Sandal Magna school

Mimicking the local terraced streetscape, Sarah Wigglesworth's sustainable school buildings in Wakefield teach a lesson in the great outdoors, writes *Jay Merrick*. Photography by *Mark Hadden*

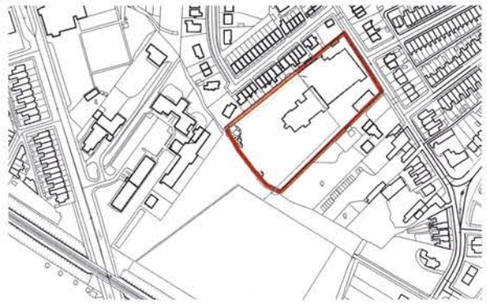
Previous page Sandal Magna's back alley mimics the service lanes of the terraces near the school **Below** From the playground, the bell tower enhances the townscape composition of Sandal Magna **Right** The steps alongside the hall's gable end provide a focus for the school's playground life

When David Chipperfield's Hepworth Wakefield art museum opens next spring, it will seem to some that contemporary culture has come to the city. As the museum's nascent website puts it: 'Visitors will also be able to experience art, architecture and design through a varied programme of talks, tours, film screenings and workshops, or simply relax in the stylish restaurant and café, serving seasonal, locally-sourced food.' If the local civic society gets its way, some of the museum's visitors will be from cruise ships that anchor off the Yorkshire coast and despatch passengers up the River Calder to Wakefield.

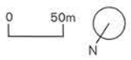
On a gunmetal grey Monday in Belle Vue Road, embedded between lines of back-to-back housing in the Wakefield suburb of Sandal, a very different expression of culture is afoot. Dozens of schoolchildren are racketing back and forth across a raised wooden terrace that divides the dining hall of the new £5.2 million Sandal Magna Community Primary School from the segmented timber and GRP facades that form the southern face of the site's main classroom block.

The children could just as easily scoot down the adjoining ramp on to the smart new playing field, but most seem to prefer the pin-ball scatterings and coming-togethers of life on the terrace. It is their street, downscaled, communal, thoroughly multi-ethnic; and the mix of those facade segments – some protuberant, others articulated – are expressions of the garden sheds that many of the school's 230 pupils and nursery attendees have at the bottom of their gardens. This particular fillet of the scheme is the cultural nexus of Sarah Wigglesworth Architects' design concept.

> 'The architecture comes second. It's about the bits between buildings'



Location plan

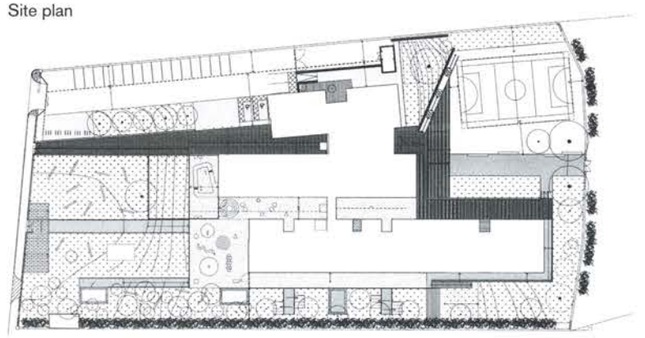


It is here, after a six-year design and funding odyssey, that the dynamics of the architecture unpack themselves most clearly, and in a way that prompts project architect Mark Hadden to remark: 'We've tried to create a building of learning. There's no [excessive] noise, there's no trouble. The architecture comes second. It's really about the bits in between the buildings, and the kids.'

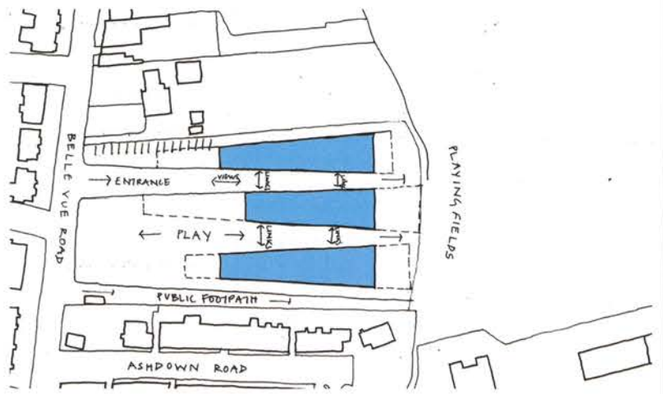
Architecture that supposedly comes second is a potentially hubristic conceit, particularly for a practice noted for bold or polemical >>

