



Colerne primary school  
*What happens when you let pupils design their own dining hall: Peter Clegg on Mitchell Taylor Workshop*

31.03.11

Bauhaus Group  
*The private lives of six masters of Modernism*

# The Briggait

Nicoll Russell Studios' creative retrofit



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## Sustainability in Practice

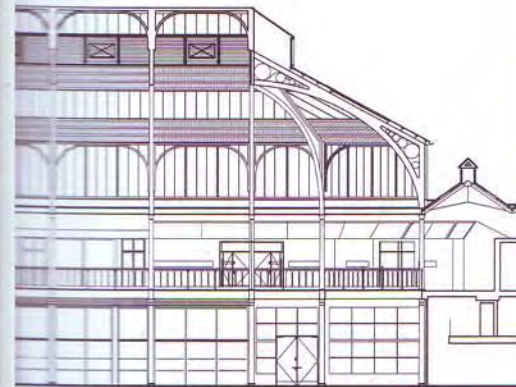
*How to retrofit a house and reduce your carbon emissions by 90 per cent*



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**I**t is all about listening to the pupil's voice.' This is the first thing headteacher Rob Parsons says when I ask him about the buildings completed at Colerne Primary School over the last few years.

And it is indeed the pupils who have been the real clients. Specifically, the seven and eight-year-olds, because they are the ones who will be at the school long enough to see a three-year building project come to fruition. They also helped to design the buildings, obtain planning permission, and, as far as possible, deal with the finances of projects that have been both challenging and rewarding for this community-focused primary school in the village of Colerne, situated between Chippenham and Bath.

Colerne happens to be the local primary school for both architect Piers Taylor, co-founder of practice Mitchell Taylor Workshop, and master carpenter Charley Brentnall. Both of them are used to projects involving school children. Mitchell Taylor Workshop won an RIBA award in >>

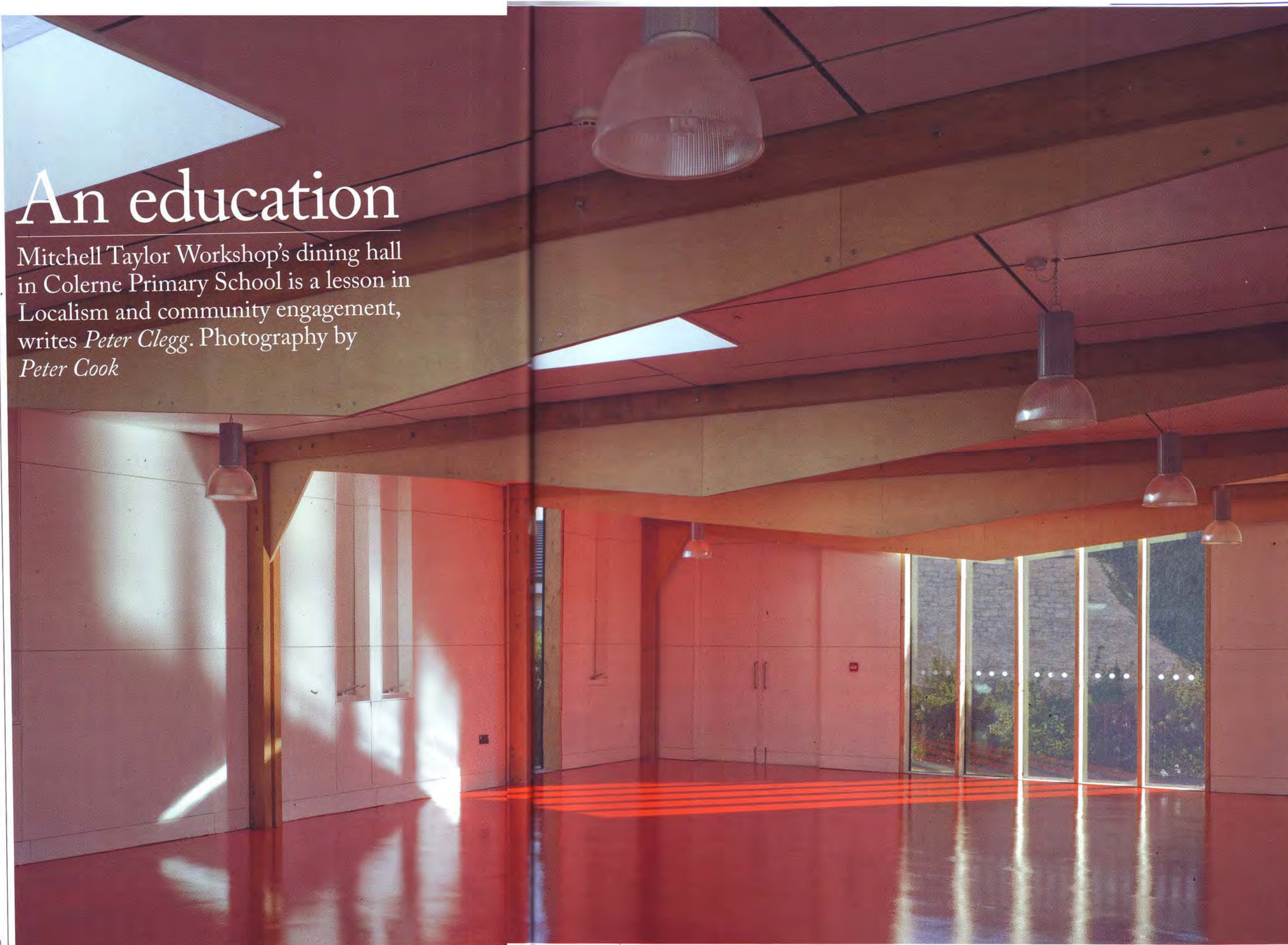
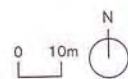
# An education

