

ISSUE 29, MAY 2017

Featuring the  
Nelson Mandela  
Children's Hospital

# AD

**AFRICAN DESIGN  
MAGAZINE**

+11  
PROJECTS  
FROM AFRICA

AFRICA'S PREMIER DIGITAL, INTERACTIVE ARCHITECTURE AND DESIGN MAGAZINE



# PRESERVING MADIBA'S LEGACY

**UK-based architecture firms Sheppard Robson and John Cooper Architecture (JCA) collaborated in 2009 to win an international design competition for the new Nelson Mandela Children's Hospital in Johannesburg. The facility – which employs 150 paediatric doctors and 450 nurses – opened last year. Sheppard Robson and JCA, responsible for the concept design of the hospital, were joined by GAPP Architects and Urban Designers and Ruben Reddy Architects. GAPP Architects and Urban Designers were responsible for the development of the facade and public spaces of the hospital, whilst Ruben Reddy Architects were the local lead architect that included the design development of the clinical and support facilities of the building.**





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**T**he team drew together specialist design skills with local experience and expertise to deliver the vision for the new hospital, which centred on creating a modern state-of-the-art paediatric tertiary facility located on the University of the Witwatersrand's education campus in Parktown, Johannesburg – a central position allowing it to service the needs of the region's populations.

The design is a 200-bed, eight-theatre facility, with advanced diagnostics and future plans for expansion to 300 beds. It will operate in partnership with the University of the Witwatersrand Medical School as a primary base, and will engage with all medical training facilities across the region.

The hospital includes specialist facilities for the treatment of: cardiovascular, neurological, haematological, oncological, endocrine, metabolic and renal diseases. The project also includes facilities for paediatric surgery, whilst supporting paediatric academic research and training.

A key element of the brief was to construct a hospital that provides high-quality child healthcare in a natural healing environment. This focus on



Click here to **WATCH** a video on the launch of the hospital



connecting to nature would go on to shape the design of the project and be a starting point to creating a welcoming, safe environment for both children and parents.

### The design

The competition-winning design broke away from housing all departments in a single 'box' building, which often leads to deep floorplates where the patients and staff have little contact with the outside world. After extensive consultation, it was clear that long, institutional and windowless corridors should be avoided in favour of a plan that connected to its natural surroundings.

The design concept revolved around creating six wings, each with its own specialism. These were connected by a 'street' that ran through the centre of the project. This 'street' was vital for connectivity, with three main junctions that enable efficient flow of people. The separation of floors of floors avoided cross-overs and assisted wayfinding.

By breaking down the mass of the building into six elements, the design has a domestic, human scale that reassuring and familiar to children. Further moving away from a feeling of institutional design, each wing has subtle twists of the common design language to give it a distinct identity; for example, the colour of the solar shading walls – formed from



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# LAND

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# THERAPEUTIC LANDSCAPE DESIGN

## HEALING THROUGH CONTACT WITH NATURE

THE NELSON MANDELA CHILDREN'S HOSPITAL,  
JOHANNESBURG, SOUTH AFRICA

*The landscape with therapeutic value is designed with the specific purpose of encouraging patients and families to interact with nature, in order to aid the process of healing, explained landscape architect Annamari Comrie of GREENinc. Science has proven that patients who have a view of greenery and natural spaces, allowing the influx of light, from hospital beds recover more quickly. The design of the landscape spaces at the The Nelson Mandela Children's Hospital enables visual and direct contact with nature, providing therapy that will invariably mean faster recovery for patients of all abilities, and will provide emotional strength to their families and to the staff of this facility dedicated to children in specialist paediatric care. These are children who cannot be treated at local clinics but need the attention of expert medical staff.*

