

For further information and images, please contact

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Dagenham Park Church of England School

Barking and Dagenham BSF

Dagenham Park Church of England School proposes a unified campus which makes positive connections to the adjacent park, junior school and the Moreland Road entrance. Consisting of a new three storey teaching building at the centre of the existing site and the retention of both the existing Sports Centre and Design and Technology building, the project is set within a master plan and landscape strategy that will create a legible campus with strong identity and community presence.

This new building will replace a number of outdated education buildings and will support an increase in pupil numbers to 1423.

Sector: Education
Location: Barking, London
Address: School Road, Dagenham,
London RM10 9QH
Client: Thames Partnership for

Learning and London Borough of Barking and Dagenham

Value : £22.6m Completion : 2012

Gross Internal Area: III,783 ft² | 10,385 m²

Contract Type : BSF

Key Dates

November 2009 LBBD BSF Bid Process Commences

April 2010 Thames Partnership for Learning Bid submitted

May 2010 CABE Review

June 2010LBBD BSF Contract AwardedJune 2010Planning Application SubmittedSeptember 2010Planning Approval Granted

October 2010 Financial Close

December 2010 Site operations commenced

March 2012 Project completion

Project Team

Client : Thames Partnership for Learning and London

Borough of Barking and Dagenham

Architect: Allford Hall Monaghan Morris

Main Contractor:Laing O'RourkeProject Managers:Laing O'Rourke

Structural/Civil Engineer:ARUPServices Engineer:ARUP

Landscape Architect: Plincke Landscape

Educationalist: Cocentra

CDM Coordinator: Currie and Brown
Graphic Design: Morag Myerscough
ICT Consultant: RM Education

Planning Consultant: Savills
Approved Inspector: HCD Group

Allford Hall Monaghan Morris Team Members

Paul Monaghan, Susie Le Good, Andrew O'Donnell, Brett Lanagan, Nisha Patel, Jing Chew, Kirsten Lim, Arturo Varela, Paul Jones, Eric Chan, Simon Allford, Peter Morris, Jonathan Hall, Barbara McGarry and Amy Seymour

Project Overview

Dagenham Park Church of England School involves in the insertion of a new 10,385 m² school building into a complex and highly constrained existing school site. This new building will replace a number of outdated education buildings and will support an increase in pupil numbers to 1423.

The school has a well recognised and successful specialism in performing arts that plays a key part in the life of the school. Providing a central place for this specialism was key driver of the design process. Allford Hall Monaghan Morris's (AHMM) design forges a strong identity for the building and school as well as creating integrated master plan for the school campus that includes a range of high quality external social, educational and sporting facilities.

The scheme was developed in close consultation with the School Leadership Team and Local Authority within a compressed design programme.

The project is to serve as an exemplar project for Laing O'Rourke's Design for Manufacturing and Assembly School Solution which allows for significant portion of the building to be prefabricated allowing a reduced build time and a high degree of quality control.

The design was reviewed by the CABE Design Review Panel scoring a Very Good and has been designed to achieve a BREEAM rating of Excellent.



Dagenham Park Church of England School

Background

Dagenham Park Church of England School is an 8 form of entry mixed secondary school for students' aged 11-19 offering the National Curriculum. The school is characterised by its commitment to inclusion and its highly successful performing arts specialist schools programme which has a tangible impact on the ethos of the school and has led to a number of nationally recognised achievements. The school's student body is diverse in terms of ability and ethnicity, with a large proportion having English as an additional language.

Education Vision

The Building Schools for the Future (BSF) programme for Dagenham Park School includes a change of governance to voluntary controlled, Church of England, status. This will increase parental choice within the borough and create a 'throughout' campus with the nearby William Ford Junior School and village infants schools. This transformation will lead to improved transitional arrangements, increased opportunities for collaboration and sharing of specialist facilities.

Crucially the BSF investment will build on Dagenham Park School's strong reputation in the performing arts, establishing the school as a centre of excellence and a key provider in the Borough's plans for the 2013 entitlement. The school has a number of partnerships with local and national performing arts bodies.

Students

The school currently has 1056 on the roll including 185 +16 students. The projected roll will increase to 1423 with 223 + 16 students.

Staff

The projected staff numbers on site will be 101 full-time staff with 42 part time and 8 external agency staff who are only on site occasionally.

Performing Arts - Dance

School Logo



Performing Arts Partnerships

CHICKENSHED







Project Description

Dagenham Park Church of England School is one of the final BSF projects to be delivered. It replaces a number of outdated buildings with a new performing arts teaching building within a unified campus of the retained Sports Centre and D&T Building. The overall budget for the project was £22.6m which represents genuine value and the creation of a major new asset for the school and local community.

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Education and Architectural Vision

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Although the new building is very simple in form, the project has been a pioneering example of collaborative working between the construction and design team. The building was designed to maximise the use of off-site fabrication through the use of an integrated façade and structural system as well as other key components such as building services modules. This system, for which this project serves as an exemplar, provides a number of significant benefits to the process including an 8 month reduction in construction time.

Pioneering Process and Construction

The project was very much a coming together of a number of organisations to deliver the project on time and on budget. The project was led by Laing O'Rourke Construction South who managed both the Building Schools for the Future Bid, as well as the Design and Construction process, with Allford Hall Monaghan Morris leading the Design Team.

Both organisations forged a strong relationship with the School Leadership Team, as well as the London Borough of Barking and Dagenham, (LBBD) to ensure that the new building met with the client's brief. This relationship has been further strengthened through work experience placements offered to students of the school, plus the employment of local contracting firms.

As testament to the strength of collaboration on the project the Local Education Partnership formed between Laing O'Rourke and LBBD, the Thames Partnership for Learning (TPfL) will continue as a method of delivering other much needed projects, such as housing, within the Borough despite the cessation of the BSF programme.

The building was procured as a Private Finance Initiative with Laing O'Rourke also fulfilling an ongoing role as facilities manager for the site. This ongoing role meant that life cycle considerations were a key criteria in selecting the building systems. The design and procurement programme for the project was very compressed with completion of the new building targeted within 28 months of the start of the bidding process. The first 12 months of this programme encompassed the design phase including a full planning application leading to financial close.

Manufacture and Assembly

The use of off-site fabrication involved the use of an integrated façade and structural system as well as other key components such as building services modules. The structural and façade design was carried out with early input and involvement from the manufacturing specialists and used Building Information Modelling to generate and extract geometry for the purpose of manufacture.

The multilayered façade panels each measuring 7.5m x 3.6m form a loadbearing external and arrive on site with the windows already installed. The façade panels form one element with an integrate structural solution that also includes precast concrete columns, walls and soffit panels. The soffit panels act as permanent formwork for the in-situ concrete slab. The building components are fabricated in controlled manufacturing conditions to maximise quality (including air tightness) and minimise waste and working at height. Operating at maximum capacity the Laing O'Rourke Precast Concrete Manufacturing Facility could create all the precast concrete components for Dagenham Park school in 2-3 weeks.

The manufactured components were ready for delivery on site as soon as the enabling and ground works were complete with the structure and façade erected within six months of site operations commencing allowing for early starts on the fit out packages. The construction phase of the new building was only 16 months which was made possible through the implementation of Laing O'Rourke's strategy of 'Design for Manufacture and Assembly.' A comparable project of this size, delivered without the use of this strategy, would have taken 22 months construction phase.

Safety was of paramount importance particularly as the building was constructed on a 'live' school campus - how to achieve this was a key driver in the early design process when the phasing strategy for the scheme was developed. The building achieved completion over 250,000 working hours with no reportable or lost time incidents.