Mitchell Taylor Workshop's dining hall in Colerne Primary School is a lesson in Localism and community engagement, writes *Peter Clegg*. Photography by *Peter Cook*

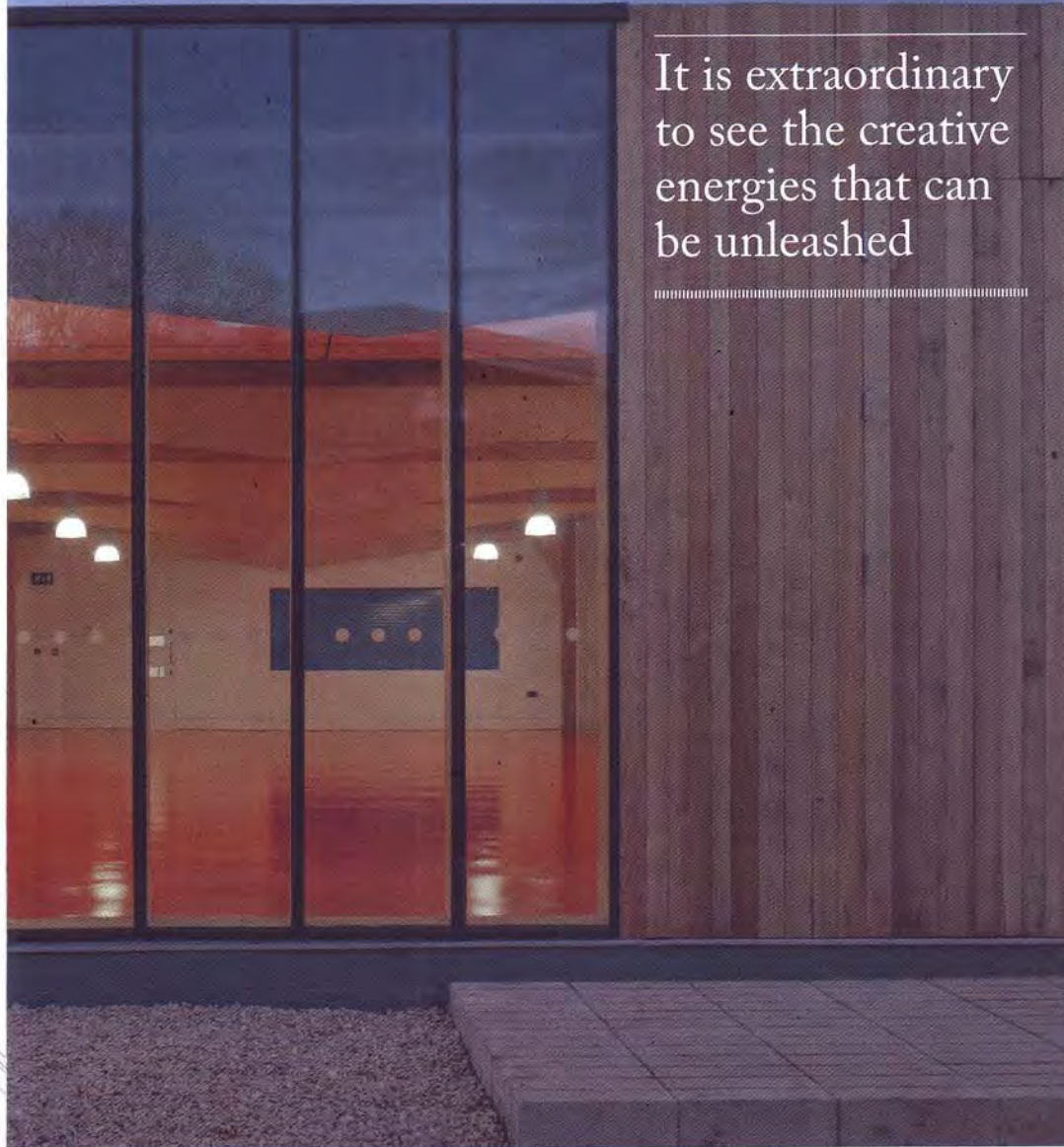


Site plan

- 1. Colerne Primary School
- 2. Dining hall
- 3. Play area



It is extraordinary to see the creative energies that can be unleashed



2007 for their Room 13 project for Hareclive Primary School in Bristol. Brentnall has been involved in many communal building projects including the Olivier Theatre at independent boarding school Bedales, and most recently an extraordinary reciprocal frame structure for a school in Uganda. Together they have worked for many years with the weekend summer school Studio in the Woods that Taylor co-founded five years ago.

Not all primary schools have such useful neighbours, but when they do, it is extraordinary to see the creative energies that can be unleashed. The first project, a bike shed, emerged from a design process organised by Mitchell