*During the architectural competition entry by Sheppard Robson of the United Kingdom stepped away from the stereotypical hospital with peripheral 'green' spaces contributing little to the overall environment or experience. The landscape was conceptualised as the centre of the building's design. The team took into careful consideration the need for people orientated, functional spaces. Comrie was one of the architects for their provision of generous, well-positioned, open spaces for landscaping and windows that gave the landscape architects every opportunity to bring nature into the building, to provide for therapeutic activities in the open air. She said "... the landscape binds everything together... the journey through the building is guided by landscape spaces".*

*The vision of this hospital was envisioned by Nelson Mandela and has relied solely on donor funding. The hospital is being raised by the Nelson Mandela Children's Hospital Trust. Comrie related with fervour that the team comprised a group of inspirational women with humility, who showed an excellent grasp of the nurturing value of therapeutic landscapes.*

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**Based on interview with landscape architect Annamari Comrie of GREENinc Landscape Architecture; with additional comments from landscape contractor Ida-Marie van der Merwe of Life Landscapes and horticulturist Gail Dreyer of Tshala Plant Brokers.**

**by Carol Knoll, with written input from Annamari Comrie. Photographs by Carol Knoll and courtesy of GREENinc Landscape Architects.**



**P**eople confined to a healthcare facility lose control over their daily lives. They cannot make their own decisions but need to follow those of their caregivers, usually because they are too sick or too weak to do otherwise. The power of choice is taken from them and this can be demoralising. Comrie, who has done significant research on the subject over time, comments that therapeutic landscapes should allow for freedom of choice, so that a sense of control can be brought back into the lives of patients. Initially by just being able to look out of the window at highly colourful gardens and play areas and, with time, to go outside into those spaces.

The choice to connect with nature will involve physical exercise and social interaction, along with the sensory benefits of being in a garden where many discoveries are to be made. This will provide patients with a sense of control, at a time in their lives when their health and well-being are in the control of others. The simple ability of being able to choose serves to reduce stress and ultimately leads to quicker recovery times and, generally, to better health.

The importance of play cannot be over-emphasised in the lives of all children and particularly children in recovery. Children who don't involve themselves in physical play activities are subject to such conditions as obesity. Comrie, who has also researched educational landscapes, observed that although surveillance and safety needed to be taken into account, particularly when sick and mobility impaired children were involved, there was no need to be overcautious with children or to over-regulate play activities. She commented that risk taking was good for children.

Security cameras have been considered necessary in many areas of the therapeutic landscapes at the hospital and





the water in ponds is shallow. Water is particularly therapeutic, providing an uplifting and calming effect. A precaution taken with the choice of plants was to ensure that no harmful plants were included in the palette, such as species that are prone to drop their thorns; and that in spaces where children are at play, the vegetation is low or see-through to enable ease of surveillance.

Comrie drew attention to four key principles of successful therapeutic landscape design: specifically, visual and physical accessibility to the landscape; ease of mobility for people with movement difficulties; a variety of quality functional spaces that meet different needs; and the provision







of positive sensory stimulation. She explained: “The knowledge and understanding of these principles, along with consultation with our client and other design professionals, guided us in all aspects of the therapeutic design process at this referral hospital. We also explored the relatively new concept of Horticultural Therapy and hope that our efforts will result in this programme being offered by the hospital. The success of the design, of course, also depends on the people who use the spaces.”

The objective of the design, both soft and hard landscaping, was to meet within reason every possible need that those utilising the hospital facility – patients, their families and staff – would have while on the premises. Comrie maintains that the needs of people are more important than perfect aesthetics in all landscape design. The intention was that there should be at least one place where every person coming to the hospital could have a positive sensory or emotional experience. “The joy experienced in nature is well-known and children respond so well to flowers almost from the day they are born,” she added.

There are five ‘internal’ courtyards on two levels at the hospital and five external garden spaces. All of these have specific functions that relate to the programming of the hospital, including psychological, physical and play therapies. The selection of almost entirely South African indigenous plants was made by consultant landscape architect Dr Erika van den Berg based





on a simple brief from GREENinc, known for their indigenous landscapes, that the plants should emphasise the playful, happy children's spaces; requiring only a certain level of privacy made possible by permeable screens of plantings to enable surveillance. The plantings in the courtyards designed for quiet reflection, set aside for visitors and staff, create a different ambience with the natural growth patterns of plants encouraged through maintenance that avoids manicuring. The ambience of being in a wild landscape is important. Van den Berg's choice has ensured that there will be plants flowering in every season.