Simplicity and Identity

Allford Hall Monaghan Morris's design for the scheme forges a strong identity for the building and school centred around their specialism of performing arts. The new building is arranged around a key idea of having the performance hall at the heart of the building with flexible classrooms arranged around the perimeter. The space formed between these two uses creates two connected atria that provide open learning and social areas, as well as natural light and ventilation. The atria also serves to allow passive supervision of the students during the periods between lessons.

The school actively contributed to the design of the internal graphics and artwork that were produced by graphic designer Morag Myerscough and were closely involved in the selection of feature furniture to create a unique brand for the school. Colour is introduced to the façade to provide the building with a distinct identity with the palette drawn from variations on colours within the school logo. Entrances to the building are clearly articulated as a series of canopies of a similar character to the entrance portal at the entry point of the site.

Internal Organisation

The design of the new building is based on a number of design principles that emerged from discussions with the School leadership team and the local authority. At the heart of the buildings sits the performance hall that seats up to 350 people and features retractable seating to allow the space to be used for a wide range of activities. The hall has direct access out to the courtyard formed between the new building and existing sports centre.

This Piazza serves as the external social heart of the school campus acting as a forecourt to the new building, existing Sports & Leisure Centre as well as the Design and Technology building. The layout of the piazza will be flexible allowing for games, social interaction, external curriculum activities as well as circulation. The piazza is also trafficable to provide access for emergency vehicles across the site.

Within the building two atria serve different functions. Accessed off the secure entrance lobby, the entrance atrium brings natural light into the heart of the building. The open nature of the atrium reveals connections between subject areas based on different levels of the building and provides direct access to the dining and main hall. The rear performing arts atrium is surrounded by the Performing Arts Department and offers the potential to be used for impromptu performances and assemblies. This atrium also acts as a generous entrance space from the rear of the existing sports hall and external link to the William Ford School.

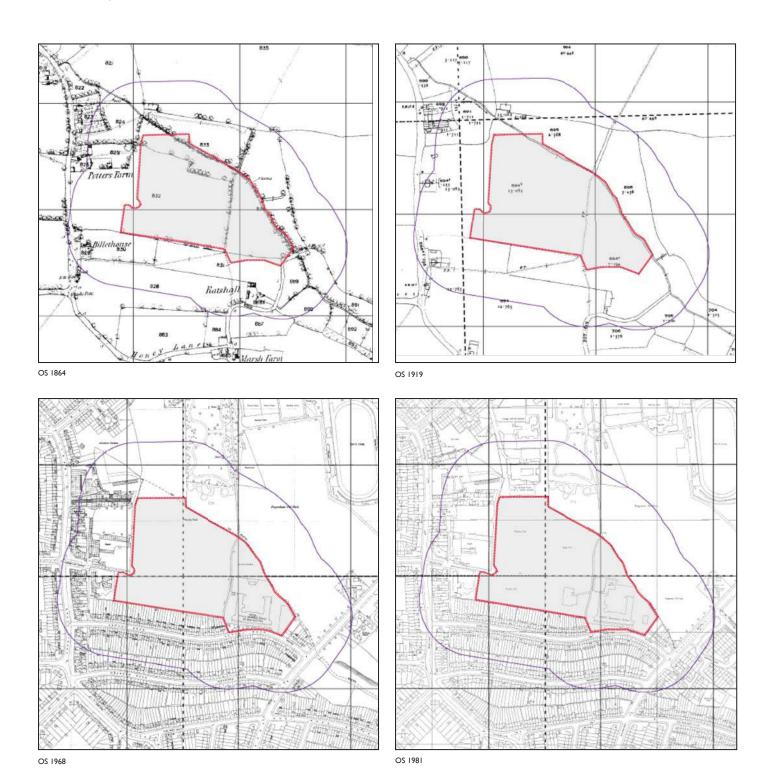
Sustainability

The London Borough of Barking and Dagenham have a progressive environmental policy which was embedded into the project brief and included a number of ambitious targets including a BREEAM 'Excellent' rating for the site and new building, and target annual CO2 emissions of 27 Kg CO2/m²/year.

To achieve these targets a range of technologies and strategies were deployed including a high performance building envelope with solar control, mixed mode ventilation with heat recovery, high thermal mass, efficient services (light & water), rainwater harvesting and attenuation. The completed building achieved an annual CO2 emission of 20.7kg CO2/ m² /year and an air tightness of 1.44m³/h. m² AT 50PA.

Minimising waste was a key concern in the design and construction process in line with the Waste Resource Action Plan (WRAP). The use of off-site manufacturing minimised the impact on site during construction as well as reducing material waste. The site recorded a total waste of $2.2t/100m^2/7m^3/£100k$ against a benchmark of $2.2t/100m^2/7m^3/£100k$.

Site History



Historical Maps

This series of historical maps chart the development in and around the site over the last 100 years. Prior to the establishment of a school on the site in the early 1930s the predominant land use of the site was agricultural fields. The school was originally called the Marley School and opened as a mixed school in 1934. It was reorganised in 1937 into separate schools for boys and girls, which were again amalgamated in 1960.

Site Context

Location

Dagenham Park Church of England School (formerly Dagenham Park Community School) is located on a triangular shaped site to the west of Old Dagenham Park.

Site Area

The site has an area of 4.62 hectares.

Social Context

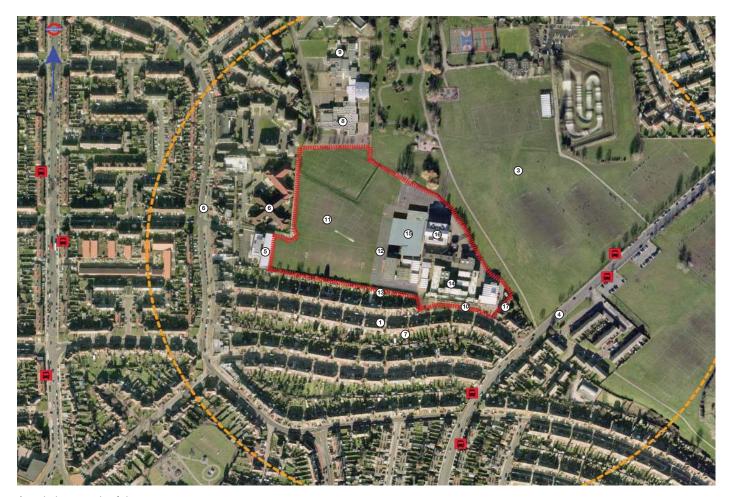
The surrounding area is one of considerable social disadvantage with a high proportion of low-income families. The school currently draws students from a relatively wide catchment across a number of wards in the borough. It is likely that the catchment of the school will change over time under its status as a Church of England School. The school has advised that this change is likely to result in more students from the immediate neighbourhood on the roll.

Neighbouring Land Uses

In addition to the park the school is bounded by a number of different land uses including the rear gardens of two storey residential terraces to the south, a healthcare centre and nursing home to the west and William Ford Junior School to the north.

Surrounding Land Uses

Further afield there is a strip of high street shops including a public house beyond the healthcare centre on Broad Street. At the northern entrance to the park there is a local library and a children's centre. The park itself offers a wide range of facilities including sports fields, MUGAs and a BMX track.



