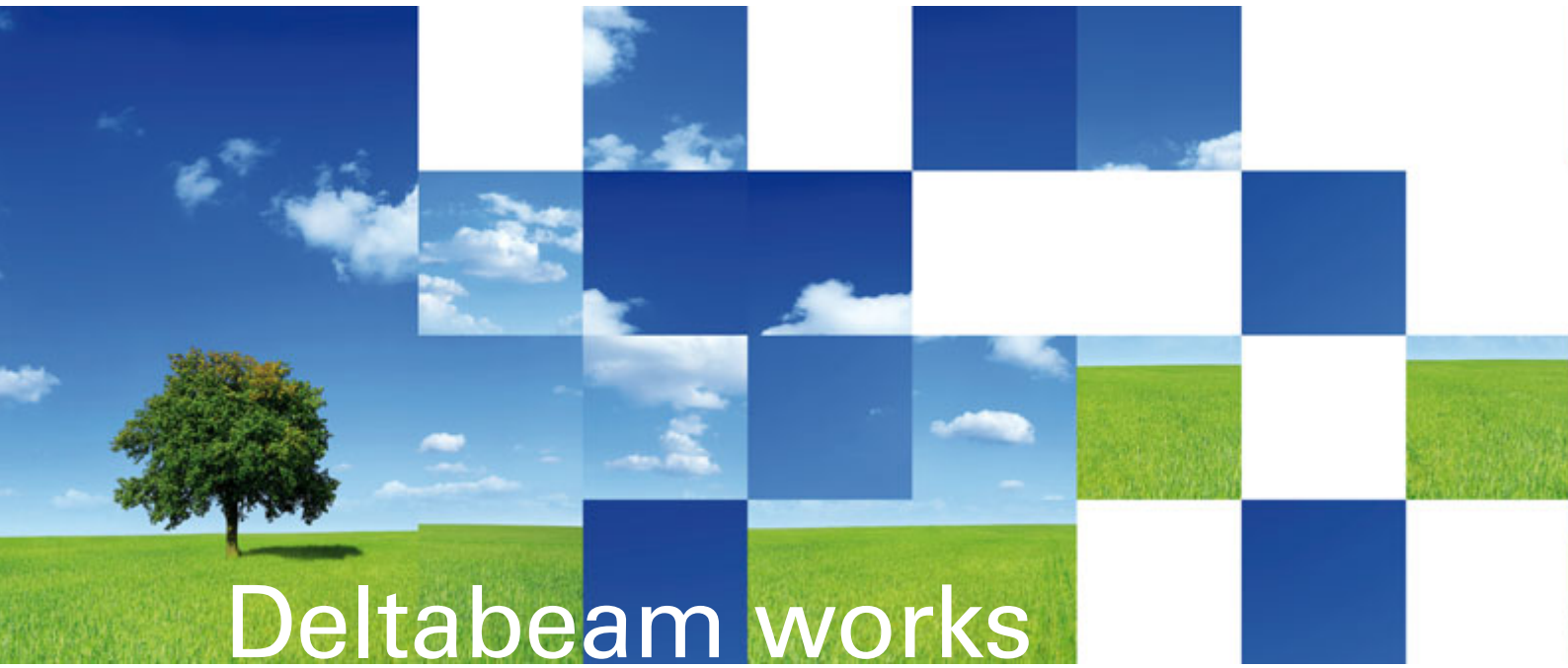


Deltabeam works to save the planet

– reduces carbon footprint in construction

Peikko has been a forerunner with many innovations over the years, but today the company is proud to be among the first to have investigated the carbon footprint of building construction. An independent study carried out by experts in carbon assessment showed that by using Deltabeam, a five percent reduction in lifecycle carbon impact can be achieved.

TUIJA ARO

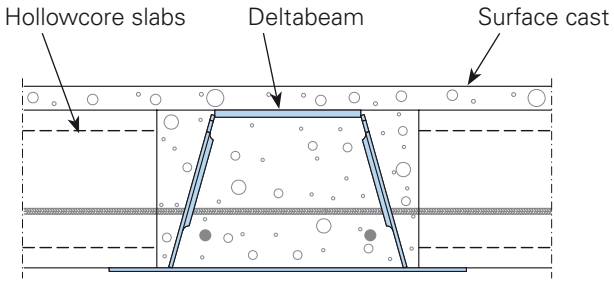
Peikko commissioned an expert company in carbon assessment and building construction, dCarbon8, to carry out an independent study. "The goal of the study was to assess the lifecycle carbon impact of using Deltabeam versus using universal beams in a standard school building design", says **John Metcalfe** of Peikko UK. It was carried out in compliance with recognised European standards (ISO 14040) for carbon assessment, so as to enable the results to be considered throughout Peikko operating countries.