Ground-floor plan

Site plan



Site sketch



1. Entrance
2. Foyer
3. Reception
4. Headteacher's office
5. Meeting room
6. Staff room
7. Community room
8. WC
9. Utility room
10. Circulation
11. Plant
12. Kitchen
13. Office
14. Store
15. Dining hall
16. Hall
17. PE store
18. Teaching space
19. Play area
20. Covered play area
21. Cloakroom
22. Parents' room
23. Resource
24. Special Educational Needs
25. Small group room
26. Classroom
27. Group room
28. Book stop
29. ICT

0 3m

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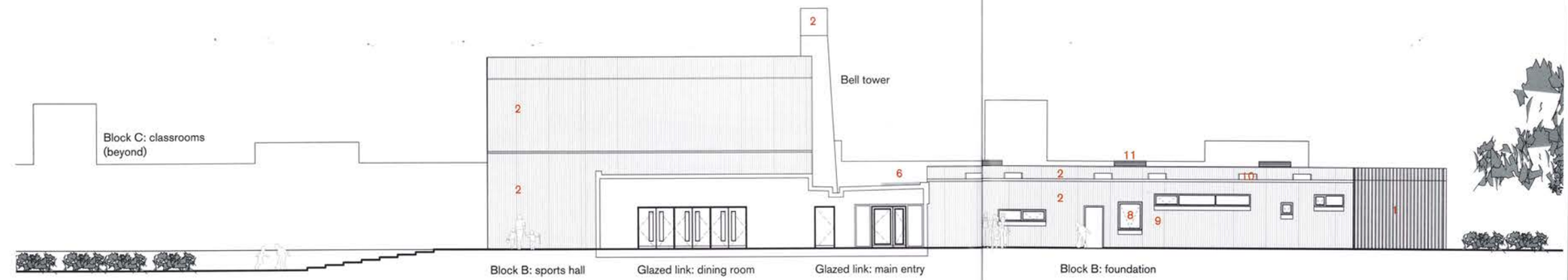
juxtapositions of materiality; and on one level, the architecture of the school, from structural elements to details and fittings, confirms this perception decisively. The classrooms, for example, are fitted with exposed horizontal metal service grids above the children; deliberately serpentine copper water pipes veer this way and that across the frames to feed the fire sprinklers; and big sound-absorbing mats hang like hairy dominoes in the void between the service grids and the cross-laminated timber ceilings.

In the assembly hall, the inner leaves of the end walls are mainly composed of Lewerentz-like perforated brickwork to absorb sound; similar treatments are found on one cross-wall of each of the primary wing classrooms, to draw air into the row of ventilation stacks that rise from that segment of the school. The detailing of the facade composed of 'shed fronts' is equally striking. Reclaimed bricks from the site's original 1890 board school were used to form part of the corner and gabions supporting the long play deck, and Birtley Old English bricks from the local brickworks were used throughout. And yet it seems strangely luxurious and academic to emphasise these details, even if they must add greatly to the children's visual and tactile experiences.

It is more significant to consider the architecture in relation to the funding travails, months of value-engineering, and a wafer-thin 1.5 per cent contingency allowance, which combined to strip £1 million from Wakefield Council's original budget; the head teacher, Julia Simpson, even had to bushwhack local MP Ed Balls at a public meeting to plead for enough extra money to complete the school's community room. One result is that virtually all the school's facades are clad with corrugated cement fibreboard panels demanded by the contractor for this JCT scheme.

