

A photograph of a modern school building with a courtyard. The building features a mix of materials: light-colored wood paneling on the central section, blue-grey panels on the right, and purple accents around the windows. Students in dark uniforms are walking in the courtyard. The sky is overcast.

# Optimum Schools

EXCELLENCE • INNOVATION • COLLABORATION



**Claire Jackson**  
Education Director



Back in 2012, Galliford Try embarked on a journey to engineer a new approach to constructing schools in response to the findings of the then Coalition Government's James Review.

The drivers at the time were to find solutions to providing education buildings that reduced the costs and long programme times associated with the Building Schools for the Future initiative.

While some contractors responded by producing an off-the-shelf template design, value-engineered to be the cheapest option, Galliford Try worked with educators and leading architects such as Scott Brownrigg to research and create a series of principles that would integrate standardisation and repeatability. Crucially, these were aligned with the flexibility to cope with the wide range of variable requirements relating to site conditions, educational requirements and specialist facilities.

This culminated in the very first Optimum School, Hillview School for Girls in Kent, which was completed in 2013. Created as an approach rather than an off-the-shelf product. Optimum Schools has continued to evolve at a greater pace since then – taking advantage of the latest developments in technology and fabric to become ever more efficient and cost-effective.

We remain committed, through the excellence of our dedicated education team, to continue to work with all the stakeholders involved in the sector to develop Optimum Schools. Through that continual refinement, and constantly challenging ourselves, we have demonstrated that we can produce the high-quality school buildings that have seen us become one of the leading education contractors, creating 91,500 places for pupils over the past five years.”

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# Our process

Collaboration is one of the four key values of Galliford Try and nowhere is it more evident than in the process surrounding Optimum Schools.

The original development of Optimum Schools involved educators, designers and suppliers inputting into what became the basis of where we are today. The central goal was to find design solutions that could meet the needs of educational spaces without comprising on quality but still responding to the Government's demand for quicker, more cost-effective schools.





Inevitably, post the more ambitious Building Schools for the Future programme, some cost savings come from simplifying design — constructing buildings with more regular geometric footprints to reduce costs, for example. By partnering with design teams, such as leading architectural practice Scott Brownrigg, we have been able to demonstrate from an early stage how even in a more functional world, educational spaces can still give educators the open, bright, flexible spaces that make a difference to pupils and staff, and ultimately attainment.

Our Education Design Portal, a BIM-based platform, hosting template designs and components, gives all our teams an insight into not only how we design schools in the round, but how we integrate a kit-of-parts approach that introduces elements of standardisation into components, rooms and buildings.

Collaboration goes further than our own teams and our chosen designers. Fundamental to everything Optimum Schools has achieved has been the integration and early involvement of our supply chain in everything we have done. From innovative cladding and window systems, through to intuitive mechanical and electrical installations, we have been able to gain significantly from the ideas and inspiration of the suppliers and manufacturers we have worked with.

We collaborate with our clients, both those working through the major frameworks, such as the Department for Education, through to the senior leadership teams of the schools we are building. Optimum Schools is an optimisation process, not a compromise, so understanding our clients' drivers and desires is absolutely essential to the construction of an Optimum School.

“Optimum Schools is an optimisation process, not a compromise, so understanding our clients' drivers and desires is absolutely essential.”

Throughout the process we continue that collaboration through constant feedback and follow that through with our teams. We embed learning into our organisation through our company-wide Education Forum, which ensures that everyone works together to make Optimum Schools the best it can be.

# Our outcomes

Throughout the process of delivering an Optimum School we maintain a focus on meeting the criteria we have set ourselves that ultimately define what an Optimum School is.

