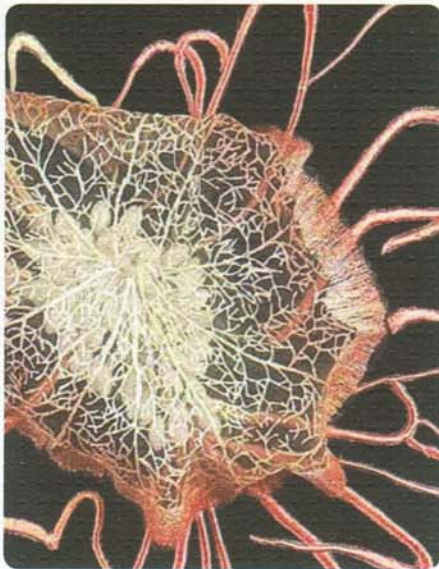


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# Innovate

The magazine of InnovationRCA, the innovation centre for business partners of the Royal College of Art



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# Called to the cloth

Five years after the RCA inventors of Concrete Canvas hit on an idea to develop durable shelters for disaster relief, Nadia Danhash reports on progress



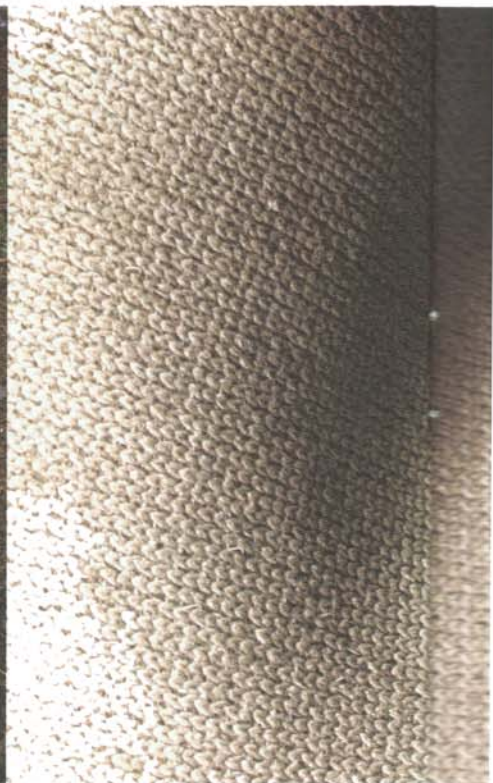
When RCA Innovation Design Engineering students Peter Brewin and William Crawford started experimenting with balloons after entering a British Cement Association (BAC) competition in 2004 they could never have imagined that five years later they would be running their own production facility – supplying ground-breaking products to the UK Highways Agency, National Rail and construction giant Costain.

At the time their goal was to develop durable shelters that would provide better protection than tents in humanitarian disaster areas and – using only water and air to erect – would be easier to deploy. The pair knew that the best shape for their shelter would be parabolic, giving optimum materials' efficiency and load bearing. Parabolas are difficult to build, but they had the ingenious idea of using inflation... which led them to start experimenting with plaster and balloons.

## Evolution of an idea

In the RCA's multidisciplinary hot house, Brewin and Crawford came across Modroc, the material used to make plaster casts, which gave them their next idea: to develop concrete-impregnated cloth, and combine that with air and water in order to build their shelters. The resulting 'building in a bag' – Concrete Canvas® – went on to win several prestigious design and humanitarian awards, including BAC's Innovation Award and the European Business Plan Innovation Prize in 2005, Saatchi & Saatchi's World Changing Ideas Award, and a Material of the Year 2009 award from Material ConneXion.

While at the RCA, the pair made a successful application to the College's Selected Works programme, which enabled them to protect the invention with a patent application prior to their graduation show in June 2005. After developing a business plan based on supplying Concrete Canvas® shelters for humanitarian relief, in the mining



“Tasks that normally need four days to complete take under an hour when concrete cloth is used”

industry and for the military on exercise, they formed a company to commercialise the shelters and the concrete cloth on which they're based.

The duo quickly secured angel investment and an R&D grant that allowed them to begin scaling up the project and continue design development. By 2010 Concrete Canvas Ltd had eight employees, a production facility in Pontypridd, several patents and an impressive list of customers in the civil construction industry.

### Multiple use for innovation

One area in which concrete cloth now provides considerable benefits is ditch lining. Tasks that normally take up to four days using expensive capital equipment can be finished by one labourer in under an hour. Meanwhile the Ministry of Defence has discovered new applications in sandbag and gabion protection and in dust suppression.

The original building-in-a-bag idea has also evolved, and now



works with local water, including sea water; its weight has been reduced, making it easier to transport, and the manufacturing process has been optimised.

What about Brewin and Crawford? Is running the company today as much fun as those early days of playing with balloons? 'Yes,' replies Brewin without hesitation. 'We are working long hours and have split the responsibilities between ourselves, with Will focusing on business development and me on operations... but we wouldn't have it any different.' And the future? There are, he assures us, 'big plans as we discover more and more advantages of concrete cloth in civil applications.' ■

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