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Eco Building Magazine

SUSTAINABLE DESIGN & BUILD FOR THE FUTURE

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Showcase success

Sustainable Building Center makes its mark in Brussels

MAGNA OPUS

Sandal Magna Community Primary School in Wakefield is a flagship eco-school anticipated to be one of the most carbon-efficient schools in the UK. The project represented a major milestone for Sarah Wigglesworth Architects, being the practice's first completed school building

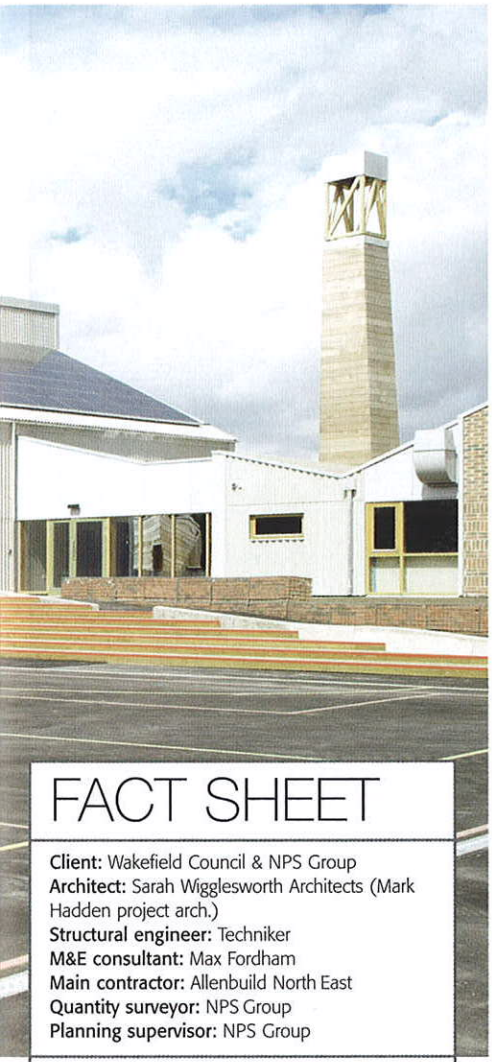
Words: Sarah Wigglesworth Photography: Mark Hadden Photography

In January 2006, Wakefield Council commissioned us, in partnership with NPS Group, to design a replacement for the Victorian Sandal Magna Primary School. The old school had reached the end of its life and the council had decided that a new school should be built on the same site. The new school had to accommodate 210 pupils aged between five and 11 years alongside nursery provision, and it needed to be capable of expansion to 315 pupils. The school also required a community room for use by parents and local people for adult education and other purposes.

The client's vision for the new school was to achieve a high-quality sustainable design, based around issues addressed in our Exemplar School Design for the DfES: functionality, sustainability, buildability, efficiency, aesthetics and durability.

Developing a sense of ownership among different user groups is central to our approach as an architecture practice, and we embarked on a series of consultation meetings to involve a variety of groups in the development of what we hoped would be a series of innovative, sustainable and, ultimately, popular design decisions. We held site visits and meetings with Wakefield Council, staff, parents, the local community and other stakeholders, following which we established a set of key issues that would inform the design of the new school:

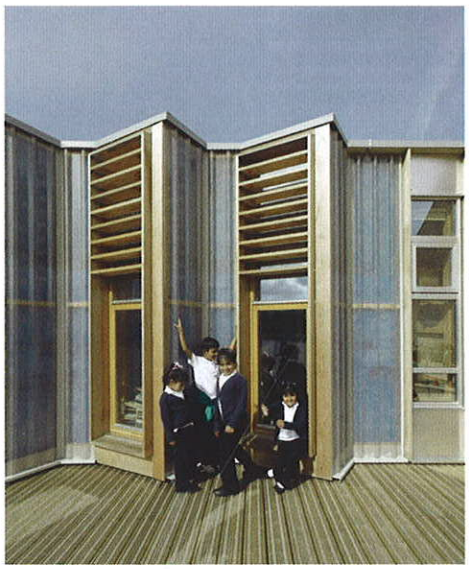
- the importance of a new identity for the school, with a positive street presence
- maintaining a sense of history and memory
- providing a welcoming building for students, parents and teachers
- site security and robustness of materials
- scale and relationship of the new building to its setting
- flexibility of spaces within the new building

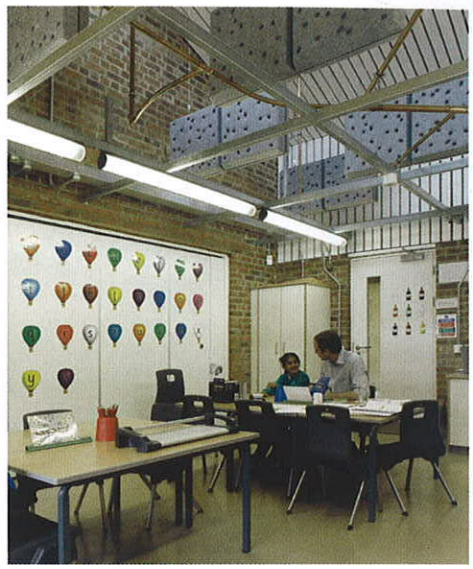


FACT SHEET

Client: Wakefield Council & NPS Group
Architect: Sarah Wigglesworth Architects (Mark Hadden project arch.)
Structural engineer: Techniker
M&E consultant: Max Fordham
Main contractor: Allenbuild North East
Quantity surveyor: NPS Group
Planning supervisor: NPS Group

