



PRECAST PRODUCT PORTFOLIO

V4

THINKING PRECAST?
THINK FP MCCANN





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FP MCCANN'S PRODUCT PORTFOLIO

The all encompassing catalogue of precast and prestressed concrete solutions from FP McCann.

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OUR COMPANY

At FP McCann, we have a long history of meeting our customers' needs. Our product range has never been more diverse, more competitive, or more in-tune with our clients' needs than it is today.

FP McCann offers a range of precast concrete solutions for agricultural, architectural and structural, building products, drainage, fencing, flooring, power and infrastructure, rail, specialist precast, tanks and chambers, tunnels and shafts and walling. At FP McCann, we can customise our solutions to ensure they create maximum value for your project, accommodating your site conditions, design requirements and construction needs.

The quality and reliability of FP McCann's products and services are the foundation of our success. We are constantly developing and improving our solutions, whilst striving to exceed our customers' expectations.

Our ability to deliver to our clients' specifications on major projects across the UK and Ireland has established FP McCann as a valuable and reliable partner. With twelve UK manufacturing facilities, FP McCann employs around 1500 people, making us the largest precast concrete manufacturers in the United Kingdom.

At FP McCann, we promise to perform and build a sustained trust with our stakeholders. By implementing our corporate values, we aim to deliver on this guarantee through our products, services, communications and, above all, the behaviour of our people. We recognise the importance of operating with integrity and apply high standards of corporate governance in the conduct of our business.





OUR CAPABILITIES

We strive to provide high-quality at the best value for money whilst being continuously committed to environmental improvement. FP McCann's products comply with accredited quality assurance schemes and meet the relevant British and European standards, with products kitemarked and CE marked. FP McCann's business operations are conducted under the auspices of an Integrated Management System encompassing Health & Safety, Quality and Environment accredited to OHSAS 18001, ISO 9001 and ISO 14001.

HEALTH, SAFETY AND ENVIRONMENTAL (HSE) STANDARDS

These standards set auditable criteria to continually ensure alignment with our QHSE management system. They are designed to ensure the company's commitment to manage health, safety, quality and environment, and are observed by all FP McCann personnel.

SUSTAINABLE DEVELOPMENT

FP McCann promotes sustainable responses to the technological, environmental, socioeconomic and cultural issues affecting building and construction at the national, regional and global levels. To encourage innovative approaches to sustainable construction, FP McCann conducts activities including awards competitions, forum symposium, grants seed funding for building initiatives and grants for research projects.

KEY COMPONENTS OF OUR PROGRAM INCLUDE:

- Our policy on safety, health and environmental issues
- Our commitment to meet legislative obligations, identify safety, health and environmental risks, set targets with measurable outcomes and consult and report on performance
- Our standard, which specifies the requirements our sites must follow in the identification, assessment, and control of health, safety and environmental risks
- Internal and external audits to verify implementation of the QHSE system
- Internal and external performance reports
- A corporate safety, health and environment team and site leaders to oversee and assist with change within the business
- Business unit plans which detail initiatives, goals and measurable targets for improvements in health, safety and environmental performance





OUR PEOPLE AND OUR ENVIRONMENT

FP McCann is well positioned to help our clients achieve successful outcomes for their projects.

With twelve manufacturing facilities situated throughout the UK, our national infrastructure enables local staff to respond effectively to our customers' needs.

YEARS OF EXPERIENCE

With over 65 years' experience in the manufacture, supply and delivery of precast concrete solutions, our dedicated engineers have the specialist skills to deliver smart product design and efficient, reliable manufacturing. Our extensive experience gives us a greater ability to help our clients with unique and difficult design challenges.

FP McCann has its own design team based in Weston Underwood, which allows us to work directly with our customers to design and manufacture products to meet their individual project needs.

OUR DESIGN CAPABILITY

Our in-house design department works closely with our customers to ensure that any project design is maximised for performance, cost savings, and efficient installations. Using their in-depth knowledge of our product range ensures they can add immense value to any project design.

The design team includes professional civil and structural engineers who have extensive experience in the design requirements for a spectrum of applications.





CUSTOM & BESPOKE PRECAST SOLUTIONS

We endeavour to create value for our customers at every opportunity; we look for ways to adapt our designs or create new solutions to best meet the needs of our customers' projects.

FP McCann's ability to provide bespoke solutions can grant significant advantages to a project by reducing installation risks, time, cost and the need for on-site skilled labour. Our quality controlled manufacturing processes can improve the quality of the finished project.

The in-house team of professional civil and structural designers and engineers work closely with our customers to ensure we understand their requirements and can provide a cost-effective solution that meets the necessary specifications.

We are a business committed to research and development, continually sourcing and innovating smarter technologies and designs to bring world-class solutions to our customers.

With many years of experience in precast concrete design and manufacture, FP McCann has delivered custom solutions for projects throughout the UK and Ireland including:

- Railway platforms
- Student accommodation
- Custodial buildings
- Retaining structures
- Ministry of Defence (MoD)
- Traffic tunnel exhaust ducts

FP McCann can convert many in-situ designs into a more cost-effective precast option. Contact your local FP McCann account representative today to find out how we can design a solution for your project.





PRECAST CONCRETE IN CONSTRUCTION

The use of precast concrete products in the construction industry provides clients with numerous financial and performance benefits:

- Impressive design flexibility – moulds can be built to suit many unique design requirements
- High strengths – precast concrete provides longevity, high loading capacities and long spans
- Durability and low maintenance – precast concrete provides a longer lifecycle service for high-use applications
- Improved aesthetics – precast manufacturing delivers grey off-form (made in steel casting beds) to a range of architectural finishes
- Faster construction – with around 75% less construction time than traditional construction, projects are not held up with manufacturing delays
- Lower costs – precast construction can provide reduced time on-site, reduced propping/scaffolding costs, lower site labour costs and lower materials storage costs
- Efficient site management – construction sites are less cluttered and product deliveries can be timed to suit the project
- High-quality product – controlled purpose-built factories provide a high-quality product for our clients
- Reliable production – factory manufactured products ensure quality-controlled products
- Reduced waste – as exact elements are delivered to site, there is no manufacturing wastage on-site
- Acoustic performance – the inherent mass and damping qualities of concrete provides an efficient acoustic barrier
- Reduced environmental impact – manufacturing in a controlled factory environment is more efficient than traditional construction, with less noise, air pollution and debris on-site. Recycled materials can be used in production and allows benefits of thermal mass to be incorporated into designs



AGRICULTURAL PRECAST SOLUTIONS

FP McCann has been supplying the agricultural industry with quality precast concrete solutions for over 60 years. Our agricultural range includes solutions for livestock dairy buildings, bulk storage such as grain, crops, fertilizer, slurry storage and silage. We deliver to any part of the UK and Ireland, meeting your requirements with affordable and safe solutions.

Our valued customer relationships drive FP McCann to develop better products, in addition to adapting existing products to best meet the needs of farmers and farm building contractors. We remain committed to the agricultural community by developing high-quality products that are built to last and can be quickly and easily installed, ensuring on-time delivery.

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GRAIN & CROP STORAGE

PRESTRESSED HORIZONTAL PANELS

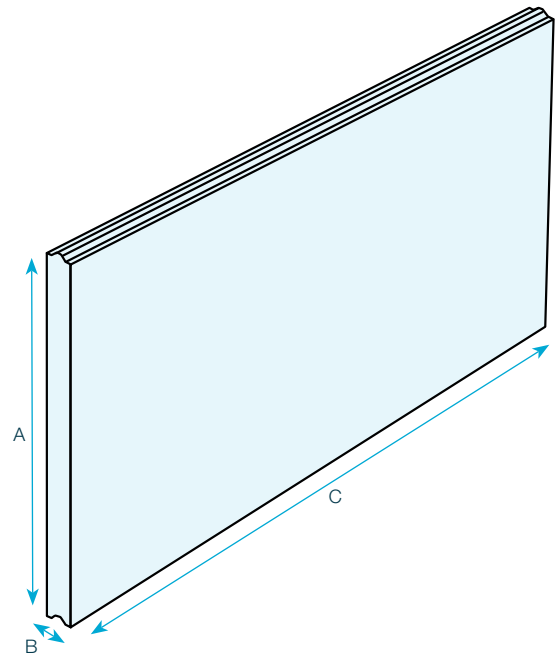
The versatility of FP McCann's Horizontal Panels makes them ideal for creating flexible storage bays of all sizes with a range of thicknesses. Our prestressing process provides enormous strength over a precast panel, making our panels ideal for

securely containing grain and other crops. Our controlled factory engineering allows us to work with you to specify an affordable solution to meet your requirements. Horizontal panels typically fix to the steel frame of the building and do not require foundation or casting into position.

