

ORIGAMI LESSON

Capped by a delicately folded timber roof, this new school swimming pool reflects the rigour and resourcefulness of its client and architect

Swimming pool,
Alfriston School,
Beaconsfield,
England,
Duggan Morris
Architects

CRITICISM

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Located on the edge of Beaconsfield, a long-established market town to the west of London, Alfriston School caters for 125 girls contending with a range of special educational needs. It is blessed with a generous provision of land but its buildings are few and occupy a cramped corner near the entrance: a product of the fact that the rest of the site falls within the Metropolitan Green Belt. The main building dates from the turn of the last century. Its roughcast rendered walls and excitably profiled tiled roof testify to the historic influence of the Arts and Crafts Movement, but its appearance has also suffered from piecemeal addition and the effects of local authority underfunding.

Take the path that leads down to the games pitch on its far side, however, and you encounter a recent addition to the site that distinguishes itself from the tired and ramshackle state of its neighbours in no uncertain terms.

Designed by the London-based firm, Duggan Morris, this is Alfriston's new swimming pool. Appended to an existing gym hall, it replaces an open-air pool that previously occupied the site and which had long been condemned as unfit for purpose on health and safety grounds. The new floor plan could scarcely be more economical. The 16.5 metre pool is housed within the taller of two volumes. The other links it to the gym, accommodating the entrance, plant room and a suite of changing rooms shared between the two facilities.

However, the impact of the design is almost entirely a product of what is overhead: a timber-framed roof that traverses the pool on the basis of a geometry of cat's cradle complexity. This structure maintains a strong sense of formal and tectonic autonomy from the rest of the fabric. While all of the roof's outside faces are finished in a rain-screen

of open jointed timber boards, the gym, entrance block and the concrete box that accommodates the pool have been given a common and contrasting treatment of sober dark grey render. The pool box forms a level podium that gathers height as the ground beside it falls. The roof is mounted on top by means of one-metre-high steel stub columns, that allow a continuous cordon sanitaire of glazing to be scrupulously maintained in between.

On the building's principal elevation, the roof presents itself as a run of three identical gables, an arrangement that relates to the form language of the main school building and which echoes the adjacent high gable of the gym. However, the familiarity of the composition has been undercut by two simple but highly impactful geometric manipulations. The first relates to the line that the base of the roof – and the glazing that extends beneath it – follows in plan. Rather than running parallel to the edge of the pool, they track a gentle zigzag course, drawing in at the middle of each gable and out at each edge. The sculptural implications are amplified by the fact that the corresponding verge at the top of the roof does not follow suit. In consequence, the gables do not run vertical but are rather fractured into triangular planes that pull outwards as they rise.

The other transformation is a product of the fact that the verge at the back of the building follows a line in elevation that is the inverse of that on the front. Here, therefore, two gables occupy the middle of the facade, bookended by two rising half-gables at the sides. The ridge beams remain level but zigzag in plan to accommodate the divergent geometries. The valley beams do the opposite: laid orthogonal in plan they alternately rise and fall as they march down the length of the pool.



site plan



1. (Previous spread) the new pool appears as a sharply chiselled origami-like form in the pastoral landscape
2, 3. The crisp folds of the timber roof seem to hover over the grey box containing the pool

