A move away from traditional brick work

By: Busisiwe Dhlamini – staff writer

The Mi Panel construction technology is a wet-works solution provided by Modular Innovative Building Technology (MiBT) in the move towards embracing alternative technology and green building culture.

The reduction in wet works allows for a cleaner site that can meet SANS10400 and SANS10400XA criteria.

Sustainable designs are critical in construction. These designs are expected to avoid the wastage of resources such as energy, water and raw materials; to prevent environmental damage caused by facilities and infrastructure; and to create liveable, comfortable, safe and productive built environments. At 54 kilograms per square metre, with a capacity strength of 74 kilo newtons, and a two-hour fire rating, the Agréement certified Mi Panel, is a material which contributes to sustainable construction.

The fundamental principles that remain constant in the ever-changing practices and technologies implemented in sustainable designs include: site optimisation; energy optimisation; the protection and conservation of water; environmentally preferable materials and products; the enhancement of indoor environmental quality, as well as operational maintenance practices.

The Mi Panel technology covers these aspects, and is widely accepted in countries like Australia, New Zealand, India, Indonesia and Sudan, to name a few.

Clarence House in Moss Vale, Sydney, was built using the Mi Panel technology; no brick work was included in the structure other than in the initial foundation.

The panels have four-and-a-half millimetre compressed fibre cement sheets on either side, with an inner core of expanded polystyrene, cement, and three proprietary chemicals.

The Mi Panel is a wet-works solution, and is essential because the reduction of wet works is a key component to the future of construction. Wet works reduction results in reduced costs and labour, quicker construction time and a cleaner site which will meet SANS10400 and SANS10400XA criteria. "For an average BNG house, the Mi Panel developer will not need 37 bags of 50 kgs cement, five cubes of concrete in the foundation, or nine cubic metres of river sand, as the builder using traditional materials would," says Pragasan Chetty, Managing Director of MiBT.

According to Chetty, it takes an average of around seven minutes to put a panel together. This is 1,56m2 in the BNG environment. There is no need to mix any materials as panels are slid between top and bottom steel channels and locked together with a tongue-and-groove fixing, they are then held in place by glue and rods. A straight line is easily achievable because the panel can only fit into the channel fitted on the ground.

The panels have four-and-a-half millimetre compressed fibre cement sheets on either side, with an inner core of expanded polystyrene, cement, and three proprietary chemicals which allow for inner core capillary strength that eliminates any delaminating on the panel.

The Mi Panel is naturally moulded, with no energy consumption during the moulding process, making it absolutely green. The panel joints are sealed with mastic cement, which has a reflective capacity allowing absorption of movement.

This prevents any cracking caused by extreme weather conditions. In addition, Chetty says joints are finished off with a mixture of fly ash and silica, which allows for expansion and contraction during temperature fluctuations.

Originally developed by Indian company, Hyderabad Industries Limited, and James Hardie Group from Australia, the Mi Panel construction system has been manufactured and tested at the highest levels, meeting all the required specifications. "The fire ratings conform to British standards, the structural tests conform to Australian standards, and the thermal tests satisfy US standards," Chetty adds.

In most applications, bricks are used because of their capacity to withstand fire. However, bricks make a building very heavy and require a greater investment in the structure, ultimately meaning more building costs.

The Mi Panel, with a two-hour fire rating, can reduce capital structure significantly because of its light weight. With regards to training, Chetty says a South African Qualifications Authority (SAQA) accredited level-three rating has been developed for the training programme, in which individuals are taught how to sustain themselves with the utility of Mi Panel. TiA&D