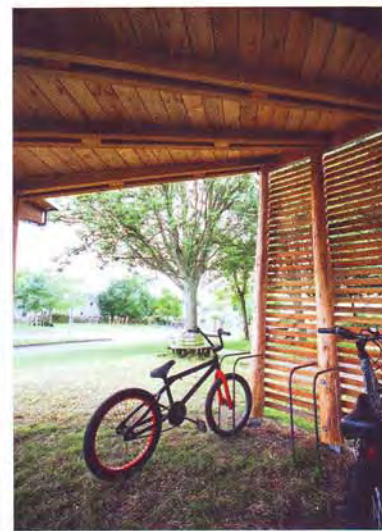
**Previous spread**  
Dining hall looking east with solid bowstring ceiling trusses  
**Clockwise from above** South-east elevation clad with Siberian larch; pupils were closely involved with the design process; bike store

Taylor Workshop. Key Stage 2 students (aged between seven and eleven) working in groups of six designed a shelter, made models and PowerPoint presentations and 'pitched' to the school for their idea to be chosen. They talked about sourcing materials, ecological issues and cost planning. The winning design was developed with professional input from Taylor and Brentnall and the building process (with some careful supervision) also involved the pupils. It is exactly the same process that Taylor and Brentnall are now using with graduate AA students at Hooke Park.