Aerial photograph of the site

KEY

- 1 School Road
- 2 Broad Street
- 3 Dagenham Park
- 4 Ballards Road
- 5 Health Centre
- 6 Nursing Home
- 7 Terraced Housing
- 8 William Ford Primary School
- 9 Library
- 10 School Entrance
- 11 Outdoor Sports Facilities
- 12 Car Park
- 13 Landscape Buffer
- 14 Existing Building
- 15 Sports Building
- 16 Art + CDT
- 17 Caretakers House

Existing Site Photos



Corner of Broad Street and Morland Road



Existing frontage on School Road



View from the park into the existing school



Rear external spaces



Existing corridor - too narrow for current pupil load

Design Development

Masterplan and Landscape



Existing siteplan



KEY

- 1 School Road
- 2 Broad Street
- 3 Old Dagenham Park
- 4 Ballards Road
- 5 Health centre
- 6 Nursing home
- 7 Terraced housing
- 8 William Ford Primary School 14 The lawn
- 10 Main entrance
- 11 Park entrance
- 9 School fore court
- 12 Primary school entrance
- 13 Service yard
- 15 Piazza
- **16** Visitor parking 17 Sports facilities
- 18 Landscape buffer
- 19 New building
- 20 Sports buildings
- Art + CDT
- 22 Staff parking
- 23 Bike store
- 24 Energy centre

25 Attenuation ecology zone

The New School



Entrance portal and forecourt at School Road



Approach to the campus



School Road

The main pedestrian entrance is from School Road but set back from the vehicle carriageway to create an area of public realm. This area benefits from the amenity of the mature existing trees as well as seating to provide a place for parents waiting to meet their children.

Entry to the site is marked by a 'gateway' portal structure that provides street presence, a line of security during the school day with controlled access, and a strong identity rendered through the use of bold graphic signage along the fence line.

Link & Lawn

The entrance forecourt on School Road is linked to the school buildings via a generous wide tree-lined boulevard. To the east a large grass terraced social informal area acts as both an open amphitheatre space and as a viewing area to the multi-use games area.

The external amphitheatre space can serve to showcase the schools specialism of performing arts.

Piazza

The Piazza serves as the external social heart of the school campus acting as a forecourt to the new building, existing Sports & Leisure Centre as well as the Design and Technology building.

The layout of the piazza will be flexible allowing for games, social interaction, external curriculum activities as well as circulation. The piazza is also trafficable to provide access for emergency vehicles across the site.

Piazza

Design Development

The New School



Colour

Colour is introduced to the facade to provide the building with a distinct identity with the palette drawn from variations on colours within the school logo.

East façade



Main entrance

Entrances

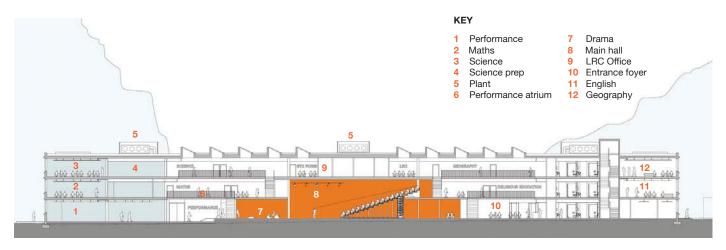
Entrances to the building are clearly articulated as a series of canopies of a similar character to the entrance portal at the entry point of the site.

Design Development

The New School

Key Idea

The new building is arranged with the performance hall and learning resource centre at the heart of the building with classrooms arranged around the perimeter. The space formed between these two uses create two connected atria that stepped to form open learning and social areas.



Long section

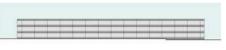


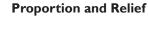
East elevation

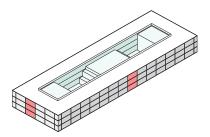
Massing



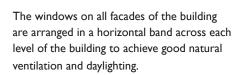


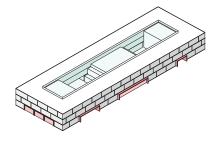






The massing of the building at three storeys is in keeping with those of the existing retained buildings.



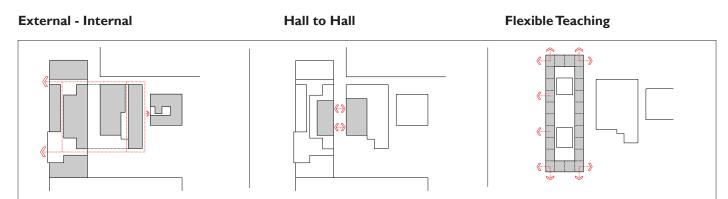


The elevation is comprised of a series of $7.5 \,\mathrm{m} \times 3.6 \,\mathrm{m}$ panels. Each panel contains a careful composition of generous windows, horizontal ventilation panels with an expanded metal mesh.

Internal Organisation

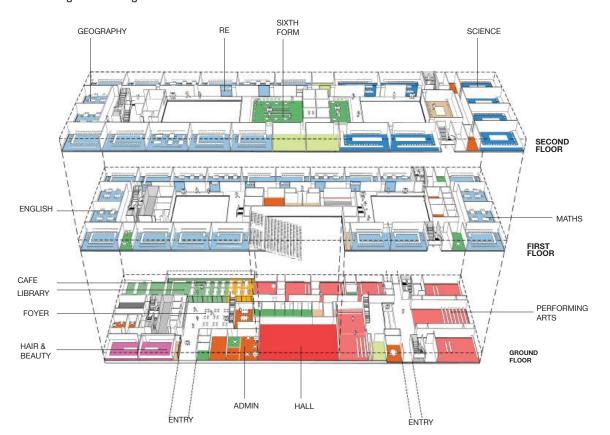
Organisational Principles

The design of the new building is based on a number of design principles that emerged from discussions with the School leadership team and the local authority.



Central Learning Resource Support Spaces Views Out

Internal organisation diagrams



Exploded view showing departmental arrangement in the new building

Internal Organisation



Entrance Atrium

Accessed off the secure entrance lobby this atrium brings natural light into the heart of the building. The open nature of the atrium reveals connections between subject areas based on different levels of the building and provides direct access to the dining and main hall.

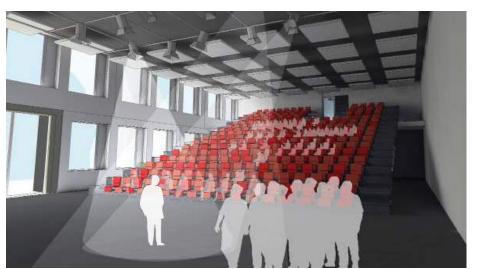
The entrance atrium



Performance Atrium

The rear atrium is surrounded by the Performing Arts Department and offers the potential to be used for impromptu performances and assemblies. This atrium also acts as a generous entrance space from the rear of the existing sports hall and external link to the William Ford School.

Performance atrium



Performance Hall

The performance hall seats up to 350 people and features retractable seating to allow the space to be used for a wide range of activities. The hall has direct access out to the courtyard which is formed between the new building and existing sports centre.

Performance hall

Design for Manufacture and Assembly



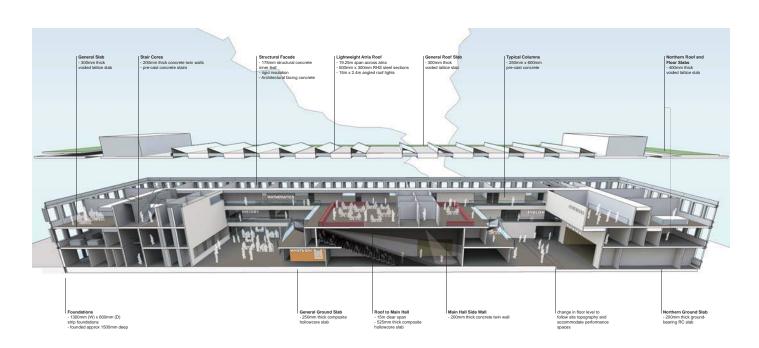
Laing O'Rourke precast concrete manufacturing facility

Design for Manufacture and Assembly

The building has been designed to maximise the use of off-site fabrication through the use of an integrated precast concrete façade and structural system.

