



# SIKA AT WORK

## INDUSTRIAL GROUND SLAB FOR EVERHARD INDUSTRIES

**Products:** SikaFiber® Force PP 48

BUILDING TRUST



# PROJECT BACKGROUND

## EVERHARD INDUSTRIES AT GEEBUNG MANUFACTURE DIFFERENT TYPES OF ELEMENTS INCLUDING CONCRETE SEPTIC TANKS, STEEL GRATES, AND PLASTIC UNITS IN QLD FOR OVER 90 YEARS

Everhard industries at Geebung manufacture different types of elements including concrete septic tanks, steel grates, and plastic units in QLD for over 90 years. The new Head Office and factory premises in Newman Road Geebung required a new flexible concrete pavement to withstand semitrailer loading. The poor subgrade of the site was the main challenge faced by the engineers. This existing clay subgrade was replaced with imported soil up to 500mm and compacted to achieve CBR 15 as recommended by the geotechnical engineer. The total area of the concrete slab was over 3000m<sup>2</sup> and the slab was designed to cast in eight stages having expansion joints between each section. Initial design of the slab as below.

- Minimum concrete grade was 32Mpa, minimum 28day flexural strength was 4MPa
- Depth of the concrete slab was 210mm with the edge thickening up to 300mm
- SL92 mesh as the crack control reinforcement providing 50mm top cover
- N12 trimmer base at the edge of the slab
- 25mm diameter round dowels at 300 spacing's along expansion joints with N12 trimmer bars over dowels

## PROJECT REQUIREMENTS

- Maximum spacing of construction joints should be 30 times the slab depth.
- Steel dowels should be used at movement joints
- Concrete should be easily pumped with a 45m boom concrete pump truck due to movement restrictions at the site.
- 32MPa concrete with 100mm slump was required at site to be placed within the working time frame.
- The maximum shrinkage crack width should be less than 0.3mm
- Specified top steel mesh was SL92 with 50mm top cover.
- Efficient completion of slabs to reduce the disturbance of regular production in the factory



# SIKA SOLUTION

- Considering the loading, bearing capacity of the infill subgrade, thickness of the slab and crack control requirement, Sika proposed SikaFiber Force PP48 at a dosage rate of 5kg/m<sup>3</sup> for the 210mm slab.
- Concrete slump was maintained at 100-110mm with the help of Sika admixtures for easy pumping and quick finishing of the slab.
- Concrete was supplied by Boral and the fibre was added to the truck at the batching plant.
- Saw cuts were to be spaced about 6m intervals and depth of the saw cuts was to be maintained at 1/3 of the slab depth. This was impossible with the specified SL92 mesh with 50mm cover to the reinforcements.
- Therefore, all reinforcements including N12 trimmer bars at edge thickenings were replaced with the fibre reinforced concrete.



# SIKA PRODUCT USED: SIKAFIBER® FORCE PP 48 Sika Concrete Admixtures

<b>PROJECT SIZE &amp; OUTCOME</b>	<ul style="list-style-type: none"> <li>• Over 3500kg for SikaFiber Force PP 48 were used for the project without a single complaint from engineers, contractors or concrete placement team.</li> <li>• Total saving for the client - Everhard Industries was over \$20,000.00 by replacing the SL82mesh with FRC.</li> <li>• Reduction of man hours of transporting, placing and fixing of steel was significant and also the disturbance to the existing operations were insignificant as there were no steel fixing operations at site.</li> </ul>
<b>SPECIFICATION ENGINEER</b>	Chaminda Jayathilake
<b>CLIENT</b>	Everhard Industries QLD
<b>CONCRETE SUPPLIER</b>	Boral Geebug QLD 4034
<b>DATE</b>	23/01/2019
<b>LOCATION</b>	50 Newman Road, Greebung QLD 4034

## WE ARE SIKA

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, flooring as well as roofing and waterproofing systems.

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