Grade Boundaries

Rolfe Kentish welcomes a new arrival in Cambridge by Eric Parry Architects

Words
Rolfe Kentish
Photos
Dirk Lindner

Arriving in Cambridge by train there was, for many years, a large sign, illuminated at night, announcing 'Cambridge University Press'. Now a new symbolic gateway has arrived in the shape of The Triangle, the 35,000-square-metre headquarters of exam

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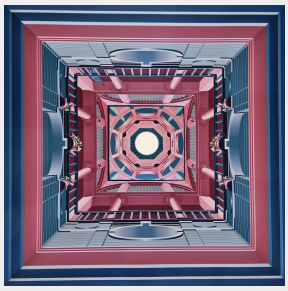
board Cambridge Assessment, designed by Eric Parry Architects (EPA).

Cambridge station was completed in 1845, together with an adjacent goods yard and mill. No doubt to appease the university, which had already stipulated that the station was located a mile from the city centre, the mill buildings were topped out with references to San Miniato al Monte and the Palazzo Vecchio in Florence, while the station building echoes the loggia of the Ospedale degli Innocenti. In 2010, the redevelopment of land around the station began, with office space for more than 2,500 workers, homes for 600 residents and 1,100 students, and 400 hotel rooms; further buildings are planned. Not all reviewers have been sympathetic. “An embarrassment to the city: what went wrong with the £725m gateway to Cambridge?”, asked Oliver Wainwright in The Guardian last year. EPA’s Triangle should help to counter this view.

Cambridge Assessment has roots which go back 160 years. A not-for-profit department of Cambridge University, it incorporates several exam boards and provides English language and admissions testing, serving over eight million learners in 170 countries, and employing over 2,500 staff.

modern mapping at London’s Building Centre



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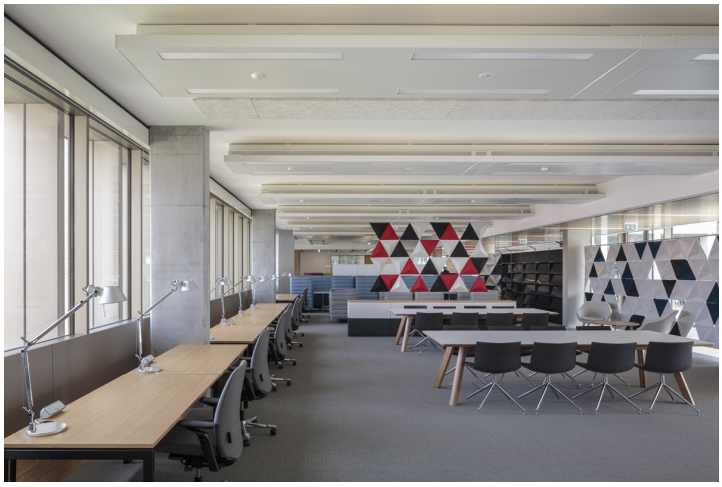
Before moving into the new building, Cambridge Assessment was spread over 11 sites around the city. The Triangle building will be able to accommodate up to 3,000 staff by 2025. The 2.5-hectare site was made available by the demolition of the 1981 Edinburgh Building, a warehouse belonging to Cambridge University Press. It is well located, just 15 minutes' walk from the station, next to a cycle path, the busway (serving North West Cambridge,the city centre and Biomedical Campus), and with road access from the broad residential Shaftesbury Avenue.



From the train The Triangle's curved and angular forms, the belvedere tower,

warm buff brick, precast stonework and brise-soleil resonate with the urban approaches to Milano Centrale or Florence's Santa Maria Novella stations. The curved elevation and subdividing street of Giovanni Muzio's 1920s Ca' Brutta, and the layered facade and black-stuccoed entrance hall ceiling of Giuseppe Terragni's Casa del Fascio also come to mind. There's even a classicising remnant of rustication in the ground-floor brick piers, marked by inlaid glazed bricks at the entrance and recessed elsewhere, not unlike HP Berlage's Holland House in London. Alvar Aalto was among the 'other tradition' modernists to employ brick and ribbon window cladding on a concrete column-and-slab structure with intermediate precast spandrels. The theme was developed by Leslie Martin at Oxford's Law Library and Colin St John Wilson at the British Library. At the Triangle, Parry uses precast stone spandrels, rather than powder-coated or anodised aluminium, and glazed clay brick for the mullions and transom of the entrance screen.

Parry's ambition for the project, won through an invited competition in 2013, was to create "an inspiring new group of connected buildings", ranging from four to five storeys in height. These are shallow plan-depth fingers set around raised landscaped podia with a central arrival court and garden. The main facades are formed of horizontal bands of brickwork laid in lime mortar, combined with light coloured self-finished precast stone elements. A tower, marking the site from the railway and busway approaches into Cambridge station, "is scaled to the local context and will not compete with the taller landmark buildings in Cambridge", suggests Parry.

The triangular geometry of the constrained site, its north-south orientation, and the requirement for good daylighting and shallow floor plates gave rise to a configuration of two linked buildings with three raised courtyards. The north building comprises a main block with three fingers separated by two of the courtyards. The south building, at the acute end of the triangle, consists of a main block and a finger leading to a curved ‘prow’ that embraces an east-facing courtyard. The link building, approached through a street-level forecourt and entered through a glass and glazed-brick screen, contains the reception area, staff cafe and restaurant, and library. Visible through the reception hall is another planted courtyard to the east. The building is necessarily impermeable, essential for the confidential tasks of setting and marking examination papers. While the triangular site is filled to the perimeter, the sub-urban location did not lend itself to mixed-use development, what with one side bordering the rail and bus ways, another housing, and the third, with the entrance courtyard, facing Shaftesbury Road, within the Cambridge University Press campus.

The building sits firmly in the tradition of large-scale Western civic and institutional typologies that extends from Dudok's Hilversum town hall and Wright's Johnson Wax to Hertzberger's Centraal Beheer and Foster's Bloomberg. The ground floor contains an auditorium, archive and multiple meeting rooms for visiting examiners and exam writers. Car and bike parking is accessed from the north and east via a perimeter road; the first floor spans over and forms a true piano nobile. From the large double-height entrance hall, stairs lead to the first floor. The shallow open-plan office fingers, 19 metres from side to side, have excellent natural lighting and views. Glare is significantly reduced by external solar shading. The concrete soffits, walls and columns are left fair-faced. Multi-service finger beams extend from lower central spines to provide air, light, security and communications. There are four main service cores and four subsidiary escape stairs. The tower has large meeting rooms from the second to the sixth floors and a belvedere on the seventh.