Amongst the many flowering species, largely with sparse leaf cover or low growth, chosen for general plantings in courtyards are *Bauhinia natalensis* (Dainty Bauhinia), *Bauhinia tomentosa* (Yellow Bauhinia), *Rothea myricoides* (Blue-flowered Tinderwood), along with *Barleria repens* Rosea (Small Bush Violet), *Ochna serrulata* (Carnival Bush), *Chlorophytum bowkeri* (Giant Chlorophytum), *Agapanthus inapertus* (Drooping Agapanthus), various cultivars of *Asparagus densiflorus* (Emerald Fern), *Pavetta lanceolata* (Forest Brides Bush), *Cineraria saxifrage* (Wild Cineraria), *Jasminum multipartitum* (Starry Wild Jasmine) and *Rhoicissus rhomboidea* (Glossy Forest Grape).

The first impression of the facility is formed in the **Arrival Court** where the landscape design aims to create a welcoming experience, for both children and their families, to alleviate the stress usually related with coming to a hospital. The elements include colourful signage and eye-catching flowering plants, soft green lawn on the central island along with a grouping of locally indigenous trees – *Celtis africana* (White Stinkwood), *Combretum erythrophyllum* (River Bushwillow) and *Kiggelaria africana* (Wild Peach). On the lawn nearby is an artificial tree with discs in bright colours that repeat the colours of the blinds on the building and acknowledge by name each of the major donors. More artworks may be positioned on the lawn with time. Comfortable benches are placed next to the flowerbeds in which, amongst others, the bright orange *Crocasmia aurea* (Falling Stars), *Gladiolus dalenii* (Papegaiswardlelie), and dark and pale blue hybrids of *Agapanthus* species, flower in their turn.

The **Visitor Garden** which leads from the indoor reception areas, aims to provide a continuation of this heartening experience. It includes a cafe terrace overlooking a circular bubbling pond, bright yellow benches and a square lawn area that can be utilised for fund-raising events. A narrow water channel, planted with marginal and aquatic species, is defined by a geometric pattern of granite set in a pathway and shaded by a pergola which will, in time, be covered in the exotic purple-flowering Wisteria creeper. The channel connects the café terrace with the **Children's Garden** at the far end of the courtyard. In this colourful space, young visitors will have the opportunity to release pent-up energy away from the controlled hospital environment. The channel feeds into another circular pond with a reflective surface.





The play elements include a natural timber climbing structure with a slide, swings, a climbing net and a chalk-board, as well as a bird-bath and a mounded lawn. Two ride-on toys are mounted on a colourful mosaic base depicting insects and animals. The mosaic is by artist Bronwyn Findlay. Playful

sculptures of animals by artist Winston Luthuli are waiting to be discovered between the plants and under the climbing structure.

### The **Sensory (Horticultural Therapy) Garden** and **Occupational Therapy Garden** will provide an outdoor venue for the programmes offered by the

hospital. Horticultural therapy gives a child the opportunity to participate in the cycle of nature and to substitute the role as patient for the role of caregiver, through activities such as planting, re-potting, weeding, pruning and 'harvesting'. These activities reduce boredom and stress, resulting in happier children that recover more quickly. The client immediately grasped the value of this therapeutic garden.