“Our building is exceptional in meeting our needs now and in the future, providing flexibility to meet the curriculum demands of an ever-changing educational culture”

**Sarah Young, Director of Education,  
The Consortium Academy Trust**



- They should be high-quality, high-performing, permanent buildings.
- Provide cost and time efficiencies through standardisation of key components and off-site manufacture, without compromising quality.
- Demonstrate intelligent design: optimised buildings with high levels of space utilisation and functionality.
- Create the best environmental conditions for teaching and learning, that have a measurable impact on behaviour, concentration and standards of achievement.
- Use durable materials and low energy-consuming systems, minimising whole-life costs.
- Are flexible: the design components, the rooms and the pavilions are all intended to enable adaptability to sites.
- Employ integrated thinking: architecture, construction, structures, services, furniture and equipment, technology and landscape strategies are developed in parallel.
- Are quick to deliver using efficient construction methods that reduce cost and, on occupied school sites, cause significantly less disruption.
- Are customer-focused: our design approach is as much education-led, as cost-led.




## THE 10 PRINCIPLES

There are 10 guiding principles to every Optimum School:

1. Efficient layout
2. Simplicity of form
3. Design repetition
4. Standardised components
5. Off-site manufacture
6. Natural daylighting
7. Sustainable buildings
8. Simplicity of M&E
9. Fabric first approach
10. Robust materials







# Case Studies

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# Efficient layout

DITTON PARK ACADEMY

Ditton Park Academy made full use of our pavilion design concept to ensure that the school gained maximum benefit out of the space available to build on.

On a tight site surrounded by housing developments and with a flood plain, only a portion of the land for the school was suitable for buildings. The principles of Optimum Schools allowed us to create a design that used the space intelligently, utilising pavilions and creating efficient circulation around the campus.

An effective internal courtyard was created which not only provided a more secure environment, but along with the sports hall being sited lower than the main building, created significantly less building mass, a key condition for the planners.

“The school gained maximum benefit out of the space available to build on.”



£20m  
value

# Simplicity of form

## NORTH AND NORTH EAST LINCOLNSHIRE PSBP BATCH

The North and North East Lincolnshire Priority School Building Programme batch demonstrates perfectly how the clarity of the Optimum Schools approach delivers clear savings in programme time.

Through standardised design of building elements and components, a saving of 30% in design time and costs at the pre-construction phase in comparison to traditional construction was made possible across all eight schools in the batch.

Following the development of the Oasis Academy as the sample design, the remaining seven schools took just 16 weeks to submit to planning – approximately 18 weeks quicker than a traditional design process would take.

“The clarity of the Optimum Schools approach delivers clear savings in programme time.”

Despite each school presenting its own challenges and requiring a measure of bespoke development, the ability of Optimum Schools to provide relevant, pre-designed solutions meant that the ultimate programme times were cut through the build phase as well.



**16**  
weeks to submit  
planning for eight  
schools

**30%**  
design time  
saved



# Design repetition

## RISING ROLLS

In collaboration with Edinburgh Council and Hub South East, Galliford Try has applied the Optimum Schools kit-of-parts principles to develop standardised but adaptable free-standing classroom blocks for 26 primary schools. These have been able to be quickly procured and delivered across multiple locations to meet growing demand for school places in the city.

“The Optimum Schools approach has been incredibly successful for us.”

**Paul McGirk, Chief Executive, Hub South East**

As well as refining our approaches and designs to secure increased efficiencies, later phases have included further innovation and adaptation to provide nursery accommodation, gymnasiums and provision for catering and dining.

The need was met simply and more cost-effectively, driving down design time, utilising off-site manufacturing and materials that achieved the Council's aims.



**£22m**  
total value



## Standardised components

HESSLE HIGH SCHOOL

Hesse High School was a key part of the Hull and East Riding Priority School Building Programme batch. The £18m project was effectively the control option for the development and design of all the schools in the batch and set the direction in more ways than one for what was achieved elsewhere.

The key to its success was early collaboration with the supply chain, which allowed for the integration of components that while standardised, exceeded the ambitions of the previous specification.