The bike shed project started out with a budget of £5,000, and, by

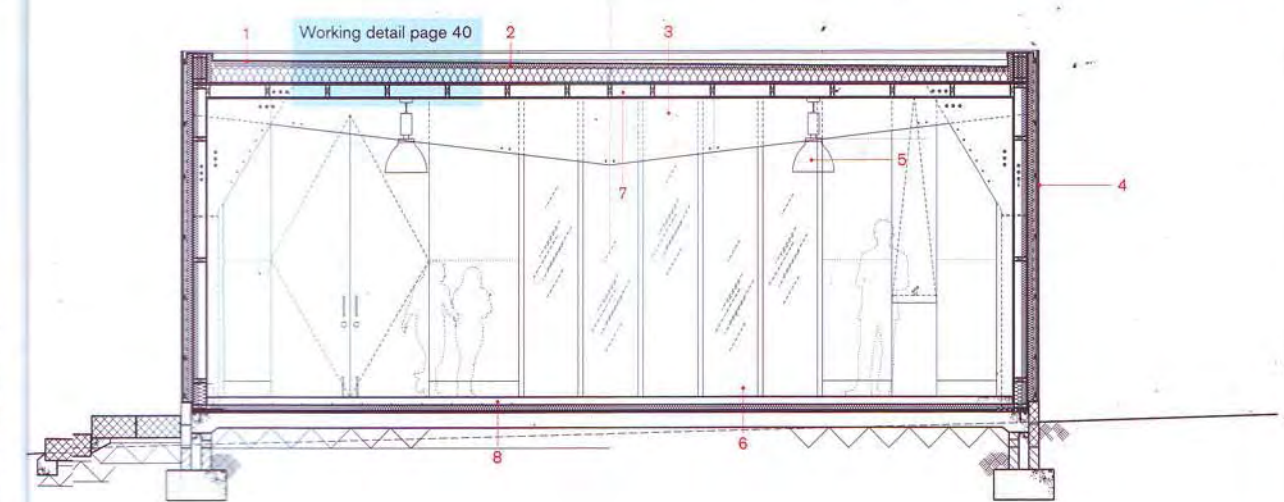
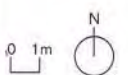
scrounging some free timber and free zinc for the roof, managed to come in just a little over budget.

The next project, a dining hall, was a bit more serious. The budget was creatively assembled from a number of sources by a headteacher who knew how to get the best out of the financial systems that were operating a couple of years ago. The incentive to build stemmed from the lack of kitchen and dining hall, which meant that everyone had to eat packed lunches. To quote Rob Parsons again, 'Every child should have the option of a hot midday meal'. So the development of a kitchen and dining room was an essential, but at the same time the school had been developing its own allotments and rearing its own chickens. Mitchell Taylor Workshop emerged through the necessary selection and tendering process and once again Brentnall came on board to help with a collaborative design process and talk about how to build in timber. This time there was more at stake. It was the children who had to understand what a £240,000 >>