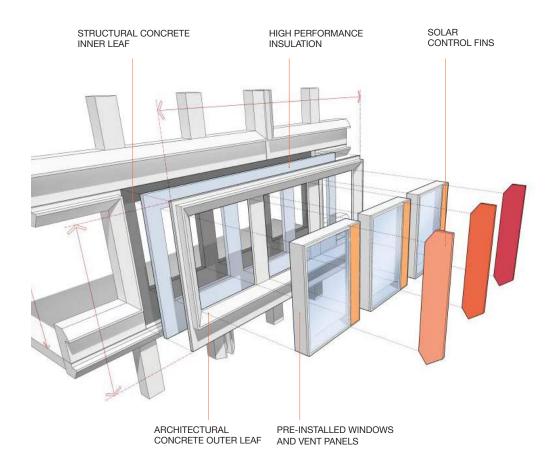
This system developed by Laing O'Rourke provides a number of significant benefits for the project:

- The structural and façade design is carried out is with early input and involvement from the manufacturing specialists and uses BIM to extract design information for the purpose of manufacture
- The structure and façade is largely fabricated in controlled manufacturing conditions
- The components can assembled quickly on site with completion of the structure and façade scheduled within six months of site operations commencing for Dagenham Park School
- Operating at maximum capacity the Laing O'Rourke Precast Concrete Manufacturing Facility can create all the precast concrete components for Dagenham Park school in 2-3 weeks.



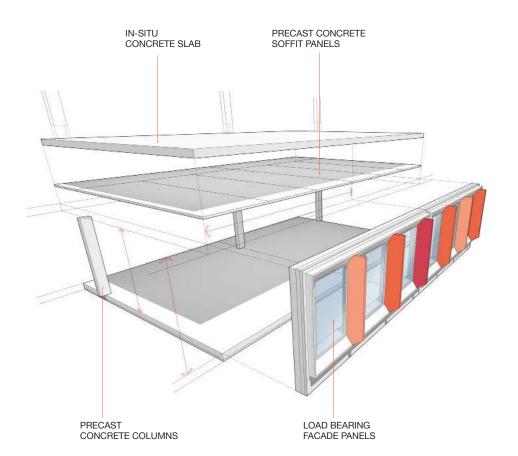
Building system

Design for Manufacture and Assembly



Façade Panel

The multilayered facade panels each measuring 7.5m x 3.6m form a loadbearing external and arrive on site with the windows already installed.



Precast Concrete Structure

The façade panels form one element with an integrated structural solution that also includes precast concrete columns, walls and soffit panels. The soffit panels act as permanent formwork for the in-situ concrete slab.

Sustainability

BREEAM

'Excellent' rating for the site and new building

Reduced Carbon

Target operational consumption of 27 Kg CO2/sqm/year.

Renewable Energy

Reduce CO2 emissions by 20% with biomass boiler.

To achieve these targets a range of technologies have been deployed including:

- > High performance building envelope with solar control
- > Mixed mode ventilation with heat recovery
- > Thermal mass
- > Efficient services
- > Rainwater harvesting and attenuation

In addition to achieving specific sustainability targets identified for the project a number of other factors that support a wider view of sustainable development have been considered.

Flexibility

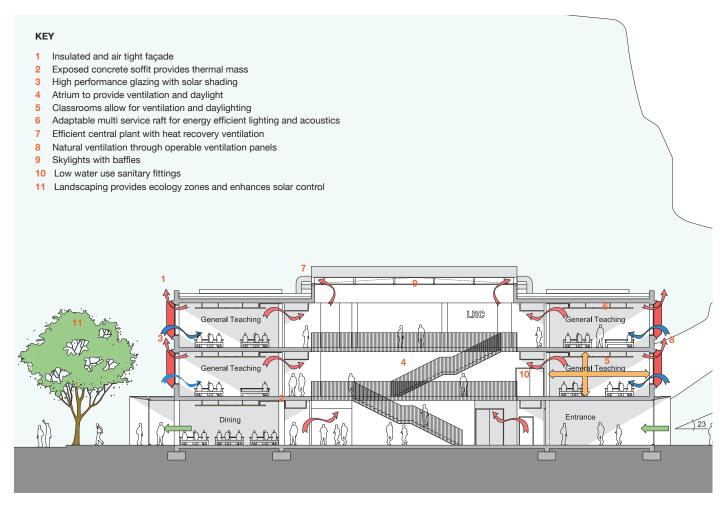
The building has been designed to be flexible allowing for future adaptation to suit changes in use patterns and requirements.

Waste Reduction

Minimising waste was a key concern in the design and construction process in line with the Waste Resource Action Plan (WRAP). The use of off-site manufacturing minimised the impact on site during construction as well as reducing material waste. The site recorded a total waste of $2.2t/100m^2/7m^3/£100k$ against a benchmark of $2.2t/100m^2/7m^3/£100k$

Building as a Learning Resource

The School intends to use the technology included in the building as a learning aid for the curriculum when teaching about the environment.

























May - June 2011











July - August











September 2011











October 2011











November 2011











January 2012











February/March 2012

Drawings



KEY

- 1 School Road
- 2 Broad Street
- 3 Old Dagenham Park
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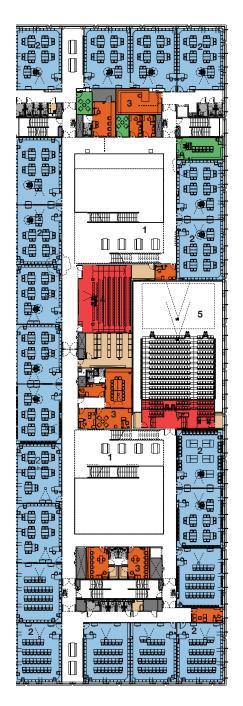
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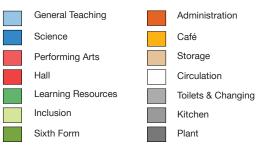


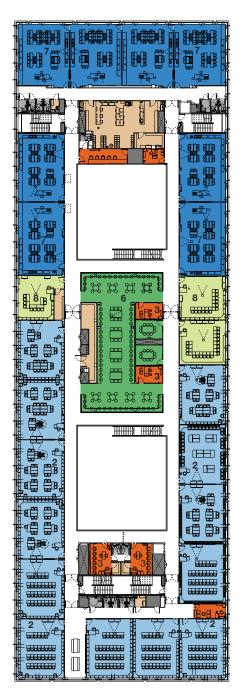






COLOUR KEY





SECOND FLOOR

KEY

- 1 Balcony
- 2 Teaching Space
- 3 Administration
- 4 Lecture Theatre
- 5 Hall and Theatre
- 6 Sixth Form
- 7 Science
- 8 Learning Support



