Precast Concrete Solutions

Precast Architectural & Structural Solutions

v.2.0

fpmccann.co.uk

FP McCann is the UK's market leader in the manufacture, supply and delivery of precast concrete solutions. Our comprehensive precast concrete business extends to include:

Drainage and Water Management Solutions • Tunnel and Shaft Solutions
Rail Solutions • Power and Infrastructure Solutions • Walling Solutions
Fencing Solutions • Architectural and Structural Solutions • Agricultural Solutions
Flooring Solutions • Specialist Precast Solutions

Modern manufacturing plants at Alnwick (Northumberland), Byley (Cheshire), Cadeby (Warwickshire), Drakelow (Staffordshire), Ellistown (Leicestershire), Grantham (Lincolnshire), Lisnaskea (Northern Ireland), Littleport (Cambridgeshire), Lydney (Gloucestershire), Magherafelt (Northern Ireland), Telford (Shropshire) and Weston Underwood (Derbyshire) incorporate the latest computerised batching, distribution, casting, curing and handling systems and are operated by skilled and experienced workforces to ensure consistency of quality. Their geographical spread gives us an unrivalled ability to serve the construction industry throughout the UK and Ireland.

Introduction

Precast concrete crosswall construction is a fast, convenient way to produce multi-unit structures such as hotels, education, student, secure and health accommodation, private and social housing in a fraction of the time of traditionally built structures.

It has all the advantages of a factory engineered system including ISO 9001 and ISO 14001 (or equivalent Euro Code) quality assured production and provides a highly flexible layout.

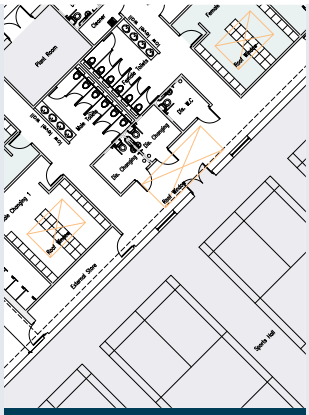
It can be tailored to meet the needs of the client, architect, engineer and builder.

At FP McCann, we believe in working with you as a partner from the start, which means offering our expertise in designing and manufacturing rooms to suit all your individual project needs. Far from being an 'off the shelf' solution, our precast architectural and structural solutions are made-to-measure whilst maintaining our design philosophies and standard details.

All units are manufactured off-site and delivered to site ready for final preparation and decoration. All sections are designed for ease of construction, fitting together to conform fully with building and structural regulations. Also, since the windows are fixed, internal trades can commence work far earlier than on a traditional-build site. All this to ensure peace of mind for you when you partner with us.

The concept

Estimate



Design

Manufacture

Installation

The concept of crosswall is uncomplicated, unlike the conventional building process where one trade has to follow on after the other; this system allows the main structure to be completed very quickly.

Once the foundations are laid, the speed of construction then takes over. FP McCann supply the pre-formed units, including all walls and floors and a flat slab concrete roof to provide an enclosed weathertight working area.

The main load bearing structure is complete within weeks and protected from the weather. If required, fully fitted out bathroom pods can be incorporated during this stage.

All follow-on trades can be scheduled to commence simultaneously. Roof, brickwork, window, services and floor screed subcontractors all work together to drastically reduce the time required to complete the final construction.

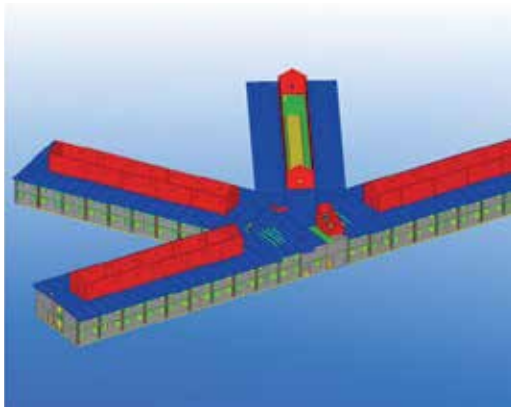
Design

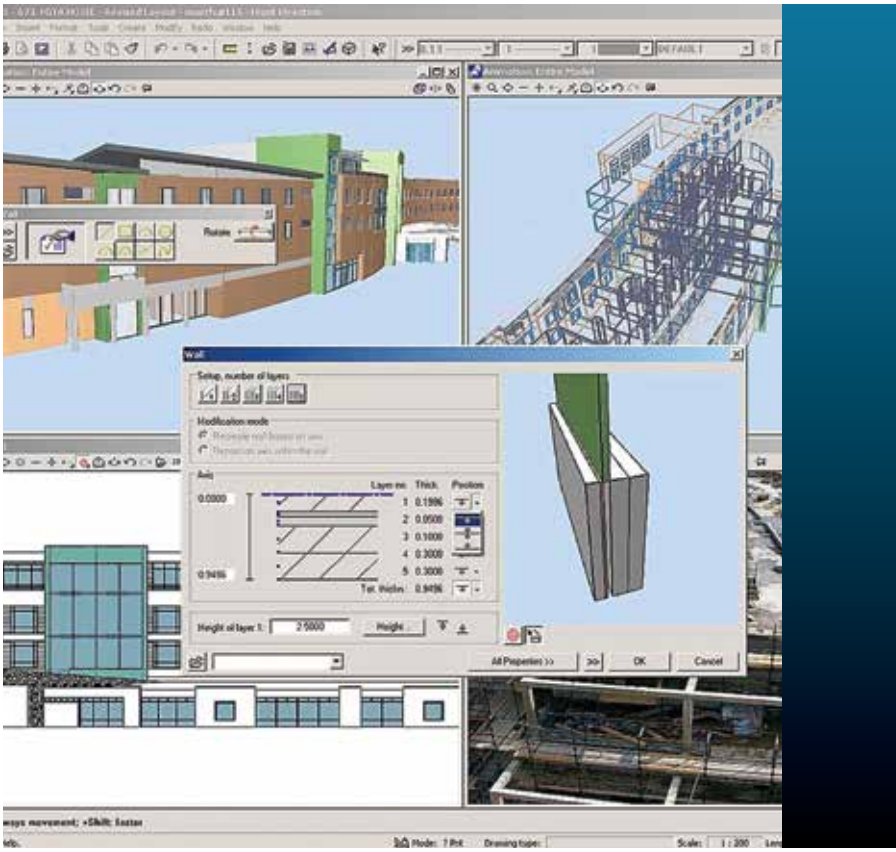
FP McCann has established a reputation for providing a wide range of concrete solutions for technically demanding projects, that require a precision seldom associated with precast concrete. Client designs are progressed using the latest CAD and drafting systems including 3D modelling, ensuring BIM compatibility and providing optimum design and build solutions.

