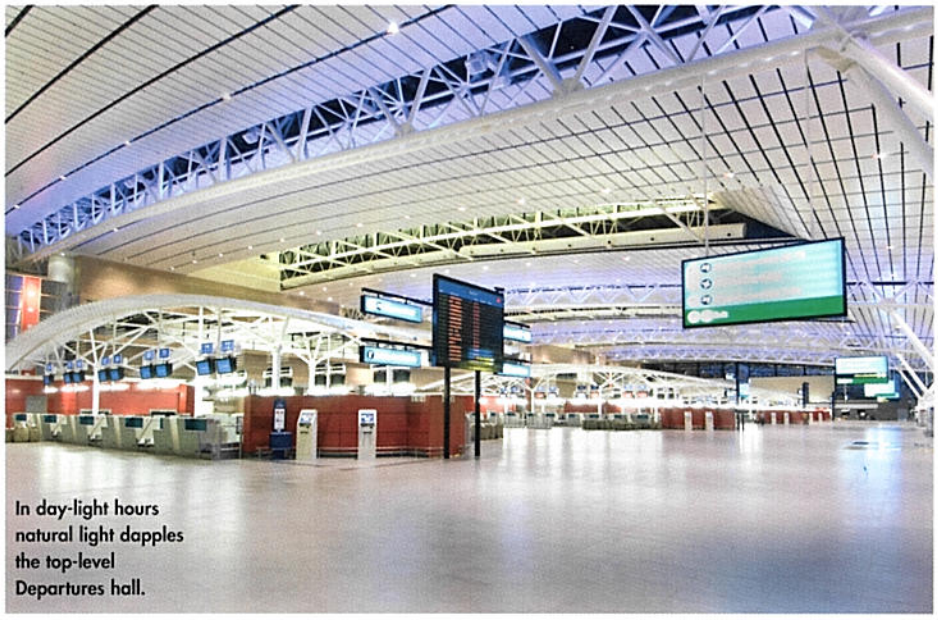
First floor

The Departures level is the largest floor at 33 424sq m and is the space that is intended to provide the environment for the beginning of a travelling experience and where the most complex, and stressful, transactions take place: check-in, baggage drop-off, security screening, immigration and boarding. Departing passengers reach this level by means of escalators/lifts from the Arrivals level or are dropped off via the elevated road directly into the check-in hall. This level is also divided into airside and landside with the strip in between occupied by airline and passenger support areas as well as retail and government agencies. Also located within this zone is the all-important security comb designed to screen passengers and hand luggage within a carefully supervised and monitored environment. The landside is mostly occupied by four check-in islands, with 18 counters and baggage handling services each, ticket sales and inquiry counters and voids that connect the two main levels visually and with vertical circulation. The airside accommodates the international and domestic departure lounges, retail, food and beverage outlets and access to the Departures level of the airside corridor; with bus stations below and business lounges above.

Provision has been made for the incorporation of a Departures level mezzanine to allow for internal growth before the terminal building is extended.

Upper floors

The Airline Offices level is located over the Departures floor and has a total area of 6 013sq m. It houses the administration areas on the landside, the Terminal Operations Centre (TOC) within a restricted zone with



In day-light hours natural light dapples the top-level Departures hall.

Concourse.

A bank of food and beverage outlets on the landside of the terminal is designed to overlook the piazza.
Below: Covered walkway from the underpass to the open parking lot.

apron views, and the Domestic and International business lounges.

The upper level is a services-only area that runs the full length of the terminal and has a total floor space of 3358sq m. It houses water services for the air-handling plant serving the upper levels of the building.

Airside corridor

The airside corridor has twelve passenger loading bridges along the eastern side capable of servicing Code C aircraft on domestic flights. The western side of the northern end of the corridor has two MARS configuration airbridges that can service large, Code F aircraft, including the Airbus A380, or two smaller Code C planes each.

The area below the airside corridor contains airline, ground handling services and apron staff facilities.

Exterior

The external envelope is made out of two elements: The façade which, in turn, is divided into four separate elevations with very different functional requirements, and the roof.

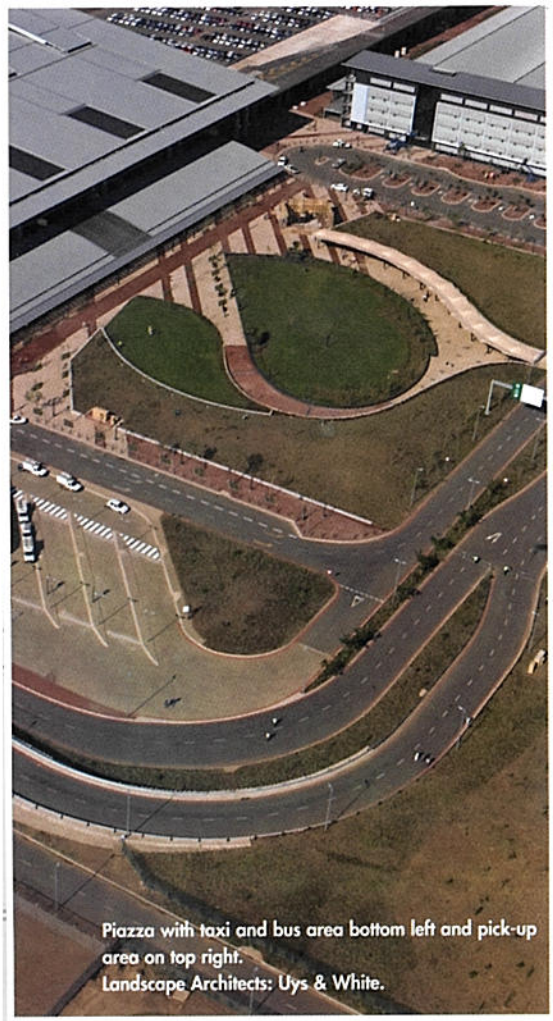
The façade is essentially a glass envelope designed to regulate heat gains, noise penetration and access while allowing for the maximum amount of natural light to enter the terminal. While maintaining visual consistency and continuity between the elevations, each side has specific glass types, supporting structures, shading devices and construction methods to better suit the needs and conditions of each orientation.

Parkade and office block. Mthulisi Msimang Architects.

