

# Cellular Technology, the Latest Innovation in Force Protection Barriers by DefenCell

Q & A WITH JEREMY MILTON

## WHAT IS CELLULAR TECHNOLOGY?

You don't have to look far in nature to see the advantages of joining cells together to provide strength in numbers - a simple honeycomb is a perfect example of a cellular structure that is lightweight, strong and energy absorbent and shows how linking multiple cells creates a system that has a rigidity and durability to protect the interior.

## HOW IS THAT TECHNOLOGY USED IN DEFENCELL?

We take our proven nonwoven geotextile material and join it together to form a series of cells, which are then filled with locally available materials to create walls and barriers. The resulting panels are made in different lengths, widths and heights to meet specific operational or protection requirements. The material between adjacent cells is continuous, giving considerable lateral or longitudinal strength and energy absorbing capabilities.

## WHAT ARE THE BENEFITS COMPARED TO OTHER SAND OR EARTH FILLED SYSTEMS?

Sandbags generally use poorer quality woven materials such as jute and polypropylene which rapidly deteriorate in exposed conditions. A couple of broken threads will soon lead to a large hole and subsequent draining of the contents whereas a single cell of the DefenCell material can absorb several hundred rounds of ammunition without collapsing.

Metal gabions are heavy and cumbersome and are effectively 'single cell' - if you damage the wire mesh or fabric, the fill will leak out from the entire depth of the wall. With

cellular technology damaging the outer cell will only affect that cell - the internal cells behind will remain intact and continue to support the structure and provide protection.

## IS IT STRONG ENOUGH WITH NO METAL?

The geotextile that we employ has been used in the construction and oil & gas industries for many years. It is UV resistant and hard to puncture and a filled cell can be compacted to a high density. Having a pedigree that includes road construction in the frozen tundra it comes as no surprise to see a large truck being driven along the filled structure with no adverse effect. However you can build a DefenCell Profile barrier for Hostile Vehicle Mitigation and perimeter security and you have the only textile UK PAS68 and US K12 approved product protecting you.

## WITH ALL THE FABRIC AND CELLS, DOESN'T IT TAKE UP A LOT OF SPACE?

Current military budgets now look in more detail at 'through life costs' - DefenCell panels fold flat for transit and you can get a considerable amount on one of our standard pallets and twenty pallets fit in a single 20ft ISO container. We recently shipped 10km of barrier walling to a large NGO in Africa in 15 containers - it would have taken 75 containers to provide the same amount of wall using comparable current products.

All components are man portable and any pallet can be transported by pick-up truck.

This dramatically reduces the through life costs - reduced delivery costs to remote locations; longer life in the field; easier to remove and dispose; environmentally sympathetic.



### WHAT DO YOU MEAN BY ENVIRONMENTALLY SYMPATHETIC?

People are becoming much more conscious of the impact that war and terrorism are having on the affected areas and considerable efforts are being made to return war zones to their pre-war condition. DefenCell is made from environmentally neutral fabric that is chemically inert. It won't rust or rot and can be safely used in environmentally sensitive areas. We undertook a series of tests in Hawaii this summer to contain disposal of unexploded ordnance (UXO) up to 100lbs. There is no metal in our system so there is no risk of secondary shrapnel and DefenCell successfully contained all the blast and shrapnel as well as negating the fire risk in this sensitive (and very dry) area.

### DON'T ALL THE CELLS MAKE IT HARD TO FILL?

On the contrary, the cells are easy to fill with plant or by hand using a simple modular frame to align the cells in position and hold them open, while the cellular technology encourages regular overall filling, avoiding voids and loose fill that might compromise protection. The cells can be easily compacted mechanically or simply by foot which provides a very stable structure that can still be conformed to local ground conditions.

### WHAT ABOUT WHEN YOU WANT TO TAKE IT OUT?

In recent testing, the US Army Corps of Engineers R&D Centre compared the build and removal time of a number of

products for flood protection. The standard DefenCell wall took less than a third of the time to remove compared to the average time for sandbags and metal gabions. One of the biggest problems in the aftermath of Iraq was the enormous logistical burden of removing equipment from theatre and huge mounds of twisted and damaged decommissioned kit were a common sight as camps were dismantled. DefenCell is simple to dispose of on site or can be repacked or the fabric can even be recycled back into the community as part of CIMIC operations.

### DOES THAT MEAN THAT DEFENCELL CAN BE USED FOR FLOOD PROTECTION AS WELL?

The town of Smithland survived the Mississippi plain floods of May 2010 thanks to a rapidly erected DefenCell barrier. Over a mile of barrier was delivered overnight and built by the (very motivated) local workforce in just 37 hours. It went on to hold back the flood and protect the historic town for 6 days before the waters subsided.

### WHAT'S NEXT FOR DEFENCELL?

Our Engineers spend a lot of time on the ground, training and demonstrating and we continue to listen to our customers from around the world and constantly seeking to come up with new solutions to their various needs. We strive to create a better protection product that meets the requirements of our users from the expeditionary battlefield to the ever changing environment that we live in. ■



Expeditionary earth filled Protective Barriers



## DEFENCELL

A new generation of Expeditionary Force Protection

**Blast and ballistic protection** - extensively tested  
**Structural integrity** - load bearing cellular construction  
**Lightweight** - man portable and air droppable

**Compact** - 2.5km wall, 1.5m high in one 40' ISO  
**Non-metallic** - no secondary shrapnel and easy handling  
**Flood Protection** - proven and fast to install