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## TESTIMONIALS

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*'The thing that strikes me with EOS, is that they want to help. They've got such an engaging team and they certainly offer a very good back up system in terms of support and design. If you go with the EOS system you know you're going to get a complete tested solution that is going to work.'*

**Mark Appleyard**  
**Kier Group**

*'EOS delivers product innovation backed by a quality service and the Sandwell UTC project was no exception. From pre-assembled compound sections to a bespoke and complex design detailing, EOS performed on every level. Their proactive support and doing what they say they will do, has cemented Taylor Hart's relationship with EOS.'*

**Andy Mahoney**  
**Taylor Hart**

*'We have worked with EOS on a number of projects and their consistently high level of service and attention to detail made them the obvious choice for a development as high profile as North West Cambridge. We look forward to working together once again in order to deliver an outstanding project.'*

**Neil Scott**  
**SCL**

*'The speed of installation of the EOS light steel framing system enables Stanmore to achieve more challenging deadlines on our sites. EOS have always provided us with fast and efficient service, facilitating our need to get materials to site quickly.'*

**Paul Sayer**  
**Stanmore**

*'If there are individual elements within the wall, then trying to achieve fire ratings or acoustic ratings is quite tough because we are dealing with lots of different peoples and components but the EOS Thrubuild® system provides a complete solution.'*

**James Mills**  
**Frank Shaw Associates Architects**

*'We find the services provided by EOS to be very helpful from start to finish. Their designers are approachable and take a proactive attitude to dealing with architects and main contractors (our clients) to push design development and ensure the project programme is met. EOS is a seamless SFS supplier to work with and we would happily work with them again in the future.'*

**Steve Cunningham**  
**C & G**

*'What differentiates EOS is how clean and straightforward their systems are and how quickly they go together. I think the only way to produce predictably high-performance buildings in the future is by going down the offsite route.'*

**Brian Alborough**  
**Richard Hopkinson Architects**



# CASE STUDY COMPENDIUM

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## PUSHING THE BOUNDARIES WITH LIGHT STEEL FRAME

EOS are pioneers in the design, manufacture and supply of a wide range of bespoke steel framing systems (SFS) for the offsite markets. By combining strength, durability and precision engineering, the EOS portfolio offers broad parameters to explore innovative solutions and optimise value engineering. For over 15 years we have been providing the industry with innovative panelised and volumetric modular systems resulting in high performance buildings that are cost and energy efficient.

### Research & Development

We constantly strive to improve the way we work. Our ongoing investment in research and development, combined with the latest machinery and digital technology, has resulted in the advancement of a new system approach for the offsite sector.

### Quality Products

Our highly skilled design and technical teams work in close collaboration with clients to ensure the most challenging of specifications are accurately manufactured and fit first time. All our products are CE Marked under the Construction Products Regulations and by using steel with a protective coating, EOS are confident in the durability of our systems.

### All Inclusive Packages

EOS offer all-inclusive fixed price packages that are supplied with proprietary brackets and fixings. This is a flexible service, and should the client require the product to arrive unassembled, EOS will pre-punch in the factory and supply together with all the necessary screws and special drill bits for rapid installation onsite.



### Corporate Social Responsibility

As a responsible company we recognise that we have a key role to play in influencing the government and the wider construction community to adopt more sustainable policies and working practices. EOS continues to collaborate with external organisations to ensure we address the key areas of recycling and sustainability. We embrace and apply best practice environmental principles in all activities over and above legislative requirements - setting clear strategies, ensuring open and transparent reporting structures. After water, steel is the most recycled product on our planet, with research showing that 99% of structural steelwork is reused or recycled.

### Shaping the Future with Etex

EOS is now part of Etex which brings together the products and solutions of three dry construction materials companies – Siniat, Promat and EOS. Our combined expertise in drywall, passive fire protection and steel framing systems has created a range of unique solutions from the building envelope to internal linings, partitions and penetrations. This partnership follows a decade of developing the EOS product and service range, underpinned by significant investment in state-of-the-art design and offsite manufacturing technology, coming together to deliver award winning steel framing systems across a wide range of construction sectors.





## Advanced Manufacturing

Advanced manufacturing processes have now elevated steel framing systems to the forefront of fast-track, sustainable and high-quality construction. Manufacture in controlled factory environments enables repeat quality every time and eradicates the risk of onsite variability, delivering more predictable outcomes.

Our manufacturing capability combines state-of-the-art E-Frame technology with proven assembly processes – achieving fully framed panels that do not require jiggling. Sophisticated software transfers design information directly to our production plant where we manufacture to accuracies that exceed construction industry norms. Our roll-forming machines produce components ready for onsite assembly, eliminating the need to manually cut elements to size.

## Cost Certainty

EOS guarantee a very competitive pricing structure, there are no hidden expenses for deflection heads or transport. We can provide a ‘lump sum’ total cost which will not alter, providing the specification remains unchanged.

We have a dedicated in-house estimating team to ensure that we meet specific requirements, considering the locality and site specifics. We provide a dedicated point of contact, who will manage this process from the start of your enquiry to the successful completion of the project.

Offsite manufacture for onsite assembly delivers:

- Superior quality
- Fast-track construction programmes
- Improved onsite health and safety
- Increased productivity through resource efficiency
- Minimised environmental impact through a reduction in waste
- High strength to weight ratios reducing foundation requirements



## Future Proof

Future proof and future ready – the benefits of specifying light steel frame are numerous, systems are well positioned to meet construction industry demands. Generating no onsite waste and the ability to be multi-cycled, light steel frame offers the prospect of a more productive and sustainable future by achieving:



### Faster Delivery

Time is a critical factor in construction. Offsite construction projects can be delivered in less than half the time of traditional methods, bringing radically reduced build times, leading to less time onsite and ultimately, a faster return on investment.



### Reduction in Costs

Light steel frame provides a lower cost option, whilst maintaining superior quality. Cost savings are achieved due to the speed of construction and resource efficiencies on site. Steel is unaffected by shrinkage, resulting in dramatically reduced repair costs down the line.



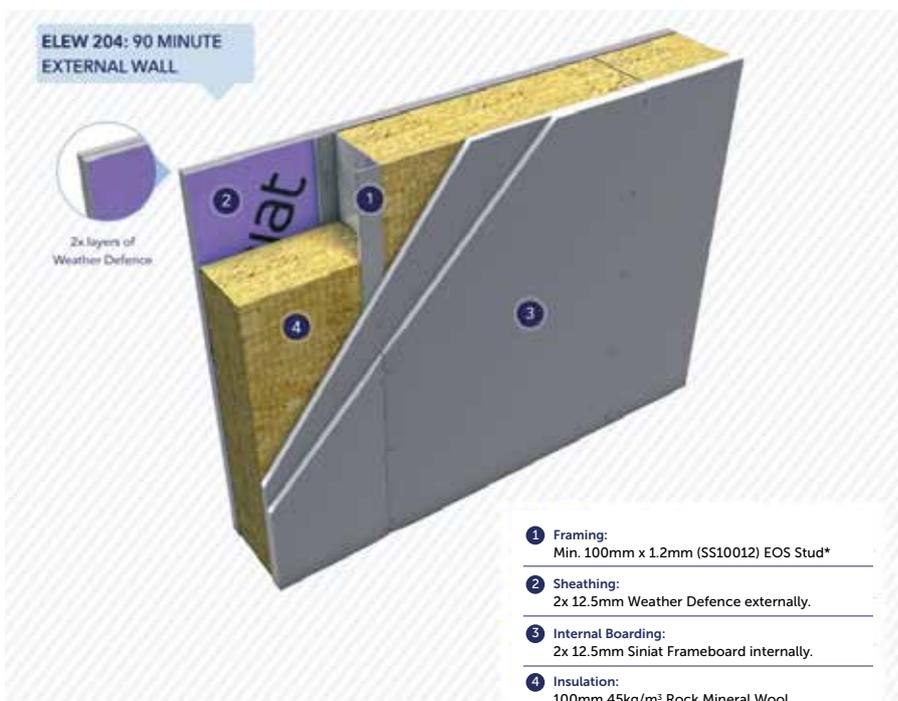
### Lower Emissions

With stretching national targets and stringent legislation to reduce carbon emissions in the drive for 'zero carbon' buildings - light steel framing systems minimise the impact on the environment and offers construction solutions to meet challenging targets.



## INTRODUCING THE REVOLUTIONARY **THRUBUILD®** SYSTEM

The EOS Thrubuild® systems use offsite manufacture and the latest testing to deliver structures faster, with assured performance built in. Developed in collaboration with Etex brands – EOS, Siniat, and Promat, these fast-track solutions make use of the latest products, technical know-how and manufacturing excellence of the combined team.



Meeting building performance requirements for fire, thermal, weathering, acoustics and airtightness – the range of Thrubuild® systems deliver an 'all in one' solution providing crucial time and cost benefits. A system approach ensures the outcome is more predictable and repeatable, eradicating the risk of onsite variability.

The loadbearing light steel 'through the wall' systems, have been developed to form the structure of low to medium rise buildings, up to nine-storeys, and fully tested with boarding and insulation for confidence in design performance. By considering all components, this system approach can be relied upon to offer excellent fire, acoustic and thermal capabilities to suit the needs of UK commercial, education and multi-residential sectors. These complete floor and walling systems have been tested and assessed for compliance with the latest regulations and standards to ensure a robust and reliable performance. All systems have been engineered for structural performance to the latest Eurocodes.



## A System Approach

The ground-breaking Thrubuild® loadbearing and non-loadbearing systems have been developed as integrated solutions, using a range of EOS light steel frame, Siniat Weather Defence external sheathing board, and Siniat Frameboard – an internal plasterboard exclusively developed for the loadbearing systems.

After having completed rigorous fire, acoustic, weathering, airtightness and mechanical testing – our all Thruwall® systems are supported by a 30-year warranty. Almost all building arrangements can be achieved, and non-loadbearing drywall systems can also be used to sub-divide internal space following initial construction of the building system.

### The system range comprises:

- Internal separating walls, between units, using twin 65mm studs or deeper
- Internal dividing walls, within a unit, using 100mm studs or deeper
- External walls, using 100mm studs or deeper
- Internal dividing floors, within a unit, using 150mm steel joists or deeper
- Internal separating floors, between units, using 150mm steel joists or deeper

### Certification

The EOS loadbearing system is Stage 1 NHBC certified by SCI, certificate number 20180325.

EOS and Siniat manufacturing facilities are certified to ISO 9001 and ISO 14001.

EOS operate to stringent Health & Safety standards and are certified to ISO45001:2018.

Products are CE Marked to the requirements of products and steel structures standards.

## PRODUCT PORTFOLIO

A major extension to our advanced manufacturing facility, together with the development of the EOS fabrication plant, supports our market leading ‘lump-sum’ all-inclusive pricing initiative and complements our total supply offering - enabling us to support the volumetric modular building sector together with high bay and continuous walling industries.

By combining strength, durability and precision engineering - the EOS portfolio offers broad parameters to explore innovative solutions and optimise value engineering. Our design and technical teams will work with clients to ensure specifications are accurate and that the system fits first time.

### EOS Stud & Track

Suitable for all types of infill panels into primary framed hot rolled steel and in-situ concrete framed buildings – our stud & track systems are supplied as cold-rolled U and C sections produced to the client’s specific specifications. The frame can carry aesthetic external cladding and accommodate complex design features such as ribbon windows or curved walls.

### EOS Panelised Solutions

Innovative panel systems which are fully engineered and assembled offsite. The framed solution is designed to accommodate fixings for any type of facade panelling or curtain walling system. Panels are entirely manufactured offsite, arriving pre-insulated (if required) as a complete unitised system, minimising variability and enabling rapid construction onsite.



### EOS Flooring Systems

Suitable for all types of loadbearing floors from intermediate separating floors to bespoke mezzanine solutions. Flooring elements can be supplied as C or lattice cross-section joists, to be installed individually or as floor cassettes. Light steel frame flooring joists and cassettes offer a real alternative to timber flooring and joists, and there is no risk of shrinkage or movement.

### EOS Roofing Systems

Formed using steel lattice beams or frames, the systems are lightweight and offers high strength to weight ratio, ideal for reducing the pressure exerted on the primary structure, whilst supporting the roof with its robust strength. The roofing systems deliver energy-efficient, well insulated buildings that outperform traditional methods.

### Volumetric Modular

From panelised solutions to pods and modular housing schemes, EOS modular systems are bespoke and developed to meet client specific needs. Offsite solutions include factory-to-factory framing products consisting of panelled wall sections and flooring cassettes. The modules can be supplied in kits, panels or as a fully assembled volumetric airframe.

## ACCREDITATIONS AND AFFILIATIONS

Embracing a world-class manufacturing ethos and optimising Design for Manufacture and Assembly (DfMA) principles are at the heart of the EOS operation. With a culture of constant improvement, we invest in the research to develop pioneering offsite systems which deliver enhanced quality and productivity.