The roof is perhaps the most recognizable architectural element of the terminal. It is designed to meet a number of objectives: column free open plan space at Departures level, minimum façade surface area, internal headroom for the development of the multi-storey core of the building, façade overhangs, drop-off road clearance, speed of erection, ease of expansion, installation of services, rain water disposal, provision of monitors for natural light ingress and smoke extraction and many others. The resulting solution is a light curved metal roof with an aeronautical language that reminds us of the form of a wing. This image is further strengthened by the aileron shape of the roof covering the external retail building.

Extensions

The first phase of the building has an overall length of 180 meters, determined by the five modules of 35m each plus a five-meter wide structural steel truss. The terminal is designed to expand one module north and four modules south before the entire terminal is mirrored to the west. The end lattice girders and the north and south elevations are configured to be modified and replaced with minimum disruption to the operations of the airport and allow for a smooth expansion process.



Piazza with taxi and bus area bottom left and pick-up area on top right.
Landscape Architects: Uys & White.

Urban landscape

To the west of the terminal there is a 1 500sq m retail bank that accommodates food and beverage outlets, all of which have access to an open air park.

The piazza acts as a leisure and outdoor circulation space between the terminal and the parking areas. It is a green lung and meeting place at the core of a very congested and dense environment and it is a unique feature in an airport development of this scale. Having parked one's car, access to the terminal is via a generous underpass and through the landscaped experience avoiding any conflict with vehicles.

Victor Utria
iLembe Architectural Joint Venture Leader

Architects to iLembe Architectural Joint Venture:
Master planning and Coordination:
Osmond Lange Architects & Planners
Passenger Terminal:
Osmond Lange Architects & Planners
Airside Corridor: Ruben Reddy Architects
Multi-Storey Parkade and Office Building:
Mthulisi Msimang Architects
Cargo Terminal: NSM Designs
Control Tower, Crash, Fire & Rescue and ancillary Building: Shabangu Architects

Contractors:
iLembe Consortium (incl Group 5 and WBHO)

With thanks to *Gustavo Triana* who assembled the drawings and photographic material for this article.
Photography: *Russell Cleaver.*

SOME STRUCTURAL CHALLENGES

The Airport

The all-embracing challenge was to produce the civil and structural engineering design support to an R8 billion project within a 32-month contract period – an average of R250m per month! This was only achieved by extraordinary co-operation and liaison between the team of client, contractor, architect and engineering disciplines.

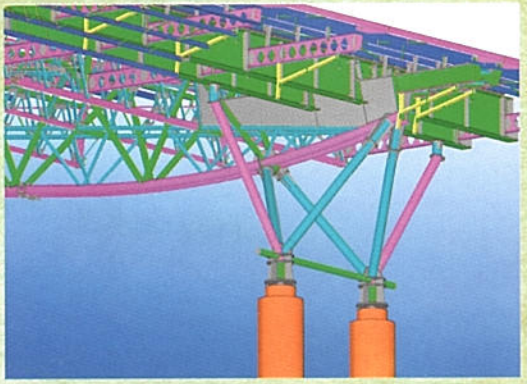
Terminal Building

Located over a previously filled valley undertaken in the original site development, the reinforced concrete framework, over a deep basement, was founded on in situ formed driven piles.

Value engineering the optimum spans with available building systems, in conjunction with the architectural building module requirements, indicated a 725mm deep overall reinforced cast in situ concrete slab, beam and coffer system, supported on a 15m x 15m grid.

Allowing for the uncertainty of the final services design, predetermined shaft openings at certain column locations were provided for. Thereafter further access points from below were located within the coffer sections of the slab.

During construction, site batched concrete pours of up to 1100 cubic meters were achieved – over R1m of concrete in a day!



Three-dimensional raking struts and girder interface.

The architect's brief to express the primary structural elements of the roof support was developed into a system of raking structural steel tubular struts springing from structural grid points, supporting deep tubular triangular girders as the primary featured system. Above this level, conventional hot rolled structural steel lattice truss systems provided the secondary support for roof cladding, services and ceilings.

Extensive use of 3-dimensional shop detail software ensured an efficient site assembly and erection programme.

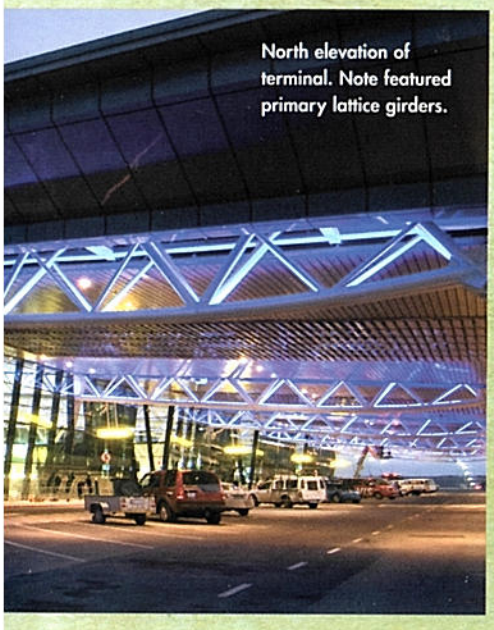
The structural system comprises primary continuous one-way triangular *'Toblerone'* lattice girders spanning 60m spaced at 35m centres, with a secondary orthogonal system on a 6m module. The office block located at approximately a third of the building length, laterally braces the roof with the main girders tied into the upper level as continuous elements. Longitudinal movement was controlled by sliding *Teflon* pad bearings at the end support points. Careful attention to detailing of the structural tubular lattice members and raking strut supports where exposed below the ceiling achieved an aesthetic solution to the Departures hall roof.

Prefabrication of the girders into large shop-matched elements, erected from the slabs and site butt-welded, facilitated a rapid and cost effective erection process.

A roof light monitor structural steel portal frame is located above the roof line centrally between the main girders.

Close co-ordination of the erection sequence with the casting of the floor slabs below, ensured the exacting construction programme was achieved.

The extensive glass façade system fronting the Departures hall was fabricated as an independent clip-in structure.



North elevation of terminal. Note featured primary lattice girders.

ABOVE: Background—Cargo terminal: NSM Designs; Foreground—Control Tower: Shabangu Architects. Cab module lift completed.
RIGHT: Control tower cab at mid-lift.

Control tower

Due to the visual control requirements to monitor aircraft on the ground, the control tower cab occupies the highest point on the airport site.

The operational requirements dictated a three-floor module, comprising 360° clear uninterrupted sight lines at the top controller level of 320m diameter, at an eye-level of 55m, with service and equipment levels located on the two floors below.