View of Dagenham Park Church of England School across the playing fields

09074_422© Tim Soar



View of Dagenham Park Church of England School across the playing fields

09074_421© Tim Soar



Entrance to Dagenham Park Church of England School

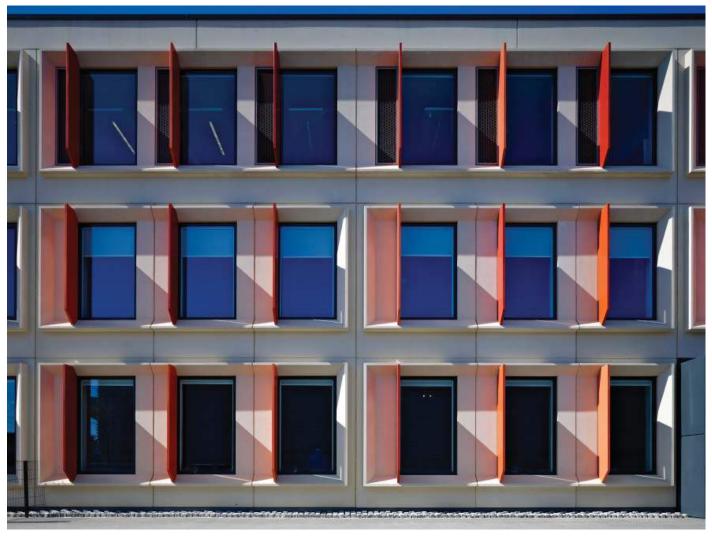
09074_414 © Tim Soar



East façade 09074_416 © Tim Soar

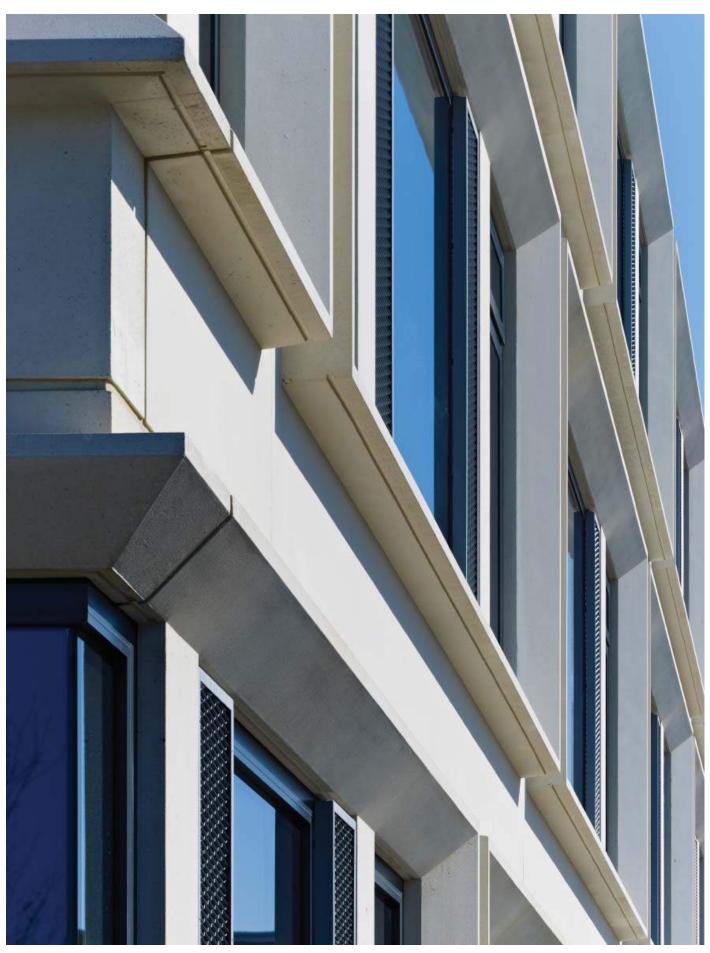


East façade 09074_417 © Tim Soar



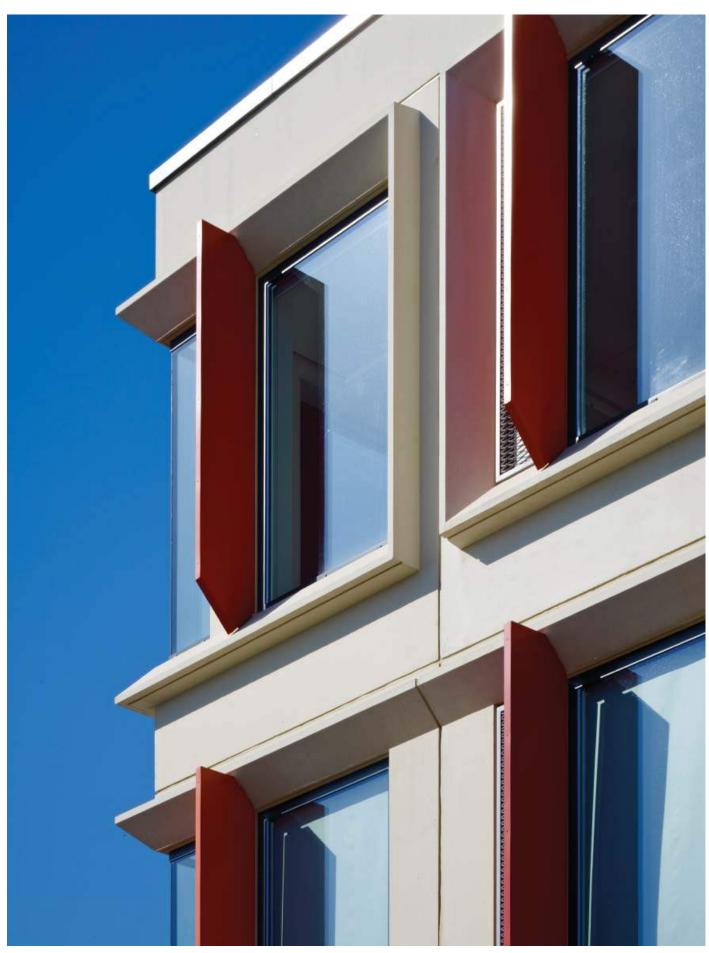
Detailed view of the façade and solar shading

09074_415 © Tim Soar



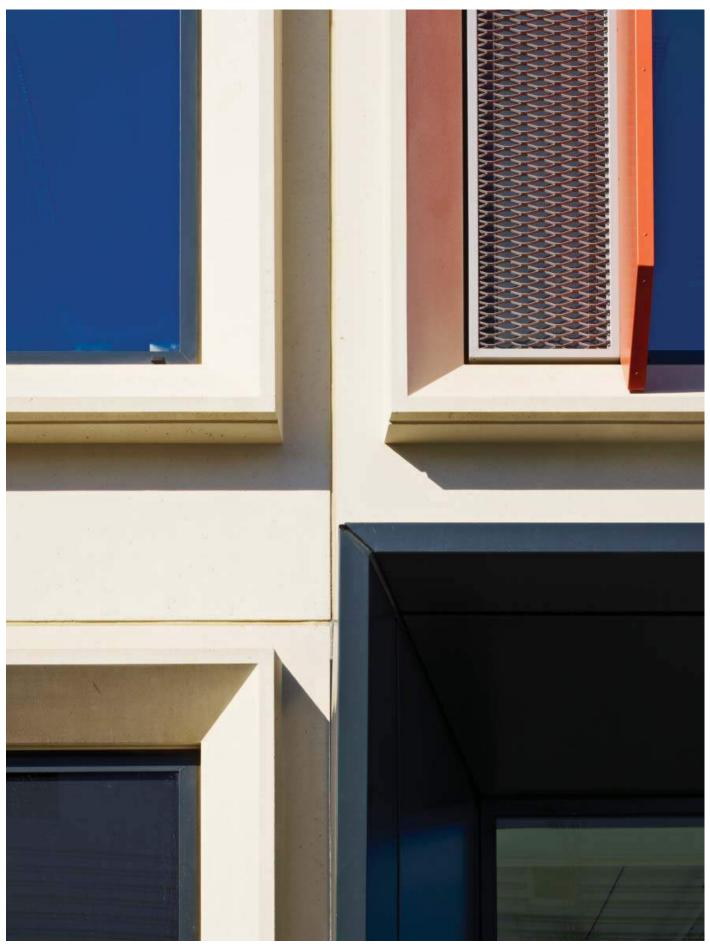
Detailed view of the concrete façade panels, windows and solid ventilation panels

