

Design in the raw

Clad in cedar, corrugated metal and polycarbonate, a new shelter for project work at the Architectural Association's Hooke Park campus, designed by the school's own students, is anything but primitive, writes *Ruth Slavid*

Architectural Association students at the association's Hooke Park campus can now carry out trial erection of projects in relatively sheltered conditions, thanks to the completion of the Big Shed, the latest addition to its collection of innovative timber buildings.

Designed as the first output from the university's new masters programme in 'Design and Make', this new building not only facilitates the programme but acts as a demonstration of its worth.

The AA has owned Hooke Park, a patch of mixed woodland in Dorset, since 2001, when it took it over from furniture-maker John Makepeace's School for Woodland Industries. Under Makepeace's ownership, the site had acquired three masterplans and also three ground-breaking buildings, all using round wood timber thinnings, which at the time were prevalent on the site. Two of the buildings were designed by ABK with Frei Otto, a three-humped workshop building and a residential prototype, which

Left The Big Shed provides a point of arrival at the site that was previously missing
Right Site plan

now serves as a refectory. Later, Edward Cullinan Architects designed Westminster Hall, a turf-roofed structure set among trees with sleeping space for 16 – ideal for a visiting AA unit of 12 students plus tutor.

These short visits, making use of the workshop and the outdoor space, were the main activities in the years after the AA took over the site. While there is still usually a visiting unit in term time, the AA felt that this was not enough. Andrew Freear, who now runs the Rural Studio in the southern

United States, spent a year leading a studio at Hooke Park and, with Elena Bartel, produced a steering plan for the place. When the AA collaborated with timber products supplier Finforest to design and make a series of summer pavilions to sit in London's Bedford Square, the majority of the work was done at Hooke Park, under the direction of Martin Self, formerly an engineer with Arup. Self was then appointed to run Hooke Park and also as director of the Design and Make master's programme. This >>



Left and below left
A space frame wouldn't have been the right form for the faceted surfaces
Right Large windows are made of polycarbonate rather than glass to reduce costs