Wigglesworth's original environmental zero-carbon features, part-funded via the Department for >>

Sections



1. Covered play area: corrugated glass-reinforced plastic cladding, white/translucent
2. Corrugated cementitious board rainscreen roof cladding, charcoal grey
3. Ventilation stacks to foundation rooms
4. Opening vents to curtain wall to match cladding
5. Timber-framed glazed curtain wall
6. Green (sedum) roof to corridor
7. Glazed rooflights to hall
8. Timber-framed windows
9. Building signage
10. Rooflights to foundation rooms
11. Ventilation stacks to foundation rooms
12. EPDM membrane roof cladding, grey
13. Timber board rainscreen cladding, natural finish
14. Timber board rainscreen cladding, blackboard paint finish
15. Timber split-log rainscreen cladding, clear finish
16. Anti-climb rainwater pipe
17. Timber gate entry to classroom block
18. Timber sunshades to timber framed windows
19. Corrugated glass-reinforced plastic cladding, white/translucent with opaque cladding behind
20. Timber gate entry to classroom block
21. Greenhouse (by school)
22. Garden shed (by school)

0 2m

Right Services throughout are left exposed

Children, Schools and Families, were also necessarily denuded. Nevertheless, this is one of the most carbon efficient schools in Britain, through a combination of masonry mass, passive ventilation, ground source heat pumps and a sizeable photovoltaic array on the roof of the assembly hall. There are also educationally visible rainwater recycling panels, mini allotments and chunky beards of wall vegetation.

Architecturally, the cost-cuts have accentuated the somewhat ambiguous typology of the scheme, certainly as seen from Belle Vue Road: despite its suitably childish looking bell tower (which presents more like a sketch than tectonic mass) and the sharp edges of the assembly hall's parallelogram roof structure, the school looks distinctly light industrial in profile and materiality.

But, in this instance, these are not particularly interesting architectural conjectures. It is the culturally significant imprint of an ostensibly cliched design metaphor – three linear buildings as three cross-linked terraces of houses divided by two 'streets' – that ultimately dominates and energises what goes on here. The plan layout of the buildings has become the framework within which collagist materiality and detailing, mostly pragmatic >>

In the assembly hall, perforated brickwork absorbs sound

Previous page The hall is sculptural and expressive, befitting its central role in the life of the school
Above Elevation of classroom 'terrace'
Left The main classroom spine, with the coloured wall dividing the corridor from the school library

rather than elective, have created brusquely vivid indoor and outdoor stage-sets for learning and play.

Sandal Magna Community Primary School is, very evidently, culturally optimistic architecture. 'This isn't Tower Hamlets,' admits Simpson, 'but 15 or 16 languages are spoken here.' The design has answered her mantra – flexible accommodation, visible environmental measures, and outdoor learning. 'Our children learn by doing. Many of them have very little experience to draw on – growing plants, for example, or experiencing the world around them, even getting dirty. Many just don't do physical things like jumping and climbing. But after all these years, seeing it in place, it's marvellous to see it working.'

In nearby Castleford, there is talk of creating a National Centre for Intangible Heritage that would celebrate local oral and visual histories rather than branded heritage, which would then inform visions of the cultural future. Something like that has already happened in Belle Vue Road, Sandal, even if Hadden is – if I may split just one hair – wrong: architecture can only come second to its purpose, meaningfully, if its design recognises precedent and context, yet clearly seeks to create an engaging and progressive mark of change and difference. The architecture of this school appears to have done that. ■

Credits

Start on site
April 2009
Contract duration
18 months
Gross internal floor area 1,740m²

Annual CO_2 emissions
18.5kg/m²

Form of contract JCT SBC 05
Total cost £5.2 million
Cost per m² £2,985
Client Wakefield Council and NPS Group
Architect Sarah Wigglesworth Architects
Project architect Mark Hadden
Structural engineer Techniker
M&E consultant Max Fordham
Quantity surveyor NPS North East
Planning supervisor NPS North East
Main contractor Allenbuild North East
Glazing Scandinavian Timber Windows
Timber KLH
Profiled sheet cladding Marley Eternit Profile 6
Joinery New World Joinery
Annual CO_2 emissions 18.5kg/m²

