fpmccann

PRECAST CONCRETE SOLUTIONS
FOR DATA CENTRES

The complete package from the UK's largest manufacturer and supplier of precast concrete solutions.

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INTRODUCTION

OUR COMPANY

As the UK's largest manufacturer and supplier of precast concrete solutions, FP McCann is ideally placed to support the rapid development of data centres throughout England, Scotland, Wales and Ireland.

Through our commitment to high quality, cost-effective and sustainable solutions tailored to meet client requirements, we help developers unlock the benefits of precast to create next generation data centres that are instrumental in the UK and Ireland's thriving digital economies.

Our thirteen manufacturing facilities provide innovative precast solutions which can be combined to raise the bar on the building performance, product traceability and quality, as well as enabling far more efficient construction processes.

MARKET-LEADING SOLUTIONS FOR NEXT GENERATION BUILDINGS

FP McCann's precast concrete solutions cater for virtually every type of building, spanning everything from hollowcore flooring, stairs and lift shafts to walling, roof tiles and SuDS.

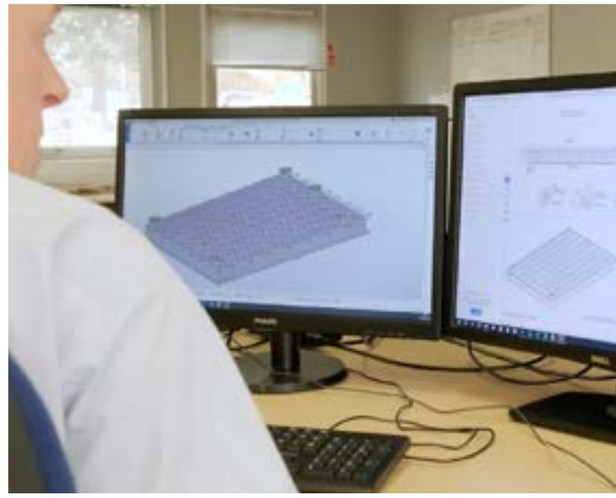
As a result, our products are used in numerous types of construction projects, from schools, colleges, universities, office developments and farm buildings, to nuclear power plants, rail and highways infrastructure and residential schemes.

Our cross-sector service and experience means we are at the forefront of creating a built environment that is better suited to a Net Zero Carbon world, guiding architects, developers and contractors to deploy precast construction in ever more creative ways.

SPECIALISTS IN DfMA

FP McCann is an experienced supplier to Design for Manufacture and Assembly (DfMA) projects. In fact, our in-house digital engineering capability has grown to meet and exceed the expectations of government and clients as they seek to transform the way projects are delivered.

Our continuous investment has created modern manufacturing plants that incorporate computerised batching, distribution, casting, curing and handling systems, all of which are operated by a skilled and experienced workforce to ensure consistency of quality. The geographical spread of our plants gives us an unrivalled ability to serve the construction industry throughout the UK and Ireland.



We are unlocking precast's potential to shape a far more sustainable built environment.

SMART PRECAST SOLUTIONS, OPTIMISED FOR THE PROJECT

By applying the DfMA principles, FP McCann's design engineers are able to evaluate individual precast concrete products part by part, in addition to documenting the assembly process step by step.

This allows them to generate the cost, part count and assembly time to provide a benchmark to measure its success and identify the parts and process improvement opportunities.

In turn, this has allowed FP McCann to design and manufacture more cost-effective and efficient high-quality precast concrete products with less wastage and greater on-site recycling.

The result is increased productivity, combined with a reduction in production time and costs, ensuring FP McCann stays at the forefront of smarter construction.

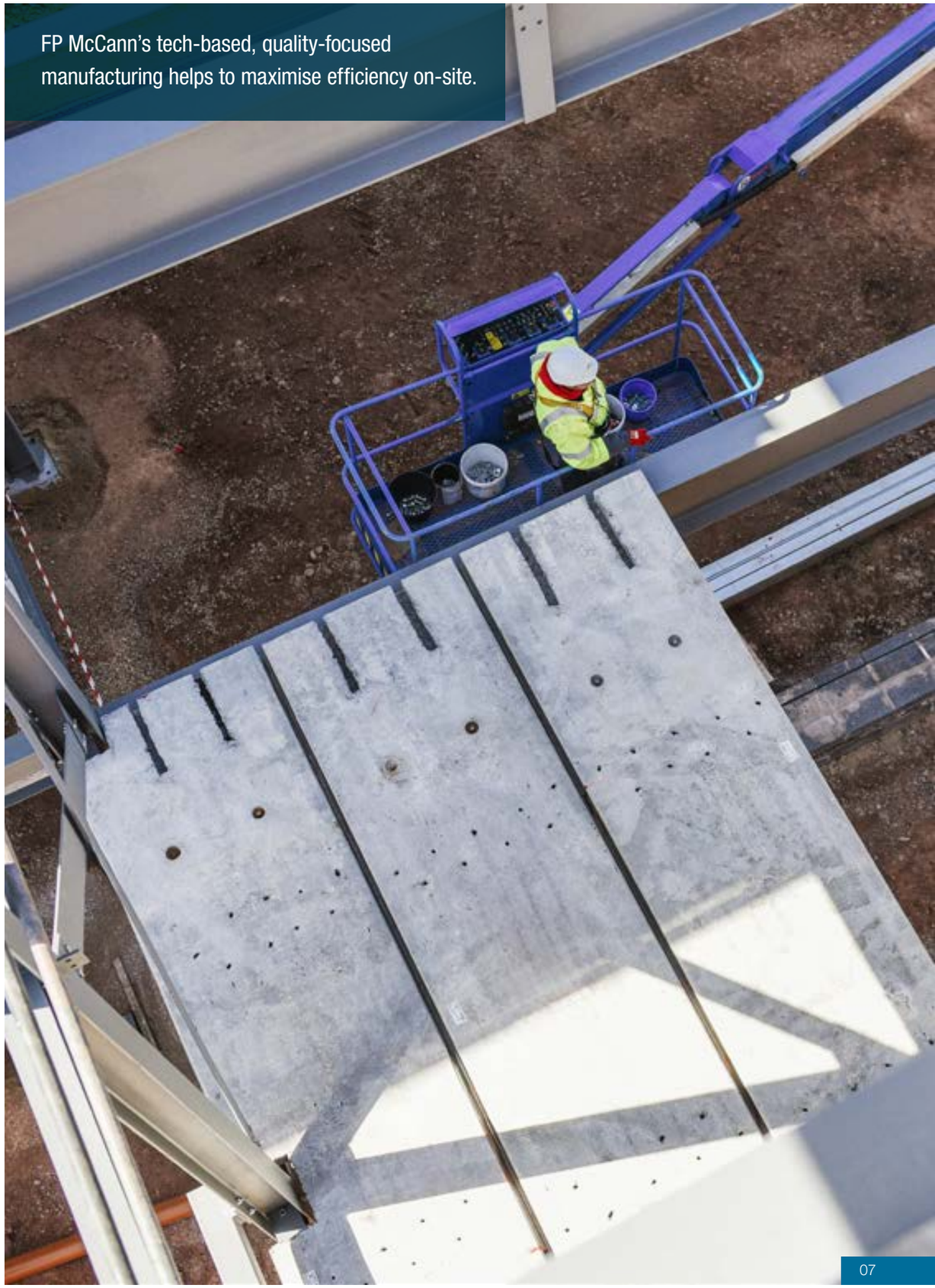
SEAMLESS INTEGRATION INTO DIGITAL CONSTRUCTION PROJECTS

Choosing FP McCann enables precast products to be integrated into BIM with ease and support the creation of digital twins.

This enables engineers to simulate various scenarios using precast, such as load-bearing capacity, thermal performance, and structural behaviour under different conditions.

The FP McCann in-house design team are accredited to BIM Level 2 in line with BS EN ISO 19650-2:2018 and they are working towards BIM Level 3.

This means they have the expertise to work with architects, MEP engineers, and contractors to help reduce design clashes early in the process, as well as optimise sustainability throughout the construction methodology.



FP McCann's tech-based, quality-focused manufacturing helps to maximise efficiency on-site.

KEY

- Manufacturing Facilities
- Quarries/Manufacturing Locations

OUR FACTORY LOCATIONS

GREAT BRITAIN LOCATIONS

FP McCann operates nine facilities across England and Scotland, strategically positioned to serve construction projects, commercial developments, agricultural customers, and infrastructure projects throughout Great Britain.

Our GB facilities manufacture a comprehensive range of precast concrete products, including drainage systems, flooring solutions, walling products, agricultural items, specialist concrete elements, aggregates, and building stone from our quarrying operations.

NORTHERN IRELAND LOCATIONS

FP McCann operates eleven facilities across Northern Ireland, providing unparalleled coverage throughout all six counties.

Our comprehensive NI infrastructure includes precast concrete manufacturing plants, quarries producing aggregates and building stone, ready mixed concrete depots, and surfacing facilities, making us Northern Ireland's leading supplier of building and construction materials.

FP McCann Ellistown Depot

WHY USE PRECAST CONCRETE FOR DATA CENTRES?

The unique combination of challenges associated with the construction of data centres makes FP McCann's precast concrete solutions particularly well-suited to this sector.

Precast's characteristics, manufacturing processes and construction methodology makes the creation of versatile, sustainable, safe and secure data centres at pace a reality.

SUSTAINABILITY

The sustainable construction benefits of precast concrete are increasingly being recognised and nowhere is this more important than in data centre developments.

CREATE LOW ENERGY DATA CENTRES

Precast concrete keeps buildings cool due to its high thermal mass, helping to regulate the internal temperature in data centres.

It acts as a thermal store, absorbing external heat on warmer days, as well as heat generated by equipment within the data centre, to reduce the risk of overheating.

It then works in reverse, with heat slowly released overnight to lower the demand for heating during colder periods.

This lower reliance on artificial heating and cooling in precast buildings reduces overall energy consumption.

CUT CARBON FROM THE CONSTRUCTION PROCESS

Unlike in-situ concrete, which requires extensive formwork, transportation of materials, and high energy consumption on-site, precast concrete is manufactured in a controlled factory setting, minimising waste and optimising material usage. Precast elements are also produced using innovative mixes incorporating supplementary cementitious materials (SCMs) which significantly reduce embodied carbon.

FP McCann's local supply chains coupled with precast's reduced site construction time also help to reduce transportation-related emissions.

REDUCE WASTE AND RESOURCE-USE

FP McCann's products and processes are designed for the circular economy, primarily as precast concrete manufacturing generates minimal waste and any excess material can be recycled and reintegrated into production.

And, on completion of its lifecycle, precast can be recycled into aggregate form when crushed, decreasing the need for virgin raw materials.

MEET NET ZERO CARBON (NZC) TARGETS

Precast concrete's high thermal mass and long, low maintenance lifespan means it has minimal embodied carbon, ticking all the boxes for globally recognised schemes central to meeting net zero commitments such as BREEAM and LEED.

BUILD FASTER AND TO HIGHER QUALITY

Precast concrete is a proven offsite construction approach that delivers ready-to-assemble building elements to reduce the potential for site delays and shrink the build schedule.

FP McCann's products are all made in a quality-controlled factory environment, providing durable solutions that can be erected in almost all weather conditions.

Traditional construction methods cannot match precast for build speed and low labour demand.

REDUCE SITE LABOUR DEMANDS

Offsite construction approaches, particularly precast concrete, generally require fewer workers on-site compared to more traditional build methods.

Choosing precast, therefore, eases labour resourcing pressures and speeds up project delivery – a particularly welcome advantage given the ongoing construction skills shortage.

ACCOMMODATE HEAVY LOADS AND FLEXIBILITY

The high strength of precast concrete makes it particularly well-suited for accommodating the significant weight of the technology installed in data centres.

This also means long floor spans can be achieved so more of the floor space can be utilised to its full potential and adapted as the needs of the data centre change over time.

STABLE INTERNAL CLIMATE

REDUCED BUILD SCHEDULE

LOWER DEMAND FOR SITE LABOUR

STRUCTURAL STRENGTH AND ASSURED DURABILITY

FP McCann's precast fire walls help create safe and secure data centres.

OPTIMISE FIRE SAFETY AND SECURITY

Precast concrete, including walling, provides a robust, high strength solution which is effective at resisting the impact of blasts resulting from both internal and external incidents.

It is also highly fire resistant, making it a dependable choice for protecting the structure, high value assets, people within the data centre site and surrounding communities.

COMPLETE RAINWATER AND DRAINAGE SOLUTION

FP McCann's precast portfolio provides solutions for the whole data centre site, including sustainable drainage systems (SuDS).