Legend

1. Fitch plate with variable-pitch Meco screws
2. Truss with round wood members
3. Indicative line wof RWP



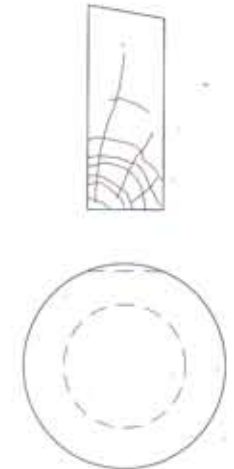
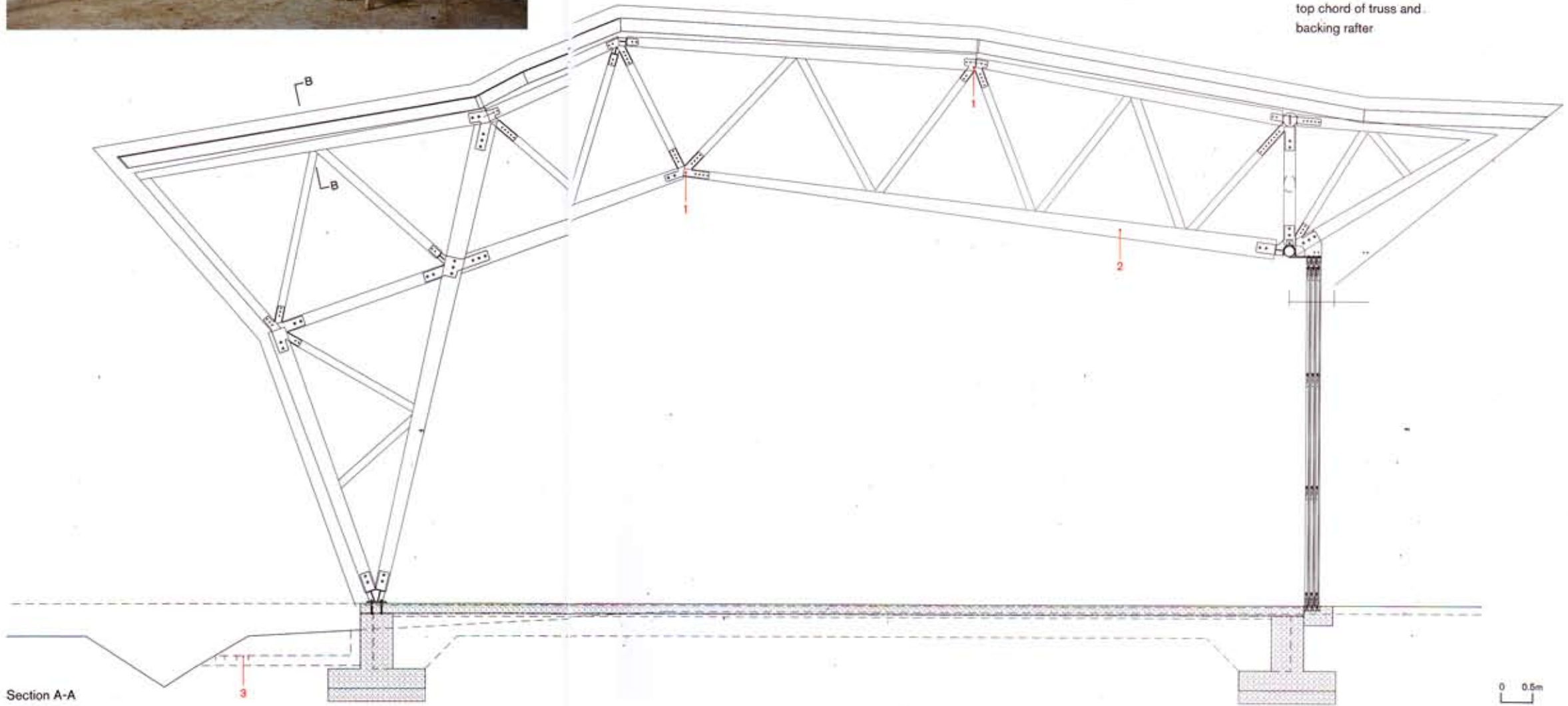
programme, intended for post-Part 2 students, runs for 16 months. It took in its first cohort – in fact only one student, Nozomi Nakabayashi from Tokyo – in September 2010. Eight students enrolled for the course that started in September 2011.

It was Nakabayashi, working with diploma students, who developed the design for the Big Shed. Like the previous buildings on the site, this uses round wood, although for different reasons. The thinnings, which were abundant in the 1980s and 1990s as woodland replanted after World War II, had matured and were no longer present. And the ambitions of those earlier projects – to find a wider, high-value use for such material – had not been realised in its wider adoption.

The early projects were built in pine, but the new building uses larch, of which there is now a glut. The species is seen as a carrier of Sudden Oak Death disease, and so stands are being felled. Some of the larch comes from Hooke Park itself and the rest from Longleat. Round wood has been used because of its superior mechanical properties and also because of the small amount of processing that it requires – students simply stripped >>



AJBuildingsLibrary.co.uk
Search 'Hooke' for more drawings and data



Section B-B – through top chord of truss and backing rafter

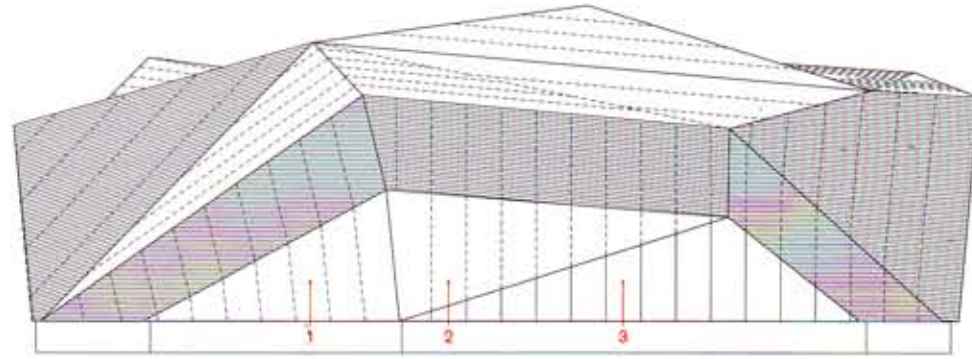


off the bark to prepare it. Similarly, the timber was used green, at least in part because there is no kiln at Hooke Park.

