

A unique concept

How can a tiny budget and restricted site opportunity result in architecture that lifts the profile and spirit of a school and at the same time provide the practical facilities which address curriculum and learning needs?

A school sports hall is typically an enclosed box - its focus concentrated on the facilities within and the desire to protect sporting activity from both daylight glare and the public gaze. By contrast, SCABAL's sports hall at Dunraven School, Streatham, through its location, form and façade treatment, looks outwards and encourages universal engagement with sport by the rest of the school, as well as the community outside the school.

Completed in March 2009 and costing around £1.5 million, the building stands beside the school's main entrance to make a bold statement about the school's community and educational aspirations, as well as about sustainability. The three storey structure is created from thirty re-cycled shipping containers which have been stacked three high and one or two deep to enclose on three sides the triple height volume of a four court sports hall. It is the first sports hall to be built this way anywhere in the world.

The forms of the individual containers remain clearly visible but at the same time the whole structure has been sprayed externally in four bands of colour - vibrant green, pale grey, sky and navy blue - which wrap around the whole building making it appear as an arrangement of four pieces. The entire north wall, facing onto the road in front of the school site, is made of translucent polycarbonate panels. A mono-pitched trussed roof floats over the hall spanning between the containers. The external façade is punctuated by a frieze of greenhouse-shaped windows, wrapping around the corners of the containers in three dimensions as an abstracted reference to the surrounding scenery of domestic back gardens among which the school is located.

As well as forming the building envelope, the arrangement of the containers, sometimes one and sometimes two deep, creates the internal spaces. These include a subs bench / team space, two changing rooms, storage for sports equipment at ground level and a service plant space at first floor level. The continuous circulation around three sides of the hall also doubles as a gym space and, dramatically, as viewing galleries down into the hall from all three sides like a Shakespearean theatre.

Connections

Inside the sports hall space the façade colours are repeated. Likewise the cut out shapes and back garden themes are also echoed, this time manifested as elongated spade and trowel motifs which create the long internal windows of the viewing galleries.



How an award-winning sports hall was created from thirty re-cycled shipping containers. **Ruth Taylor** reports.

The openings reveal vibrant yellow and orange lining within and these splashes of saturated colour and large scale motifs add depth to and further animate the hall space, working to create a whole composition together with the bright blue floor surface, coloured line markings, goals and netting. The galleries which are open to the hall, separated only by mesh, create visual and sound connections between different levels and these further add to the immediacy and 'live' quality of the sporting environment. The shapes and views give a sense of excitement and celebration to the galleries themselves which extends to the calmer atmosphere of the changing rooms where light blue container walls are again punctuated internally by playfully arranged openings, allowing more light to the benched areas and reducing opportunities for bullying.

Re-cycled architecture



How was it achieved?

So how has so much impact been achieved for so little? In 2007 SCABAL were engaged by London Borough of Lambeth as architects to create a five-year masterplan for this constrained split site school. Long-term goals were to create cohesion between the two sites, which lay on either side of a road, and to create internal spaces that would provide choices for pupils' learning and address the technological and pedagogical shifts in education. It was decided that an intermediate project was needed to provide a tangible response to the school's most pressing requirements and to engage the whole community early in preparation for the more extensive construction and transformation ahead.

SCABAL established, through conversation with the school and Local Authority, what was most needed and what could have the maximum impact in the short term. Of eight key issues which the school faced in curriculum delivery and pastoral organisation, the provision of modern sporting facilities was identified as providing greatest immediate value. On a restricted secondary school site participation in sport, with all its health benefits, is of great importance and the school lacked the quality sports spaces – both internal and external – to promote and inspire this. Provision of a new sports hall would also allow future demolition of an existing undersized gym building which was estimated to be the most expensive element in

the school to refurbish and therefore the school's least valuable building. Location of the new facility at the front of the school would provide a building that could later form the centrepiece of a Sports Village, in combination with external courts created on available open space to the rear. Using the budget to create a significant single facility would provide greater impact than piecemeal smaller interventions, which might easily be lost in later major alterations. The location would also have a high public profile to promote and invite extra-curricular use by the community.

Only limited funding was available however; the combined capital budget included small sums contributed by the council, the school and Sport England. The most basic brick box sports hall containing the same facilities would normally cost one and a half times this amount. Various less satisfactory options were considered to address the shortfall, including reducing the facilities provided and locating the changing rooms elsewhere on the school premises. At the same time the school were increasingly concerned about the disturbance that would be created by a large building being constructed in close proximity to their operating educational facilities. During conversation between SCABAL and a specialist contractor, Urban Space Management (USM), a solution became evident which would dramatically cut both costs and building time and at the same time address

sustainability and architectural quality through the use of recycled shipping containers in a modular form of construction. In proposing this design solution they proposed an innovative method through which to procure the building – an early and close collaboration through a negotiated Design and Build contract with USM, a contractor who had previous experience of construction using shipping containers and a workshop where they could be modified. Through this method the construction of the building was also moved primarily off-site.

