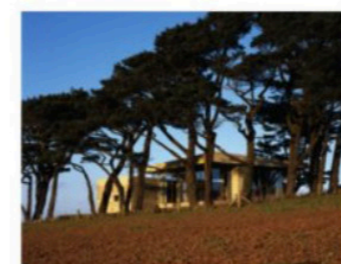




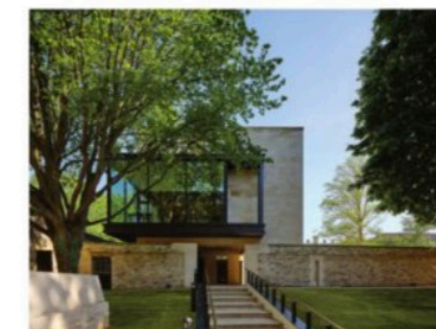
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On the cover
Wright & Wright's library and study centre at St John's College, Oxford. Photograph by Hufton + Crow

10.10.2019
Leisure and retail



Building study

Body building

One of the world's largest single panes of glass features in Invisible Studio's gym pavilion at Hadspen House in Somerset



room in a reductive garden is a gym for a hotel at Hadspen House in Somerset, set in a mature vegetable garden. It incorporates one of the largest glass panels in the world, and features crushed local stone in the rammed external walls.

Words Ellie Duffy
Photography Jim Stephenson

'I like to think of it as a no-building – almost not a building but a structure subsumed into a walled garden context,' says Piers Taylor of Invisible Studio's gym pavilion at Hadspen House in Somerset – an estate recently reconfigured as an upmarket hotel. The simple 150m² pavilion is the first of two projects by the practice for Hadspen's new owners. It occupies a back-of-house corner of the estate, away from the razzmatazz of its reworked parabola gardens and new 'cyder' experience, surrounded by a cluster of courtyards and outhouses that retain faint echoes of the farmyard.

A long-term seat of the Hobhouse family, Hadspen was purchased in 2014 by digital media billionaire Koos Bekker and Karen Roos, former editor of *Elle Decoration South Africa*. The couple were also behind a garden-themed hotel in the Cape Winelands.

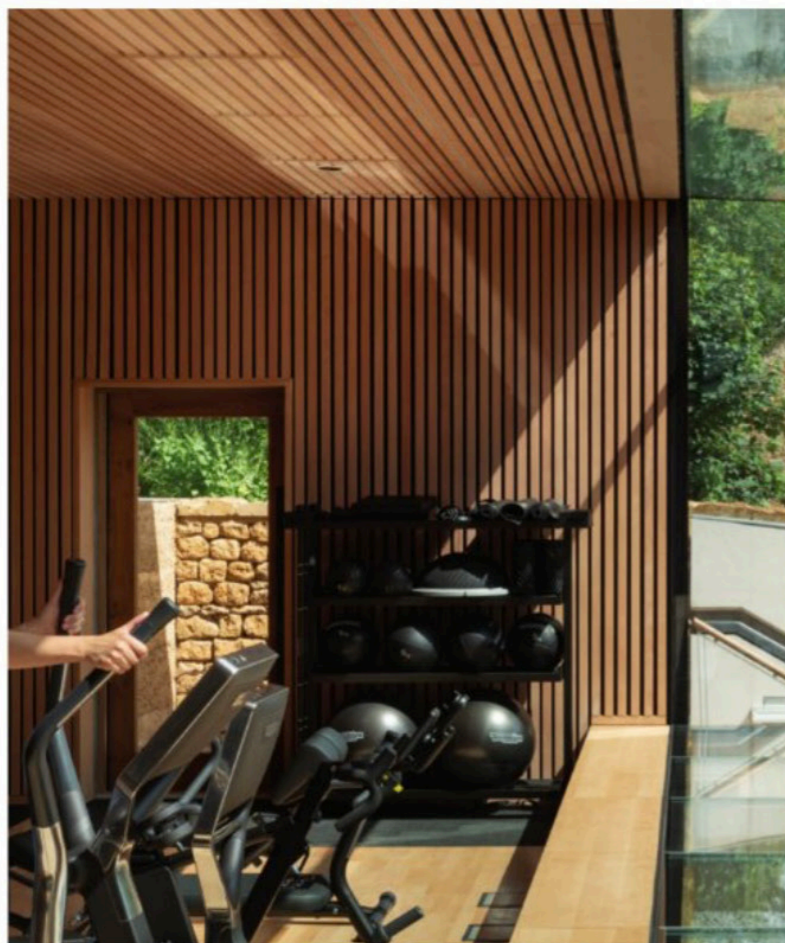
The estate is best known for its gardens, first opened to visitors by gardener designer and writer Penelope Hobhouse in 1970 and subsequently redeveloped by horticulturalist tenants Nori and Sandra Pope, who over a couple of decades created an equally celebrated colour-themed garden. In 2005, custodianship of the gardens reverted to Niall Hobhouse, who razed the Popes' garden while running a design competition based on a masterplan by Foreign Office Architects.