In particular, working with Monodraught, a new ventilation system was developed that created a 45% cost-saving on

budget, which figured as part of a total saving of 30% across cost and programme for the project as a result of using Optimum Schools principles.

In addition, 65% of the build cost had already been fixed by the end of the initial design period, providing cost certainty and proving the case for standardisation and early engagement with supply chain.

“The key to its success was early collaboration with the supply chain.”



45%  
saving on ventilation

30%  
cost and programme saving

# Off-site manufacture

## KINGSTEIGNTON SCHOOL

Situated in South Devon, Kingsteignton School is a prime example of how Optimum Schools lends itself to off-site manufacturing methods. By incorporating repeatable design principles with the flexibility to use differing materials, the best possible outcome can be found.

Those Optimum Schools standardised repeatable elements combined with utilising off-site methods ensured we delivered the school 14 weeks ahead of schedule, allowing it to open in time for the start of a new term.

Faced with a challenging schedule and poor ground conditions, we developed a lightweight frame solution that used Structurally Insulated Panels (SIPs) to form the structure, internal partitions and floors. Pre-cast stair units and external

pre-fabrication of the mechanical and electrical systems all combined to the programme efficiencies.

Utilising so many off-site elements increased accuracy of the build process had a knock-on effect in increasing the quality of the finished product.

“By incorporating repeatable design principles with the flexibility to use differing materials, the best possible outcome can be found.”



# 14-week

saving against programme



“ The building proceeded at a pace which can only be described as amazing. We do not feel that there are any areas that could, so far, be improved on in terms of communication, quality and speed of the programme.”

**Dr Penny Fitch, Principal of Kingsteignton Primary School**



# Natural daylighting

## INVICTA PRIMARY SCHOOL

As one would expect for a set of design principles that are looking to minimise costs and maximise sustainability, the instruction from Optimum Schools is to make the best use of natural daylighting and ventilation where possible.

The Invicta Primary School in Greenwich, part of the Greenwich, Lewisham and Croydon Priority School Building Programme batch, utilises the natural contours of the site to achieve an effective solution.

Built on a slope, the design divided the school into two blocks with the main

teaching pavilion facing away from the main road with the other non-teaching spaces facing the street, and acting as an acoustic buffer. This allowed the teaching building to be naturally ventilated with openable vents or windows, rather than having to be mechanically ventilated.

“The school utilises the natural contours of the site to achieve an effective solution.”







# Sustainable buildings

NORTH EAST PSBP BATCH

The North East Priority School Building Programme PF2 batch was a hugely successful process for Galliford Try in many ways. Utilising the repeatable design principles of Optimum Schools, the batch was completed on time and on budget, a significant feat for a programme which included six primary schools and six secondaries.

“Key to the performance was the repeatability of design.”

One of the main design outputs of the process was a series of schools that performed fantastically well in

terms of sustainability, principally through energy consumption. The average electricity consumption of the entire batch was 25% lower than the challenging targets set at the beginning of the process, while gas consumption has turned out to be just under 30% better than expected.

Key to the performance was the repeatability of design, and the ability to use manufactured elements of construction that led to increased levels of air tightness. The use of BIM, which Optimum Schools promotes, also means that schools and facilities providers are left with comprehensive tools to manage their buildings ensuring even greater levels of energy efficiency.



# Simplicity of M&E

## THE HEIGHTS

The Optimum Schools approach to M&E systems is to leave a legacy of simplified systems, with excellent environmental performance but also crucially effective end-user management, as the buildings develop through their life-cycle.

Our solutions are designed to be as simple as possible for the end-users to operate, allowing them to understand how their environment works easily and how best to adapt it to changes in internal and external environmental conditions.

Automatic controls are provided where appropriate for areas such as night-time cooling and automatic carbon dioxide detection with local control for teachers to provide flexibility. Opening lights in windows are provided as part of a mixed-mode strategy.