Cost: £5.2m
Tender date: December 2008
Start on site: April 2009
Contract duration: 18 months
Form of contract: Jct SBC 05
Target emission rate: 20.7kg/m2/year





Pupils enjoy the tactility of a range of materials used in the construction of their new school

We have produced something that is distinctive, that sits comfortably in its urban context, and that is unashamedly green

- provision of a variety of play spaces
- importance of a community space
- importance of energy-efficiency and sustainability

The head teacher, Julia Simpson, and her deputy and green champion, Ann Smith, were particularly interested in how the design could support the school in developing its sustainable curriculum, and in embedding ecological thinking into the daily routines and management practices of the school through activities such as recycling, a walking bus, healthy eating programmes and physical exercise.

Wakefield Council was also keen to ensure that the school not only provided quality education for many years to come, but that it could also stand as a leading example of innovative, sustainable design.

Our engagement sessions continued throughout the design into the selection of furniture, interior and exterior finishes, equipment and external planting. We were extremely lucky to have a great project team led by David Brown from Wakefield Council, as well as an inspirational and driven head teacher.

The school's design takes its cue from the surrounding vernacular architecture: the red brick Victorian terraces of Sandal, an inner-city suburb of Wakefield. The school is laid out as three parallel, single-storey wings that reflect the street pattern, while the red brick of those terraces is also used extensively throughout the school.

In practical terms, the load-bearing masonry crosswalls carry ceilings and, by omitting headers from the walls at high level, we were able to make them porous to assist ventilation and acoustic absorbtion. Along the length of the teaching block, which echoes the rooflines of

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Solinear
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www.solinear.co.uk

Many of the load-bearing masonry crosswalls are porous to assist ventilation and acoustic absorption

Above: the provision of a variety of play areas was one of the key considerations included in the school's design

neighbouring houses, the natural ventilation stacks mark the classrooms at regular intervals, while, at the centre of the site, the school is crowned by a striking new bell tower evoking the tall chimneys of Wakefield's industrial heritage. Within the tower, the old school bell has been rehung to provide the much-desired sense of history and memory – a desire expressed during the consultation process.

The overall design of the school is highly contemporary. We used a range of cladding materials such as raw timber, weatherboarding and corrugated rainscreens to denote different uses within the school, and to add interest and texture to the angular geometries of the building. Already, pupils enjoy the tactility of their new school – using the building itself as a play tool, running their hands across the range of surfaces or gathering in little groups within alcoves or on window sills.

Inside the school, services and building elements such as ventilation, soundproofing, sprinklers and a rainwater harvesting system are all proudly on show. On emerging from a distribution trench running the length of the building, services runs crawl over the school's fair-faced surfaces like vines, each outlet's position mapped by us.

In the classrooms we devised a metal grid to carry the lighting, cables, copper pipes, IT runs and curtain tracks (to make changing rooms), while acoustic absorbers are hung from the ceiling above this. Thus, all the elements of the interior are individually featured and placed on view for all the children to observe, allowing the school itself to become a demonstrative tool to form part of the curriculum for learning about buildings and sustainability.

Funding was secured from the former DCSF standards fund for a range of low-carbon measures at the school. These include a ground-source heat pump – powered by a 100m² array of photovoltaic solar panels – which provides heating and hot water. The pump also provides cooling for the IT suite, while the remainder of the school is completely naturally ventilated. We wanted to optimise daylight throughout, both because it is uplifting, and to reduce energy use by the school. Classrooms are therefore orientated to optimise daylight levels, and other spaces such as the hall and canteen are top-lit with an excellent quality of light.

Outside, reclaimed bricks from the old school are used in retaining walls and garden features, and allotments have also been laid out in the school grounds for use by the pupils. We worked with the school to develop a landscape strategy that has minimised car parking space, and maximised the space available for a range of outdoor play spaces, including areas for learning, planting, quiet zones and games. We wanted every part of the school to have a connection with the landscape, so every room has views of the surrounding areas, while every classroom has direct access to the outdoor playgrounds.

I am really proud of Sandal Magna. As a practice we have always striven to produce thoughtful, low-energy buildings that are simple to use, cherished by their occupants and economical to run and maintain. Sandal Magna is our biggest project to date, and I believe we have remained true to our architectural principles. We have produced something that is distinctive, that sits comfortably in its urban context, and that is unashamedly green.

We hope that the school will educate, inspire and delight new generations of children, parents and neighbours ■

CONTACT

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