The three raised planters in the **Sensory Garden** will allow children (standing or in wheelchairs) to see, touch, smell, taste and harvest the plant material with relative ease. The plants have been carefully selected for their sensory properties. There are edible plants that provide the patients with an opportunity to taste, such as cherry tomatoes, sweet peppers, carrots, celery, fennel, strawberries and the indigenous scrambling *Carpobrotus edulis* (Sour Fig). Fragrant herbs are plentiful, amongst which are lemon grass, basil (Sweet Italian), thyme, rosemary and sage; along with the sensory experience provided by the crushed leaves of scented species, such as *Pelargonium capitatum* (rose scented), *Pelargonium citronellum* (lemon scented), *Tulbaghia*





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- Jadav Payeng, environmental activist and forestry worker.



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## IMPLEMENTATION OF CERTAIN HARD AND SOFT LANDSCAPES AT HOSPITAL

*Ida-Marie Strydom of [Life Landscapes](#) who was the contract manager for the landscaping at The Nelson Mandela Children's Hospital spoke about the need to keep the internal landscaping as lightweight as possible on the ground floor level and about the laying of the rubberised surface for the play areas. The construction of the metal clad leaf-shaped ponds was explained by landscape architect Annamari Comrie.*

The plant growth at the hospital has been exceptional because of the good rains Gauteng has experienced this season but this prolific growth has also been ascribed to the excellent quality lightweight soil mix supplied by Varing Nursery. Strydom described the soil medium as containing plenty of bark and having good drainage capacity. (The more water the mix absorbs, the heavier the soil will be.) To further ensure that the weight above the lower ground facilities was not more than safety measures required, layers of high density polystyrene blocks were utilised as 'void formers' under the raised areas of the ground floor courtyards: under floor surfaces, steps and ramps, for example. The main contractor, Group 5, was responsible for all the waterproofing of the planted courtyards.

The highly colourful rubberised floor surfaces, installed to increase the safety of children at play or occupied with physical therapy, were laid by the sub-contractor Seamless Flooring. The mix comprises coloured granules and a bonding material which is poured onto the concrete screed of the floor area and smoothed over with a trowel. Strydom explained that to separate colours so as to create very clear definition, flexible steel edging was placed along the margin of one colour and the mix allowed to dry, before the edging was removed and the next band or circle of colour was placed. This enabled shapes such as the 'monster' in the Family Garden to be created for the pleasure of the children. Water from the rubberised floor surfaces drains into the planters and then into the drainage channels around the periphery of the courtyards which were installed by the main building contractor.

Comrie said that Truestyle Hard Landscaping Solutions had custom-made the leaf shaped metal ponds in the Healing and Quiet Gardens, which provide a green refuge for family members and staff. She said that designing, installing and maintaining these metal vessels had been a learning curve for all involved, commenting that the maintenance had become easier since the ecological system in the ponds had stabilised somewhat.

The metal inside the ponds was sealed, while the outside of the vessels was acid washed to encourage rusting, which provided the more natural look that Comrie required. She explained that there was a large volume of water in the deep ponds which helped to keep the water cool, while as the tree canopies thickened with maturity, the water temperature would drop further. Aquatic plants, including the lovely pale blue of the indigenous *Nymphaea nouchali* (Blue Waterlily), make a splendid showing above the base of pebbles in the ponds. A gravel layer on a metal grid under the pebbles halfway into the volume of water provides filtration, while a pump circulates the water for aeration purposes.



# Working towards a sustainable future – a future full of *life*

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- Maintenance of residential / golf estates
- Water features & irrigation
- Food waste recycling & composting
- Designated smoking area solutions





## PLANT MATERIAL SOURCING FOR HOSPITAL

Gail Dreyer of [\*Tshala Plant Brokers\*](#) spoke about the commercial availability of South African indigenous plant species, saying that there were many more growers becoming aware of the escalating demand for more unusual indigenous species, particularly within the landscaping industry. The value of indigenous species is being recognised.

Tshala Plant Brokers sourced all the plant material for the Nelson Mandela Children's Hospital, saying that there were some plants on the plant list that were challenging to find but that Dreyer had called on her 'mentors' in the indigenous nursery industry for suggestions of alternatives, in cases when there were not enough plants in stock at nurseries or an unusual species could not be found. She remarked that there were not that many plants that proved to be impossible to find, once she had called on her vast network of large and small specialist growers, nationwide, as Dr Erika van den Berg's list had been obtained in advance.