Now known as 'The Newt in Somerset' (a waggish reference to the protected population that held up redevelopment), the gardens and house have been remodelled by French architect Patrice Taravella, with a roster of UK practices designing additional buildings to support the new hotel and significantly upscaled visitor attractions.

The gym building functions as part of a strategy to encourage hotel guests out into the gardens to explore the thread of the wider estate, which still includes remnants of Niall Hobhouse's architectural legacy. The 2010 belvedere by David Grandorge and students from the London Met, for example, is quietly weathering away in the wooded backdrop. Hadspen's fine folly tradition will be taken forward to some degree in the form of an apiary and wildlife interpretation centre – also designed by Invisible Studio and currently on site in adjacent woodland. From

The building crouches low in the earth, hunched up against existing dry stone walling with the apricot hue of the local Cary stone





a curatorial point of view, Taylor observes, Bekker wanted to create a family of buildings that spoke to one another and he also had a strong interest in glass technology. 'I think he saw Niall, when he was the owner, as an architectural magpie in his building commissions,' he says, 'whereas he wants to develop a more consistent language across the estate.'

An initial proposal for a lightweight building further up the wooded bank was shelved after pre-planning discussions with arboriculturists and ecologists. Instead the building crouches low in the Somerset earth, hunched up against an existing line of dry stone walling with the distinctive apricot hue of the local Cary stone.

The pavilion provides guests at the high-end hotel (low-season 'Garden View' rooms start at £425) with a crisply detailed wood-lined interior furnished with state-of-the-art gym equipment and a panoramic view. The brown roofed volume is heated and cooled via air source heat pump, with the south-facing interior protected from glare and heat build-up by internal blinds.

In sublime incongruity, the gym machines overlook the faceted planes of Penelope

Hobhouse's utilitarian greenhouse and her modest vegetable patch, now worked by a team of estate gardeners to almost surreal perfection. One-percenter guests heading for a hit on the gym's static machines are required to navigate the reality of the plot's slow and labour-intensive growth cycles.

'It's a building defined by the size of a glass pane – one of the biggest in the world – the longest we could do here certainly,' says Taylor. The proportions of the sharply-cornered glass bay, a leitmotif reminiscent of projects from Mitchell Taylor Workshop days, were determined by the uppermost limits of technology and transport logistics: the maximum output of the manufacturing kiln in Austria (3.3m wide); and the size of lorry bed that could navigate lanes in the vicinity (15m long). The installation sequence saw the main panel craned in after the side panes, to rest on a pair of steel fins projecting from the building's plinth, before the addition of the glass lid. The glass sill is made up of a series of bays.