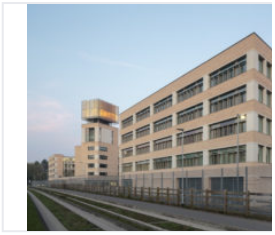
The overall form of the building, with its three podium-level and two ground-floor courtyards, is seemingly carved from a single triangular mass, yet at the same time it is articulated as a set of extrusions, terminated with 'gables' or stop-ends. There are six main facade types, which differ according to orientation and location. The predominant type is to the east, west and prow of the perimeter, and the north and south facades to the link courtyard. Columns, on a nine-metre structural grid, and floors are expressed by precast concrete pier casings and lintels, with continuous ribbons of brickwork between sill and lintel. The ground-floor columns are encased in rusticated nine-

inch brickwork. Powder-coated aluminium windows alternate with solid opening panels, and incorporate an anodised aluminium brise soleil.

The facade depth – relatively generous for the type – gives a zone for relief modelling of 450-550mm for the brick elevations and 900mm in the courtyards, allowing for a maintenance walkway. The second facade type, facing onto the three podium courtyards, consists of a freestanding trabeated precast concrete brise soleil set 600mm in front of aluminium windows and rendered spandrel panels. The shape and spacing of the piers varies to maximise solar shading, as at Parry's 30 Finsbury Square (2002). The upper parts of the three-sided courtyards – which suggest academic cloisters – can be glimpsed from beyond the site. The gable facade type – used at the end of the northerly 'fingers' and by the main entrance – comprises deep-set individual windows separated by precast piers. Another variant occurs between buildings of different height, in which precast framing is used instead of brick to articulate the dégagement. The entrance elevation to the link building has closely-spaced glazed-brick piers in front of a glazed facade, while its rear courtyard elevation has simpler vertical aluminium fins in front of aluminium windows. The Triangle features a major two-part art commission, one at the entrance and the other at the top of the tower. 'In Other Words', by artists Vong Phaophanit and Claire Oboussier with EPA, features layers of script in different languages enamelled onto the glass. The tower artwork, subtly lit at night, is in warm parchment colours, and the 33-metre-long entrance artwork, in shades of indigo, is integrated with the glazed bricks.

By responding to the long-term ambitions of Cambridge Assessment, Eric Parry Architects has given specific form and identity to a building that otherwise might have been anonymous, undifferentiated grade-A office space – examples of which abound around the railway station. Added to this, bringing together disparate departments from eleven sites around Cambridge is a significant challenge, not least in terms of human resources, but one that this welcoming building will go a long way to facilitate.

Additional Images



Download Drawings

Cambridge Assessment, Eric Parry Architects

Credits

Architect
Eric Parry Architects
Landscape architect
Grant Associates
Interior designer
BDP Interiors
Structural engineer
Ramboll UK
M&E engineer
Max Fordham
Acoustic consultant
Ramboll Acoustic Consultants,

Facades
Goyer France (windows, curtain walling)
Artwork prints on glazing
Sedak
Bricks
Irvine Whitlock, Ibstock (inc glazed bricks), St Joris (link building piers)
Precast lintels, piers

Cambridge

Facade consultant
FMDC

Quantity surveyor
Aecom Cambridge

Public artwork
Vong Phaophanit and Claire Oboussier

Main contractor
Bouygues UK

CDM
Sweett Group

Project manager
Turner & Townsend

and brise-soleil
Verheyen

Lighting
Whitecroft

Balustrades, handrails
Handrail Design, Frapont (link building, feature stairs)

Roofing
Cambridge Flat Roofing, Alumasc Hydrotech Hot Melt, XPS insulation and BluRoof Drainage System

Lifts
Otis

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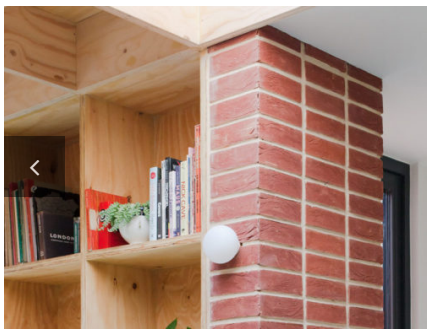

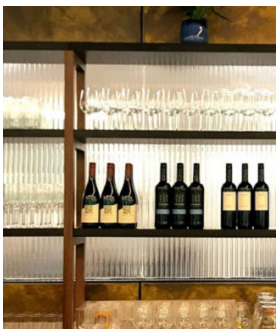

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AJ | THE ARCHITECTS' JOURNAL

The Welding Institute by Eric Parry

26 OCTOBER, 2017

AJ Specification case study: pastel-coloured terracotta baguettes unify three separate structures in Cambridge

The Welding Institute (TWI), developed at the site from 1946 as a government research institute, has grown into a world-leading organisation dealing with joining technology at every scale.

Eric Parry Architects' brief was to masterplan the site, including the context for the listed Abington Hall, creating a 20,000m2 facility of varied use and allowing the demolition of numerous outmoded facilities.

Site plan

The new TWI facilities are housed in three buildings:

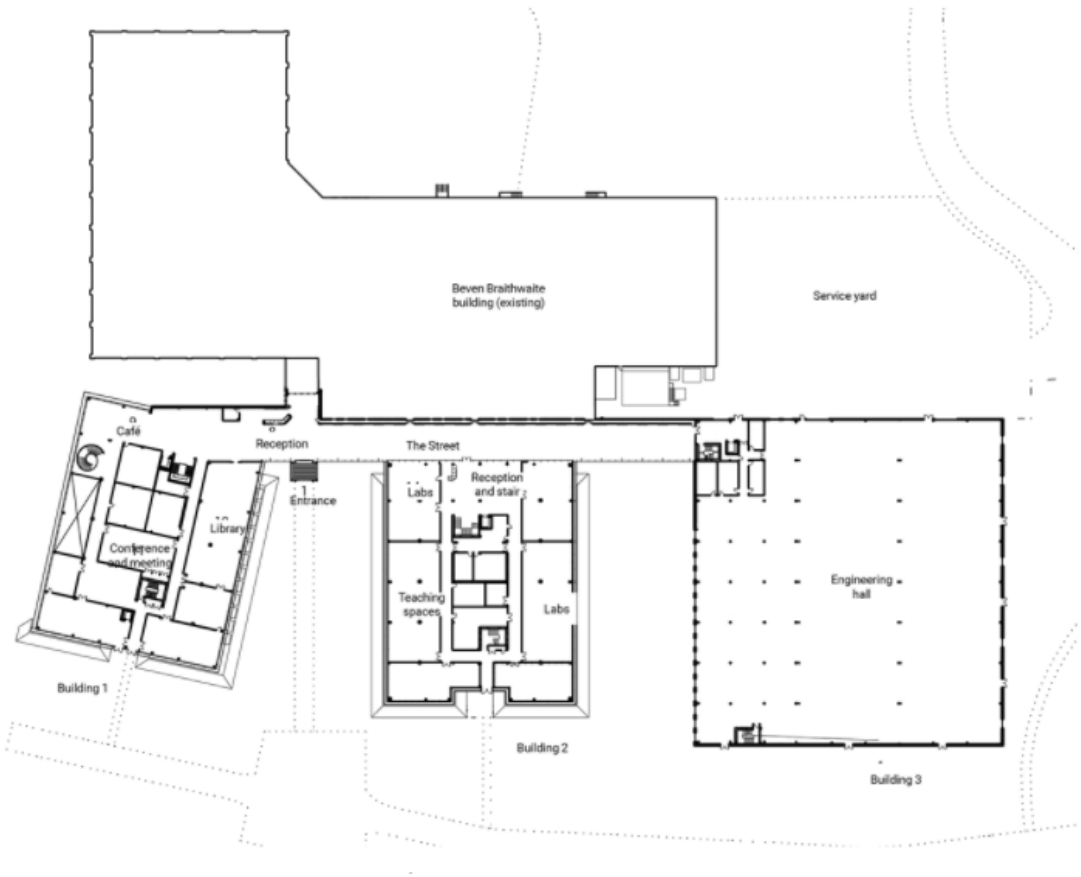
Building One contains the reception and the library, as well as the Granta Conference Centre, a restaurant and café, and also the training centre and management accommodation, including a new boardroom.