This means one material choice and a single supply partner to construct the mandatory systems required for managing drainage and stormwater across the site, all with the same quality and technical standards as the precast elements used for the rest of the building.

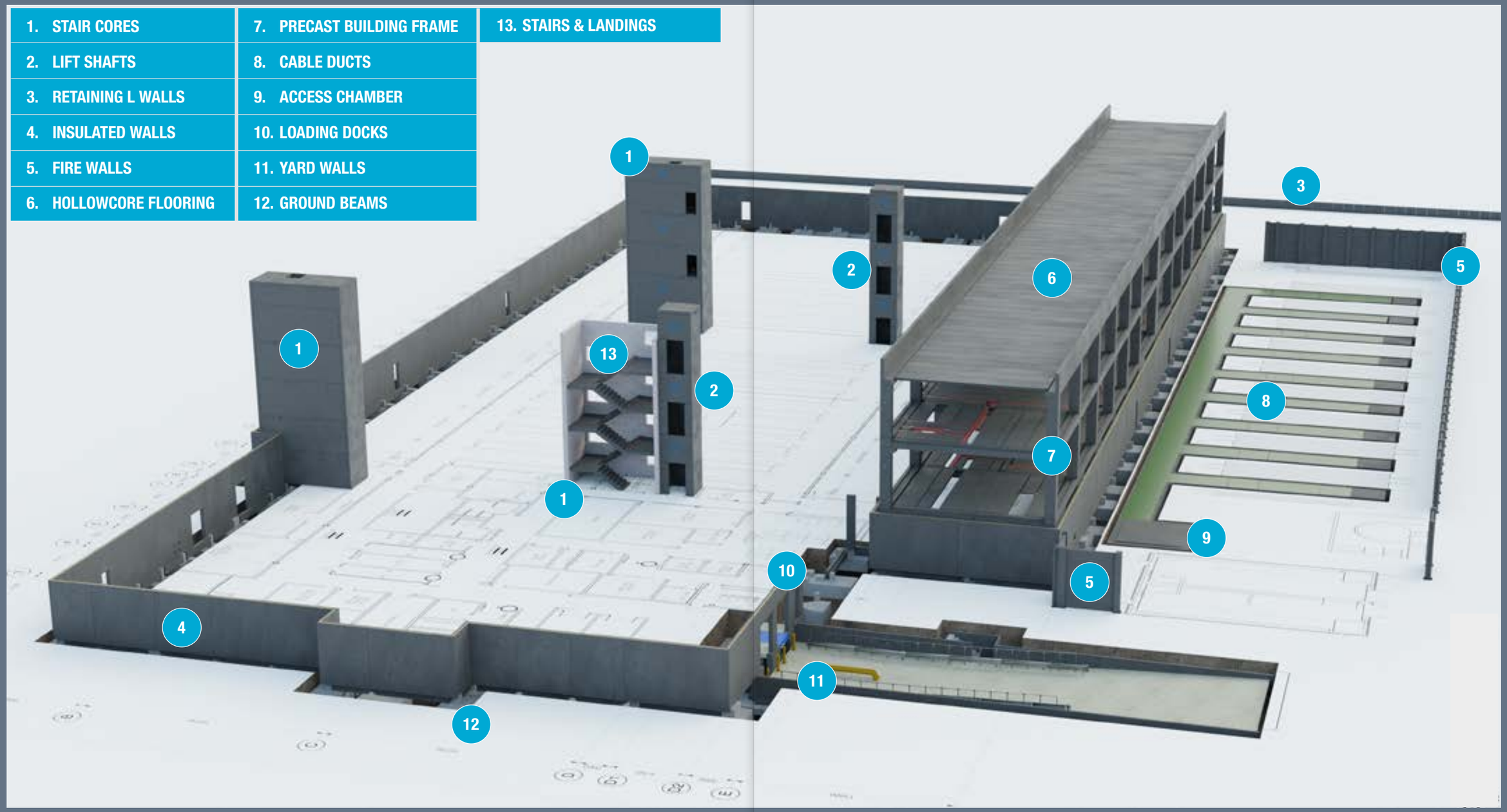
RESISTANT TO FIRE AND PROTECTS AGAINST BLASTS

MORE SUSTAINABLE, LOWER CARBON LIFECYCLE

Data centres must be safe, secure and sympathetic to surrounding communities.

OUR PRODUCTS & SYSTEMS

1. STAIR CORES	7. PRECAST BUILDING FRAME	13. STAIRS & LANDINGS
2. LIFT SHAFTS	8. CABLE DUCTS	
3. RETAINING L WALLS	9. ACCESS CHAMBER	
4. INSULATED WALLS	10. LOADING DOCKS	
5. FIRE WALLS	11. YARD WALLS	
6. HOLLOWCORE FLOORING	12. GROUND BEAMS	



PRODUCTS FOR
BUILDING STRUCTURE

FP McCann provides all the precast products needed to take the building from the foundations to roof in a fraction of the time required for traditional construction processes.

Quality consistency and superior performance ensure the data centre structure is future-proofed over a long lifespan.

PRODUCTS FOR BUILDING STRUCTURE

STAIR CORES

FP McCann's bespoke precast stair cores facilitate rapid construction of these key elements in the early stages of the data centre build. Our systems provide complete design flexibility, with a choice of structural stability and freestanding construction, both tailored to the project requirements and performance goals.

MODULAR DESIGN FOR RAPID CONSTRUCTION

The simplicity of FP McCann's precast approach to stair core construction comes through its modularity. L or T wall sections lifted into place with ease and repeated as the core builds up in height to the required number of floors.

Our precast stairs and landings are integrated too in the stair cores as it rises in height, providing a safe working platform for following trades in a fraction of the time needed for in-situ casting.

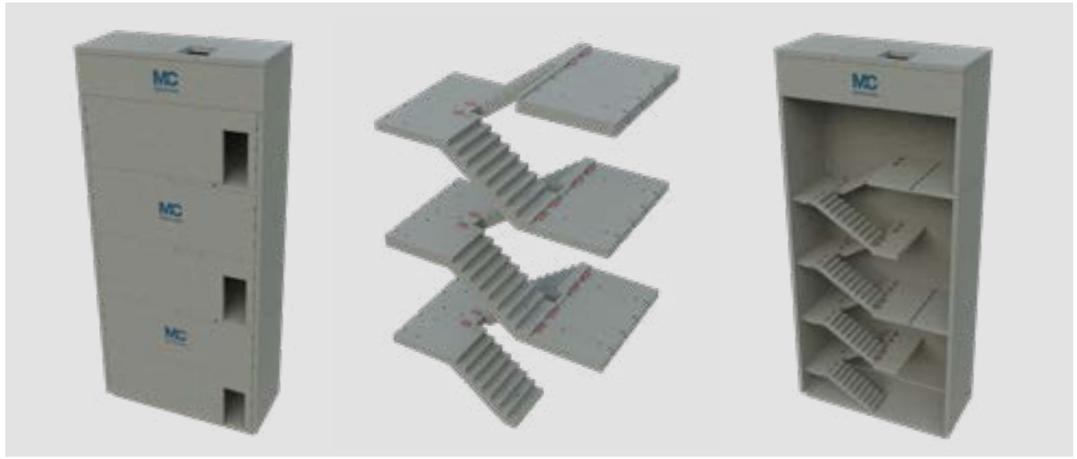
MULTIPLE STAIR DESIGN OPTIONS

As every stair core is bespoke designed and manufactured, we can accommodate a variety of stair designs. These include straight flights, flights with top or bottom integral landings, or both, and units which consist of a half landing with an integral flight.

KEY FEATURES

- Both L and T shaped wall sections available
- Stair cores are manufactured off-site and delivered to site ready for installation
- Modular sections build up the required height facilitating multi-storey construction
- Each section features cast-in lifting points to make installation efficient and safe
- Wide range of wall thicknesses available to suit the project specification, structural needs and performance goals, including fire protection
- Sections also feature cast-in wire loops to enable a strong bond to be achieved once grouted

Precast stair cores are formed quickly with low on-site labour demand.



COMPLETE MANUFACTURE AND INSTALLATION SERVICE

Our specialist team can also install stairs with expertise and efficiency. Our installers are highly trained and vastly experienced, focused on creating the stair core quickly and safely.

Each stair core section is craned into position with ease.

Our experience, professional advice and guidance on compliance with health and safety legislation means we can help you minimise risk. This is particularly important when it comes to working at height, which is why we can supply the necessary fall protection whilst the staircases are being installed.

When using our installation service, an FP McCann Contracts Manager will visit the site before installation to discuss all health and safety issues and ensure all the correct procedures are in place. They will also ensure the crane requirements are correctly planned and that costs and time are kept as low as possible, minimising disruption.

With FP McCann, you have significant design flexibility to achieve the stair core solution that best meets the needs of your project, whether freestanding or structural.

KEY BENEFITS

- Versatile solution to meet the needs of every data centre design
- Structurally robust, secure and high quality
- Provides an immediate working platform
- Production in a factory controlled environment provides consistent quality
- Quick installation
- Improved health and safety due to a reduction in temporary works
- Inherent fire resistance

FIRE RATING
One hour fire resistance for assured protection.

ENVIRONMENT
Low embodied carbon and long lifespan.

Scan the QR code to find out more about stair cores.

Freestanding stair cores facilitate rapid construction of the building structure.

PRODUCTS FOR BUILDING STRUCTURE
LIFT SHAFTS

FP McCann provides precast modular lift shafts in single, twin or triple configurations which are tailored to suit the requirements of data centre projects.

As a complete off-site manufactured solution, each lift shaft is designed to be erected quickly, reducing the potential for weather-related delays and helping to maintain the build schedule.

BESPOKE DESIGN FOR SEAMLESS PROJECT INTEGRATION

Whether your project requires a single, twin or triple lift shaft, choosing a precast solution from FP McCann will deliver multiple benefits.

Every one of our lift shafts is bespoke manufactured to the highest quality standards meaning they can be tailored to the requirements of any data centre project with ease.

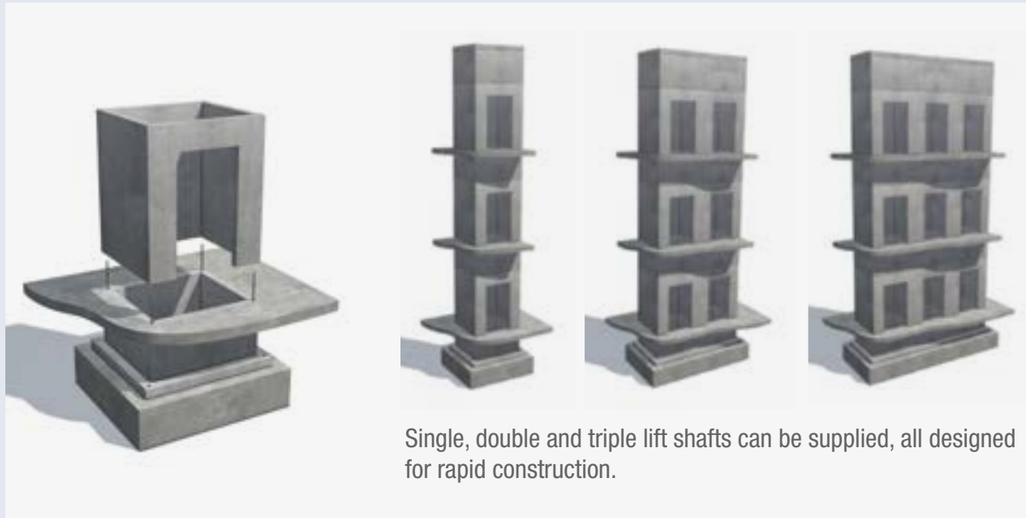
RAPID CONSTRUCTION FOR TIME AND COST SAVINGS

FP McCann's lift shafts are manufactured to a modular design which allows fast installation on site. As each lift shaft section is designed to be craned into position direct from the delivery vehicle, intervention from the site team is relatively limited, meaning that the structure can be built in a fraction of the time required for other construction approaches.

They are formed by installing a precast concrete lift pit at the base, onto which lift shaft sections are installed with ease through integrated TSE male and PSA female couplers. Each section is lifted into place until the required building height is achieved.

Choose a precast lift shaft and there is significantly less requirement for on-site formwork, scaffolding and labour, which not only results in cost savings but quicker installation times that will deliver tangible benefits in terms of overall project costs.

FP McCann's precast lift shafts are constructed in a fraction of the time needed for casting on-site.



Single, double and triple lift shafts can be supplied, all designed for rapid construction.

MULTIPLE DESIGN POSSIBILITIES

Design flexibility is accommodated in FP McCann's lift shaft solutions too with the scope to manufacture each section within a range of heights and widths as well as wall thicknesses.