Swimming pool, Alfriston School, Beaconsfield, England, Duggan Morris Architects



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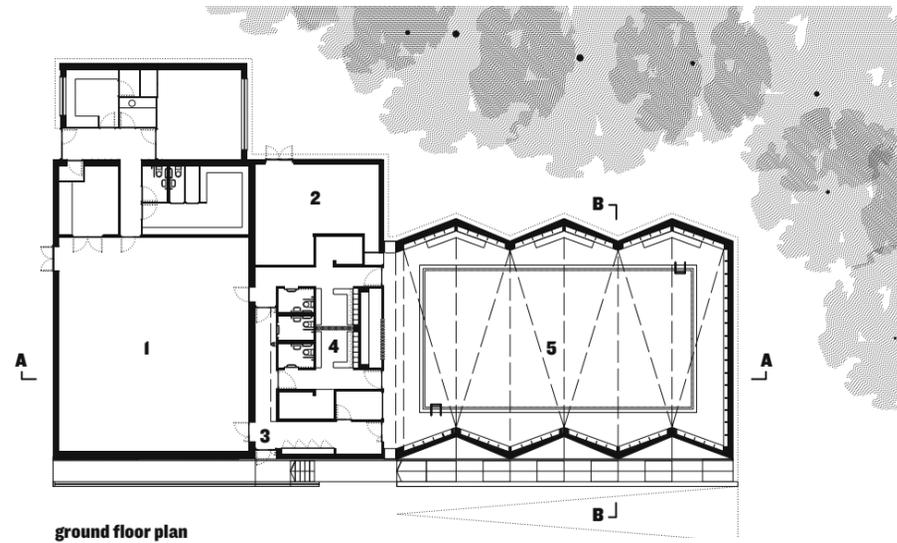
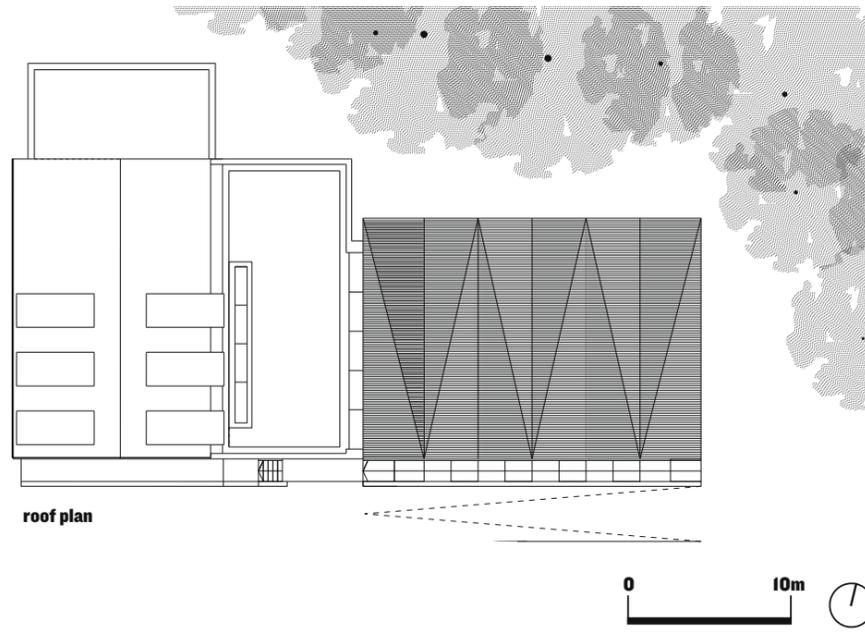
Thanks to its elevated position at the edge of the school’s playing fields, the resultant origami-like form enjoys considerable prominence. It commands its situation with quiet intensity, much like a gymnast bent on making a complicated procedure look like the easiest thing in the world. The graceful, synchronised motions of swimming provided one inspiration for the building’s morphology and that association presents itself more powerfully still inside.

Here, the full complexity of the building’s tautly folded form can be taken in at a glance. The prefabricated timber structure has been left entirely exposed – a feat that demanded the use of CNC technology and concealed steel plate connections to satisfactorily resolve the intersection of the glue laminated beams. Along with the secondary structure of whitewood timber joists they form a precise network of lines extending across the space and reflected in the water below. Beams, joists and the cross laminated timber panels that they support are all finished in a white external-grade stain, providing a chromatically neutral surface that is animated by light bouncing off the pool. The colours of the encompassing trees seen through the low-level window offer a particularly vivid contrast to what is essentially a black and white interior.

Great pains have been taken to ensure that no unwanted fixture diminishes the pristine effect. Pressurised air is introduced via a finger-width gap running around the edge of the glazing while pendant lamps hang below the roof on discreet cables

4. (Opposite) the pool structure is embedded in the site and a narrow zone of glazing admits natural light. The school caters for girls with a range of special educational needs
5. (Overleaf) the ingenious folded form of the roof is elegantly articulated in the interior