The shaft of ribbed profile to control staining was built of reinforced concrete using the sliding-shutter technique and cast within a 3m shutter length, continually lifted by jacking up from the sections cast below. The challenge was to position this cab module at some 50m (18 storeys) above ground level within the time constraints of the programme.

The solution was firstly to erect a structural steelwork frame about the shaft at ground level, but independent of it, supported on four symmetrically balanced points just clear of the shaft. In this configuration, the external façade cladding was installed, together with a stability portion of the concrete floors, cast on permanent steel profile sheeting.

A structural steel lifting frame was then erected at the top of the shaft, designed in such a way that it became part of the final structure at the control floor level. The focus of the project then became the actual lifting of the cab to the final level. The partially constructed cab of some 350 tonnes was hung from the four support points, using a conventional propriety post-tensioning jack and stand system. The technique involved jacking some 100mm, wedging the cable strands to maintain position, rectracting the jacks, wedging the cable strands and then repeating the cycle. This process took the order of five minutes, which gave an achievable rate of 1.0m per hour.

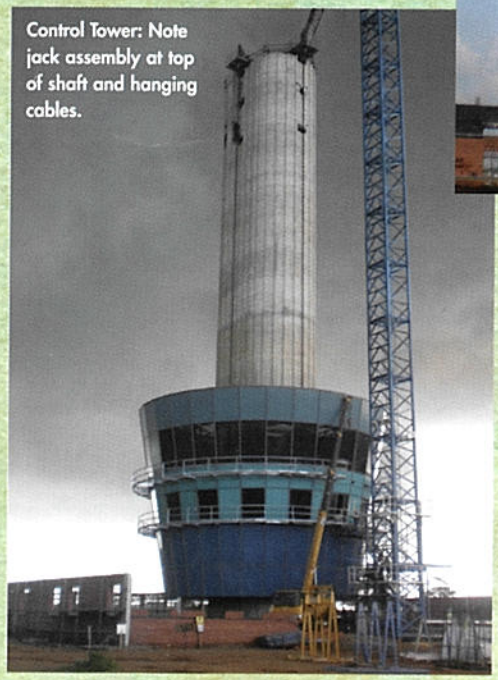
The process was, however, severely influenced by persistent wind gusting up to 90km/hr. Although the assembly was aligned by polyurethane wheels to run against the shaft face, lifting was shut down for wind speeds in excess of 30km/hr. The complete lift was undertaken in seven days.

After reaching the final level, the cab weight was finally transferred directly to the shaft by bolting to the jack support beams and at the level of the lower floors by means of steel corbel brackets, bolted to the cab structure and then grouted into previously located pockets within the shaft wall.

The structural steel framework was then completed by erecting the central portion of the radial roof truss structure above the shaft using the adjacent tower crane.

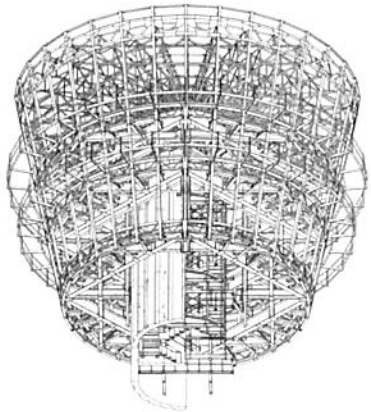
Rob Young

iLembe Engineering Joint Venture (BKS, PD Naidoo & Associates, GOBA, Young & Satharia)



Control Tower: Note jack assembly at top of shaft and hanging cables.

Structural steel 3-D assembly framework of cab.



Durban's Monuments

Conservation of Durban's Historical Monuments of Commemoration

Public Realm Architecture

As Farewell Square is entirely commemorative of the colonial era, a design competition for a more representative heroes' monument (2006) produced a proposal to "deconstruct" the retaining wall and balustrade along the Church Walk edge, with etched glass panels, ramps and stairs, see *KZ-NIA Journal* 3/2006. This radical scheme was controversial and did not receive the necessary heritage approval, but could be revisited, possibly in a simplified form respecting the decorative stone and cast iron elements and flame light fittings.

A project named 'Public Realm Architecture' undertaken by Ethekwini Municipality's 'City Architects' was given the go-ahead in late 2009, in anticipation of the 2010 World Cup. The aim of the project was to provide much needed maintenance and restoration of the area stretching from Gugu Dlamini (formerly Central) Park, north of the Workshop shopping centre, to the City Hall and surrounds. Paving, landscaping, irrigation, lighting and street furniture in the area were amongst the completed scope of works. The statues and memorials in Francis Farewell Square were in dire need of attention, failing which an important part of our history and worthy public space could be lost forever.

The square is well used on a daily basis. Pedestrian traffic flows through constantly, people sit and informal theatre takes place there. Just four months ago it was a grimy place to be in and one felt like having a good scrub after spending time there. The restoration has been highly successful, making it a place with an atmosphere of international standard.

Winged Victory facing the City Hall.

The restoration work was done by *GVK* contractors, who sub-contracted specialist conservators, *South African Institute of Objects Conservation*, to restore the statues and monuments. As all the structures are over 60 years old, they are protected by legislation, and

On the City Hall side, plaques in English and Afrikaans record that Town Gardens was named Francis Farewell Square in 1974, marking 150 years since the arrival of Farewell's party.

Facing onto Church Walk are two stone seats backed by plaques installed for the Natal Centenary in 1924. One of these has a relief bust of the missionary Capt Allen Gardiner RN, acknowledged as the founder of Durban in 1835.

An additional 'seating feature' at the south-west corner has a ceramic tiled plaque in honour of Capt T C Smith, Officer Commanding the British garrison at the Fort during the siege of 1842, and also recording Dick King's ride to Grahamstown to fetch relief. Smith Street was named after Capt Smith.

only registered conservators may work on them. It was easy to see why this law is in place when the conservation team started to unravel a multitude of 'incorrect' repair work to the statues.

