

CMA manufacturers gain NHBRC approval on concrete block performance



The Concrete Manufacturers Association(CMA) has announced that two of its members, Western Cape-based False Bay Bricks (Inca Concrete Products)and Columbia DBL, have gained NHBRC approval for a range of thermally efficient single-leaf hollow-core concrete blocks which can be used without plastering. Bob Low of Inca concrete products and also a CMA member, was the prime mover behind the project. He states rigorous testing by the South African Bureau of Standards (SABS) on blocks submitted by the manufacturers has demonstrated conclusively that they comfortably exceed the NHBRC's thermal performance requirements for concrete masonry in single-leaf walls and don't require plastering for additional thermal insulation. However, Low observes that a suitable waterproof coating is a requirement to meet the NHBRC standard for building with these thermally efficient blocks. To this end CMA member, Techfin, has developed a suitable waterproof skin which has been granted Agrément certification and meets the NHBRC's requirements. "This is a landmark decision for it not only provides housing developers with a thermal benchmark but it opens the door for other concrete block manufacturers to submit their hollow-core blocks for testing and approval. Once a test proves successful, brick producers must then satisfy the NHBRC that they have a monitoring system in place to ensure consistent quality of manufacture," says Low.

CMA manufacturers are currently in the process of analysing the physical characteristics of their concrete blocks in order to ensure consistent thermal resistance values and comply with the NHBRC's monitoring requirements. Low notes that although the 40mm hollow concrete block is the most widely used masonry unit for low-cost and affordable housing in the country, prior to the SABS tests very little work had been done to establish a thermal properties standard. "It was mainly a concern about condensation, especially in the Western Cape, which prompted the NHBRC to call for the tests. Condensation causes mould growth which is unhealthy and the thermal properties of walling material is a factor which affects condensation. Based on the thermal model of a clay brick 'standard house' the NHBRC recommended certain minimum thermal properties for hollow concrete blocks. "We were confident that the tests would prove satisfactory, as the SABS conducted a thermal test on our behalf in 200. However, the NHBRC was concerned that units could vary over time or that units from different companies might not have the same properties. This is why they have stipulated that each manufacturer must submit its own product for testing," observes Low.

The thermal testing was conducted over a four month period at the SABS laboratories in Pretoria. Blocks were measured against a thermal resistance R-Value $m^2.K/W$ and on this basis the required value was to be no less than 0.232K/W. The 40mm block comfortably met this standard – the equivalent of a 230mm clay brick wall.

"Although the thermal performance of the 40mm block is almost equal to the 90mm block it presents several advantages. It is about 2 kg lighter and production output is approximately 50% greater, which obviously results in cost savings. It is also easier to lay and its use realises more floor space. "It is these factors which account for the popularity of the 40 mm block. The unit is very economical to manufacture and gives the best labour and layout efficiency.

"The fact that a less expensive block has similar performance attributes and certain advantages over its larger sibling indicates that demand for the block is likely to strengthen, especially in the wake of these tests," concludes Low.