Our lift shaft sections can be manufactured in sizes ranging from 1200mm each way up to 2750mm, in increments of 50mm.

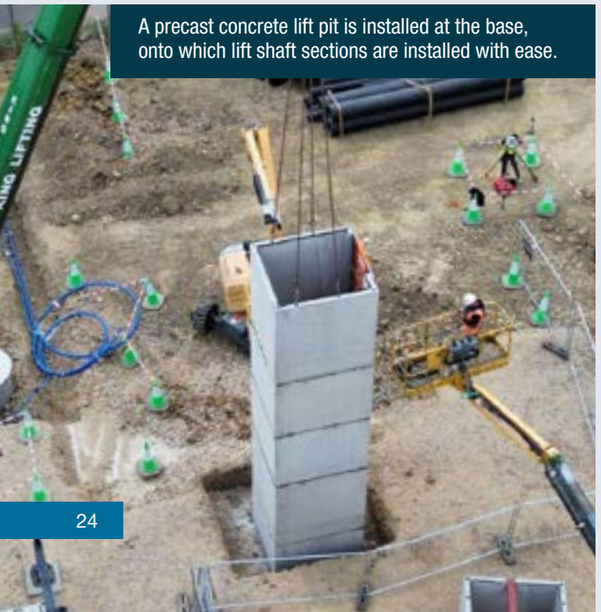
Wall thicknesses start at a minimum of 150mm, with the potential for this to be increased to 200mm or 250mm to meet more demanding structural requirements.

SUITABLE FOR ALL TYPES OF LIFT SYSTEMS

The bespoke manufacture approach that precast offers for lift shafts means that they can be created to support all the loading from the lift equipment during installation, operation and maintenance.

In addition, the lift shaft can be designed to support vertical loads from other structural elements, such as beams and slabs, providing a structurally robust element from the moment it is installed.

The FP McCann design team is experienced at working closely with lift suppliers to ensure that all components are accurately positioned, including channels and recesses.



A precast concrete lift pit is installed at the base, onto which lift shaft sections are installed with ease.

KEY BENEFITS

- Quick and easy to install
- Flexible, bespoke modular design
- Cast-in fittings simplify the lift installation process
- Factory-fitted and tested lifting beam/sockets, if required
- Minimum one hour fire resistance
- Temporary works or propping is minimised or eliminated
- Can replace block work or act as shear walls
- Lift pit sections are cast using a water resisting concrete admixture to protect against water ingress

FIRE RATING
One hour fire resistance for assured protection.

SUSTAINABILITY
Low embodied carbon and long lifespan.

Scan the QR code to find out more about lift shafts.

Precast lift shafts enable efficient and safe site working with less formwork, scaffolding and labour.

PRODUCTS FOR BUILDING STRUCTURE

EXTERIOR WALLS

FP McCann's ready-made exterior wall solution for data centres takes the form of a precast insulated sandwich panel designed for rapid installation. Available in a wide variety of external finishes, the panels can be specified to meet numerous aesthetic goals, all featuring a thermally insulating core that reduces heat transfer to maximise energy efficiency within the data centre and maintain temperature stability.

SUPERIOR THERMAL PERFORMANCE AT THE CORE

FP McCann's insulated precast sandwich panels provide a complete insulating wall solution that is factory-produced, delivered to site and instantly ready to perform.

Each panel is formed of an outer layer of precast concrete, a central layer of PIR insulation and a structural internal layer of concrete with a power floated plain grey concrete finish. The external concrete layer is connected and supported by the internal concrete layer using proprietary ties which have low thermal conductivity to eliminate the potential of cold bridging.

The thickness of the insulation can be specified to accommodate the required U-value, whether the goal is to meet compliance level for standard projects or a much higher thermal performance for data centres with exceptional sustainability targets.

VAST AESTHETIC POTENTIAL

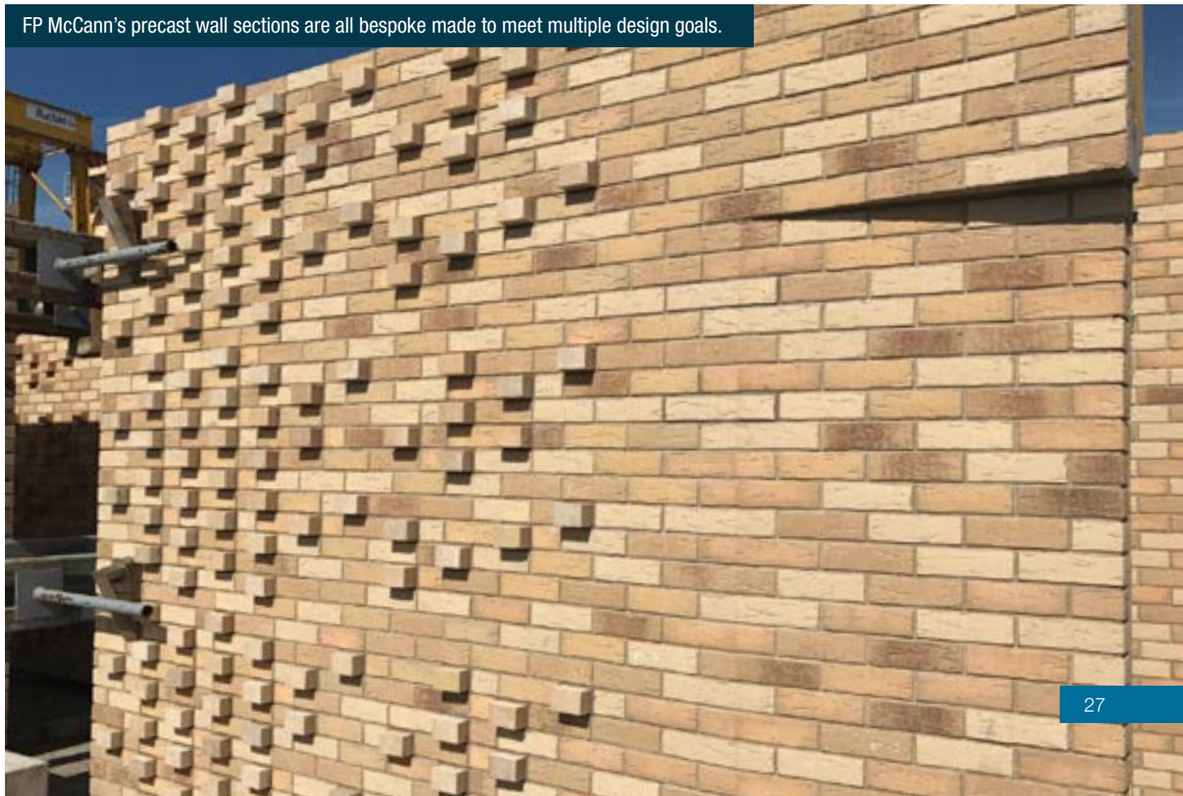
Design flexibility lies at the core of precast solutions, and this is perfectly illustrated with our exterior wall products.

In addition to the shape, thickness and size of the concrete being manufactured to meet the requirements of the project, the external face can be specified in a variety of finishes to meet the creative vision or comply with planning stipulations.

FP McCann precast sandwich panels can be supplied with various face finishes including:

- Acid etched
- Grit blasted
- Polished
- Exposed aggregate
- Pattern Imprinted
- Brick clad

FP McCann's precast wall sections are all bespoke made to meet multiple design goals.



Alternatively, the external face can be inlayed with surface materials including natural stone, bricks or ceramic tiles. This eliminates many of the pitfalls associated with traditional building methods utilising wet trades, not least the limited availability of skilled labour.

FP McCann also provides a free sampling service to ensure we meet your exact colour and texture requirements, including mortar pointing colours and finishes.

EASY INTEGRATION OF WINDOWS AND DOORS

Our bespoke manufacturing capabilities mean that each precast sandwich panel is made to fit the needs of the project, and that includes ensuring the necessary openings for windows and doors are accurately integrated.

We can even supply our precast sandwich panels complete with facades, windows and doors to your specification already installed, saving the need for on-site labour and enabling faster completion of a weather-tight building envelope.

A FIRE RESISTANT SOLUTION

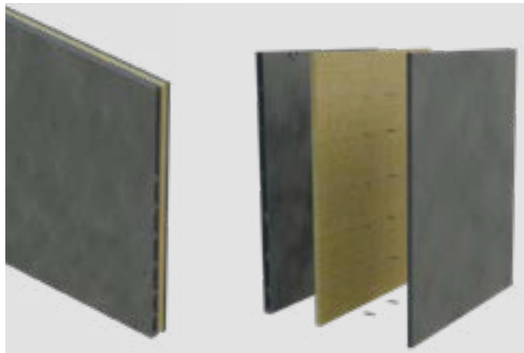
The insulated precast sandwich panels have been independently tested to provide significant fire resistance, even with a combustible PIR insulation core.

This is due to the outer precast concrete layers, which are non-combustible, protecting the inner core through low thermal conductivity and the ability to withstand very high temperatures.

DESIGNED FOR RAPID INSTALLATION

Our precast sandwich panels are installed on precast ground beams which are attached to concrete bearing pads using angled brackets and bolts, purpose-designed to support them.

This makes the build process significantly faster than more traditional construction methods. In addition, the panels can be ‘stacked’ from the foundations or fixed back individually on a ‘floor- by-floor’ basis.



The triple layer composition allow for a central layer of PIR insulation to be permanently encapsulated.

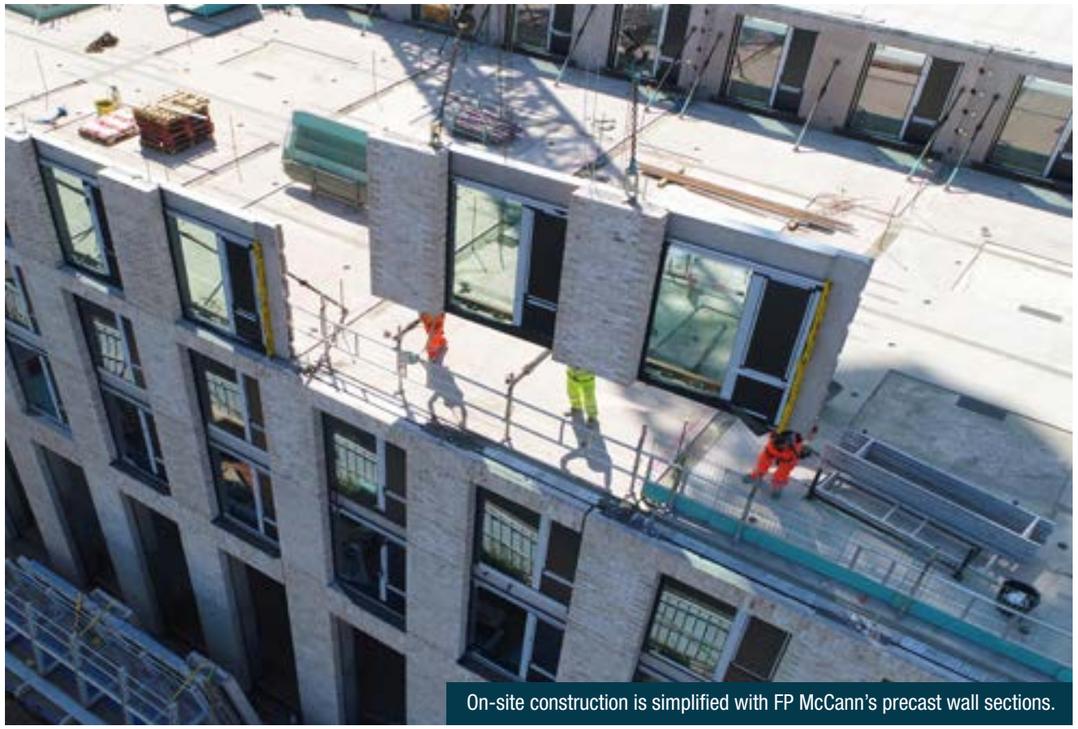
FIRE RATING
One hour fire resistance for assured protection.

SUSTAINABILITY
Creates thermally superior, highly durable exterior walls.

Scan the QR code to find out more about precast exterior walls.

KEY BENEFITS

- Provides a ready-made external building envelope
- Always bespoke produced to meet the project specification
- Strong, durable, energy-efficient and fire resistant composite cladding system
- Wide range of external finishes to suit aesthetic objectives
- Superior thermal properties with low risk of thermal bridging
- Off-site factory production maintains consistently high quality finish
- Build time on-site is much faster with the ability to adopt a ‘just in time’ site delivery
- Load bearing fully integrated structure and skin system provides both structural support and external finish, minimising on-site labour cost
- Eliminates the need for external scaffolding saving main contractor costs and prelims



On-site construction is simplified with FP McCann’s precast wall sections.

