

Clay brick construction – supporting the green building imperative

Clay brick construction is increasingly being recognised as a vital component of green building in the ongoing quest to find solutions that eliminate or meaningfully reduce adverse impacts of development on the environment and its occupants.

These are the words of Musa Shangase, commercial director of leading brick manufacturer, Corobrik, who adds that there is an abundance of local and international research to support this premise.

“Green buildings share a number of positive attributes with clay brick masonry,” he said. “Possibly the most significant of these is superior thermal performance.”

“Masonry construction has inherent high thermal mass. This enables a building to store heat and remain cooler for longer than lightweight structures. It deals efficiently with extremes of temperature in both summer and winter so that, regardless of how hot it becomes outside in the daytime or how much cooler it gets inside the house at night, the interior remains comfortable.”

“This leads to lower life cycle operating costs in addition to being energy efficient, resource efficient and environmentally responsible,” he said.

Shangase cited the red-brick Britten Pears Archive in Suffolk, England as a fine example of a green building which has won numerous architectural awards including the Civic Trust Award for sustainable architecture for its ability to protect and preserve the fragile collection celebrating the work of the renowned composer, without using mechanical temperature control.

A case study prepared by the UK’s Brick Development Association said that the aim of the architects and the engineers, was to create a passive archive where the internal environment was controlled with minimal energy input. Because the structure required good thermal shielding, they felt that brick offered the ideal solution.

This thinking was reinforced by a study conducted by The University of Newcastle in Australia which measured how well the internal surface of various external walling systems responded to the external surface temperature under all weather parameters. It found that the insulated cavity brick module with its combination of thermal shielding and insulation layers performed best. The outer skin improved the overall performance while the thermal mass within the wall helped moderate the internal temperature.

The well insulated brick walls would play an important part in moderating the temperature as well as the relative humidity between the outside environment and the valuable objects inside the building.

“This was achieved through effective thermal shielding delivered by natural and sustainable clay brick masonry,” Shangase said.

These thermal benefits are also of huge value in the South African context with its extreme climatic conditions, Shangase said, but clay brick has many other benefits that support its green building credentials.

“Its material density provides a natural sound barrier facilitating quiet indoor environments and its mineral properties prevent the release of volatile organic compounds (VOCs) at levels which could impinge on indoor air quality. They also facilitate the absorption and release of moisture from the air to help keep humidity within a 40 to 60 percent level for

healthy living. This, in turn, promotes comfort, wellness and productivity.”

He concluded, “There is no doubt that clay brick delivers enduring structural integrity, creating durable and secure buildings in line with the ongoing trend towards a more responsible and sustainable built environment.”