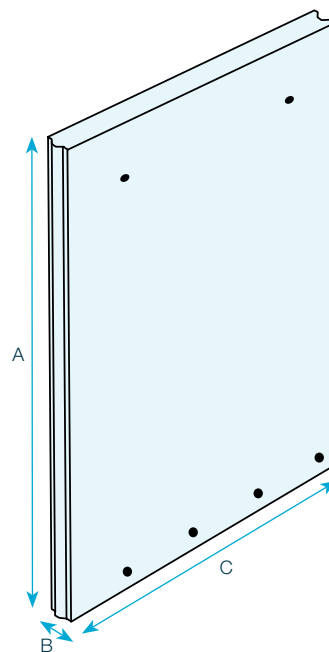
PRESTRESSED VERTICAL CANTILEVER PANELS

FP McCann's Vertical Cantilever Panels are cast into position using cradles prior to construction of the floor slab.

Panels sit together cleanly with vertical tongue and groove edges joining together. Vertical Cantilevers have the added advantage of being used when the steel frame is not able to support the panels and has 90° floor to wall joints.



Dimensions - Horizontal Panel					
(a) Panel Height	1.0m	1.2m	1.5m		
(b) Panel Thickness	80mm	120mm	160mm	200mm	240mm
(c) Panel Length	To suit the project, limited by load/span and handling considerations				



Dimensions - Vertical Panel					
(a) Panel Lengths	To suit the project, limited by load/span & handling considerations				
(b) Panel Thickness	120mm	160mm	200mm	240mm	
(c) Panel Widths	1.5m standard, 1m and 1.2m special order				

GRAIN & CROP STORAGE

PRECAST ROCKET WALL

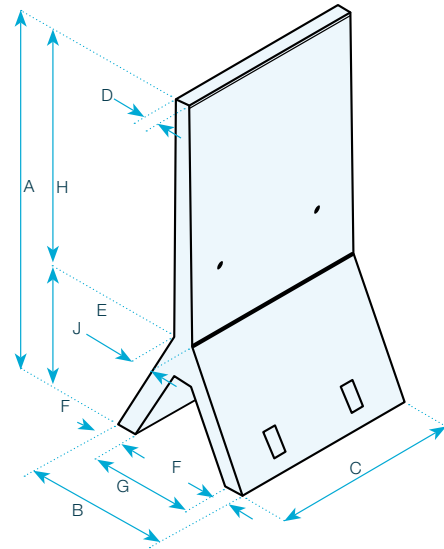
Our Rocket Walls are high quality, freestanding, precast concrete units. They are designed to be sited on an existing concrete floor slab or foundation and, for improved site safety and maximum efficiency, are bolted down using fixing bolts to prevent movement. It is this uniqueness that makes them suitable for a variety of uses.

PRODUCT BENEFITS

- Simply installed and easily moved
- Designed for materials up to 16kN/m³
- Manufactured to ISO quality and environmental standards
- Inverted Y shape design provides high capacity
- Value engineering means less concrete than typical alternatives
- Engineered to allow for up to 4m high units and 1.25m wide
- No protruding foot
- Ideal for bunkers and division walls
- Self-shedding units – prevents the lodging of stored material
- Corner units available
- Load one side or both

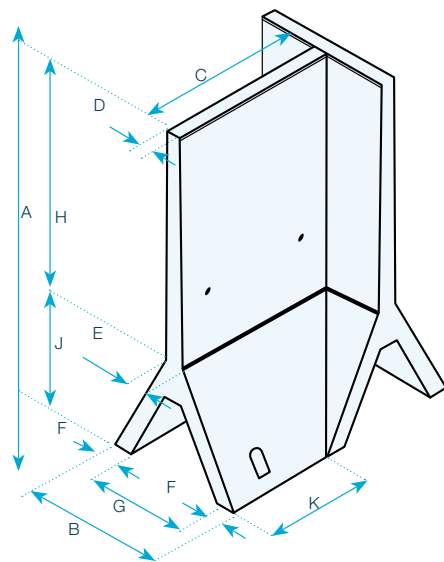
Our Rocket Wall precast unit is an alternative to panels for storing grain and other granular materials. These units come in three heights, 2.4m, 3m and 4m and are all 1.25m wide. After the grain has been removed, Rocket Walls can be re-sited with relative ease, giving the option to reuse the storage area for alternative purposes.

The Rocket Wall units can support up to 16kN/m³ and can be loaded from both sides, making them a versatile, fast and effective storage solution. Alternatively, they can be used to create a dividing wall within a shed to increase storage options.



Dimensions - Rocket Wall™ (Straight)										
Height (m)	Weight (kg)	a	b	c	d	e	f	g	h	j
2.4	1100	2400	970	1250	100	131	131	710	1600	800
3.0	1860	3000	1200	1250	110	150	165	870	2000	1000
4.0	2820	4000	1650	1250	110	170	185	1280	2600	1400

Please note: A-J measurements are in mm.



Dimensions - Rocket Wall™ (Corner)											
Height (m)	Weight (kg)	a	b	c	d	e	f	g	h	j	k
2.4	1091	2400	970	1200	100	131	131	710	1600	800	759
3.0	1842	3000	1200	1200	110	150	165	870	2000	1000	680
4.0 GA Drawing available upon request											

Please note: A-K measurements are in mm.

AGRICULTURAL WALLING

LIVESTOCK BUILDING

Prestressed concrete panels are an ideal, hygienic solution for containing all types of livestock. The 80mm thick prestressed panels are lightweight and quick to install, providing superior strength to withstanding impact load from livestock.

The prestressed manufacturing process provides built-in strength and resilience, whilst using less concrete results in a better engineered and more cost-effective solution.

PRODUCT FEATURES & BENEFITS

- The panels are all manufactured to BS-EN 1992 standard
- Cast-in fixing sockets assist with efficient installation
- No foundation required
- Tailor-made lengths and a variety of widths
- Easily washed down
- Smooth impervious surface
- Panels absorb minor accidental damage from livestock
- Horizontal and vertical panels available

SILAGE PANELS

FP McCann recommends a variety of panels for silage, depending on your individual requirements. Silage panels are made from high-quality prestressed concrete and are designed in accordance with BS 5502.

As an alternative to prestressed panels, FP McCann can supply precast L wall units that are Eurocode compliant.

PRODUCT FEATURES

- Prestressed concrete panels for maximum strength
- 3 equally reliable panel options available - horizontal panels, vertical panels and L wall panels
- Tongue and groove joints for easy alignment and sealing
- Quick and easy to install
- Vertical panels are an effective way of constructing a permanent bunker
- Double loading panels are also available for dividing walls



Horizontal panels can be fixed against the face, or within the webs of supporting steel stanchions. The simple fixing system allows the reconfiguration of, or extensions to existing buildings with minimal fuss. Panels are provided on a supply-only basis, conforming to all relevant standards and regulations.

Precast L wall units are an effective solution for silage clamps and are produced in heights from 1m up to 3.75m. They can be loaded one side or both sides and can be placed in bays either sitting near existing walls or using corner units to create a complete L wall system. Again, there is no steel required for this option, adding an even greater advantage.



DAIRY SYSTEMS

Ever since cows were first housed, the effective removal of the manure, slurry and the cleanliness of the cows have been primary objectives. The FP McCann slatted cubicle building comes close to achieving this ideal.

FP McCann's prestressed concrete stock walling is ideal for containing livestock, providing a smooth surface for quick wash down. Stock wall panels are 80mm thick and made to suit your desired lengths; tongue and groove joints allow for very quick installation with a clean finish.

FP McCann generally recommends using tractor-loading slats within the building up to a 4 tonne axle loading weight, which should be adequate for any likelihood. Inspection/access hatches can be distributed around the building.

The collection yard can be totally slatted, generally at least 3m away from the parlour entrance, or can be scraped or washed into a channel. Either of these options can then be fed into the main tank, if levels and proximity allow. Slurry can be extracted by tanker, pump or by umbilical system.

PRODUCT FEATURES & BENEFITS

- Cleanliness and comfort of cows and building
- Provide adequate slurry storage
- Low running and maintenance costs
- Exclusion of rainwater
- No disturbance to the cows. Enhanced foot health, drier and harder
- Lower labour requirement. Slatted floors for better efficiency and strength
- More economical use of space, no external slurry stores and associated concrete areas



SLURRY STORES

FP McCann's slurry panels are made from high-quality prestressed concrete, designed in accordance with BS 5502. Slurry would normally be pushed over a retaining wall using a tractor or automatic scraper. However, if appropriate, a ramp, weir, underground pipe, mechanical loading system or pump may be utilised instead.

When emptying the store, it can be pumped or removed by a vacuum tanker. Solids can be removed by a tractor bucket via a ramp. Our ramp panels are ideal for ease of construction and minimal loss of capacity within the store.

PRODUCT FEATURES

- Above and below ground options
- Tongue and groove joints for easy alignment and sealing
- Access to store with machinery
- Choice of ways to handle slurry

A properly designed strainer box would allow dewatering of the store to increase capacity for solids. The remaining muck can either be handled as a semi-solid or a slurry, if sufficient liquid is retained to allow agitation. The management of the store during the winter is of prime importance to ensure that this simple system works efficiently. Strainer box or weeping wall panels with slots are designed to give maximum separation and to minimise jetting, allowing the liquid to transfer via a perimeter gully to a holding/settlement tank.



