Tensar
A Division of CMC

ROAD SOLUTIONS

# Built to last
# Industrial Roads
WITH TENSAR ROAD SOLUTIONS

**Industrial roads often fail prematurely, with potholes, cracking and subsidence. It's costly for the owner. Traffic is slowed, vehicles damaged, and time lost. Repairs are expensive and disruptive to business.**

**It doesn't have to be this way.**

Factories, warehouses, and other industrial facilities, all require road access for the smooth operation of trucks and forklifts. The proportion of heavy vehicles is large, creating a high damage potential to industrial roads.

Traditional pavement design methods, developed for fast flowing highways, may not be adequate without the additional consideration of the geotechnical design of the road foundation. This is particularly the case in regions with weak soils or marine clay. Slow moving and stationary heavy vehicles can cause deformation and settlement of the subgrade, leading to expensive and disruptive pavement failures.

## THE TENSAR SOLUTION

**Tensar solutions provide an alternative to excavation and replacement of weak soils or ground improvement methods,saving time, cost and carbon on site.**

**FLOOR SLABS:** New warehouses, distribution centres and data centres often apply heavy floor slab loads to sites with soft and compressible soils. Tensar InterAx geogrids are used to form a mechanically stabilised granular layer under the floor slab to increase the shear strength and reduce potential structural stresses in the slab.

**PAVED AREAS:** Tensar provide effective solutions for paved access roads and trafficked areas, delivering an increase in trafficking performance and pavement life through flexible or rigid pavement construction.

## TENSAR® DESIGN METHODOLOGY FOR INDUSTRIAL ROADS

**① Define Needs**

- Required solution design life.
- Expected traffic loading.
- Maximum axle loading.

**② Geotechnical Assessment**

- Subgrade stabilisation.
- Stabilised road foundation design.

**③ Design Soltuion Offered**

- Analysis of stabilised pavement.
- Pavement optimisation.
- Determine full pavement design life.

**FIGURE 1:** A typical cross-section of the traditional road design (the "conventional ground improvement" solution can be 2-3m of removal and replacement of suitable materials or deep ground improvements (stone columns, deep cement columns, etc.)

**FIGURE 2:** An Illustration of the cross-section on the MSL using Tensar subgrade stabilisation using 1 layer of geogrid.

**FIGURE 3:** An Illustration of the cross-section on the MSL using Tensar subgrade stabilisation using 2 layers of geogrid.

**For figure 2 and 3 (comparison between single and double geogrid layers) the pavement life can increase to ~5x using NX geogrid and ~3.3x using HX geogrid. For comparison between Figure 1, 2 and 3 (in terms of pavement life improvement) material/cost/time/carbon savings will vary, depending on what the conventional ground improvement method used in the design was.**

**FIGURE 1**


**FIGURE 2**


**FIGURE 3**

## MECHANICAL STABILISATION: HOW IT WORKS

When a geogrid is incorporated in a compacted aggregate layer, the aggregate particles interlock with the geogrid and are confined within the geogrid apertures.

This particle confinement restricts the movement and rotation of aggregate particles above and below geogrid, forming a zone of confinement around the Tensar geogrid layer. This Tensar mechanically stabilised layer (MSL) has increased strength and stiffness compared to the non-stabilised aggregate.

## QUANTIFIED BY RESEARCH AND PROVEN IN THE FIELD.

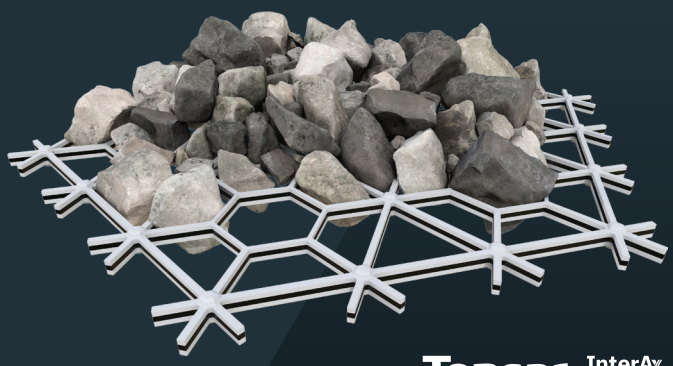
Design parameters for Tensar stabilisation have been developed from data obtained from multiple research programmes, including full scale trafficking testing at USCoE, plus large triaxial testing. Numerous field trials have validated the results and multiple projects across the globe have demonstrated the benefits of Tensar stabilised pavements. Research summaries and project case studies are available on request.

**Scan the QR code** to see a laboratory-based full-scale trafficking facility in action at the University of Saskatchewan (USASK).

**Tensar+** offers a number of design modules that are fully supported to meet project requirements and see cost, time and carbon emission savings in real time.

Tensar+

**Scan the QR code** and sign up to start designing your next industrial road project today.

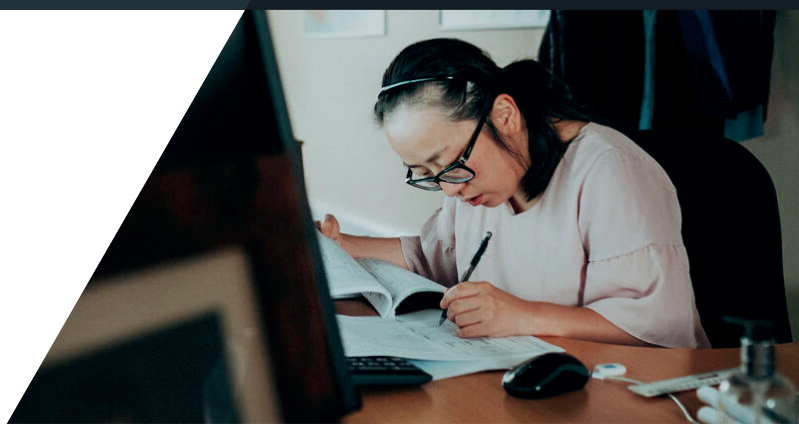


Tensar InterAx Geogrids

# Our team is with you every step of the way!

**Our dedicated teams are available to support you with any pricing enquiries or technical assistance.**

Tensar's full range of solutions are now available via all our local distributors.



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