

TE-SCR150 TITAN CONFORCE GRID

WHAT:

Sidewalk construction project – City of Calgary, Alberta, Canada.

APPLICATION:

Use of an innovative geogrid product, TE-SCR150 TITAN ConForce Grid, in ground supported concrete slabs used in the construction of new pedestrian sidewalks.

CHALLENGE:

The City of Calgary was trying to reduce construction and maintenance costs of concrete pedestrian sidewalks. They were using thick unreinforced concrete slabs and yearly rehabilitation work was required to repair major cracking of the slabs shortly after installation.



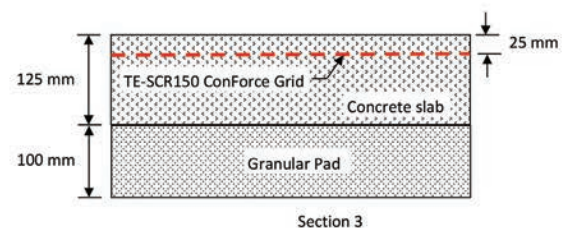
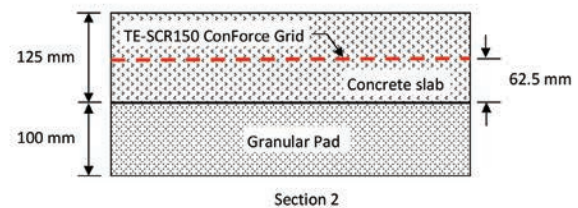
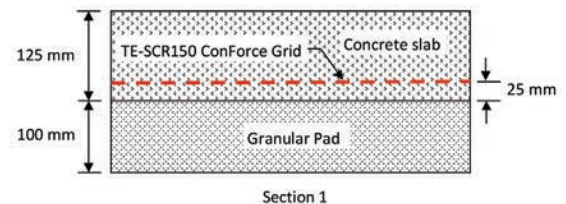
CONVENTIONAL SOLUTION:

Steel rebar is typically used for concrete structural reinforcement, however with time corrosion sets in weakening reinforcement ability and compromising the concrete's structural integrity.

TITAN SOLUTION:

The City of Calgary was looking for a reinforcement system not susceptible to corrosion, and that would work to minimize and delay surface cracking of concrete. Aiming to provide an innovative solution, Titan rose to the challenge and engineered a high-strength polymer geogrid product, TITAN ConForce Grid, designed for reinforcement of concrete pathways. Lighter than conventional steel rebar, TITAN ConForce Grid has higher tensile, flexural and shear strength offering both better reinforcement and control of surface shrinkage cracking than conventional rebar.

For this project, three 125 mm thick concrete slabs creating 3 sections of sidewalk were reinforced with TITAN ConForce Grid and placed on a 100 mm thick compacted granular base. The slabs consisted of road standard concrete #32mpa with an 80/plus 20 slump mix. The ConForce Grid was placed at different levels in each of the slabs with the objective of studying its performance in each sidewalk section. In the first section the grid was placed towards the top of the concrete slab; in the second section the grid was placed in the middle of the concrete slab; and in the third section the grid was placed towards the bottom of the concrete slab (see illustrations for details). One year after installation there is no surface cracking in any of the sidewalk sections which indicates that TITAN ConForce Grid is performing optimally.