LIVESTOCK FLOORING

LIVESTOCK BUILDING

FP McCann manufactures a range of agricultural cattle slats, ideal for use over slurry channels, underground tanks or as part of a suspended floor system.

All cattle slat products are manufactured in accordance with BS 5502 and ISO 9001, ensuring that quality, durability and animal welfare are at the heart of the design and manufacture.

The cattle slat products are suitable for use as floors for livestock and are made from high-strength reinforced concrete, designed to withstand the pressure and demands associated with livestock management over a considerable time period. These products are suitable for use with all classes of livestock loading, shown in Table 5 of BS5502: Part 22, including the maximum vehicle loadings.

PRODUCT BENEFITS

- Axle bearing load of 4.5 tonnes
- Edges designed to prevent injury to cattle
- Tapered sides to allow easy access for slurry tank
- Excellent space to surface ratio
- One-man operation for safe mixing or slurry removal from effluent tank
- Hardwearing non-slip surface
- Gang slats
- Cattle and multi-purpose slats available
- Access slat with manhole
- Diagonal slat to cover slurry channels

PRODUCT APPLICATIONS

Cellars / Channels / Dairy farms



Support beams							Slurry channels	
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft	Length (mm)	2400
Width (mm)	305	305	305	305	305	305	Width (mm)	1200
Depth (mm)	305	305	305	305	305	305	Depth (mm)	1200
Weight (Kg)	518	583	648	713	778	842	Weight (Kg)	2400

Cubicle bases				
Length (ft)	7ft	8ft	14ft	15ft
Width (mm)	1150	1200	1140	1200
Depth (mm)	270-200	225-170	280-200	225-170
Weight (Kg)	880	1479	2500	2773

Passage covers									
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft	14ft	15ft	16ft
Width (mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Depth (mm)	160	160	160	160	160	160	160	160	160
Weight (Kg)	1218	1370	1523	1672	1827	1972	2097	2246	2446

Gang slats									
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft	14ft	15ft	16ft
Width (mm)	1265	1265	1265	1265	1265	1265	1255	1255	1255
Depth (mm)	195	195	195	195	195	195	225	225	225
Axle loading	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Weight (Kg)	1040	1220	1320	1480	1560	1620	2188	2345	2500

Safety slats									
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft	14ft	15ft	16ft
Width (mm)	1265	1265	1265	1265	1265	1265	1255	1255	1265
Depth (mm)	195	195	195	195	195	195	225	225	225
Axle loading	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Weight (Kg)	900	1020	1160	1240	1400	1520	1852	1985	2117
Opening size	1000mm x 830mm wide								

Multi-purpose slats						
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft
Width (mm)	1265	1265	1265	1265	1265	1265
Depth (mm)	175	175	175	175	175	175
Axle loading	4.5	4.5	4.5	4.5	4.5	4.5
Weight (Kg)	840	920	1020	1180	1260	1420

Diagonal slats						
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft
Width (mm)	1265	1265	1265	1265	1265	1265
Depth (mm)	195	195	195	195	195	195
Axle loading	4.5	4.5	4.5	4.5	4.5	4.5
Weight (Kg)	1040	1220	1320	1480	1560	1620

WATER TROUGHS

FP McCann offers a range of high-quality precast water troughs for the agricultural sector. They provide a strong, reliable and quick fit solution for livestock drinking requirements.

Due to the weight of the concrete water troughs, less time is required to fit and install them as they are able to sit under their own weight. Unlike plastic troughs, the robustness of the precast water trough removes the risk of the trough losing shape or being pushed around by livestock. Our water troughs are available in four sizes.



PRODUCT BENEFITS

- Versatile - can be easily moved to a different location using the correct lifters
- Durable - maintains shape in all conditions and centre core pipe is protected from frost etc.
- Safe - no sharp edges and centre core pipe is protected from livestock
- Drainage - can be easily drained to allow for cleaning and transportation
- Indoor or outdoor – the strength of our water troughs means they can be used indoor or outdoor in any weather conditions

Water Trough Dimensions

Capacity	Length (M)	Width (M)	Height (M)	Weight (T)
75 Gallons / 340 Litres	1.7	0.8	0.5	0.75
150 Gallons / 680 Litres	2.1	0.9	0.7	1.10
200 Gallons / 909 Litres	2.2	1.1	0.7	1.30
300 Gallons / 1365 Litres	2.5	1.2	0.8	1.73

DIRTY WATER/ EFFLUENT TANK

The precast dirty water tank is used to store all forms of dirty water and is available in a range of sizes, depending on the estimated volume of effluent produced. All tanks come complete with solid lids.

PRODUCT BENEFITS

- Speedy installation, no ready-mixed concrete backfill required
- Unobtrusive (buried underground)
- Low maintenance

VOLUME CAPACITY OF STORAGE CHAMBERS

Internal Diameter (x1000mm)	Litres
DN1500	1767
DN1800	2544
DN2100	3464
DN2400	4514
DN2700	5726
DN3000	7069







ARCHITECTURAL PRECAST SOLUTIONS

Precast concrete is the perfect material to link the practical with the desirable. The technical benefits and aesthetic possibilities appeal to both clients and designers alike.

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ARCHITECTURAL PRECAST

FP McCann offers all forms of architectural precast components, either as structural load-bearing members, built as part of the primary frame such as an external sandwich panel or structural columns; or as a decorative cladding element to the facades like spandrels, mullions or fully storey high panels.

Precast concrete is ideal as a cladding material, especially where complex geometry on the facades have to be achieved, access is restricted or the project programme demands fast on-site construction. Our in-house design and technical department provides reassurance that the structural and aesthetical requirements of your scheme are met. In order to achieve the best solution and to ensure the most cost-effective approach, we recommend contacting us at an early stage of your project so that we can provide the maximum technical input.

KEY ADVANTAGES

- Precast concrete can be provided in a variety of colours and finishes, utilising a large choice of aggregates and pigments
- Architectural concrete can be either structural load-bearing or non-structural such as cladding. All of our architectural projects are designed and manufactured in a completely bespoke manner
- Concrete is durable, strong and resistant to impact. It also has excellent fire-resistant and acoustic properties
- Designed and manufactured off-site ensures consistent quality and lower construction costs
- Units can be manufactured to suit different building structures
- Brick, stone or tile faced units can be supplied fully pointed

FINISHES AVAILABLE INCLUDE:

Acid etched, Grit Blasted, Polished, Exposed Aggregate, Brick-Faced, Stone-Faced and Tile-Faced precast cladding can all be provided.



INSTALLATION AS EASY AS...

1

Units delivered on our specialist trailers on a just-in-time basis to suit your construction project

2

Craned into position and fully installed, all undertaken by fully trained specialist precast installers

3

Complete all finishing works, as required, such as jointing, insulation, fire-stop, etc

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 of an outer leaf of precast concrete, an insulating layer and a structural inner leaf of plain grey concrete with a power floated internal finish.

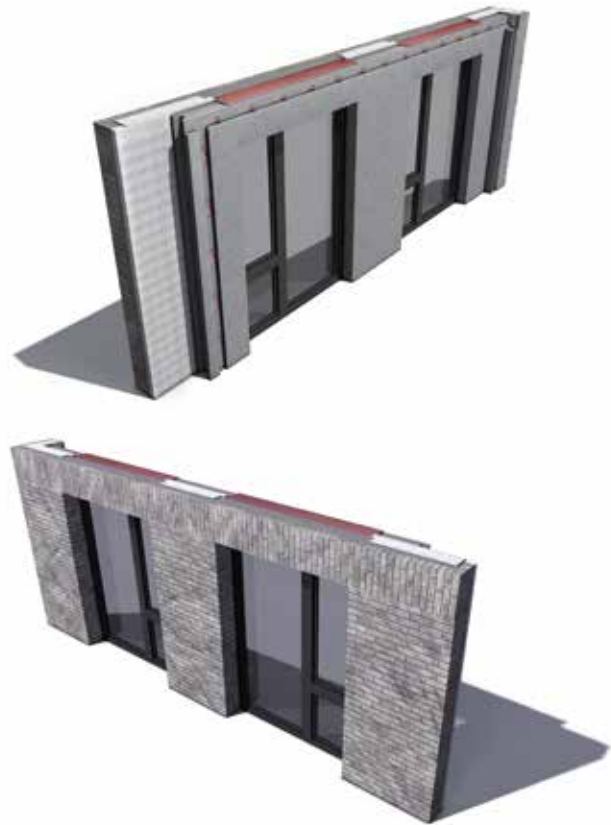
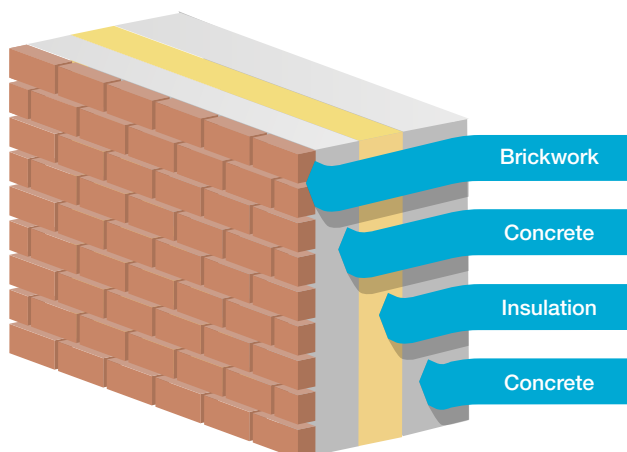
The external skin is connected to and supported by the internal skin using proprietary plastic ties. The ties have a low thermal conductivity which eliminates potential cold bridging.