The extensive usage of BIM allows us to design systems with simplicity at their heart, but we still look to innovate beyond that to ensure we are reaching our clients' needs.

For The Heights in Burnley, an alternative provision free school, the BIM strategy allowed modelling of climate and daylighting to maximise the benefit of the natural environment and simplify interventions.

It also allowed the team to develop asset management systems and computer aided facilities management that ultimately benefited the end users in understanding the buildings they were receiving.

**“ We have already noticed the difference that the environment is having on students, as they are more engaged and alert in class.”**

**David Bury, Schools Business Manager, The Heights**







# Fabric first approach

HILLVIEW SCHOOL FOR GIRLS

The award-winning Hillview School for Girls was the first Optimum School building to be completed in 2013. Essentially a science block with 12 rooms including laboratories and preparation areas, Hillview was very much the prototype which allowed our team to develop its learning and understanding of how the concept of Optimum Schools could work in practice.

The first key lesson that was learnt through the project is one that has been applied to all subsequent Optimum Schools projects - early involvement with the supply chain. Through engaging with suppliers

better cladding and windows systems were implemented that improved the thermal performance of the building while also cutting programme time. A 30% reduction in costs was combined with a 30% reduction in programme time, demonstrating despite its early phase that Optimum Schools had real potential to deliver.

“Engaging with suppliers ... improved the thermal performance of the building.”

30%  
reduction in cost

30%  
programme time  
reduction

# Robust materials

## CHERRY GARDEN SCHOOL

All Optimum Schools are designed to withstand the daily rigours that are unique to educational buildings. However, the flexibility within the Optimum Schools concept allows for bespoke specification when required ensuring that a full range of school requirements can be met, while still adhering to the design principles.

Nowhere is this more apparent than with a special educational needs school like Cherry Garden School in Southwark. The school accommodates children with

severe learning difficulties, complex needs and autism meaning that the school environment not only needs to withstand the day-to-day movement of children but also the constant moving of heavy assistive equipment through the school.

Of particular concern were the doorways. The requirements of the school meant the specification of very tall door sets to accommodate a trackway through the ceilings for personal hoists. The door sets needed to be able to fulfil not only the height requirements but also the

robustness to withstand the inevitable collisions. Specialist robust magnetic locks were required to allow an easier override to allow children to pass quickly through in cases of emergency.

“Optimum Schools are designed to withstand the daily rigours that are unique to educational buildings.”



# Awards



**Contractor of the Year award,  
Education Estates Awards, 2018**

Galliford Try



**Innovation in Delivering Value  
award, Education Estates, 2018:**

Ditton Park Academy, Slough



**Project of the Year award - Schools,  
Education Estates, 2018:**

Harris Invictus Academy, Croydon



**BIM project of the year, Construction  
Excellence Awards, 2016:**

Regional Winner: Holywell Learning Campus  
Regional Winner: North East, Priority Schools  
Building Programme



**Best Education Project,  
Partnerships Awards 2016:**

Gold: North East, Priority Schools Building  
Programme  
Silver: Anderson High School, Lerwick



**Supply Chain Excellence award,  
Construction News Awards 2014:**

Hillview School for Girls, Tonbridge, Kent  
(Optimum Schools)



