NANYUKI PROJECT

Project of international
cooperation on development of
the Catholic Mission in Nanyuki.

Kenya

0° 0’17.64”N 37° 5’17.92”E

Giovanni Marco Chiri
with
Ilaria Giovagnorio
Maddalena Achenza
Marta Pilleri
Marta Naitana

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Peace be with you,
I take this earliest opportunity to appreciate your gesture at the most opportune moment. The Archdiocese of Nyeri has 125 priests of whom a quarter are over 60 years and 50% are over 45 years old. Approximately, 10 are either marginalized or in poor health.
In the next 15 years over half the number will be elderly and in dire of the facility.
The Archdiocese of Nyeri has put some proposals to the Christians to assist in this project.
However due to the many demands of this growing and developing community, collecting funds is a great challenge.
I wholeheartedly through Fr. Franco Crabu, of Nanyuki Parish request you to come in handy to assist us realize this dream.
I extend my invitation to see the proposed area and land for this project.
Be assured of my constant prayers in your endeavors.
Devotedly yours

……..……
Most. Rev. Peter Kairo
ARCHBISHOP OF NYERI

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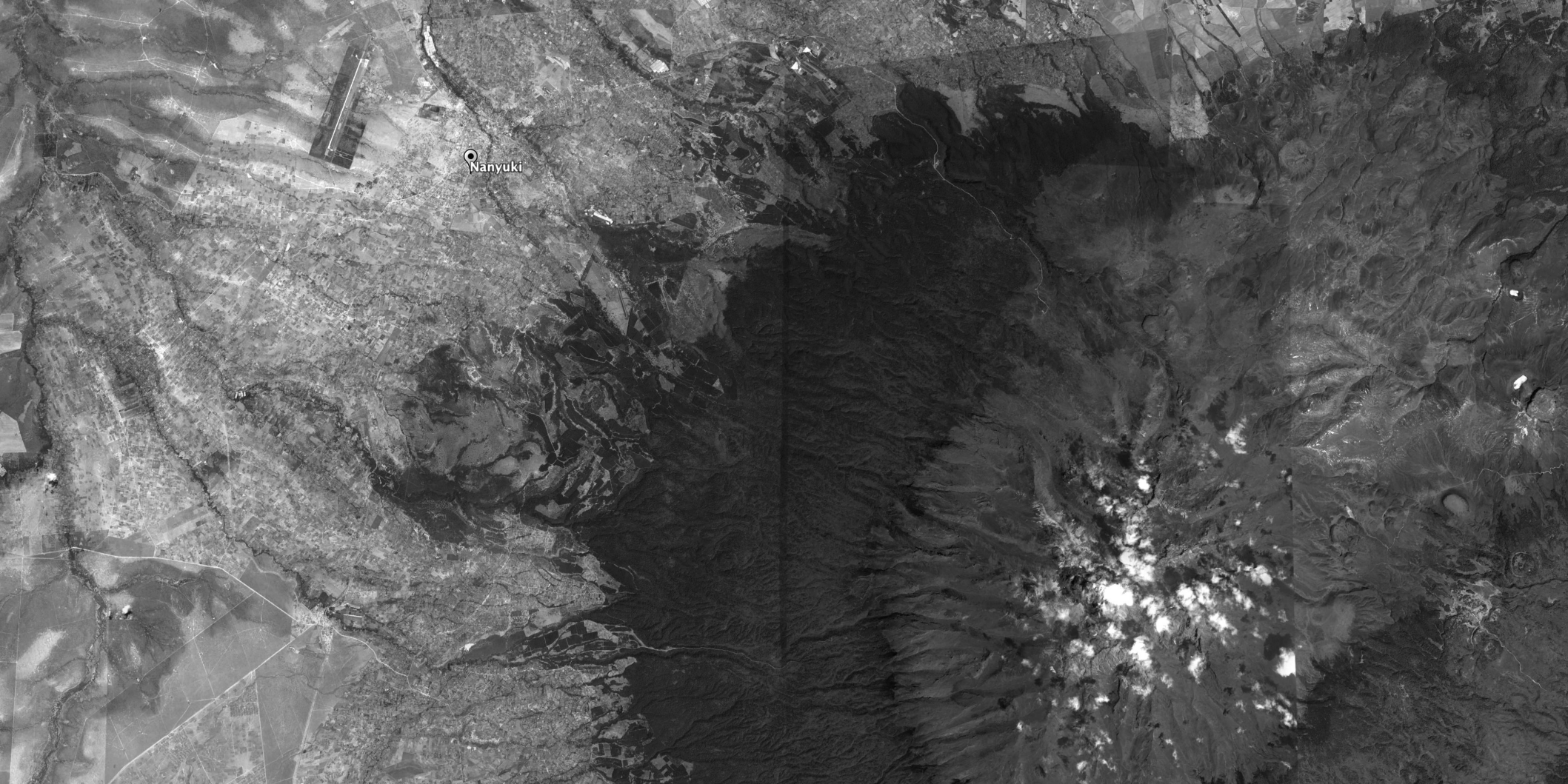
Nanyuki

