Legacy Restored
Religious and secular complex, Dandaji, Niger

Main authors
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Project data
Project group: Architecture, building and civil engineering
Client: Village of Dandaji
Project background: Private commission
Planned start: February 2017

Summary and appraisal of the project by the jury

The project for a religious and secular complex in the village of Dandaji promotes economic growth in the region through innovation in environmental technologies. The proposed new mosque as well as the renovation of an existing house of worship are accordingly conceived as test beds for sustainable research, exploring new techniques pertaining to the use of renewable resources – energy for heating and cooling, rainwater retention, temperature control, daylight, and natural ventilation. At the core of the scheme is the intention to establish a careful balance between the natural and fabricated realm – an objective most clearly expressed in the project’s landscape strategy, which aims to integrate the buildings into their natural setting.

The jury greatly appreciated the project’s reuse of an existing structure and close engagement with the social and built fabric of the village; and ultimately felt that the project was both an intelligent reinterpretation of tradition and very much at home in the context. The believable depictions of life in the project were a further strength. The combination of traditional and new forms as well as techniques allows the possibility of maintaining knowledge through construction, integrates the passive climate control of traditional massive, cross ventilated structures, and engages in a discourse on the history of the site and on the project’s role in bringing a community together.

Statements on the sustainability of the project by the author

Knowledge as a means to social inclusion and economic advancement
Dandaji is a Hausa village in arid western Niger with a very young population of 3000, low literacy rates, and high economic vulnerability. The local middle school serves children from five surrounding villages with plans for a high school underway. The new library will beimpactful by providing books, a computer lab, and quiet study spaces to improve reading and vocabulary skills for the community and to increase graduation rates. By involving women’s groups in the project, additional spaces for literacy, accounting courses, and workshops were added. As a mosque, women never used the current building, preferring to pray at home. The library and its proximity to the new mosque will positively engage them and the youth with these religious spaces as productive members of the community.

A contemporary use of traditional forms, methods and new material
To renovate the old building to its previous glory, the original masons are invited to join the project’s team. In the process, they learn about adobe-enhancing additives and erosion protection techniques. Instead of the region’s traditional but scarce wood, the interior renovation uses metal for study spaces, partitions, and new material additives and erosion protection techniques. The thermal mass of the CEBs and natural ventilation keep indoor temperatures comfortable and alleviate the need for mechanical cooling. The effect is amplified with extensive planting throughout the site, using a drip irrigation system to help the vegetation thrive. The system dramatically lowers water consumption and will use an underground water reservoir that captures the rainy season downpours.

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Thermal comfort, environmental integration and low energy consumption
The project introduces Compressed Earth Bricks (CEB) made with laterite soil found on site, a new material in the area with the advantage of being lower maintenance than adobe, with similar thermal benefits. Most of the project materials are sourced from within a 80km radius from the site, while the use of concrete is limited to structural elements such as columns and lintels. The thermal mass of the CEBs and natural ventilation keep indoor temperatures comfortable and allow for mechanical cooling. The effect is amplified with extensive planting throughout the site, using a drip irrigation system to help the vegetation thrive. The system dramatically lowers water consumption and will use an underground water reservoir that captures the rainy season downpours.

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