The building has a faceted form and contrasts with the rather hippy-ish aesthetic of its predecessors. The form was determined by the specific nature of the site. 'We developed a spatial understanding of the site through living here,' says Nakabayashi. 'A large window to the north would help create a sense of arrival [unfortunately cost constraints led to all glazing being replaced by polycarbonate], while a window to the west would engage occupants with the woods.'

Cantilevering above the window creates a sheltered external enclave for smokers or those who simply want to enjoy the view. The large opening to the east is also protected to provide respite from prevailing winds.

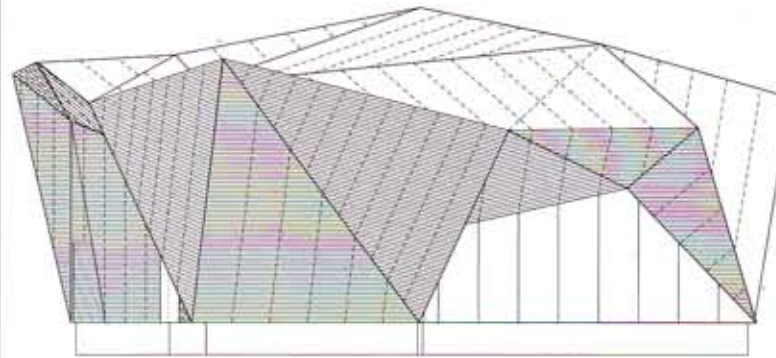
The new building was needed because the existing workshop, though marvelously equipped, was designed for furniture-making, and so there are no openings large enough to permit sub-assemblies to be taken in and out. Unlike the original workshop, which is a fully enclosed and functioning building, the Big Shed is merely a shelter, with no services and no insulation. Its openings are permanently open and its cladding, with western red cedar and corrugated metal, is not intended to be entirely waterproof. The building is, however, anything but primitive. Initially, the idea was to have a space frame but, as the students worked with structural engineer Atelier One, it evolved into



West elevation

Legend

1. Barsmark S-Fiber grey translucent glass fibre panel
2. Double wall polycarbonate panels spanning between each pair of joists
3. Barsmark PP-1700 composite panels

