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FLOOR LAYOUTS M2K ARCHITECTURE

# RWANDAN HIGH TEA

Nyungwe Forest Lodge, Rwanda's only five-star accommodation outside of the city, sits within a working tea plantation perched on the very edge of the ancient Nyungwe forest. The remote and ecologically distinct location of this site demanded particular attention to environmental concerns. At the same time, the political history of Rwanda, together with the need to unlock appropriate economic opportunities, meant that this project was an extraordinary opportunity for all involved.



**T**he site for the Nyungwe Forest Lodge was identified by the Rwandan government as a perfect position for the hotel to encourage tourism, as the land was already disturbed but allowed for incredible views of the forest. The vision of the developers and architects was that the lodge embraces the site and become an extension of it to celebrate the location, regionally and immediately, and to protect and preserve it as far as possible.

“It was a real honour to work on this project. We felt obliged to bring out the best of this stunning land, but also, with the difficult history, we felt the need to do something really special for Rwanda. It was unlike any project I have ever worked on,” explains M2K associate architect Mark Treon.

#### SITE AUDITING

Chand Environmental Consultants were brought in at the very start, and a baseline study of the area was conducted before any construction began. Guidelines were developed with respect to the Forest National Park boundaries and forest species. Guidelines for design included consideration of water supply, energy supply, waste management, and management of the gardens and tea plantation. “This is a very special site – the juxtaposition of the forest and the tea plantation highlights the biophysical and social environments - and we had to do right by the environment. The client was very amenable to environmental guidelines, which was a good starting point,” adds Chand Environmental founder Sadia Chand.

Chand Environmental officer Ingrid Eggert explains that environmental education of the contractors on site was a high priority, as many workers had never worked according to environmental specifications before.

Labourers were educated on why they could not source wood for burning from the forest, and why waste could not be disposed of anywhere.



“The contractors were keen to understand the environmental management plan, and insisted on being presented with certificates after their training,” says Eggert, who monitored progress on the site remotely, assisted by an onsite environmental officer. She also conducted onsite audits and after construction, a closure audit was conducted.

Eggert maintains that the process exceeded initial expectations. “I think the professional team were sceptical at the start because of all the perceived constraints, but all involved went far beyond what was required,” she states.

### CONQUERING THE CONSTRAINTS

The major attraction of the site – its remote location – was also the biggest obstacle before and during construction. Sustainable sourcing of materials and skills was a great challenge, because there was simply no industry to draw from in Rwanda.

Treon explains that the major guiding principle was to “reduce need”. Be that need for materials during construction, or for water and energy during eventual operation. This influenced the layout of the lodge.

The larger main building, with dining, lounges and kitchen, which would have a greater disturbance on the environment, were placed on already disturbed area. It was also positioned to take advantage of distant views into the forest.

The guest accommodation villas, because they are smaller in size, were placed in more sensitive