The crosswall system is designed in accordance with Building Regulation requirements and current British Standards, particularly BS EN 1992 (Eurocode 2).

Loadings, unless specified otherwise, are generally to the latest revision of BS EN 1991 (Eurocode 1).

Walls are generally designed as plain walls to Eurocode 2 and are reinforced locally over windows and at openings etc. Floors can be prestressed hollowcore planks, solid reinforced or prestressed concrete slabs.





Production

Precast crosswall components are produced at FP McCann's modern factories, which are Quality and Environment Accredited to ISO 9001 QMS and ISO 14001 EMS. All aspects of the production cycle are carried out in strict accordance with British Standards and the clients' own requirements.

FP McCann's experience and knowledge of off-site construction ensures that all products are designed and manufactured for ease of assembly.

The manufacturing process is carried out by a highly skilled and experienced workforce. Concrete of the exact specifications is batched automatically by the computer controlled mixing plants, then distributed by bullet skips to a precise location within the factory.

Quality Assurance

FP McCann operates a quality management system which complies with the requirements of ISO9001 for the design and manufacture of precast concrete products.

FP McCann is committed to working closely with its customers, providing products and services to meet their construction and engineering needs.

Each factory has its own independent Quality Inspector to ensure compliance with ISO standards.

The system

The precast crosswall structural engineering system comprises a series of concrete panels forming internal, structural load-bearing and partition walls, external walls and floor slabs. External walls can consist of just the inner leaf concrete finish or include the insulated precast sandwich panels.

Overall stability is achieved by the diaphragm action of the floor slabs transforming horizontal loads between precast wall panels acting as shear walls.

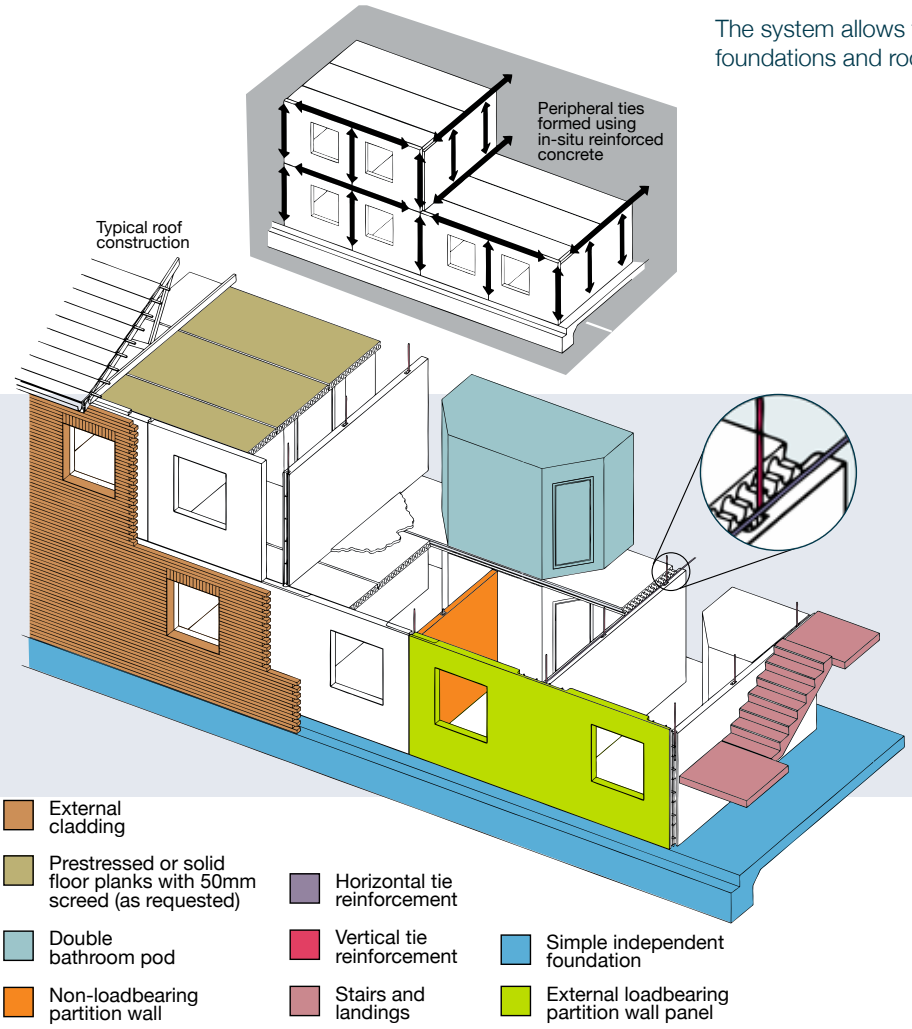
In common with all other wall units used in the system, the shear walls are structurally connected together in-situ concrete stitched joints, which are designed, detailed and constructed to ensure full transfer of all forces acting on the structure, and to ensure transfer of loads to the foundations.

