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CHAIRMAN'S NEWSLETTER

Greetings All

High Cube Containers

A good deal of concern has been raised recently about the new high-cube containers that have started appearing at South African ports and on our roads.

I was recently involved in modifications to a factory roller shutter door canopy which had been set at entirely the wrong height by the architect, against my advice. The canopy would not take a conventional container let alone the new high-cube type.

Things were aggravated by the fall of the paving on this particular project which was toward a stormwater drain along the edge of the building, and mistakes made in levels by the contractor during construction.

I have done some research into this matter, including talking to SANRAL, and thought I would appraise you of the status of these new containers.

At the present time the legal limit for the height of a truck carrying a standard container is 4,3 metres. The legal limit for a bus on the other hand is 4,65 metres.

A high-cube container is taller than the standard container. In contrast to standard containers, which have a maximum height of 2591 mm, high-cube containers are 2896 mm.

This amounts to an extra 305mm and when placed on a congenial truck could push the maximum height to 4,605 metres.

In Europe special trucks have been developed to carry these high-cube containers but South African operators have had scant regard for this problem.

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Although there are very few bridges which have a clearance less than 4,9 metres, the issue at stake is not so much one of height, but of stability, and the Department of Transport are having to deal with this matter in consultation with the transport industry.

One would be well advised therefore to plan clearances under industrial canopies to be at least 4,7 metres in order to avoid accidents. There are so many canopies that have been built to allow clearance for the 4,3 metre dimension, that there are bound to be collisions and significant damage in the future.

For buildings where a standard roller shutter size of 4m wide x 4,5m high has been provided to accommodate the normal containers, high cube containers not on special trucks will not be able to get in.

Aggregate Sizes

The following note was received from Bruce Raath in respect of the larger size of aggregate now being used in concrete. It will affect you if you are in the habit of detailing your reinforcing bars fairly close together.

"Many suppliers of aggregate are now producing a 22 mm aggregate in the place of a 19 mm aggregate which is becoming more difficult to source. The implication for structural design is that the minimum gap between reinforcing bars (hagg + 5 mm) now has to be 27 mm instead of 24 mm to allow the slightly larger aggregate to pass through. The 26.5 mm stone size will still be available. The new stone size is more economical to produce with savings both financially and in carbon footprint, but has not yet been recognised by SANS 1083, so no grading curve is available to the industry and specification is difficult to control.

Concrete made with the new stone should show cost savings as the stone is cheaper to produce and concrete made with the stone will have a lower water demand, and therefore require less cement to obtain the same strength. Other advantages of the concrete will be lower shrinkage and lower thermal contraction - but some workability will be sacrificed.

More details are available from the head of ASPASA, Mr N Pienaar on 011 -791 3327."

I have seen cases where the radius of corner of the stirrup prevents the planned bar spacing from being achieved so take note of these radii if they are larger than the bar radius. A high tensile ribbed bar used in a stirrup has larger radii than an ordinary round bar stirrup.

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Courses on Concrete Technology

Bruce Raath offers a whole range of courses on Concrete Technology which can be done in-house if requested.

The world of concrete technology is not static and there have been a number of changes in the production of concrete by the ready mix suppliers which do not always assist the designer.

In particular pumped slab mixes can end up with a layer of over sanded material on the top of slab up to 20mm thick. This means that the slab is effectively 20mm thinner, from a serviceability point of view, as the E value for sand/cement is NOT the same as for concrete.

Please contact Bruce at 083-326 5851 or brucera@telkomsa.net

Courses on Finite Elements

Roland Prukl offers Finite Element courses on an ongoing basis. I can attest to their being of good value to people wanting to make use of this tool. Finite Elements as a method is not a panacea and does not give precisely correct answers. However, when used carefully and with understanding, it can give excellent approximate results which are then of great value to understanding the structural action of a complex problem.

Please contact Roland on 010-2220649 or 083 444-0622 or by email at

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