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His Grace,

According to Don Franco's outlook about the future development of Catholic Mission in Nanyuki, we are very glad to make our expertise available for this project.
The DICAAR Department is a multidisciplinary research centre that is devoted on Civil Engineering, Land use, Water treatment, Urban design and Architecture, and it has been often involved in several cooperation projects all over the world.
Don Franco informed us about the need for some accommodation for both marginalized poor priests and elderly homeless. We think that Architecture not only influences the quality of life but also it increases the sense of social belonging.
The building -that we are going to design and then realize- will aim to contribute to Nanyuki' growth and confirm the central role of the mission for the community. For this reason, we are very excited to join this program and share our enthusiasm with local stakeholders. Our University will donate the design costs, including charges for professionals that will be involved.
In order to finance the building costs, we will also contribute in defining strategies for fundraising.

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Your Faithfully
Prof. Arch. Giovanni, Marco Chiri

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The site

Nanyuki is the capital of Laikipia County, today it has an urban population of 30.000 units. It was founded by British settlers in 1907 as a small market town and it grew fast both commercially and economically. Some of their descendants still live in or in the surroundings. In 1930, its rapid development justified the construction of a railway linking the town to Nairobi.
Today, the presence both of the Kenya Air Force base and the British Army training facility, makes of Nanyuki a central administrative center for the entire region.

Nanyuki is located along the Equator (the line passes 6.5 Km south from the town), in the centre of the Nation at an elevation of 1.947 meters above the sea-level. Its area connects Mount Kenya with the south-east to the edge of the Great Rift Valley in the west, best known as ‘Kenya’s high country’.

This condition implicates that the average daily temperature excursion is about 16 °C.

The average precipitation may vary from a minimum of 13 mm in January to 119 mm in April.