09074_407© Tim Soar



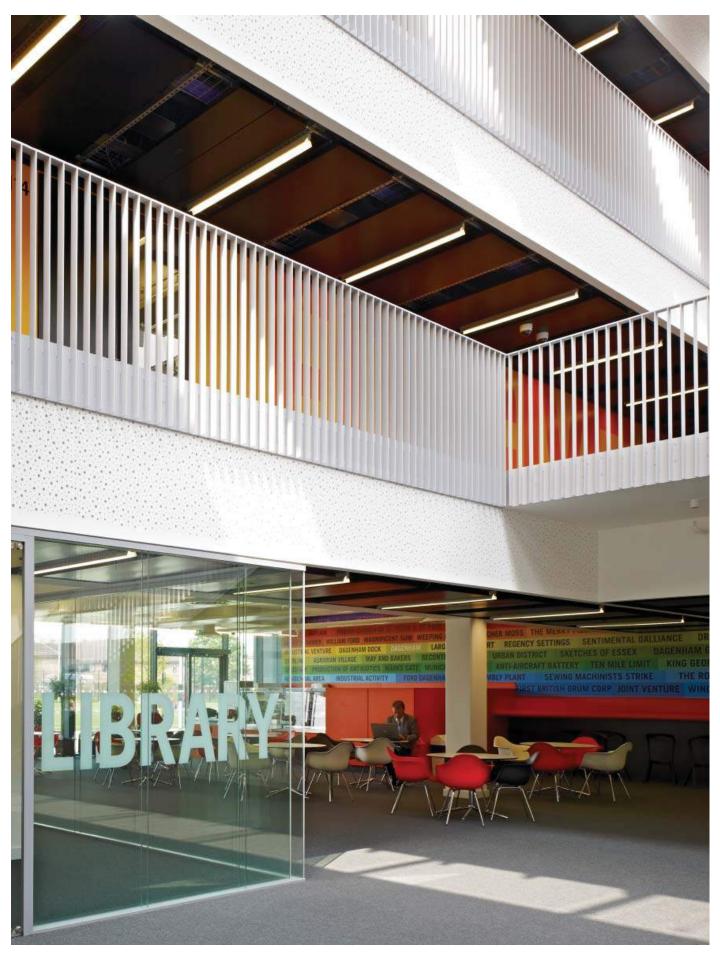
Detailed view of the concrete façade panels and metal solar control fins

09074_403 © Tim Soar

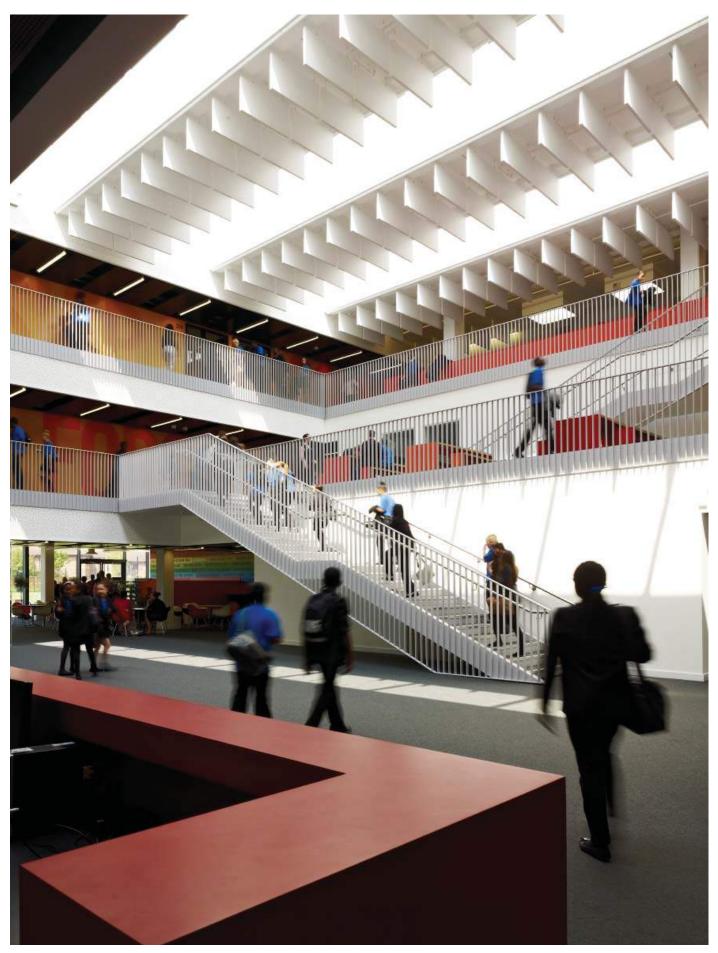


Detailed view of the concrete façade panels, windows, solid ventilation panels and solar control fins

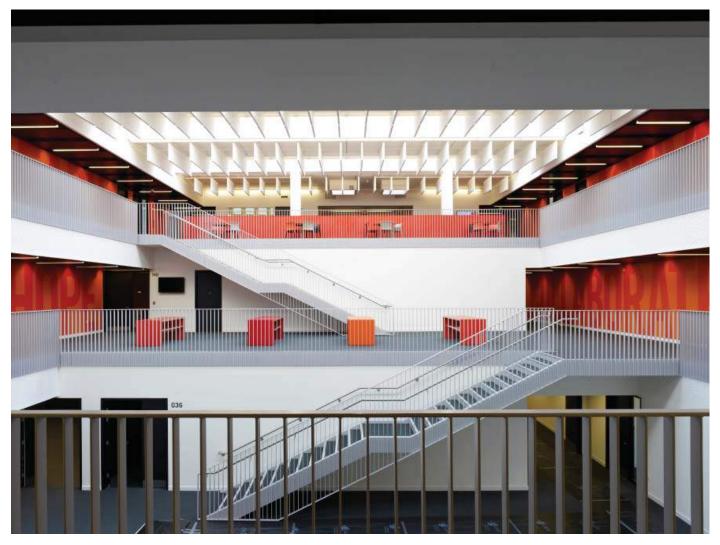
09074_402 © Tim Soar



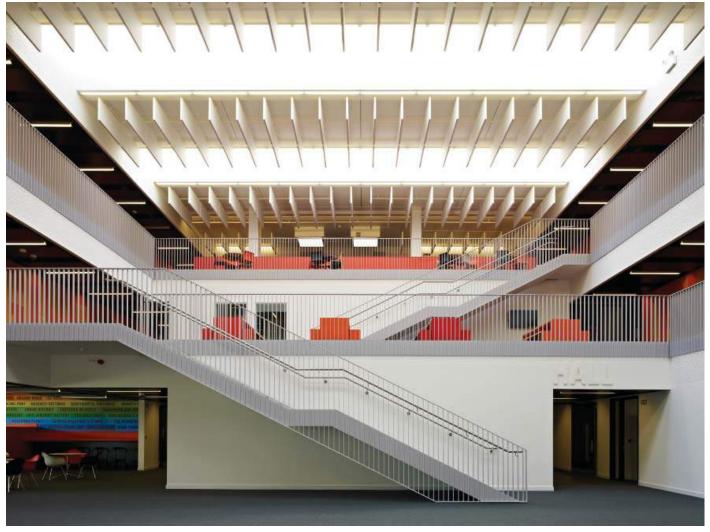
The Library and café are located off the main atrium