Such is the current pace of acceleration in glass technology, says Taylor, that since the installation, a similar window for the practice's forthcoming apiary, to be perched

The proportions of the glass bay were determined by the uppermost limits of technology and transport logistics

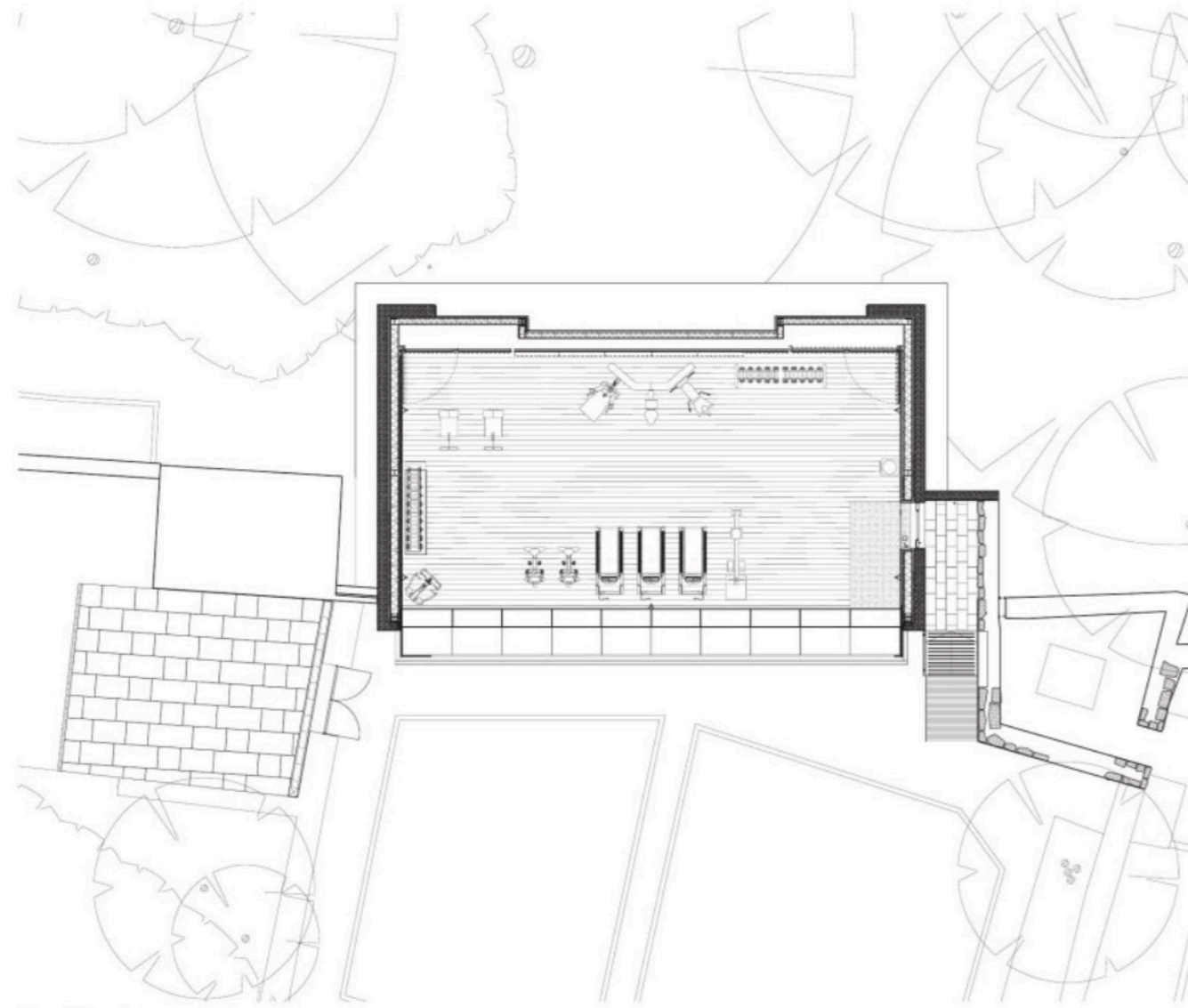
above a lake newly dug in the grounds, has been detailed quite differently, with clear glass junctions mitred at 45 degrees instead of the kohl-like black silicone emphasis that defines the gym's eye.