**Public Buildings Architecture  
Excellence**

**Development of the Year awards,  
Scottish Property Awards 2017**

James Gillespie's High School, Edinburgh



**Sustainability award, Construction  
Excellence Awards 2017**

National winner: Holywell Learning  
Campus, Flintshire



**Innovation in Delivering Value award,  
Education Estates Awards, 2014**

Optimum Schools



**Education Construction of the Year,  
Education Investor Awards 2013**

Galliford Try



# Contact us

## OUR OFFICES

Aberdeen

Inverness

Grangemouth

Edinburgh

Glasgow

Gateshead

Warrington

Normanton

Wolvey

Solihull

Uxbridge

Guildford

Portishead



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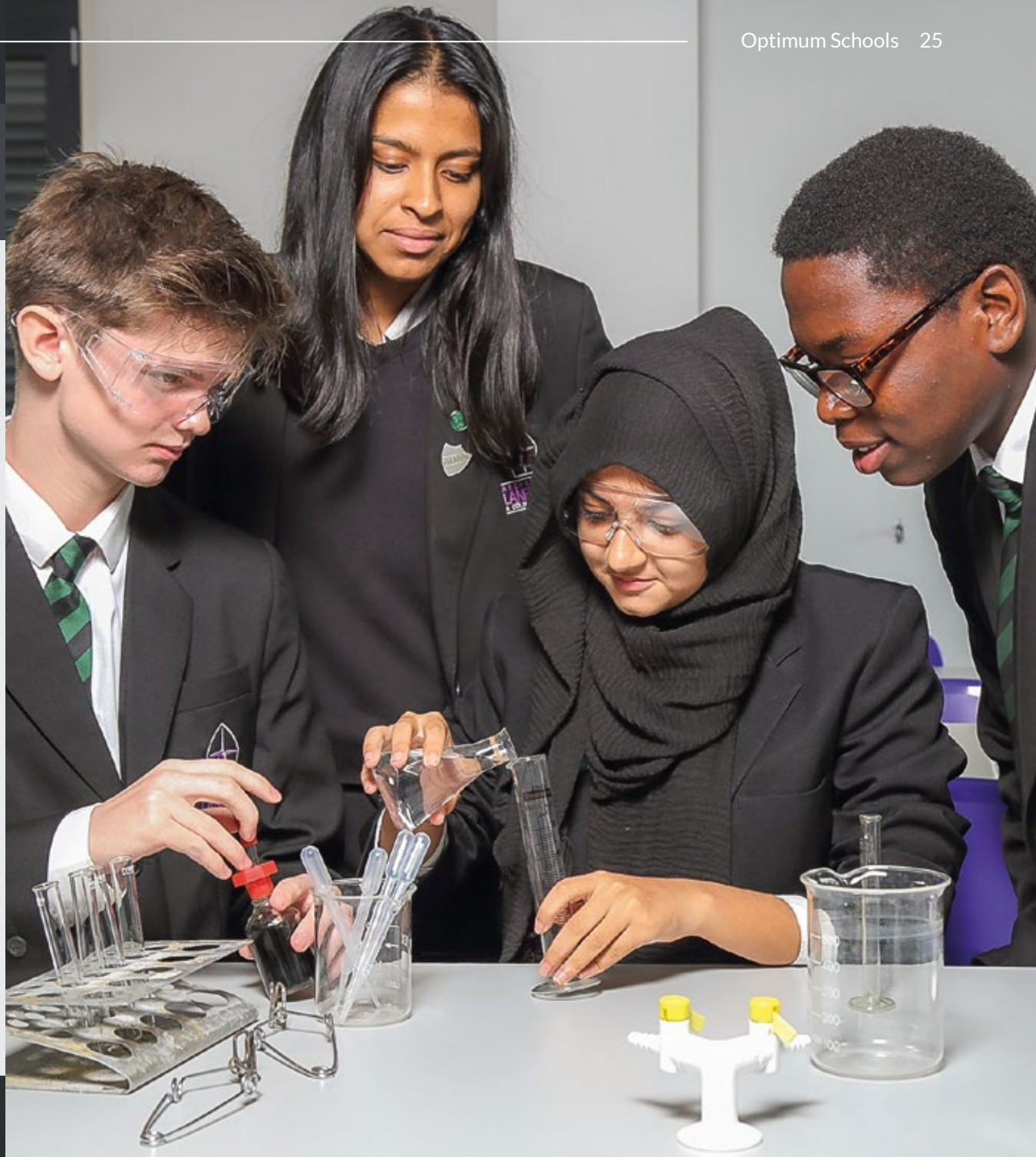
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