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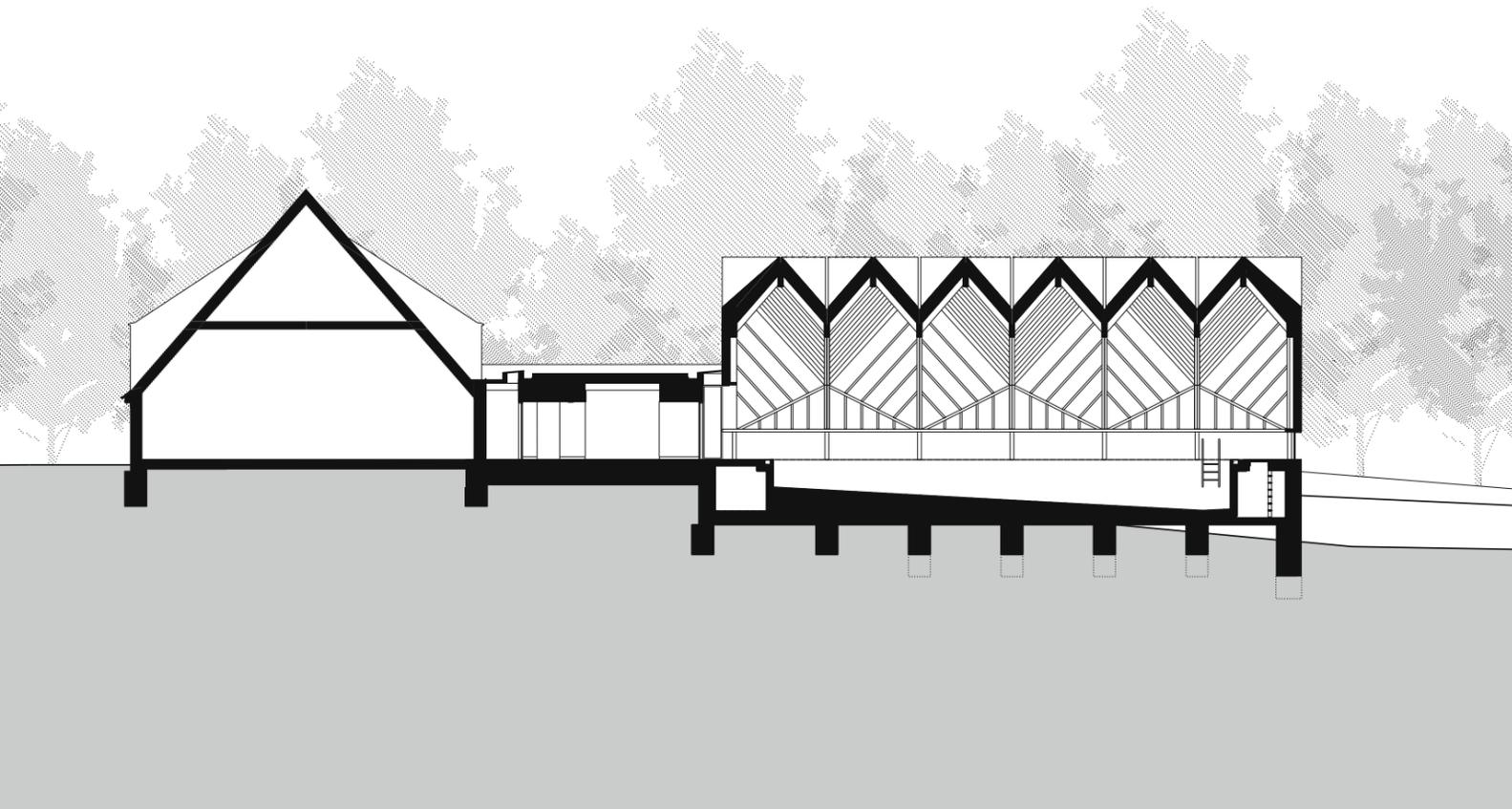


- 1 existing gym
- 2 plant room
- 3 main entrance
- 4 changing area and lavatories
- 5 swimming pool