She said the people she could rely on for suggestions of alternatives, along with Annamari Comrie of GREENinc Landscape Architects and Ida-Marie Strydom of Life Landscapes, were the remarkable growers that had been in the indigenous plant industry for a lengthy period: such as, Mandy Fick, Linda De Luca, Dr Johan Wentzel, Gretchen Grenville and Lucy Drake. The ideal is that nurseries should have enough time to grow-on species that are required for projects, when necessary. If there is contract growing required, the list should be available well in advance so that the seed can be sourced at the right time and the plants reach a reasonable size.

"Those plants that were not available at the time the order was placed for the hospital could, fortunately, be supplied to the hospital at a later stage, as the planting was done in pockets: plants such as the *Phygellus* spp, commonly known as River Bells or Wild Fuschias. Aside from the latter marginal species, which was utilised in the main stormwater grassland swale, the water plants were not difficult to source as they were not required in large quantities. "We have a few excellent water plant nurseries that have a good variety of indigenous aquatic and marginal plants. We sourced plants for the water features such as *Kniphofia fluviatilis* (River Poker), *Crinum campanulatum* (Vlei Lily), *Cyrtanthus breviflorus* (Yellow Fire Lily), *Aponogeton distachyos* (Waterblommetjie), and *Spiloxene aquatica* (Watersterretjie) – something which we had not been asked to source, previously," Dreyer related.

She said that some of the *Osteospermum* and *Alstroemeria* (exotic) spp that were unavailable at the time of installation were substituted by appropriate alternatives; along with specific *Plumbago* and *Agapanthus* cultivars which had to be replaced with the more common cultivars or natural species, matching the colours as closely as possible to those requested on the plant list.

Dreyer concluded that there was a marked increase in availability of South African indigenous species that had not previously been grown for the commercial market.





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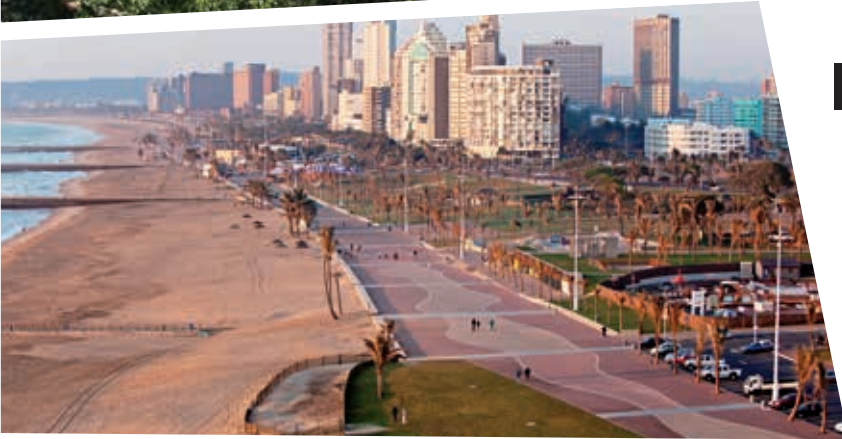
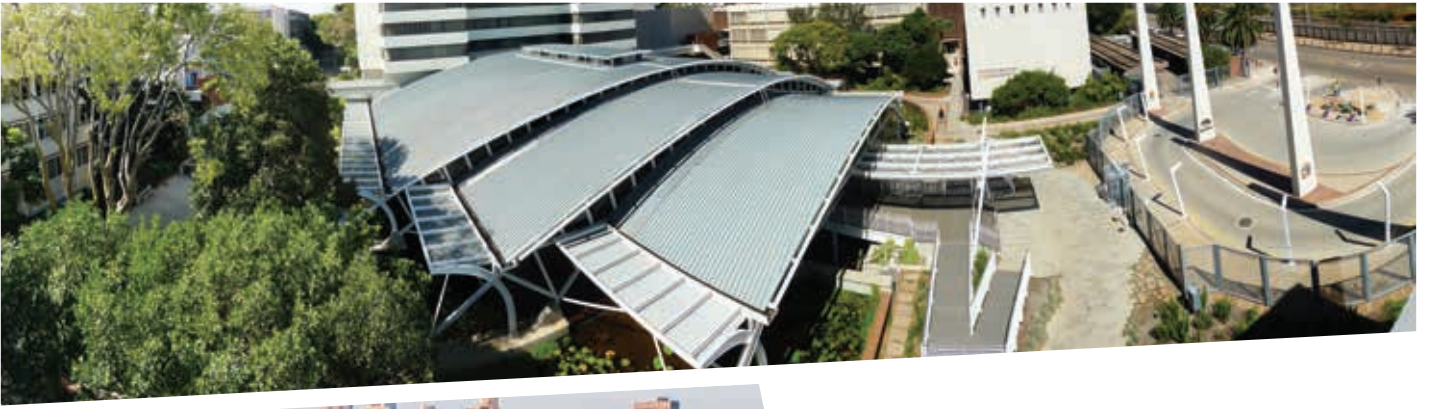
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*violaceae* (Wild Garlic), *Hermannia pinnata* (honey scented) and *Mentha suaveolens villosa* (Apple Mint). Herbs and vegetables can be picked and washed in a basin at a work bench which also provides storage space for gardening tools. The small seating area with tables and chairs can facilitate structured activities in relation to horticultural therapy and provide an informal meeting space.