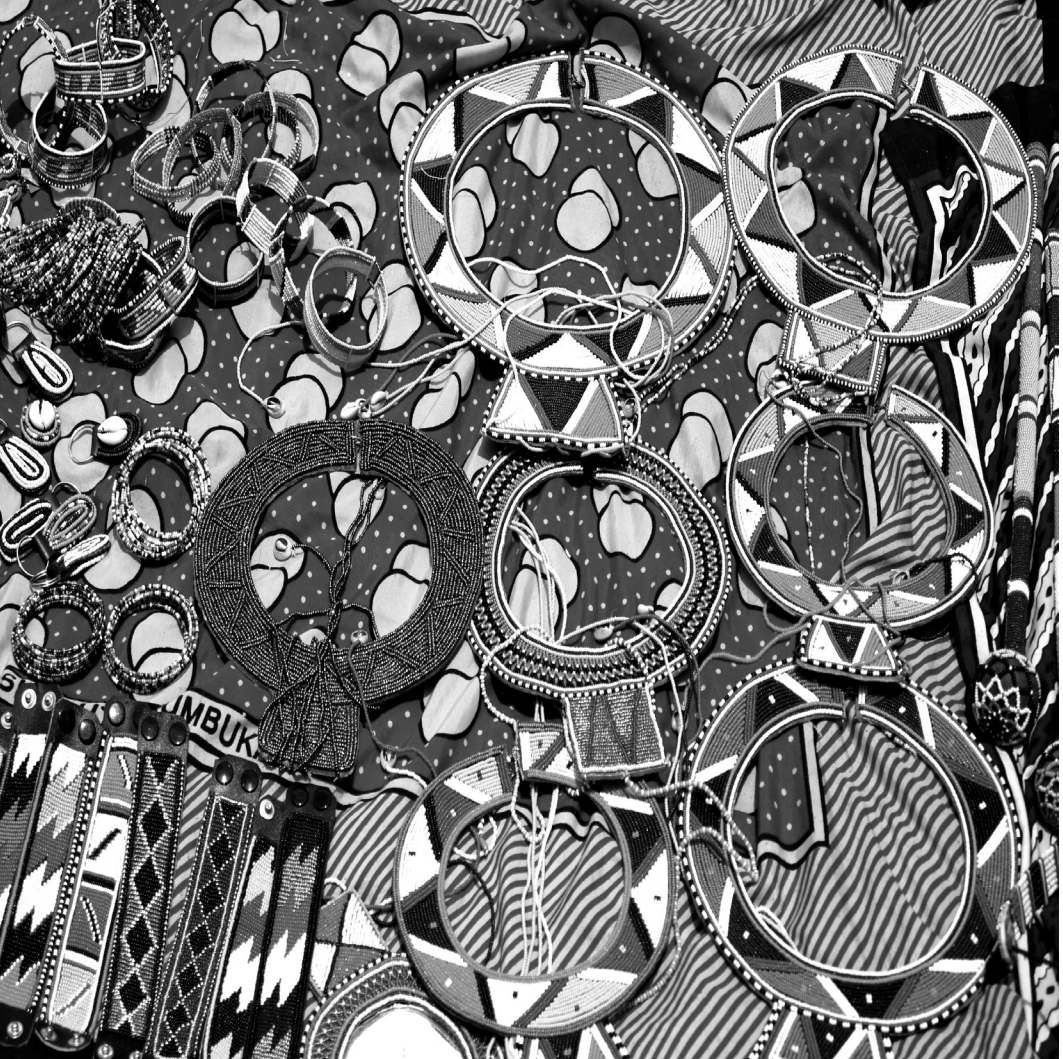
The mission

The Catholic Mission in Kenya was born by the will of Archbishop Giuseppe Bonfiglioli in 1971. The first attempt was in the north of Kenya in Sololo and the second in Thego, close to Mount Kenya. Today the Mission of Christ the King is permanently set in Nanyuki.
The Mission, that belongs to the Diocese of Cagliari, is traditionally lead by its own priests. In the past, the mission was lead by Don Salvatore Scalas, Don Gianni Sanna, Don Ennio Matta, Don Carlo Rotondo.
Today is Don Franco Crabu who takes care of it.

The project area, which belongs to the mission of Nanyuki, measures about 28 hectares and is located in a flat area, on a plateau at the foot of Mount Kenya.
Over the years, it has been equipped with several services entirely dedicated to the community. These services are located in the streets east side. Among these are the hospital, the Tumaini Children Home, ceramics laboratories and in addition, the buildings belonging to the former Rural Training Centre.
The newest are instead the new maternity and pediatric wards.

The outlook

Following the needs of local population, the Catholic Mission of Nanyuki has grown constantly, both in dimension and in quality of offered services. Nevertheless, the demands of a growing and developing community are increasing the pressure on it. Furthermore collecting funds for developing is harder day by day. Some recent fundraising campaign are giving a little of relief so far, but it will be sufficient only for emergencies.
The main challenge that the Mission is going to face in the close future, is the condition of marginalized poor priests and elderly homeless. Both of them need some urgent accommodation and assistance.
Some buildings placed inside the compound, which are recently fallen in disuse, can be easily converted in residence at a reasonable cost.
Conversely, the elderly homeless are forced to rove during the night too, looking for some shelter and protection from cold.
In order to provide some restoration to this men, Most. Rev. Peter Kairo, Father Franco Crabu and the Unica-DICAAR design team decided to intervene by the construction of a first group of lodges and toilets.
In the future, according with needs and financial resources, more dormitory and services will be added.