There is a clear rationale for using sea containers. A surplus of goods imported into the UK over those exported results in more containers arriving than leaving the country. Because it is not considered economically viable to return empty containers many stand obsolete and there is a surplus of them cheaply available.

Innovative Method

From the outset the commitment and close partnering-style collaboration established between SCABAL, the design team and USM benefitted the whole project and led to continual design improvements without impacting on the programme. Significant creative developments included the introduction of the upper level viewing galleries and the decision to install a lift – making these accessible to all. A change to the foundation design from concrete planks to a slab, made necessary by the supplier going into liquidation, was able to be dealt with quickly without affecting the programme. One concession to budget constraints was the decision to fit out only the viewing galleries at the first floor level at this stage. However, construction of the lift and staircase which access the top layer of containers would allow more gallery space to be fitted out or other spaces to be added for use on the second floor at a later date.

Construction of the whole 1,200 m² project involved only four months of work on the school site. The containers were modified, the cut-out





openings formed, the exterior decorated and the interior partially fitted out off site at USM's workshop in London's docklands. Following a month of initial groundworks, all thirty of the adapted shipping containers were delivered to site and craned into place straight from the lorry in less than three days. Installation of the lift and stairs and the final fit out and finishing was then the only work to be completed on site. The good communications and a flexible approach by the whole team enabled the delivery of the project on time, despite bad weather.

The fundamental features of the design allow the form of the building to speak eloquently about the importance of sustainability. The containers which form the major part of the structure and accommodation can all be re-used, are easily demountable in future and can be removed from site within days and fully recycled. This is further supported by the screw pile foundations which are also re-usable and enable the whole building to be quickly re-located if required. The large span of the roof collects all the rainwater which is then reused by the school through a rainwater harvesting system. The high internal daylight levels and careful orientation to use and control passive solar gain has further reduced impact on the environment. Use of radiant rather than air heating reduces wasted heat and low-energy infrared activated lighting is employed to further reduce energy use. A mixed mode ventilation system includes extraction and opening windows to the main hall and passive ventilation to changing rooms. The project was assessed through the BREEAM schools method and achieved a BREEAM Very Good rating. With the sea containers being designed fundamentally to withstand the much harsher environmental conditions of the sea, maintenance



requirements for the structure are anticipated to be low and mainly cosmetic - both fixings and decoration require inspection only once every five years.

'Just fabulous'

Re-visiting the sports hall over a year after occupation, there is no doubt that the school is fully engaged with and delighted by the building which the school's Finance Director Micon Metcalfe described as "just fabulous". The good level of lighting enables the hall to be used for other school activities such as assemblies and examinations and it is extensively used by extra-curricular school sports clubs. The professional quality of the facilities has also encouraged use of the hall outside school hours by community clubs, including basketball and badminton clubs and as a venue for a regular table tennis tournament, activities which provide the school with additional income as well as helping to forge stronger links with community.

The vigorous form, colour and excitement of the exterior and interior of the building, as well as the quality of the facilities, more than fulfil the school's original objective for the sports hall to be "so much more than a boring shed".

The sports hall was the Winner of the British Construction Industry

Small Building Project Award in 2009 and has received accolades through both national and architectural press coverage, including as the subject of a BBC Inside Out documentary. The building has also gained a Public Service Award for Dunraven School and is featured proudly and prominently on their website.

In December 2010 the DfE announced that "£800 million basic need funding has been allocated according to relative need for new places". The current austere economic climate means that capital funding for school projects is likely to be available only in response to this need for school places or for necessary maintenance. At approximately £1,300 per m², approximately two thirds of the cost of a standard sports hall with the same facilities, SCABAL's Dunraven School sports hall demonstrates how budgets usually

applicable to temporary and low quality structures can be innovatively used to create permanent buildings that satisfy functional and spatial needs and simultaneously inspire and enhance the learning environment for schools and communities.

Ruth Taylor, SCABAL



Link to post on YouTube from the BBC's Inside Out: <http://www.youtube.com/watch?v=KFvmHlar4Zo>

CLICK HERE TO LAUNCH VIDEO

Project	DUNRAVEN SPORTS HALL Dunraven Secondary School, Upper School Site, 94-98 Leigham Court Road, Streatham, London SW16 22B
Architect / Employer's Agent	SCABAL
TEAM	Dunraven School David Boyle, Principal; Micon Metcalfe, Finance Director Programme Manager Sylvester Eyong, London Borough of Lambeth Main contractor Urban Space Management Structural Engineer The Furness Partnership Quantity Surveyor Keegans Mechanical Engineer CBG Consultants Electrical Engineer CBG Consultants CDM co-ordinator Baily Garner H&S
Procurement	Design and Build Contract (JCT DB05)
Programme	Off site prefabrication: July - October 2008 Groundworks on site: July - August 2008 Delivery and erection on site: November 2008 - three days Fit out on site: November 2008 - March 2009
Accommodation	Three-storey sports hall building: 1200 m ² Full-height 4 court (18m x 33m) hall: 600 m ² Ground floor girls and boys hanging rooms: 150 m ² First floor gym and viewing gallery: 230 m ² Second floor viewing gallery without fit-out: 220 m ²