Robustness of the structure is achieved through the provision of horizontal internal and peripheral ties, together with vertical ties.

The provision of these ties ensures that disproportionate collapse of the structure is prevented in the event of an explosion or other localized accidental damage.

The stairways and landings are formed in precast concrete and are supported by the wall panel system by hidden connections and grouted joints.

The system allows for very simple structurally independent foundations and roof constructions to be used.



In addition to the benefits of quality, programme saving and robustness, the thermal storage capacity of concrete can be used to reduce the heating costs of the building and provide an even internal climate.

Insulated precast sandwich panels

FP McCann's insulated precast sandwich panels provide a ready-made external envelope with a variety of finishes. This eliminates many of the pitfalls associated with traditional building methods utilising wet trades.

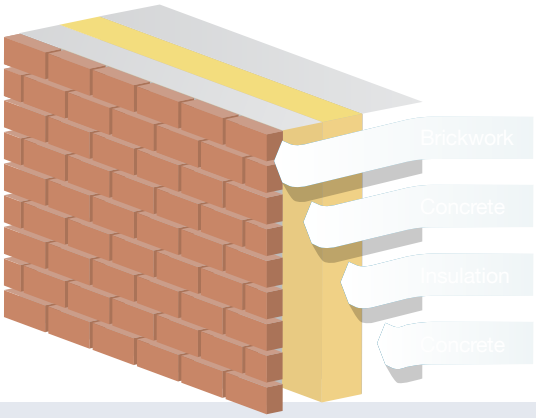
The panels are constructed off-site and comprise an outer leaf of precast concrete, an insulating layer and a structural inner leaf of plain grey concrete with a power floated internal finish.

The external skin is connected to and supported by the internal skin using proprietary plastic ties. The ties have a low thermal conductivity which eliminates potential cold bridging.

We can modify the thickness of the insulation in order to accommodate the required U-value. Shape, thickness and size of the concrete can also be made to meet the requirements of the project.

Insulated sandwich panels can be used to drastically reduce erection periods and on-site safety hazards for any crosswall project. The ability to fit various facades, windows and insulation during manufacture, reduces the need for numerous follow-on trades and eliminates the need for scaffolding.

Sandwich panel cross-section



Samples of the many finishes available:


Wire-cut brick


Stock brick


Wood effect


Exposed aggregate


Acid etched


Aston Smooth brick


Abstract


fpmccann
modular
building
solutions

Hotels

FP McCann has long-standing experience within the hotel sector, providing solutions to budget and luxury hotel chains including Ramada, Premier Inn, Holiday Inn, Hilton, Crowne Plaza and Malmaison Hotels.

Hilton Hotel, T5 Heathrow

The luxury seven storey Hilton Hotel adjacent to Heathrow Airport's Terminal 5 required a construction solution that would maximise off-site production processes, thus minimising the on-site programme. This resulted in a reduction in the number of site personnel and delivery vehicle movements that would have otherwise occurred.

FP McCann designed, manufactured and erected the precast concrete crosswall frame, which consisted of 236 external and 432 internal panels each 150mm thick. In addition, approximately 761 floor and roof units as well as stairs and landings were installed.

FP McCann's crosswall system is especially suitable for hotel construction as each panel provides fire protection, acoustic insulation and stability within each unit without additional materials or treatment.

FP McCann utilised a total of three erection teams comprising of eight men per team erecting an average of 45 units per day, finishing within the strict time constraints set by the client. The hotel consists of 350 bedrooms, including disabled bedrooms.

Ramada Hotel, Crewe

FP McCann completed the design, manufacture and installation of the precast units for the Ramada Hotel, Crewe using its precast crosswall system to form four floors consisting of 112 bedrooms within a 10 week period.

To ensure that installation could be completed in as little time as possible without compromising quality around 600 pieces were manufactured between FP McCann's Byley and Drakelow factories.

The crosswall construction system included recessed floors ready for receiving modular bathroom pods installed by FP McCann. Providing this all inclusive system meant that only minimal finishing work was needed with minimum screed to bring floors up to level.

Wall finishes were also minimised due to FP McCann's battery mould manufacturing process with steel face framework on all internal sides. This produced a high quality finish ready for a direct paint finish.

Malmaison Hotel, Liverpool

This was a complex project with double-storey vertical external walls to facilitate full height windows.

The balconies were stepped from the main finished floor levels, creating some interesting interfaces between elements. The requirement for double height walls presented an engineering challenge due to the size and weight of the individual panels. Due to its facade layout, stability of the panels and provision for disproportionate collapse required a more complex design.

The hotel element of the development consists of 130 bedrooms including bars, restaurant and meeting rooms with the residential accommodation comprising one and two bedrooms apartments.