Building Two is dedicated to teaching laboratories and administrative accommodation for the National Structural Integrity Research Centre (NSIRC) a state-of-the-art postgraduate engineering facility, and includes shared laboratories with TWI.

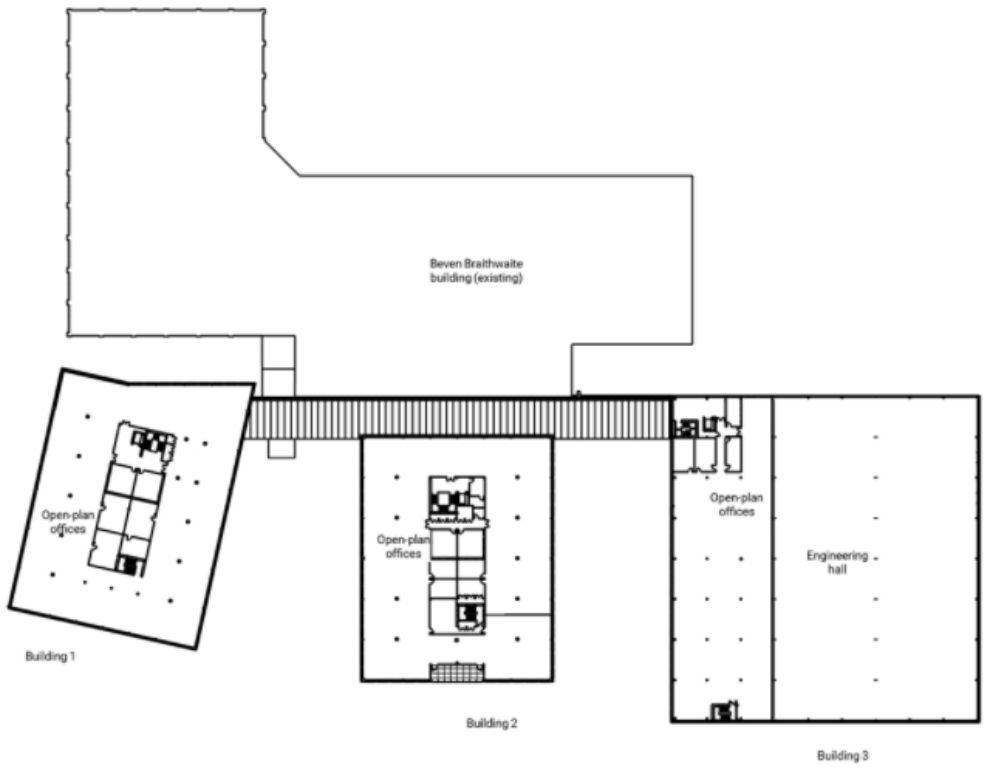
Long elevation

Eric Parry Architects

Level one plan



Level two plan



Project data

Start on site October 2013

Completion March 2015

Gross internal floor area 20,840m²

Form of contract Design and build

Construction cost £42.5 million (including demolitions, enabling works and landscaping)

Construction cost per m² £1,980

Architect Eric Parry Architects

Publication: The Architects' Journal
Date: 26 October 2017
URL: http://bit.ly/2yOLyCb

Client The Welding Institute

Structural engineer Glanville Consultants

M&E consultant Hoare Lea

Quantity surveyor AECOM

Services engineer Hoare Lea

Landscape architects Land Use Consultants (design), Josephine Morrison (implementation)