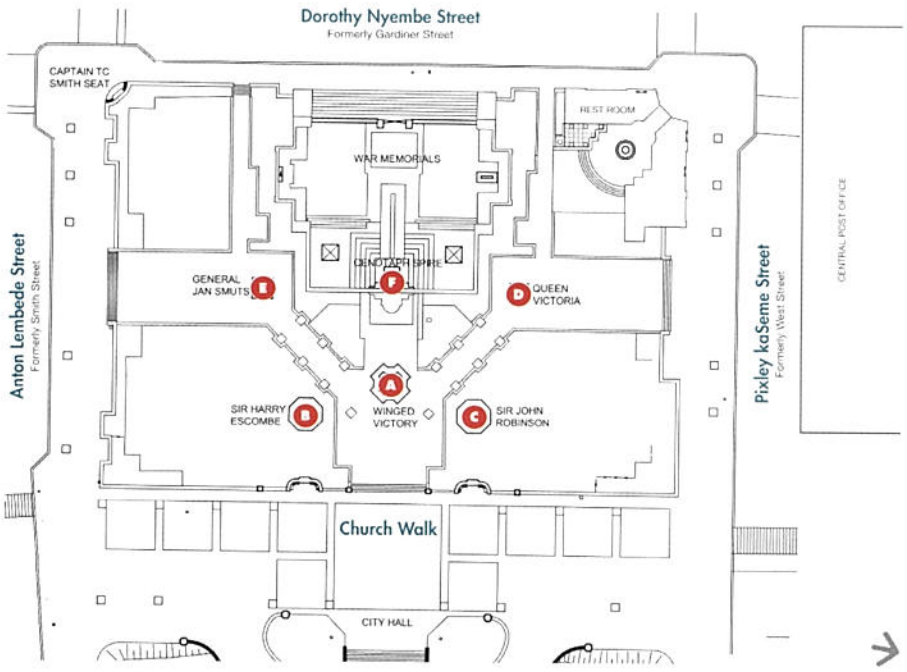
Sandstone repair

Sandstone is primarily used in the square. It is a soft stone and seems to have come from a quarry with particularly soft sandstone. A number of mouldings had broken off, engravings weathered smooth, and some bad repair work had caused more damage than if the repairs not been done.

Stone must never be patched with a substance harder (less porous) than the primary stone. Water will simply find the path of least resistance, which will cause the primary softer stone to erode further. The repairs should weather at the same rate as the primary stone. Cutting out huge sections of hard concrete-like repair material from the sandstone was quite a task for the conservation team.

Winged Victory

'Winged Victory' had a large amount of patch work done to it using an organic compound behind the surface skim coat. Stone should not be patched using organic compounds in the mix as algae likes to live in dark, moist places and is propagated by organic compounds. Once algae finds its way in, so do ants and other living things, and the deterioration of the stone quickens unseen. The conservation team only discovered this when they started working and had a six-week task of removing every single patch and reinstating it correctly. Matching the colour and texture of the existing stone takes technical skill and product knowledge. The Head Conservator constantly seemed to be looking through microscopes, mixing sample batches that were carefully labelled describing the proportions of the mix, and sending team members off to find unheard of ingredients.



Farewell Square is located within the original Market Square laid out in the Town of Durban plan of 1845. It is populated with numerous statues and memorials representing the colonial period of the city and the nation's history. One of the plaques records the camp of Francis Farewell, European settler of 1824, in the vicinity.

At the time of the building of the old Town Hall, now Central Post Office, the site formed part of the larger Town Gardens, with an ornate cast iron fountain commemorating Queen Victoria's Jubilee and the completion of the Umbilo River Waterworks in 1887.

The construction of the present City Hall in 1910, fronting onto Church Walk, defined the extent of the existing square, which forms an extended forecourt to the grand entrance to the Hall.

A. Centrally located is the Durban Volunteers' Memorial, in the form of a winged female figure in bronze. Known as 'Winged Victory' she sits on a marble pedestal with bronze panels on all four sides depicting in relief incidents from the South African War, also known as the Anglo-Boer War of 1899 – 1902.

B, C. On either side, facing City Hall are marble statues of Sir John Robinson and Sir Harry Escombe, first and second Natal Prime Ministers respectively. Robinson was the owner of the *Natal Mercury*, founded and edited by his father George. Escombe was the founder of the legal firm Garlicke and Bousfield in 1867, Chairman of the Natal Harbour Board and Commander of the Natal Naval Volunteers.

D. A rather young Queen Victoria, in marble, faces the old Town Hall across Pixley kaSeme (West) Street. One of the plaques refers to the former memorial fountain.

E. At the corresponding position facing Anton Lembede (Smith) Street is the most recent of the statues, that of General Jan Smuts in uniform. This statue is in bronze on a granite pedestal with bronze panels showing highlights of his career.

F. After the First World War, the Cenotaph was created facing Dorothy Nyembe (Gardiner) Street. The 15m granite spire, designed by Eagle, Pilkington & McQueen of Cape Town and decorated with ceramic sculptural work in Art Deco style, now dominates the square. The ceramic manufacturer was Carter, Stabler and Adams of Poole, England. The names of the servicemen who were killed in action are recorded on a bronze cross shape and two flattened pyramids on the ground. At the foot of the spire is a bronze fallen soldier statue. After World War II, the front gates were added and the crouching bronze lions moved forward on either side. The surrounding walls were then raised to accommodate the new Roll of Honour panels. The stonework was undertaken by T Midgeley & Sons.

An interesting feature of the now secluded Cenotaph memorial garden is the Delville Wood Cross, in a niche in the Cenotaph wall. It was reputedly made of timber brought from Delville Wood in France after the World War I battle there.

A later addition is the Indian Regimental War memorial, a marble clad wall element with inlaid plaques containing the Rolls of Honour for the two World Wars, those from the Second War having been omitted from the main memorial. A future proposal is a matching wall to acknowledge the Black and Coloured soldiers who died in service, for which research has been undertaken.