Materials

Looking for formal suggestion, it has been clear from the very beginning the magic of Maasai and Samburu jewelry.
Beaded corset, necklaces and neckbands, bride and bracelets provide endless combinations of adornments both for women and men. Nevertheless, the shape is basically the same.
Lots of coloured beads are linked in circular chains.
The mutual position of those coloured beads determines each specific decorative pattern.
This disposition looks similar to the disposition of bricks in a wall. The bricks too can be colored and linked together in order to organize a specific ornament. Bricks can be also rounded and (with some adaptation) arranged in circles.
But bricks can be put in layers for building a wall, and by this way, the space confined by the 'beads' became three-dimensional.

In order to reduce building costs, the new building will be built earth bricks (*adobe*). This material, that formerly belonged to the local tradition, will aim to establish a formal relationship with traditional garments and local arts.

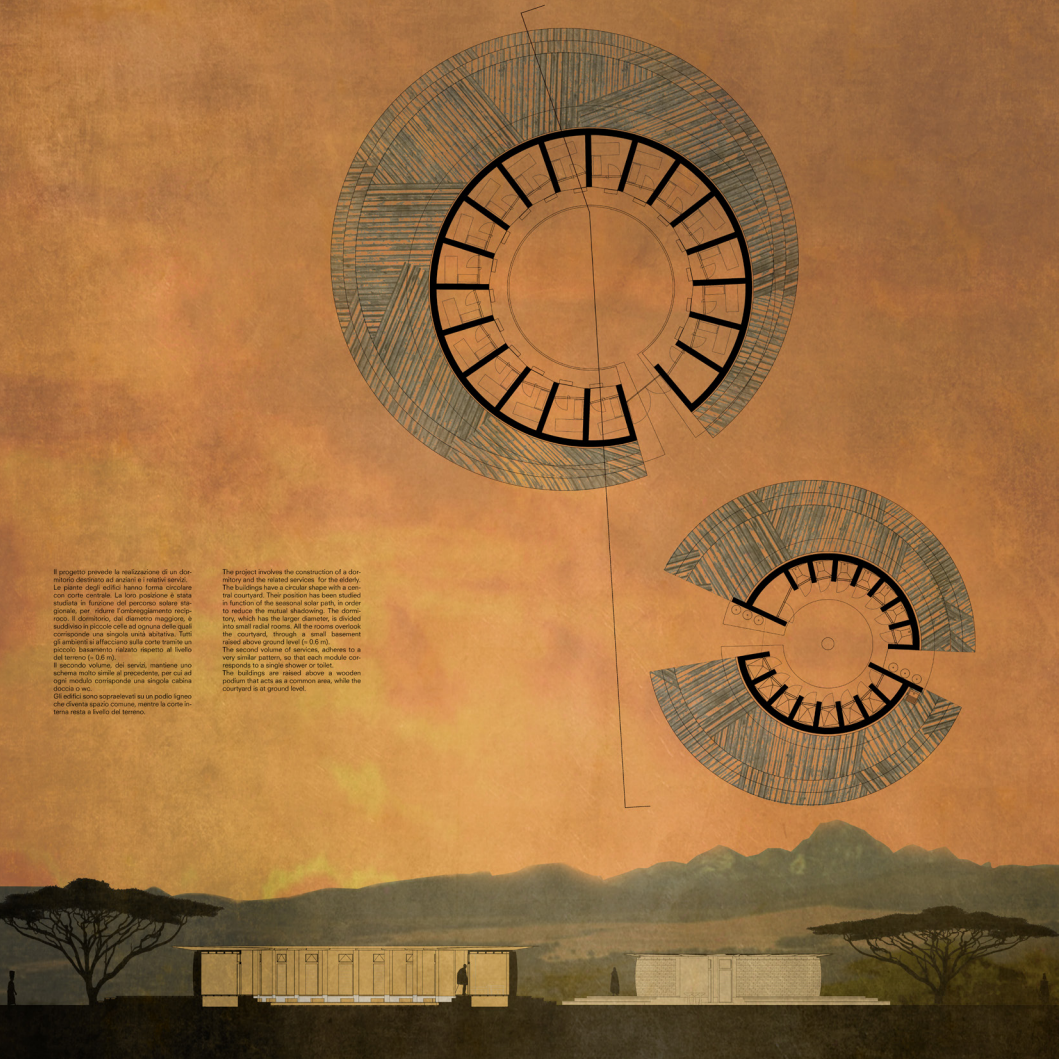
The Project

The project area, which belongs to the mission of Nanyuki, measuring about 28 hectares and is located in a flat area, on a plateau at the foot of Mount Kenya. Over the years, it has been equipped with several services entirely dedicated to the community. These services are located on the streets east side. Among these are the hospital, the Tumaini Centre, ceramics laboratories and in addition, the buildings belonging to the former Rural Training Centre. The newest are the maternity and pediatric wards.