### NUTSHELL

**Location** Gisakura Tea Estate, Rwanda

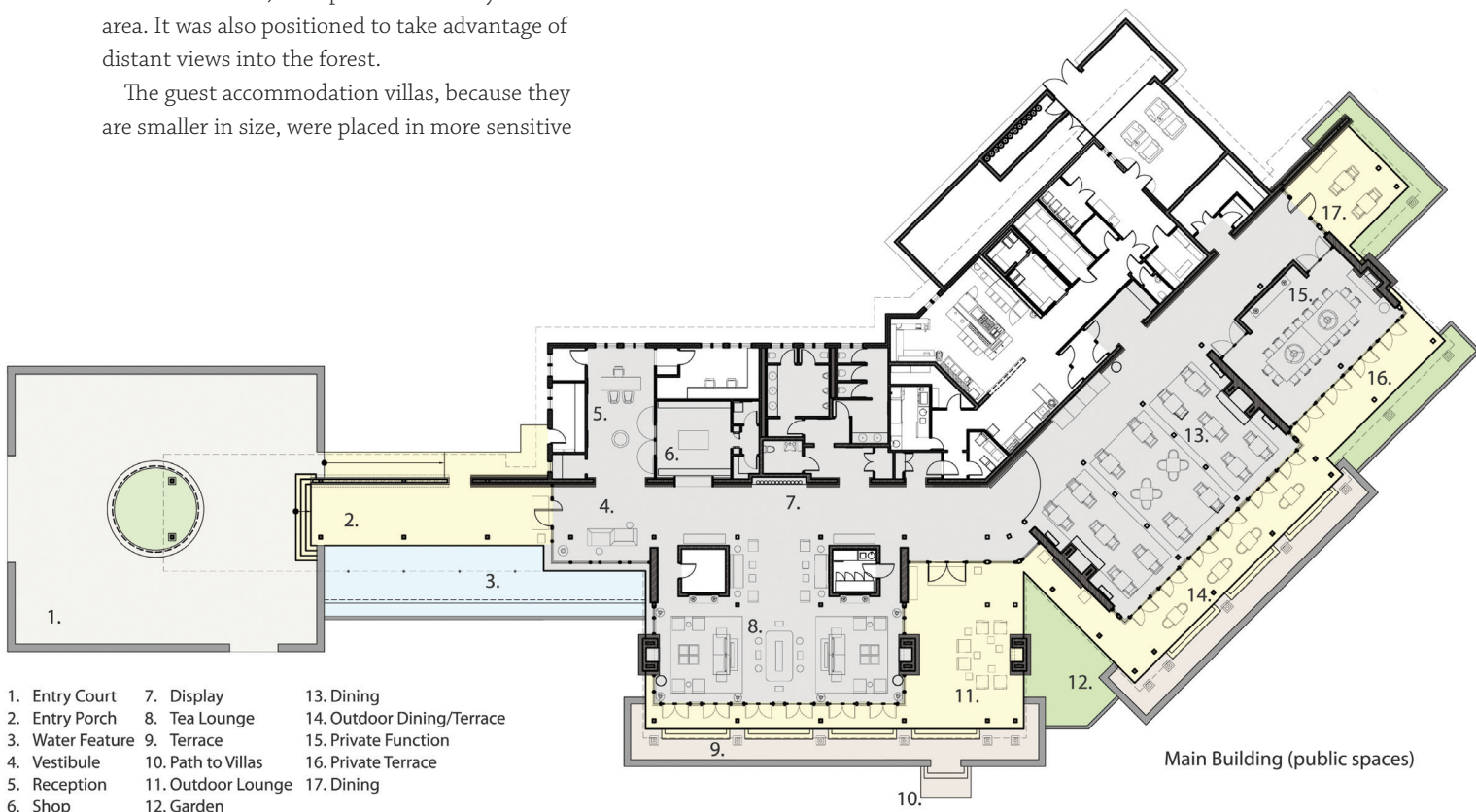
**Project cost** US\$ 15 million

**Project start** January 2009

**Project completion** March 2010

**Developed area** 4 380 m<sup>2</sup>

**Rooms** 20 Forest Villas, 2 Forest Villa Suites







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areas and stilted above the land on timber poles to eliminate the need for a concrete foundation, and allow plants to grow. The tea field surrounding the villas was then re-established with indigenous plants. Elevation of the villas also allows for maximum natural light and ventilation not only in the bedroom, but the shower and bathroom too.

T&B Loghomes based in Knysna supplied the

01. Standard guest room bathroom

02. Landscaping around a villa

03. The villas are stilted above the ground

timber villas, which use a system of pre-fabricated components. These were adapted to the Nyungwe design, as opposed to being an off-the-shelf kit. The components were pre-made in Knysna, reducing the quantity of materials that had to be delivered to site, and also reducing the disturbance on site.

“As almost all building products are imported into Rwanda, using a source from Knysna that could be



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verified and controlled meant that we were assured of the sustainability of the timber. The use of local timber from Rwanda was banned as they do not have sustainable timber plantations – timber would literally have come from the rainforest that we were trying to celebrate,” says Treon.