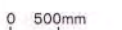
Ground-floor plan

1. Kitchen
2. Dining hall
3. Corridor
4. Chair store and kitchen store
5. Colerne Primary School building



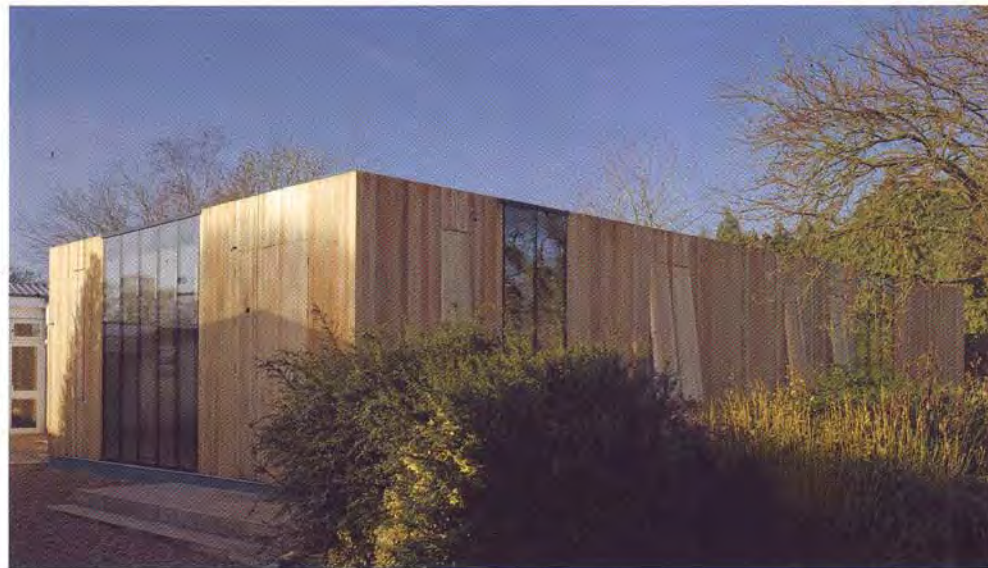
Section A-A

1. Single-ply roof
2. Tapered insulation
3. Fitch beam
4. External Siberian larch cladding
5. Holophane light fitting
6. Dining hall
7. Fair-faced ply soffit
8. Sand-cement wearing screed



overall budget meant. They had to understand the implications of £1,000 per square metre. They were involved in value-engineering meetings when their initial ideas proved too expensive. It was they who presented personally to the planning committee, who could not possibly refuse them. A smart way to get an uncompromisingly modern building through committee in an Area of Outstanding Natural Beauty.

This time, a new range of issues was up for consideration. The children learned about the efficiency of underfloor heating, about solar orientation and the dangers of overheating, about what 'superinsulation' actually means, and about constructing roof beams that started out as tied beams but ended up as elegant plywood flitches. Again they made models and helped in the 'barnraising' erection sequence. They learned that rooflights admit three times as much daylight as windows and are easier to control with electric motors. They learned that you don't need a window for ventilation – insulated flaps at the side of the building would do just as well and were better insulated (let's hope they don't warp). They also learned that you can control acoustics by leaving gaps between the lining boards on the walls and the floors so as to expose the insulation behind (let's hope there are enough gaps). And I am sure they will appreciate the resulting



**Above** View from east showing flush detailing of larch cladding and glazing **Top right** Cladding has flush top-hung ventilators with no visible coping **Bottom right** 100mm-wide Siberian larch boards have no horizontal joints

quality of light, ventilation and acoustics. They chose the bright red floor paint, which soaks up solar radiation, though it was Taylor who chose the duck-egg blue to paint the exterior blockwork and provide a richer background colour to the larch boarding of walls, doors and shutters.

Colerne Primary School has a new dining hall, and a new function space that the village can use, but more importantly many of its children have experienced the process of building and the value of design. Their headteacher quotes the extraordinary statistic that 80 per cent of the jobs that those children will eventually end up doing simply don't exist. So although vocational training is useful and academic training may help, the most important thing is that children learn to develop their own creativity and to exercise their imaginations and solve whatever problems life – or a substantial building project – may throw at them.

I am sure that the developments at Colerne school would be welcomed by the theorists of the coalition government. Here are parents working creatively to develop school buildings (Localism at work in the Big Society). Here is a radical approach to curriculum delivery. But look at what

really makes it work. First, a dedicated architect to get the best value out of a minimal budget (a role of the profession that Michael Gove doesn't seem to recognise). Second, a headteacher who believes in a radically creative curriculum, unencumbered by the requirement to teach the chronology of kings and queens. Finally, these projects would not exist without the finance provided by the previous government that made it possible for the ambitions to be raised. Sadly that no longer exists, so the school is looking elsewhere for its next project. They may look at changing the school's energy supply systems and see what the feed-in-tariff would generate. And the children have already made links with a village in Nepal which may be the location of their next building project: small amounts of money can go even further over there.

In the meantime, let's hope that the government realises that small amounts of money can go a long way with the support of dedicated local architects. But most of all, it is necessary to harness the creativity of the children themselves. Listen to the voices, Michael Gove. ■

