



BUILDING ■ Daylight and delight: Sarah Wigglesworth Architects in Wakefield

In its robust solidity, Sandal Magna School is an exemplar of passive sustainable design and of its architectural expression, says Irena Bauman. Photos: Mark Hadden.

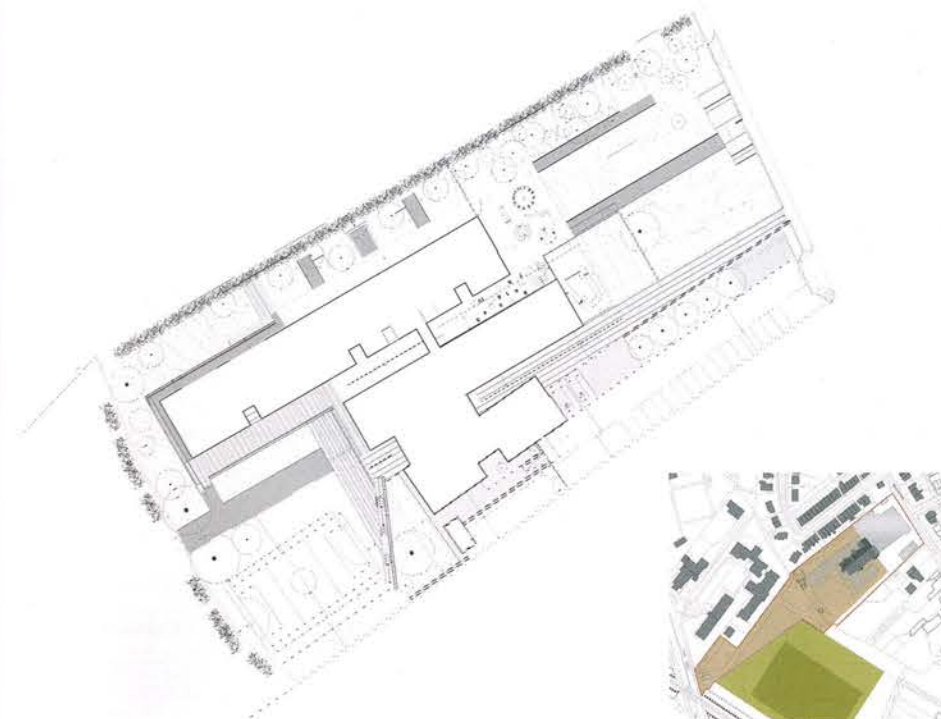
'Is all this ours?' asked a junior pupil, as he danced round and round, his arms stretched out as if to hold all that he could see in the playground of his brand new school. 'The children are excited by all the space they now have,' explained Julia Simpson, the charismatic head teacher who has championed the project to replace Sandal Magna's dilapidated red brick Victorian primary.

The new building serves a Wakefield neighbourhood comprising diverse cultures and communities, including travellers. It is Sarah Wigglesworth Architects' first completed school, a response to an ambitious and visionary brief requiring accommodation for 210 pupils aged five to eleven, alongside nursery provision for 26 children and a community room considered essential by the head

teacher and her deputy who fought to retain it when the provision was threatened by budget cuts.

The brief also called for high quality design, functionality, buildability, efficiency, aesthetics and durability, all of which can be summed up as sustainable design. Through insights gained in discussions with the community and the teachers, the design team established additional design priorities such as a sense of history, the expression of a new identity, the provision of a variety of play spaces, a fit with the urban context, security and robustness of materials.

This is a design wish list that every school client has but very few achieve. Most schools built recently fall short due to speed of delivery, complexity of procurement, lack of input



from teachers, lack of vision, and lack of ability and care on the part of the design team.

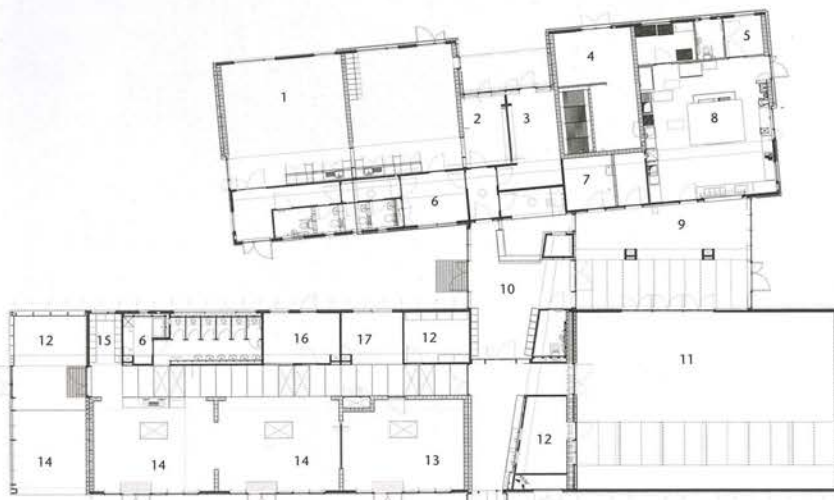
Sandal Magna J&I School feels special from the moment of arrival and those first impressions are only enhanced by further investigation. This is a project that reflects the new values emerging from our response to climate change – the desire to use resources wisely and the recognition that air, daylight, landscape, identity, legibility (needed for safety), and complexity (to stimulate curiosity) are all essential ingredients of wellbeing.