The unmistakably digital-era aperture is well juxtaposed against an earthy framing of rammed stonework that is inherently evocative of place – the stigmata of both process and materiality clearly evident in its strata and striations. Two seams of stone run through the estate and both were used in the project: Cary stone (a Middle Jurassic era Inferior Oolite) and blue lias (a harder Lower Jurassic stone). Project architect Tara Breen explains that an aggregate of the Cary stone – in effect a by-product of quarrying for larger blocks – was ground down for the rammed walling, with the final mix including around 6 per cent of added concrete. Being dry it required compacting by hand, one shallow lift at a time. The result is a highly smooth and tactile surface broken up with the indentations of rougher craters. A different seam at Hadspen Quarry provided the blue lias for the finely crafted external balustrade at the building's entrance. Set within a recessed channel in a poured concrete slab, it was formed by a stonemason working off the analogue reality of a template created from a duplicate set of shuttering.

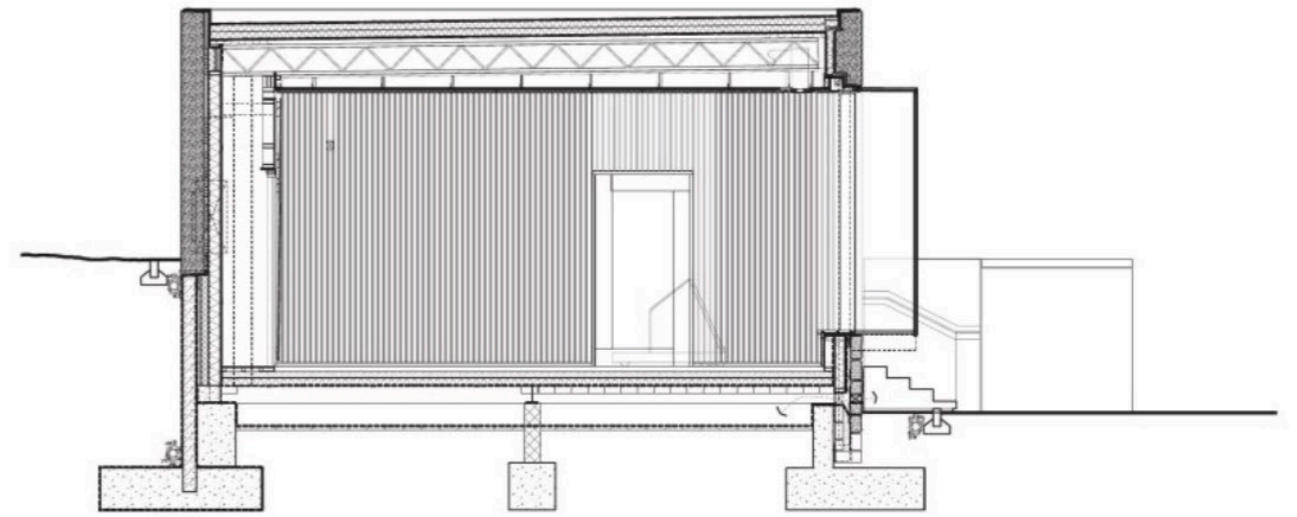
'We decided that doing a building with any kind of architectural language would fight with the context,' says Taylor. But while it's true that the pavilion is pared right down in terms of its formal composition, it is certainly a long way from mute. Instead the quiet yet emphatic articulation of materiality in the project sets in motion a chain reaction of juxtapositions that extend from the perceptual towards the conceptual – the rough with the smooth, the handmade with the factory-made, the analogue with the digital, and so forth.

In riffing off the rustic, this is a project that certainly contributes more than a gym's worth to the spirit of place. The sharp virtuoso window establishes a palpable sense of surface tension within a more or less fuzzy vernacular context of outhouses and courtyards. The taut ambiguity created by the presence of the supersized window in turns – depending on lighting conditions and time of day – either reflects and reframes horticulture or, in the manner of a stage set, illuminates the characters working out in a gym. A mirrored rear wall within the slatted-beech interior amplifies the ambiguity internally and externally, projecting at times an infinity that reverberates around this particular little corner of the estate. Social media will no doubt tell us over time whether it's the garden or the gym-goers that constitute the actual theatre.