Premier Inn Hotel, Manchester

This hotel was constructed within a tightly constrained city centre site which is at the junction of three busy routes in the Piccadilly area of Manchester, making delivery access difficult and leaving little room for on-site storage.

FP McCann's off-site method of construction was therefore considered the ideal solution. Precast concrete components manufactured off-site would ensure that the constricted site conditions would not be an issue and the just-in-time delivery system would eliminate any problems regarding on-site storage.

The hotel was constructed using FP McCann's specialised sandwich panels for the external walls and high quality precast concrete for all internal walls and floors. The sandwich panels comprise 60mm of insulation fitted with Thermomass ties between the inner and outer concrete leafs and were delivered with 'Aston Smooth' brick already clad and windows already installed at manufacture. This saved time and money by increasing the speed of construction by up to one floor per week and reduced the need for various follow on trades.

The use of precast panels with brick cladding up to 11 storeys is thought to be a UK first and a milestone project for FP McCann.

Holiday Inn Express City Centre, Manchester

FP McCann played a key role in delivering this contemporary hotel located in the heart of Manchester.

Using our factory engineered precast concrete system, we were able to provide an economical and fast-track building solution to construct all 192 guest bedrooms, as well as the meeting and conference facilities.

Our meticulous planning of the project ensured that our customer's key performance requirements were met. These included speed, quality, safety, programme and budget.

Education

A precast concrete design solution provides affordable solutions for learning environments. Off-site construction allows for buildings to be manufactured during term time with dramatically reduced programme periods, allowing for erection to be completed during the school holidays to ensure little obstruction to school semesters.

Montgomery Primary School, Exeter

Working closely with the architect NPS, FP McCann designed, manufactured and erected the precast structural components for the new school.

The precast concrete frame comprises of 104 external sandwich panel walls and 84 internal walls, along with 217 floor and roof slab units. The sandwich panel thickness varies from 370 to 410mm and comes with between 50mm and 150mm of high-performing rigid foam insulation already pre-installed and protected behind thick concrete.

The sustainability of this project will be measured in the long-term by the reduction of C02 emissions. The concrete's inherent thermal mass properties provide comfortable learning environments without the use of air conditioning, and thus generates sizeable energy cost savings for the end user. Since good acoustics are also essential in schools and learning environments, the mass and damping qualities of FP McCann's precast concrete structure address this important environmental aspect.

John Perryn Primary School, London

The design combines a 420 pupil Primary School with a 50 place nursery and Sure Start Children's Centre.

The two storey education facility has 8 classrooms, staff room and toilets on the first floor. On the ground floor there is an open-plan nursery provision, hall, dinning room, IT suite, reception and a further 6 classrooms for 3-6 year olds, including toilets, administration and plant room space.

A total of 479 units, 16 units per day were erected by FP McCann's own construction team, with a reduction of one week on the contract programme.

Ravensbury Community Primary School, Manchester

This project involved the amalgamation of the junior and infant schools onto a single site to provide facilities sufficiently flexible to deliver education over the next 50 years.

FP McCann played a key role in the design and construction of this new two-storey primary school in East Manchester.

With a total floor area of 2,514 square metres, the building also includes community facilities and a 60-place nursery. By using our precast concrete panel system, we were able to offer many benefits to the scheme. The new structure was constructed in the adjoining school grounds during term time.

The quick erection programme and low noise of our modular construction provided the ideal solution to ensure the school was ready for the start of the next academic year.

Medlock Primary & Sure Start Children's Centre, Manchester

In replacing the original Victorian school building, the design of Medlock School aimed to deliver a bold contemporary design for the 21st century.

The three storey educational facility has 12 classrooms and associated resource areas on the upper ground and first floors. On the lower ground floor there is an open-plan nursery provision equating to seven nursery rooms, dining hall, kitchen, community use rooms, parent rooms, toilets, administration offices and plant room space. The design required an open-plan lower ground floor and standard classrooms on the upper floors.

The upper floors are also designed with flexibility in mind. The corridor walls to each room have been constructed in lightweight partition, giving the school flexibility later, if required, to dismantle them and utilise the space in a different way. A total of 460 units were erected by FP McCann's own construction team, erection completed in just five weeks and one week earlier than the scheduled six week timeframe.

St Paul's Primary School

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Student Accommodation

University of Worcester

The use of FP McCann's crosswall system in student accommodation gives significant benefits including robustness, fire resistance, flood resistance, exceptional acoustics, thermal mass and excellent security, all of which are added benefits for student living.

The student accommodation at the St. John's campus comprises of 192 bedrooms, 16 disabled bedrooms, 12 kitchens and 3 living areas over its 3 storeys. FP McCann supplied the precast walls, floors, stairs and landings. The external walls are 150mm thick and the internal walls, 180mm thick, requiring a total of 1,885 cu m of precast concrete.

With the quality of campus life now a crucial factor in determining students choice of educational establishments, many colleges and universities rely on superior residential provision as a vital means of attracting high-calibre scholars.

University of the West of England, Bristol - Student Village

Known as the 'Frenchay Campus', FP McCann developed a solution for this project to meet the exacting demands of the client's programme.

FP McCann were tasked with the design, manufacture and installation of over 11,000 units in a 39 week period comprising of 1,974 student bedrooms, 2 kitchens and a service core to every block, which needed to be erected in a weekly cycle to ensure phased handover to follow on trades.

Precast units were delivered to site and installed at a rate of 4,000m^2 to 6,000m^2 of completed floor area per week.