PRODUCTS FOR BUILDING STRUCTURE
BUILDING FRAME

FP McCann's precast structural building frames provide a fast, reliable, and cost-effective structural solution for many types of construction projects. They combine columns and beams to support walls and floor units tailored to meet the structural and design requirements of the project with the scope to accommodate very heavy loads.

ENABLING RAPID SUPERSTRUCTURE CONSTRUCTION

Choosing precast for the building's frame can deliver important benefits in terms of how quickly the data centre superstructure takes shape. Our precast columns and beams that form the robust structure are delivered ready to install and facilitate the construction of the floors and walls, reducing the potential for delays on-site resulting from poor weather or labour resourcing issues.

QUALITY ASSURANCE OVER A LONG LIFESPAN

All FP McCann precast structural frame sections are manufactured to order in a factory-controlled environment following strict production and quality standards. This helps to ensure a consistently high quality standard throughout the build, reducing the risk of defects, rework, and the variability that can often occur with in-situ concrete pours.

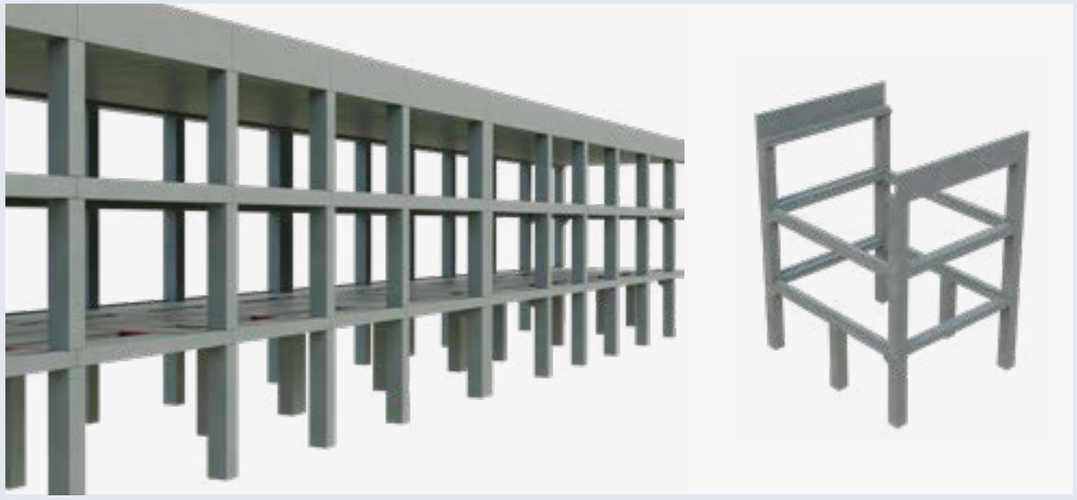
Our precast concrete consistently achieves a high quality that is difficult to match on-site, outperforming traditional alternatives in both lifespan and resilience. The material characteristics of our products also means reduced shrinkage and cracking, enhanced fire resistance and long-term durability with low lifecycle costs.

STRUCTURAL INTEGRITY AND ROBUSTNESS

The high strength and rigidity of the precast frame sections means that the structure can facilitate concrete floors capable of supporting very heavy loads, making them ideal for accommodating the equipment contained within data centres.

In addition to its excellent load-bearing capacity, precast also offers seismic resistance, high axial and bending capacity, blast resistance and structural fire protection.

Precast columns, combined with floor sections, allow for efficient construction of the structural frame.



DESIGN FLEXIBILITY AND ACCURACY

With our in-house 3D modelling expertise including Tekla Structures and BIM Levels 2 and 3 integration, we can create precast structural frames designed to meet bespoke project requirements with pinpoint accuracy.

Components such as beams and columns, combined with floor slabs and stair cores, are precision-cast, ensuring millimetre-perfect alignment, with customisation for complex geometries accommodated along with openings and cast-in services.

Our precast columns can be circular, square, rectangular or oval with a range of standard columns available, and they can be manufactured to single or double storey height.

SAFER AND CLEANER SITE OPERATIONS

Precast concrete frames can contribute to creating a safer and more efficient working environment. Taking a precast approach eliminates many of the high-risk activities associated with in-situ construction.

And, with fewer operatives required on site and minimal scaffolding or formwork, precast methods reduce exposure to hazards and support a safer working environment, choosing precast for the building structure contributes to a cleaner, more organised site.

FP McCann's 3D modelling expertise, including Tekla Structures and BIM Levels 2 and 3 integration, helps to create structural frames with pinpoint accuracy.

KEY BENEFITS

- Produced to the highest standards of workmanship in factory controlled conditions
- Wide variety of quality finishes achievable and concrete can be left exposed
- No storage space required, making precast ideal for tight construction sites
- Speed of construction is increased as follow-on trades can commence much earlier
- Fire-resistant – concrete has its own built-in fire resistance
- High thermal capacity, helping to reduce energy demand versus alternative types of frames

FIRE RATING

One hour fire resistance for assured protection.

SUSTAINABILITY

Thermally superior, highly durable and resource-efficient.

Scan the QR code to find out more about precast structures.

Precast beams and columns are designed to enable rapid construction of the structural frame.

PRODUCTS FOR BUILDING STRUCTURE
FLOORING

FP McCann's precast hollowcore floor sections offer the highest quality and structural performance available, engineered for exceptional structural strength, long-lasting durability, and resilience. Choose from a range of depths and achieve unsupported spans of up to 20 metres, with the scope to integrate services.

VERSATILE, STRONG AND CONSISTENTLY HIGH QUALITY

FP McCann's range of precast flooring solutions is ideally suited to data centre construction given the inherent strength of concrete and our manufacturing capabilities.

Choose precast to construct the floors of your data centre and you get a product that is designed in accordance with BS EN 1992-1-1 and manufactured to the highest quality standards, delivered to site ready to install.

Our hollowcore slab production techniques are world-class and being constantly updated and developed, putting FP McCann at the forefront of these products in respect of performance, quality and range.

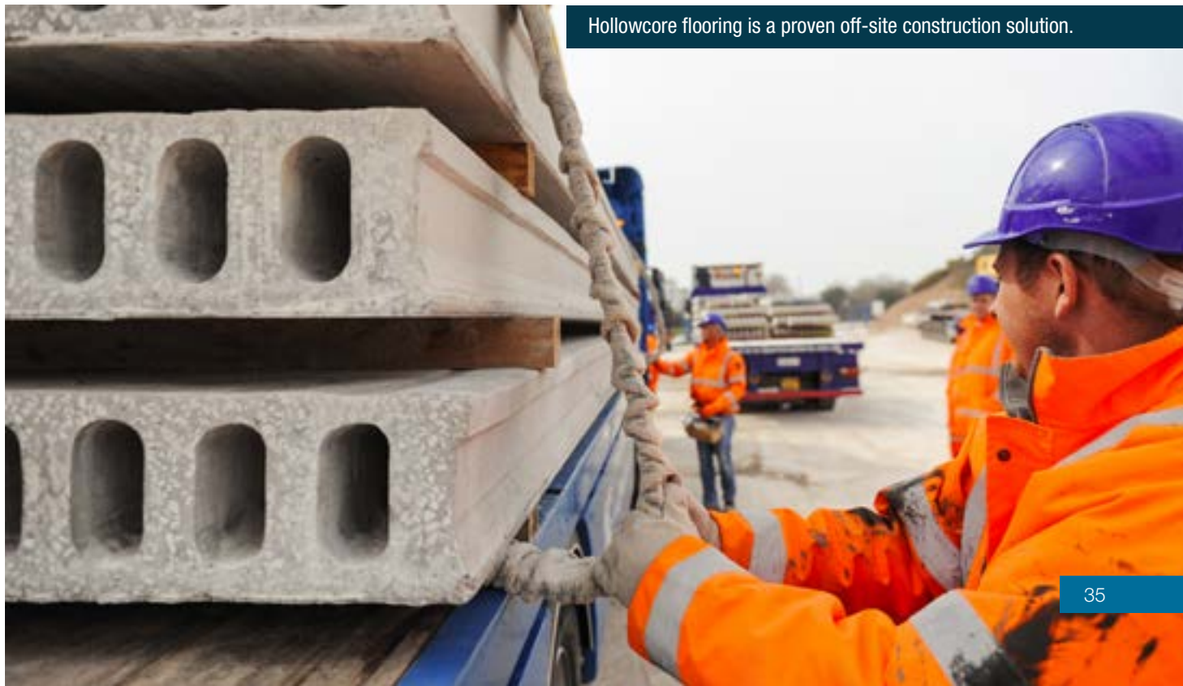
ACHIEVE LONG, UNSUPPORTED SPANS FOR FUTURE ADAPTABILITY

Our hollowcore floor units can be specified to achieve unsupported spans of up to 20 metres in length, without impacting on load-bearing capacity.

These long spans can be particularly beneficial in the design of buildings because, due to the need for fewer columns, it means the internal volumes are easier to reconfigure in future as usage requirements change.

INCORPORATE SERVICE CHANNELS WITHIN THE FLOOR STRUCTURE

One of the most significant advantages of hollowcore flooring in data centres is the ability to use the cores running through the units to feed services through. These ready-made service channels reduce the need for ducting and cabling to be mounted on the face of the flooring, soffits or walls, saving significant product and labour costs and speeding up project delivery overall.



Hollowcore flooring is a proven off-site construction solution.

Hollowcore sections create an immediate working platform.

WIDE RANGE OF SIZES

FP McCann precast concrete hollowcore flooring units can be supplied in a wide range of sizes to accommodate the needs of any data centre project.

Our prestressed concrete slabs are normally supplied in widths of 1200mm, although we can also supply part widths if required, and a current depth range of 150mm to 500mm. In addition, we also manufacture a 100mm deep precast concrete floor slab.

THERMAL, ACOUSTIC AND FIRE PERFORMANCE BENEFITS

The density of precast concrete floors means that they are excellent insulators against thermal and acoustic transfer.

The material's ability to absorb both these types of energy contributes to the minimisation of noise issues within data centres and it helps to maintain a more stable internal temperature due to its thermal mass. In addition, FP McCann's hollowcore floor units are also fire resistant for up to one hour.

KEY BENEFITS

- Long spans achievable, up to 20 metres
- Quick installation, particularly when compared to wet concrete solutions
- Provides immediate working platform
- High load capacity and durability to provide a longer working life than other flooring systems
- Preformed holes incorporated for services
- A wide range of slab depths available
- Products designed in accordance with BS EN 1992-1-1
- Fire-resistant – minimum one hour
- High thermal mass to help manage the building's internal climate energy efficiently
- Extensive design flexibility
- Superior acoustic performance
- Unaffected by damp, rot and vermin

FIRE RATING

One hour fire resistance for assured protection.

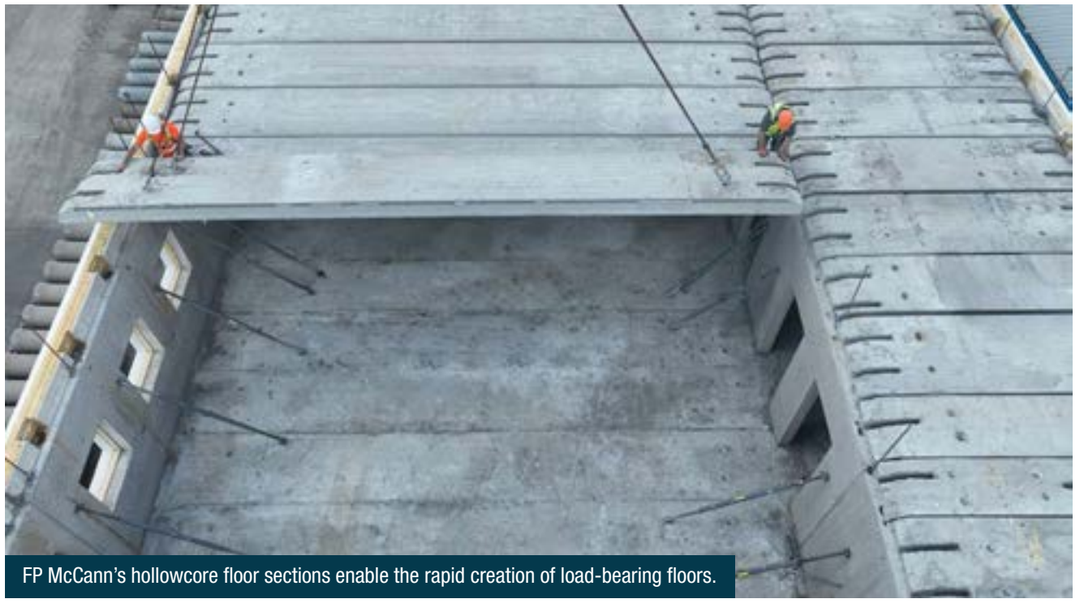
SUSTAINABILITY

High thermal mass, highly durable and resource-efficient.