Fire consultant Hoare Lea

Acoustics Hoare Lea

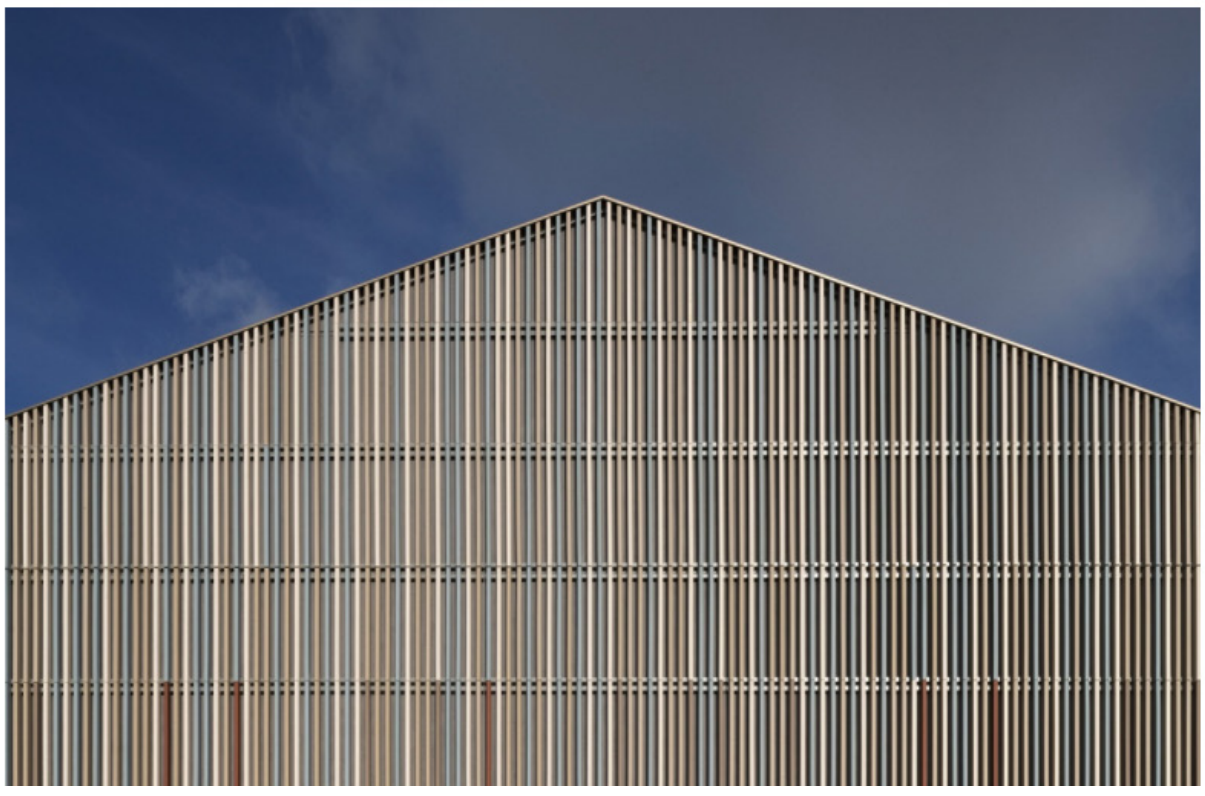
Project manager Glanville

CDM coordinator Glanville

Approved building inspector MLM

Main contractor SDC Builders

CAD software used Bentley MicroStation and AECOsim



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Publication: The Architects' Journal
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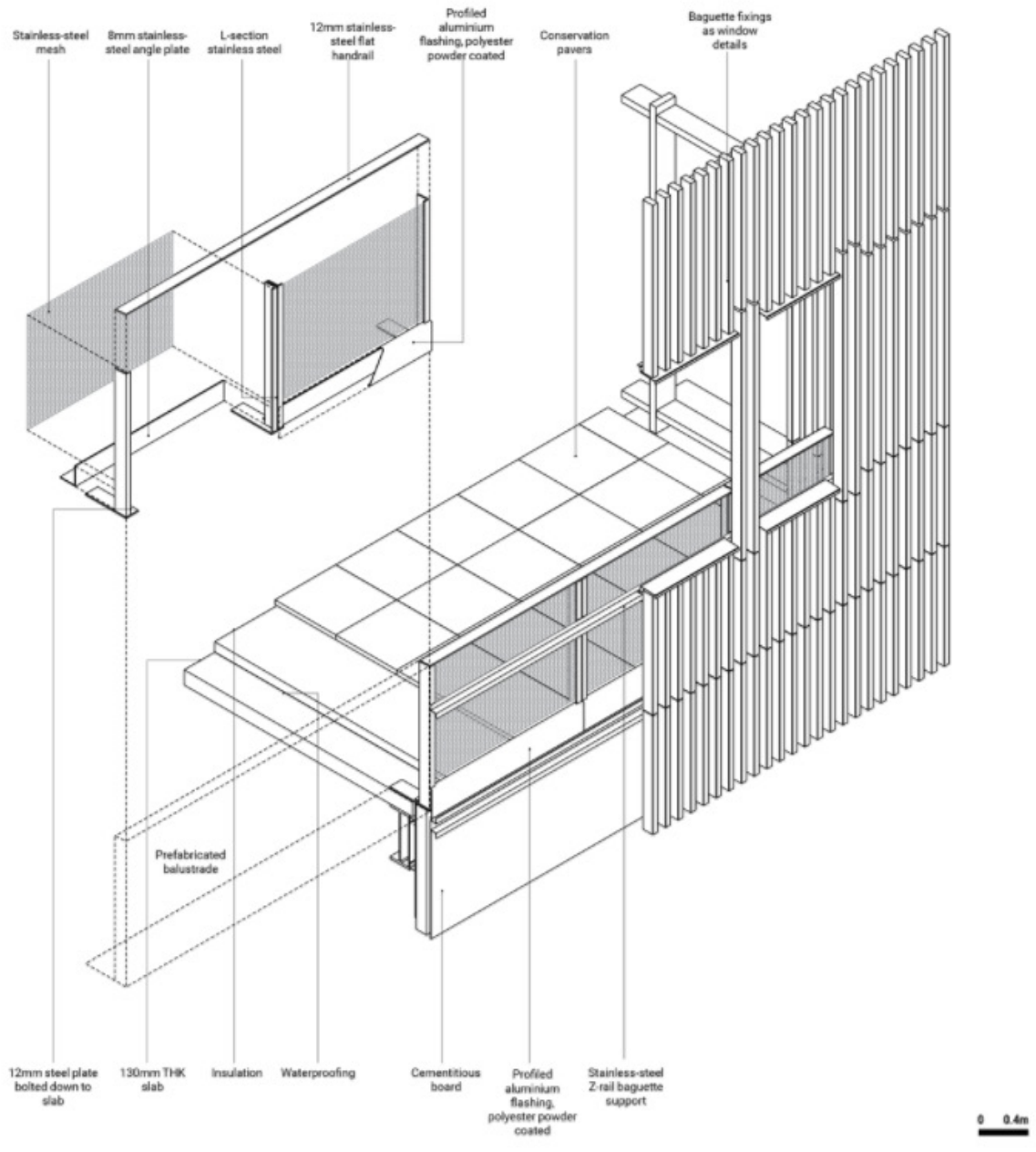
Isometric façade detail



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Specification statement

The Welding Institute was developed to achieve exceptional levels of sustainability through optimisation of the buildings' orientation, U-Values that exceed the Building Regulations by 43 per cent, air tightness that exceeds Building Regulations by 50-55 per cent, and low-carbon systems.

Passive design analysis was key to improving energy performance. Particular attention was given to façade design, orientation and spacing to find a compromise between annual daylight levels and summer solar gain.

The building fabric improves upon the Part L 2010 Building Regulations, and achieves a high standard of air tightness with figures below 5m³/m².hr.

High-performance LED luminaires have been used throughout. The lighting is linked to passive infrared detectors and photocells for presence and absence detection and daylight linking controls via a fully addressable lighting control system.

The development meets more than 25 per cent of its regulated energy demand through on-site low and zero carbon technologies. The high-efficiency combined heat and power (CHP) unit and photovoltaic (PV) panels provide heat and electricity, reducing the reliance upon grid-supplied electricity. Extensive sub-metering has been installed to record the buildings' energy performance.

Active approaches taken with mechanical design include high-efficiency condensing boilers; central air handling units for mechanically ventilated spaces, incorporating thermal wheels capable of up to 70 per cent recovery of extract air heat energy; heat recovery installed with the variable refrigerant flow system within each building; and roof-mounted stack units assisted by low-level air intake which naturally ventilate the Street.