Above Hall and teaching block from the north; hall interior.
Left Site plan; location plan showing existing school, around which the new building was constructed. Work started on site in spring 2009, with a contract duration of 18 months. Gross internal floor area is 1740 square metres, and the building cost £2985/square metre (£5.19 million). It was built under a JCT SBC 05 contract.



The architectural language developed to satisfy these aspirations is both delightful and challenging. The building belongs firmly within the 'passive design' tradition, reflected in the shallow plans that allow for natural ventilation and daylight, the simple plan forms of the three fingers that allow for efficient and legible double-loaded corridors, the separation of daylight provision from natural ventilation by the use of solid openable panels, and the careful attention to positioning and shading of glass. Bare surfaces – brick and solid timber – exposed surface-mounted services and flying service ducts are all part of the passive design vocabulary.

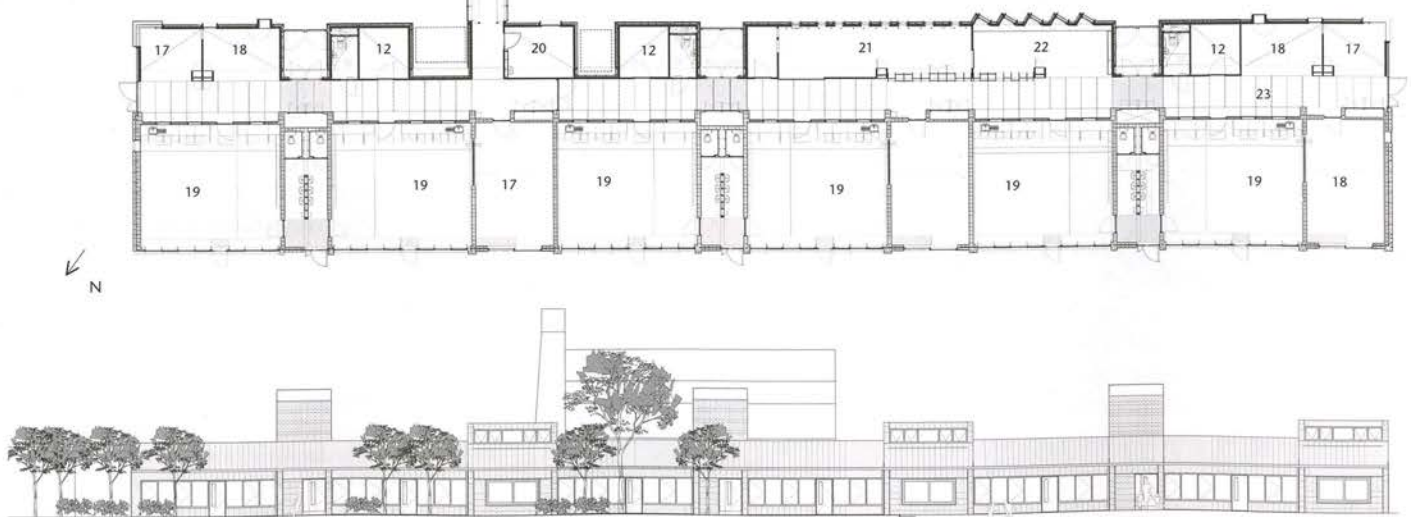
The building feels different from other schools: there is a noticeable temperature



gradient between the rooms on the north and south sides and between small and large spaces, similar to the experience of moving between sun and shade or open and sheltered spaces outdoors. There is also a breeze from the open windows and a constant visual link to the outside, as each classroom opens onto its own garden; neither of these are achievable in deep-plan schools.

Above Play space between hall and teaching block; communal spaces in the teaching block are articulated in a reference to the backyard sheds and outbuildings associated with local housing.

Left/below North elevation; ground floor plan: 1 staff room, 2 meeting room, 3 head's office, 4 plant, 5 office, 6 utility, 7 cleaner's room, 8 kitchen, 9 dining, 10 foyer, 11 hall, 12 store, 13 teaching space, 14 play area, 15 cloakroom, 16 parents' room, 17 resource, 18 group room, 19 classroom, 20 SEN, 21 ICT suite, 22 book stop, 23 resource corridor.



