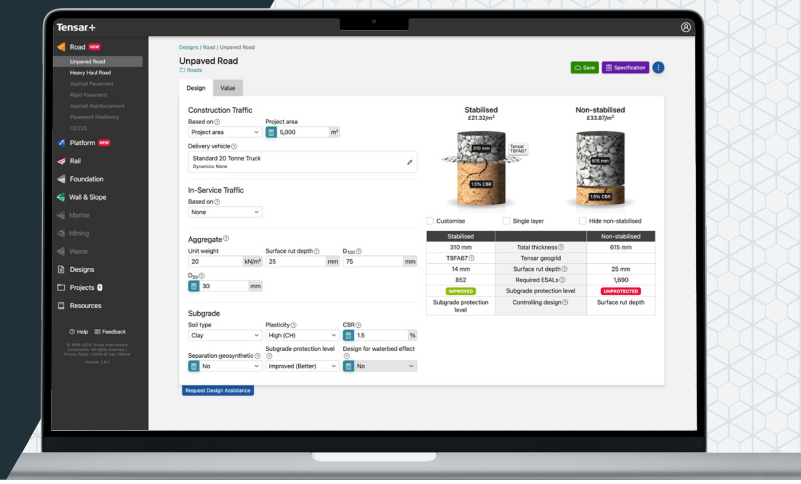
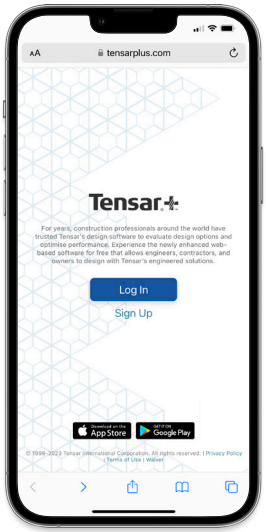
Tensar®
A Division of CMC

Tensar+ Design Software



Tensar+ is an award-winning, free-to-use cloud-based platform that enables engineers, contractors, and owners to obtain mechanically stabilised solutions for a variety of geotechnical, roadway and working platform applications.

The strength of Tensar+ is founded on decades of continuous and rigorous study in renowned independent academic and research institutions resulting in hundreds of peer-reviewed publications. The platform features state-of-the-art knowledge on the design of geogrid-stabilised solutions and quantification of the benefits of stabilisation in terms of cash, time and carbon. These developments are based on the concept of mechanical stabilisation, which relies on two features of stabilisation geogrids: interlock and confinement. Stabilisation geogrids assist in improving the performance of aggregate particles and together they become a composite called a mechanically stabilised layer or MSL.



- Design and evaluate your own project specifications.
- Compare alternative materials and project conditions.
- See cost, time and carbon savings in real time.
- Analyse the sustainability of your projects.

Tensar+ offers a number of design modules that are fully supported by our expert knowledge and years of extensive research to meet project requirements and see cost, time and carbon emission savings in real time.

ROADS

Unpaved roads are essential for access into construction sites and remote locations. In both permanent and temporary applications, the accurate assessment of the performance of the pavement is crucial to minimising costs of both construction and maintenance, as well as the carbon footprint. Engineers are also facing poor ground conditions more frequently and this has a knock-on effect on the economics of these structures, further increasing the challenge of sustainable construction with scarce resources.

Paved road modules provide an optimised section given the inputs, based on the non-stabilised section. The stabilised sections rely on factors derived from full-scale trafficking tests in order to predict the enhanced performance of the pavement through the inclusion of MSL's. These performance enhancements can be used to optimise the section to provide better economy during construction or maintain the same thickness and increase pavement life.

UNPAVED & HEAVY HAUL ROADD (LAAMS)
This method allows the engineer complete control over the design allowing for consideration of wheel contact area, wander, subgrade-type and level of protection of the subgrade from the traffic imposed.

PROOF ROLL (LAAMS)
Estimate the unpaved thickness needed to "pass a proof roll" and determine the effective resilient modulus for use as input to a pavement design.

AUSTROAD (FIGURES 8.4 & 12.2)
This module is based on Figures 8.4 & 12.2 from Austroads Guide to Pavement Technology Part 2: Pavement Structural Design - 2017, which are empirical based charts for granular pavements with thin bituminous surfacing.

ASPHALT PAVEMENT (AASHTO 93)
It is an empirically derived method for flexible pavement design based on the AASHTO Guide for Design of Pavement Structures 1993.

WORKING PLATFORMS

The T-value approach to the calculation of bearing capacity of granular layers over weak subgrades provides a method of incorporating the benefits of mechanical stabilisation into the design of working platforms. Using large triaxial tests, typical construction materials have been tested to determine their performance characteristics both with and without the influence of mechanical stabilisation.

Based on this data, supported by full scale validation testing, a constitutive model has been developed for use in finite element software to enable the determination of T-values for a wide range of conditions. This provides the basis of a design method for working platforms both with and without the inclusion of a stabilisation geogrid.

Tensar working platforms are analysed using the T-Value approach for comparison to a platform determined using the BR470 approach to determine the performance and cost-saving benefit of a Tensar proposal.

*Building Research Establishment document ref: BR470: Working Platforms for Tracked Plant: A guide to good practice, 2004.

FOUNDATIONS (LIQUEFACTION MITIGATION)

Liquefaction is an important concern where there is significant seismic activity or large vibratory loadings over loosely packed saturated sands. This can include train loadings and vibratory compaction. Damage to shallow supported structures on liquified soil can be mitigated by using gravel rafts, however the depth of these rafts can be cost-prohibitive. During liquefaction, the sand which is typically cohesionless behaves more like a liquid, and by applying the T-Value method, significant economies can be obtained by reducing the thickness of gravel rafts, as well as reducing the time for construction.

RAIL (COMING SOON)

Tensar+ takes an innovative approach to analysis in track bed. Fundamental material research using large triaxial testing, parametric analyses using the derived numerical models, and calibration to full scale laboratory experiments are the backbone of the module. From there, a performance based method of designing track bed, the Lees-Kelly approach has been developed. The method is an improvement over the Li-Selig approach and is at the cutting edge of performance based design for rail track bed.

Tensar's newly enhanced design platform enables designers to generate performance based solutions with quantified cost, time and carbon emission savings.

SCAN THE QR CODE to register for Tensar+

Stabilised

Up to 50% carbon emission savings and reduction in aggregate.

Non-stabilised

More aggregate and time are required, resulting in higher cost and carbon emissions.

Geofabrics are a supplier of Tensar product solutions in Australia and New Zealand.

Visit **geofabrics.co** or call 1300 60 60 20 (AU)
or **geofabrics.co.nz** or call 0800 60 60 20 (NZ)

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