Buildesign

Issue No. 003/2014 |Ksh. 300 | Tsh. 5600 | Ush. 8600

REVIEWING ARCHITECTURE IN KENYA AND THE REGION

Building Reviews: Boma Hotel Nairobi and Red Pepper House
Profiles: Vetle Jorgensen and Prof. Alfred Omenya
Feature: Building owners must now install solar water heaters

www.buildesign.co.ke


The whole design and construction process was
to be as eco-friendly as possible. The footprint usi
spaces avoids cutting down the mangroves

THE Red Pepper HOUSE HOTEL

Decorative wall recess

Wash hand basin

THE SITE

Most successful projects in the developing countries are those that respect the vernacular architecture of the region and fuse them together with the tenets of modern design to achieve a hybrid design. And so, with a client that has great love for both nature and architecture, this project demanded respect to the natural features onsite – mainly the mangrove forest, which influenced the highly organic layout of the entire design. The result was a series of open and closed, sunny and shadowy interplay of spaces that create a memorable experience as one walks through the project.

Red Pepper House is a small yet a very exclusive and luxurious hotel that gives one the sense of being outdoors, in the open, even when the space you're in is completely covered. The small coral stone masonry houses on the sandy beach create a scattered urban pattern which has a completely organic shape, undulating with soft curves.

LOCATION

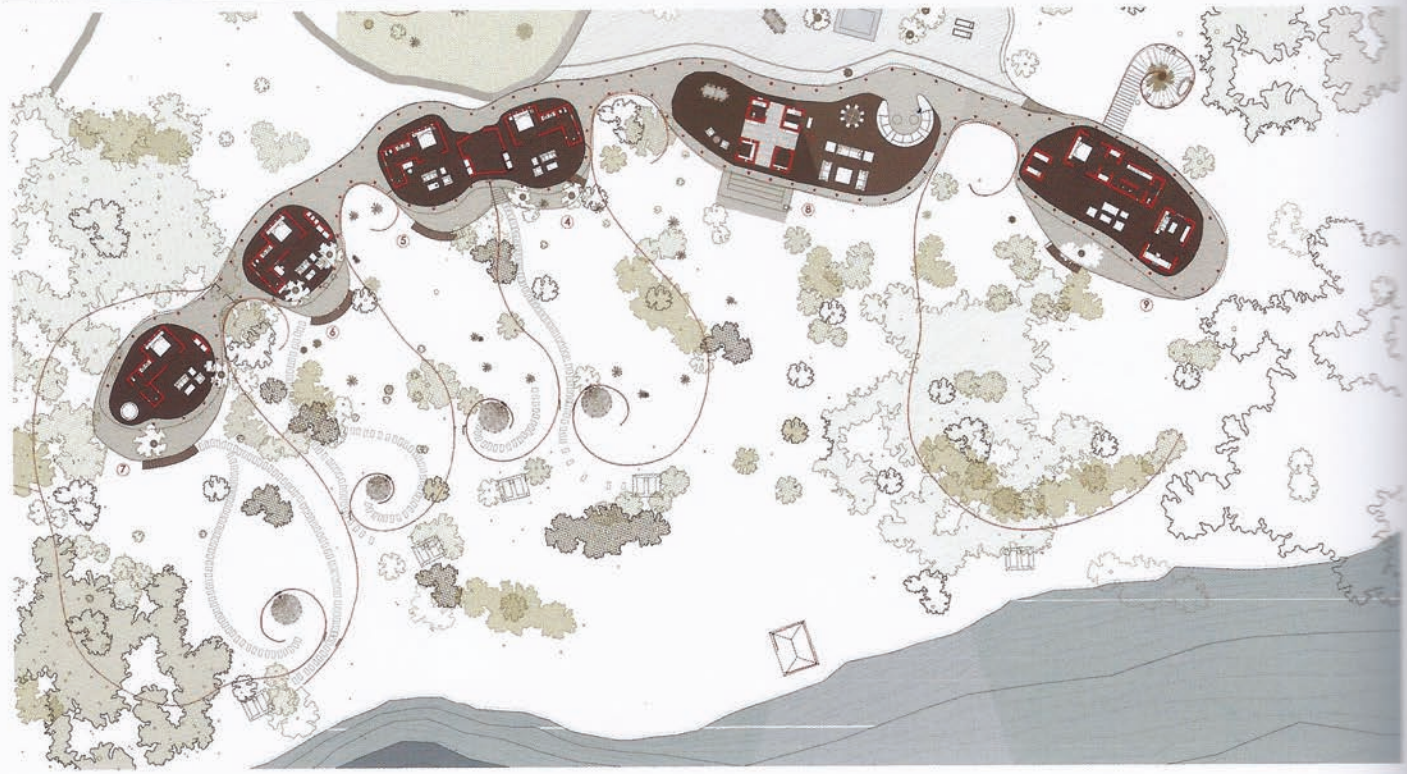
It is located in Lamu Island towards the north end of the town, on a plot that is immersed in vegetation and bordered by the beach on its southeast slopes. The forest, consisting mainly of mangroves, provides very few open spaces in between and hosts an abundance of chirping birds. These natural features enable the development of a building whose design creates a harmonious dialogue with its surroundings. Without being completely isolated from the local population, its location provides a space where privacy is safeguarded by the nature that surrounds it. Red Pepper House was presented as a chance to create a form of organic architecture that had a balance of traditional craft and modern requirements, such that the building would be integrated with the history and nature of the island.

The client, Fernando Torres, wanted a private residence that shared a connection with Lamu but secluded from the main town itself. He had a passion for architecture and at the same time, great respect for the environment and hence needed that the design process preserved the forest as much as possible. Likewise, the construction process and eventually the running of the building were to share the same attribute.