Meter readings for electricity, gas, water and solar panels show reduced carbon emissions compared with data from the thermal model developed for the buildings for the Part L analysis; and that metered electricity output generated from the PV panels is better than design-stage calculations.

Hoare Lee Engineers

Specification

Terracotta Baguettes NBK Ceramik, 100 x 50 x 1,500mm unglazed, six colours

Windows and Doors Schueco, Andoised Finish

Anodised Aluminium United Anodisers, Anolok 543

Rainscreen board behind baguettes Marley Eternit – Tectiva Board, T20 pebble finish

Terrazzo floor Quiligotti, 597 x 597mm tiles: from 42mm

Internal glazed office partitions Planet Partitions, Various

Ceiling tiles Armstrong ceilings, 600 x 600mm suspended ceiling

Feature lighting iguzzini lighting, Various

Reception Desk Isomi – Mono, Various

Roof lights Luxcrete, Roof Lights product ref R254/150

Catering Equipment C+C Catering Equipment, Various

TAGS CAMBRIDGE AJ SPECIFICATION

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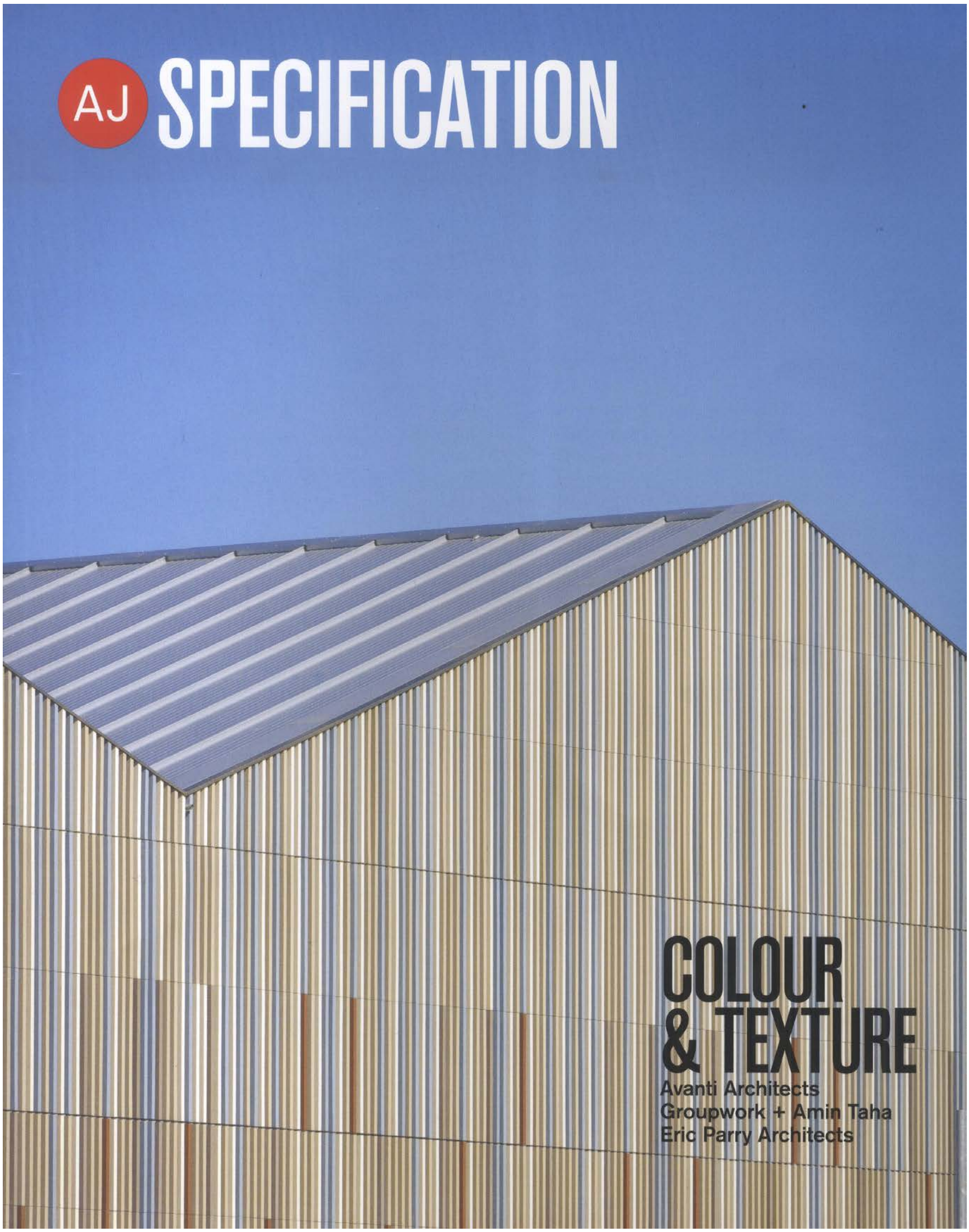

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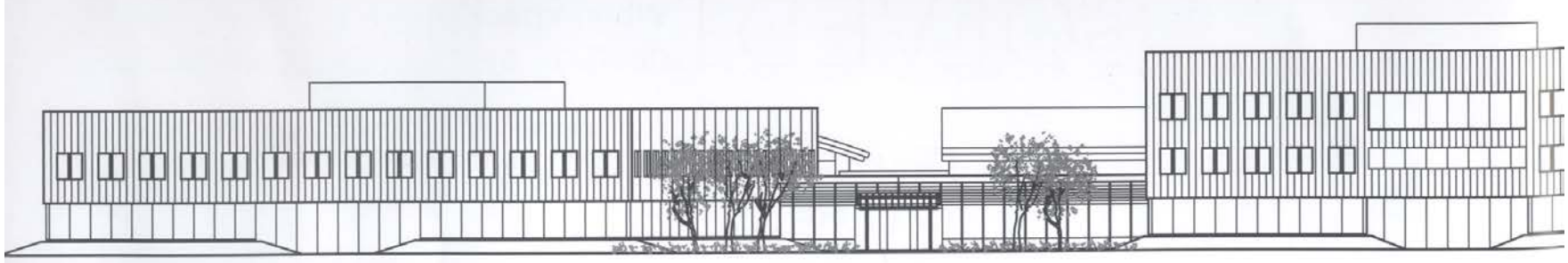