Our award winning team support key industry standards and strive to exceed expectations on reliability and delivery. All products are manufactured to rigorous quality standards which are fully compliant with:

BS EN ISO 9001:2015

EN 1090-1: 2009 + AL: 2011

ISO45001:2018

ISO 14001

NHBC

Safestart

Affiliations include:



**LIGHT STEEL FRAME**  
ASSOCIATION

*Founder Member of the Light Steel Frame Association (LSFA)*



*Associate Member of the Steel Construction Institute (SCI)*

[www.eosframing.co.uk](http://www.eosframing.co.uk)

## THE **COMPLETE** PACKAGE

As pioneers of steel construction, EOS specialise in the design, manufacture and supply of a wide range of steel sections for panelised or volumetric modular offsite solutions for loadbearing and non-loadbearing applications. Offsite manufactured sections can be supplied in 'loose' bundles to make up in-situ or as panelised elements, modules or prefabricated cassettes. The prefabricated elements can also be factory fitted offsite with insulation, lining boards and decking boards or complete assembled volumetric modular space frames.

Our entire section range provides unique swaging technology and dimpling characteristics as standard. Panels and cassettes requiring boarding are presented with completely flush faces, negating the requirement for packers and shims. Tight tolerances can be provided as the stud and track sections effectively self-align, thereby ensuring that dimensional parameters are achieved without the need for complex jiggling or clamping.



### Value Engineering

It is essential to work closely with our clients and construction partners to add value from the onset and achieve the most comprehensive solution. Our technical design team are highly qualified and work in collaboration with your designers to establish the most effective and cost-efficient design solution, complete with structural calculations.

Our bespoke steel framing system consultancy services deliver construction and manufacturing assistance together with advice on:

- Design Detailing
- Structural Engineering
- Frame Application
- Sustainability
- Insulation U-Values
- Acoustics
- Flooring Systems
- Roofing Systems
- Cladding and Rain Screen Systems





## INNOVATION THROUGH COLLABORATION

The team at EOS are well known for building excellent working relationships based on customer needs. Through collaborative working and by forming strategic alliances, we provide our specialist services to businesses, large and small, including some of the most prominent companies in construction. EOS offer total partnering solutions including application consultancy, structural design support and value engineering – underpinned by quality manufacturing.

### Partnering Solutions

We offer a comprehensive expert partnering service, for conceiving, designing and manufacturing light steel framing solutions for the exacting requirements of the construction industry. We work with our clients to develop a collaborative strategy and build trust through reliability and delivery.

### Packaged to your Requirements

We offer all-inclusive fixed price packages that are uniquely supplied with proprietary brackets and fixings. We label and colour code by floor all deliveries to site. All Double Studs, Opening Jamb, Lintels and Cills will be dispatched from our factory preassembled. This is a flexible service and should you require the product to arrive unassembled, EOS will pre-punch in the factory, ghost assemble and supply, together with all the necessary screws and special drill bits, for assembly and installation onsite.

We have invested in our own fabrication plant to be self-sufficient in manufacturing our ancillary parts such as angles, brackets, windows and cills. This supports our market leading 'lump sum', all-inclusive pricing initiative and complements our 'total supply' offering – enabling us to support the volumetric modular building sector together with the high bay and continuous walling industries.

## CELEBRATING SUCCESS

Steel offers significant improvements in design capability and as an offsite manufactured solution, it is not adversely affected by severe weather - delivering both cost and programme certainty. Lightweight, structurally efficient steel frames reduce foundation requirements and make construction on top of existing buildings viable. The inherent benefits of steel construction are why this innovative material is dominant in shaping our city skylines.

The team at EOS support key industry standards and strive to exceed expectations on reliability and delivery. As winners of numerous construction Awards, through careful design detailing and value engineering, the EOS team deliver the highest quality steel framing systems, ensuring a smooth integration for follow-on trades to deliver environmentally sustainable projects on time and to budget.

EOS has become recognised for delivering exceptional quality, innovative solutions and outstanding service to the construction industry across the residential, commercial, education, leisure, healthcare and retail sectors.

Pictured right:

1. The Barn, University of Nottingham
2. Travelodge, Middlesex Street
3. The Sir David Attenborough Building
4. Sarah Swift Building, University of Lincoln
5. Southwark Town Hall
6. The Ram Quarter

### AWARDS INCLUDE:

#### CELEBRATING CONSTRUCTION AWARDS 2015

##### Winner

Best Value The Barn, University of Nottingham

#### OFFSITE AWARDS 2015

##### Winner Best Use of Steel

The Barn, University of Nottingham

#### OFFSITE AWARDS 2015

##### Highly Commended Public Sector Project of the Year

Northumbria Specialist Emergency Care Hospital

#### OFFSITE AWARDS 2016

##### Winner Best Use of Steel

The Sir David Attenborough Building

#### OFFSITE AWARDS 2017

##### Highly Commended Best Use of Steel

Court No. 1 Wimbledon

#### OFFSITE AWARDS 2018

##### Highly Commended Commercial Project of the Year

Southwark Town Hall

#### OFFSITE AWARDS 2018

##### Infrastructure Project of the Year

Brodick Ferry Terminal

#### OFFSITE AWARDS 2019

##### Winner Healthcare Project of the Year

Sarah Swift Building, University of Lincoln

#### OFFSITE AWARDS 2019

##### Highly Commended Retail/Leisure Project of the Year

Travelodge Middlesex St

#### OFFSITE AWARDS 2019

##### Highly Commended Best Use of Steel

The Ram Quarter

#### CELEBRATING CONSTRUCTION AWARDS 2019

##### Winner Education Project of the Year

Sarah Swift Building, University of Lincoln





## THE BRIEF

Defining the prerequisites – detailing the objectives, highlighting practical considerations and underlining project aspirations.



## PRACTICALITY REVIEW

Reviewing the overall project feasibility, site constraints, environmental impact, timescales and budgets.



## DESIGN TEAM MEETING

A collaborative process - involving the project delivery teams, making collective decisions to define the best solutions for the entire project.



## PROJECT PROCESS MEETING

Information share and focused discussion - communication is critical to any fluent process - effective status meetings lead to successful projects.



## PLANNING & PROCEDURES

Ticking all the boxes - onsite and offsite programme review, careful planning, and delivery schedule assessments - final liaison between all contractors.



## ERECTION OF FRAME

Specialist teams of steel erectors work to stringent programme and sequencing to deliver the optimised structure.



## FINAL COMPLETION

And finally... the collaboration of the design, engineering, manufacturing, and construction teams culminates in the building hand-over to the end client – a significant event for all involved.

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## BUILD CONCEPT

Early stage discussions - providing an architectural synopsis, conceptual philosophies and the identification of key drivers.



## DESIGN & ENGINEERING

Getting down to the detail - agreeing the main building form, defining the loadings and connection types.



## CREATING THE MODEL

Taking the vision to a virtual reality – involving the collective skills of the design and engineering teams to create a 3D model of the structural frame.



## FABRICATION & MANUFACTURE

Manufacturing precision components to deliver the optimum steel structural solution.



## START ONSITE

Getting going – work commences, men and materials onsite, inductions finalised, plant arrives – practical preparations get underway.



## STRUCTURE DELIVERED

Delivered on time and budget - the project is handed over to the main contractor, ready for the next stages of the development.



**CASE STUDY  
COMPENDIUM  
SHOWCASING**

The Optimum  
Fast-Track Solution

# New South Glasgow Hospitals Project


**Architect:**

IBI Group

**Client:**

NHS Greater Glasgow and Clyde

**Engineer:**

WSP

**Main Contractor:**

Brookfield Multiplex

**Installer / EOS Client:**

Prater

**Steel Framing System Supplier:**

EOS

**Materials / Type of System:**

SFS backing wall system

## OVERVIEW

Scotland's Super Hospital. The publicly funded project is the largest design and construction project in Scotland, intended to centralise services provided by three different hospitals. The new complex is set to comfortably hold 10,000 staff and patients onsite and be home to one of the biggest emergency departments in the country.

## DESIGN AND CONSTRUCTION

Built on the site of the old Southern General Hospital, the 14-storey Critical Care Complex was delivered ahead of schedule and under budget. It includes new teaching and learning facilities, as well as 25,000 m<sup>2</sup> of laboratory space.

The project also contains the New Glasgow University Hospital and the Royal Hospital for Sick Children, which are equipped with 1,109 and 256 beds respectively. Promoting a therapeutic and healing patient environment was essential in the design, and therefore all of the adult rooms feature large windows with views outside. The designs of the children's hospital also include a roof garden with access for beds to be brought outside.

Another key feature of the design and construction is the new 'Arrival Square' - a space connecting to both the main entrances of the adult and children's hospital and including a transport interchange.





### EOS INVOLVEMENT

Prater appointed EOS to design and custom manufacture 20,000 m<sup>2</sup> of SFS Facade backing wall system. EOS provided the materials, including their full design service, from their state-of-the-art manufacturing facility in County Durham.

Prater's Operations Manager, William Morrison said, "We employed EOS due to their reputation for speed, design and service. We are very pleased that our expectations have been surpassed and that EOS continues to deliver a first class service".

### POSITIVE OUTCOMES

Throughout the project, the wider social, economic and environmental costs and benefits were taken into account. As well as the provision of a cutting edge hospital complex, the further benefits of the project include the addition of public transport, local amenities and pedestrian routes and links – enhancing the whole life value of the facility.

# Northumbria Specialist Emergency Care Hospital


**Architect:**

Keppie Design

**Client:**

NHS England

**Engineer:**

Balfour Beatty Engineering Services

**Main Contractor:**

Lend Lease

**Installer/EOS Client:**

Farpod

**Steel Framing System Supplier:**

EOS

**Materials / Type of System:**

SFS and Pods



## OVERVIEW

When an emergency arises, seeing the right specialist can greatly improve a patient's survival rate. The Northumbria Healthcare NHS Foundation Trust set an ambitious goal as part of a £200million investment to improve healthcare for people in Northumberland and North Tyneside – by creating a hospital that will provide on-site emergency care consultants 24 hours a day, seven days a week. It is the first purpose-built hospital of its kind offering this level of medical cover in England.

## DESIGN AND VISION

The new model at Northumbria is in line with the vision outlined in the NHS Five Year Forward View to develop networks of linked hospitals that ensure patients with the most serious needs get to specialist emergency centres, and that hospital patients always have access to services. The Northumbria Healthcare NHS Foundation Trust invested £75million to build the new state-of-the-art Northumbria Specialist Emergency Care Hospital with a further £15million invested in new equipment, roads and infrastructure.

The hospital has been designed to provide a modern approach to care, focusing on the patient's needs during their stay. Most of the 282 beds will have single en-suite rooms, facilitating the management of patients with mixed dependency factors and will reduce the risk of the spread of infection. Upon completion the hospital will serve the 500,000 people of North Tyneside and Northumberland.



## CONSTRUCTION

The building consists of a two/ three-storey in-situ free-form concrete frame structure, typically faced in render. The new 30,000m<sup>2</sup> building will provide Inpatients wards, Accident & Emergency Care, Operating theatres, Critical Care, Maternity and Paediatricians, Radiology, MRI and X-ray, Pharmacy, Mortuary and Pathology.

Working for their client Farpod, EOS custom manufactured 20,000m<sup>2</sup> of steel structural systems and pods for the hospital - a value of £350,000. EOS were appointed to work on this project due to the quality of the product – offering a versatile building system and enabling rapid construction whilst providing a lightweight solution with high strength.

## POSITIVE OUTCOMES

The project team have targeted a BREEAM 'excellent' rating and has achieved a 45/50 Considerate Constructor score. Professor Sir Bruce Keogh, National Medical Director of NHS England commented: "This hospital is a glimpse of the future and sets the standard for other NHS organisations across the country.

This purpose built facility will have the right people, at the right place, with the right equipment. We should be proud of this hospital offering excellent emergency care for the local population." Construction of the new Northumbria Specialist Emergency Care Hospital, which has generated scores of jobs and investment in the region over the two-year build, has now been completed and handed over to Northumbria Healthcare NHS Foundation Trust.

# Royal Liverpool University Hospital



Image courtesy of NBBJ Architects

## Architect:

NBBJ

## Client:

Royal Liverpool and Broadgreen University Hospitals NHS Trust

## Engineer:

TPS Consult

## Main Contractor:

Carillion

## Installer/EOS Client:

Prater

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

Infill SFS



## OVERVIEW

The new Royal Liverpool University Hospital is the centre for specialist, complex and emergency care. It is situated near a thriving city centre, in one of the fastest growing areas of Liverpool. Located next door to renowned universities, including the medical school and the Liverpool School of Tropical Medicine, the build enables the delivery of the Liverpool BioCampus and health park.

Backed by the Mayor Joe Anderson, the hospital has put Liverpool on the map as the 'science city'.

## DESIGN AND VISION

The Clinical Services Support Building (CSSB) is the first of three phases of the redevelopment. It encompasses the main structure as well as two link bridges, one spanning between the Acute and CSSB and the other linking to an existing multi-storey car park.