CHALLENGE & RESPONSE

The challenge was to give response to very specific requests not specifically related to the local tradition and to do it using the local construction systems, workmanship, and sense of space looking towards the future yet having one leg grounded in the past.

This made it necessary to revisit the Swahili traditional catalogue of solutions to give



Site Plan

response to the very specific demands. Gaining knowledge from local Lamu construction, the project was approached in a similar way and, paying great respect to the surrounding environment.
Because the eight-acre plot was surrounded by an acacia forest, the architect did the actual drawing of the house in the open spaces between the trees.

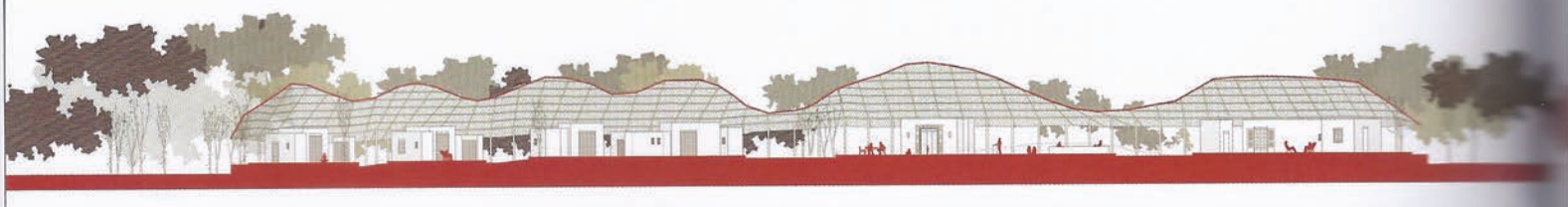
In respect to the client's passion for nature, the architect took advantage of all the big trees on site and used them to
create a disposition of open/closed and sunny/shadowy areas. The footprint of the house is the result of building only in the areas not occupied by trees. This footprint corresponds to the area covered by the roof structure with no walls, the only enclosed spaces are the bedrooms which are linked together under the continuous roof. The relation between the traditional elements has been altered to meet the client's requests.

DESIGN

The architect incorporates different levels of closure that create a transition between indoors and outdoors.
The basic elements of this project are the solid platforms covered with continuous lightweight roof and Makuti. The platforms are done in a free form using different cube-shaped coral and lime stones and Makuti, a lighter structure that make up the roof for shading and coverage.
Makuti is comprised of palm trees, a traditional plant on Lamu Island that has been used for centuries. It is very light yet also very strong. It is widely available, easy to maintain and replace.

Makuti is also very good for thermal insulation (cooling). In the past, it has been used in a very "static" way – the architect stretched this very flexible
material to the limits, to see what shapes and forms he could generate. The Makuti roof provides protection from the elements and taking a step further out onto the open concrete platforms. Apart from providing the shaded outdoors, the Makuti roof also performs best in the hot and humid coastal climate acting as insulation as opposed to other conventional roofing materials.
In the Swahili architecture, the Makuti roof is used as a structure over the roof of the house or detached as a temporary construction. In this project, it has been enlarged to cover the dispersed layout of the rooms under a single space protecting from sun and rain and such that in the external spaces one can share a close connection with nature.

The one floor design enables easy access to all the spaces without the need for provision staircases. The bedroom's solid roof presents a sense of security and intimacy. The trees provide a continuation of the outdoor spaces complementing the entire design other than acting as an afterthought addition. The use of lime



Lounge

instead of cement allows the walls to breathe and to absorb humidity while providing a fantastic, very tactile texture. Lime is also long lasting, and as an organic element, it changes with the weather, giving it a sense of life. Local craftsmen intricately completed the traditional handiwork.

Windows and large open spaces on the windward and lee sides of the building allow airflow across the space enhancing good air movement and good cross ventilation.
This naturally cools the room and eradicates the need for air-conditioning systems, often required in this climate.
The use of a bio digester, work towards managing and purifying waste water so that it can be recycled and used elsewhere in the building.
The layout and material used for the setting out of the bedrooms, the only fully enclosed spaces in the house, present a sense of security and intimacy. The whole design and construction process was engineered to be as eco-friendly as possible. The footprint using the open spaces avoids cutting down the mangroves. The project has also used locally available materials in the entire building which are not just eco-friendly but have an overall low embodied energy levels. The use of purely manual labour and local materials such as timber and coral stone ensured that the project had minimal impact on the environment with a very low carbon footprint. In order to exploit the sunny climate of Lamu, the project hosts two different solar energy collection devices. Solar water heaters absorb the sunlight and use the energy to heat water. The advantage of these solar heaters is that hot water is available on demand throughout the course of the day without negatively affecting the environment. The same idea is incorporated in generating power and thus the project also uses photovoltaic cells to provide electricity to the house.

Since Lamu can get very hot during both day and night, passive means of ventilation have been employed. Cross ventilation by having windows or large open spaces on the windward and lee sides of the building allows airflow across the space. This naturally cools the room. Winds passing over the sea will bring a cool breeze into the house and the lack of energy usage in this process makes the building very sustainable. The materials used play a part in keeping the building cool. The traditional makuti roof provides a barrier from the sun and is also a good thermal insulator. The coral stones used for construction share the same quality keeping the rooms cool. The house accommodates a water tower that uses the theory of gravity to send water to the taps and showers and eradicates the need for a pressure pump.

One of the most interesting aspects in this project was how the local craft by use of manual labor from the locals was merged with modern comfort to complete the intricate traditional handiwork detailing. This makes the project appealing to both the locals and foreigners to varied levels but with agreeable high levels of human comfort.