



*Engineers and technicians in the construction industry urgently need to increase their knowledge of concrete technology to prevent project failures which cumulatively cost SA millions of rand every year, says John Roxburgh, senior lecturer at Cement & Concrete SA's School of Concrete Technology.*

Roxburgh says concrete provides strength, durability, shape, texture, and aesthetics at the most competitive price – and has done so for centuries. As it is used more than any other building material, professionals in the construction industry inevitably must regularly work with concrete and should be fully familiar with its characteristics and performance.

“But all too often, Cement & Concrete SA encounters a lack of preparation for important expensive projects by engineers who – with more concrete knowledge – could have avoided much of the problems on site and consequent failures. In so many projects, the engineer produces excellent performance specifications for the concrete but fails to the potential for problems in the proposed concrete mix.

“We find concrete floors that are badly delaminated because the engineers did

not see the consequence of the mix design containing air-entraining admixtures, poor 28-day strength because of excessively high extender content in the mix design, or extensive shrinkage in the hardened concrete due to high water content in the concrete mix. All these problems could have been prevented if the construction professionals knew what to look for when presented with the concrete mix design,” Roxburgh states.

He says a sound theoretical knowledge of concrete will enable construction practitioners to solve and prevent many problems – before it happens on site. “They will be able to ensure that the concrete’s plastic properties meet the needs of the size, shape and type of structure, and consider external ambient and internal thermal conditions. The professionals will be able to advise on placement techniques and other good concrete site practices – particularly curing requirements. Also, their concrete knowledge will help ensure that the concrete’s strength, durability and surface finish specifications are met.”

Roxburgh says the School of Concrete Technology offers several training courses specifically for construction

## CONCRETE KNOWLEDGE COULD SAVE S.A. MILLIONS

BY JAN DE BEER

professionals – which all need stronger support. The SCT20 ‘Concrete Practice’ course, for example, is ideal for on-site staff who need to deal with everyday concrete use on site. SCT30 ‘Concrete Technology’ is slightly more theoretical and serves to educate both site and office staff on mix design and specification issues. SCT37 ‘Durability of Concrete’ is a one-day course that deals specifically with concrete durability issues. “All these courses provide knowledge that would not only eliminate site and durability problems but save huge sums of money for all parties involved in a project – and the national economy,” Roxburgh contends.