View from the main reception and entrance atrium

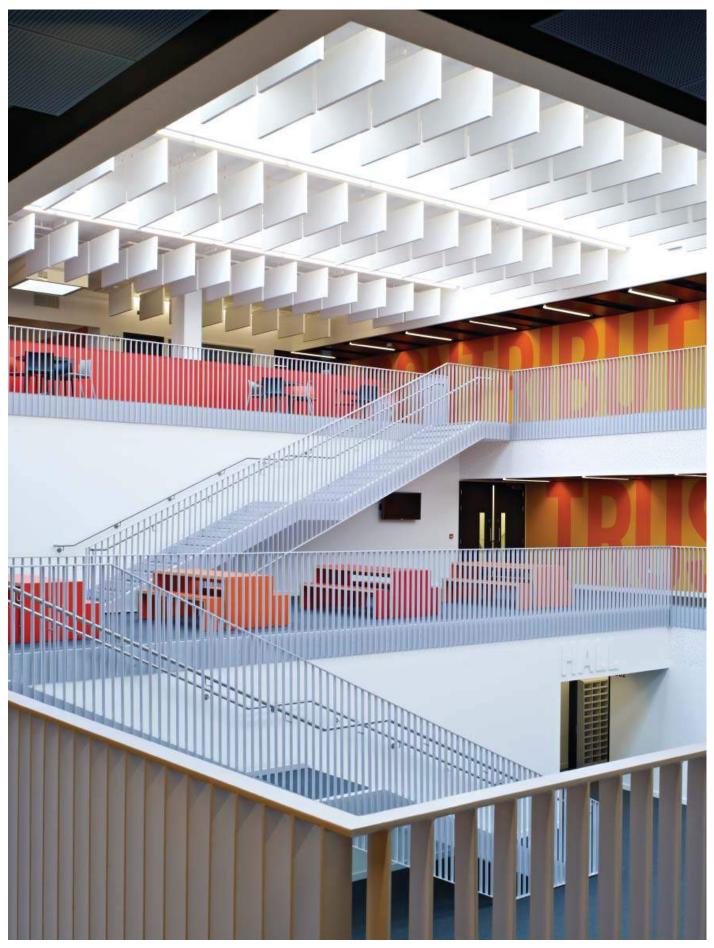


View across the entrance atrium 09074_433© Tim Soar



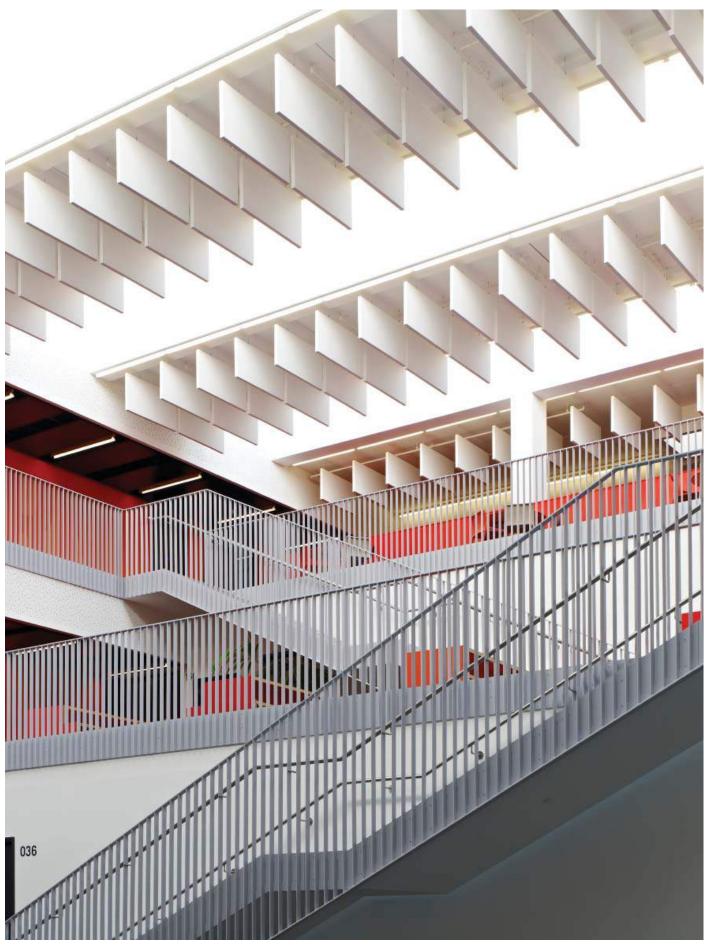
View into the entrance atrium with the café beyond

09074_427 © Tim Soar

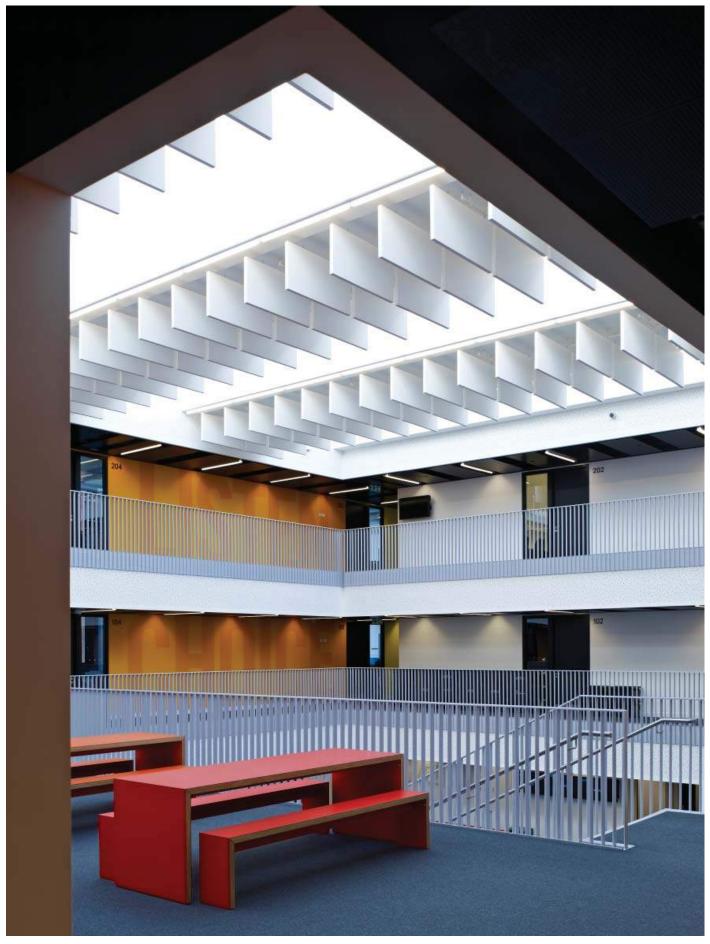


Laterally configured stairs rise up the rear atrium towards the sixth-form centre