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.

FP McCann provides a free sampling service to ensure we get the exact colour and texture required, including mortar pointing colours and finishes.

SANDWICH PANEL CROSS-SECTION



FINISHES AVAILABLE INCLUDE:

- Brick faced
- Natural Stone faced
- Mould formers
- Acid Etched
- Exposed Aggregate



PRECAST CLADDING

FP McCann offer a wide range of bespoke precast cladding solutions in a variety of finishes. These include brick clad, acid etched, exposed aggregate and polished. Our versatile production facilities give us the ability to utilise various aggregates, sands, pigments and cements to realise architectural aspirations.

We can provide our bespoke architectural precast cladding in varying shapes, sizes and finishes. Precast cladding is a favoured facade material where complex geometry has to be achieved, access is restricted or the project programme demands accelerated on-site construction.

Our in-house design, engineering and technical department provide reassurance that the structural and aesthetic requirements of your scheme are met. We encourage early engagement with our team to enable us to give you the full design, supply and install experience. As a result, we can achieve the best solution to meet your needs and ensure a cost-effective approach is used.

With architectural manufacturing capabilities at a number of sites across the UK we incorporate an 'Open Door' policy. Clients are welcome to come visit and experience FP McCann delivering high standards of project management from concept to completion. As a result, this makes us one of the market leaders and a supplier of choice.



KEY ADVANTAGES

- Cladding can be provided in a variety of colours and finishes. We utilise a large choice of aggregates and pigments including: acid etched, grit blasted, polished, exposed aggregate, brick-faced, stone-faced and tile faced
- We design and manufacture all our architectural solutions in a completely bespoke manner to suit your specific building structure
- Concrete is durable, strong and resistant to impact. It also has excellent fire-resistant properties
- Brick, stone or tile faced units can be supplied fully pointed
- Cladding is ideal for use in both new builds and refurbishments as its weight is supported by the frame of the building
- Quality finish and speedy installation make precast cladding an ideal choice for an external facade



LINTELS & SOFFITS

Recessed openings and deep reveals have become increasingly popular design features, creating depth within an elevation and giving additional visual flare to a facade. These areas have been perceived as difficult to treat - until now.

Precast concrete panels with bricks cast-in are often used as a cladding material, especially in areas that can be perceived as difficult or complex to treat. Features may range from the more traditional flat gauged arch to a contemporary stretcher bond lintel or deep brickwork returned soffits which give extra depth to an opening.

FP McCann's brick support solutions provide structural reassurance that meet the required aesthetics. This gives the impression of unsupported brickwork, whether it's a bearing lintel or a supported soffit.

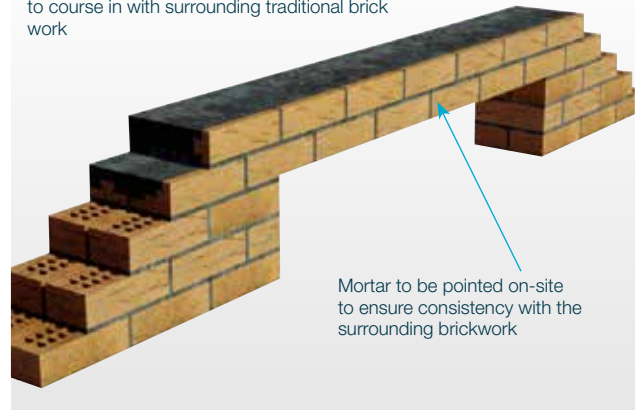
Precast concrete brick-faced lintels provide an excellent robust masonry support solution around door and window openings, whilst maintaining the effect of brick bonding throughout a facade.

KEY ADVANTAGES

- Brick-faced lintels are structural bearing units that add stability to the masonry around an opening
- Using a brickwork support angle, brick-faced soffits / underslung units can be supplied in small component lengths, giving the appearance of a continuous span over an opening
- Components can be pointed on-site to ensure mortar colour consistency with the surrounding brickwork
- Designed and manufactured off-site ensures consistent quality and lower construction costs
- Units can be manufactured to suit different brick dims and bond patterns
- Brick-faced lintels do not interrupt brickwork aesthetics

*** Most brick and masonry types, bond patterns and styles can be catered for.**

Bearing precast brick lintels illustrating different bond patterns stretcher and soldier to course in with surrounding traditional brick work



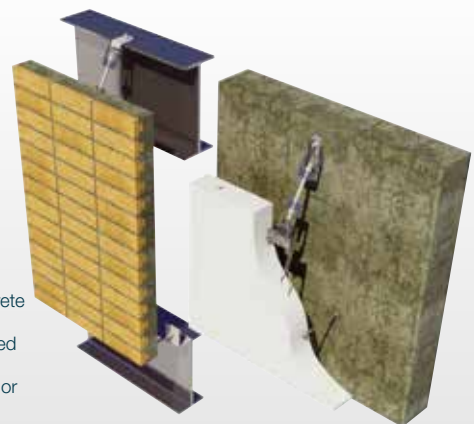
Bearing Lintels



The illustration above shows a soffit generally referred to as an underslung, in this case it's a stretcher bond

Underslung brick-faced soffits

The illustration above shows brick and concrete facade panels which can be tied back to either a concrete frame or steel.



Facade panels

PRECAST BALCONIES

FP McCann offers a range of precast concrete balconies to suit all specifications. All of our products are designed and manufactured to meet client requirements including additional features and fittings.

BALCONIES

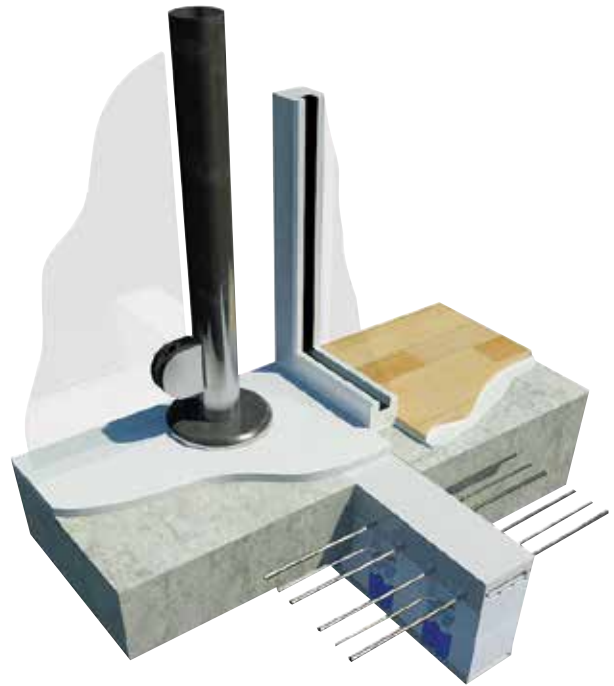
Balconies not only provide extra outside space but also create a visual feature to a facade.

BENEFITS OF PRECAST BALCONIES

- Balconies are erected as part of the primary superstructure, cast-in with the in-situ concrete floors
- Balconies can be manufactured to suit any architectural and/or structural design
- Time saved on-site
- Fire Resilience
- Benefits Health & Safety including social distancing measures
- Designed and manufactured off-site ensures consistent quality and lower construction costs
- Cold bridging can be overcome by incorporating an insulated balcony connector (thermal break) as part of the balcony connection
- Precast concrete balconies are Non-Combustible

CAST IN ITEMS

- Lighting
- Drainage Gullies
- Fixing Channels / Sockets
- Outlets
- Fixing Points For Balustrade



PRECAST BALCONY CONNECTIONS

Precast Balcony Connections, prevent heat loss, and avoids a 'cold bridge' between the external balcony areas and the internal areas of the building. The structural stability of the balcony, is achieved by a specially designed projecting rebar connection that comes as part of the precast element, and is cast-in with the floor slab

BENEFITS OF PRECAST BALCONY CONNECTIONS

- Reduces cold bridges - thereby reducing condensation and the associated mould formation
- Continuous stainless steel reinforcement maximises strength, thermal efficiency and corrosion protection
- Compression studs reduce rebar congestion and simplify installation
- Inherently fire-resistant mineral wool insulation
- Supplied as a complete unit providing rigidity and dimensional stability

PRECAST COLUMNS

FP McCann offers a range of precast concrete balconies to suit all specifications. All of our products are designed and manufactured to meet client requirements including additional features and fittings.