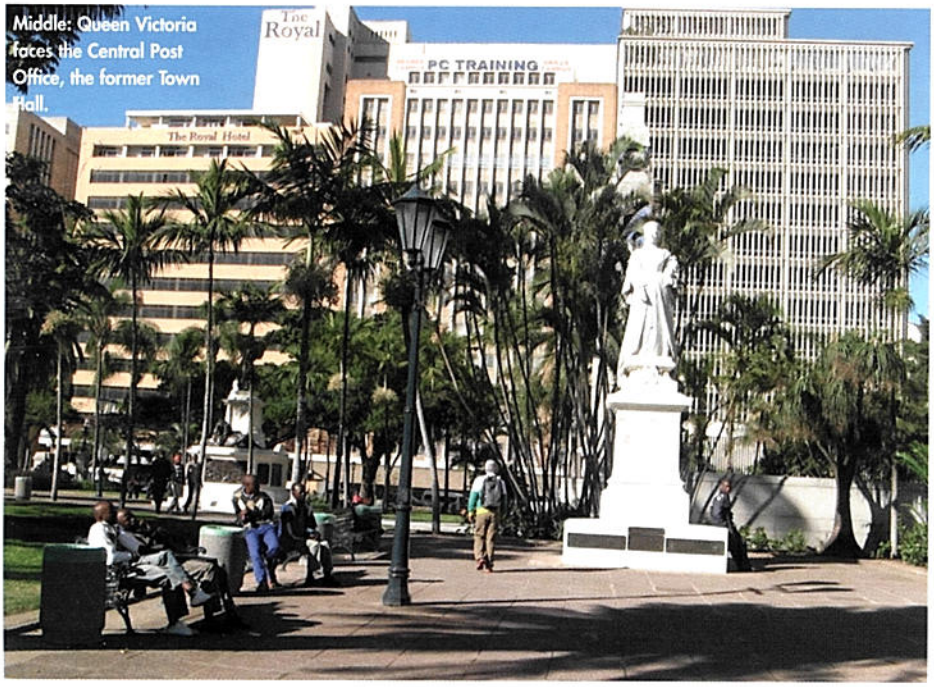
Finally there is the rest room building at the north-west corner, in classical style with its arched entrance to the square. This was enclosed to serve as a bus ticket office for many years, before being reopened and renovated during a 1980s upgrade of the Civic precinct. This project, under the direction of consultant architect Revel Fox, also included the pedestrianisation of Church Walk, realignment and repaving of pathways through the square and replacement of copper lanterns on fluted concrete poles with period style cast iron poles and lanterns.

Cenotaph

At the start of the project, the state of the ceramics on the Cenotaph Tower was unknown as the tower is 15m high. With bated breath we waited for the 'cherry picker' to lift the Head Conservator up to investigate. The prognosis was bad. Salt from the sea air had crystallised between the glaze and the ceramic. Constant heating, cooling, wetting, drying would over time simply cause the entire glazed surface to start delaminating from the surface. Once it started, it was expected to happen quite quickly. Although the budget was tight, it was decided that this piece of art was worth saving. If not now, then never.

The ceramics contain light blues and yellows meaning that the clay would have been 'weaker' to start with. Clay with these colours cannot be fired at as high a temperature, as when a dark blue colour is used.

The conservation team started the delicate process of running a gentle trickle of water over the ceramics of the tower from head to toe over a number of days. This process slowly rinsed the salt from behind the glaze. Once it was removed, they could consolidate it by painting a transparent glaze solution over the surface, allowing it to penetrate the hairline cracks and join the glaze to the ceramic once again. They were then able to give the ceramics a more vigorous scrub to clean the pollution stains and touch up the grout between panels. The result is astounding. The ceramics look new. They are bright, crisp and clear.



Middle: Queen Victoria faces the Central Post Office, the former Town Hall.

Conclusion

Now a walk through Francis Farewell Square on a clear winter's day is a rewarding outing. The once grimy civic precinct has a polished feel of an international standard. While there, take a walk towards the Workshop shopping centre via Church Walk and into Gugu Dlamini Park. A substantial upgrade has taken place and there is a hive of activity to enjoy.

Let's hope that constant maintenance can continue to retain this quality of public space.

eThekwini City Architects:
Laura Hunt: *Senior Professional Architect*
Derek White: *Urban Development Manager*
Arthur Gammage: *Acting Manager: Urban Design & Landscape Architecture*

Consultant Architect:
Chantal Pieterse, *Architecture Fabrik*

Emerging Practices

Architects a decade into independent practice

MTHULISI MSIMANG ARCHITECTS CC

New Administration Offices for Sisonke District Municipality

This project, together with iNhlazuka Community Centre (see *KZNIAJ* 3/2005), represented our initial foray into the design of medium-rise buildings requiring simple forms, rational planning and structural articulation.

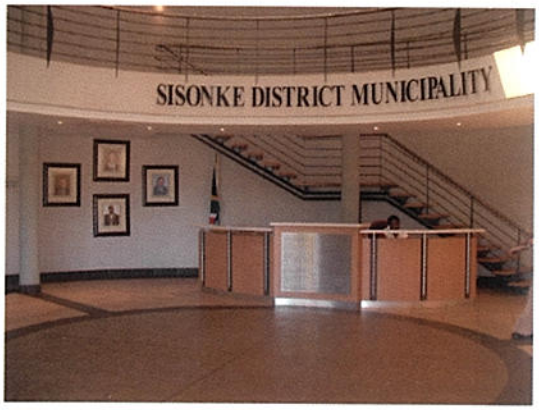
The newly formed Sisonke District Municipality appointed us in 2003 to design their new administration offices. We were chosen from among a group of architects after an informal round of interviews and initial design concepts, a leap of faith on the part of the client.

Until then, the municipality, under whom the towns of Ixopo, Underberg, Bulwer, Kokstad and Matatiele fall, had been leasing space within various buildings in Ixopo. This accommodation was inadequate for their staff complement and hampering efforts to render an efficient and coordinated service to the community.

The site is located along a main entry road to Ixopo and has a gentle fall towards the north-east. The existing context was a collection of non-descript built forms and therefore provided no obvious clues of the architectural direction to be taken.

Architectural response

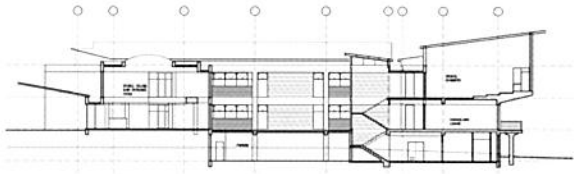
After extensive consultation, the brief was formalised to comprise technical, finance, community and corporate departments. To better relate the scale of the building to those nearby and to facilitate natural lighting and ventilation, the project was broken into four distinctive blocks. These open to a paved courtyard, envisaged as a quiet social space for both staff and the public and are sheltered from the surrounding environment.