The new language is also evident in the external appearance of the building. The size of windows differs according to orientation and internal use: the window cill heights are low to accommodate the building's main users – the small people – and the roofscape on the single-storey buildings is dominated by the ventilation chimneys and fits comfortably with the context of the residential terrace that defines the northern edge of the site. There are also water harvesting butts (yet to be connected) and plenty of evidence of recycled materials including the 'brick gabions' used as small retaining walls in the landscape, distinctly hard and sharp, an indication maybe of progressive attitudes to risk in the playground.



The flexibility of the building layout is already being tested as modifications to the original design are implemented: the head teacher has asked that some of the outside playspaces formed in 'alcoves' between classrooms should be filled by storage sheds to avoid supervision problems, and she is rethinking the use of the ICT area to accommodate changes in technology that occurred during the building's five-year procurement process.

The future flexibility and longevity of the building will be the true test of whether this design has achieved its laudable ambitions. The old school served the neighbourhood for 120 years and when opened in 1890 the Wakefield Express had this to say: 'A few days ago we paid a visit to the schools which were last week opened by the Sandal School Board. We admit we went with great expectations, for we had been told that the schools are the best arranged of their class in the West Ridings. We were not disappointed. In our opinion – and there are not a few persons who agree with us – the schools are the most admirably arranged, the best lighted and ventilated, the most bright and cheerful and the neatest and most substantially fitted we have ever entered.'

Above, below A range of cladding materials such as raw timber, weatherboarding and corrugated rainscreens denotes different areas within the school. Sustainable technologies include a ground source heat pump providing heating, hot water and cooling, powered by 100 square metres of PV panels.

If not for the old-fashioned turn of phrase this could easily be a review of the new school, except that the article goes on to say: 'The materials used have been red bricks, Huddersfield stone dressing, blue slates; inside woodwork pitch pine and deal wrought, stained and varnished' – a simple





palette of hard-wearing, locally-sourced materials intended to last.

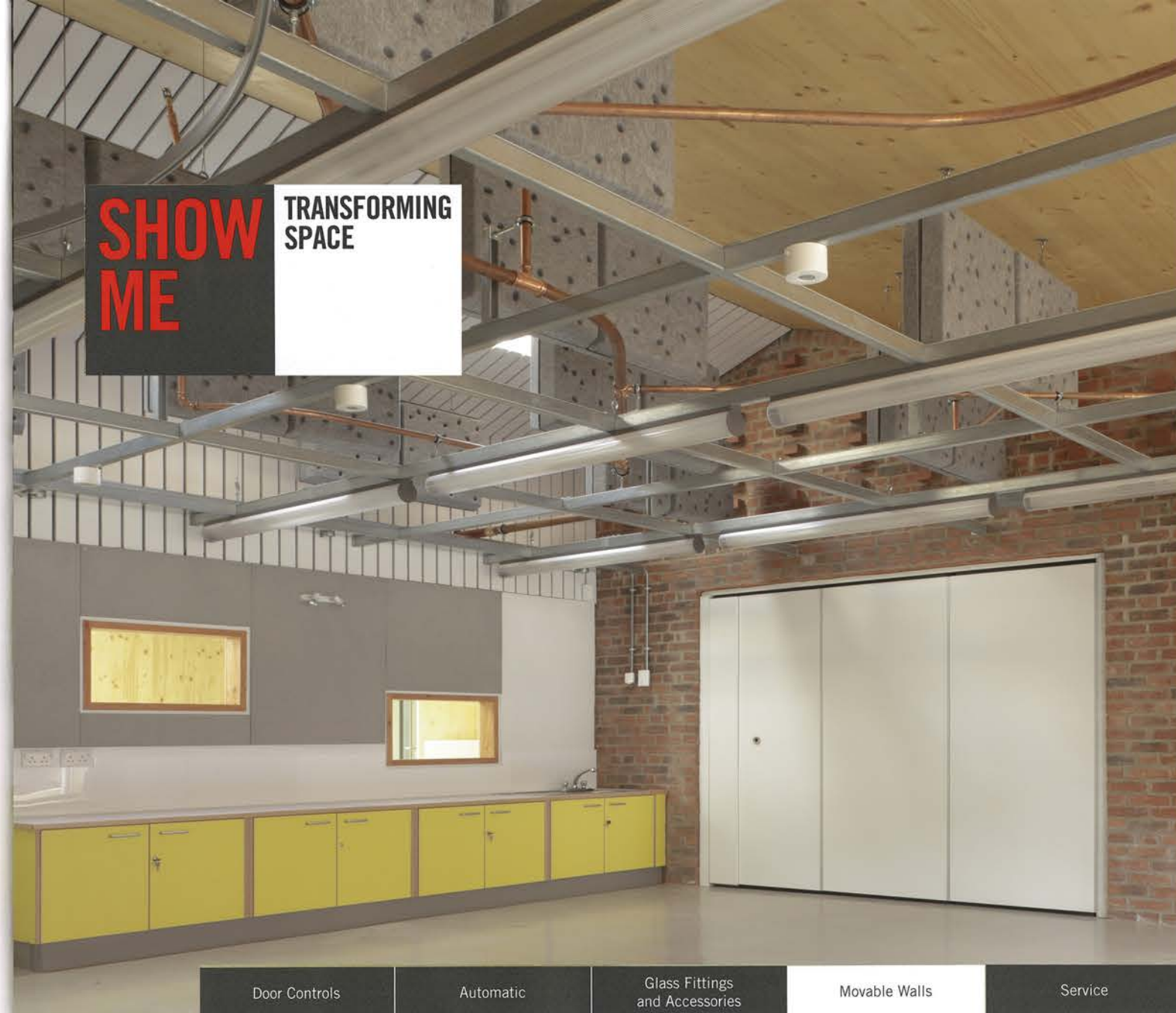
The same cannot be said about the new school, and this is where some small concerns about the scheme arise. Many materials have been used on the elevations: brick (recycled from the old school) but also profiled sheet cladding, corrugated rainscreens, weatherboarding, raw timber in various forms and small areas of green walls. In addition there is a great diversity of window openings, some of them geometrically complex. These and the cladding create a sense of fun and vibrancy and arguably contribute to the making of a very special place for the children, but at the same time they contradict the design ambition for sustainability and robustness that should aspire to a lifespan of 100 years.