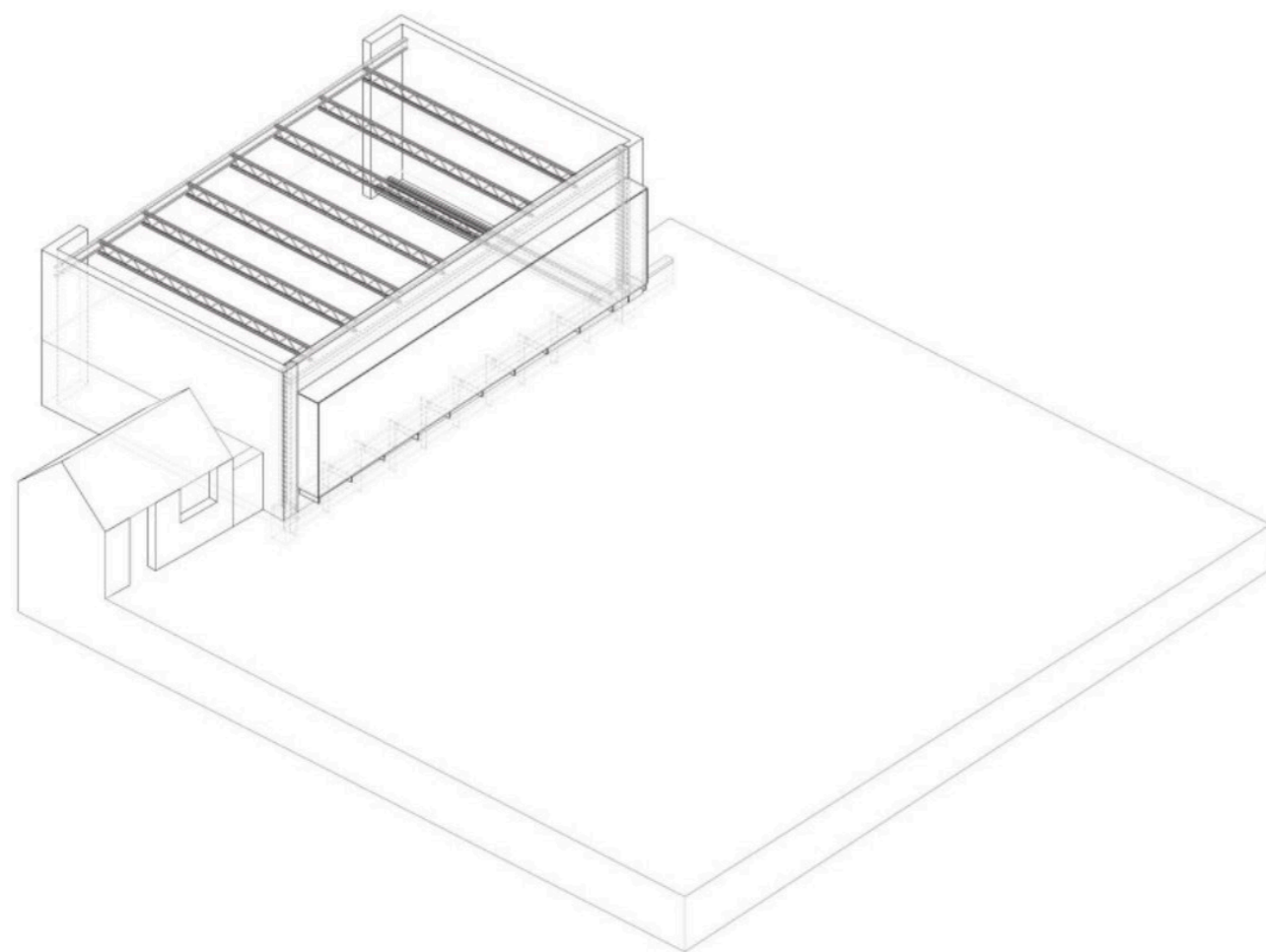


Ground floor plan



Section A-A





Architect's view

Room in a Productive Garden is a 150m² gymnasium for a hotel in the grounds of Hadspen House, Somerset. Critical for the planning process was convincing the local authority that any building could work in such close proximity to a series of listed buildings and structures. Far from being concerned with any formal architectural issues of simplification, the gym was conceived as 'no building' – more, a large bay window on to a mature productive garden with as few distractions from the garden as possible. The garden provides food for the hotel and is an important part of the sensory arrival experience into the gymnasium.