Being situated at a remote location in Africa also meant that complicated techniques were not always the best option. The lack of choice often drives innovations that are more simple yet effective. Design cues came from local materials and methods, influencing the building’s roof typology and overhangs, wall construction, and the use of porches and verandas.

Contractors from Uganda and South Africa, as well as locals, started with the construction of the staff house, which then became their accommodation for the duration of the project. Prior

- 01. Tea lounge
- 02. Custom pottery
- 03. Site from a distance
- 04. Rain chains

to that, rooms were rented at the nearby Gisakura tea co-operative. Sewerage treatment works and a connection to the hydro-powered electricity grid also had to be established for the lodge.

Sourcing of materials for interiors was another challenge. “You can’t just specify things from a catalogue, and this encourages procurement of hand-crafted items,” says Treon.

Keith Interior Design directors Keith Mehner and Ian Hannay-Robertson, along with Treon, spent significant time in Rwanda trying to source as much as possible locally. After visiting museums in Kigali and getting an idea of the local crafts, they commissioned items from local crafters. This included such items as woven baskets, screens, and much of the pottery, such as the *imigongo* panels (sculpted cow-dung on wood panels which are later painted) that were used for cladding.





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02.



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### PLANTING A LEGACY

OVP Landscape Architects' designed the concept for the outside space, and partner Darryl Pryce-Lewis explains that the idea was to minimise the impact within the plantation. "It is a very dramatic site. The lodge is almost carved out of the working tea plantation."

Pryce-Lewis emphasises that success hinged on the landscape contractor, EarthQuest, understanding the dynamics, logistics and difficulty of working on such a distinct site.

EarthQuest management consultant Allister Starke says the objective was to rehabilitate the forest edge and existing tea plantation around the lodge buildings – blending the lodge into the forest by using indigenous plant material, and plant palette combinations inspired by the natural forest ecology.

The actual process of achieving this was intricate and arduous, particularly because there are no established nurseries in Rwanda where plant material could be sourced. EarthQuest sought assistance from the Agricultural Research Institute of the University of Butare, where they purchased

01. On site nursery

02. Earthworks by hand

03. Roof tile factory

04. Tea factory

a number of indigenous trees for the project. Permission was obtained from the Rwandan Department of Parks and Tourism to harvest seeds and cuttings from the forest. A detailed Memorandum of Understanding (MoU) was signed between the authorities and EarthQuest to allow limited harvesting for the establishment of an onsite project propagation nursery, in which plants were grown for the landscaping of Nyungwe Forest Lodge.

### SUSTAINABILITY FEATURES

- Layout and design of buildings minimise impact on the landscape in all aspects.
- All spaces take advantage of natural light and ventilation.
- No heavy machinery was permitted on site. Earthworks had to be done by hand. The construction phase was aimed at creating as many jobs as possible.
- No endangered or rare materials (such as mahogany) that could have been harvested from the Nyungwe forest were used.
- Local materials, and those with certified sources were favoured, and those requiring a regional skill were preferable to imported materials or labour.
- Bricks, blocks, and clay roof tiles were locally sourced.
- A limited amount of stone cladding was sourced from a local quarry.
- Timber buildings were constructed from pre-fabricated kits, reducing the disturbance of the site. Villas near the forest edge used stilted timber construction to raise the buildings off the ground, reducing impact and not requiring cast-in-place concrete foundations.
- Low-flow water devices are used, fixtures are fitted with aerators and dual-flush toilets are used.
- Boreholes provide water, which requires minimal treatment before use, and all wastewater is treated on site to a level suitable for release back into rivers.
- The pool uses an ozonator, resulting in cleaner water without use of chemicals.
- Solar water geysers provide hot water.
- Florescent lights are used for back-of-house operations, with a combination of fluorescent or incandescent fixtures with low-wattage lamps for front of house. All lighting in main spaces are automated.
- Indigenous landscaping.



04.





Nyungwe Forest is Africa's largest protected mountain forest, reaching almost 3 000 m above sea level. Housing one of the largest concentrations of chimpanzees, and home to other primates, over 310 bird species, as well as butterflies, moths, insects, and incredible flora including orchids.