The project is located alongside the existing buildings and follows the orientation of the built end, in north-south direction. The new buildings are located at the end of an already existing street, internal to the Mission area. The new facilities include two blocks, one relating to the dormitory and the other one to the toilet. These have a circular form, which creates dynamism and continuity with the cultural tradition, enhanced by the use of earth bricks as building material.

This configuration is then repeated in larger scale, with punctuated interventions added organically to fill the built end.

The strengthening of road connections to the area facilitates movements and allows a better communication between the different departments.



The project involves the construction of a dormitory and related services for the elderly. The buildings have a circular shape with a central courtyard. Their position has been studied in function of the seasonal solar path, in order to reduce the mutual shadows.

The dormitory, which has the larger diameter, is divided into small radial rooms. All the rooms overlook the courtyard through, a small basement raised above ground level (≈ 0,6m).

The second volume of services, adheres to a very similar pattern, so that each module corresponds to a single shower or toilet.

The buildings are raised above a wooden podium that acts as a common area, while the courtyard is at ground level.

The building external envelope is designed with rounded earth bricks, which measure 0.4x0.4x0.1 m. The front side of the bricks presents an elliptical shape generating a shadow on each other, in order to obtain an optical effect of circular movement. The 29 rows of bricks are laid on each other following a curved section: the starting radius's size increases until the middle row, which has the larger dimension (11 meters), and decreases until reaching the total volume's height.

The earth brick, which formerly belonged to the local tradition, is reinterpreted to visually lighten the volumes and establish a formal relationship with the local culture.

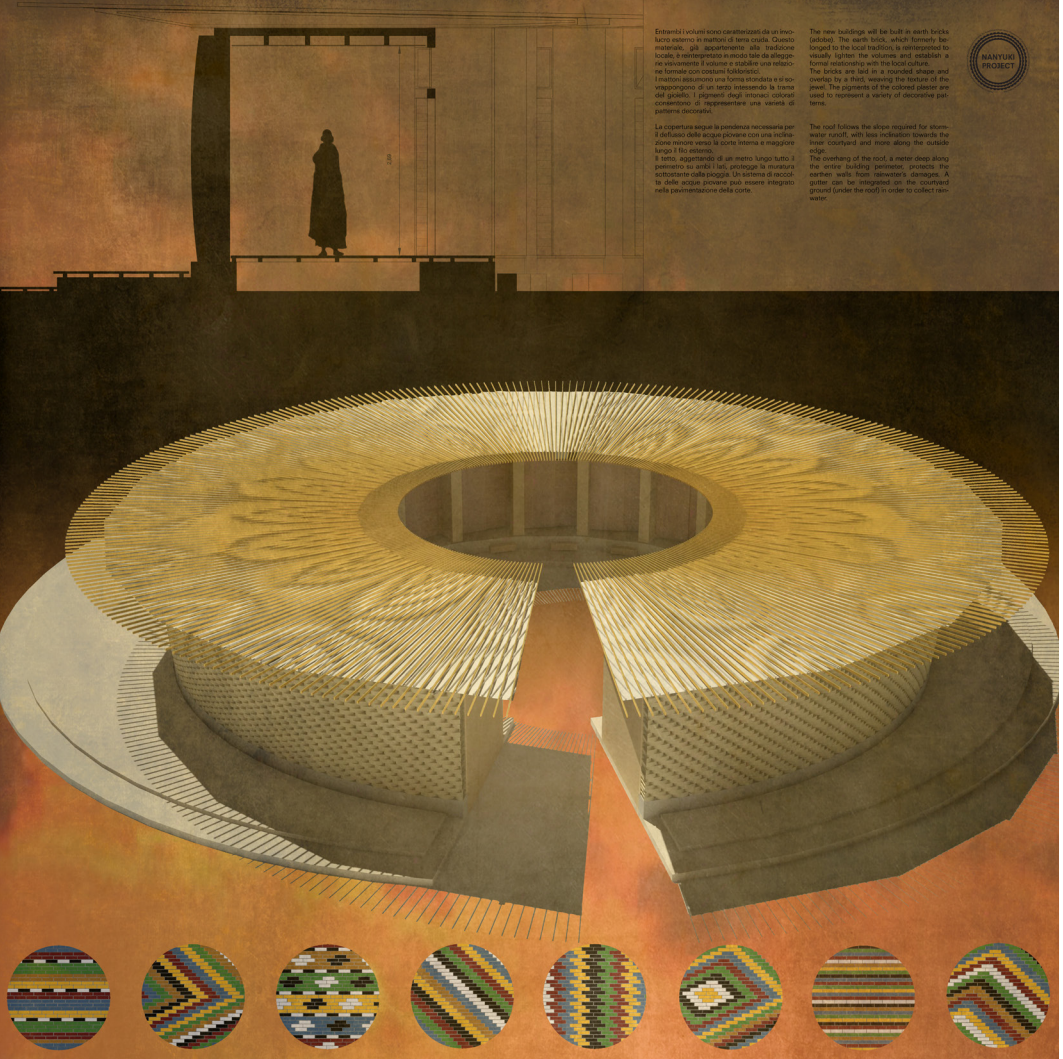
The bricks are laid in a rounded shape and overlap by a third, weaving the texture of the jewel.