THE WELDING INSTITUTE BY ERIC PARRY ARCHITECTS

Photography by Dirk Lindner

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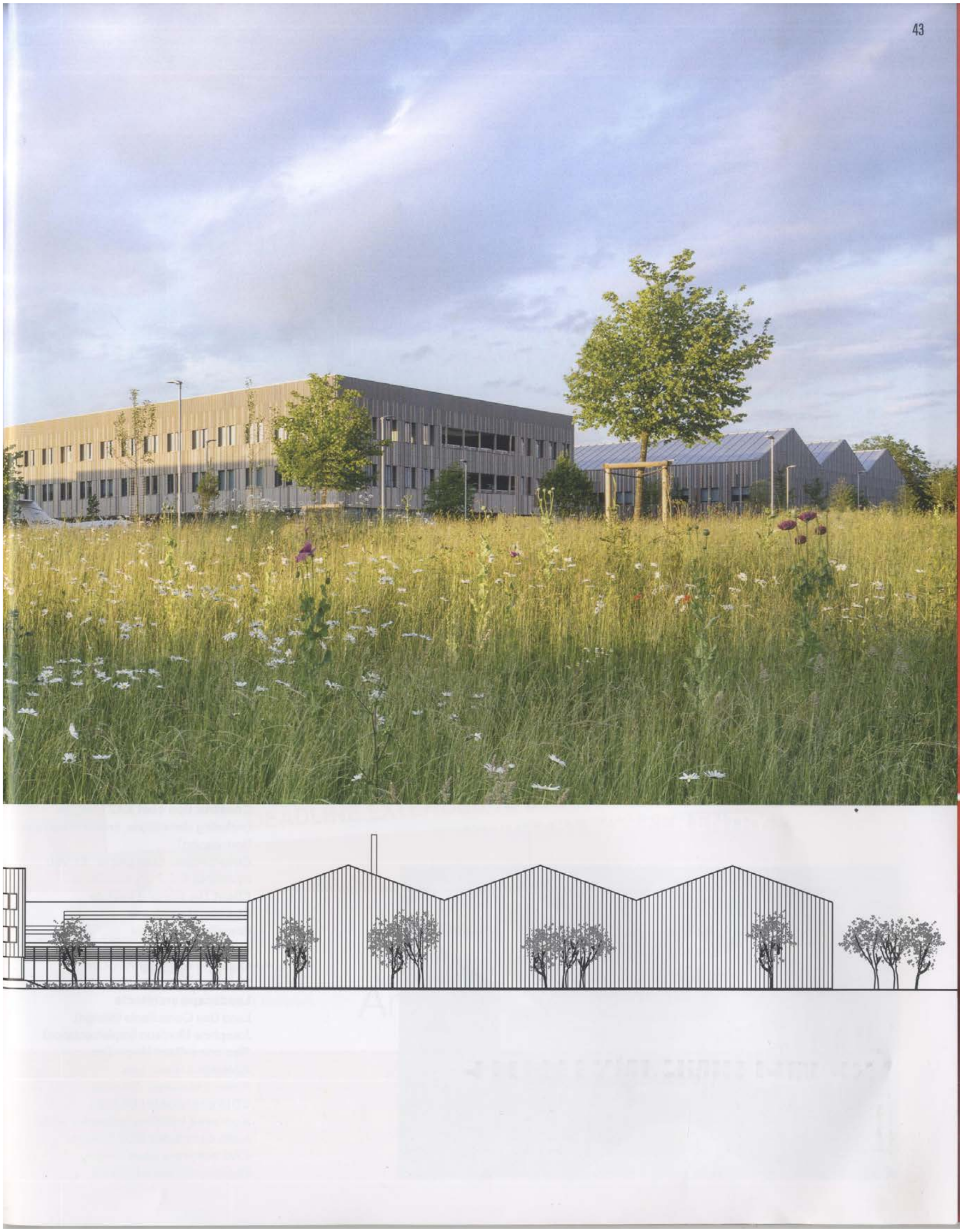

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Building Three is a world-class testing facility with associated specialist laboratories, welder training workshop and office accommodation.

They are all joined by the Street, a 135m-long route that acts as a physical and social hub between old and new buildings. On its eastern edge is a café overlooking the landscape, and at its western edge is a service yard and the engineering hall.

Eric Parry Architects

Site plan

Project data

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Completion March 2015
Gross internal floor area 20,840m²
Form of contract Design and build
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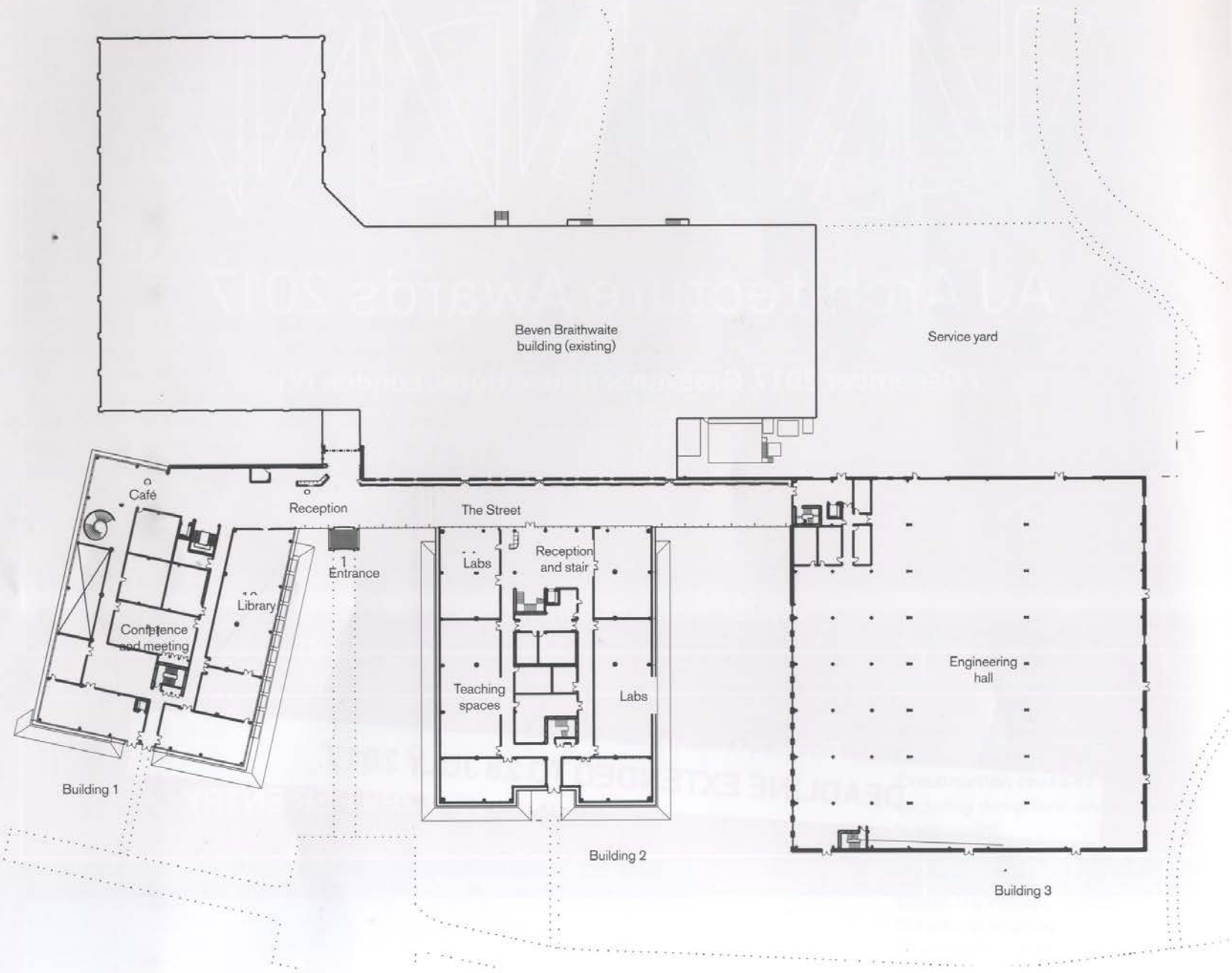