ACOUSTICS

Contributes to noise reduction for safer working.

Scan the QR code to find out more about precast flooring.



FP McCann's hollowcore floor sections enable the rapid creation of load-bearing floors.

PRODUCTS FOR BUILDING STRUCTURE
LOADING DOCKS

The facilities required for efficient and safe loading and unloading of vehicles can be incorporated into a data centre by using an FP McCann precast loading dock system. Our dock levellers and infill kits can be constructed at a specified height with excellent durability and strength characteristics to match the design life of the data centre.

THE DEPENDABLE CHOICE TO BRIDGE THE GAP

Our precast loading dock systems combine the benefits of concrete's durability and high strength with design flexibility and market-leading quality.

They can be designed to achieve a specified height to facilitate loading and unloading in the most efficient way, representing a smart alternative to traditional in-situ construction for these key building elements.

Consistent with all other precast products in the FP McCann range, our loading dock systems are delivered to the site ready for immediate installation, reducing construction time and improving build accuracy.

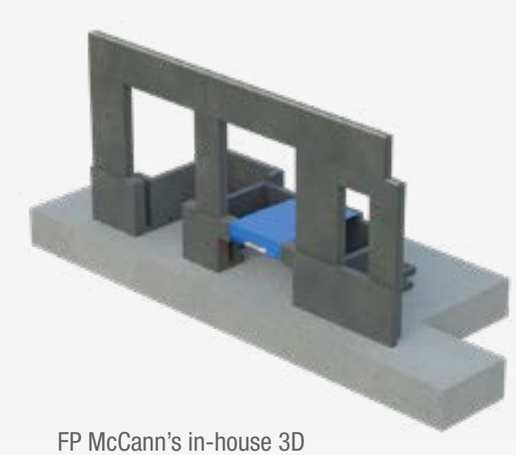
SUPERIOR DURABILITY AND STRENGTH

Precast is the ideal material for loading dock construction for a number of reasons, including its high load capacity. This ensures the docks are robust and capable of withstanding the rigours of regular deliveries of often heavy goods.

Concrete is also highly resistant to harsh environmental conditions such as extreme temperatures, moisture and corrosion, ensuring long-lasting performance even in harsh climates.

And its impact resistance is superior too, with concrete's inherent strength helping to absorb and resist contact from heavy machinery and vehicles, reducing the risk of damage over time.

Precast offers a versatile, durable loading dock solution.



FP McCann's in-house 3D modelling expertise enables bespoke design of loading docks.

INFILL KIT OPTION AVAILABLE

Where a complete loading dock is not required, FP McCann can provide a precast section designed to accommodate an infill kit which may be preferable depending on the loading dock design.

The FP McCann infill kit system is constructed from precast reinforced concrete sections designed to work in conjunction with continuous and individual tailgate dock pits. It is formed of an invert front elevation T wall section, intermediate rear support walls (BW) and a full-depth infill biscuit which finishes at the finished floor level (FFL) and allows the floor slab area to be used up to a loading of 50 kN/m².

The design also allows for easy removal of the kit via forklift trucks, reducing the need to remove the current cladding.

CUSTOMISABLE DESIGN

FP McCann's in-house design expertise means we can manufacture precast dock levellers bespoke designed to the project.

This provides a solution which fits specific site conditions, load requirements and operational needs, offering flexibility in design and application. We can also integrate features such as drainage, lighting or specific finishes.

Precast's durable material characteristics, combined with design flexibility offered by FP McCann, can optimise the design of loading docks in data centre developments.

KEY BENEFITS

- Precision-moulded for fast and repeatable installation
- Compatible with all major dock leveller manufacturers
- Reduced demand for on-site labour and wet trades
- Improved build quality and reduced programme risk
- Extremely durable to resist impact damage and provide a long lifespan
- Complete system of infill kit options available

FIRE RATING

One hour fire resistance for assured protection.

SUSTAINABILITY

Durability for a long lifespan and resource-efficient.

Scan the QR code to find out more about precast loading docks.

Precast loading docks can be manufactured to suit the vehicular requirements of the site.

PRODUCTS FOR
EXTERNAL AREAS

FP McCann's range accommodates the requirements of the data centre development beyond the external envelope of the main building. This includes structurally robust systems to achieve ground stability and protect neighbouring communities.

PRODUCTS FOR EXTERNAL AREAS

L-WALLS & RETAINING WALLS

Retaining walls or yard-walls are often required in data centre construction to create retaining or containing structures, such as when accommodating elevation changes. FP McCann provides these important construction elements through the L-Wall system, a versatile solution available in a wide range of standard sizes as well as bespoke options.

ROBUST, SECURE AND CONSISTENTLY HIGH QUALITY

FP McCann's precast retaining L-Wall system provides a structurally robust solution designed to withstand significant pressure from the ground and the materials it is required to retain, along with the associated environmental stresses.

The quality of our wall sections, combined with the high compressive strength of concrete, makes them particularly suitable for creating retaining walls in more challenging sites where stability is a critical consideration, such as on sloping sites and areas with high water tables.

KEY FEATURES

- Standard sizes range from 1m high up to 3.75m high, with a width of 1m for all units
- Optional L Walls in heights of 4m-6m
- Straight and corner units
- Quick and easy installation, 25 1|m per day
- 90° corner and 22.5° mitred units available
- No heel – sheer reverse face (GB only)
- Available with heel feature to reverse (NI only)

WIDE CHOICE OF STANDARD SIZES

FP McCann offers a range of L-Wall sections within our standard range designed for retained material with a density of 18 kN/m³ (approximate bulk density of 1800 kg/m³). These range from 1m in height up to 3.75m in our standard range, with widths of 1m or 2m available depending on height dimensions, and corner units are available for L-Wall sections in the 1m height.

BESPOKE DESIGN OPTIONS

The bespoke manufacturing capabilities offered by FP McCann mean that our concrete retaining walls can be customised to meet the exact requirements of a project. This can provide a solution in more complex projects, as well as to accommodate aesthetic goals, with L-Walls possible in heights of 4m to 6m.

Retaining walls created using FP McCann's precast L-Walls can be designed to meet a wide variety of site requirements.

Some examples of choice of finishes includes acid etched, grit blasted, pattern imprinted, and brick clad.

Fast to install and available in multiple external finishes.

CHOICE OF FINISHES

Brick Cladding
Our wide variety of brick slips makes matching the external appearance of the L-Walls to the local vernacular easy to achieve. These solutions conform to EN ISO 10545-12 and they are fully frost resistant, with low water absorption (less than 3% absorption) and a high standard of fire safety (A1 fire rating).

Timber Cladding
Adding timber to the concrete L-Wall units can provide a more organic, aesthetically pleasing finish. We have developed a simple method of attaching timber battens and feather lap boards that means coverage is a quick and easy process. In addition, the timber cladding is easy to maintain, with the precast reinforced L-Walls providing a long-lasting, no maintenance backing wall.

Decorative Designs
We also offer L-Walls with five types of decorative designs to offer an alternative creative approach for the wall sections. These textures can be applied to both sides of boundary walls for optimal aesthetic appeal in customer or community facing locations.

FAST AND EASY TO INSTALL

Our L-Walls are designed to be delivered to site as complete sections to be craned into position on a concrete foundation.

After bedding on mortar and wedging to attain correct alignment, the final stage of installation is to anchor to the foundation using Excalibur bolts, making the process quick with a relatively low demand for site labour.

KEY BENEFITS

- Creates storage and loading bays without imposing a load to the building frame
- Can be loaded either side or at both sides of the stem
- Available with heel feature to reverse (NI only)
- No heel-sheer reverse face (GB only)
- Retains material up to 19kN/m³ and AoR 20° or an additional 10kN/m³
- Large range of sizes available
- No specialist trades required
- Quick and easy to install

FIRE RATING
One hour fire resistance for assured protection.

SUSTAINABILITY
Durability for a long lifespan and resource-efficient.

Scan the QR code to find out more about precast retaining walls.

Precast L-Walls have the strength to accommodate large elevation changes.

One of the biggest advantages of L-Walls is speed of installation.

PRODUCTS FOR EXTERNAL AREAS

KING POST FIRE AND BLAST WALLS

Safety and security of the perimeter of the data centre can be maximised using our king post fire and blast wall system. Designed to protect surrounding communities in the event of an incident occurring at the data centre, particularly in high risk zones, FP McCann's fire and blast walls can be specified in a variety of thicknesses and fire ratings.

ASSURED PROTECTION AND IMMEDIATELY EFFECTIVE

FP McCann provides two types of prestressed panels that are ideal for creating fire and blast walling.

A choice of vertical cantilever panels or horizontal panels and columns is available to create the fire wall, with performance confirmed in testing to contain fire for periods of between 30 minutes and 4 hours, depending on the thickness of the panel.

Precast king post fire walls offer assured protection against fire and blasts, including in high risk zones.

QUICK TO INSTALL AND CUSTOMISABLE

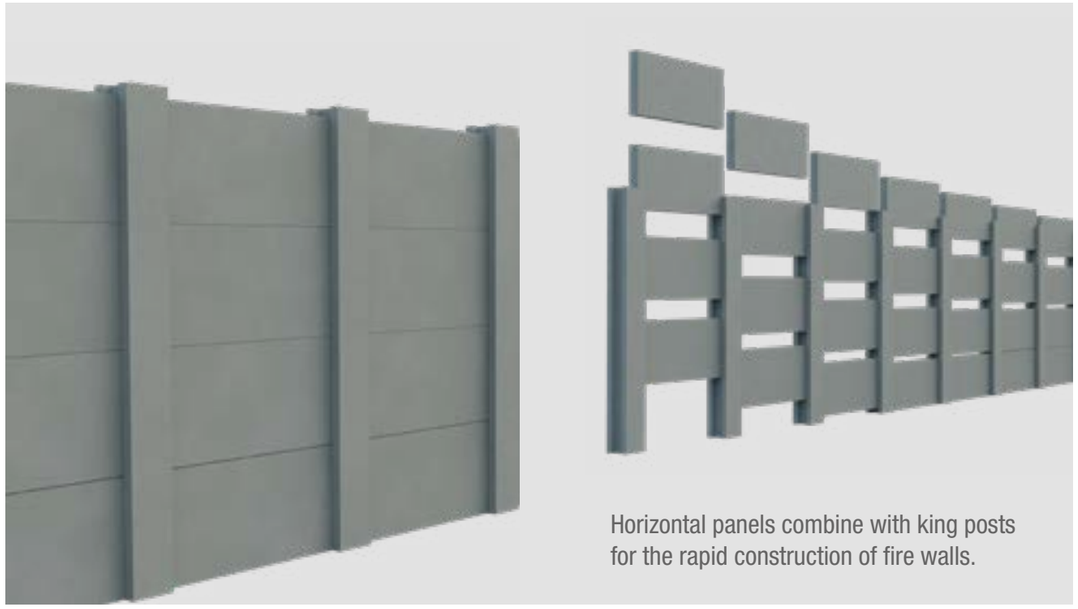
Rapid installation is possible due to the tongue and grooved joints. Standard column sections vary dependant on overall wall height and are made to order to suit customer requirements.

Fire walls and columns can be manufactured to the clients' own design or to FP McCann's design specification.

CHOICE OF PANEL THICKNESSES AND FIRE RATINGS (HRS)

PANEL THICKNESS (MM)	FIRE RATING (HRS)
80	0.5
120	1.5
160	3.0
200	4.0
240	4.0

Installation is rapid thanks to the modular design of FP McCann's fire and blast walls.



Horizontal panels combine with king posts for the rapid construction of fire walls.

KEY BENEFITS

HORIZONTAL PANEL FIRE WALLS:

- Overall wall heights of up to 10m effective height can be achieved
- Panels slot between precast columns and are embedded into the ground via preformed pockets, which are then grouted into position using high-strength grout
- Negates the need for a full length trench to be excavated and poured with concrete, instead favouring easily formable localised pockets at specific centres

VERTICAL CANTILEVER PANEL FIRE WALLS:

- Overall wall heights of up to 7.5m can be achieved
- Panels are slotted and grouted into a preformed pocket in the bund/foundation

FIRE RATING

One hour fire resistance for assured protection.