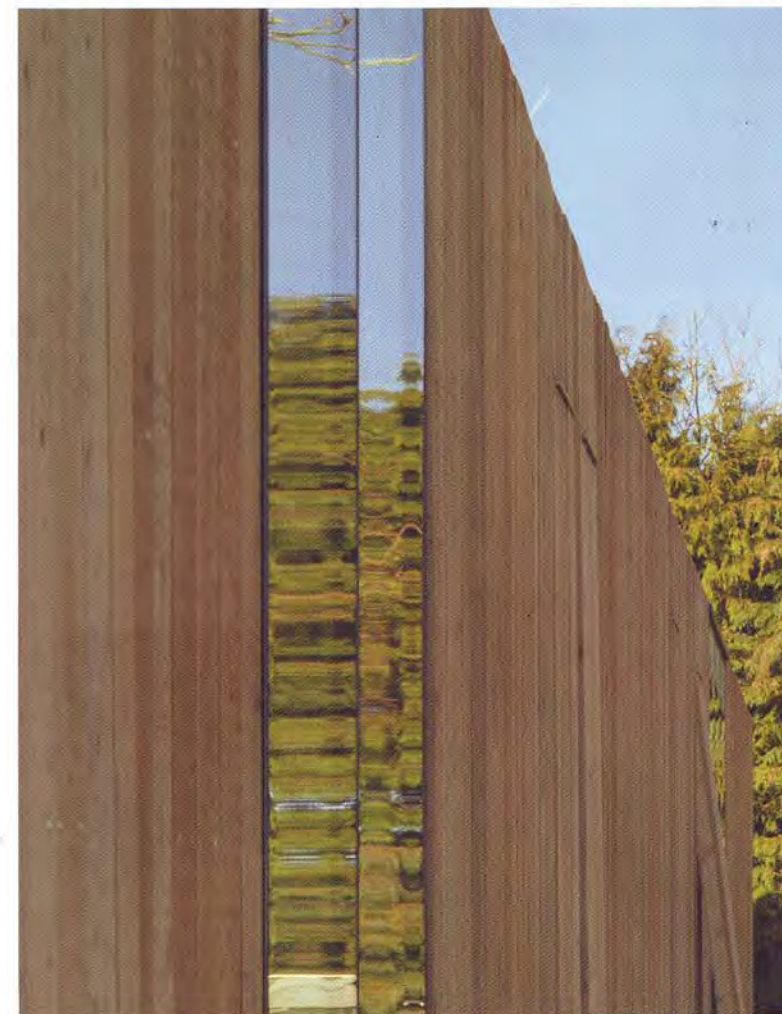
*Peter Clegg is a senior partner of Feilden Clegg Bradley Studios*

Credits

**Start on site** August 2010  
**Contract duration** 20 weeks  
**Completion** December 2010  
**Gross internal floor area** 174m<sup>2</sup>

**Form of contract** JCT traditional  
**Total cost** £198,740  
**Cost per m<sup>2</sup>** £1,100  
**Client** Colerne Primary School  
**Architect** Mitchell Taylor Workshop  
**Structural engineer** Mann Williams  
**Main contractor** Melhuish and Saunders  
**Sub-contractor** Charley Brentnall  
**Electrical engineer** Building Services Consultants  
**M&E consultant** Gareth Ridings  
**CDM co-ordinator** Rob Mitchell  
**Approved building inspector** David Warren  
**Estimated CO<sub>2</sub> emissions** 25kg/m/yr  
**Average overall U-values** 0.1W/m<sup>2</sup>/K

**£198,740**



Specification notes

**Below-ground dense concrete blocks**  
Tarmac

**Above DPC dense concrete blocks to link building**  
Tarmac Topcrete, paint quality

**Dense solid concrete coloured facing blocks**  
Lignacite Premier Facing Masonry

**Lightweight concrete blocks**  
Tarmac Hemelite

**Weep holes**  
Cavity Trays Beak Weep

**Partial-fill cavity insulation**  
Celotex

**Cavity ties to partial fill insulation walls**  
Ancon Building Products Staifix RT2

**Wall starters/connectors**  
Ancon Building Products 36/8 wall extension system

**DPC**  
RIW Sheetseal 9000

**Siberian larch cladding boarding**  
Russwood Sila A/B Grade  
19 x 100mm full-length vertical boards with no horizontal jointing