The gym window forms the entire north wall of the vegetable garden and, at 15m wide and 3.3m tall, is one of the largest glass panels in the world. It projects by 900mm, allowing visitors to linger and enjoy the garden. The window provides an antidote

to many windowless gyms, where flat TV screens dominate.

The building sits in the garden in the manner of an orangery or greenhouse, of which there are several traditional structures in the adjacent courtyards. Historically, these filled an entire wall of a contained garden.

Internally, the space is lined entirely in beech, with all services including lighting and ventilation concealed between the slats. The glass window forms a bay with glass sides, top and seat that frames a clear and immersive view of the garden.

Externally, the gym uses stone from the site, crushed and 'rammed' into the facing material, creating a contrast to the large expanse of glass and connecting the new building to the existing stone structures that surround it.

Piers Taylor, founder, and Tara Breen, project architect, Invisible Studio

Project data

Start on site October 2018

Completion May 2019

Gross internal floor area 150m²

Construction cost Undisclosed

Architect Invisible Studio

Client Emily Estates

Structural engineer Hydrock Consulting with Glass Light and Special Structures (GL&SS)

M&E consultant E3

Quantity surveyor Currie Brown

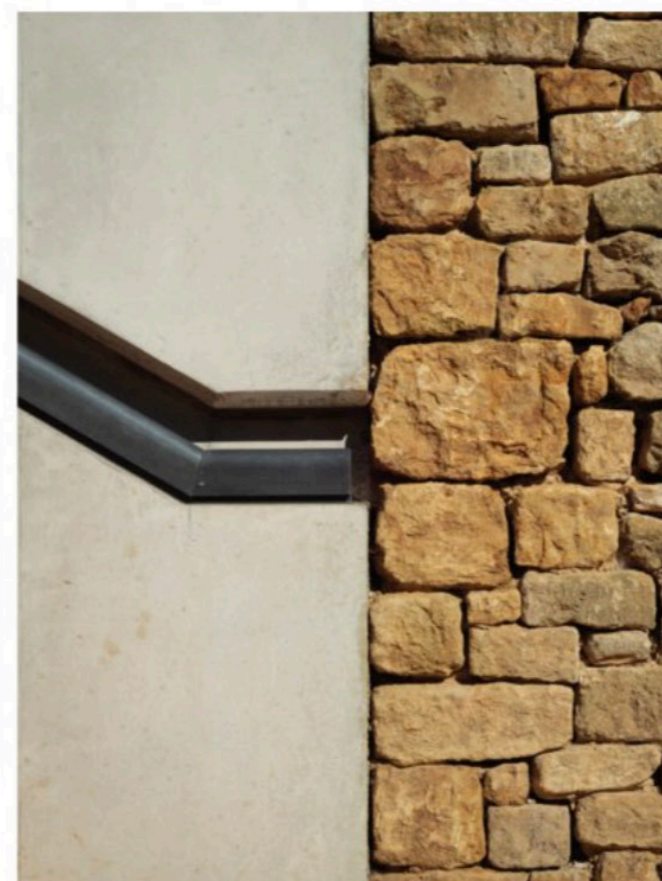
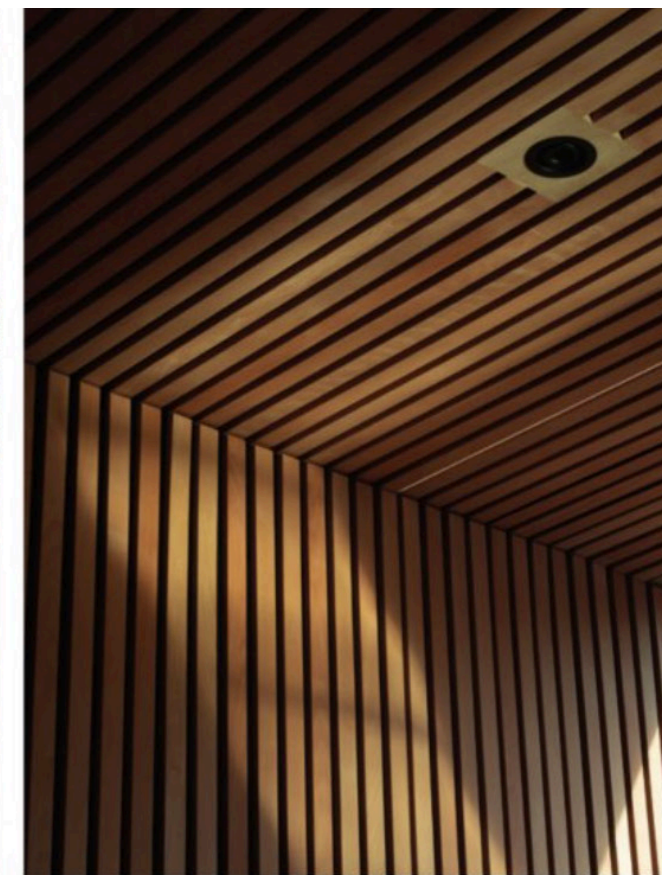
CDM co-ordinator Jim Corrigan