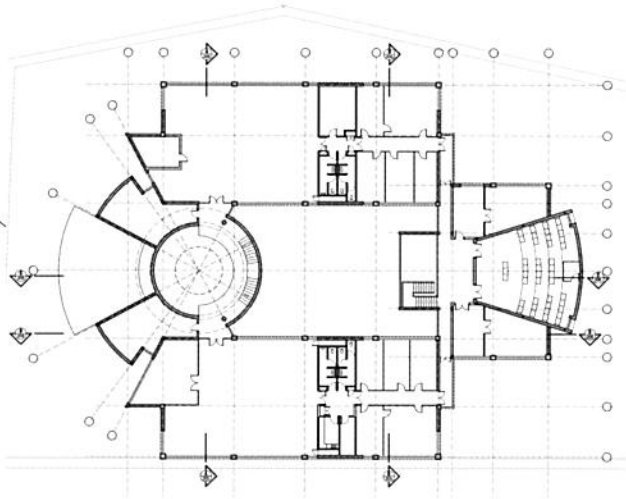
The main entrance is on the north-west. This is clearly announced by a double-height arrival drum which consists of the foyer, security and reception areas and the main staircase. Waiting areas, cashiers' booths and training rooms are extensions of this volume. The drum is top-lit and clad with split-face-blockwork to define its importance as the initial interface between officialdom and the public and a generous suspended steel canopy provides shelter at the front entrance.

Two parallel double-storey office wings are positioned on either side of the arrival drum. Their north-west ends are heavily sculpted to reconcile their geometry with that of the curved arrival drum. Basement parking could be inserted below the north-east office wing in response to the fall of the natural ground.

The fourth block is located opposite the arrival drum and accommodates the council chamber, a library, executives' offices and a councillors' lounge. The importance of the council chamber as a place for debate and exchange of ideas is pronounced by curving its external face and projecting its volume, both in plan and section, beyond the plane of the adjacent spaces. This also assists in announcing the building to the busy road (R56) it overlooks. To enhance security, this block has a direct link to basement parking.



Section C-C



First Floor

Site Plan / Ground Floor

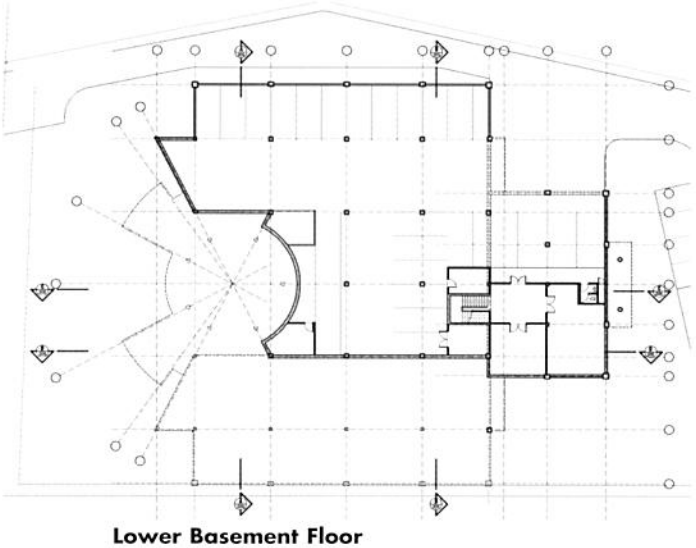
The building is a reinforced concrete frame whose columns and ring beams are clearly articulated from the infill face-brickwork. This structural system has also enabled windows to be treated as continuous bands with views to the surrounding countryside. The various volumes are roofed with off-white mono-pitch metal sheeting supported by steel structures. This simplified construction and enabled the employment of labour-intensive construction methods. Construction was completed in 2005.

Mthulisi Msimang

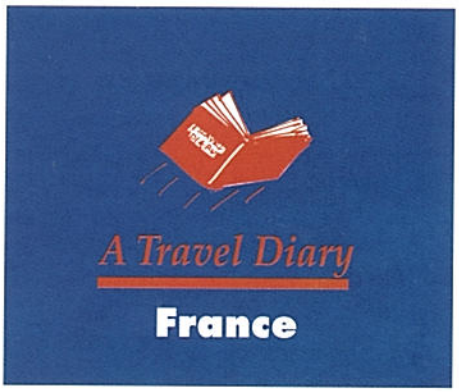
Mthulisi Msimang graduated from Natal in 1993 and worked for established practices in Nelspruit, Johannesburg and Pietermaritzburg before setting up independent practice in the latter, his home town, in 2000. Most of the initial work consisted of community projects like halls, crèches, schools, market stalls and community centres, mostly in rural settings throughout KZ-N.

Current work has become more varied and includes libraries, a training centre, an arts centre, a labour centre, a lecture theatre complex and medium density housing, to name a few. The practice collaborated on both the Moses Mabhida Stadium and the King Shaka International Airport in Durban. The current staff complement is ten.

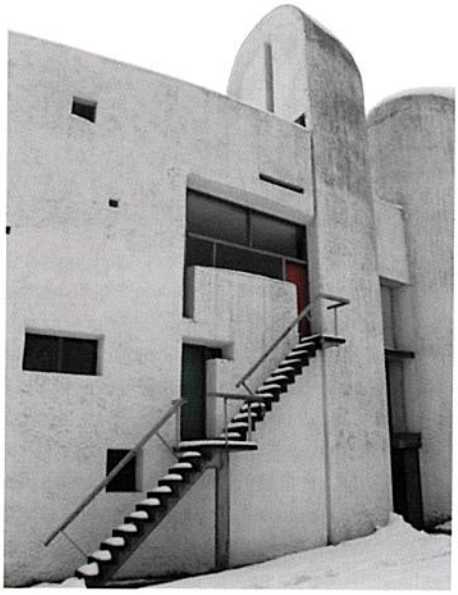
Mthulisi regularly serves as an external examiner at UKZN, and on juries for KZ-NIA Awards for Architecture and Corobrik student Awards – Editor



Lower Basement Floor



During Easter 2008 I had an opportunity to visit two churches in France designed by le Corbusier.



Notre-Dame du Haut, Ronchamp, France 1950 - 1954

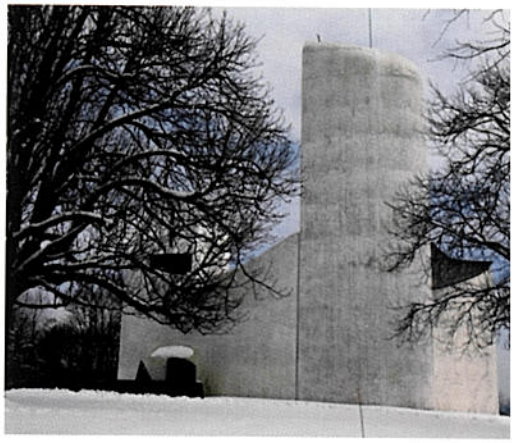
Ronchamp is a small mining town in the east of France between Versoul and Belfort.