SUSTAINABILITY

Durability for a long lifespan and resource-efficient.

Scan the QR code to find out more about king post fire and blast walls.

Robust and secure, FP McCann's precast king post fire walls are used extensively in high risk environments.

PRODUCTS FOR EXTERNAL AREAS

SECURITY FENCING

Choosing a security fencing solution from FP McCann adds an important layer of protection to maintain security of the data centre site and prevent unauthorised access. Our products are designed to enable the creation of a physical barrier around the site perimeter with ease, without impacting significantly from an aesthetic perspective.

SIMPLE AND SECURE

FP McCann's range of fence posts provides the scope to create perimeter protection tailored to the site's requirements.

Our precast chain link posts can be used to create robust wire fencing that is effective at providing a first line of defence over a long lifespan.

They are ideal for creating fencing to demarcate the boundary and prevent unauthorised access by all but the most determined intruders.

Wide range of chain link posts.

COMPLETE RANGE OF POSTS

FP McCann's security fence posts are available in all types required to deliver the perimeter boundary rapidly. These include:

- Intermediate posts
- Strainer end posts
- Two-way and three-way posts
- Left and right hand corner posts
- Left and right hand end posts
- Struts

Our chain link posts are supplied in three lengths to achieve low, medium and high wire heights:

POST LENGTH	MAXIMUM WIRE HEIGHT
1600mm	3'
1900mm	4'
2630mm	6'

KEY BENEFITS

- Complete range of post designs available from a single source
- High strength and stability to resist environmental impacts
- Fire resistant
- Creates a strong and secure perimeter
- Low and high fences can be created with wire heights of up to 6' possible

FIRE RATING
One hour fire resistance for assured protection.

SUSTAINABILITY
Durability for a long lifespan and resource-efficient

Scan the QR code to find out more about security fencing.

PRODUCTS FOR
SERVICES & INFRASTRUCTURE

FP McCann's range of precast products can be combined to ensure services can be easily installed and maintained throughout the data centre site. Ease of access is facilitated without compromising the usability of ground level space.

PRODUCTS FOR SERVICES & INFRASTRUCTURE

COMMS BOXES

As part of the FP McCann Easychamber range, we offer a precast comms box solution, also known as a substation or switchgear housing. This provides an ideal maintenance solution for services across data centre sites when used in conjunction with FP McCann's precast cable trough systems.

MAINTENANCE MADE EASY

Incorporating precast comms boxes within the services infrastructure makes routine maintenance safe and straightforward without major disruption to the daily operations of a data centre.

They are ideal for safely housing and providing access to underground electrical and telecommunications infrastructure, such as cables, fibre optics and junction points.

Five standard options are available from FP McCann to accommodate the requirements of any data centre site, and they can be tailored to include features such as plastic encapsulated steps and bespoke duct arrangements (subject to the version selected).

KEY BENEFITS

- Reinforced concrete walls
- Integrated reinforced base*
- Base incorporating sump*
- Splayed base to aid stability*
- Preformed cable entry points
- Easily manoeuvred with lifting eyes
- Suitable for up to 30 units HB loading
- Ironmongery fitted^
- Plastic encapsulated steps fitted*^
- Complementary lids are available from builders' merchants
- Bespoke duct arrangements available on request

FIRE RATING
One hour fire resistance for assured protection.

ENVIRONMENT
Low embodied carbon and long lifespan.

Scan the QR code to find out more about comms boxes.

* Comms J4 has no base, sump or steps

^ Comms DP has no ironmongery or steps fitted

DESIGNED FOR RAPID INSTALLATION

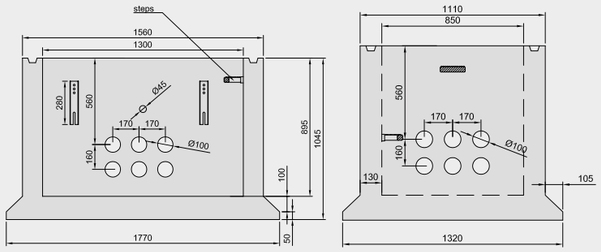
One of the major advantages of precast concrete comms boxes is the speed of installation.

They can be installed in minutes with integral lifting eyes allowing easy manoeuvrability, and preformed cable entry points make the comms box ready to accommodate services without additional modifications once in position.

ROBUST AND DURABLE

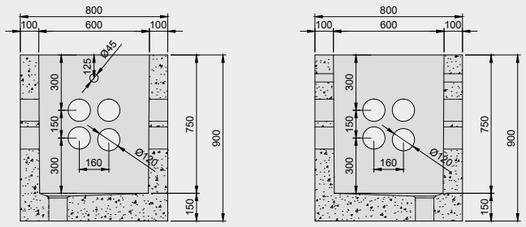
FP McCann's comms boxes are a one piece construction with reinforced concrete walls and an integrated reinforced base. The base on several of the options available also incorporates a sump and it is splayed to aid stability. As a result, they are extremely robust, capable of withstanding heavy loads and harsh environmental conditions.

COMMS MCX



Dimensions	Length mm	Width mm	Height mm	Weight kg
Chamber	1300	850	900	2100
Riser	1300	850	300	300
Concrete Cover Slab*	1570	1120	150	300

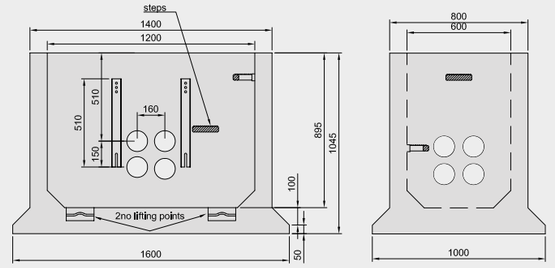
COMMS 600



Length mm	Width mm	Height mm	Weight kg
600	600	750	806

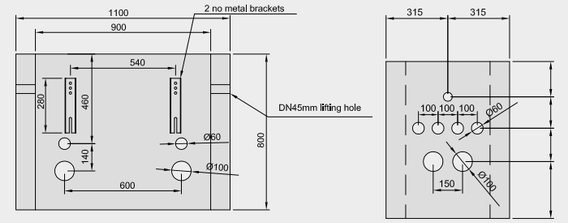
For the full range and detailed specifications, see the **POWER & INFRASTRUCTURE SOLUTIONS** data booklet

COMMS C2



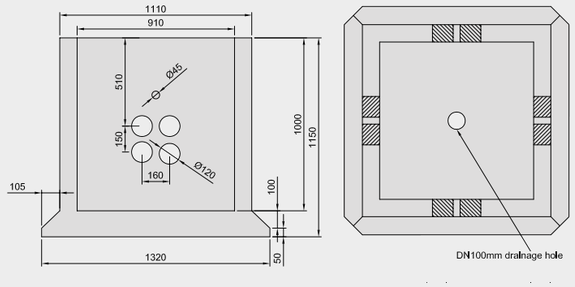
Length mm	Width mm	Height mm	Weight kg
1200	600	895	1440

COMMS J4



Length mm	Width mm	Height mm	Weight kg
910	440	800	590

COMMS DP



Length mm	Width mm	Height mm	Weight kg
910	890	1000	1390

PRODUCTS FOR SERVICES & INFRASTRUCTURE

CABLE TROUGHS & DUCTING

Our cable troughs accommodate services of all kinds, ensuring power cables, communication cables and pipes for gas and water are protected to the max, as well as being easily accessible for maintenance and repair. Straight, corner, tee and angled units combine to ensure services are fed to exactly where they are needed throughout a data centre site, with a choice of lids available.

A MODULAR SOLUTION FOR SERVICES

FP McCann's specialist range of precast reinforced concrete cable troughs and service trench systems can be used to house and protect most types of services, including power and communication cables and pipes for gas, water and chemicals.

Our ground level duct and trough systems provide protection against accidental or malicious damage and offer easy access for maintenance and repair.

Troughs are supplied as standard in one metre lengths, although two metre units can be manufactured-to-order.

LID OPTIONS TO SUIT THE LOADING REQUIREMENTS

Three types of flush fitting lids are available for FP McCann's troughs:

- Reinforced precast concrete
- GRP composite
- Steel tray

Heavy duty steel and concrete composite lids are rated in accordance with the loading groups specified in BS EN 124.

CHOICE OF STANDARD TROUGH TYPES

FP McCann offers four types of troughs available with both long leg and short leg rebates to create a services infrastructure tailored to the data centre site's requirements:

- Straight
- Corner
- Tee
- Angled

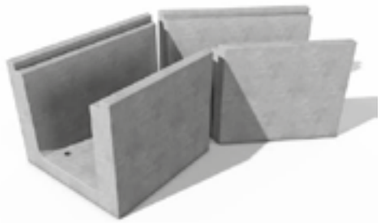
Heavy duty steel and concrete composite lids are rated in accordance with the loading groups specified in BS EN 124.

In addition, FP McCann is an Achilles Utility Vendor Database (UVDB) approved supplier, Supplier No 061598, and we have opted for a Verify Category B2 audit.

ASSURED QUALITY AND PERFORMANCE

FP McCann's precast troughs and lids are designed for the load classes ABC and D, as defined in BS EN 1433 and BS EN 124.

Units to achieve load classes E and F can be designed to order. As with all FP McCann products, they are manufactured in factories operating in accordance with industry-leading quality management systems, accredited to BS EN ISO 9001.



BESPOKE TROUGHS

Custom trough designs can also be accommodated to suit specific conditions. For example, these can take the form of a transition unit, a cruciform or a stop end.

Bespoke features can also be incorporated including cast-in lifting sockets, holes in the sidewalls or base to provide entry points for pipes, ducts or cables, and Unistrut channels for fixing brackets at different levels.

TRANSITION T

CRUCIFORM

TRANSITION STRAIGHT

STOP END

BESPOKE FEATURES

CAST-IN FIXING SOCKETS

SIDEWALL HOLES & BASE HOLES

UNI-STRUT CHANNELS

For the full range and detailed specifications, see the **POWER & INFRASTRUCTURE SOLUTIONS** data booklet

KEY BENEFITS

- Can accommodate high pressure steam and water pipes
- Compatible with power and telecom cables, as well as pipes for liquids and gases
- Chemically resistant concrete
- Enables services to be buried at depth so they are not exposed to weather changes, minimising the risk of freezing or overheating
- High-strength load-bearing units
- Easy access for repairs, jointing or new service additions
- Whole life costs of precast concrete is lower than other forms of service trench construction
- Non-conductive to electricity
- Bespoke units can be made to the specification
- No concrete surround required
- Units can be sealed to prevent water ingress

FIRE RATING
One hour fire resistance for assured protection.

ENVIRONMENT
Low embodied carbon and long lifespan.

Scan the QR code to find out more about cable troughs.

FP McCann's precast reinforced concrete cable troughs and service trench systems can be used to house and protect most types of services.

TROUGH LID LOADING CLASSES

FP McCann can advise on the correct load class for trough lids and access lids for our comms boxes and communication chambers.

The Fabricated Access Covers Trade Association (FACTA) provides a specification that enables the use of diverse materials, offering greater design flexibility for fabricated access covers - a versatility not typically found in cast alternatives.

Their classification takes into account EN 124, but it applies different test load methodologies with FACTA accounting for the elastic properties inherent in steel, whereas EN 124 incorporates dynamic effects from high-speed vehicles which are considered unnecessary in locations solely for slow-moving traffic like vehicle yards.

Determining the Right Specification: FACTA or EN 124?

Historically, access covers were categorised into three distinct wheel load capacities:

- 5 kilonewtons (0.5 Tonne)
- 50 kilonewtons (5.0 tonnes)
- 115 kilonewtons (11.5 tonnes)

Guidance from the FACTA publication, 'Specification for Fabricated Access Covers,' clarifies the alignment of the first two categories with BS EN 124 as follows:

- An A15 classification is equivalent to a 5kN (0.5 Tonne) slow-moving pneumatic wheel load
- A B125 classification corresponds to a 50kN (5.0 Tonne) slow-moving pneumatic wheel load

While the FACTA specification assigns a 6.5 Tonne rating to a C250 cover and an 11.0 Tonne rating to a D400 cover (the latter being the closest to the historical upper limit), it is important to note that these ratings incorporate allowances for dynamic forces from fast-moving vehicles. This consideration is often unnecessary on sites where speed restrictions are in place.

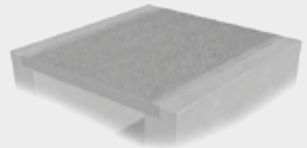
For instance, a D400 cover is typically recommended for heavy-duty plant areas, carriageways, and industrial service roads where heavy goods vehicles (HGVs) might reach speeds of up to 20 mph. However, the current maximum legal wheel load on British roads is 6.5 tonnes and, although abnormal loads can exceed this, they are usually distributed across multiple axles to remain within acceptable limits.