FP McCann developed a prestressed solid wide slab floor unit which was used for the first time on this project. The 200mm and 225mm thick units were uniformly prestressed with stands in the centre giving zero camber. The units were recessed by 100mm to accommodate the prefabricated bathroom pods.

With such tight programme constraints, the key to delivering 163 levels to schedule was simplicity and innovation, the final solution reducing each cycle by more than two days.

University of East London

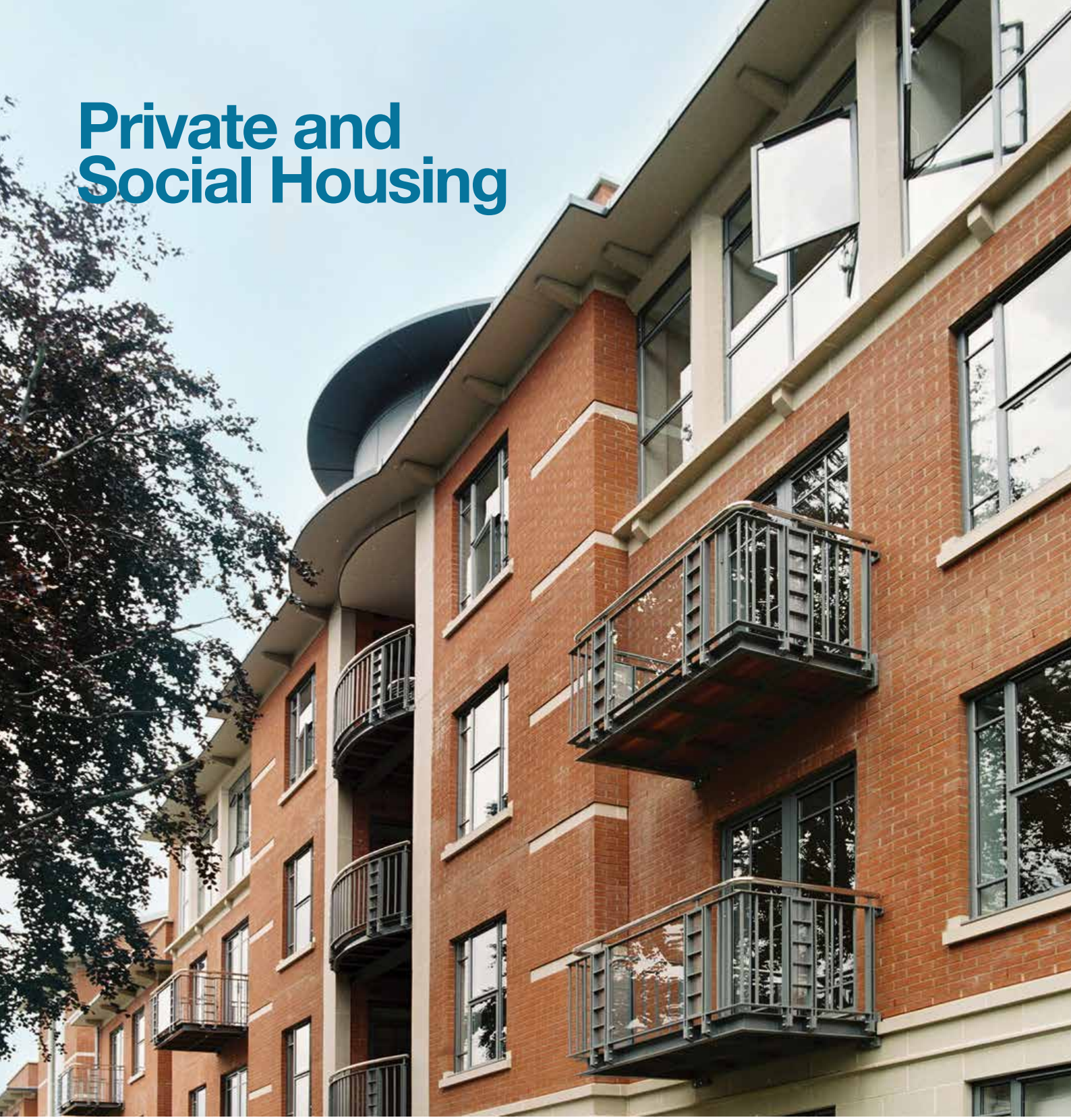
Student Accommodation

One of our most innovative projects has been the development of the University of East London's campus at Royal Albert Docks. The campus provides 788 student bed spaces and ancillary facilities on a previously vacant site adjacent to the University's existing Docklands campus. Located opposite London City Airport, the site is bounded by the Royal Albert Dock, a publicly accessible dock edge path to the south, the Docklands Light Railway, Gallions Reach Roundabout, University Way to the north and Woolwich Manor Way to the east. The building was constructed using mainly precast concrete because of its inherent robust nature, acoustic and thermal properties. This also helped eliminate wet trades, thus saving time and money and increasing the speed of erection.

One of the main advantages of FP McCann's engineered precast concrete frame is that it provides a fair faced finish to the walls. This removes the need for plasterboard or a plaster skim. The frame incorporates the internal walls (excluding the bedroom to corridor wall) and the inner skin of the external wall, thus omitting the need for internal dry lined walls and external metal framed walls.

