Acknowledgement prize 2008 Africa Middle East

Stabilized earth visitors’ center, Mapungubwe National Park, South Africa

Project data
Type of project: Architecture (culture)
Estimated start of construction: October 2007

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Comment of the Holcim Awards Jury Africa Middle East

This project deals with two kinds of relationships: the one between people and the environment and the one amongst people. The project to house the Mapungubwe National Park Interpretive Centre reflects the natural landscape in its materials and the cultural landscape in its form. The project is conceptualized as a place for commemorating the historical relevance of the site in relation to a past civilization.

The overall design relies on a spatial concept aligned to a narrative and coupled to building shapes which respond to the natural landscape. The building is inspired by an innovative construction technique of a lightweight vaulted system for roofs and walls fabricated using stabilized earth tiles. The adaptation of the vault system with the objective of using local materials combined with a smart construction technology and thus enhancing skills development and employment opportunities are the key merits of this project.

Project description by author

The story that needs to be told is complex and diverse. At its core are two sets of relationships: that between people and the environment and that of people with one another. The Mapungubwe National Park Interpretive Centre tells the story of its World Heritage-listed Cultural Landscape while achieving economies of scale, social improvement and low environmental impact.

The project has embraced environmental and developmental sustainability from the beginning. The dual ambition requires natural materials and architecture that can put people to work with the project’s Poverty Relief Program. Mapungubwe uses the Mediterranean tradition of tile vaulting, a 600-year-old proven technique to create lightweight and durable buildings. In particular, the load-bearing masonry is used to construct roof vaults achieving high structural strength with minimal material.

We replaced fired clay bricks with less energy-intensive stabilized earth tiles, which have a well-established tradition in sustainable practice. At Mapungubwe they are used to create sophisticated engineered forms by adapting a hand-press to locally manufacture tiles of sufficient strength. An established structural system and a well-known material are brought together for an innovative solution. High thermal mass passively cools the space during the day and radiates accumulated heat at night. Materials reveal their natural properties: sandstone floors; earth block walls; exposed timber. We design and share programs to determine the optimal vault geometry, ensuring thin, safe, unreinforced shells using low-strength tiles. No steel reinforcing simplifies construction, lowers cost and reduces embodied energy. The vaults are built with minimal support, saving time, money and resources.

The park headquarters is striking. Materials draw from the land. Natural light reflects off cooling pools to create dappled patterns on the earthen ceilings. Exterior undulations contain ponds for cooling the air that naturally ventilates the space. The Mapungubwe Interpretive Centre achieves the ambition of sustainable construction and provides a unique insight into the African experience through robust imagery and sublime spatial sequences.

Relevance to target issues by author

Quantum change and transferability
The center represents a significant step forward in structure and material for sustainable construction in southern Africa. The improvements offer material and financial savings, waste reduction, and local employment with transferable outputs and skills for future projects. We introduce the structural masonry of tile vaults to South Africa, and for the first time we combine tile vaulting with locally made stabilized earth tiles that have low embodied energy.

Ethical standards and social equity
Local communities supply the construction workforce. The building at its highest point, the visitor is led to a vantage point that overlooks the valley toward formations that housed ancient civilizations. At once the visitor is made aware of the geological formations and of the earliest civilizations. At once the visitor is made aware of the geological formations and of the earliest civilizations. At once the visitor is made aware of the geological formations and of the earliest civilizations.

Environmental quality and energy conservation
The tile vaults are jobs cheaper than reinforced concrete. If we include their socio-economic benefits (standard practice in employment creation), the economic performance is even greater. A high ratio of project cost is retained locally, an important factor in a country with a dual economy. The reliance on local labor improves livelihoods and provides a skilled base for future projects.

Economic performance and compatibility
The tile vaults are jobs cheaper than reinforced concrete. If we include their socio-economic benefits (standard practice in employment creation), the economic performance is even greater. A high ratio of project cost is retained locally, an important factor in a country with a dual economy. The reliance on local labor improves livelihoods and provides a skilled base for future projects.

Contextual and aesthetic impact
The design grows out of a profound appreciation of its natural and social context. The volumes respond to the terrain and resonate with the rolling hills. We look to earth construction for inspiration while delivering a public building with stringent demands.

Economies of scale and compatibility
The tile vaults are not just cheaper than reinforced concrete. If we include their socio-economic benefits (standard practice in employment creation), the economic performance is even greater. A high ratio of project cost is retained locally, an important factor in a country with a dual economy. The reliance on local labor improves livelihoods and provides a skilled base for future projects.

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