KEY BENEFITS OF COLUMNS

- Precast columns can be circular, square, rectangular or oval. A range of standard columns are available
- Precast concrete columns may be single or double storey height
- Connections may be made via a base plate to the column or by reinforcing bars projecting from the cast, or set into a preformed hole in a foundation block and grouted into position



Rectangular Column



Circular Column

Type	Size (mm) / Details	Max. Height (mm)
Circular	475 Diameter, with NO Flares	2940
Circular	475 Diameter with 900 dia Head & 700 dia Base Flare	3690
Circular	475 Diameter with 1300 dia Head & 700 dia Base Flare	3690
Circular	600 Diameter with 1200 dia Top & 1200 dia Bottom Flare	3690
Circular	650 Diameter with 900 dia Head & 900 dia Base Flare	3690
Circular	700 Diameter with 1200 Top & 1200 dia Bottom Flare	3630
Circular	725 Diameter with 1025 dia Head & 1025 dia Base Flare	3690
Circular	800 Diameter with 1200 dia Top & 1200 dia Bottom Flare	3640
Circular	825 Diameter with 1150 dia Head & 1150 dia Base Flare	4290
Circular	875 Diameter with 1200 dia Head & 1200 dia Base Flare	3575
Circular	900 Diameter with 1400 Top & 1050 Bottom Flare	3100
Circular	900 Diameter with 1200 dia Top & 1200 dia Bottom Flare	3640
Circular	1000 Diameter with 1200 dia Top & 1200 dia Bottom Flare	3640
Circular	1000 Diameter with 1400 Top & 1150 Bottom Flare	7490
Circular	1100 Diameter with 1300 Top & 1250 Bottom Flare	2800
Circular	1100 Diameter with 1300 dia Top & 1300 dia Bottom Flare	3640
Circular	1200 Diameter with 1400 Top & 1350 Bottom Flare	4830
Circular	1200 Diameter with 1400 dia Top & 1400 dia Bottom Flare	3640
Circular	1300 Diameter with 1500 Top & 1450 Bottom Flare	2800
Circular	1300 Diameter with 1500 dia Top & 1500 dia Bottom Flare	3640
Circular	1400 Diameter with 1600 dia Top & 1600 dia Bottom Flare	4240
Circular	1400 Diameter with 1600 Top & 1550mm Bottom Flare	2900
Bullet Shaped	950x350 with 1050x550 Head & Base Flare 3-Faces	3690
Bullet Shaped	1400x450 with 1500x650 Head & Base Flare 3-Sides	7840
Bullet Shaped	1470x500 with 1570x700 Head & Base Flare 3-Sides	11840
Bullet Shaped	950x350 with 1350x1150 Head & 1050x550 Base Flare 3-Sides	3690
Square	450x450 with 650 Top & 650 Bottom Flare along 2-Sides	2800
Rectangular	600x400 with 600 Top & 600 Bottom Flare along 2-Sides	3690
Rectangular	700x400 with 600 Top & 600 Bottom Flare along 2-Sides	3690
Rectangular	900x400 with 600 Top & 600 Bottom Flare along 2-Sides	3690
Rectangular	1000x350 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1000x400 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1000x450 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1000x500 with 800 Top & 800 Bottom Flare along 2-Sides	3640
Rectangular	1000x550 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1100x400 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1100x500 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1100x550 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1100x600 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1200x400 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1200x500 with 800 Top & 800 Bottom Flare along 2-Sides	6190
Rectangular	1200x600 with 800 Top & 800 Bottom Flare along 2-Sides	3640
Rectangular	1200x650 with 800 Top & 800 Bottom Flare along 2-Sides	3640
Rectangular	1200x400 with 800 Top & 550 Bottom Flare along 2-Sides	3100
Rectangular	1200x500 with 800 Top & 650 Bottom Flare along 2-Sides	3100
Rectangular	1200x600 with 800 Top & 750 Bottom Flare along 2-Sides	3100
Rectangular	1200x650 with 850 Top & 800 Bottom Flare along 2-Sides	7690
Rectangular	1200x550 with 800 Top & 800 Bottom Flare along 2-Sides	3690
Rectangular	1250x800 with NO FLARES	7490
Rectangular	1500x800 with NO FLARES	7490

REAL LIFE FIRE TESTING



Real life scenario fire tests conducted by Ulster University and FP McCann documenting the robustness, Sustainability and fire resisting qualities of precast concrete sandwich panels as a construction method. FP McCann's Insulated Precast Sandwich Panels are a fire resistant non-combustible solution for robust and sustainable external Facades.

FIRE PERFORMANCE & FUTURE WORK

The insulated precast sandwich panels contained the fire while maintaining their structural integrity despite being exposed to multiple fire scenarios. Although explosive spalling on the exposed surface of concrete was observed during the tests, this spalling was relatively small and would have required limited remedial work. During the tests, the PIR insulation core of the sandwich panels remained encased within the layers of the precast concrete. The outer concrete layers, due to their low thermal conductivity, protected the PIR insulation core from direct exposure to heat and flames.

As a result, the PIR insulation core remained unharmed. FP McCann has initiated an intensive study to realise the behaviour of insulated precast sandwich panels exposed to fire. Furthermore, a successful KTP project between FP McCann and FireSERT at Ulster

University provided a scientifically fire rated precast solution with the aim to ensure the safety of occupants and properties where the insulated precast sandwich panels are used for building and construction purposes. FP McCann aim to build a better, safer future and would encourage other manufacturers to follow a similar testing schedule incorporating real life scenario fire testing.



SCAN ME!

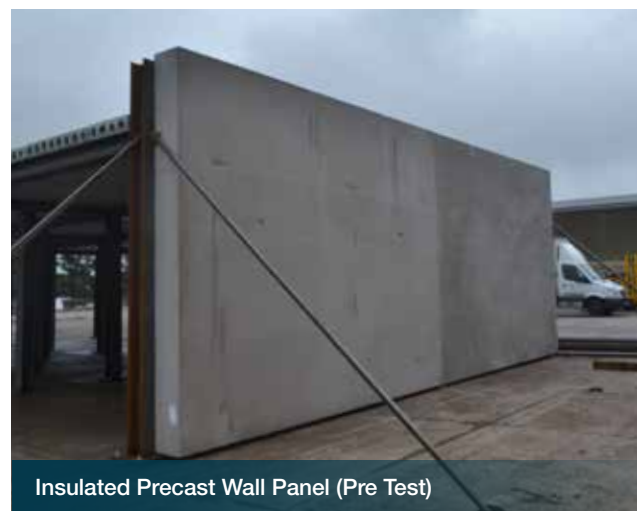
SCAN THE QR CODE TO VIEW OUR FIRE TEST VIDEO

THE FIRE TEST

As a part of a major international research initiative dealing with the influence of travelling fire in a large open compartment, three large fire tests were conducted by Ulster University sponsored by the Research Fund for Coal and Steel (RFCS) under the TRAFIR project. In this project FP McCann was a local sponsor with a research interest to investigate the behaviour of FP McCann's insulated sandwich panels exposed to fire used as essential precast wall element in the compartment fire tests.

These panels were installed along one side of the test compartment and detailed instrumentation was applied to monitor the temperatures in the wall panels and in the test compartment. The instrumentation consisted of thermocouples, which were provided to record the temperatures in the inner and outer concrete layers as well as in the insulation layer of the precast sandwich panels.

The insulated precast sandwich panels were exposed to three fire scenarios and their behaviour was monitored. Timber was used as fuel due to its excellent combustibility. During the fire tests, temperatures in excess of 1000°C were recorded in the compartment. Also, special attention was paid to the fire resistance in terms of the fire exposure from the outside to the inside of the insulated precast wall panels. This was achieved by exposing the outer concrete layer with lower thickness to the elevated temperatures.



REAL LIFE FIRE TESTING



Post Test Core Samples



Post Test Core Samples

WOLVERHAMPTON SCHOOL OF ARCHITECTURE CLADDING PANELS

Site: School of Architecture and the Built environment
(SOABE)

Client: Wolverhampton University

Main Contractor: ISG

Architect: Associated Architects

Products Supplied: Portland Cement Precast Cladding
Panels

FP McCann's structural precast concrete building and architectural facades division has recently supplied and installed a bespoke 3D cladding façade for the brand new three story School of Architecture and the Built Environment (SOABE), part of Wolverhampton University's multi-faceted engineering, building design and innovation centres on the site of a former brewery. The 12 acres, £100 million development once complete, will be Europe's largest built environment education campus.