The CSSB has a total footprint of 60m x 40m, with steelwork erected around a regular 9.9m x 6.6m grid pattern. The ground floor also incorporates a double height service yard. It was crucial that Trust requirements were to be followed when choosing which material to use. After an appraisal, steel was opted for the CSSB because of its speed and quality of construction. The largest steel element of phase one is the five-storey CSSB and its two link bridges, for which EOS supplied Elland Steel Structures - totalling more than 900t of structural steelwork.



## CONSTRUCTION

EOS manufactured general infill with some tall spans for this build and worked closely with Hilti to perform pull-out testing on fixings on site. A 100t capacity mobile crane was used to lift four 2m-deep girders, spanning 20m and each weighing 17t, that form the yard's open plan space. Two structural steel masonry lined cores provide the majority of the steelwork's stability, along with bracing. The main core was installed as part of the first steel erection phase, providing the steel erectors with sufficient temporary stability which all other areas of the structure could be erected from. Five phases, working to the full height of the building were needed to complete the structure.

The construction of the double height service yard involved the project's heaviest steel members - four 2m-deep girders, spanning 20m and each weighing 17t - requiring a variety of different mobile cranes. A series of 10m-high, 559mm diameter Circular Hollow Sections (CHS), with 25mm thick walls, support the girders. Once each CHS was installed, each member was filled with concrete to add to the overall robustness of the column supports.

## POSITIVE OUTCOMES

EOS provided their Infill Steel Framing Solution to the build. This was part of a major scheme, which was ideal for EOS to work on as they were able to showcase their award winning steel framing systems. The scheme was also the first time EOS had worked closely with main contractor, Carillion, providing the opportunity to form a strategic alliance with them from the early design stages onwards.

# Sarah Swift Building, University of Lincoln



## Architect:

BAM Design

## Developer:

BAM

## Engineer:

BuroHappold

## Installer:

Brebur

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill & Zed Bars



## OVERVIEW

The Sarah Swift Building – a 5,500m<sup>2</sup> structure named after Lincolnshire-born Dame Sarah Swift, who founded the Royal College of Nursing – has been designed to house the School of Health and Social Care and the School of Psychology at the University of Lincoln. The new academic building accommodates a diverse range of learning and research spaces, including teaching areas, offices, laboratories, and nurse training facilities which will support continued growth in the disciplines and enhance the student learning experience. Designed with simplicity, high quality and sustainability in mind, the Sarah Swift building provides purpose built, fully flexible spaces to support the University of Lincoln's world class research and development programme.

## DESIGN AND CONSTRUCTION

The University is committed to creating sustainable buildings that will further scientific research without compromising the environment. To create a sustainable facility, the engineers focused on delivering simple solutions designed for long term use.

As the five-storey building houses laboratories which include vibration-sensitive equipment – the main contractor had to meet certain design specifications. A key element of the brief for this specialist building was to create spaces that have the right environmental conditions, vibration levels and acoustic separation for their different functions, while ensuring the building remains simple to commission, build and operate.



## CHALLENGES AND RESOLUTIONS

In order to achieve the most effective design possible, the engineering team developed 3D models of all the rooms at an early stage to ensure users' requirements were clearly captured. This resulted in a flat slab structural design that allowed for a straight forward installation of services and permit for greater flexibility of use in the future.

EOS designed and manufactured a robust steel framing infill panel solution for the Sarah Swift project to meet the design and engineering brief. Bespoke zed bars were developed for overhang and intumescent paint clearance. The restrictive site presented access challenges and storage limitations - offsite technology provided the optimum solution. All deliveries were colour coded by floor and craned directly into the correct location.

## POSITIVE OUTCOMES

As an advanced high-performance offsite solution, steel is a robust, rigid and dimensionally stable material that does not suffer from movement created by moisture related issues. After water, steel is the most recycled product on our planet, with research showing that 99% is reused or recycled. EOS is committed to promoting sustainability within construction - our steel is highly recyclable, providing little onsite waste.

Through careful design detailing and value engineering, EOS were able to design and offsite manufacture the highest quality steel framing solutions to deliver and environmentally sustainable projects on time and to budget.

**OFFSITE**  
**AWARDS**  
**WINNER**

# St Lukes Hospital Market Harborough


**Architect:**

Faithful & Gould

**Client:**

NHS Property Services

**Engineer:**

Pick Everard

**Main Contractor:**

Morgan Sindall

**Installer/EOS Client:**

Taylor Hart

**Steel Framing Systems Supplier:**

EOS

**Materials / Type of System:**

SFS



## OVERVIEW

EOS were appointed by Taylor Hart to supply the main frame and SFS infill of this £7.8 Million project.

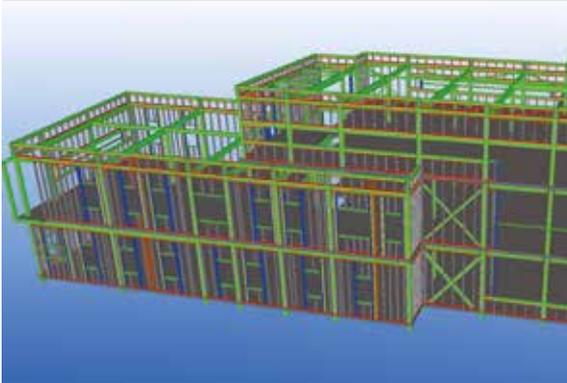
A landmark building for Market Harborough, this new centre on the St Luke's site will provide a modern and technically advanced health facility pooling together a wide range of healthcare services which are currently delivered across a number of NHS sites throughout Leicester, Leicestershire and Rutland.

The facilities will feature a combination of outpatient services which include: primary care, including general practice; outpatient services and diagnostics, an x-ray department; mental health services; physiotherapy and occupational therapy; and some non-clinical, administrative services.

## EOS INVOLVEMENT

EOS were heavily involved from the outset and provided crucial input at the design stages to help speed up the approval process and ensure that the tight programme schedule was achieved.

The steel main frame was hot rolled with concrete slabs and used general SFS infill from ground floor to second floor. EOS provided bespoke wind post details to accommodate large openings into areas where structural steel was tapering to form a roof slope.



There were areas of brise soleil sun shading which were connected directly back to the SFS. EOS also specified additional pieces of steel to fit within the SFS sections in order to bolster the thickness and ability of the SFS studs and to support the load of the brise soleil.

### POSITIVE OUTCOMES

EOS involvement with the project delivery team from the design stages through to installation paid dividends in completing this to programme and within budget.

In addition to the tight time frame, noise abatement was a major consideration during the build due to the close proximity of existing hospital recovery wards. EOS pre-engineered their system offsite to reduce noise and speed up installation time on site minimising levels of disruption.

Elliot Howard-Jones, Director of Commissioning Operations for NHS England (Central Midlands), said: "This building is one of our biggest investments in planned care in the area and part of our commitment to ensuring the people of Market Harborough and the surrounding communities have access to first-class, modern healthcare services."

## Advanced Manufacturing Building, University of Nottingham



### Architect:

Bond Bryan Architects

### Client:

University of Nottingham

### Main Contractor:

GF Tomlinson

### Engineer:

Arup

### Installer:

Metclad Contractors

### Steel Framing Systems Supplier:

EOS Facades

### Materials / Type of System:

Steel Framing System (SFS) - Infill

### OVERVIEW

The pioneering Advanced Manufacturing Building for the University of Nottingham, will help to shape the future of the UK manufacturing sector. The new building is an expansion of the University's Faculty of Engineering, creating teaching spaces, laboratories, modern workshops and offices for research activities, including nano-scale production, robotics and large-scale aerospace demonstrator components. The new landmark building will have the capacity to house 699 staff, students and researchers, helping to train and provide the next generation of industry professionals.

### DESIGN AND MANUFACTURE

Built on a former brownfield site, the state-of-the-art 9,011 m<sup>2</sup> training and research facility, is located within the University's Jubilee Campus. The project has been part funded with £5 million from D2N2 Local Enterprise Partnership and a £1 million contribution from the Wolfson Foundation to provide a state-of-the-art clean room for the investigation of 3D printed pharmaceutical devices.

The building adopts low-energy design techniques to create a sustainable solution without compromising the need for an adaptable and pleasant working environment. Low-energy design features include louvers for ventilation, light shelves that allow natural illumination into the building, photovoltaic cells and high-performance insulation for heat and sound.





To create the high performance external envelope, EOS completed the design, engineering, manufacturing and supply of the infill walling Steel Framing System (SFS).

By adopting Design for Manufacture and Assembly (DfMA) principles, a customised design improved application efficiency. In line with the sustainability ethos of Nottingham University, DfMA helped to identify, calculate and eliminate waste or inefficiency in the building structure design. EOS Facades have devised innovative processes to support and quantify design decisions, to ensure that DfMA is cohesive to every opportunity during the design and development path. These processes include BIM technology, which controls the detail of the manufacturing process to enable the design brief to be tested and the proposed construction solution to be changed at minimum cost.

The level of detail involved in DfMA can be altered according to the project requirements. By manufacturing offsite, EOS were able to develop as much of the finished product as possible in the factory - ultimately minimising on site labour.

Working with their client, installer Metclad Contractors, EOS Facades provided a high level of support, from the early design stages, right through to the installation. The team at EOS Facades are well known for building excellent working relationships based on customer needs. Through collaborative working and by forming strategic alliances, EOS provide specialist services to businesses, large and small, including some of the most prominent companies in construction.

# 'The Barn' Amenities Building University of Nottingham


**Architect:**

Make Architects

**Client:**

The University of Nottingham

**Engineer:**

AKTII

**Main Contractor:**

Willmott Dixon

**Installer / EOS Client:**

Grantham Ceilings and Interiors

**Steel Framing Systems Supplier:**

EOS

**Material / Type of System:**

40 Tonnes of SFS



## OVERVIEW

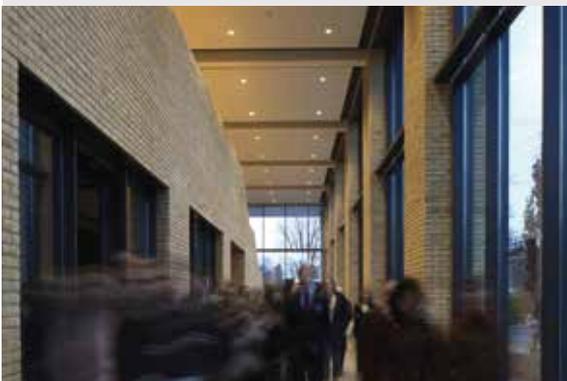
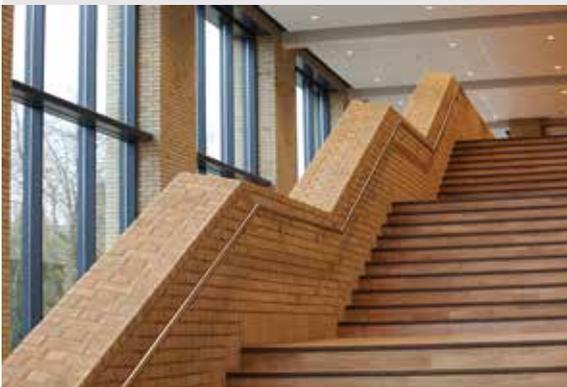
The three-storey, £9 million amenities building at The University of Nottingham, known as 'The Barn' brings together a dining hall, bar, student services and social spaces, whilst still maintaining aesthetic appeal and complementing the rural landscape - offering maximum value for both clients and end users.

The 4,250 m<sup>2</sup> building was urgently required to meet the demands of the increasing campus population. It was created in response to the University's 2008 masterplan for the 100-acre Sutton Bonington campus - to establish a new amenities building which would have a legible configuration, with clearly defined entrances and general public spaces arranged around a large, open concourse.

## DESIGN AND MANUFACTURE

EOS were appointed as the steel framing systems supplier for the project – providing 40 tonnes of SFS. The EOS team also provided vital input into the project design.

The redevelopment helped to integrate the campus, offering improved legibility through the creation of a central pedestrianised area known as the Boulevard. The area surrounding this route was previously disconnected by car parking and obstructed by buildings. These structures and the existing Amenities Building were demolished and replaced.



To encourage long-term value, hard-wearing materials that would maintain their initial aesthetic and durable appeal were selected. Light steel frame permits a fabric first design approach and optimises the building envelope. Steel is a long-term solution that is widely recycled at end of life – providing minimum onsite waste and enabling a more sustainable future for the facility.

### EOS INVOLVEMENT

EOS took every step to add value, including offering a dramatically improved building programme through offsite manufacturing and ensuring the building was weather-proof quickly allowing follow on trades to begin earlier. Providing a fast-track offsite manufactured approach, also reduced the disruption to students and university staff.

EOS also ensured The Barn was value-engineered from blockwork to steel framing systems – helping to reduce cost. EOS worked with the project delivery team throughout the process to ensure the development was delivered to the highest standard.

### POSITIVE OUTCOMES

Capital costs were reduced due to value-engineering and the short programme time – removing an estimated 6% from the original capital cost budget and leading to a faster return on investment for the clients.

The Barn is on target to achieve a BREEAM 'excellent' rating – aligning with the Universities' position as one of the most sustainable educational facilities in the world. Light gauge steel is a sustainable solution, offering a minimised environmental impact.