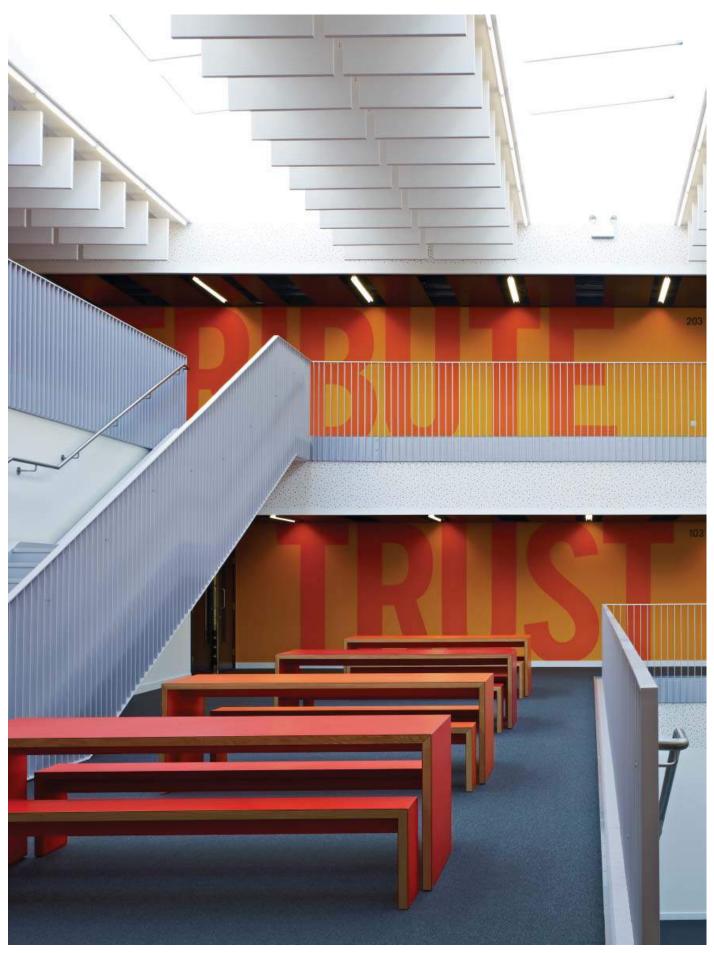
09074_431© Tim Soar



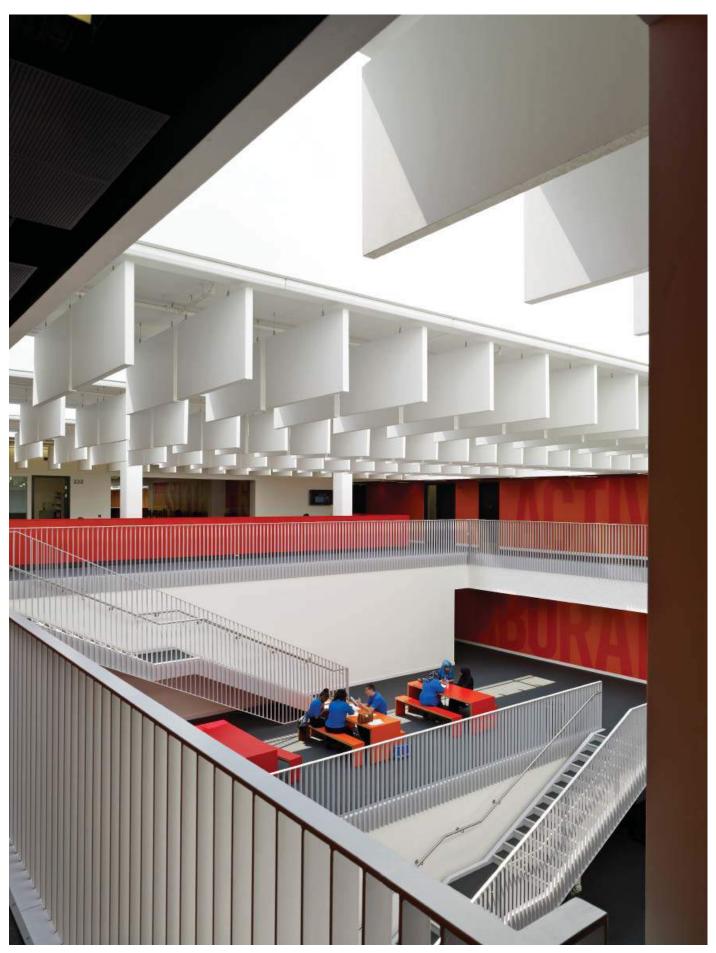
Circulation stairs 09074_413 © Tim Soar



Learning balcony 09074_432 © Tim Soar



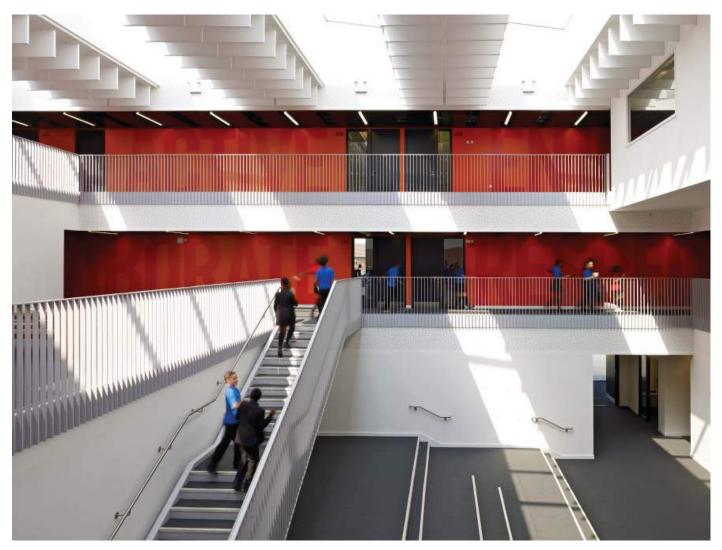
Learning balcony with supergraphics



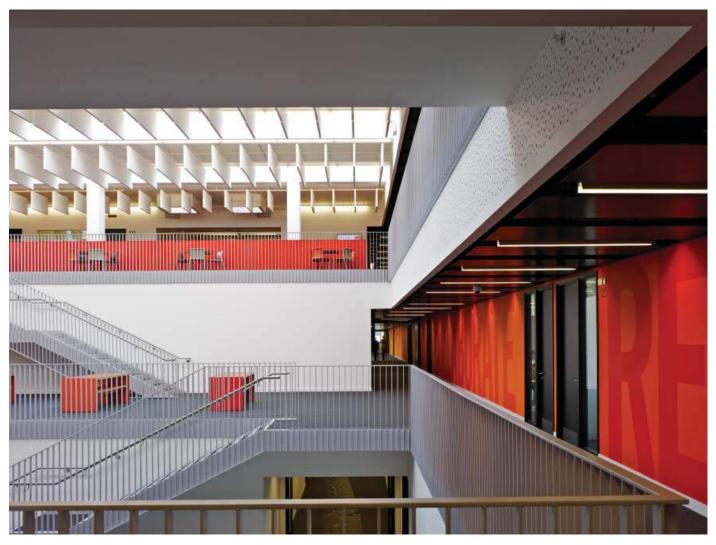
View looking down towards the learning balcony



Breakout space looking out onto the park



Circulation stairs 09074_453© Tim Soar



Learning balcony 09074_434 © Tim Soar

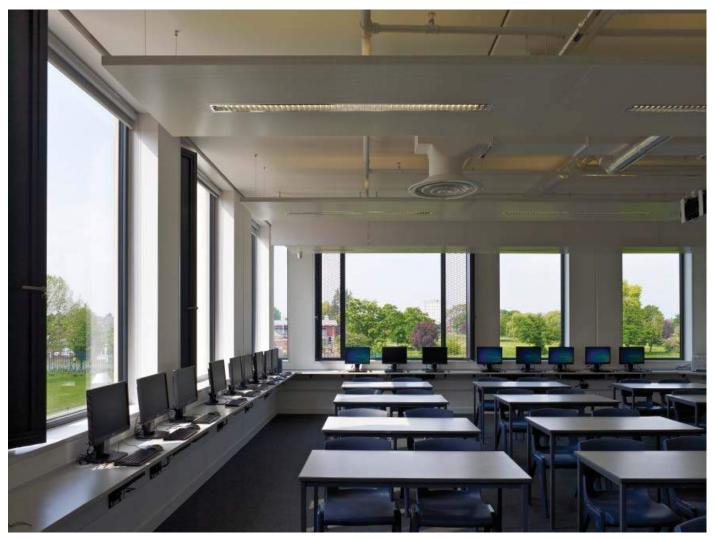


'World Map' graphic installation by designer Morag Myerscough

09074_410 © Tim Soar



Performance atrium 09074_456 © Tim Soar



Typical classroom 09074_448 © Tim Soar