The decision to rebuild rather than refurbish the existing school was taken by the head



teacher and local authority prior to the architects' involvement. It would be interesting to know whether, as is the case with so many other schools, new build was felt to be the only option available due to the need to keep the school open during construction. Short-term practicalities often compromise long-term sustainability. Moreover, on many sites where new schools replace old ones that are retained during construction, it is impossible to retain the same relationship to the street and playing fields as originally intended. Inevitably the new building has an awkward relationship with the main street and is approached across a sea of tarmac and car parking where the old school used to be. At

Above, left Resource corridor; community room; foyer.
Elevations East elevation (top) with main entrance; west elevation.



DORMA Variflex Movable Walls installed at the Sandal Magna primary school in Wakefield

With increasing demands for efficient and adaptable space management systems in educational establishments, offices, conference centres, hotels and exhibition centres, DORMA movable walls offer the ideal solution.

Sandal Magna chose the Variflex system, particularly impressed with the additional sound insulation of up to 60db. The Variflex is available as a manual or semi-automatic movable wall and in a wide range of surface finishes allowing effortless integration with any design scheme.



DORMA UK Limited
Tel 01462 477600 | Fax 01462 477601
Email movablewalls@dorma-uk.co.uk

Show me transforming space at
www.DORMASHOW.com





Sandal Magna the architects have sought to do things differently: parking is limited and set to one side, and instead of tarmac, extensive landscaping creates new grass play areas.

That said, a great deal has been achieved by the job architect Mark Hadden, a team of excellent consultants, a progressive local authority and an inspiring head teacher and deputy who worked through many challenging barriers. The school sets a new standard of low carbon design – though it will need to be monitored for 20 years or so before a full picture of all aspects of its performance is available to us – and provides a wonderful environment for children, many of whom lead difficult, transient lives.

There are also touches of pure delight, such as the bell tower constructed to replace the original, a powerful landmark for the new school that continues a 120-year-old tradition of ringing the bell at the start and the finish of the day. And when it is time to let the school sleep at the end of each day, the supervisor-caretaker makes his rounds closing all the windows as his predecessors did for over a century. The new school pays humble tribute to the old principles of robust design that architects are just beginning to rediscover and improve.

Irena Bauman is a director of Bauman Lyons Architects, a former CABE commissioner, a member of the government's Task Force for Zero Carbon Schools and author of How to be a Happy Architect (2008).

Above Acoustic baffles, lighting and conduit for services are integrated in a carefully composed ceiling grid.

Project team

Architect: Sarah Wigglesworth Architects; design team: Sarah Wigglesworth, Mark Hadden (project architect); structural engineer: Techniker; m&e consultant: Max Fordham; qs, planning supervisor: NPS North East; main contractor: Allenbuild North East; client: Wakefield Metropolitan District Council, NPS North East.

Selected suppliers and subcontractors

Brick: Ibstock Birtley Old English; insulation: Ecotherm; cross-laminated timber: KLH; windows: Scandinavian Timber Windows; rooflights: Standard Patent Glazing; profiled sheet cladding/roofing: Marley Eternit; cement board cladding: Cembrit Blunn; single ply roof: Alwitra; acoustic panels: Offect Luna; sliding folding partitions: Dorma; internal doorsets: Leaderflush Shapland; GRP cladding: Brett Martin; sunpipes: Monodraught; rubber floor: Dalsouple, Altro; rainwater system: Alumasc.