When asked to comment, Professor Sir David Greenaway, Vice-Chancellor of The University of Nottingham said: "It is essential that we incorporate new buildings that fit comfortably in our landscapes and reflect the needs of our students. The Barn is an outstanding new addition to our campus. It complements and enriches the look and feel, whilst providing our students with a superb facility which they will be able to enjoy for years to come."

For EOS, it was an honour to be involved in such a rewarding project which will improve the lives of the end users, both socially and academically for future generations.

# Beaulieu Park School, Chelmsford



## Architect:

Clague Architects

## Developer:

Chelmsford Learning Partnership

## Main Contractor:

Kier

## Installer:

Eden Facades

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill, SFS Overhang, Bracketry and Bespoke Ancillary Products

## OVERVIEW

As demand for school places increases, the need to build education facilities at a rapid rate calls for innovative building methods. There are many factors influencing demographic changes – ensuring there are enough school places for local children is a major concern for parents and a challenge for government and councils. A large-scale housing development at Beaulieu Park in Chelmsford, Essex, encompassing 3,700 homes created such a demand. The upsurge in local inhabitants requiring schooling had to be quickly accommodated – offsite manufacturer EOS provided the solution. As the first all-through school in the county of Essex, Beaulieu Park had to cater for children of all ages in an efficient, safe and an age-appropriate manner.

## DESIGN AND VISION

The decision was made to provide over 1,600 new school places through the provision of new primary and secondary school facilities, with a nursery and sixth form centre. The buildings' size and scale reflect the developmental stages of the children, with a single storey block for early years, flowing into a two-storey primary environment and a separate three-storey block at the opposite end of the site for older students.





### CONSTRUCTION

Programmes and budgets were tight, meaning that a rapid design and construction strategy was required. EOS provided full BIM level 2 collaboration with the architect and main contractor Kier to provide infill steel framing systems (SFS) to all exterior walls and parapet envelopes. The finishes consist of hard-wearing masonry and cladding in keeping with the new development nearby – the contemporary facade delivers a robust solution for the high-traffic environment.

### POSITIVE OUTCOMES

With approval prior to manufacture and a pre-agreed schedule of works – despite the complexities of the steel framed superstructure – the project was brought in on programme and budget. EOS were able to overcome all buildability issues with non-standard products and expert detailing skills. All the ancillaries and bracketry products were manufactured by EOS, providing a seamless one-stop shop supply solution for installers, Eden Facades.

EOS's core objective was to design and manufacture a cost-effective offsite solution to help deliver the project on time and within budget. The steel frame building, with all the complexities this entails, uses non-standard details, specifically designed and manufactured by EOS – from SFS overhang and structural bracing hidden in the SFS zone, to large openings requiring wind posts and SFS open face columns and beams needing intricate bracketry.

Beaulieu Park School is a time critical element in a major local infrastructure project. The all-through school has been built in rapid time to an outstanding quality, with excellent fire, acoustic and thermal properties through a custom offsite-manufactured steel framing system complete with superior insulation and sheathing.

# The David Attenborough Building University of Cambridge

*Images courtesy of Nicholas Hare Architects*



## Architect:

Nicholas Hare Architects

## Client:

University of Cambridge

## Engineer:

AECOM

## Main Contractor:

KIER

## Installer/EOS Client:

SCL

## Steel Framing System Supplier:

EOS

## Materials / Type of System:

SFS Infill

## OVERVIEW

A major refurbishment of an iconic landmark in the heart of Cambridge – the old Arup Tower project is the result of a collaboration between the University of Cambridge and the Museum of Zoology to reinvigorate and expand a well-known and well-loved building.

Following its regeneration, and renaming - the Sir David Attenborough Building, as it is now known, has become a focal point for research and practice, helping transform the understanding and conservation of biodiversity.

## EOS INVOLVEMENT

Whilst the building retained the original 500-seat lecture hall and a proportion of the upstairs laboratories, this renovation has allowed for the building to function in other capacities. The project provided a significant extension of the Museum of Zoology, including a space for the museum's beloved finback whale skeleton at its entrance, and has become the new home for the Cambridge Conservation Initiative.

EOS provided SFS (Structural Framing System) infill throughout the main building and the museum's striking whale skeleton enclosure. In addition to this, EOS also custom manufactured a variety of ancillary features and steel solutions depending on their location within the building.





For the impressive “Living Wall,” EOS created a 17 metre tall structure, stretching the three storeys of the internal atrium, to support the plants and mosses that would be planted upon it. Bespoke oversail bracketry and lattices were also installed vertically up the 17 metre height to assist the growth.

To provide effective rainscreen cladding support, EOS utilised their vertical stud SFS with horizontal noggins for both major and minor bay support walls. The cladding required multiple co-ordinated fixing points, so walls were introduced that had lots of vertical stud, and horizontal noggins elements. The major bay supports used horizontal noggins at 600mm vertical centres, whilst the minor bay supports used 750mm vertical centres in addition to hot rolled steel and chemical anchors – fashioned by EOS.

### POSITIVE OUTCOMES

Throughout this project considerable challenges were faced. The refurbishment of the existing building framework led to large tolerances and unexpected site issues, however, through regular site inspection, quality assessment checks, as well as consistent onsite assistance and site investigation by EOS, solutions were quickly and effectively implemented. This ensured that the project was able to be completed efficiently whilst maintaining a high standard and without affecting the time frame for the refurbishment. EOS were proud to have been involved in such a prestigious project and to have been able to provide solutions for the challenges that were faced during the refurbishment.



# Lincoln Gateway


**Client:**

Lincoln University

**Main Contractor:**

Kier Construction

**Engineer:**

Ward Cole

**Architect:**

Stem Architects

**Developer:**

Jackson & Jackson

**Installer:**

Metclad

**Steel Framing Systems Supplier:**

EOS

**Materials / Type of System:**

SFS Infill & Overhang Support Plates



## OVERVIEW

Providing accommodation for the University's students - Lincoln Gateway is situated close to the city centre and features a lively mix of residential, leisure and commercial space. The prominent location demanded a distinctive elevation and the contrasting ceramic and granite facade panels, deliver high-impact results. The work was carried out in line with strict deadlines, and the project was completed in good time ready for the beginning of the academic year. Lincoln Gateway includes 503 bedrooms, 361 studio bedrooms with kitchens and 24 cluster kitchens with additional retail, restaurant, café or office space on the ground floor. At eight storeys in height and almost 90m in length at its widest overhang, The Gateway's innovative tiered, curved frontage presented numerous challenges to all those involved in the design, prefabrication and installation of the facade cladding.

## DESIGN AND CONSTRUCTION

"From the outset, The Gateway was destined to be a technically challenging and visually exciting building," said Vaughan Owen of Stem Architects. "Only a handful of suppliers with the confidence and the appropriate level of technical expertise were appointed to take on the challenge of the curved, overhanging facade."



EOS designed and manufactured a light gauge steel infill framing system for the project together with overhang support plates for the extensive sweeping radius curve to front elevation. EOS engineered bespoke 'inside out fixings' for the internal head track and also used shot fired fixings.

Precision built offsite products require the application of leading-edge technology and contemporary manufacturing processes. EOS has invested substantially in the latest software and hardware systems in steel frame production. We have also invested in our own fabrication plant to be self-sufficient in manufacturing our ancillary parts such as angles, brackets, windows and cills. This supports our market leading 'lump-sum' all-inclusive pricing initiative and complements our 'total supply' offering.

Logistics for the installation were particularly challenging and offsite technology provided the solution. Just in time deliveries had to be meticulously timed and a crane had to be installed and removed with minimum impact on traffic. EOS label and colour code by floor all deliveries to site. This is a flexible service and should you require the product to arrive unassembled, EOS will pre-punch in the factory, ghost assemble and supply, together with all the necessary screws and special drill bits, for assembly and installation onsite.

### POSITIVE OUTCOMES

Dominik Jackson, Founding Partner of Jackson & Jackson Developers, who were responsible for The Gateway development, concludes: "Thanks to its eye-catching finish this statement building has confidently taken its place on Lincoln's skyline, and we are proud to offer students an outstanding quality of accommodation in a building of real architectural value. The Gateway is set to provide a comfortable and inspiring home for many generations of students to come."

The Gateway won the Best Large Commercial Building category at the LABC East Midlands Building Excellence Awards.

# Southwark Town Hall Development



## Architect:

Jestico & Whiles

## Client:

Alumno Developments

## Engineer:

WA Fairhurst

## Main Contractor:

HG Construction

## Installer:

HG Construction

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

Steel Framing System (SFS) Infill & Load Bearing Steel (LBS)



## OVERVIEW

The former Southwark Town Hall has been transformed – the new mixed-use scheme offers art and leisure facilities including a theatre, café, artist studios, whilst also housing student accommodation for Goldsmiths University.

The site to the rear is the new home for Theatre Peckham, with a dedicated rehearsal space and a larger auditorium. The development also provides a new public space with improved access to Sceaux Gardens. The 1930s facade and main structure of the building on Peckham Road, London has been refurbished and restored - retaining a number of significant features.

Southwark Town Hall once played an important role in Camberwell and the wider South London area. This development took a fresh approach, respecting the former Town Hall's heritage and character - marking a new phase in the history of this important building.

## DESIGN AND CONSTRUCTION

The project involved extensive collaboration with Southwark Council and the local community to facilitate the regeneration of the former Town Hall and the demolition and re-provision of Theatre Peckham - a community theatre which has operated for more than two decades.

The main entrance and courtyard allows students to circulate between the former Town Hall building and the recently refurbished neighbouring student block comprising 149 rooms, without disrupting traffic and pedestrians. There is also a large shared common room, which has a dramatic skyline view from the roof.



### CHALLENGES AND RESOLUTIONS

Cost certainty and sustainability was behind the specification of a Steel Framing System for this complex development, together with speed of build to accommodate the students of Goldsmiths University in time for the new semester.

EOS scope of work was two-fold.

The design, manufacture and supply of SFS Infill for the student accommodation - consisting of RC slabs with a Hot-Rolled frame grid interface and SFS for the external façade, together with Load Bearing Steel to form the pavilion structure and roof terrace.

Working with their client, installer HG Construction, EOS delivered a lightweight Load Bearing Steel structure to the roof on the seventh floor of the existing Town Hall building, combining cutting edge Curtain Walling and feature materials. Hot Rolled Posts were integrated into the SFS wall to hide an ugly steel beam and create an architectural feature - whilst allowing for large open spaces within the pavilion and roof terrace.

Whilst also delivering in parallel SFS Infill to the student accommodation blocks – helping to secure and achieve an extremely tight construction programme to meet the impending University new semester.

As leading innovators in light gauge steel construction, EOS specialise in the design, manufacture and supply of a wide range of bespoke solutions for Steel Framing Systems (SFS) - enabling the company to meet the extensive and diverse requirements of the Southwark project.

# Artisan Place, Harrow



## Architect:

LAP Architects

## Client:

Barratt Homes

## Engineer:

PEP Civils & Structures

## Main Contractor:

Barratt Homes

## Installer/EOS Client:

PM White Drylining

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

Load bearing structure pods

## OVERVIEW

EOS recently designed and supplied load bearing structure (LPS) pods to a comprehensive mixed use development on a 2.9-hectare site. The site, formally ColArt factory and offices at Wealdstone High Road/Whitefriars Avenue, comprises 189 homes in linear blocks, linked by homezone streets. It also includes a refurbished, locally listed B1 employment office building, five newly built artists' studios, a new public square, as well as a safeguarded area for educational and sport hall use at Salvatorian College to the north of the site.

## DESIGN AND VISION

The development provides a mix of much needed apartments and houses. The main access to the site is connected to the High Street, while two further accesses come from Bruce Road and Ladysmith Road. There is also a third vehicular access from Whitefriars Avenue which leads to the car park for the office building only. Pedestrian and cycle routes create a link across the site and into the High Street. Connections to the site are designed to reduce the level of traffic generation during peak times. With a majority of the overall site being originally hardstanding and factory blocks, every effort was made to incorporate a cluster of trees along the Whitefriars Avenue.





## CONSTRUCTION

Key drivers for the build were speed and lightness of construction as well as cost certainty and sustainability. EOS's involvement with the product consisted of the design and supply of standalone pods, positioned on top of the traditional built block. The application of the EOS pods was split into two phases, with a total of nine pods. The pods were pre-assembled offsite as panels before being fitted together on site. All wall and roof panels were pre-formed at the EOS factory and shipped to site ready for assembly into the 'box' shape. The total cost of the EOS system was £43k which included the design and supply of both phases.

The main challenge for EOS during this build was fixing into the traditional build substrate below - EOS had to identify and specify non-standard fixings including blind bolts to fix down into difficult areas where access was restricted. EOS successfully engineered appropriate fixings into structural timber sections - something that is rarely done.

## POSITIVE OUTCOMES

The challenges that EOS encountered meant that they had to take an innovative approach and were able to execute their part in the build successfully. EOS were also able to achieve the prerequisites of speed and quality of build, set out by Barratt Homes.