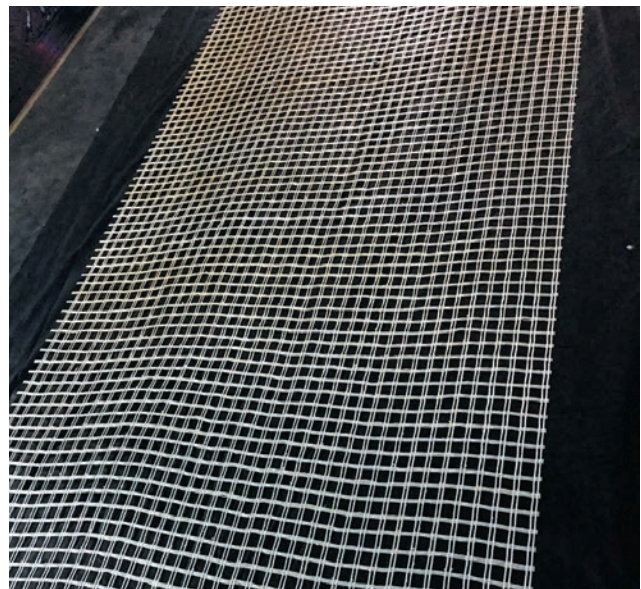




PRODUCT DESCRIPTION:

TITAN ConForce Grid is a high-strength polymer geogrid designed as an alternative to conventional steel for reinforcement of concrete. This stiff geogrid is non-corrodible and can provide durable reinforcement in aggressive and non-aggressive environments. It functions to: a) distribute and resist tensile stresses in the concrete structure that might cause unacceptable cracking and/or structural failure; b) increase the flexural stiffness and shear strength of the concrete and; c) significantly improve post crack ductility of the concrete structure.

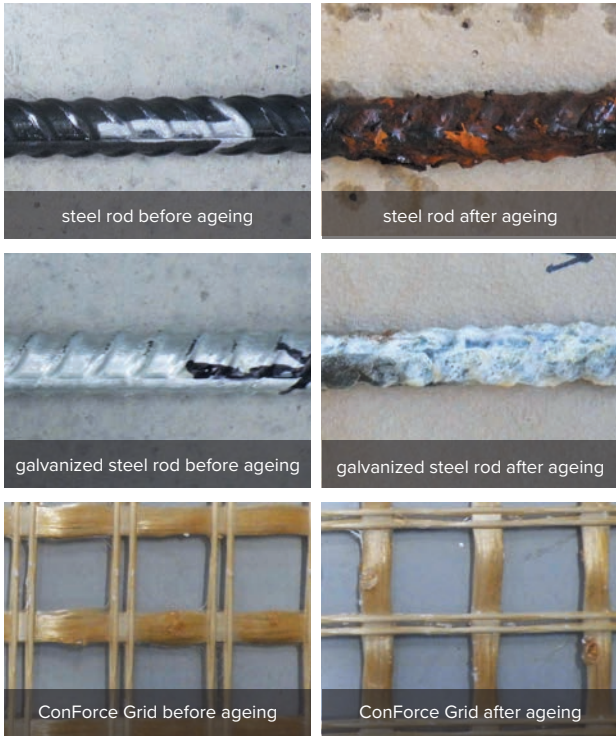
It can be used as a technically superior alternative to conventional steel reinforcement in a wide range of applications such as; concrete pavement, pathways, ground supported concrete slabs, floating slabs, bridge beams, exposed concrete surfaces, concrete piles, column or retaining walls.





BENEFITS:

- Superior structural integrity — Testing revealed TITAN ConForce Grid to be far less affected by corrosion allowing for higher structural and reinforcement integrity than steel. (See photos)
- Superior reinforcement and control of surface shrinkage cracking — TITAN ConForce Grid's higher tensile, flexural and shear strength properties make the concrete slabs stronger and less susceptible to cracking.
- Cost Savings — By using TITAN ConForce Grid in sidewalk construction the City of Calgary is expected to save 12% in material costs in addition to realizing greater long-term savings by increasing the life cycle of their sidewalks and reducing maintenance costs associated with frequent premature repairs.



Result after 1 year

PROJECT HIGHLIGHTS:

Project:

Concrete sidewalk reinforcement

Location:

City of Calgary, Alberta, Canada

Installation:

August, 2017

Product Solution/System:

TE-SCR150 TITAN ConForce Grid

Owner:

City of Calgary

Design Engineer:

City of Calgary

General Contractor:

City of Calgary

Product Supplier:

Titan Environmental Containment Ltd, Manitoba, Canada

**(Supplied the products, and offered design service and technical guidance).*

Contact us for more information:

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