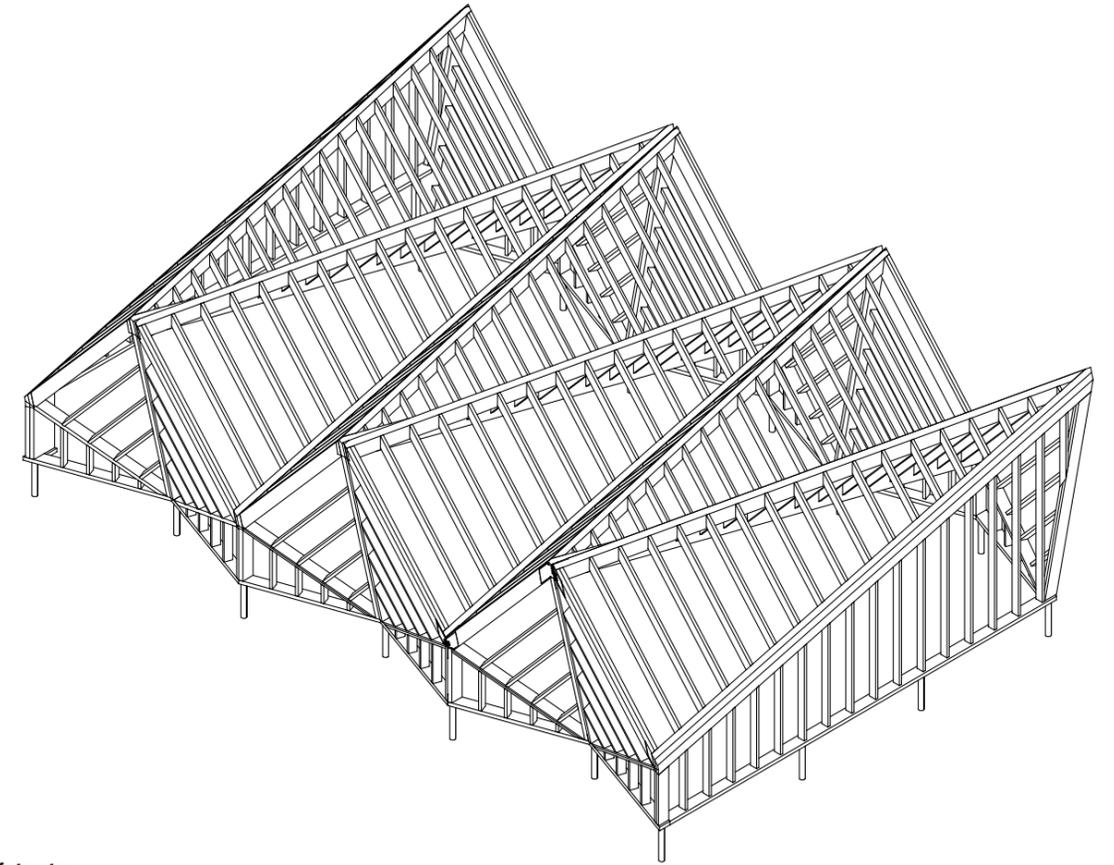




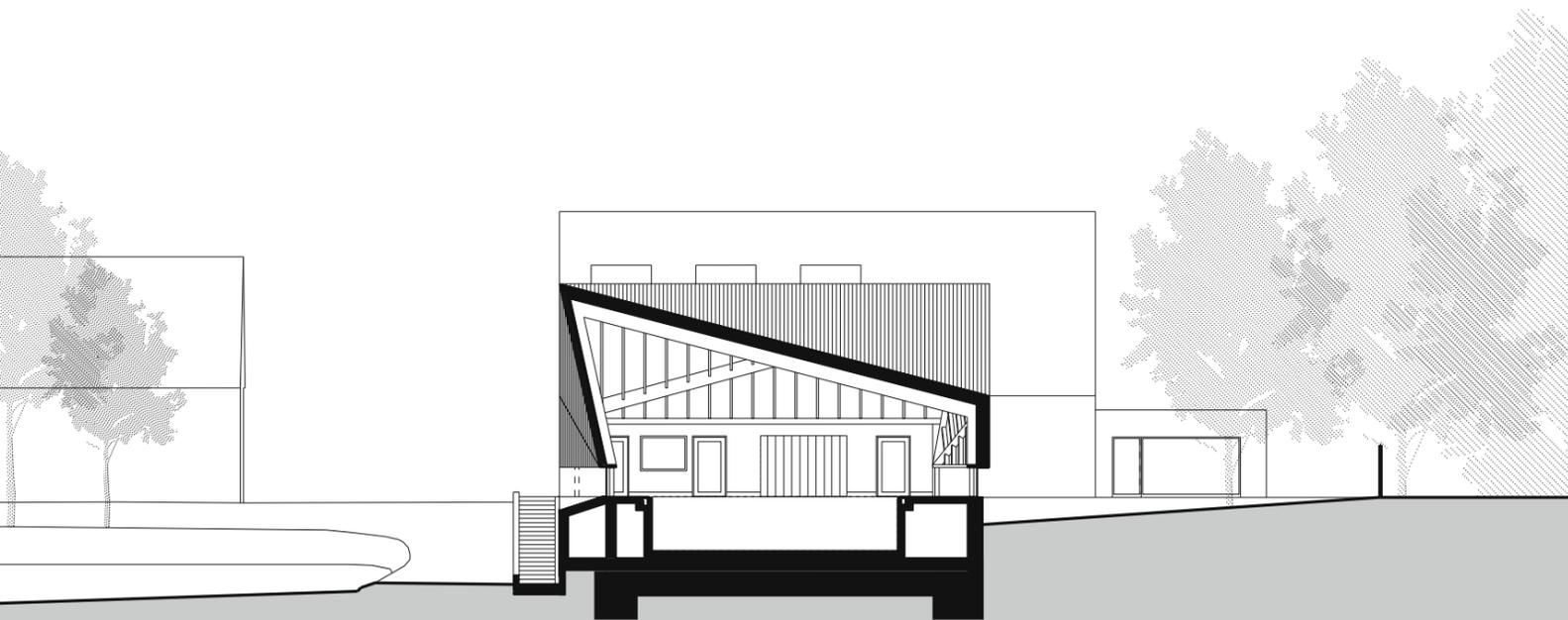
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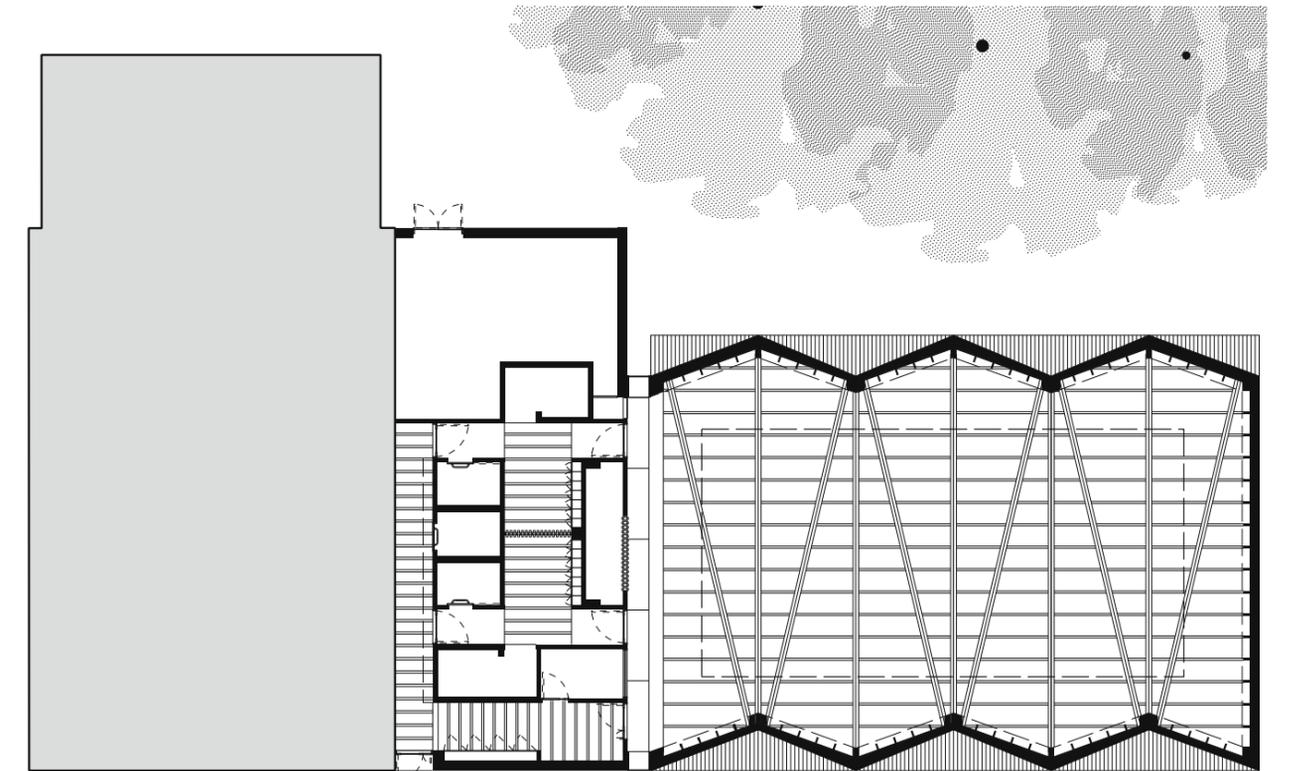
section AA



axonometric of roof structure



section BB



reflected ceiling plan

‘The familiarity of the composition has been undercut by two simple but highly impactful geometric manipulations’