The building's interior is composed of individual units separated by radial earthen baffles and wooden walls with doors and windows, opened towards the internal courtyard.

Each unit comprises six square meters and houses a bed and a small personal wardrobe. The individual unit has a false ceiling. The masonry's thickness (≈ 0.4-0.5 m) and the materials (earth and wood) ensure excellent thermal insulation.

Moreover, the coverage provides additional lightness to the project: beams of galvanized steel, radially arranged at the septa, uphold a slightly corrugated sheet, projecting about a meter out the external walls. The beams distance the sheet from the rooms' ceiling of ≈0.15-0.2 m, allowing to move away from accommodations the hot air under the metal sheet.

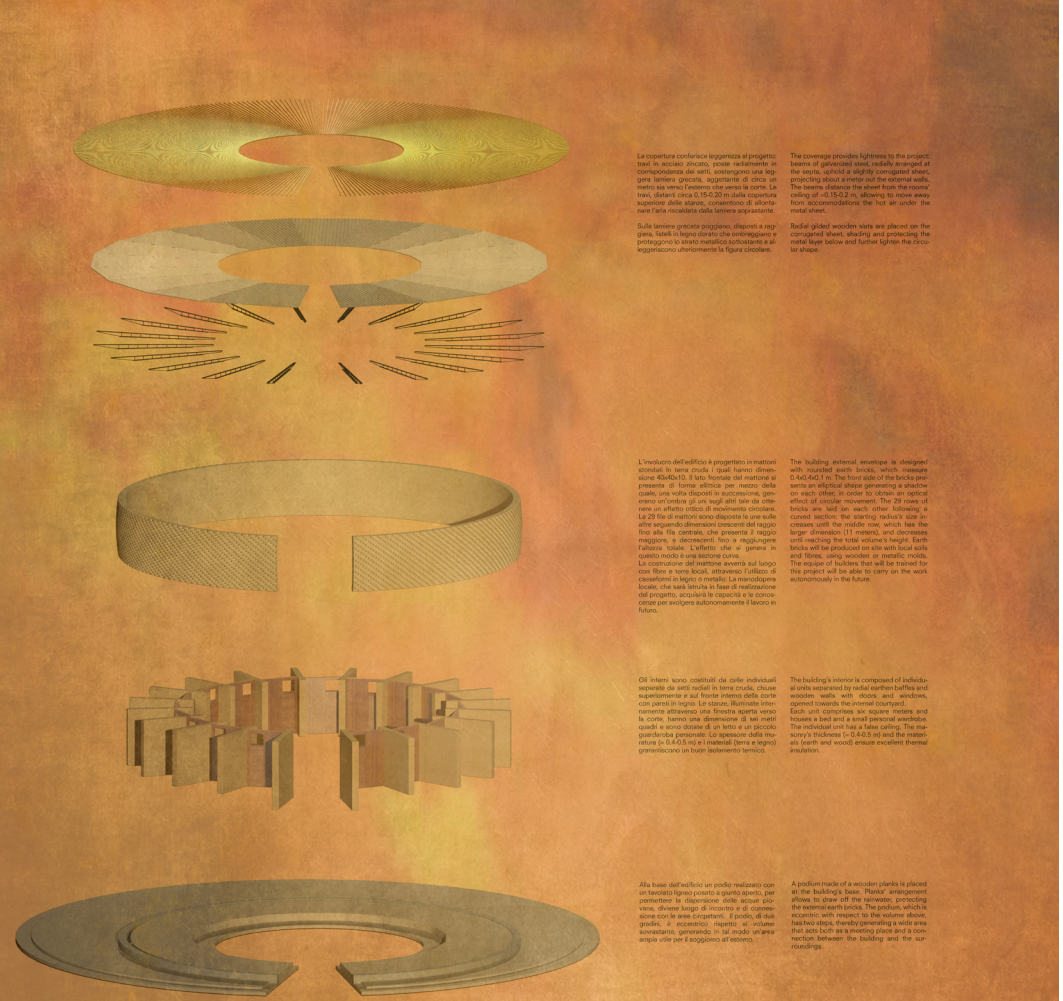
Above it, golden wood joists are arranged in a radial pattern.