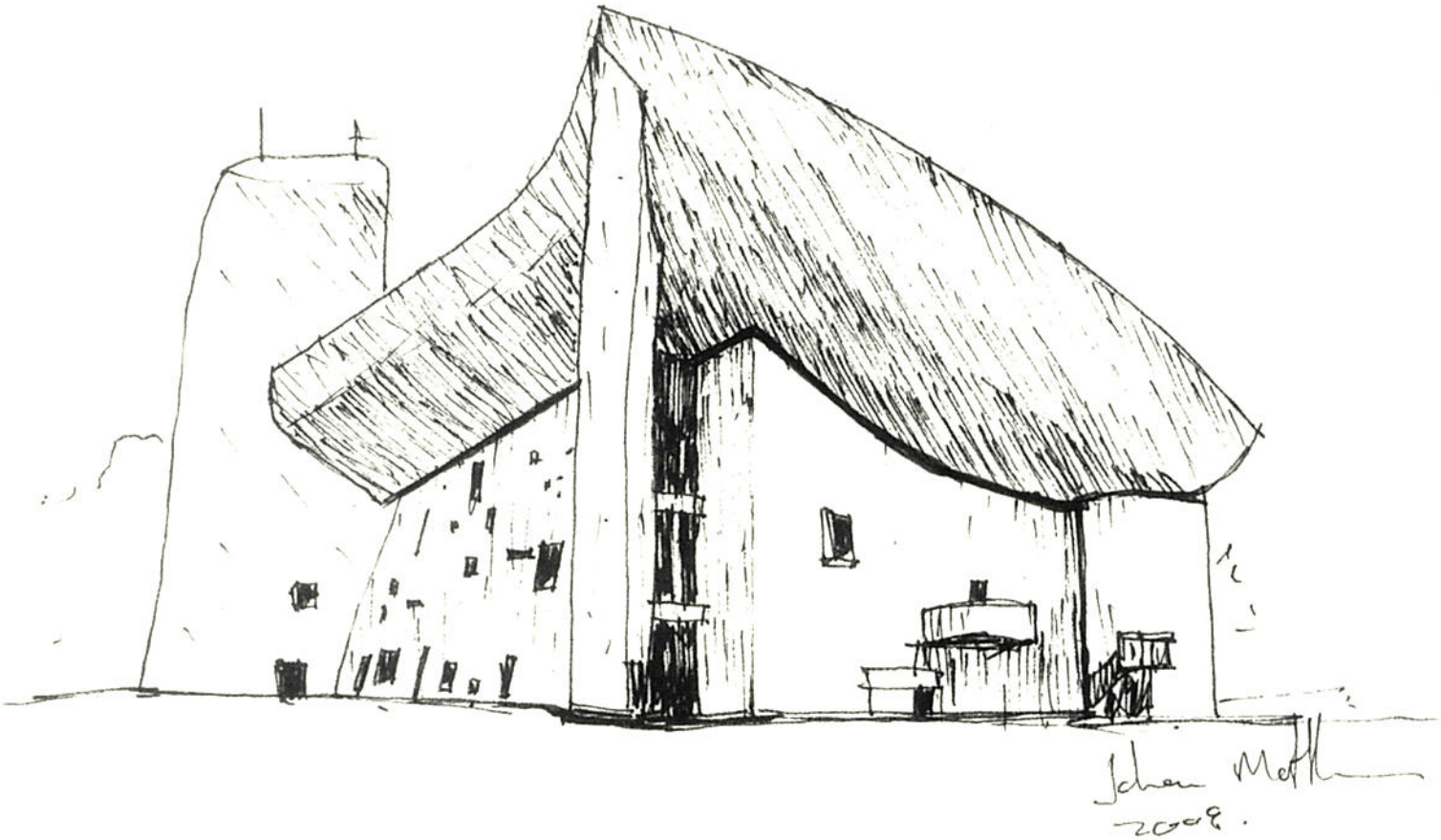
Le Corbusier accepted the commission for no fee to build a pilgrimage church near Ronchamp in France to replace the church that had been destroyed in World War II. The brief called for a secluded chapel and a church that could accommodate two large processions of pilgrims a year.

The large grey concrete roof contrasts with the white washed concrete walls. By raising the roof off the walls with short steel columns and infills of strips of glass, the roof seems to float. The plain forms in the interior are complimented by the interplay of light filtering into the space through coloured glass in irregular wedge shaped openings.

Rainwater from the roof is concentrated to flow into a double barrel spout and fall into a pond with pyramidal and slanted round shaped objects,

By grouping an altar and pulpit in an alcove outside the church and incorporating the gentle slope of the hill, the church is capable of accommodating 12000 pilgrims at any given time.



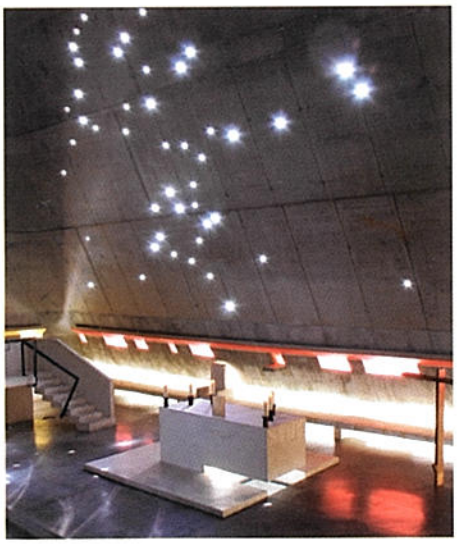


Eglise Sainte Pierre, Firminy — Vert, France
1950 - 2006

Firminy is an industrial town south east of St Etienne in the Loire valley in the Rhône Alps region of France.

At the beginning of the '50s the then mayor of Firminy requested Le Corbusier to put his ideas of humane housing into practice on the edge of this working class town.

He came up with a residential complex with plenty of fresh air and abundance of daylight and separate routes for cars and pedestrians. The apartment blocks were done by other architects while Le Corbusier designed the cultural centre, a sports stadium and a church at the centre of the complex. Buildings intended to cater for human body and human spirit while allowing for the practice of religious rituals.



Only the cultural centre and sports complex with a small tribune and one of the three housing units were built. Le Corbusier died in May 1965 while the plans for Sainte Pierre were still being revised.

An association took over and employed José Oubrerie, a former employee and understudy of Le Corbusier, to complete the project. The foundation stone was laid in the spring of 1970.