The regeneration of the grade 2 listed Springfield brewery site noted for its historic red brick structures, is being undertaken by global construction specialist ISG. Fundamental to the design and build project is the reflection of the old buildings in the new architecture. Recognising FP McCann's experience in this field, ISG and principal designer Associated Architects, approached the Company to design, manufacture and install white Portland cement precast concrete cladding panels to complement the bronze metal façade and specialist glazing system on the 7,900m² SOABE. Additionally and as part of the panel design to match key features on the one hundred years old building, unique and detailed 3D patterns have been created in a number of panels by using special moulds and formliners.





SHOREDITCH DEVELOPMENT ARCHITECTURE CLADDING PANELS

Site: Shoreditch High Street, London

Contractor: Montway

Client: Max Barney Development Ltd.

Architect: 21st Architecture

Products Supplied: Brick faced and acid etched cladding panels, 'L' shaped precast concrete columns

FP McCann's structural precast concrete building and architectural façades division has supplied the complete package of architectural precast cladding components on a brand new office and retail development in Shoreditch High Street, London. Covering an area of 35,819 sq ft, the new building comprises 5 floors of offices spanning a ground floor and basement containing retail outlets including a restaurant/cafe.

Undertaking the construction on behalf of client Max Barney Development Ltd, main building contractor Montway has recently completed the 525 day project designed by 21st Architecture, with the original design drawn as handset brickwork.

Working with an in-situ concrete frame, FP McCann was sent the design brief for the architectural façade panels, consisting of both grey brick and acid-etched finished concrete.

In total, 249 individual units were supplied from FP McCann's Littleport factory over a 10 week period and installed using a single tower crane, eliminating the use of any scaffolding on the building. Over 33,000 individual handmade bricks each measuring 528mm long x 40mm high were cast on at the factory, making 221 cladding panels totalling 623m² and pointed with mortar; colour as specified by the architect. The 28 acid etched panels (243m²) for the side of the building facing the car park were colour matched to the brick façade.



UNIVERSITY LOCKS BIRMINGHAM STUDENT ACCOMMODATION

Site: University Locks, Curzon Street, Birmingham City Centre

Contractor: John Sisk & Son

Client: Birmingham City University

Products Supplied: Precast concrete modular room systems

One of the most prominent regeneration projects in Birmingham is the £48 million canal side prestigious student accommodation scheme at University Locks. The new site is part of the Birmingham City University (BCU) City Centre Campus.

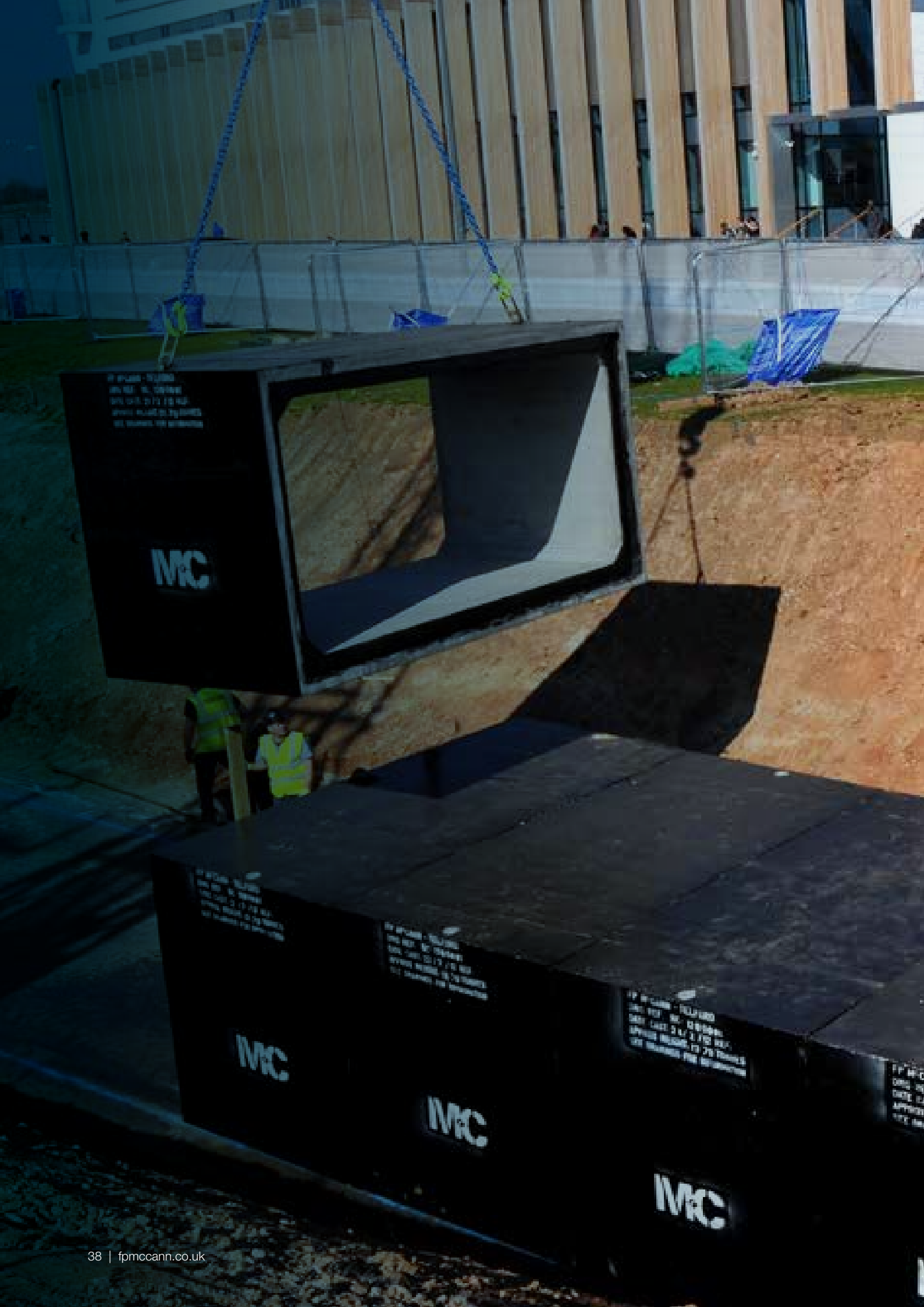
The project carried out for Alumno Developments by main contractors John Sisk & Son was completed in autumn 2016. Structural engineers for the project were BWB Consulting and Architects, Glen Howells Associates.

The scheme to construct 659 student rooms (21,405m² of accommodation) in the form of cluster flats, with a main southern tower standing at 19 storeys high commenced installation mid 2015.

FP McCann commenced deliveries of the precast concrete modular room system to John Sisk early last year. Based on a process where walls, floor and ceiling slabs are linked together to form a unique crosswall construction, the precast panels were factory formed to suit design requirements.

In total, some 3,500 individual precast units were installed to form the structural frame and encompass the cladding envelope. The five panels framing each pair of bedrooms consist of walls 180mm thick, and floor slabs 175mm thick. Window and door openings have been accommodated and each bedroom has four conduits cast into the walls for electrics and communications networks.





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BOX CULVERT SOLUTIONS

Designed and manufactured in accordance with all current design specifications and relevant standards, FP McCann's box culverts are available in span sizes from 1000mm to 6000mm and internal heights from 500mm to 3600mm.

With our extensive range of moulds, we also strive to accommodate non standard variances, along with any other internal features requested by the client.

Based in a modern production facility at Byley, Cheshire, FP McCann's experienced engineers and detailing team have the flexibility to quickly respond to meet any design criteria and deliver nationally to just-in-time requirements.

Supplied in either single or multiple runs, the use of precast concrete box sections in civil engineering projects is wide-ranging, from their use for directing/diverting watercourses to the provision of attenuation tanks and underpasses.

FP McCann is a member of the British Precast Drainage Association (BPDA) and their products comply with all relevant standards, as set out in accordance with ISO 9001 and ISO 14001.

Box Culverts	40
Box Culvert Headwalls	41

BOX CULVERTS

The proven strength and performance characteristics of precast concrete box culverts, together with their excellent service life, make them ideal for a wide variety of civil engineering and construction applications. Box culvert sections can be manufactured in a variety of internal profiles and sizes, offering exceptional versatility in the uses to which they can be applied.



DRY WEATHER FLOW CHANNELS

Half round (or equivalent) channels can be cast into the floor of the units at any position, we offer a choice of equivalent half round diameters.



BENCHING

Combined with either a channel or cast as a “vee”, benching improves self-cleansing flow rates.



MAMMAL LEDGES

Cast-in mammal ledges allow access through the culvert to wildlife without the requirement for extra site provisions.



SPECIALS

Bespoke units accommodating a variety of features can be manufactured to our customers' design requirements.

In addition to the more common use for diverting watercourses, box culverts have been used in an array of applications including balancing tanks, pedestrian subways, access shafts, service tunnels, sea outfalls, road crossings and many other situations where the whole life costing consideration requires strength, durability and economy to be of paramount importance.