Approved building inspector Oculus

Main contractor Ken Biggs

CAD software used MicroStation

Annual CO₂ emissions (estimated) 19kg/m²





Working detail

The south-facing window to the new gymnasium building looks out on to a walled kitchen garden. To maximise the view, GL&SS was asked to explore a glazing solution that would minimise visual obstructions such as vertical mullions while providing the best possible environmental performance.

The opening was 3,970mm high by 15,000mm wide. This led us to propose five insulated glass units measuring 2,900mm wide x 3,970mm high, designed to span vertically without the need for mullions. As the deflection of the panels is limited to 22mm, to avoid damage to the edge seal, laminated glass panels 17.5mm thick internally and externally were proposed with an argon filled space of 16mm and high-performance coatings to fulfil the environmental requirements of the large south-facing window.

The client remained unhappy with the visual impact of the joints between the glass panels. After exploring the use of glazed edge spacers, which reduced the visual interference but didn't eliminate the joint, it was proposed we use one single large sheet of glass.

As the maximum width of glass available was 3.2m the height of the window was reduced to suit. We specified an insulated glass unit with high performance coatings measuring 3,188mm x 14,684mm with the same glass spec as the original five-panel solution. This was fabricated in Germany by SEDAK and delivered to site on a specially designed truck and lifted into position using a glass vacuum lifter. It cost approximately the same as five panels with glass spacers.

Timothy Macfarlane, GL&SS

Performance data

Percentage of floor area with daylight factor >2% 100%

Percentage of floor area with daylight factor >5% 100%

Heating and hot water load

2.12 kWh/m²/yr (estimate)

Total energy load

18.33 kWh/m²/yr (estimate)

Carbon emissions (all)

177.1 kgCO₂eq/m² (estimate)

Airtightness at 50pa

5 m³/hr/m² (measured)

Overall thermal bridging heat transfer coefficient (Y-value)