**OFFSITE**  
**AWARDS**  
**WINNER**

## Britannia Music



### Architect:

Fourpoint Architects

### Developer:

M&G Real Estate

### Main Contractor:

Durkan (Design & Build)

### Installer:

Durkan

### Steel Framing Systems Supplier:

EOS

### Materials / Type of System:

SFS Infill - ETEX Thruwall® Systems,  
Pre-assembled Jamb, Cills and Lintels

### OVERVIEW

Known as the Britannia Music development - this major regeneration project in Ilford town centre consists of 354 residential apartments in four blocks of 9, 10, 13 and 23 storeys. EOS partnered with Durkan to design and engineer the steel framing systems (SFS) for two significant developments. The projects were designed in advance of the full contractual agreement - this approach brought both projects in on programme and budget.

### DESIGN AND VISION

The contemporary mix of traditional London brick to the lower floors, with stylish dark grey balconies and finishes - provides a focal point for the local area. The reinforced concrete structures with SFS infill, delivers excellent fire, acoustic and thermal performance. One of the offsite solutions that offered maximum programme benefits was the innovative Thruwall® System - derived from the Etex group of companies, which combines the expertise of three leading lightweight construction brands, Siniat, Promat and EOS. Meeting building performance requirements for fire, thermal, weathering, acoustics and airtightness - Thruwall® systems are non load-bearing infill solutions for the external building envelope combining, non-combustible A1 external sheathing, engineered steel framing system and internal wall linings.

### POSITIVE OUTCOMES

The development delivers a substantial amount of quality housing for the regeneration of Ilford town centre. Collaboration at a very early stage of the proposed development enabled EOS to efficiently design, engineer and manufacture the building envelope around the steel framing systems.



# Western Avenue



## Architect:

Biscoe & Stanton

## Developer:

Nottingham Housing

## Main Contractor:

Durkan (Design & Build)

## Installer:

Durkan

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill - ETEX Thruwall® Systems,  
Pre-assembled Jamb, Cills and Lintels

## OVERVIEW

Located across five sites in the busy commuter suburb of Acton, London - Western Avenue is a substantial scheme of shared ownership, affordable rental, private sale and rental homes - created to provide a mix of apartments and larger family homes.

## DESIGN AND VISION

The project which consists of 180 flats and houses together with 128m<sup>2</sup> of retail space, provides much needed affordable housing for a key area of West London. The classic masonry facade, with some architectural detailing over the dormer windows and sweeping roof slopes – offers a modern twist whilst not appearing too imposing within the local vernacular - improving the views from Western Avenue, whilst providing a robust, environmental solution. EOS designed, manufactured and supplied SFS infill frames for the main external building enveloped with pre-assembled jamb, cills and lintels for the reinforced concrete structure. The innovative Thruwall® System – a non load-bearing infill solution, combining non-combustible A1 external sheathing, engineered steel framing system and internal wall linings – provided maximum programme benefits.

## POSITIVE OUTCOMES

By providing advice and guidance throughout the design process, the team ensured maximum project benefits. By working in close partnership with Durkan across the Britannia Music and Western Avenue projects – the team have been able to design and offsite manufacture steel framing solutions to rapidly and efficiently bring online two complex housing projects of differing scale and aesthetic – to help alleviate the shortfall for affordable homes in London.

# City Peninsula Greenwich Peninsula



## Architect:

RMA Architects

## Client:

Bellway Homes

## Engineer:

URS Corporation

## Main Contractor:

Bellway Homes

## Installer/EOS Client:

Ardmore

## Steel Framing System Supplier:

EOS

## Materials / Type of System:

SFS Infill

## OVERVIEW

City Peninsula is the first newbuild residential development at the elegant Greenwich Peninsula. Described as 'one of the largest and most ambitious urban regeneration schemes ever seen in Europe,' Greenwich Peninsula offers a mix of luxury and affordable living in the heart of the City of London.

On completion it will offer a unique blend of homes, shops, art, entertainment and culture – all brought together in unique districts. The development, representing £32 million investment, will provide 166 new homes, apartments and triple level town houses, all benefiting from spectacular 360° panoramic views.

## DESIGN AND CONSTRUCTION

The majority of the properties will enjoy unobstructed views of the River Thames and the London skyline and all apartments will have a balcony, terrace or winter garden combination. The project consists of 53 apartments and three town houses which will be put on the market as shared ownership or rent through London & Quadrant Housing Trust.

City Peninsula is a sustainable housing scheme designed to exceed 21st Century requirements. A range of measures have been put in place to ensure sustainable best practice including passive design responses to the sites orientation, detailed energy saving features and ensuring all apartments have been designed to an EcoHomes 'excellent' rating standard.





The construction of a high performance building envelope will substantially reduce heat loss and therefore space heating load – leading to lower heating bills for the residents and a minimised impact on the environment. Water saving devices and low energy lighting are features present in all homes, whilst a highly efficient biomass boiler will serve the entire development.

#### EOS INVOLVEMENT

The Greenwich Peninsula has been described as an ‘architectural triumph’ – due to the complex manufacturing requirements to realise the architect’s vision. EOS custom manufactured stud & track infill for the scheme which included complex balcony support and gable fin framing. In total, EOS manufactured £80,000 worth of light gauge steel for the scheme.

With the development being constructed in three blocks, varying between two, 11 and 19-storeys high. The sheer size of the project meant EOS needed to react quickly to challenges thrown their way. These included, a complex building footprint with a high number of step-outs and step-ins with varying slab levels. This was compounded by different cill support plates for windows and doors and varying window height arrangements together with framing around canopies and projecting bays which combined the use of EOS supplied square hollowed sections (SHS) hot rolled steel. One of the most unique features of the build was the asymmetrical wings, one with 11 storeys and the other with 16.

#### POSITIVE OUTCOMES

The City Peninsula is testament to modern day architecture and construction. EOS are proud to have been a part of the design and construction process. This project was not without complications, but EOS rose to the challenge and were able to design and manufacture innovative solutions.

# Enderby Wharf Greenwich



## Architect:

SimpsonHaugh & Partners

## Client:

West Properties (UK)

## Engineer:

Cundall Johnston & Partners

## Main Contractor:

Barratt Homes

## Installer/EOS Client:

Stanmore

## Steel Framing System Supplier:

EOS

## Materials / Type of System:

General infill



## OVERVIEW

Enderby Wharf has been described as a 'frontier development', making up a significant part of the regeneration of Greenwich. The overall scheme involves a redevelopment of the site to provide a jetty for a cruise liner terminal, a 251 bed hotel with a restaurant and conference facilities, a skills and training academy, crèche and gym, communal units, tourist and leisure facilities, as well as 700 houses and public realm works.

The project is a joint venture between main contractors – Barratt Homes and Morgan Stanley Real Estate who are working on the residential aspect of the scheme, while Morgan Stanley are also working with West Properties on the cruise liner terminal.

## DESIGN AND VISION

The site is based in an ideal position in Greenwich; with west-facing views to the City and Canary Wharf, providing over 200 metres of river frontage. The development comprises one, two and three-bedroom apartments and penthouses, priced from around £425,000 up to £800,000. Apartments included in the later phases feature at least one balcony or terrace - providing both lighting and space, as well as views of either Greenwich, Canary Wharf or towards The O2 Arena. The River Thames runs right past the build – giving some apartments a fantastic view of the water. The development is the first of its kind in the area and is a key aspect of the overall redevelopment of Greenwich.



## CONSTRUCTION

As the project is a large residential development, the key driver for the build was speed of construction - to ultimately achieve a faster return on investment.

Following planning permission, community engagement was carried out by communications consultancy, HardHat, throughout the construction process. This involved construction liaison meetings with local residents, distribution of news bulletins updating the local community on site progress, as well as the creation of a dedicated community hotline and email address answering resident queries and concerns.

EOS provided general infill SFS, costing circa £200k, across several large blocks of the high rise. Challenges during construction included issues with insulation specification and the achievement of required envelope robustness. These challenges were overcome by adapting the section size and an engineered solution was maintained by the EOS system. Stanmore received training in EOS systems to enable them to detail and design the works.

## POSITIVE OUTCOMES

EOS were able to achieve the manufacturing lead times of less than five days because of their long-standing relationship with Stanmore. This meant that EOS did not have to design the components and instead used call offs only. A fast build programme meant units were able to be turned around, ready for sale.

# The Ram Quarter, Wandsworth



## Architect New Build:

EPR Architects

## Architect Listed Buildings:

Avanti Architects

## Developer:

Greenland Group

## Main Contractor:

Ardmore

## Installer:

Ardmore

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill, LBS for Internal Pods,  
ETEX Thruwall® Systems

## OVERVIEW

Transforming the former Young's Brewery site where beer has been brewed since 1581, the Ram Quarter sensitively integrates historic Grade II buildings into a contemporary scheme which provides accommodation for boutiques, restaurants, a craft-brewery, a brewery museum and 650 new exclusive loft-style apartments.

These preserved areas have been seamlessly incorporated into the new-build scheme creating a public pedestrian route with gardens around the core brewery buildings and integrating luxury residential units within the brewery house itself. This inspiring new development in the heart of Wandsworth creates a new residential community, with shops, restaurants and riverside walks.

Once inaccessible, the River Wandle is being landscaped to provide public access along a new riverside walk which will be traversed by three bridges as part of the Ram Quarter's 5,574sq m of retail and leisure space. Under the banner of 'vintage and modern', the architects in close collaboration with the planners and conservation advisers have created a contemporary build which reflects and respects the Grade II listed buildings.





### BUSINESS IMPERATIVE

The core objective was to offer an aesthetically pleasing solution to an architecturally and culturally sensitive site, whilst providing energy efficient dwellings. The respect of the historical buildings was paramount. Steel framing systems had to be developed which considered the integrity of the existing buildings to enhance rather than detract from the original architecture.

### DESIGN AND CONSTRUCTION

Working in partnership with Ardmore, one of the largest family owned construction groups in the UK – EOS designed, manufactured and supplied a range of around 15,000m<sup>2</sup> of steel framing system (SFS) infill walling and 280m<sup>2</sup> load-bearing steel systems for the project. From SFS infill for five new medium to high-rise concrete framed blocks to a bespoke load-bearing system of internal pods within the listed brewery house, EOS worked in close collaboration with all construction partners to develop systems that meet the exacting project requirements.

# The Ram Quarter, Wandsworth



## CHALLENGES AND RESOLUTIONS

Due to the large scale and complex nature of the project, it was imperative that EOS's steel framing systems were designed and supplied ready for easy onsite installation. EOS phased the supply of the SFS to the new builds floor by floor in line with the build programme. Using their unique complementary service for easy identification saving time onsite, the material was supplied colour coded by floor, bundled and individually labelled by floor and elevation; issued with key opening components pre-assembled offsite with all studs pre-cut to size. For the load-bearing pods to the retained listed buildings, EOS designed and supplied offsite pre-assembled wall and floor panels to form structurally independent platforms within the converted brewing rooms. These had minimal ties to the existing structure, thereby avoiding complications with listed consent and potential unforeseen issues associated with an aged building.





## POSITIVE OUTCOMES

With the scheme due for completion, the site has emerged from the ground on schedule, in part due to maximising the full potential of BIM. BIM Level 2 delivered a rapid manufacturing turn around facilitated by making best use of design for manufacture and assembly (DfMA) protocols, combined with innovative offsite technologies.

These offsite technologies include the pre-assembly of SFS window components ensuring correct and quick build of key areas, together with non-standard use of load-bearing pre-assembled panels which enabled the quick installation of the offsite solution. Achieving tight tolerances, the load-bearing system supported the internal framework in a sensitive listed building where minimal impact on the pre-existing structure was required.

One of the offsite solutions that offered maximum programme benefits was the innovative Thruwall® System. EOS – as part of the Etex group of companies – can call upon the expertise of three leading lightweight construction brands – Siniat, Promat and EOS. The combination of expertise in drylining, external sheathing and steel framing systems, as well as passive fire protection, means that Etex is uniquely positioned to bring these elements together to create a range of external Thruwall® systems.

Etex Group partners, Siniat and Promat, were also asked to develop a full architectural specification for the internal partitions as well as offer their award-winning Weather Defence external sheathing board to the EOS sub frame.

EOS value-engineered every system and component to ensure minimal impact – leading to rapid and cost-efficient construction and minimised intrusion on a sensitive site. All these elements, plus the Siniat Weather Defence board, enabled a very rapid construction of the external facade with follow-on trades starting internally as soon as the envelope became weathertight. The Ram Quarter is injecting new life into old industrial units and has been very well received. The development will create a real community from nothing and is expected to become a destination in its own right. Ardmore Group recently celebrated success at the Premier Guarantee Excellence Awards – picking up a trophy for Refurbishment/Conversion Project of the Year for the impressive Building 11 at The Ram Quarter development.