Unlike other materials such as steel, precast concrete box culverts do not require additional treatments to prolong their life or improve performance. The concrete surface will not rust and the smooth internal finish of the box culvert ensures optimum flow of water through the concrete structure.

Precast concrete box culverts fulfil the current design life requirements for buried structures. With minimum maintenance and the ability to provide many years of service, precast concrete box culverts are the most cost-effective means of diverting watercourses, especially with the ever present risk of corrosive elements in the water or soil.

Whilst the methods and procedures for the installation of precast concrete box culverts are familiar to contractors, careful attention to detail will lead to safer working, a smoother flow of operations and a higher standard of finished culvert. Box Culvert installation and jointing details can be downloaded from www.fpmccann.co.uk/box-culverts

This guide provides a reliable checklist for anyone engaged in the installation of the box culverts. It is published to encourage good practice in the use of precast box culverts.

INSTALLATION GUIDELINES

For installation and jointing details, refer to the Box Culvert Installation Guide which can be downloaded from our website.

DESIGN CRITERIA

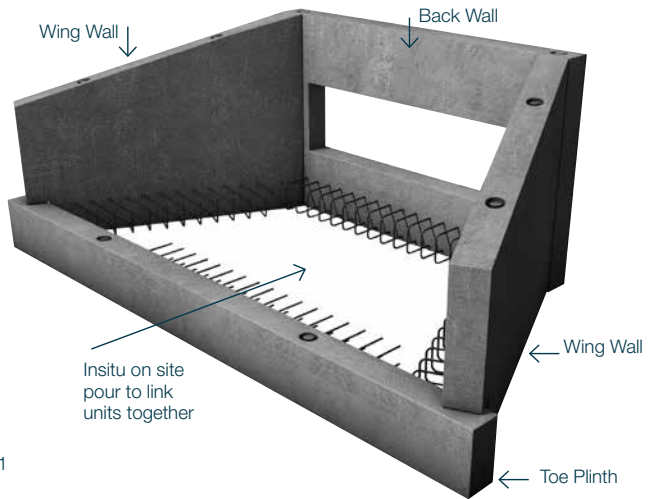
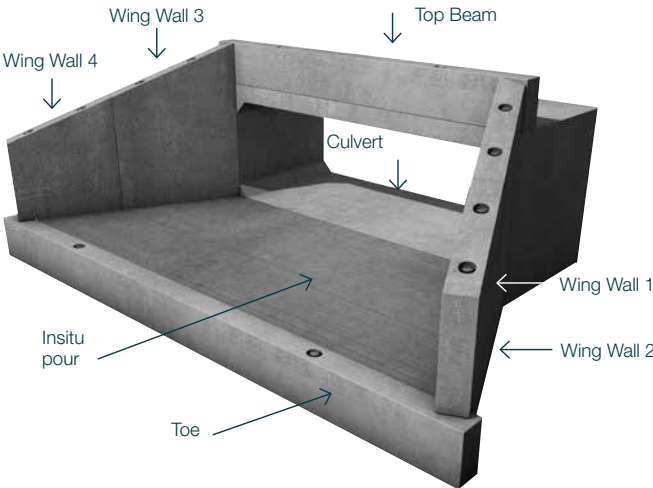
Design loading criteria is generally specified by the scheme engineer and ideally, should include as a minimum the information below:

- Internal span
- Internal height
- Metres required
- Number of runs
- Minimum depth of fill over the culvert unit
- Maximum depth of fill over the culvert unit
- Culvert usage
- Surface loading conditions : green field, highway etc
- Invert type

Exposure conditions should be specified and, where available, design codes provided. Further design requirements may be required for inlet/outlet points, access holes and end walls.

BOX CULVERT HEADWALLS

FP McCann offers a bespoke headwall solution suitable for box culverts. These headwalls are made up of a number of precast panels and tied with an in-situ stitch.



INTERNAL DIMENSIONS

(Based on flat invert culvert units) Key: **Flow area m²** / **Discharge rate m³/sec**

		Width mm (internal span)															
		1000	1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500	4800	5100	5400
Internal height mm	500	0.46 0.40	0.56 0.51	0.71 0.67	0.86 0.84	1.01 1.00	-	-	-	-	-	-	-	-	-	-	-
	600	0.56 0.53	0.68 0.67	0.86 0.89	1.04 1.11	1.22 1.33	-	-	-	-	-	-	-	-	-	-	-
	650	0.61 0.60	0.74 0.76	0.93 1.00	1.13 1.25	1.32 1.50	1.52 1.75	1.71 2.00	-	-	-	-	-	-	-	-	-
	800	0.76 0.81	0.92 1.03	1.13 1.33	1.37 1.67	1.61 2.01	1.85 2.36	2.09 2.71	2.33 3.06	2.57 3.42	2.81 3.77	3.05 4.12	-	-	-	-	-
	1000	0.96 1.10	1.16 1.40	1.43 1.84	1.73 2.32	2.03 2.80	2.33 3.29	2.63 3.79	2.93 4.29	3.23 4.79	3.53 5.30	3.83 5.80	4.13 6.30	4.43 6.81	4.73 7.32	-	-
	1200	-	1.37 1.76	1.73 2.37	2.09 3.00	2.45 3.64	2.81 4.29	3.17 4.95	3.53 5.61	3.89 6.28	4.25 6.95	4.61 7.62	4.97 8.29	5.33 8.97	5.69 9.64	6.05 10.32	6.41 11.00
	1500	-	-	2.18 3.21	2.63 4.09	3.08 4.98	3.53 5.89	3.98 6.81	4.43 7.74	4.88 8.68	5.33 9.62	5.78 10.57	6.23 11.52	6.68 12.48	7.13 13.44	7.58 14.40	8.03 15.37
	1800	-	-	-	3.17 5.21	3.71 6.38	4.25 7.57	4.79 8.78	5.33 10.00	5.87 11.24	6.41 12.48	6.95 13.74	7.49 15.00	8.03 16.27	8.57 17.54	9.11 18.82	9.65 20.10
	2100	-	-	-	-	4.34 7.83	4.97 9.31	5.60 10.83	6.23 12.36	6.86 13.92	7.49 15.49	8.12 17.07	8.75 18.67	9.38 20.27	10.01 21.89	10.64 23.50	11.27 25.13
	2400	-	-	-	-	-	5.69 11.11	6.41 12.94	7.13 14.81	7.85 16.70	8.57 18.62	9.29 20.55	10.01 22.50	10.73 24.46	11.45 26.44	12.17 28.42	12.89 30.41
	2700	-	-	-	-	-	-	7.22 15.11	8.03 17.32	8.84 19.57	9.65 21.84	10.46 24.14	11.27 26.46	12.08 28.80	12.89 31.16	13.70 33.53	14.51 35.91
	3000	-	-	-	-	-	-	-	8.93 19.89	9.83 22.50	10.73 25.15	11.63 27.83	12.53 30.54	13.43 33.27	14.33 36.03	15.23 38.80	16.13 41.59
	3300	-	-	-	-	-	-	-	-	10.82 25.49	11.81 28.52	12.80 31.60	13.79 34.71	14.78 37.86	15.77 41.03	16.76 44.22	17.75 47.43
3600	-	-	-	-	-	-	-	-	-	12.89 31.96	13.97 35.44	15.05 38.97	16.13 42.53	17.21 46.13	18.29 49.76	19.37 53.42	

Please note: These figures are a guide only and will be dependent on the mould configuration used in manufacture. Discharge rates are calculated using Colebrooke-White equation for a fully wetted perimeter under uniform flow conditions and assuming a flat invert culvert unit. The assumed laying gradient (s) is 1:1000 with a roughness co-efficient (k) of 0.3. Where different values may be required, please contact the office number below to discuss your specific requirements. The hydraulic design of a box culvert should always be undertaken by the overall scheme designer, as they are able to take into account the upstream and downstream conditions and other parameters such as freeboard, restriction due to silt build-up and need for the culvert to be free flowing at all times. Due to the lack of this information, FP McCann will only give discharge rates for an idealised culvert, which may not suit the local conditions.





PRECAST BUILDING PRODUCTS

FP McCann offers a range of high quality precast concrete building products including lintels, padstones, cills, pier caps and wall copings. All of our building products are manufactured to European standards.

Prestressed Concrete Lintels & Padstones	44
Concrete Cills	45
Pier Caps & Wall Copings	45

PRESTRESSED CONCRETE LINTELS & PADSTONES

FP McCann's range of prestressed concrete lintels and padstones are designed to provide a low cost and resilient masonry support for door and window openings. The prestressed casting system used to develop lintels ensures consistent high quality and a smooth finish providing safer manual handling. Our lintels and padstones are manufactured to European Standards.