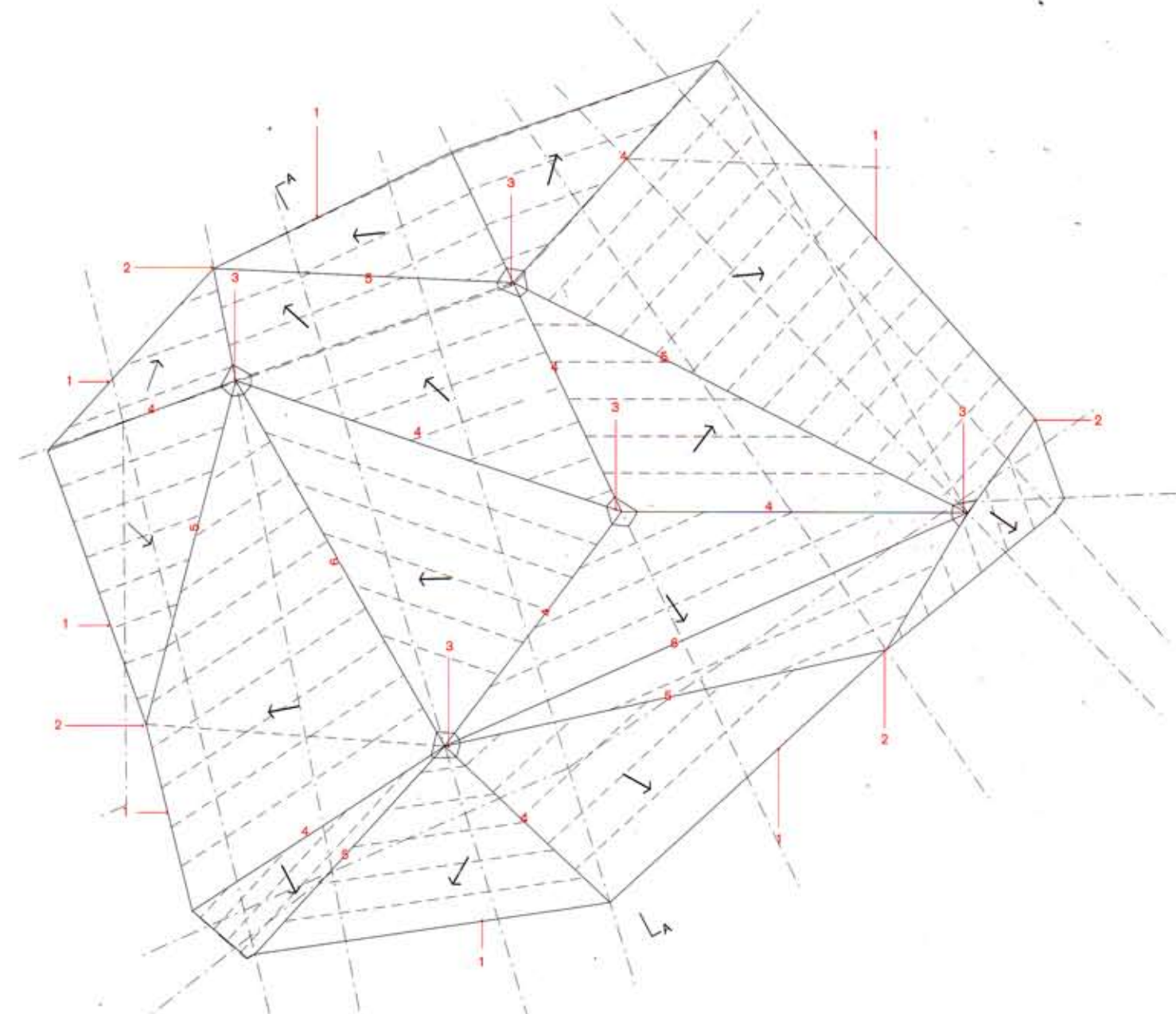


North elevation



Top left The construction team worked under AA tutor Charley Brentnall

Right The envelope has western red cedar cladding and is not required to be watertight



Roof plan

1. Gutter
2. RWP
3. Bespoke capping apron
4. Ridge
5. Valley
6. Cranked flashing



a series of trusses. Although initially the lack of regularity and repetition in the space frame was what Nakabayashi was after, the trusses, she says, actually made it much better: 'My hunch was that, with the faceted surface, the space frame wasn't the right solution.' A language evolved in which the trusses were all of round wood, but the braces between them were in sawn timber.

One of the aims of the project was to use as little steel as possible. Although flitch plates were used on the most complex junctions, elsewhere

the joints were made in an innovative manner, using Heco screws. 'That was a step forward,' says Self. 'I don't think there is anything else built on that kind of scale with that type of fixing.'

Heco screws have a variable pitch, which pulls the wood together, so there should not be a need to use a jig while screwing them. The team at Hooke was aware that the screws should not be positioned radially to the logs, to avoid them being within any of the cracks that would, inevitably, open up as the timber dried out and shrank.

But the construction team, working under tutor Charley Brentnall (a former founder of Carpenter Oak & Woodland) found another problem. Removing some screws to check whether the tannin in the larch had attacked them (it hadn't) they found that screws had crashed into each other and stripped the threads. In order to get round this problem, it was necessary to set up a series of jigs, and place the screws very precisely. 'In the end, it would have been quicker to do it all with steel flitches,' >>



The initial idea for a space frame evolved into a series of round wood trusses

says Piers Taylor, who is the unit master for the course. But he has no regrets. This is a piece of course work, after all, and so making mistakes is all part of the learning experience.

But the building is also far more than an object lesson. It provides a point of arrival at the site that was previously missing, and it will also facilitate future projects by providing much-needed shelter.

Already, the next cohort of students is testing out ideas there, this time for a caretaker's cottage. A series of projects is planned over the next few years, on a smaller scale than the Big Shed, so that students should need less outside help in terms of calculation and construction. The woods at Hooke Park provide a unique resource and environment in which students can work with the only material that lends itself to this kind of experimentation and hands-on construction.

Nakabayashi, who came to the UK from Japan expressly to follow this course, believes it is the only one of its kind in the country. It is certainly pretty special. ■

Project data



START ON SITE

2011

COMPLETION

2012

GROSS INTERNAL AREA

500m²

CLIENT

Architectural Association

ARCHITECT

Architectural Association students

STRUCTURAL ENGINEER

Atelier One