Work on the two lower stories of the building commenced three years later. The project became a bone of contention for political parties and local politicians. The Catholic Church withdrew its support and for twenty years Le Corbusier's legacy in the heart of Firminy was nothing more than a walled up hollow space made up of rotten concrete.

In 2003 the project received regional status. The project was classified as an important cultural project contributing to the architectural legacy, thus making it possible for the government to fund. While it was classified as a religious building the project could not be government funded because of a law passed in 1905 by the secular government banning public funding to any religious building.

The church was completed in 2006.

The building consists of a truncated concrete cone with slant roof pierced by square and round shapes in primary colours to direct sunlight into the space. As with Notre dame de Haut, the way in which rain water is disposed of forms part of the integral design of the

building and in this case the in situ concrete "gutter" raps around the building.

The internal space, indirectly lit by slits in the façade, is dominated by an altar, the pulpit and the chapel. The eastern wall behind the altar is pierced by three dozen small round openings forming the constellation of Orion.

The only changes made to Le Corbusier's original plans and specifications was the levelling of the entry ramp and the introduction of a lift and hand rails to comply with current building regulations.

Despite these concessions, Sainte Pierre remains an oeuvre true to Le Corbusier's work.

Johan Matthee

Reference

Simons, S *A Concrete Testament: Le Corbusier's final project*. www.spiegel.de

NEWS

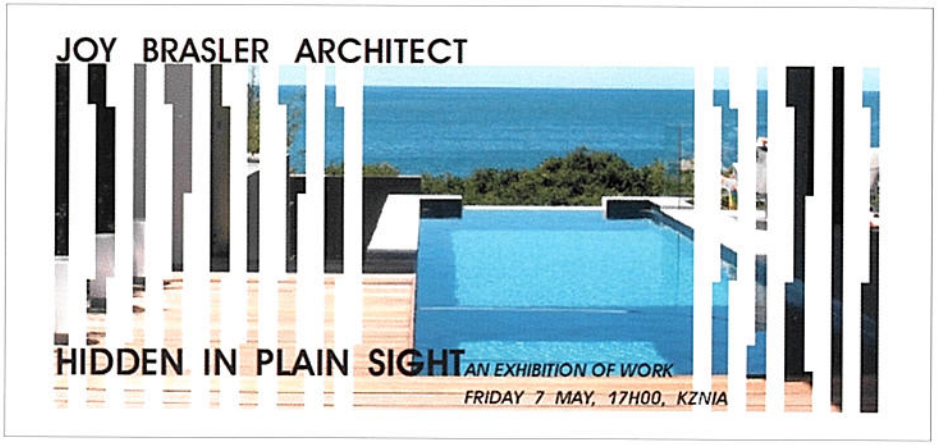
NEWS OF MEMBERS

On 31st August, former NPIA and SAIA President and Gold-medalist **Hans Hallen** celebrated his 80th birthday in Sydney, his adopted city since 1987.

On 1st September, **Walter Peters** resumed his academic career as Professor of Architecture at the University of the Free State. For the time being he will continue as editor of this Journal.

EXHIBITIONS AT KZ-NIA

ON 4TH JUNE interior designer Deborah Hall-Chadrou opened the KwaZulu-Natal Institute for Architecture **Members' Art Exhibition**, which drew a wide variety of submissions including works by the following members and friends: Alaric Napier, Anthony Clarkson, Brian Kearney, Carl Wright, David Louis, Don Albert, Franco Frescura, Gina Walker, Hans Hallen, Kevin Lloyd, Kyria van Soelen, Lindsay Napier, Marius Jansen, Michelle Quarmby, Neil Hayes-Hill and Rodney Harber.

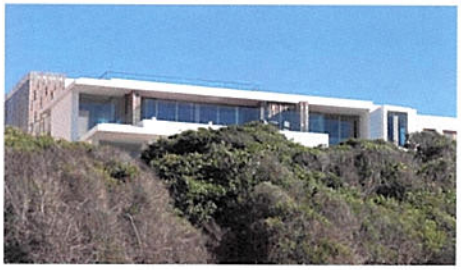


ARCHITECTURE IS THE most public of the arts, yet seldom is it given the opportunity for being exhibited as art. The Promotions Committee of KZ-NIA recently arranged two highly successful exhibitions within the premises.

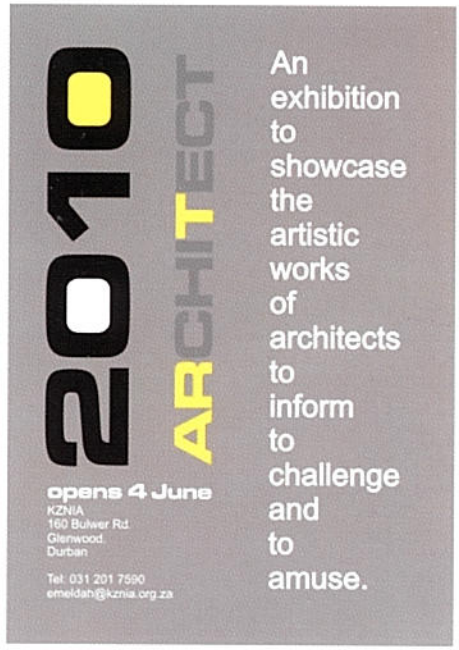
The exhibition of the work of **Joy Brasler**, Hidden in Plain Sight, opened on 7th May by Andrew Makin who, perhaps following Le Corbusier, extrapolated '5 points':

1. For almost every different question [or brief] there is a conceptually different outcome. This seems to reflect a design process informed by an awareness of the relationship between client and designer.
2. Planning is simple and direct, simplicity is often resourceful and efficient.
3. There is a spatial generosity allied to the lives and lifestyle of Joy's clients. Their ease of living is not restricted by planning efficiency.
4. There is continuity from the scale of building through to the tools, comforts and luxuries of living that Joy's clients enjoy. This continuity supports a consistency of experience upon which the variety of life plays out.
5. The formal and spatial experience does not overpower the collective and individual lives of the people that live in the spaces. The unique identity of the client is accommodated and reflected in the design, rather than being subservient to it.

House Rossi, Plettenberg Bay, 2009.



Below: Tswalu Kalahari Game Reserve, alterations, 2009.



Hans Hallen's watercolours at the Members' Art Exhibition from top: Bahai Park, Beizing, 2008; Fortress on the Great Wall of China, 2008; and Bali, Temple gateway, 1993.