The system provides a major contribution to the acoustic rating for the external envelope; the choice of cladding dictates the final rating. This method of construction complies with the internal dB ratings, as required by building regulations (Part E) for internal party walls and floors, without surface treatment being necessary (except the floor coverings being applied). These unique attributes help FP McCann's precast modular building solutions reduce the overall cost and programme of the project. A fine example of all these benefits is the University of East London project.

Private and Social Housing



St. James Apartments

St James' Court is a luxury apartment development consisting of four storeys constructed from a ground floor in-situ concrete transfer slab. The main contractor constructed the underground car park and transfer slab using in-situ concrete.

The first three floors were constructed using FP McCann's modular flat pack factory engineered concrete panels, providing internal structural load bearing apartment dividing walls, together with elevational panels. The structural envelope was completed with the supply of precast stairs and landings.

The top storey was a combination of a precast concrete crosswall system and a lightweight steel frame. FP McCann was able to incorporate this combined steel and concrete solution into one subcontract package.

The limited working space within this site and its position adjacent to a busy railway line dictated the use of a Factory Engineered Concrete (FEC) modular system and the use of just-in-time delivery of components was critical to this project.

High value and low costs are paramount in the residential development sector. Our precast concrete structures provide the optimum sustainable solution for apartments and private and social housing.

Crosswall construction has become and increasingly popular choice for apartment construction because of the time and cost savings that can be acheived.

Options for dynamic and varied room layouts are available without drastically compromising on costs and time.

FP McCann also has developed a method to construct individual precast concrete housing, minimising project lengths and related costs that are associated with traditional build methods.

FP McCann will work with you to satisfy specific needs whilst providing the most economical solutions possible.

Sportcity, Manchester

FP McCann's precast crosswall panels were used on the two apartment blocks in Manchester situated next to the city's Ashton Canal.

The apartments, named 'The Cube' and 'The Cresent' were six and eight storey's respectively and were built within a 15 week target programme.

Secure Accommodation

HMP Dovegate

FP McCann was challenged to deliver this project within a fast-track timescale. There were up to 11,000 individual elements which formed 12 different buildings, all of which had to be designed, manufactured and installed on-site by our teams.

These formed over 800 cells and various recreational areas. Just-in-time deliveries enabled maximum productivity to be achieved, with up to 10 erection gangs being utilised at the peak of production.

State-of-the-art AutoCad systems were used to build a 3D model and co-ordinate the design development to ensure a successful project was delivered.

Benefits gained included a simplification of the various panel types, improved quality and safety, together with more effective sequencing during the manufacturing stage – thereby providing valuable experience to carry forward on future projects.

FP McCann has also completed an extension to the existing prison which consists of a 260 cell 2 storey 4 winged 'K' shaped house block. The on-site erection was approximately 19 weeks including the roof steel, during which time there were two crawler cranes and two mobile cranes in operation at any one time erecting some 1,758 precast units and roof steels.

Our range of precast modular building solutions provide secure, sustainable, robust and cost-effective solutions for Prisons and Young Offenders Institutes. We have vast experience within this sector and can ensure that a fully coordinated design solution can be achieved to meet any criteria.

FP McCann's crosswall system of constructing multi-unit accommodation has been used extensively in prison construction over the last 15 years. The system has been used in the construction of house blocks, segregation units and associated prison buildings at over 25 different prison sites.

Health

We support the public and private health sectors with our experience and our range of precast structures. FP McCann can provide concrete solutions for hospitals and care homes from design and manufacture through to erection.

Engaging with clients from the earliest stage produces excellent results. This way we can provide a scheme that will help to reduce construction costs and delivery time by highlighting buildability issues before they impact. It also enables us to add value through innovative construction processes, producing standardisation and value engineering.

Hafod y Parc Care Home, Abergele

Abergele's extra care housing scheme, Hafod y Parc is a 3 storey development comprising of 49 affordable apartments consisting of 5 one bedroom apartments and 44 two bedded apartments, plus communal lounges, restaurant and a hobby room.

FP McCann was appointed by main contractor K & C Group to design, manufacture and erect the walls, floors, stairs and landings, including steel work.

The apartments are solely for residents who require extra care facilities but want to maintain their independence.

Coventry Mental Health Unit

This mental health unit has a footprint of 8,700 sq. metres and was constructed alongside the existing hospital. It is mainly two storey with a significant single storey element.

FP McCann worked closely with the main contractor to develop a solution that offered the best combination of off-site manufacture and speed of assembly on-site.

Sustainable Performance

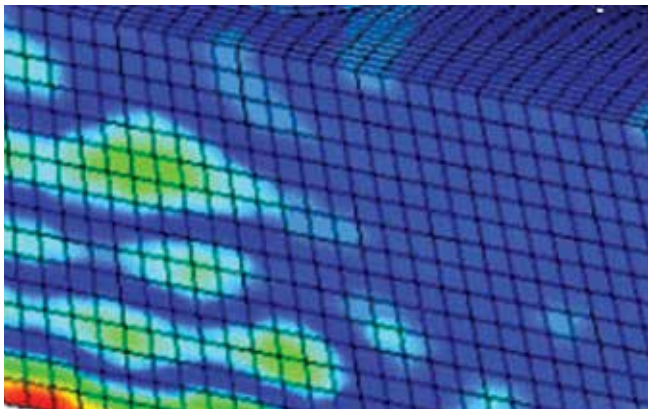
Benefits of Precast Concrete

Concrete in various forms has been used for thousands of years. Today, precast concrete is a widely used modern method of construction, benefiting from the quality control a factory environment can provide.