Consequently, for most access roads, specifying a C250 cover is generally considered a more pragmatic and cost-effective solution than the standard maximum requirement.

TROUGH LID OPTIONS

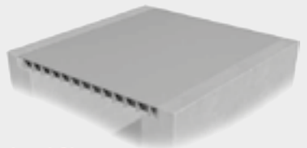
Four different lids can be supplied with FP McCann's precast troughs to suit the load class, access and aesthetic objectives.

CONCRETE



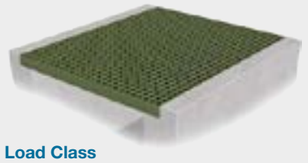
Load Class
A & B

GRP SOLID TOP WITH ANTI-SLIP FINISH



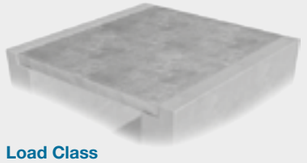
Load Class
A, B, C & D

GRP OPEN MESH WITH ANTI-SLIP FINISH



Load Class
A, B & C

HD STEEL CONCRETE COMPOSITE



Load Class
C & D

TROUGH LID LOADING CLASSES

	Comparison	Wheel Loads		Load Test Data	
FACTA Class	EN124	Wheel Loads (slow moving) Pneumatic	Wheel Loads (slow moving) Solid	Test 1 (Service)	Test 2 (Ultimate)
A	A15	0.6 Tonne (5kN) Please refer to FACTA document on pages 52 & 53	N/A	5.0 x 1.0 x 1.0 = 5.0kN	5.0 x 1.6 = 8.0kN
AA	N/A	1.5 Tonne (15kN) Please refer to FACTA document on pages 52 & 53	N/A	15.0 x 1.1 x 1.15 = 19.0kN	19.0 x 1.6 = 31.0kN
AAA	N/A	2.5 Tonne (25kN) Please refer to FACTA document on pages 52 & 53	0.5 Tonne	25.0 x 1.1 x 1.15 = 32.0kN	32.0 x 1.6 = 52.0kN
B	B125	5.0 Tonne (50kN) Please refer to FACTA document on pages 52 & 53	0.75 Tonne	50.0 x 1.1 x 1.15 = 63.25kN	63.25 x 1.6 = 101.0kN
C	C250	6.5 Tonne (65kN) Please refer to FACTA document on pages 52 & 53	1.0 Tonne	65.0 x 1.1 x 1.15 = 82.5kN	82.5 x 1/6 = 132.0kN
D	D400	11.0 Tonne (108kN) Please refer to FACTA document on pages 52 & 53	3.0 Tonne	108.0 x 1.1 x 1.15 = 137.5kN	137.5 x 1.6 = 220.0kN

PRODUCTS FOR SERVICES & INFRASTRUCTURE

COMMUNICATION CHAMBERS

FP McCann's precast communication chambers, also referred to as substation units or multi-purpose chambers, are underground enclosures made from reinforced concrete that house and protect utility cables for telecommunications, data and electricity. They allow for rapid installation and provide a durable solution which can be customised with features such as steps and sumps.

EASY ACCESS TO SERVICES, WHEN AND WHERE YOU NEED IT

Communication chambers are a key part of a data centre's infrastructure, providing safe access to telecoms cables and utility networks.

Choosing a precast communications chamber from FP McCann allows for the design of the unit to be tailored to the needs of the site, whether that is in terms of its size or the integrated features.

By combining riser units with the communication chambers, safe access can be provided to services at deeper locations on the data centre site, such as to accommodate a steep elevation change.

WEATHERPROOF, DURABLE AND SECURE

Precast's material properties deliver robust communication chamber structures which offer longevity and security.

They are resistant to environmental impacts and pressures exerted by surrounding ground long-term, and they can withstand heavy loads.

The result is a chamber that facilitates maintenance and inspection all year round, ensuring engineers and technicians can perform essential tasks without disrupting the surrounding area and limiting any impact on the data centre operations.

FP McCann's communication chambers are lifted into position for rapid installation.

CHOICE OF CAST-IN FEATURES

FP McCann can manufacture communication chambers pre-fitted with a variety of features including:

- Steps
- Ladders
- Duct couplers
- Sumps
- Recesses for beams
- Rebates for lids
- Earthing rods
- Starter bars

Communication chambers can be supplied to suit any loading requirements including up to F900+ for airports and similar heavy-duty applications.

KEY BENEFITS

- Available in a large range of sizes from 1250mm x 1250mm to 3000mm x 3000mm
- Base units available in heights up to 2400mm
- Riser sections can be added to increase finished height as required and cover slabs also available
- Suitable for a variety of applications especially for the energy and water industries
- Heavy-duty loading
- Easy access for maintenance

FIRE RATING
One hour fire resistance for assured protection.

ENVIRONMENT
Low embodied carbon and long lifespan.

Scan the QR code to find out more about communication chambers.

For the full range and detailed specifications, see the **POWER & INFRASTRUCTURE SOLUTIONS** data booklet

FP McCann's communication chambers provide robust structures to offer longevity, strength and security.

ADDITIONAL PRODUCTS

A COMPLETE PRECAST SOLUTION

The breadth and depth of FP McCann's design and manufacturing capabilities means we can provide a precast solution to meet the key construction requirements of the whole site.

That means leveraging precast's inherent strength, reliability and longevity benefits for the majority of the structural and infrastructure needs, including drainage and bespoke elements.

PRODUCTS FOR
SUSTAINABLE DRAINAGE (SuDS)

The drainage requirements of data centre sites can be managed very effectively and safely by incorporating FP McCann's proprietary and hybrid SuDS. Our extensive product range can be combined to achieve a solution that is tailored to the site design and ground conditions, ensuring that flood risk is minimised and clean water is released into surrounding watercourses.

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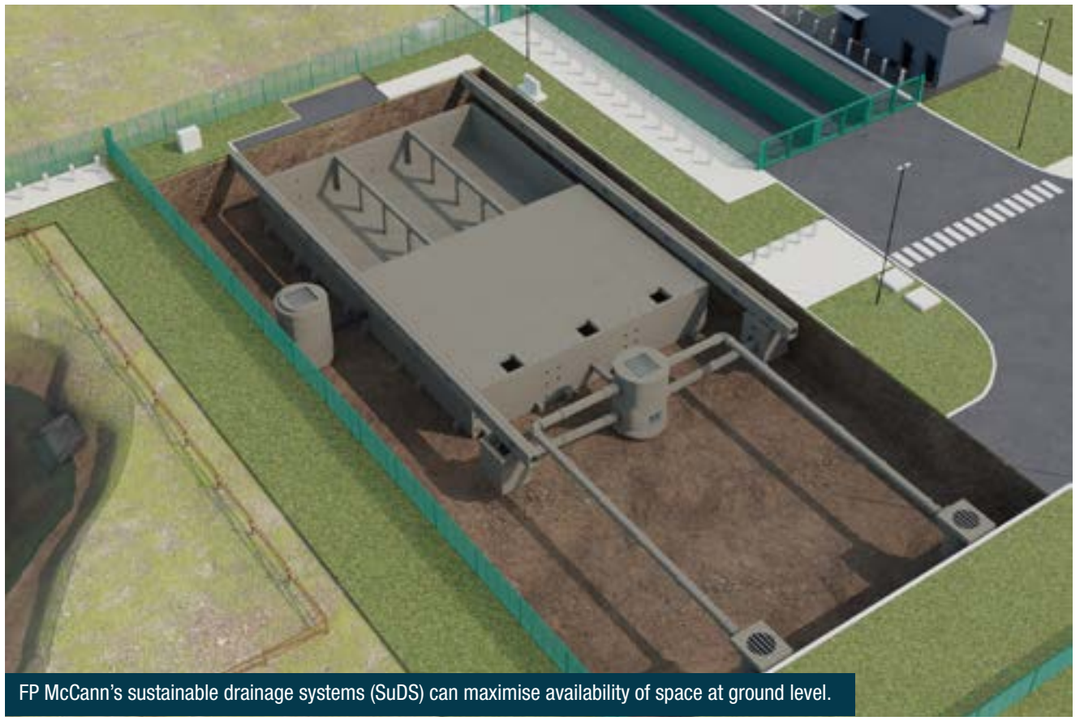


FP McCann's sustainable drainage systems (SuDS) can maximise availability of space at ground level.

KEY BENEFITS

- Total drainage and rainwater management solution to minimise flood risk
- Highly configurable to meet the requirements of the site
- Can be a full precast proprietary SuDS or a hybrid featuring vegetated SuDs elements
- Choice of products allows tailored design for each of the SuDS phases
- Quality assured precast products to deliver durability and longevity
- Integrated treatment for the water to prevent harmful contaminants entering local watercourses
- Designed for easy maintenance

FIRE RATING
One hour fire resistance for assured protection.

ENVIRONMENT
Low embodied carbon and long lifespan.

MAINTENANCE
Easy to access for regular inspection and cleaning.

Scan the QR code to find out more about precast SuDS.

COLLECTION

The first SuDS phase is to ensure rainwater is collected efficiently. This is achieved using FP McCann's Gullies, complete with integrated sumps to collect heavy contaminants, and versatile StormChannel slot drains, which are available in several different styles and can accommodate a high flow capacity.

Gullies feature a cast-in seal to preventing loss or damage on-site.

StormChannel slot drains are engineered for performance.

CONVEYANCE

FP McCann's range of durable precast spigot and socket pipes, junctions and bends, all featuring our strong, watertight joint system, takes care of conveying the rainwater from the collection points, with a variety of sizes available to meet the required volumes predicted during heavy rainfall events.

CLEANSING

In addition to the first stage cleansing provided by the sumps in FP McCann's gullies, a dedicated water treatment facility can be integrated using our StormCleanser. This is a hydrodynamic separator designed to remove contaminants from the stormwater runoff.

Its internal geometry enables low energy forced vortex flow patterns to form, so floatables gather and solids settle to the bottom of the treatment chamber for subsequent removal.

StormCleanser

ATTENUATION

The cleansed rainwater can be attenuated using one of several FP McCann systems or a pond with a hybrid SuDS design.

Our solutions include StormTank, a modular precast system for underwater stormwater storage which offers high capacity and excellent structural strength, with the added benefit of being easy to install and access for maintenance.

Depending on the site, however, one of our other attenuation solutions may be more appropriate, such as our StormChamber or StormHold systems.

StormChamber

StormHold

CONTROLLED RELEASE

The final stage of an FP McCann SuDS is release of stormwater in a controlled fashion to prevent the risk of localised flooding. This can be achieved using FP McCann's vortex flow control system StormBrake.

Vortex flow control system

This is purpose-designed to regulate the flow of stormwater by hydraulic effect without requiring any moving parts and connects to pipes and precast headwalls to interface between the drainage system and local watercourses.

An FP McCann proprietary or hybrid SuDS provide a complete rainwater management and treatment solution for data centres.

For the full range and detailed specifications, see the **DRAINAGE & WATER MANAGEMENT** data booklet

BESPOKE SOLUTIONS

The modular design of FP McCann's products makes them extremely versatile, accommodating the needs of the vast majority of data centre projects. However, through our extensive design and manufacturing capabilities, we can also develop bespoke precast solutions to meet specific design goals where projects may not accommodate products from our standard range.

WHEN TO CONSIDER A TAILORED PRECAST APPROACH

No two construction projects are ever the same, which is why FP McCann understands the value of being able to offer the flexibility to create precast elements designed to the project needs.

Whether the solution lies with a custom size of an existing product or a completely new precast element, our team is experienced and skilled to advise on how best to overcome your challenge.

From non-standard troughs and communication chambers to hollowcore flooring and L-Walls, we can develop unique precast products.