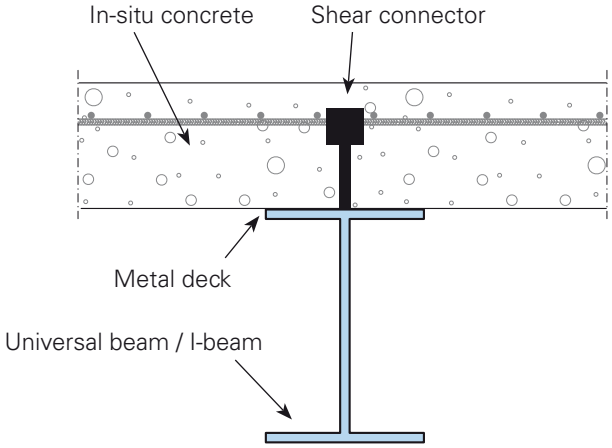
The carbon consulting company dCarbon8 has previously carried out carbon footprint assessment studies for businesses such as Marks & Spencer, supermarket giant Sainsbury, and renowned architects Foster & Partners. To ensure a like-for-like comparison, the same school development was used as the basis of the comparison in both scenarios, in other words, with Deltabeam and with universal beams. Where possible, the structural designs of a leading contractor and civil engineering company were used and where data was not available, a cost model for a block of a school building was referred to.

Carbon impacts of raw materials down with 10 percent

The results of the study are very promising. Carbon impacts of raw materials using Deltabeam within the notional school building decreases by 10 percent when compared to the use of universal beams. The majority of the raw materials carbon is saved in the steel components, as a lesser number of Deltabeams are needed compared to universal beams. Small reductions are also achieved in concrete, bricks, plaster, and waste as a function of the overall reduction in the height of the building using Deltabeam instead of universal beams. A 14 percent reduction in the carbon impact of onsite activities between Deltabeam and universal beams was calculated, Deltabeam twinned with hollow-core floor sections reduces the need for large concrete pours and as a result reduced construction periods. End of life carbon savings are again linked to the fewer materials used for the Deltabeam options. All in all, compared to a business-as-usual-approach using universal beams, the Deltabeam option offered a five percent saving in total carbon impacts over the lifetime of the building. A cautious approach was chosen to ensure that the case study results can be achieved and exceeded in real life. >>

dcarbon8
CARBON & SUSTAINABILITY CONSULTANTS



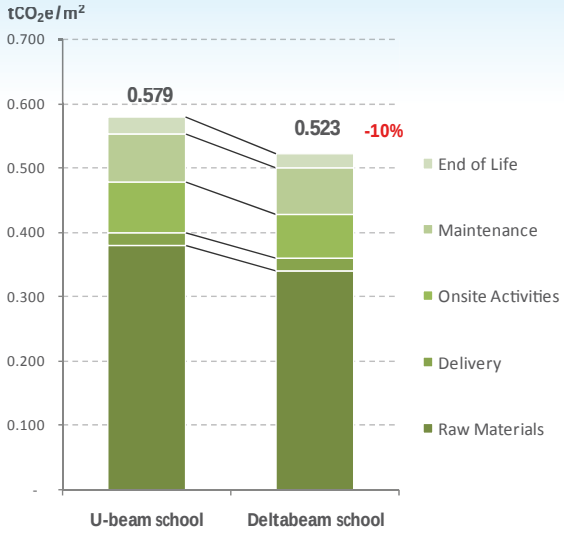


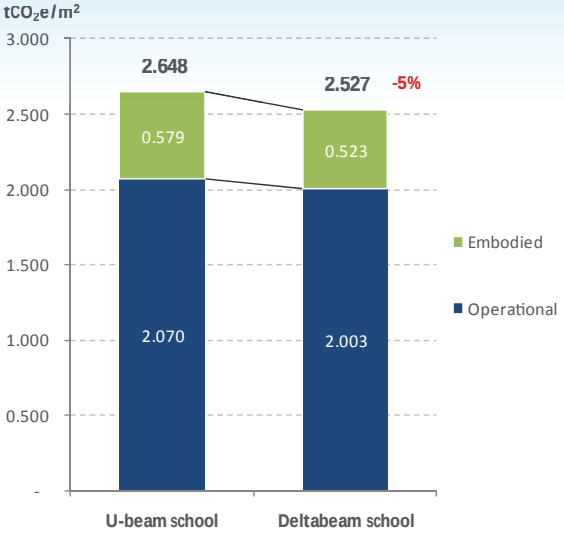
The embodied carbon impact for the notional school is 10% lower for the Deltabeam solution, principally due to a reduction in raw materials required. Less steel is required for Deltabeam solutions, and a reduction in ceiling height saves other materials.

The greatest impact for embodied carbon is found in raw materials due to the large quantities of energy required in their manufacture.

Overall, the Deltabeam option has a lesser carbon impact than the Universal beam design in both embodied and operational, with a 5% total reduction in carbon impacts.

This represents a total carbon saving of 267 t CO_2e from cradle to grave over 60 years on this design.