Precast concrete provides a quiet, comfortable, safe and durable environment for occupants. The benefits of precast concrete can be best described under the following attributes:

Thermal mass

Thermal mass is concrete's ability to absorb and hold heat and to release it in a controlled way, thus smoothing out the temperature variations within the building over a 24 hour cycle and throughout the year. This thermal stability provides a more consistent internal environment, reduces the required heating loads and associated CO_2 consumption over time. It also reduces the energy costs of buildings due to reduced energy consumption.



Acoustic isolation performance

Precast concrete has excellent acoustic performance. It has the inherent mass, stiffness and damping properties necessary to effectively reduce the transmission of both airborne and impact sound. In fact, concrete has the highest damping properties of any structural material, reducing the reliance on additional finishes and simplifies design and detailing. This leads to a reduction in the labour, time and costs associated with these finishes and detailing.

Flood resilience

Precast concrete has excellent flood resilience, maintaining its structural integrity during a flood event. Its density resists water penetration, reducing the impact of a flood on the fabric of the building, providing building owners and insurance companies with reduced repair time and costs associated with repairing flood damage. For occupiers, time away from the property is reduced.

Precast concrete is the ideal solution when building in areas at potential risk from flooding.

Fire Resistance

Precast concrete is non-combustible. It does not add any fuel to a fire, help it to spread or produce any smoke or toxic gases. It maintains its structural integrity long after steel or timber structures have failed and can be repaired following a fire. The risk of fire during and following construction is reduced, and if fire occurs, the effects are likely to be less significant in terms of repair/replacement, greatly reducing the financial impact for the contractor/developer, building owner and insurance companies. Occupiers can have greater confidence that the building they are living or working in offers them better protection against fire, and could be seen by the contractor/developer as an aid to sales.

Durability

Precast concrete offers exceptional durability and long life in any structure. Concrete structures built over 100 years ago are still in active service today, which results in the time scale for replacing a precast concrete building being up to twice that of other forms of construction. Coupled this with the energy efficiencies that thermal mass brings means that precast concrete has low whole life cycle $C0_2$ emissions when compared to other forms of construction. This longevity reduces disruption to the occupants and minimises breaks in any rental income stream for the building owners.

Robustness / security

The use of precast concrete creates a robust structure that reduces the risk of damage to finishes and gives a sense of security not necessarily felt in a lightweight building. Couple this with the reduced use of plaster board we create a living space that can resist the wear and tear of everyday life, keeping repair and maintenance costs down, year after year.

Speed of construction

The nature of off-site construction methods ensures buildings can be erected quickly, even in adverse weather conditions, drastically reducing construction time and associated costs.

Project List

Hotels

	No. of beds
Arora Hotel Crawley	96
Arora Hotel Gatwick	311
Casa Hotel, Chesterfield	100
Chester Racecourse	97
City Inn Manchester	284
Crown Plaza, London Docklands	210
Crowne Plaza, Manchester	228
Days Inn Glasgow	110
Edinburgh	133
Etap Bradford	86
Etap/Ibis Birmingham Airport	282
Express By Holiday Inn Aberdeen	N/A
Express By Holiday Inn Ayr	108
Express By Holiday Inn Bath	120
Express By Holiday Inn Bath	126
Express By Holiday Inn Bedford	80
Express By Holiday Inn Brentford Lock	120
Express By Holiday Inn Bristol	133
Express By Holiday Inn Burnley	98
Express By Holiday Inn Cheltenham	100
Express By Holiday Inn Chingford	102
Express By Holiday Inn Colchester	99
Express By Holiday Inn Cowgate	N/A
Express By Holiday Inn Derby	120
Express By Holiday Inn Doncaster	94
Express By Holiday Inn Dundee	93
Express By Holiday Inn Epsom	120
Express By Holiday Inn Exeter	122
Express By Holiday Inn Fulham	96
Express By Holiday Inn Golders Green	83
Express By Holiday Inn Greenwich	150
Express By Holiday Inn Greenwich	162
Express By Holiday Inn Hamilton	104
Express By Holiday Inn Harlow	130
Express By Holiday Inn Kent	104
Express By Holiday Inn Kettering	121
Express By Holiday Inn Leicester	109
Express By Holiday Inn Lincoln	118
Express By Holiday Inn Luton	147
Express By Holiday Inn Luton Airport	37
Express By Holiday Inn Manchester	150
Express By Holiday Inn Milton Keynes	178
Express By Holiday Inn North Acton	108
Express By Holiday Inn Northampton	127
Express By Holiday Inn Oldbury	109
Express By Holiday Inn Oxford	162
Express By Holiday Inn Redbridge	126
Express By Holiday Inn Redditch	100
Express By Holiday Inn Sheffield	N/A
Express By Holiday Inn Slough	142
Express By Holiday Inn Southampton	131
Express By Holiday Inn Southampton	45
Express By Holiday Inn Stevenage	108
Express By Holiday Inn Stoke	123
Express By Holiday Inn Stratford	114
Express By Holiday Inn Stratford	45
Express By Holiday Inn Swiss Cottage	69
Express By Holiday Inn Tamworth	120
Express By Holiday Inn Tamworth	N/A
Express By Holiday Inn Taunton	92
Express By Holiday Inn Walsall	100
Express By Holiday Inn Wandsworth	148
Express By Holiday Inn Warwick	117
Express By Holiday Inn Watford	98
Express By Holiday Inn Winnersh	174
Express By Holiday Inn Witney	N/A
Golden Tulip Manchester	50
Hampton by Hilton Hotel, Burton on Trent	86
Hemel Hempstead	112
Hilton Croydon	120
Hilton Edinburgh	110
Hilton Hotel, Burton on Trent	142
Hilton Hotel, Heathrow Terminal T5	350
Hilton Luton	180
Holiday Inn Express, Manchester	193
Holiday Inn Woking	150
Holiday Inn Woking	161
Holiday Inn, Commercial Rd, London	130
Holiday Inn, Glasgow	113
Holiday Inn, Newcastle	154
Holiday Inn, Norwich	150
Holiday Inn, Speke, Liverpool	100
Hotel La Tour, Birmingham	152
Howard Johnson Glasgow	108
Ibis Aldgate	348
Ibis Birmingham	90
Ibis Borehamwood	122
Ibis Bristol Harbourside	180
Ibis Carlisle	102
Ibis Gatwick	131
Ibis Hull	106
Ibis Leicester	150
Ibis Liverpool	127
Ibis Luton Airport	64
Ibis Manchester	127
Ibis Temple Quay 2, Bristol	141
Ibis Wembley	210
Macdonalds Hotel Sheffield	166
Malmaison Hotel, Liverpool	130
Motel One, Manchester	330
Park Inn Manchester	252
Premier Inn, Dale Street, Manchester	193
Premier Inn, Doncaster	107
Priddys Yard, Croydon	150
Quest Shoreditch	180
Radisson Blu Guildford	180
Radisson Jersey	166
Ramada Birmingham	120
Ramada Chatham	93
Ramada Derby	112
Ramada Encor, Haydock, Liverpool	102
Ramada Hotel, Chase Pk, Doncaster	N/A
Ramada Newcastle Airport	156
Ramada Swansea	102
Ramada Walsall	121
Ramada, Crewe	112
Splash Landings Alton Towers	120
Telford International Hotel	101