The cover - made of galvanized radial steel beams and corrugated metal sheet - is designed as a light element in contrast to the tectonic body of the earthen wall.

The roof follows the slope required for stormwater runoff, with less inclination towards the inner courtyard and more along the outside edge.
The overhang of the roof, a meter deep along the entire building perimeter, protects the earthen walls from rainwater's damages. A gutter can be integrated on the courtyard ground (under the roof) in order to collect rainwater.

Radial gilded wooden slats are placed on the corrugated sheet, shading and protecting the metal layer below and further lighten the circular shape.



La copertura conferisce leggerezza al progetto: travi in acciaio zincato, poste radialmente in corrispondenza dei setti, sostengono una leggera lamiera grecata, aggettante di circa un metro sia verso l'esterno che verso la corte. Le travi, distanti circa 0,15-0,20 m dalla copertura superiore delle stanze, consentono di allontanare l'aria riscaldata dalla lamiera soprastante.

Sulla lamiera grecata poggiano, disposti a raggiera, listelli in legno dorato che ombreggiano e proteggono lo strato metallico sottostante e alleggeriscono ulteriormente la figura circolare.

The coverage provides lightness to the project: beams of galvanized steel, radially arranged at the septa, uphold a slightly corrugated sheet, projecting about a meter out the external walls. The beams distance the sheet from the rooms' ceiling of ~0.15-0.2 m, allowing to move away from accommodations the hot air under the metal sheet.

Radial gilded wooden slats are placed on the corrugated sheet, shading and protecting the metal layer below and further lighten the circular shape.

L'involucro dell'edificio è progettato in mattoni sbozzati in terra cruda i quali hanno dimensione 40x40x10. Il lato frontale del mattone si presenta di forma ellittica per mezzo della quale, una volta disposti in successione, generano un'ombra gli uni sugli altri tale da ottenere un effetto ottico di movimento circolare. Le 29 file di mattoni sono disposte le une sulle altre seguendo dimensioni crescenti del raggio fino alla fila centrale, che presenta il raggio maggiore, e decrescenti fino a raggiungere l'altezza totale. L'effetto che si genera in questo modo è una sezione curva.
La costruzione del mattone avverrà sul luogo con fibre e terre locali, attraverso l'utilizzo di casseforme in legno o metallo. La manodopera locale, che sarà istruita in fase di realizzazione del progetto, acquisirà le capacità e le conoscenze per svolgere autonomamente il lavoro in futuro.

The building external envelope is designed with rounded earth bricks, which measure 0.4x0.4x0.1 m. The front side of the bricks presents an elliptical shape generating a shadow on each other, in order to obtain an optical effect of circular movement. The 29 rows of bricks are laid on each other following a curved section: the starting radius's size increases until the middle row, which has the larger dimension (1.1 meters), and decreases until reaching the total volume's height. Earth bricks will be produced on site with local soils and fibres, using wooden or metallic molds. The equipe of builders that will be trained for this project will be able to carry on the work autonomously in the future.