0.15 W/m²K (estimate)

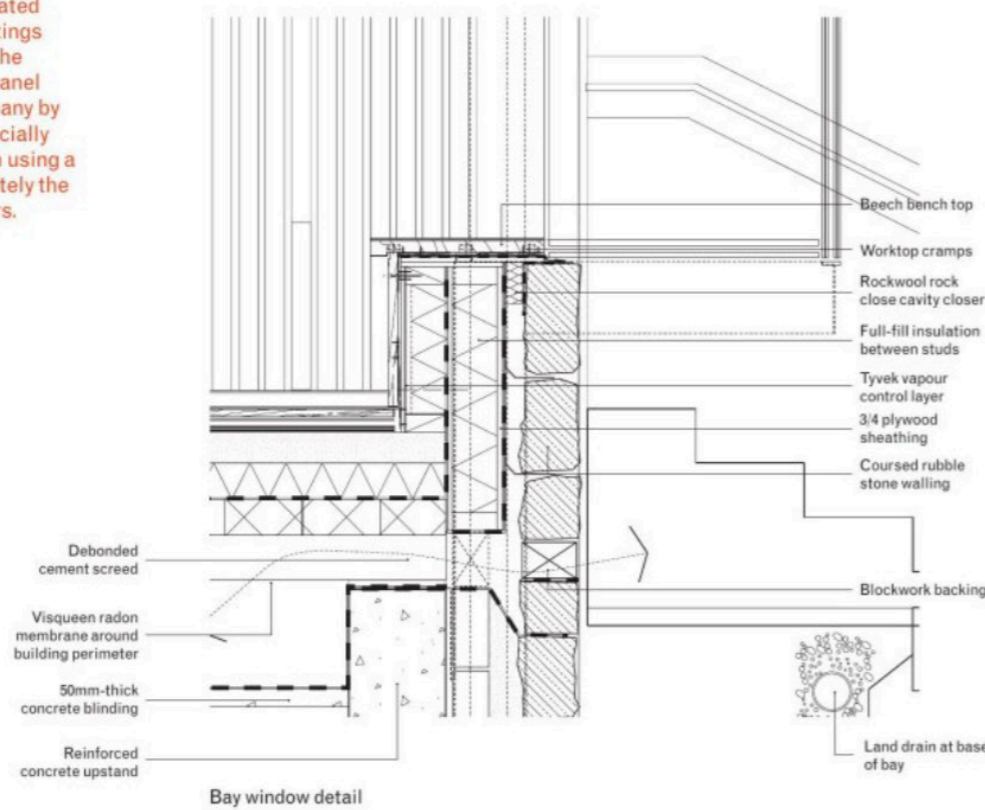
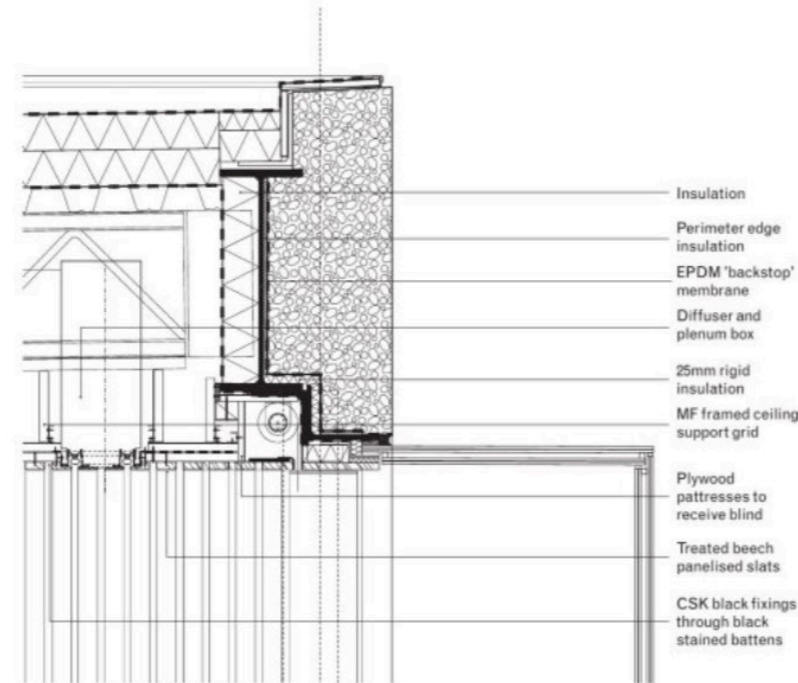
Overall area-weighted U-value

0.28 W/m²K (estimate)

Embodied/whole-life carbon

768 kgCO₂eq/m²

Design life 60 years



Bay window detail

0 100mm