# Unite Portsmouth Greetham Street

*Image courtesy of Cooley Architects*



## Architect:

Cooley Architects / DMWR Architects

## Client:

UNITE Group

## Engineer:

Meinhardt UK

## Main Contractor:

RG Group

## Installer/EOS Client:

Metclad Contracts

## Steel Framing System Supplier:

EOS

## Materials / Type of System:

100mm and 150mm SFS Stud and  
Track Infill



## OVERVIEW

This striking high-rise provides a home-away-from-home for 836 Portsmouth students.

As a £42 million UNITE student housing development, this project is scheduled to be completed in time to accommodate students enrolling for September 2016.

Richard Simpson, Managing Director of Property for Unite Students said: "This year we have seen university applications continue to outstrip available places and there is a growing need for safe, secure, purpose built student accommodation."

With its central location adjacent to the Portsmouth and Southsea Railway Station this development is also within range of the University of Portsmouth main campus and provides a solution to the lack of accommodation.

## DESIGN AND EOS INVOLVEMENT

The building is arranged in four stepped levels, ranging from seven to 24 storeys in height, and utilises the redundant Greetham Street carpark and Dugald Drummond House.

In addition to the student accommodation, which includes 75 studio rooms and a range of cluster flats with varying numbers of bedrooms, the project also features a trader's lock-up on the ground floor for market storage.



EOS provided 9,000 m<sup>2</sup> of SFS stud and track infill for the 24 storeys of this build, including the parapets, however considerable challenges were faced during this project as a result of the very restrictive conditions on site.

With no capacity for storage or access for a crane on the centrally located site, the materials for the project had to be delivered as loose stud and track in specific phases and quantities. Upon delivery at their scheduled time, materials were lifted to floor levels with mast climber cradles where they were assembled before being lifted into position from inside.

These restrictions placed a great demand on the EOS factory and their logistics, as all production and delivery decisions were entirely site dependant.

### POSITIVE OUTCOMES

Unite Portsmouth proved to be a challenging and rewarding project. Despite the obstacles faced by the EOS team - through a combination of careful collaboration with the customer and frequent site visits by the Technical Manager, these issues were overcome and the manufacture and installation for this high profile project was a success.

The size and location of this impressive project on the South Coast demonstrates EOS' ability to secure major schemes throughout the country and fulfil their client's needs effectively from their base in County Durham.

# Holiday Inn Express, St Albans



## Architect:

Dexter Moren Associates

## Client:

4C Hotels

## Main Contractor:

Holiday Inn

## Installer:

Vascroft Contractors

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

Steel Framing Systems (SFS) - Infill

## OVERVIEW

Located adjacent to junction 22 of the M25, the new Holiday Inn Express at St Albans, includes an 86-bedroom hotel, a restaurant, meeting rooms, offices and associated car parking and landscaping. The development is one of the first new build IV Generation Holiday Inn Express hotels to be completed. Integrating the brands 'Open Lobby' concept, the design incorporates improved public space and an expanded food and beverage offering.

## DESIGN AND CONSTRUCTION

Targeted at the 'smart traveller' - the exterior of the hotel reflects the contemporary features of the brand with an inviting entrance and landscaping. The design minimises environmental impact and noise pollution from the motorway using the mass of the building as a barrier to the road that wraps around three sides of the scheme.





### CHALLENGES AND RESOLUTIONS

The 'U' shaped design features a courtyard entrance - making it an attractive focal point of the hotel. The side adjacent to the motorway is extensively landscaped further reducing noise levels. The landscaping is continued through the car parking area enhancing the immediate environment around the building.

This development involved the construction of an 86-bedroom hotel built on piled foundations with a steel frame structure, concrete floors, a pitched roof and timber cladding incorporating curtain wall glazing. Brick for the elevations facing the roads were specified to create a durable finish requiring minimum maintenance. The window openings are kept to a minimum to reduce noise to the rooms and heat loss. The inside of the building combines all the public areas into one open, cohesive space.

A Steel Framing System with RC flooring was specified due to the difficult ground conditions and locality to a busy motorway. EOS SFS Infill was specified for the external facade to support a mixture of decorative finishes - brick, timber cladding and rain screen.

Works were carefully planned to minimise any disruption to the adjacent retail park which required careful scheduling of all deliveries to site and restriction of large vehicles.

# Kier Eastern HQ Waterbeach



## Architect:

RH Partnership Architects

## Client:

Kier

## Engineer:

MLM

## Main Contractor:

Kier Eastern

## Installer/EOS Client:

British Gas (formerly ECL Contracts)

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill

Slotted head track

DHT



## OVERVIEW

EOS were appointed on behalf of Kier Eastern to design and supply the SFS infill for their prestigious £12m office development in Waterbeach. These purpose built offices, which form part of 'Building 3000', will not only double the size of office space held by Kier in the area, but will also generate 100 new jobs.

The 30,000sq ft. three storey building has been designed to complement the existing structures on Cambridge Research Park with a terracotta palette. Located in mature surroundings, Building 3000 is open plan and well-lit with large windows which overlook the Central Lake.

## EOS INVOLVEMENT

This prestigious project was the first time EOS worked in partnership with British Gas and therefore it was crucial for them to get involved at an early stage in order to provide their fully integrated service and support.

EOS were also able to liaise directly with Kier on the design elements which enabled the team to identify and iron out any potential issues early on and manage the main contractors expectations. Approved design and engineering was completed prior to arrival onsite. The EOS design team used BIM level 2 as standard to provide speed and accuracy with all sections supplied. Onsite variability was further eradicated by constant communication between the EOS technical team and the wider project delivery team.



This early involvement enabled the installers to accurately price based on the complete design, offering Kier complete reassurance. EOS provided SFS infill to a hot rolled steel frame for the three floor building. This was also the first project where EOS utilised their slotted head track DHT product which not only halved the number of fixings required, but dramatically reduced installation time and risk on site.

EOS also delivered onsite Toolbox Talks to ensure that the labour teams were fully trained in installing EOS systems and their new slotted head track deflection system. Regular site inspections meant that EOS were on hand to check that the installation quality matched that of the design and standard details throughout the project.

### POSITIVE OUTCOMES

EOS maintained a 'hands on' approach throughout the project, liaising with the wider project delivery team from the outset. Offsite manufacturing and 'just in time' delivery enabled EOS to provide a precision engineered system which reduced traffic to and from site, health and safety risks and installation time.

All deliveries were labelled and colour coded by floor saving on time and transportation. Sections were provided pre-assembled and ready to install meaning the client benefitted from an upfront all-inclusive price. These processes achieved a timely project delivery within budget.

# Metropolitan Police Training Centre, Hendon



## Architect:

Bennetts Associates

## Client:

The Mayor's Office for Policing and Crime

## Engineer:

AECOM

## Main Contractor:

Mace

## Installer/EOS Client:

Prater

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

Bespoke offsite panels with built in windposts



## OVERVIEW

The Hendon Operational and Training Centre provides state-of-the-art facilities that are equipped for the challenges of 21st Century policing. Spanning 73 acres, the £50m scheme involved the demolition of 25 existing buildings to create two main blocks across 11 acres at the north end of the site, which provide 20,000m<sup>2</sup> of flexible training and operational space for over 2,000 staff.

The smaller two-storey block incorporates the historic Peel Centre, with housing and specialised training facilities including a firing range and crime scene rooms. The iconic Grade II Listed statue of Sir Robert Peel has been relocated to overlook the new parade ground for passing out ceremonies – a main focal point of the development. Four interlinking vestibules lead to the main building - a four storey teaching accommodation block, fully glazed on the south elevation to maximise views over the parade ground.

## EOS INVOLVEMENT

Partnerships are an integral part of the EOS business and our team strive to build excellent working relationships. EOS developed a successful and collaborative strategy with leading contractor Prater on this highly prestigious project. The complex design of the Hendon scheme presented significant installation challenges. The large ribbon curtain walling windows needed heavy duty reinforcement so required a bespoke solution. EOS' expertise and flexible approach meant that they were able to design and manufacture bespoke offsite panels with built-in wind posts which



could be temporarily pinned, released, fixed down and then re-secured back to the pre-assembled panels. Large downstand beams were fixed with diagonal braces in to soffits which were delivered to site 'just in time' for installation, cutting down on site wastage, labour and traffic to and from site. The EOS technical team maintained strong levels of communication and were on hand to offer advice and guidance to the Prater design team and glazers throughout.

#### POSITIVE OUTCOMES

Through the bespoke use of standard products, the EOS technical team were able to create a hybrid pre-panelised system with adjustable wind posts to overcome the significant technical challenges presented with this project. A strong working relationship between EOS and the client ensured this highly technical project was delivered to the highest standard to programme and within budget. The success of this scheme has led to an ongoing relationship with Prater. Buying Manager Daniel Eldridge commented: "A consistent and collaborative approach with EOS has enabled us to deliver a number of very successful projects."

# Sanger Institute Hinxton



## Architect:

Fairhursts Design Group

## Client:

Wellcome Trust

## Engineer:

Arup

## Main Contractor:

Kier

## Installer/EOS Client:

SCL

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS infill panels. EOS sections were used as canopy joists alongside standard infill studs



## OVERVIEW

A highly prestigious project, The Wellcome Trust Sanger Institute is part of a £27 million state-of-the-art genome-sequencing hub for Genomics England, the government's £200 million initiative to decipher 100,000 complete genetic codes. It leads ambitious collaborations across the globe to provide the foundations for further research and transformative developments in healthcare.

Kier were awarded this prestigious project comprising two phases - phase one, the Sanger Sequencing Building (SSB) completed in 2015 and phase two, the Biodata Innovation Centre (BIC) which will open its doors in late 2016.

## SEQUENCING BUILDING

Initiated in early 2014 to accommodate expanding operations, the Sequencing Building is set over three levels of laboratory, support office and energy centre space. Completed in summer 2015, this 4,500m<sup>2</sup> high-tech facility will keep the Sanger Institute's operations at the forefront of genetic sequencing now and well into the future.

## BIODATA INNOVATION CENTRE

Phase two comprises flexible new office space for biodata companies involved in research activities relevant to the campus. Linked to the new sequencing laboratories within the adjoining Sanger Sequencing Building, the Biodata Innovation Centre will also provide flexible break-out and meeting spaces to promote



knowledge sharing and collaboration, as well as a café and amenities within the bridge link. The project is part of the Wellcome Trust's ethos to facilitate and nurture the growth of businesses on campus arising from the Sanger Institute's pioneering research facilities.

### EOS INVOLVEMENT

EOS were initially appointed by Kier to assist with the design and supply of phase one of the project. EOS provided their SFS Infill Panels for the new Sequencing Building which was then installed by SCL.

EOS then proceeded to secure phase two of the development. As well as designing this part of the build in-house, EOS sections were used as canopy joists alongside standard infill studs. A unique detail was implemented to maintain structural stability and satisfied the large span cladding requirements.

Due to the tight programme of works, design was completed and approved in just two days with rapid manufacturing turnarounds.

### POSITIVE OUTCOMES

EOS were involved in this highly prestigious project right from the design stages and were able to create a bespoke but simple cladding support system which could be manufactured and installed quickly to deliver both phases within the demanding programme deadlines. The result is an architecturally striking and robust build which has led to further collaborations between Kier and EOS.

# Travelodge, Middlesex Street



## Architect New Build:

ISA Architects

## Main Contractor:

Tolent

## Installer:

Cristofoli

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill Delivered to Site as Fully Formed Cladded Units

## OVERVIEW

Located in the heart of Aldgate on the boundary of the City of London, this prestigious £25 million flagship Travelodge project has been created as a declaration of renewed confidence following recent investment in the brand. The eight storey, 395-room property in Middlesex Street, is backed by investor Freshwater and delivered by main contractor Tolent. Set in a vibrant leisure and tourism area, the development is located just a stone's throw from Liverpool Street Station and the iconic 'Gherkin' skyscraper. The impressive development, built to BREEAM 'excellent' standards, is one of 20 new hotels completed in 2018.

The march of the low-cost hotel sector continues, fuelled by businesses looking to reduce travel costs and the next generation of independent leisure travellers. The construction of the new hotel in the heart of the City of London, is another milestone in the resurgence of Travelodge.

## DESIGN AND VISION

The design is a striking example of hotel architecture, taking into consideration both responsible building ethics and high-quality aesthetics - whilst satisfying the local existing street scape. To the south is an imposing corner clad with an innovative honeycomb backed natural stone product, whilst the northern end of the building is finished with muted cladding colours on the upper levels descending down to the lower surrounding areas.





The tolerances and high-specification cladding system required all the technical insight of EOS to design and manufacture a fully offsite solution fixed to the main concrete frame, erected by main contractor Tolent.

### CHALLENGES AND RESOLUTIONS

The aim of the project was to deliver a fully clad panelised system to site, complete with EOS' sub frame infill panels, pre-fixed to the lightweight innovative stone cladding system. Once delivered, the fully formed panels were craned in and fixed back to the substrate using the EOS supplied ancillary components.

A key part of the construction was achieving a fully flush finish on the external side. The EOS steel sub frame achieved the extreme tolerances required by the cladding manufacturer. By utilising our Howick framing machines to their full potential, EOS were able to produce a steel framing panel with a completely flush finish, using BIM modelling and CAM processes to engineer a pre-cut assembly, where even 2mm screw heads were required to be countersunk.