HOW CUSTOM PRECAST PRODUCTS ARE DEVELOPED

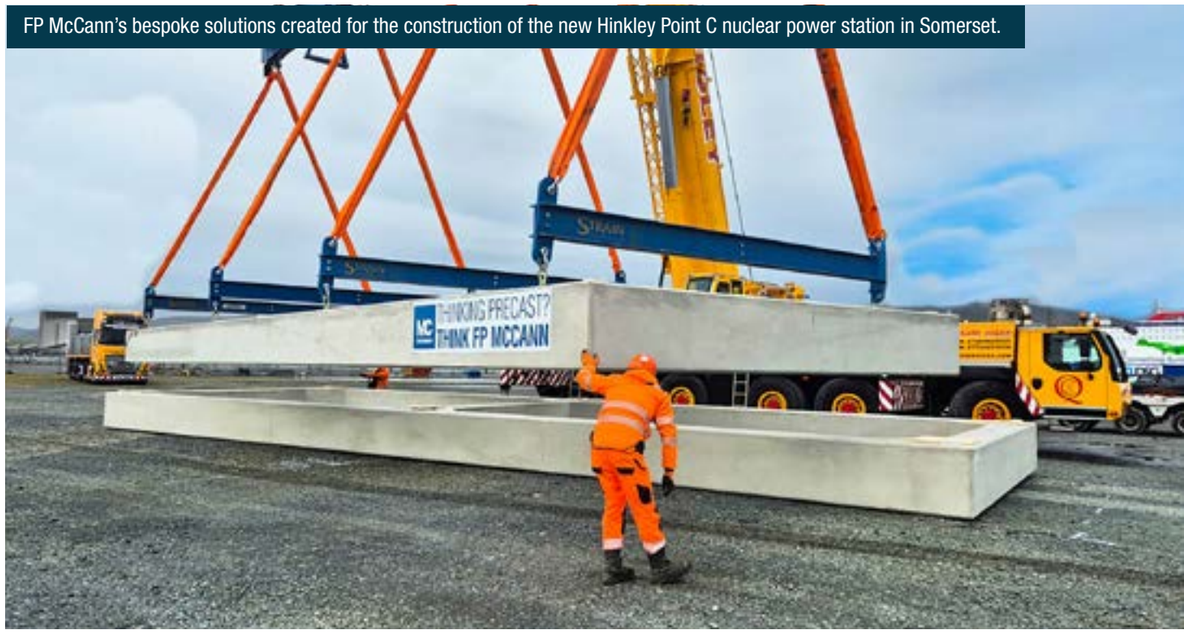
Contact FP McCann at the earliest possible stage and our design team will be able to advise on the feasibility of creating bespoke products.

It may even be that our design expertise can guide you to utilising products within our standard ranges in an alternative way, rethinking the construction methodology or building form where possible to achieve cost and time savings.

Depending on the project, the versatility we offer in respect of bespoke products can be extremely beneficial.

FP McCann's in-house design team works closely with customers to adapt existing designs or create new solutions to meet project specifications.

FP McCann's bespoke solutions created for the construction of the new Hinkley Point C nuclear power station in Somerset.



OUR SUPPORT

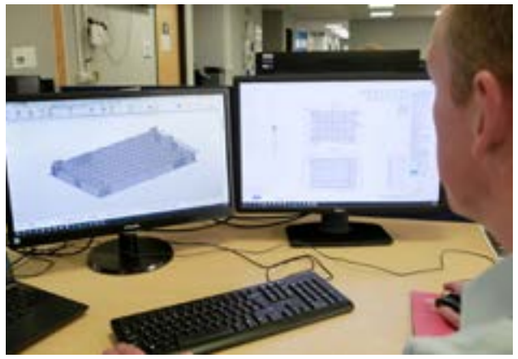
FP McCann's comprehensive design and engineering support helps data centre developers leverage the maximum value from precast construction. We work with clients at an early stage to achieve a design that meets all the building performance goals, as well as to devise a construction process focused on optimising efficiency to overcome many of the challenges typically associated with other build methods.

BIM LEVEL 2 & 3 COMPLIANT DESIGN

The FP McCann in-house design team are accredited to BIM Level 2 compliance and working towards BIM Level 3.

This means they are already adapting to a fully integrated, web-based, and data-centric approach to support the development of digital twins, complete with all the required data for each precast product.

They work with architects, MEP engineers, and contractors to help reduce design clashes early in the process, as well as optimise sustainability throughout the construction methodology.



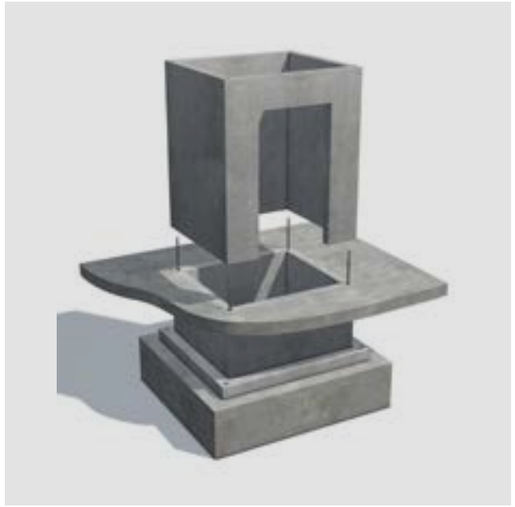
FP McCann's expertise supports clients to utilise increasingly powerful digital design and construction technologies.

TEKLA EXPERTISE FOR PRECAST CONCRETE

We create detailed 3D models of precast elements, such as walls, floors, and structural frames, using Tekla.

In addition to providing automated fabrication drawings to streamline manufacturing and installation, this detects potential clashes and optimises coordination, so all elements fit precisely before production.

Tekla.



END-TO-END DESIGN AND ENGINEERING SUPPORT

Our precast design, manufacture and installation expertise ensures we can provide seamless project execution.

Through our industry-leading technical support from the initial concept stage right through to the product being installed and tested on-site, we can help you optimise the creation of safe, secure, sustainable and future-proof data centres.

We can also provide custom detailing for complex layouts and equipment-heavy zones, and offer real-time model updates to accommodate late-stage design changes.

Accurate, data-rich models of FP McCann products facilitates closer supply chain collaboration, reducing errors and saving time and money.

As the UK's largest precast manufacturer, FP McCann has a wealth of design and engineering knowledge and experience to benefit any project.

THE SUSTAINABLE PRECAST CHOICE

Choosing FP McCann as your precast concrete partner helps to maintain a sustainable construction supply chain due to our holistic approach. Our sustainability strategy is designed to not only minimise the impact on the communities in which we operate, but actually enhance them, encompassing environmental, social and economic objectives.

Our target is to reduce our carbon emissions by 50% in the next 5 years.

100% of FP McCann's products are recyclable.

PROVIDING FOR THE PRESENT – PROTECTING THE FUTURE

FP McCann is committed to promoting sustainability throughout our operations and products. Environmental considerations and promoting a broader sustainability agenda are integral to FP McCann's professional activities and the management of the organisation.

We are already making significant progress towards our Net Zero Carbon by 2050 deadline. We are doing this by adopting a long term plan for continued investment in technologies that will lower the carbon emissions associated with our precast solutions.

30,000 trees planted across 50 acres in 2022.

KEY ACHIEVEMENTS

TREE PLANTING

- We have embarked on a major initiative to boost native broad leaf species in woodland close to our factories

RESPONSIBE ENERGY USE

- Biomass heating is used at several of our sites to cut energy used in manufacturing processes
- LED lighting has been deployed throughout our buildings, decreasing energy required for artificial light
- More of the electricity we require is renewable through the installation of solar panels at many of our factories
- We are also switching to electric vehicles wherever possible – this includes many of our forklift trucks for which we are moving away from diesel to either electric or LPG power

LEANER, LOWER CO2 PRODUCTION

- We have reduced embodied carbon in precast with a nominal 30% cement replacement using Pulverised Fuel Ash, or where not practicable, a 20% replacement of limestone fines
- Over the past 3 years, we have embraced LEAN manufacturing, which has increased process efficiency and productivity, as well as reducing waste

USING RECYCLED MATERIALS

- Many of our precast products use recycled materials such as plastics and aggregates and our energy management plans include investigating the use of other recycled materials in our production processes

PROVIDING TRANSPARENCY

- The environmental credentials of many FP McCann products have been independently assessed in Environmental Product Declarations (EPDs) which are available to download on our website

AI-POWERED
SMART MANUFACTURING

Precast concrete may be one of the longest established types of offsite construction, but the advanced processes and technologies now used by FP McCann to design and manufacture products mean it not only meets, but exceeds the performance and quality expectations of today's construction industry.

In addition to the digital design tools that we use to create and integrate our products in line with modern construction methodology including BIM, plus the smart technology we use to plan our deliveries to optimise production and delivery scheduling, a variety of AI-powered technologies are utilised throughout our manufacturing plants.

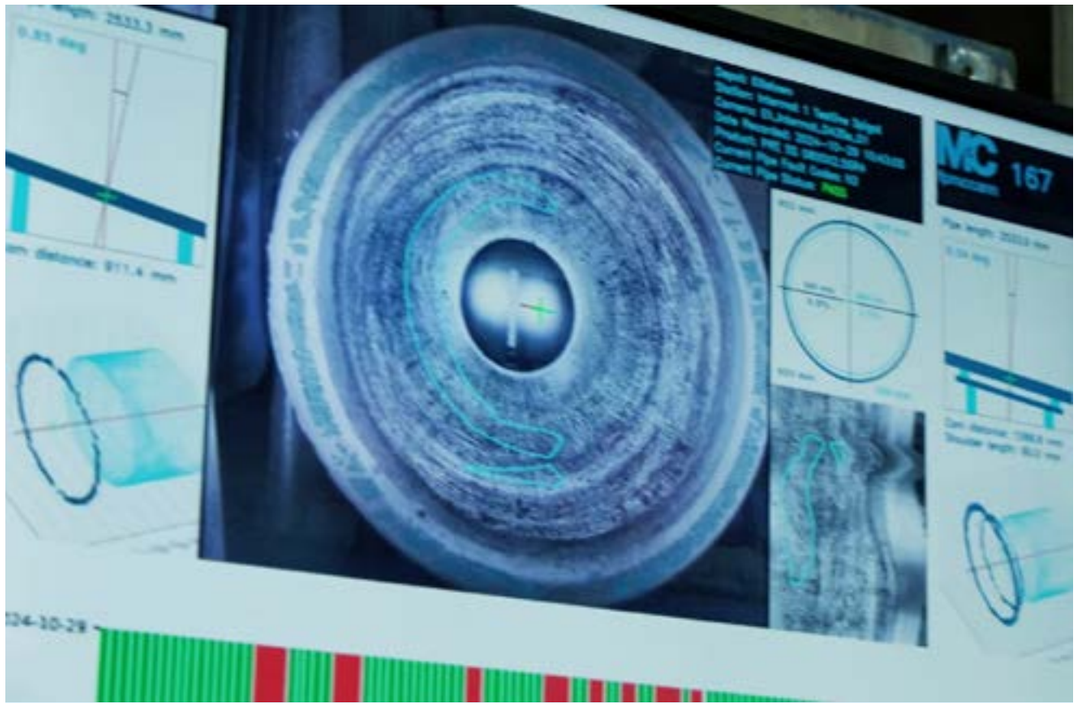
These technologies have taken our quality control processes to a whole new level, whilst actually increasing production capacity and reducing waste – very important from a sustainability perspective.

QUALITY CHECKING IN THE BLINK OF AN EYE

We already use machine learning to automate several of our quality checking processes and conduct inspections at a much greater rate than humans would be able to.

AI can deal with thousands of independent sources of data, meaning these new technologies can see the patterns in data that a human could not. In our concrete tile manufacturing plant, this means up to 120,000 products can be inspected in a single day.

AI-powered technology quality checking.



COMPREHENSIVE 3D SCANNING TECHNOLOGY

We use a high-tech imaging process to conduct a full 3D body check of every one of FP McCann's concrete pipes to ensure they conform to required tolerances.

This uses a special kind of 3D camera to take an image of the pipe from the two fixed ends, allowing a full body scan of the pipe to be created. All dimensions are recorded during this state-of-the-art process.

The result is a digital image that can be rotated and moved, inside and outside, within a virtual environment.

This example of how AI technology underpins FP McCann's quality processes shows how we are working to create a more defect-free built environment and maximise the longevity that precast offers.

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BUILDING PRODUCTS
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DOCK LEVELLER PITS
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DRAINAGE
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FENCING
Cadeby 01455 290780

FILTER BED SYSTEMS
Littleport 01353 861416

FLOORING
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POWER & INFRASTRUCTURE
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PRECAST OFF-SITE SOLUTIONS
Byley 01606 843500 Grantham 01476 562277 Littleport 01353 861416 Toomebridge 028 7965 0471

RAIL
Littleport 01353 861416 Toomebridge 028 7965 0471

ROOF TILES
Cadeby 01455 290780

SPECIALIST PRECAST
Littleport 01353 861416 Toomebridge 028 7965 0471

TANKS & CHAMBERS
Littleport 01353 861416 Toomebridge 028 7965 0471

TUNNELS & SHAFTS
Cadeby 01455 290780 Toomebridge 028 7965 0471

WALLING
Grantham 01476 562277 Lydney 01594 847500
Uddingston 01698 803 300 (Scotland) Toomebridge 028 7965 0471

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