**Breather membrane**  
A. Proctor Group, Frameshield 100

**Self-adhesive bitumen damp proofing / tanking to timber frame details**  
RIW Sheetseal 226

**Preformed collars for pipes, ducts and cables**  
Visqueen Building Products Top Hat units

**Waterproof roof membrane**  
Sika Sarnafil S327-EL

**Rigid urethane foam warm deck roof tapered insulation**  
Kingspan Insulation Thermapaper TT46 LPC/ FM

**Dry lining on timber**  
Lafarge Plasterboard Drywall Timber Stud Partition ETP 001  
12.5mm GTEC E board

**Ceiling lining on timber**  
Lafarge Plasterboard, RIR 04 system  
12.5mm GTEC board

**Skim plaster finish**  
Lafarge Plasterboard, Supreme

**Rooflights**  
Pyramid House Thermalight powder-coated aluminium-hinged glass rooflights

**Frameless glazed screen system**  
Glazing Innovations. Timber substrate framing, aluminium strip covers to accept glass bonding. Double-glazed toughened laminated units bonded to frame and aluminium strips, mastic joints

**Door seals**  
Lorient Polyproducts 1515  
Batwing Integrity Extruded Elastomeric Seal

**Fire door meeting stiles and fire seals**  
Lorient Polyproducts

**Roller shutters**  
HAG Shutters and Grilles, Alishield Type F3

**Sealant to fire resisting smoke control doors / doorsets**  
Adshead Ratcliffe & Co, Arbokol 1000

**Insulating glass rooflights**  
Pilkington K glass-laminated inner pane, Suncool toughened inner

**Bonded cement-sand wearing screeds**  
CEMEX UK Operations  
Readyscreed SBR

**Vinyl sheeting to WC and existing lobby**  
Polyflor Polysafe Standard Safety Floor

**Emulsion paint to internal plastered walls and existing blockwork**  
Dulux Trade Diamond Matt and Satinwood

**Floor coating to wearing screeds**  
Dulux Trade Diamond Glaze

**WCs, cisterns and wash basins**  
Armitage Shanks

**Insulation between and over stud frame**  
Kingspan Insulation Thermawall TW55

**Below screed**  
Kingspan Insulation, 25mm insulation batt, 50mm underfloor heating insulation over

**Perimeter insulation**  
Kingspan Insulation batts

**Mineral wool acoustic insulation**  
Rock wool