### POSITIVE OUTCOMES

Close collaboration was crucial to success. The scheme was in part delivered through innovative engineering combined with technically advanced manufacturing capability used to its full potential to deliver a truly offsite system. The preformed SFS infill panels were delivered to the cladding manufacturer to have the marble finished cladding system pre-installed offsite before being delivered to site as fully formed units. This led to a rapid installation attaining excellent thermal, acoustic and fire properties.

# Blackfriars Circus



## Architect:

Maccreanor Lavington

## Client:

Barratt Group

## Main Contractor:

Barratt London

## Installer:

Stanmore Contractors

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill

## OVERVIEW

Barratt London's redevelopment of 128-150 Blackfriars Road, provides 336 new homes made up of studios, one, two and three-bedroom apartments and penthouses, together with more than 40,000sqft of commercial and retail space - all built around two new public squares. The development features onsite amenities such as a concierge, residents' fitness suite and rooftop garden with stunning views across London. The mixed-use quarter contains shops, cafes and restaurants together with flexible workspaces that can accommodate up to 24 small businesses with employment opportunities for around 300 people.

Each of the five blocks has a distinct facade character. Dark, smooth brickwork is used for the lower base as a typically urban, robust and distinguished plinth. In contrast, white glazed brickwork lightens and defines the upper section of the two-storey plinth. A 27-storey tower is the focal point at the start of Blackfriars Road. The slender tower has a hexagonal design to reduce its visual impact from all angles. The remaining four blocks vary between five and seven storeys.

## DESIGN AND CONSTRUCTION

Following a successful lightweight steel frame tender – EOS' client Stanmore - secured the facade package for the Blackfriars Circus project. This was a sizeable project for EOS who designed, manufactured and supplied a full Infill Steel Framing System (SFS) for this extensive development.





### CHALLENGES AND RESOLUTIONS

The key drivers behind the specification of SFS, was speed, sustainability and cost certainty.

EOS' approach to design and value engineering is inclusive. Working with our client and their designers, EOS developed a complete solution incorporating design with structural calculations.

Steel offers architects' greater versatility than other building solutions, particularly in terms of cost. Through the use of offsite technologies, buildings can be on-stream faster. Productivity advances have been achieved throughout the steel supply-chain and such cost saving benefits can be shared with contractors.

The manufacture of steel in factory controlled conditions enhances build programmes, eradicates the risk of onsite variability and improves onsite health and safety - these combined benefits, provide more predictable outcomes.

As an advanced high performance offsite solution, steel is not susceptible to shrinkage, warping, cracking, rot infestation or moisture absorption. Steel is a robust, rigid and dimensionally stable material that does not suffer from movement created by moisture related issues.

The combination of accelerated handover times along with reduced lifetime repair and maintenance costs are two major financial advantages of SFS, allied to other financial benefits gained from offsite construction - improving cash-flow for the contractor and developer. Through the use of offsite construction and the rapid delivery that it provides, developers and contractors are able to gain a faster return on investment.

# Century House Bermondsey

Image courtesy of Hunters Architects



## Architect:

Hunters / Make

## Client:

L & Q Housing

## Engineer:

Colin Toms & Partners (CTP)

## Main Contractor:

Higgins Construction

## Installer/EOS Client:

Drytech Facades

## Steel Framing System Supplier:

EOS

## Materials / Type of System:

SFS Infill

## OVERVIEW

Century House is an outstanding mixed use development located in Bermondsey, London. The building is made up of a striking curved facade. Consisting of a single block, ranging from six to nine storeys wrapping around a central communal courtyard on a podium deck, with the top storeys enabling access to the roof terraces which take advantage of the panoramic city views offered from such a height.

The residential apartments, which are a mix of social rented and intermediate tenure units, are all set to achieve the Code for Sustainable Homes level 3, Lifetime Homes and meet Secured by Design standards.

## DESIGN AND CONSTRUCTION

Located within a prominent and regenerated area of London, Century House comprises 154 mixed tenure apartments which sit above 4,000m<sup>2</sup> commercial space. The spectacular development, which replaced the industrial and commercial buildings on the original site, has been set back from the street to create an improved pedestrian environment and through the use of a combination of traditional and contemporary materials, fits harmoniously in with the surrounding buildings. EOS provided the structural framing system (SFS) infill for four floors of the development and were integral in the creation of its stunning curved facade and feature fins, which give the project its unique look.





Whilst the linear nature of SFS may not appear to lend itself to the creation of curves, EOS, through the use of faceting, combined with intense detailing and measurement, ensured that the SFS was able to accurately fit with the curve of the building. The same precise detail that went into the creation of the curved facade was also utilised in the creation and assembly of the building's 6m tall feature fin studs. As a result the fins were interfaced effectively with the other building features and columns.

#### POSITIVE OUTCOMES

Speed of erection, cost certainty and sustainability were key drivers for this project, and through EOS' careful engineering consideration and precise execution, they were able to fulfil these imperatives.

The project also benefited from the use of pre-engineering processes, which were used in the creation of the complex, faceted SFS. As a result there was minimal cutting involved in the manufacturing of the SFS, which saved time and prevented wastage during construction.

# Conduit Street Mayfair



## Architect:

EPR Architects

## Client:

Aerium and Terrace Hill Group

## Engineer:

Capita Symonds

## Main Contractor:

McLaren Construction

## Installer / EOS Client:

Prater

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

EOS oversail system, bracketry and 150mm section sizes for basement and lower floors.



## OVERVIEW

49 Conduit Street is a prestigious 42,894 m<sup>2</sup> mixed use development located in the heart of Mayfair.

Conduit Street provides space for retail premises on the basement, ground floor and first floor levels, with prime high specification office space above. The basement also houses various plant and equipment to serve the building.

The previous premises were demolished down to basement level to make room for the brand new development comprising six storeys with a screened roof plant enclosure and a green roof.

This project is truly unique. The impressive facade of the building incorporates handmade glazed ceramic tiles in complementary black and white, an idea formed and executed in a collaboration between EPR Architects and Kate Malone Ceramics.

## THE CONSTRUCTION JOURNEY

The construction materials included steel frame provided by EOS and Reinforced Concrete (RC) cores. In total Conduit Street has 1600m<sup>2</sup> of the EOS SFS over sail system.

EOS utilised their unique over sail system and bespoke bracketry to overcome onsite challenges such as slab and beam fixing arrangements. This also ensured the projecting windows designed to over sail the pavement on Savile Row were achievable.



The EOS team also used their larger 150mm section sizes for the basement and lower floors to optimise larger spans.

### SUSTAINABILITY

Conduit Street boasts impressive sustainability credentials. With the site located in the Mayfair Conservation area, this was crucial to the brief.

The project has achieved a BREEAM 'excellent' rating, influenced by the projects Photovoltaic panels, Green Roof, Micro-CHP led domestic hot water and a highly efficient VRF air source heating and cooling system.

The thermal performance of the fabric and carbon emissions reduction of the building exceeds approximately over 20% on Part L requirements.

Reduction of carbon was a key consideration for the build. This led to the design and build of a dedicated bicycle entrance and lift, allowing cyclists to access the building easily and store their bicycles in a safe and secure unit. The site also provides showers, lockers, changing areas and drying rooms for cyclists.

Conduit Street has also gained an EPC 'A' Rating, demonstrating the energy efficiency of the building fabric, heating, ventilation, cooling and lighting systems.

### POSITIVE OUTCOMES

Conduit Street is a truly inspirational example of how architecture and art can work together to create a fully functional yet aesthetically phenomenal facility. Conduit Street will continue to inspire for years to come.

# Corsham Street Shoreditch



## Architect:

Stephen Marshall Architects LLP

## Client:

Scape Student Living

## Engineer:

Campbell Reith

## Main Contractor:

HG Construction

## Installer / EOS Client:

Merson Signs, Excel Plastering  
and Box-Haus

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill and loadbearing framing

## OVERVIEW

Corsham Street is based in the heart of the up-and-coming district of Shoreditch, Central London. Replacing a series of redundant structures, Corsham Street offers 50,000 sq ft of teaching space, retail space and over 541 residential studios.

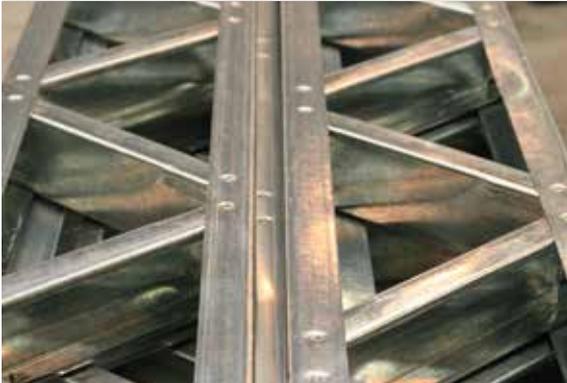
The scheme has been constructed within two towers, the tallest being a striking 11 storeys high. With shops and restaurants conveniently located on the ground floor, the majority of the mixed use scheme is taken up by student residences. All spacious studio rooms benefit for access to the landscaped rooftop gardens and extensive communal areas. The upper levels rise into four spectacular pavilions, offering a view down through the central glass atrium into the commercial space below.

## EOS INVOLVEMENT

The facility offers everything a student could need including a gym, cinema, study spaces, laundry rooms and several entertainment rooms. What's more, every one of the 541 studios is fully equipped for comfortable city living, with ensuite shower room and a fitted kitchenette.

The primary structure comprises a concrete main frame reaching 11 storeys high, EOS' SFS infill framing was used on this structure for all floors. Complementing the main structure, is a nine storey high, free standing cantilever tower - made up of a load bearing light gauge steel frame.





On the primary structure, EOS co-ordinated an engineered, load bearing framing system to interface with the poured and shuttered concrete main structure. This system is able to achieve high tolerance swings. EOS integrated both SFS infill to the concrete primary structure and infill to hot rolled feature box windows.

Offering quality products and a massively improved programme, EOS designed and value engineered a bespoke solution for the protruding triangular windows, the loadbearing structure and the associated pre-assembled and boarded floor and walls. EOS were involved in an extension to the side of the main building from the first floor concrete podium deck. The project team had originally selected an alternative building material, but EOS came in at the 11th hour and light steel frame was adopted as a result of the strict site restrictions associated with building in Central London.

Throughout the design and construction journey, EOS offered outstanding production control and co-ordination for supplying steel to one site for three different clients - Merson Signs, Excel Plastering and Box-Haus, each with a differing scope of supply to the project. Site surveys were undertaken by the clients for EOS to input into their advanced 3D software for modelling and to identify any discrepancies that could occur with the architects original details.

### POSITIVE OUTCOMES

Enhancing the student experience by providing quality facilities needed to make the most of University Life - Corsham Street is an inspirational project which EOS are very proud to have played such a vital role in constructing. Adam Brockley, CEO of Scape Student Living Scape said: "The project promises to be a ground-breaking student scheme in the heart of Tech City." The development is set to deliver a BREEAM 'Excellent' rating.

# Dickens Yard, Ealing, London - Phase I



## Architect:

Hunters and Broadway Malyan

## Client:

St Georges

## Main Contractor:

St Georges (Flagship development)

## Installer:

Ardmore Construction

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

Steel Framing System (SFS) - Infill

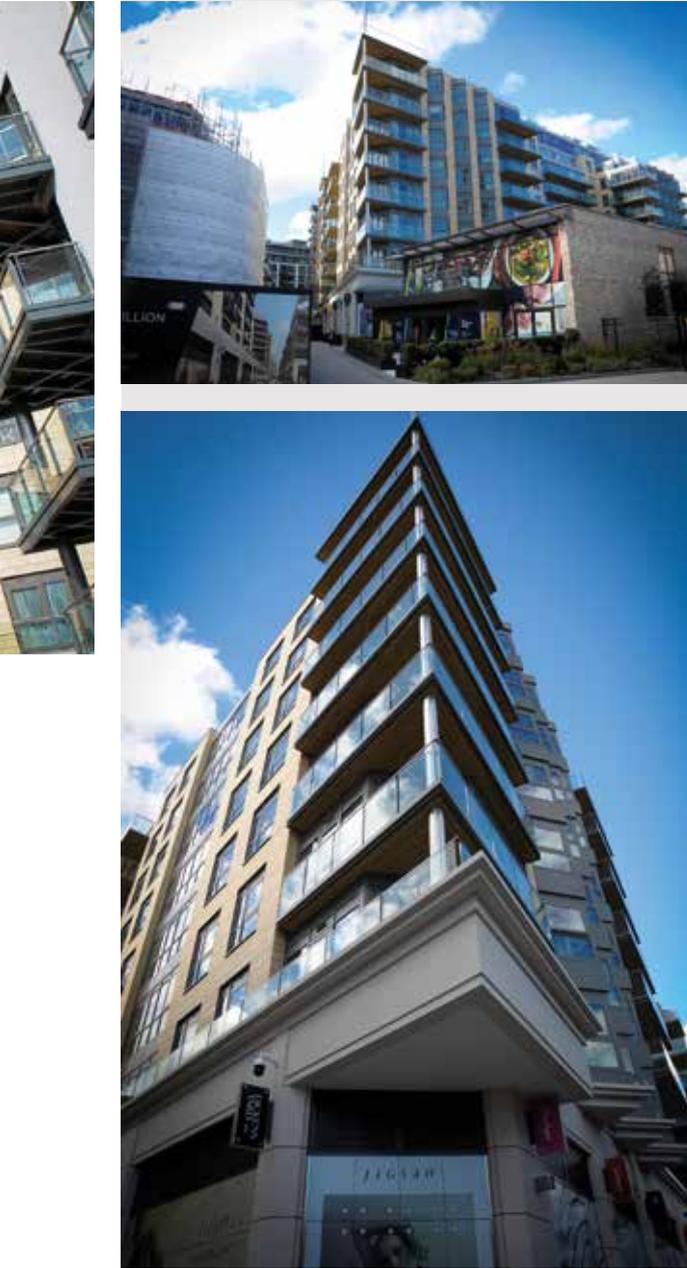
## OVERVIEW

Dickens Yard is new destination for Ealing and the wider West London area. A stylish combination of traditional and new buildings, all set in public open spaces – providing a vibrant new urban quarter. The mixed-use regeneration project, combines heritage and cutting-edge design – encompassing residential, retail and leisure. Located in close proximity to Ealing Broadway underground station, Dickens Yard is set to benefit from Crossrail and the new Elizabeth Line.