Level one plan

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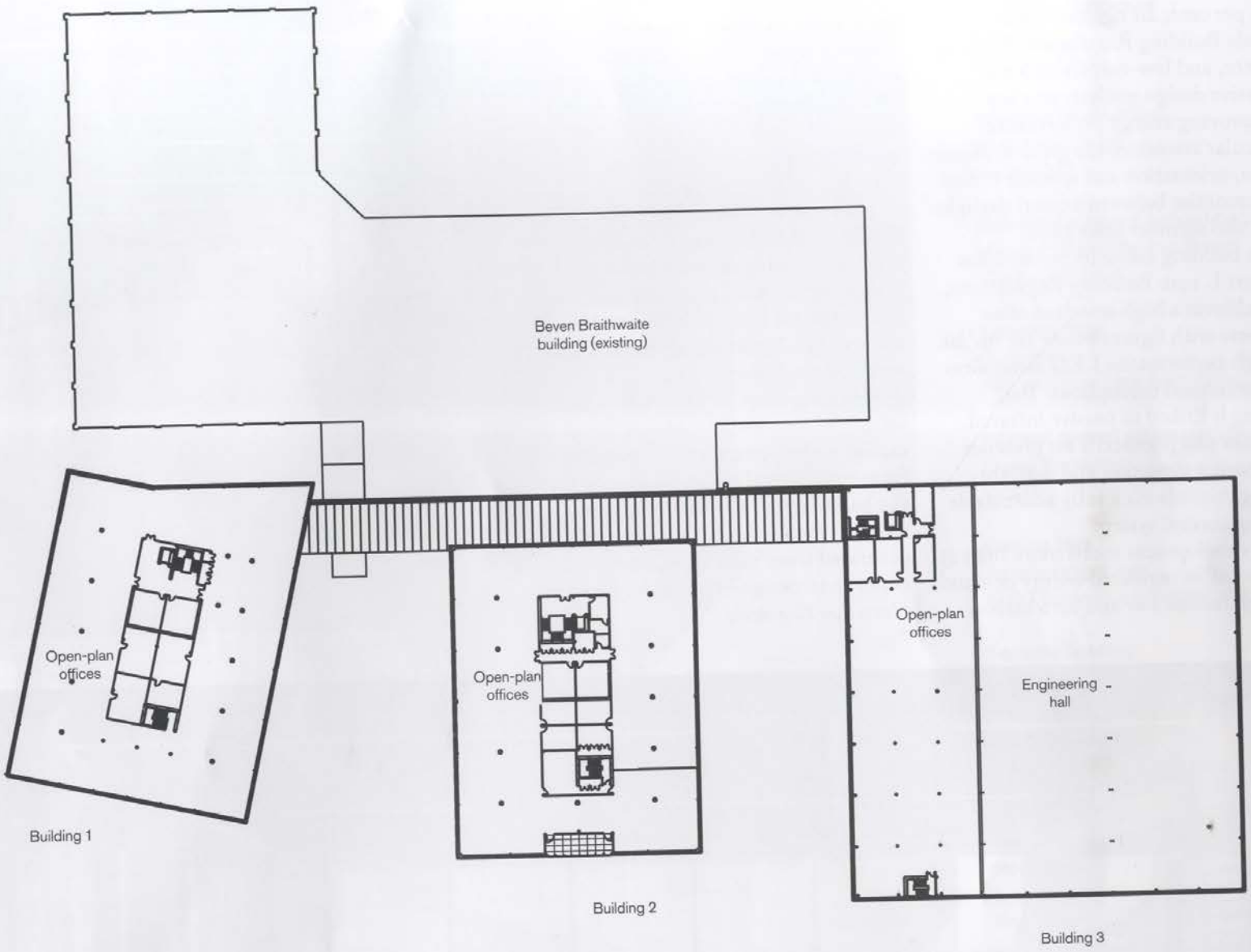

Level two plan

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NBK Ceramik
100 x 50 x 1,500mm unglazed,
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Schueco
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United Anodisers
Anolok 543

Rainscreen board behind baguettes
Marley Eternit – Tectiva Board
T20 pebble finish