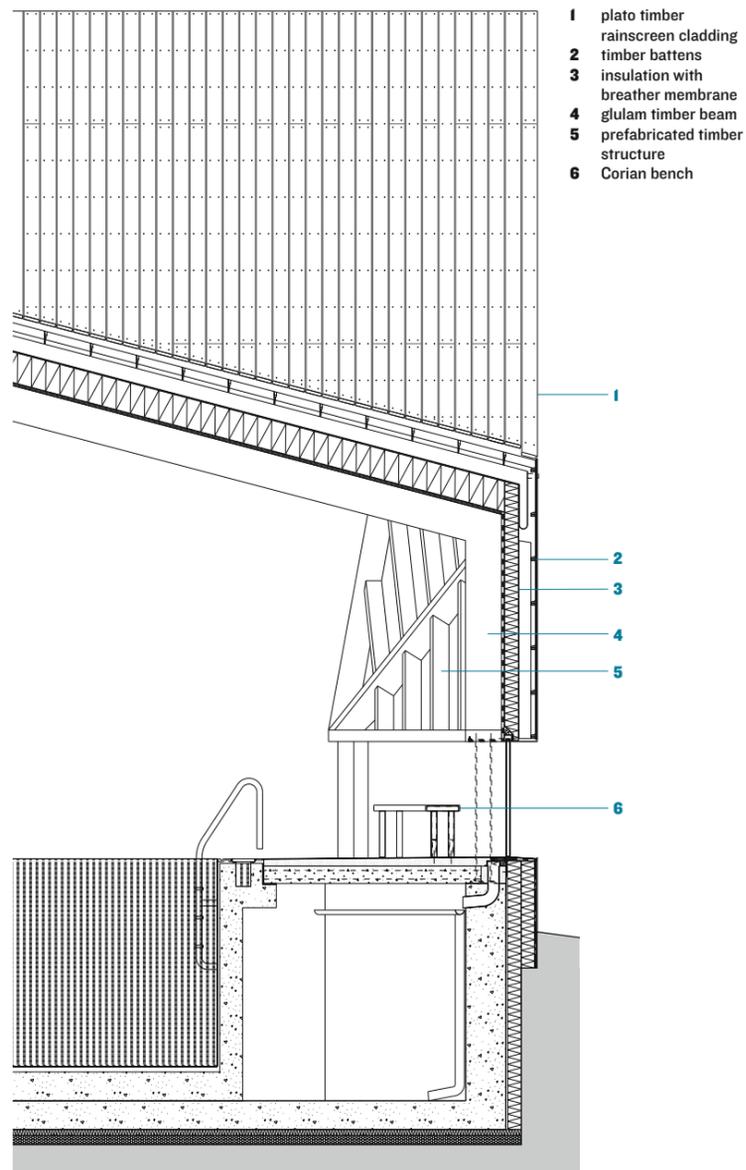
providing a gentle wash of both up and down lighting. The access requirements of disabled students are well served by the level relationship of the water to the floor surface but a mobile lift is on hand should any require assistance. The roof form moderates the space’s reverberation time to the point that no additional sound deadening is required. Even the visual distraction and physical inconvenience of a pool cover has been avoided thanks to the recent development of a liquid film that performs the same insulating function.

This level of thoughtful refinement may be characteristic of Duggan Morris’s work but is all but unknown in the architecture commissioned by Britain’s state sponsored education sector. It offers testament to the presence of an unusually inspired and determined client. Alfriston appointed Duggan Morris after a competition held in 2008 at which point the young practice’s body of built work was still small and notably lacking in swimming pools. The six years it has taken to realise the building reflects the challenge the school faced in raising funds.

Its awareness that many of its students – particularly those on the autistic spectrum – respond better to environments in which visual clutter is reduced proved particularly valuable in steering the project towards its final outcome. However, Duggan Morris has repaid the school’s faith in it handsomely, delivering a building that combines a complexity of form and simplicity of execution to captivating effect.

6. (Opposite) in response to the needs of pupils, confusing visual clutter is banished by the simplicity and refinement of the pool’s architecture

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detailed section through external wall

- 1 plato timber rainscreen cladding
- 2 timber battens
- 3 insulation with breather membrane
- 4 glulam timber beam
- 5 prefabricated timber structure
- 6 Corian bench