## DESIGN AND CONSTRUCTION

A flagship project, central to the regeneration of Ealing Broadway – the first phase of the Dickens Yard encompassed the excavation and support to the two-storey basement, positioning and piling of the building supports for two 11 storey residential blocks and a total of 150 high-quality apartments.





### CHALLENGES AND RESOLUTIONS

At a total project cost of £22 million for the first phase, EOS designed and manufactured the Steel Framing System (SFS) package to specification, budget and schedule.

Due to the complex nature of the project and restrictions, EOS designed and manufactured windposts, to achieve bespoke faceted corner detailing and also developed a “dropped lintel” to overcome project conditions, where space was limited and would not accommodate standard SFS.

A project of this size and scale is not without challenges – a vast amount of SFS was required, so for ease of installation by EOS’ client, Ardmore Construction - EOS colour coded all deliveries of SFS to site, by the floor and block.

EOS offer all-inclusive fixed price packages, that uniquely includes the required proprietary brackets and fixings. EOS has the capability to pre-punch openings in the factory, ghost assemble and supply, together with all the necessary screws and special drill bits, for assembly and installation onsite.

Ardmore Construction passed a major health and safety milestone during this project – the specialist installer amassed one million hours of construction time, without a reportable accident. Ardmore Construction have formed an excellent partnership with EOS and have reported that the company is ‘extremely happy’ with the company’s service and efficiency together with the EOS product offering.

# Pembury Circus Hackney



## Architect:

Fraser Brown MacKenna Architects

## Client:

Bellway Homes / Hackney Borough Council / Peabody

## Engineer:

MLM

## Main Contractor:

Ardmore Construction

## Installer / EOS Client:

Ardmore Construction

## Steel Framing Systems Supplier:

EOS

## Materials / Type of System:

SFS Infill to concrete main frame

## OVERVIEW

A prestigious residential regeneration project in Pembury Circus, which has not only created 268 new homes, but has provided a much needed boost to the local community. The contemporary development offers one, two and three-bedroom apartments in Dalston, a district of the fashionable London borough of Hackney.

Alongside the new residential construction, of which 50% is affordable housing and the other 50%, private sale - the project offers a community centre, nursery, gymnasium and retail space. The impressive development, with a combination of features, has received many accolades including reaching the finals of the National Housing Awards for Best Regeneration Project.

## DESIGN AND CONSTRUCTION

Pembury Circus is Hackney's largest car-free, pedestrian zone development. The Central London location and convenient transport links, made it the ideal placement for a housing regeneration project. This build, constructed following a two-stage design, consists of five residential buildings of mixed tenure replacing the existing brownfield site.





### EOS INVOLVEMENT

For the Pembury Circus development, EOS were contracted to design and value engineer a bespoke structural steel framing solution.

EOS provided the SFS infill to fit with the concrete main frame, but were requested to include a faceted curved facade and design oversail details that would allow downstands to be formed underneath the protruding window sets.

Potential complications arose when planning the design of the oversail features. Due to the need to provide additional support around the windows, combined with the offset nature of the window patterns - support solutions needed to be created to meet the requirements specified in the architectural brief.

With careful design and planning, EOS were able to provide solutions to combat these complications. Through the use of EOS lattice beams, internal trusses were created to provide support to the downstand features. Whilst the offset window pattern issues were overcome by providing and value engineering a bespoke system of plates and brackets, combined with EOS framework, which created secure structural openings.

### POSITIVE OUTCOMES

Due to the restrictive nature of this site, it was imperative that the build method provided speed, cost certainty and sustainability, to meet the key drivers for the project. EOS were able to go above and beyond for their clients, ensuring these prerequisites were delivered through implementation of precise design processes and value engineering. This build also boasts green features such as a site wide district heating system from low carbon energy centre with gas fired CHP.

# Ruskin Square Croydon



## Architect:

Allford Hall Monaghan Morris Architects

## Client:

Croydon Gateway Partnership

## Engineer:

Powell Tolner and Associates

## Main Contractor:

J Reddington Group

## Installer/EOS Client:

UK Facades

## Steel Framing System Supplier:

EOS

## Materials / Type of System:

Factory assembled 100mm and 150mm frames

## OVERVIEW

In a nine acre area of wasteland left empty for 15 years, work has begun to create Ruskin Square - a development that will re-energise Croydon and provide a much needed boost to the city centre.

EOS working with their client UK Facades, contributed to the construction of a 22 storey residential development within this exciting new district in Croydon.

Together they provided a cost effective and efficient offsite solution for this key element of the two million square foot mixed use scheme.

## THE CONSTRUCTION JOURNEY

EOS designed and pre-engineered bespoke flat pack 100mm and 150mm light gauge steel frames for this residential development. These frames were punched and holed in the state-of-the-art EOS factory before being issued to the UK Facades' assembly plant where they were factory-fitted to cement particle boards before being delivered to the project site.





EOS also provided a range of ancillary products including packers and custom manufactured deflection brackets. With speed and cost certainty strong business imperatives for this project, by utilising offsite pre-assembled panelling, EOS and UK Facades delivered speed, quality assurance and cost control.

In order to move the process on as efficiently as possible, EOS' client sought approved details of the plans as soon as possible, in order to achieve an early design freeze. The close liaison and strong working relationship between EOS and their client meant that this was comfortably achieved and streamlined entry to production.

### POSITIVE OUTCOMES

The strong communication between the project delivery team further aided the design and construction of Ruskin Square. The architects, engineers, client, design manager and the portal site all contributed towards making the process smooth and efficient. This project provided ideal usage for the EOS SFS and enabled to the product to showcase its capability to adapt and facilitate cost and programme reduction.

# Wembley Regeneration



## OVERVIEW

The largescale regeneration of Wembley Park and the surrounding areas has been ongoing since the stadium was built in 2007 - wide-ranging schemes and facilities are emerging from the ground around the home of English football. Spearheaded by the developer Quintain - the masterplan sees a £1 bn plus investment with a planned 7,000 new homes and the regeneration of the environment through the development of restaurants, leisure facilities and high-quality amenities.

## DESIGN AND LAYOUT

To date EOS has secured three major projects within the greater Wembley Park masterplan and has designed and offsite manufactured steel framing systems (SFS) for the 312-bedroom Premier Inn hotel together with two separate mixed use residential and retail developments. Reflecting the area's heritage whilst embracing modernity - the schemes involved contemporary facades mixing cladding, masonry and cool palettes.

## POSITIVE OUTCOMES

The objective for the three individual schemes was to rapidly deliver fully engineered SFS infill solutions to BIM Level 2 - executed with high precision and finish to an outstanding quality. Ahead of schedule and on budget - EOS designed and delivered with precision, highly cost-effective offsite manufactured steel framing systems for different building types across one of the UK's largest construction sites. Site restriction meant that 'just in time' deliveries had to be carefully scheduled, off-loaded immediately and distributed to the relevant locations. EOS' colour coding systems ensured this was managed efficiently.



## NW07 & NW08

### Architect:

Flanagan Lawrence

### Developer:

Quintain

### Main Contractor:

Wates

### Installer:

M Price

### Steel Framing Systems Supplier:

EOS

### Materials / Type of System:

SFS Infill



Located in the heart of Wembley Park, NW07 is a contemporary residential and retail development which sits between Page Place and Elvin Square. With 187 units of Build to Rent accommodation, the architecture is defined by four stepped buildings, echoing the form of the adjacent, Flanagan Lawrence designed Alto building. The facade is composed of tall, vertical frames, punctuated with balconies that allow each apartment to enjoy wide and open views. Adjacent to the main residential entrance on the ground floor, a series of community spaces are provided to promote interaction between residents. On the eastern side of NW07 a variety of retail units are situated along Page Place, a pedestrianised street with water features and a mixture of hard and soft landscaping.

NW08 is a contemporary mixed-use scheme of residential and retail units which sits between Olympic Way and Page Place. With 174 residential units, comprising 108 Build to Rent units and 66 Affordable Housing apartments which are all located above retail space at ground level. The facades create a dynamic form with roof terraces and large projecting balconies on the southern elevation which provides dramatic views of the stadium, and tall vertical recesses have been carved into the thick blade walls to provide locations for windows and balconies. Both projects create key focal points on the approach to the stadium.

# Wembley Regeneration

## PREMIER INN, WEMBLEY

### Architect:

Urban Innovations

### Developer:

Quintain

### Main Contractor:

McAlear & Rushe

### Installer:

AJE Facades

### Steel Framing Systems Supplier:

EOS

### Materials / Type of System:

SFS Infill



The Premier Inn, Wembley has been designed and built to achieve BREEAM Excellent standards. The £26.5 million development is located within an existing pedestrian boulevard adjacent to Wembley Stadium. EOS designed, and manufactured Steel Framing Infill Systems, using offsite construction methods which reduced disruption to the surrounding neighbours. The site teams proactively arranged site visits for local construction students, participated in community volunteering days and held DIY workshops for members of the public. The 312-bedroom Premier Inn was extremely quick to build, as the scheme relied on repetition and mass standardisation which enabled EOS to deliver ahead of schedule.



## WEST I

**Architect:**

if Architecture

**Developer:**

Quintain

**Main Contractor:**

Formation Group

**Installer:**

Formation Group

**Steel Framing Systems Supplier:**

EOS

**Materials / Type of System:**

SFS Infill



Comprising 186 flats and 15 commercial units along with an underground car park – West I is a high-profile regeneration site adjacent to Wembley Central in the London Borough of Brent. With four residential blocks on the site in Montrose Crescent and neighbouring land in Wembley High Road - the development consists of 3, 6, 13 and 18 storey blocks with podium rooftop gardens for residents. West I sees complex curves and prominent angles, which were all rapidly and accurately modelled and checked using high precision BIM 2 modelling between EOS and the principle designers.

## TESTIMONIALS

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*'EOS provide an excellent level of support throughout, from design right through to installation. Their personable approach is in line with our own company ethos and by forming strong working relationships, we are able to seamlessly deliver outstanding projects.'*

**Andrew Morely**  
**SCL**

*'EOS are a pleasure to work with - a quality design, materials clearly bundled, labelled and all pre-cut to length together with ongoing support on site. B-in-Line regularly use EOS for our SFS packages, and long may it continue.'*

**Ian Shemwell**  
**B In Line**

*'In my eyes EOS are the best SFS suppliers in the UK by a country mile! The EOS system is more user friendly for a variety of reasons and the quality surpasses anything on the market.'*

**Mark Trevelyan Huntley**  
**M&P Contractors Wales LTD**

*'The speed of installation of the EOS light steel framing system enables Stanmore to achieve more challenging deadlines on our sites. EOS have always provided us with fast and efficient service, facilitating our need to get materials to site quickly.'*

**Paul Sayer**  
**Stanmore**

*'Excellent performance with huge potential for gaining a significant chunk of the building market combined with a great push for offsite manufacturing.'*

**Sir Robert McAlpine**

*'It is a great product far advanced of any of its competitors.'*

**Graham Frost**  
**ISG**

*'The factory is brilliantly organised, steel frame components roll off the presses shaped, cut to size and predrilled. They can make any frame component in cold rolled steel and supply hot rolled steel too.'*

**Yarema Ronish**  
**RM Architects**

*'Everything is labelled, everything is colour coded, it's very clear where in the building the componentry and the panels need to go, and everything follows through the design for manufacture process very impressively.'*

**Darren Richards**  
**Cogent Consulting**



# GET IN TOUCH

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For detailed up to date information, to book a CPD session or to arrange a meeting contact our team today!

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For more information about our tours or to register your interest email [eos@insideoffsite.co.uk](mailto:eos@insideoffsite.co.uk)