General plantings for visual enjoyment and providing interesting tactile experiences in this garden include, again amongst others, a selection of Aloe hybrids, *Eriocephalus africanus* (Wild Rosemary/ Kapokbossie, with its woolly seeds), *Dierama pendulum* (Hairbell – with its mauve pendulous flowers), *Aristea ecklonii* (Blue Stars), *Lathyrus odoratus* (the exotic Sweet Pea), *Zantedeschia aethiopica* (White Arum Lily), *Alstroemeria* (with its sharply defined

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**Client:** Nelson Mandela Children's Hospital Trust

**Architects:** Sheppard Robson International, GAPP Architects, John Cooper and Ruben Reddy Architects

**Landscape architects:** GREENinc Landscape Architecture

**Planting design:** Dr Erika van den Berg (landscape architect)

**Main landscape contractor:** Life Landscapes

**Hard landscape construction:** Hard Landscape Enterprises

**Play structures, steel and wood elements:** Truestyle Hard Landscaping Solutions

**Steel screens:** Spiral Engineering

**Laying of rubberized flooring:** Seamless Flooring

**Plant sourcing:** Tshala Plant Brokers (all trees sourced from Just Trees)

#### CONTRIBUTORS TO LANDSCAPE

**Art in the landscape**

**Art curator:** Bongsi Dhlomo

**Project manager art installation:** Bié Venter

**Artists**

**Exterior landscape**

**Animal sculptures:** Winston Luthuli

**Sensory Garden interactive water feature:** Usha Seejarim with Bronwyn Findlay

**Mosaic panels:** Bronwyn Findlay

**Interior Landscape**

**Interactive train:** Mary Sibande (manufactured by Alan Epstein)

**Umlabalaba play pieces and Abacus pieces:** The Coloured Cube

**Movable flower shaped seating:** Spitfire Furniture & Design

**Story Screen steel vignettes:** The Coloured Cube in partnership with Assemblage

**Paper Prayer mosaic panels:** Soweto Art Ladies Mosaic Co-op.

**Wayfinding Signage:** Vincent Truter – Creative Direction and Wayfinding Strategy; Carina Comrie – Creative Direction and Graphic Design; Lou Louw – Project and Production Management; Io Makandal and Zelé Angelides – Wallpaper Design; Jenny Hattingh – DTP