



# Solutions@Mecmesin **Geosynthetic Cementitious Composite Mat Bend Strength**

#### **Specification**

Concrete Canvas Ltd. utilises ground-breaking materials technology in their Concrete Canvas® GCCM product, which is essentially concrete on a roll. This unique development has won many awards for innovation and design excellence, by combining fabric and concrete in such a way as to be flexible and easy to manipulate until hydrated, after which it hardens to form a durable and fireresistant layer. One product application provides a concrete shelter within 24 hours, deployed by only two people without any training. The material offers a 95% material saving, a typical 60% cost saving and can be installed up to 10 times faster than conventional concrete. The material itself comprises a 3-dimensional fibre matrix containing a specially formulated dry concrete mix, and once set, the fibres reinforce the concrete, preventing crack propagation and providing a safe plastic failure mode. Additional applications include ditch and pit lining, bund lining, slope protection and other safety-critical solutions in the construction and erosion control industries, all of which require reliable quality testing to guarantee the material's strength.

#### **Solution**

A Mecmesin MultiTest 2.5-i computer-controlled test system was supplied with a 2.5 kN 3-point bend jig and quick change (QC) adapters. An optional bellows prevents ingress of dust and fibre debris that may be released from the composite sample. The standard test specimen is a prism-shaped section of the Concrete Canvas® material. The fixture is able to accommodate the range of thicknesses available for the product. The graduated scale on the support beam ensures accurate sample location for central loading, and rollers on the anvils minimise frictional forces. Emperor™ Force software controls the test procedure which applies compression to achieve a deflection of 30 mm in a consistent and repeatable 3-point bend test. The ultimate force is measured, according to international test standard BS EN 12467 for fibre-cement flat sheets. For the company's internal quality standards and R&D purposes, other measurements are logged, such as the force at first crack propagation, to ensure the desired strength and durability characteristics for all variants.



**Deployed Concrete Canvas Shelter** 



Sample Undergoing Flexure Testing

#### System

- MultiTest 2.5-i computer-controlled test system, with bellows
- ILC-S 2.5 kN intelligent loadcell
- 2.5 kN 3-point bend jig with quick change (QC) adapters

### Testimonial

"Upgrading our standard test method with a Mecmesin-i tester was one of the best decisions we made recently. Not only did the new testing machine allow us to utilize the replaced equipment for other projects, but it also improved the reliability of the test, and the reproducibility of test results. Mecmesin's sales team provided us with all the information needed to make the decision to buy the right testing machine."

Marcin Kujawski, Research and Quality Manager, Concrete Canvas Ltd

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