Gli interni sono costituiti da celle individuali separate da setti radiali in terra cruda, chiuse superiormente e sul fronte interno della corte con pareti in legno. Le stanze, illuminate internamente attraverso una finestra aperta verso la corte, hanno una dimensione di sei metri quadri e sono dotate di un letto e un piccolo guardaroba personale. Lo spessore della muratura (≈ 0.4-0.5 m) e i materiali (terra e legno) garantiscono un buon isolamento termico.

The building's interior is composed of individual units separated by radial earthen baffles and wooden walls with doors and windows, opened towards the internal courtyard.
Each unit comprises six square meters and houses a bed and a small personal wardrobe. The individual unit has a false ceiling. The masonry's thickness (≈ 0.4-0.5 m) and the materials (earth and wood) ensure excellent thermal insulation.

Alla base dell'edificio un podio realizzato con un tavolato ligneo posato a giunto aperto, per permettere la dispersione delle acque piovane, diviene luogo di incontro e di connessione con le aree circostanti. Il podio, di due gradini, è eccentrico rispetto al volume sovrastante, generando in tal modo un'area ampia utile per il soggiorno all'esterno.

A podium made of a wooden planks is placed at the building's base. Planks' arrangement allows to draw off the rainwater, protecting the external earth bricks. The podium, which is eccentric with respect to the volume above, has two steps, thereby generating a wide area that acts both as a meeting place and a connection between the building and the surroundings.

Earth bricks will be produced on site with local soils and fibres, using wooden or metallic molds. The equipe of builders that will be trained for this project will be able to carry on the work autonomously in the future.
The bricks will be lime plastered with different pigments. The shell rests on a stone base of ≈ 0.6 m, raising the volume from the ground.

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GMCA

Is a group of former students of Cagliari School of Architecture lead by Gianmarco Chiri. The workgroup aims at a point of convergence between research and practice in the field of Architecture and Urban design.

Workgroup

Gianmarco Chiri
PhD Architect.
Associate Professor of Architecture and Urban Design.
University of Cagliari.

My main teaching and research interest revolve around the theme of Architecture of the City understood in its systemic dimension and relative to the different scales.

Marta Pilleri
Architect. University of Cagliari.

My major interests concern exploring the connection between architecture and social needs, motivated by my missionary experience in Kenya. Erasmus Experience in Paris.

Ilaria Giovagnorio
PhD Architect.
Post Doc Researcher.
University of Cagliari.

My research areas is on the study and assessment of microclimate efficiency in the urban fabric and the testing of methodologies and interdisciplinary processes of urban design.

Maddalena Achenza
PhD Architect. Researcher.
University of Cagliari.

I'm co-ordinator of the Iaterra Centre of Studies and Research on Earthen Architecture and Member of the ICOMOS International Scientific Committee for the Earthen Architectural Heritage (ICOMOS-ISCEAH)

Marta Naitana
Architect. University of Cagliari.

Experienced in project development with particular regard to connection between design and environment.
International studying and working experiences such as Erasmus and Leonardo programmes in Germany.

Phase 1 closed
More information, contacts and fundraising campaign at
www.nanyukiproject.org/wordpress/
info@nanyukiproject.org

Credits

This work is dedicated to all that people that are looking for a better place to live.

Special thanks to

His Grace, Most. Rev. Peter Kairo, Archibishop of Nyeri and His Grace, Most. Rev. Arrigo Miglio, Archibishop of Cagliari because their prayers in our endeavours

Dear Father Franco Crabu for his trust in us and for his lovely moral support

The Chancellor of Cagliari University, Prof. Maria Del Zompo, for her kind attention and participation

The Deputy Chancellor of Cagliari University, Prof. Alessandra Carucci (empowered for international activities), for her research project approval and constant presence

The President of the Faculty of Engineering and Architecture of Cagliari, Prof. Corrado Zoppi for following our efforts with great interest

The Director of the Department of Civil Engineering, Environmental Engineering and Architecture, Prof. Antonello Sanna for his tangible contribution and his gentle commendation

Dear Sara Falqui for the photos