Terrazzo floor
Quiligotti
597 x 597mm tiles: from 42mm

Internal glazed office partitions
Planet Partitions
Various

Ceiling tiles
Armstrong ceilings
600 x 600mm suspended ceiling

Feature lighting
iguzzini lighting
Various

Reception Desk
Isomi – Mono
Various

Roof lights
Luxcrete
Roof Lights product ref R254/150

Catering Equipment
C+C Catering Equipment
Various

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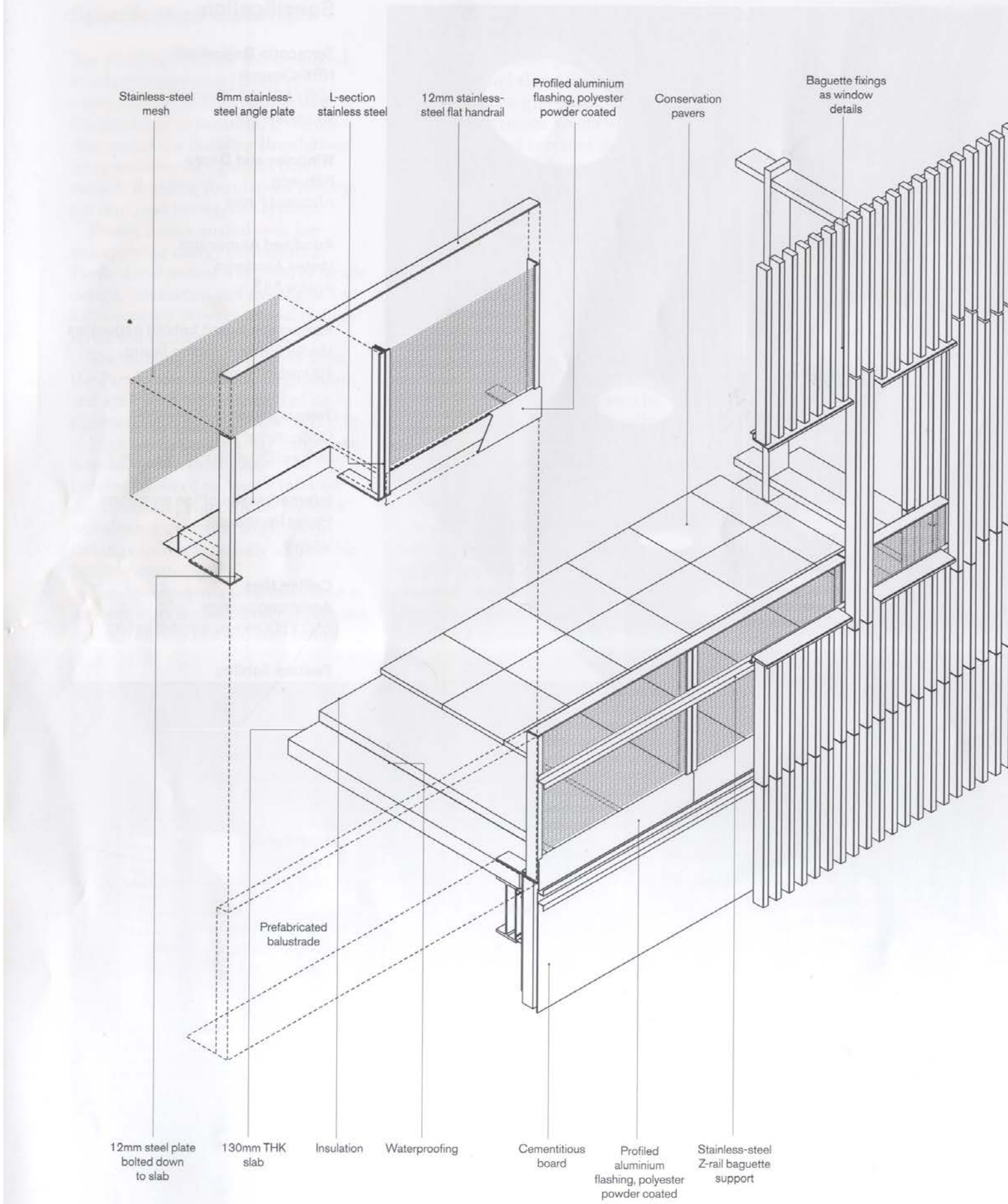

Isometric facade detail

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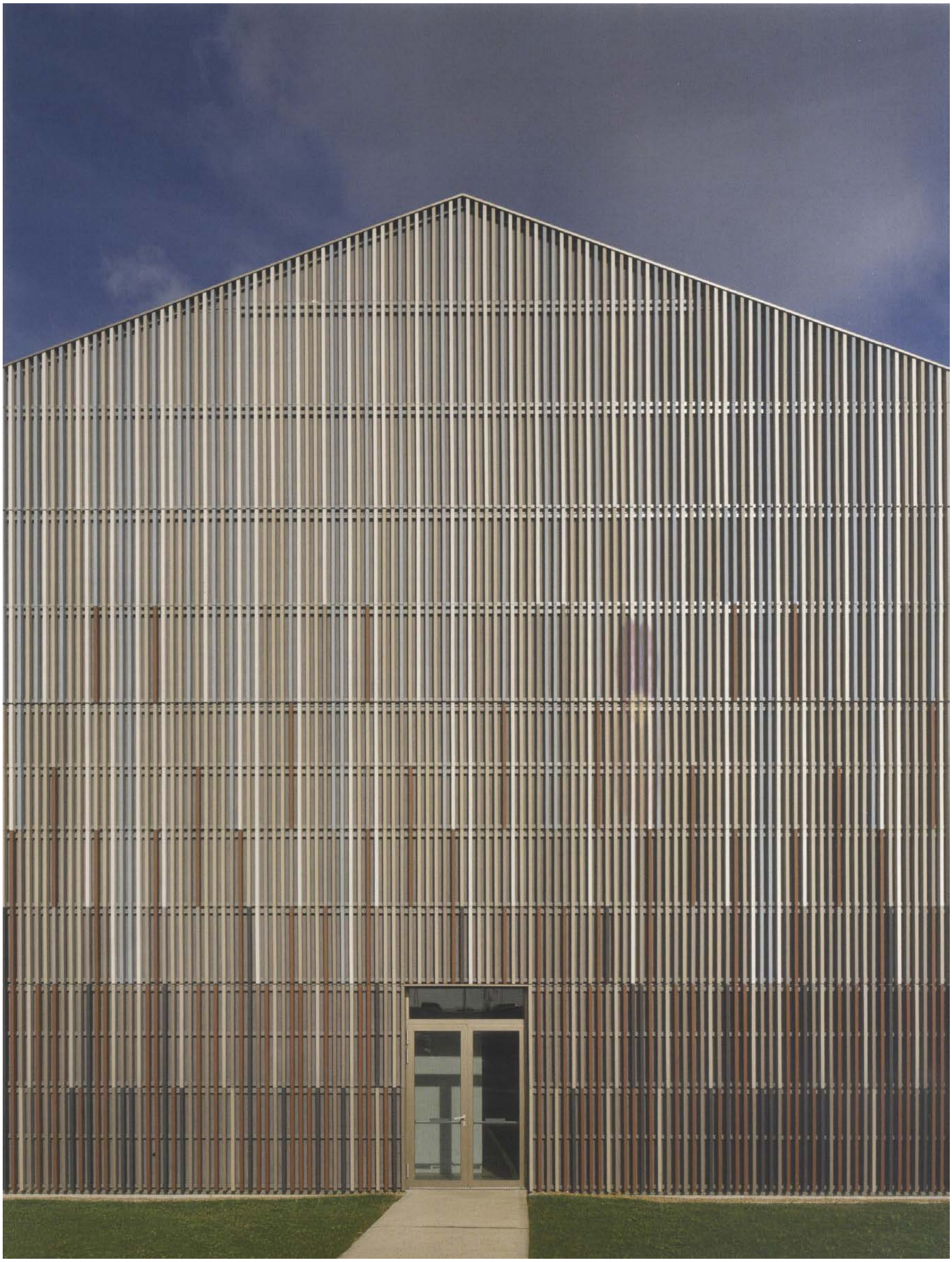

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