Sandal Magna Community Primary School

Sarah Wigglesworth Architects

Library window detail

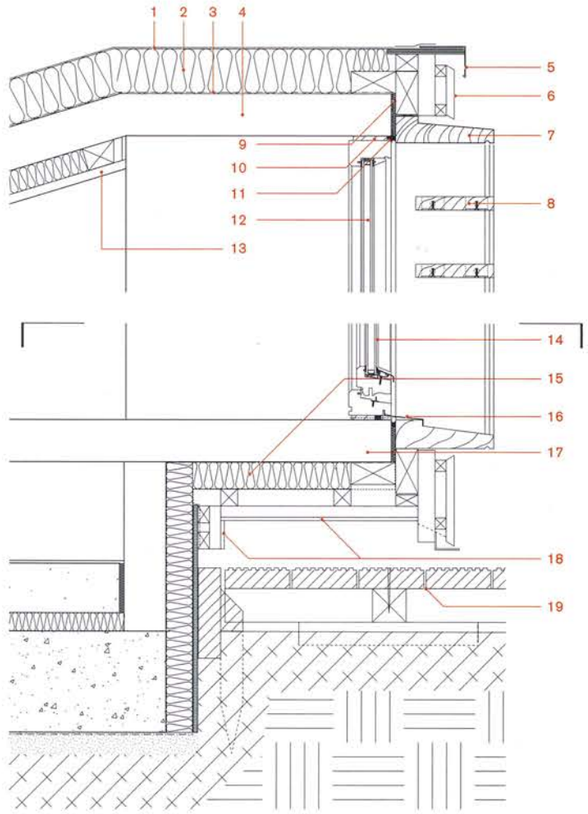
The idea of the 'back sheds' is a key concept relating to the idea of children learning in an environment that is more like home than school.

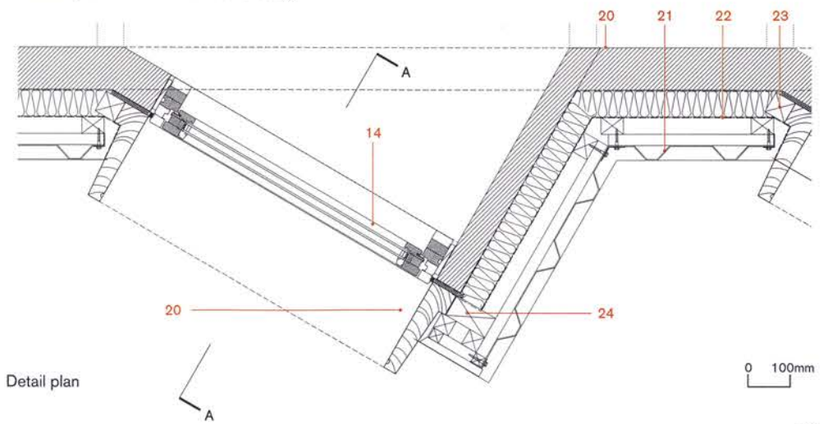
The local context is typically rows of red-brick terraced houses. Each row has a front and back street, where the front street is the main aspect for the family home and the back street is very much the children's domain, where typically they would play without straying too far from home. The back street also traditionally housed the coal shed at the bottom of the garden, which might now have become a garage, Dad's lair, or Grandad's greenhouse. The school library and ICT building is one of the so-called 'back sheds'.

This detail, like many on the facades of the back sheds, is really about simplicity and creating backdrops for things to happen. The large cedar reveals to the projecting bay windows make shaded places for sitting and reading, inside and out. The GRP cladding reflects the more technological nature of the library and ICT spaces inside. The translucency of the material leaves the building construction behind it visible, so the children can learn about how things go together. Much of the building has been thought about in this way, so the whole environment becomes a learning tool.

1. Single-ply roofing membrane
2. 100mm insulation
3. Vapour barrier
4. KLH cross-laminated timber. ISI industrial grade with fire retardant
5. Aluminium edge trim
6. Horizontal 18mm mitred edge cedar boards
7. Western red cedar window board reveals
8. Western red cedar timber slats to form shading louvres
9. 10mm insulation to thermal breaks
10. Timber packer to suit
11. Silicone sealant
12. Fixed window
13. Acoustic lining to walls
14. Opening window
15. 60mm insulation
16. Aluminium flashing
17. Cross-laminated timber fins support bench
18. 8mm Marley Eternit Natura rigid sheet cladding to external wall fascias and reveals
19. External timber decking
20. Cross-laminated timber panel
21. Profiled GRP cladding
22. Breather membrane
23. Timber blocking
24. 50 x 100mm softwood framing fillets to suit

Section AA





Detail plan