The Armouries Leeds	130
Travelodge Slough	180
Village Ashton Moss	120
Village Elstree	120
Village Farnborough	114
Village Leeds South	115
Village Solihull	122
Westbridge Hotel Stratford	75

Student accommodation

	No. of beds
Abertay	700
Borough high Street	300
Brunel University Phase 5	538
Colchester	767
Crewe	51
Docklands Campus	788
Great Dover Street	350
High Wycombe	200
High Wycombe	234
Homerton College, Cambridge	138
Lancaster Phase 2	1870
Lancaster Phase 3	1500
London Metro Univ, Huddleston, London Mile End Rd	595
Loughborough University	
Mallet St, London	166
Masons Hall, Birmingham	800
Newcastle	300
North Cambridge	321
Pitfield St, Hackney	350
Plymouth University	329
Reading University	120
Reading University	967
Reading University, Bridges Hall	400
Sheffield University	N/A
Southend on Sea	561
Swansea	500
Tufnell Pk	450
University of Abertay, Dundee	N/A
University of East London	N/A
University of Hertfordshire	1601
University of Kent, Pier Rd, Gillingham	350
University of Lancaster	422
University of London	197
University of Sussex	228
University of the West of England, Bristol	1974
University of Worcester	177
Worcester University	358

Ministry of Defence

	No. of beds
JRSLA, Lucknow Barracks	450
SNCO, Lucknow Barracks	50
RAF Woodbridge	344
RAF Woodbridge	58
DACI Shrivenham	460
DACI Shrivenham B36	250

Apartments

	No. of apartments
Browning Street	
Burslem Phase 1 Block 1	58
Burslem Phase 1 Block 2	64
Didsbury Point	45
Fleet Street	N/A
Pocock Street	N/A
Sportcity Phase 2C blocks 1	66
Sportcity Phase 2C blocks 2	57
Sportcity Phase 2C blocks 3	42
Sportcity Phase 4 “The Cresent”	55
Sportcity Phase 4 “The Cube”	50
St. James’s Court	N/A
Trinity Place	N/A

Custodial

	No. of cells
HMP Jurby Prison – Isle of Man	200
HMP Greenock Prison	64
HMP Saughton Edinburgh	120
HMP Glenochil Prison - Seg Unit	30
HMP Polmont Prison - Seg Unit	30
HMP Perth Prison - Seg Unit	120
HMP Edinburgh	94
HMYOI Polmont	118
HMP Shotts Prison	285
HMP Lowdham Grange	500
HMP Kilmarnock Prison	500
HMP Pucklechurch Remand Centre	400
Medomsley Secure Training Centre	40
Logford Detention Centre	400
HMP Hassockfield Prison	16
HMP Lowdham Grange Expansion	30
HMP Lowdham Grange Expansion	260
Gatwick Immigration/Removal Centre	420
Harmondsworth Immigration/Removal	196
HMP Coldingley	120
HMP Onley - House Block	120
HMP Bullingdon - House Block	110
HMP Dovegate Prison	800
HMP Liverpool	24
HMP Cardiff	20
HMP Albany - Hospital Wing	N/A
HMP Winchester	116
HMP Dovegate	264
HMP Littlehay Seg Unit	12
HMP Parc	326
HMP Belmarsh	600
HMP Thameside (Belmarsh)	216
HMP Wrexham	N/A

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Rail Solutions
Cadeby 01455 290780

Power and Infrastructure Solutions
Cadeby 01455 290780

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Flooring Solutions
Weston Underwood 01335 361269

Specialist Precast Solutions
Littleport 01353 861416

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