**Precast concrete edging to new gravel areas**  
Marshalls EF Flat Top Edgings



## Dining room, Colerne

Mitchell Taylor Workshop

Frame construction

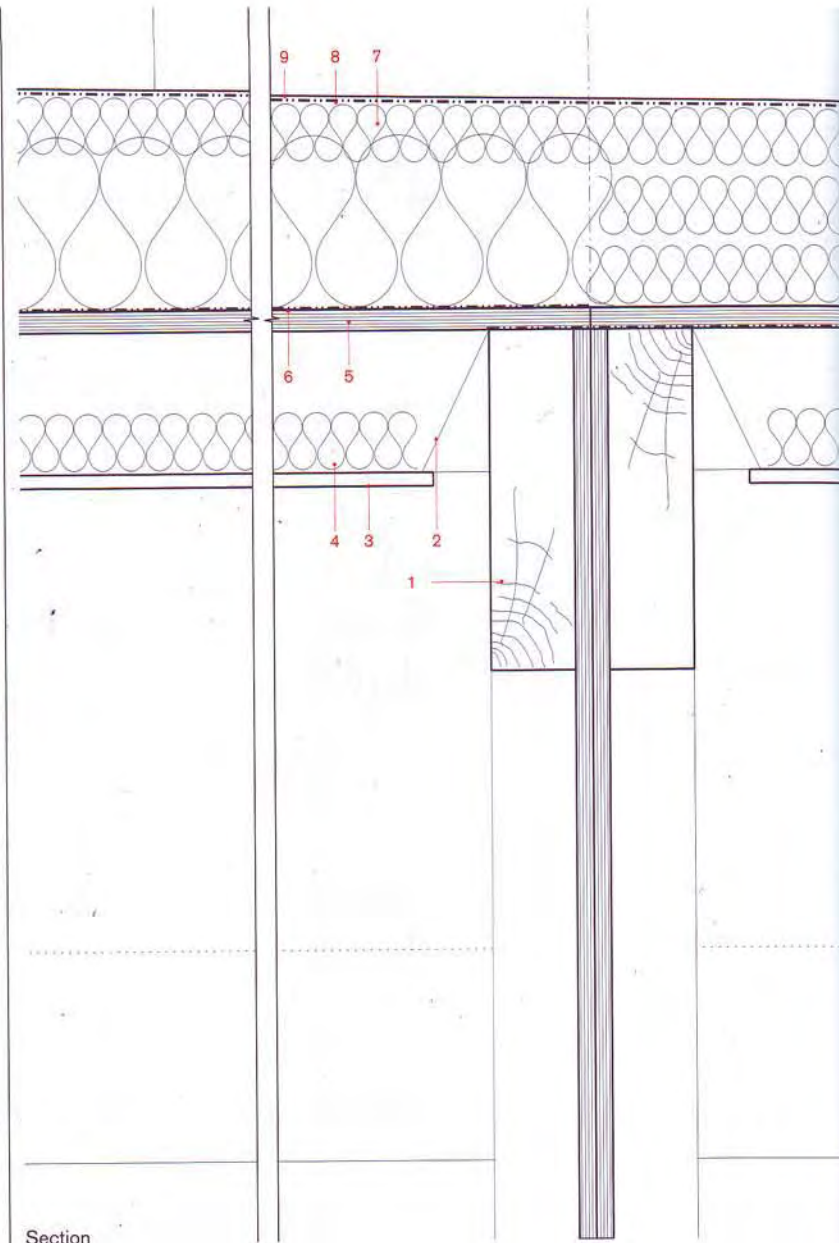
1. Structural frame with fitch beams
2. 125mm joists between trusses
3. K13-110a 12mm fair-faced ply soffit and class 0 spread of flame clear coating
4. P10-240a 50mm acoustic mineral wool bats
5. WBP ply sarking over trusses and joists – screw fixed
6. VCL polythene lapped and taped and dressed over joint with continuous external stud sheathing
7. Flat roof insulation tapered to falls effective thickness 110mm
8. Breather membrane continuous lapped and taped over insulation and perimeters
9. Single-ply polymeric roof covering continuous lapped over parapet and up face of all roof penetrations
10. Fitch plate
11. Nom. 50mm set back

The project was driven by the need to find a low-cost timber structural system to span nine metres. I was introduced to the project by timber framer Charley Brentnall. We wanted to do a low-cost didactic timber-framed building, and our early sketches were too complicated and expensive, forcing a very simple and economical scheme that didn't try too hard.

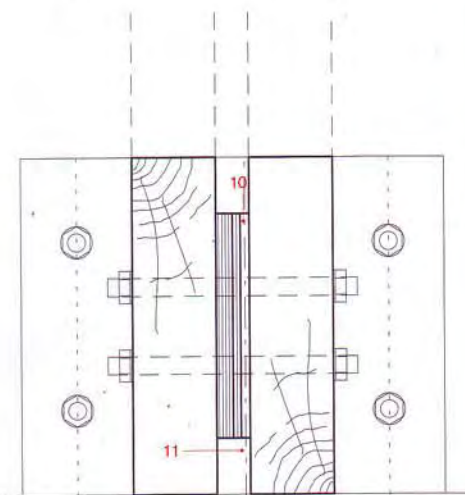
The section is based around a plywood fitch/Douglas fir truss that we developed into a solid bow string truss, portalised with stiffeners at the corners. It's cheap and simple and also avoids the upwards thrust of more conventional bow string trusses. The Douglas fir was grown and milled locally, and the trusses built in Charley's workshop two miles from the school. The plywood is laminated in overlapping sheets and glued and bolted together with countersunk hex-headed bolts.

I became fetishistic about the language of the carpenter's temporary constructional gear – the jigs, wedges, props etc and, as ever, came away wondering if more of that theatre of construction should have been retained in the finished building.

*Piers Taylor, founding partner,  
Mitchell Taylor Workshop*



Section



Plan

0 50mm