Staff were specifically trained to assist with landscaping installation and establishment of the onsite nursery, and these staff members now maintain the landscape.

"It is one of the only examples of indigenous gardening with East African plant material. I was incredibly lucky to have been given the opportunity to research, live, play, and then build the garden at Nyungwe," enthuses Starke.

#### NYUNGWE NOW

A preferential procurement policy is in place and the lodge endeavours to source goods and services from within Rwanda. Fruit and vegetables are sourced from local farmers and markets, while the lodge gift store includes hand made ceramics, *imigongo* panels and rattan and grass weaves from artists and crafters in the region.

Nyungwe hospitality operations manager Jerry Were explains that there are no recycling facilities

#### AWARDS

1. Best New Small Hotel – Design and Construction in the 2012 Bloomberg International Hotel Awards
2. Green Leaf Environmental Standard green status for 2010/11
3. Environmental Landscape Work Award of Excellence from the South African Landscapers Institute (SALI) in 2010.

nearby, and waste is sent to the city council designated dumping site. Waste is sorted however, and a number of pig farmers in the area collect vegetable waste from the kitchens. Were adds that operational practices, particularly in the kitchen, are geared toward minimising waste.

The lodge is a significant employer in a region where formal sector job opportunities are scarce. A considerable investment has been made in staff training and skilling, including instruction by top chefs and other respected figures in the hospitality industry in Africa, says Nick Webb, managing director of Dubai World Africa who owns and operates the lodge.

Because there is a working tea estate around the main public building which produces some of the highest quality tea in the world, a 'tea ceremony' has become a daily tradition at the lodge.

The results have been gratifying, says Webb, as he describes the "magical landscape of emerald green tea fields, surrounded by the ancient forest", adding that the awards are affirmation that the development - although brave, and not without risks - has been very successful. ☺

#### SOURCEBOOK

<b>Developer, owner and operator</b>	<b>Dubai World Africa</b> Nick Webb 021 418 4366
<b>Architects</b>	<b>M2K Architecture</b> Keith Mehner and Mark Treon 021 426 4556 <a href="http://www.keith.co.za">www.keith.co.za</a>
<b>Interiors</b>	<b>Keith Interior Design</b> Ian Hannay-Robertson <a href="http://www.keith.co.za">www.keith.co.za</a>
<b>Landscape design</b>	<b>OVP Associates</b> Darryl Pryce-Lewis <a href="http://www.ovp.co.za">www.ovp.co.za</a>
<b>Landscape contractor</b>	<b>Earthquest</b> Derek Vincent <a href="http://www.earthquest.co.za">www.earthquest.co.za</a>
<b>Environmental consultants</b>	<b>Chand Environmental Consultants</b> Sadia Chand <a href="http://www.chand.co.za">www.chand.co.za</a>
<b>Structural and civil engineering</b>	<b>Nadeson Consulting Services (formerly ASCH)</b> Bruce Erlangsen <a href="http://www.nadeson.net">www.nadeson.net</a>
<b>Mechanical and electrical engineering</b>	<b>WSP Consulting Engineers</b> Dick Morkel <a href="http://www.wspgroup.com">www.wspgroup.com</a>
<b>Quantity surveyor</b>	<b>AECOM (formerly Davis Langdon)</b> Tim Smith <a href="http://www.davislangdon.com/global">www.davislangdon.com/global</a>
<b>Lighting design</b>	<b>QDP Lighting &amp; Electrical Design</b> Hambly Quantrill <a href="http://qdp.co.za">http://qdp.co.za</a>
<b>Main contractor</b>	<b>Roko Construction Limited</b> Nigel Done <a href="http://www.roko.co.ug">www.roko.co.ug</a>
<b>Guest accommodation</b>	<b>T&amp;B Timber Log Homes</b> Dave Simpson <a href="http://www.timberloghomes.co.za">www.timberloghomes.co.za</a>
<b>Pool and pool buildings</b>	<b>Thomas &amp; Piron Coralie</b> Piron coraliepiron@tpintl.net