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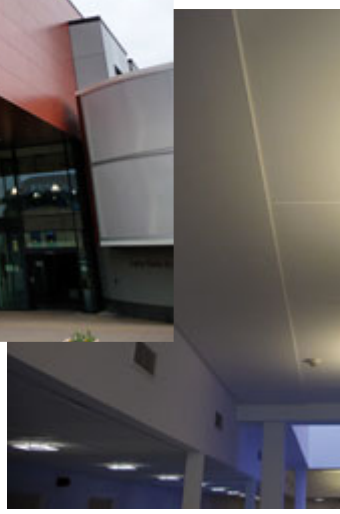


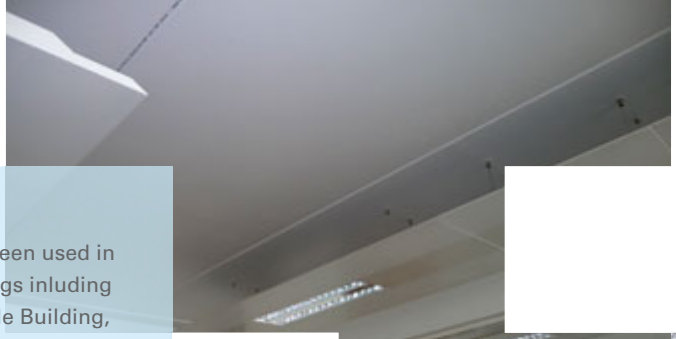
Deltabeam goes to school

In the UK, the government has started an extensive program for the rebuilding of schools. Most schools date back to the 1960's and do not have the appropriate rooms anymore to meet modern educational standards. In addition, heating costs and maintenance costs on the old schools are high due to inadequate insulation & dated construction methods.

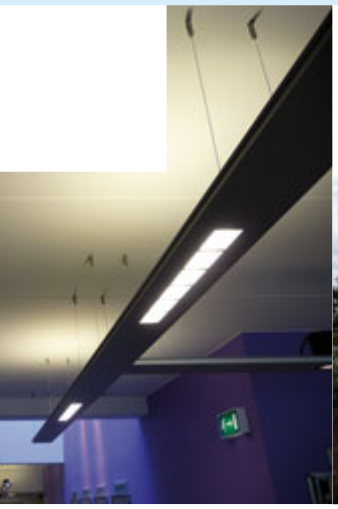
This rebuilding project has been ongoing for close to three years now and the aim is to complete 2000 new schools in a 10 year period. So far, Peikko has supplied three schools with Deltabeam.The schools are owned by the Government, who has stated that to meet the carbon targets determined at the Kyoto summit, carbon emissions in buildings must be cut both in the operation of the building as well as in the construction of the building. "This means conserving our resources and making the best use of them", says Metcalfe.

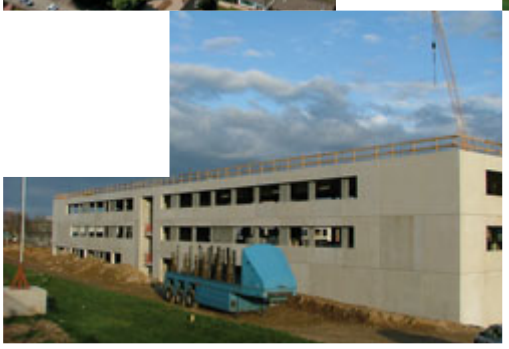
Actions to turn schools green

UK Government School Secretary **Ed Balls** has set out government action to turn schools green. In a press notice on the Government website for children, schools and families (www.dcsf.gov.



Deltabeams have already been used in many UK education buildings inluding Slaford University Lady Hale Building, Reepham High School and Aberdeen Schools seen here. However, there will be more to come!





uk), he says "with the schools estate emitting around 9.4 million tonnes of carbon dioxide – about two per cent of total UK greenhouse gases – for the first time ever we have looked at the ambition of making schools zero carbon". The key recommendations which the Government will look to deliver include, among others, introducing measures to ensure that energy and carbon are a priority from the design through to operation of school projects, and that the energy and carbon performance of schools is monitored and published. Also included is a review of achieving carbon savings through a programme of refurbishment and retrofit.

Deltabeam bows to wishes of architects

The study by dCarbon8 showed Deltabeam is a sustainable solution for school buildings. Engineers and architects will find that using Deltabeam is a favorable solution for buildings, and you do not have to change your design of the building very much to use Deltabeam, as it is a most flexible solution. "The Schools for the Future Program has targets of making twenty to thirty per cent reduction in operational carbon and they are also beginning to look at embodied carbon so I think that within the public, with the schools sector, this product will come as a very welcome solution", says **Guy Battle**, founder and director of dCarbon8.The savings are to be achieved during the lifecycle of the building, including the materials of the building, operation, demolition, and recycling. The five percent carbon saving with Deltabeam for a 60 year lifecycle of a school represents a significant contribution towards this reduction in a cost competitive manner.

Peikko is presenting these study results to other large companies at the BSEC conference in London in February. "Irrespective of an individuals' position on climate change, construction of more sustainable buildings, the more efficient use of raw materials, and a reduction in future heating and cooling requirements must be an advantage to building owners and operators". Concludes Metcalfe: "European and USA studies show that CO_2 from buildings accounts for over 50% of total annual CO_2 emissions in developed countries. We want to contribute to reducing buildings future fuel bills and play some part in saving the planet."