

SPECIAL FASTENERS

When's a rivet not a rivet?

Some two years ago Lee Irving, technical account manager at Gesipa Blind Riveting Systems was asked to talk to the production manager of a concrete floor laying company, which had a problem. Using some lateral thinking, the humble rivet came to the rescue and was used in an innovative way

In certain floor laying applications, concrete can only be laid in 3m squares and two sections cannot be laid side by side at the same time. If the builder tries this, the two sections of concrete shrink and leave a gap anything up to 25mm wide between both sections. This in time would cause the two edges to disintegrate and would still happen even if the gap was filled after the sections had dried.

To help reduce this from happening, in

this instance the sections were edged with angle iron which had ties welded on the inside edge to help join the metal to the concrete. This still did not allow the contractors to lay two sections next to each other and they had to be laid in alternate sections in a patchwork type order

The contractor had developed a method of bolting two sections of angle iron back to back so that two sections could be laid next to each other. The sections of angle iron were bolted together using nylon nuts and bolts. This method allowed both concrete sections to shrink at different rates but keep a straight joint between them. This was possible because the nylon nuts and bolts stretched as the concrete receded.

Success was achieved as two sections could be laid next to each other making construction quicker and with a more professional finish; the edges are guarded against chipping and allowed forklifts to move across the joints in smooth manner without jolting the load. However, the method of joining edge plates together with nylon nuts and bolts was a time consuming operation and as the method became more and more popular, problems were exacerbated.

"I was asked if a standard rivet could do the job thus speeding up the production," explained Irving. "After testing a number of different rivets we found that a 4.8mm x 35 K16 alu/steel standard rivet joined the two angle sections perfectly."

Next the stretching of the rivet once the concrete started to shrink was tested.

Plymouth University got involved with the testing of some dummy parts and concluded that in the full size production application the rivets would work better than the nylon nuts and bolts because the material specification of the rivet was of a higher quality standard than that of the nylon, also the material used in the nuts and bolts was not of a consistent composition which caused some nuts and bolts to stretch at different rates along the joint which in some cases caused problems with the flooring.

The first sample batch of Gesipa rivets used in a production environment passed with distinctions, assembly time of the angle iron sections was reduced by well over 70% thus allowing them to keep up with demand.

Gesipa rivets are manufactured to TS16949 which means to have a very high material specification with tight tolerance requirements in the chemical composition of the wire used to manufacture the eyelets thus giving constant high quality products at all times.

The stumbling block at the time was the rivets unit price. At this point the original production manager left and the new manager decide he would purchase a similar cheaper rivet and all the hard work proving the rivets had been lost to the competition. However after two years of using cheaper rivets, repetitive reworks and changing rivet manufacturers, the contractor came to the conclusion that high quality products perform constantly from batch to batch and that cheap unit cost is not always the route to cheaper end products. In a nutshell, the cheaper rivets didn't work and cost the company more money.

The firm now takes in the region of 750,000 rivets a year and Gesipa is now half way through the first year of supply without any problems being reported.

GESIPA BLIND RIVETING SYSTEMS

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Sections of concrete shrink to leave a gap of anything up to 25mm wide between slabs