LINTEL LOAD / SPAN TABLE

Service RM (kN/m)		100 x 65 Flat	100 x 65 Upright	140 x 65 Flat	140 x 65 Upright	140 x 100 Flat	100 x 140 Upright
		0.93	1.35	1.03	2.77	3.17	4.52
Length	Effective Length	UDL (kN/m)	UDL (kN/m)	UDL (kN/m)	UDL (kN/m)	UDL (kN/m)	UDL (kN/m)
450	n/a	82.35	120.43	91.72	245.91	281.55	401.73
600	450	36.60	53.52	40.77	109.29	125.13	178.55
750	600	20.59	30.11	22.93	61.48	70.39	100.43
900	750	13.18	19.27	14.68	39.35	45.05	64.28
1050	900	9.15	13.38	10.19	27.32	31.28	44.64
1200	1050	6.72	9.83	7.49	20.07	22.98	32.79
1350	1200	5.15	7.53	5.73	15.37	17.6	25.11
1500	1350	4.07	5.95	4.53	12.14	13.90	19.84
1650	1500	3.29	4.82	3.67	9.84	11.26	16.07
1800	1650	2.72	3.98	3.03	8.13	9.31	13.28
2100	1950	1.95	2.85	2.17	5.82	6.66	9.51
2400	2250	1.46	2.14	1.63	4.37	5.01	7.14
2700	2550	1.14	1.67	1.27	3.40	3.90	5.56
3000	2850	0.91	1.33	1.02	2.72	3.12	4.45
3300	3150	0.75	1.09			2.55	3.64
3600	3450	0.62	0.91			2.13	3.04

Notes:

- Composite brickwork figures are not included in the above load span table
- Minimum 150mm clear spans, plus a sound bearing length of 150mm minimum at each end. Where required, suitable padstones should be used.
- The Uniformly Distributed Loads (UDL) above are Serviceability Loads in kN/m and are based upon the least of the flexural strength, the shear strength or the load that provides a maximum deflection of L/325. Deflection information is available upon request.
- Lintels tested in accordance with BS EN 845-2:2013 and BS EN 846-9:2016
- Part packs are available on request

LINTEL SIZES / PACK SIZES

Key: Weight (g) / Pack Size

Length	Weight & Number per pack							
	100 x 65	140 x 100	140 x 65	100 x 100	215 x 100	215 x 65	140 x 140	215 x 140
450	336 48	450 30	480 48	- -	920 40	- -	- -	- -
600	432 48	600 30	624 48	504 30	1.2 40	612 30	806 28	- -
750	576 48	75-0 30	768 48	648 30	1520 40	765 30	756 21	- -
900	672 48	900 30	960 48	792 30	1840 40	918 30	907 21	932 14
1050	768 48	1050 30	1104 48	900 30	1428 40	1071 30	1058 21	1078 14
1200	912 48	1200 30	1248 48	1044 30	1632 40	1224 30	1210 21	1243 14
1350	336 16	450 10	464 16	384 10	680 10	459 10	454 7	- -
1500	368 16	500 10	528 16	432 10	760 10	510 10	504 7	777 7
1650	416 16	550 10	576 16	480 10	830 10	561 10	554 7	- -
1800	448 16	600 10	624 16	516 10	910 10	612 10	605 7	932 7
1950	480 16	650 10	672 16	- -	990 10	- -	- -	- -
2100	528 16	710 10	736 16	600 10	1060 10	714 10	706 7	1088 7
2250	560 16	760 10	784 16	- -	1140 10	- -	- -	- -
2400	592 16	810 10	832 16	696 10	1210 10	816 10	806 7	1243 7
2550	640 16	860 10	896 16	- -	1290 10	- -	- -	- -
2700	672 16	910 10	944 16	780 10	1370 10	- -	907 7	1399 7
2800	- -	940 10	- -	- -	- -	- -	- -	- -
2850	720 16	960 10	992 16	- -	1440 10	- -	- -	- -
3000	752 16	1010 10	1056 16	864 10	1520 10	- -	1008 7	1554 7
3150	- -	- -	- -	- -	1590 10	- -	- -	- -
3300	816 16	1110 10	- -	- -	1670 10	- -	- -	1709 7
3450	- -	- -	- -	- -	1740 10	- -	- -	- -
3600	896 16	1210 10	- -	- -	1820 10	- -	- -	1865 7
3750	- -	- -	- -	- -	1900 10	- -	- -	- -

All measurements are in mm.

PADSTONES

Padstone sizes (mm)	Pack sizes
215 x 140 x 100	24
215 x 215 x 100	24
300 x 100 x 140	24
300 x 100 x 215	24
330 x 215 x 100	24
380 x 140 x 215	24
440 x 140 x 100	24
440 x 140 x 140	24
440 x 215 x 100	24
440 x 215 x 140	24
440 x 215 x 215	24
600 x 140 x 100	24
600 x 215 x 100	24



CONCRETE CILLS

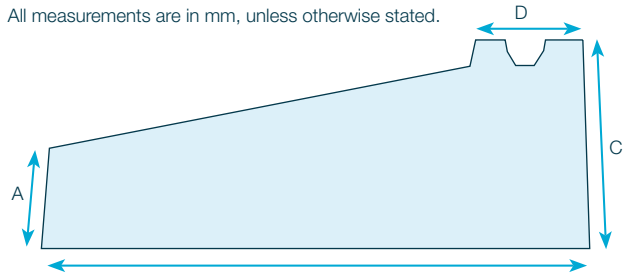
FP McCann's high quality cills are manufactured in accordance with BS standards and are available in increments of 150mm from 0.45m to 3.0m. Bespoke sizes can also be designed and manufactured on request. Standard finish only.



PRODUCT DIMENSIONS

Cill Description	A	B	C	D
Garage Cill	45	175	70	60
55mm face	55	265	85	60
90mm face	90	240	140	65
Joinery 90mm face	90	240	140	25
Stone Cill 90mm	90	400	140	90

All measurements are in mm, unless otherwise stated.



PIER CAPS & WALL COPINGS

FP McCann's precast concrete wall copings and pier caps provide an eye-catching and economical finish to various wall designs. The high calibre of these products helps prevent potential wall erosion or discolouring caused by adverse weather conditions.

WALL COPING SIZES

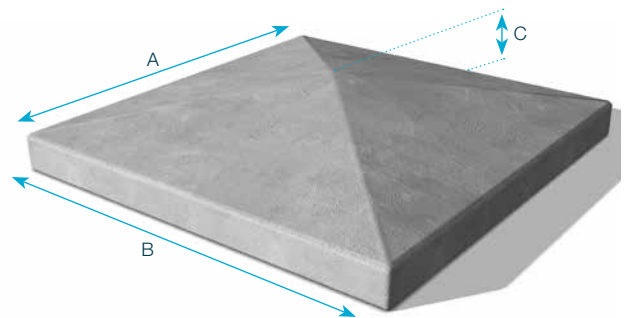
Product Code/Description	Pack Sizes
Pre SB Coping 125x30x600mm**	140
Pre SB Coping 175x75x906mm**	36
Pre SB Coping 285x50x600mm**	50
Pre SB Coping 302x60x905mm**	24
Pre TW Coping 165x60x610mm**	60
Pre TW Coping 305x70x610mm**	30
Pre TW Coping 355x75x610mm**	30
Pre TW Coping 405x75x915mm**	15
Pre OW Coping 165x60x610mm*	60
Pre OW Coping 305x70x610mm*	32
Pre OW Coping 355x75x610mm**	30
Pre OW Coping 405x75x915mm*	15

PIER CAP SIZES

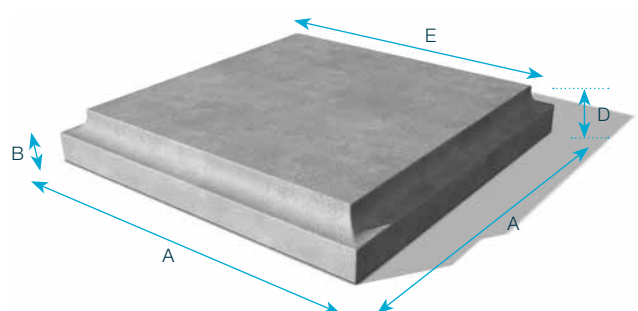
Saddle-back size	A	B	C	No. per pack
12"	300	40	70	30
16"	400	50	85	24
18"	450	50	100	16
22"	560	50	120	8

All measurements are in mm, unless otherwise stated.

SADDLE BACK PIER CAP



FLAT TOP PIER CAP





hafa

hafa

hafa

hafa

hafa



DOCK LEVELLER PIT SYSTEMS

A loading dock area fitted with FP McCann's precast concrete dock leveller pit systems can facilitate the process of turning delivery vehicles around in a fraction of the time compared to other loading methods.

With such a large variation in transport available, loading docks must be ready to accommodate widely varying vehicle sizes. Dock leveller Pit systems are designed to allow access onto vehicles whose heights vary from that of the loading dock or those that require the reach of a Dock Leveller to bridge the gap between the loading dock and the vehicle floor. FP McCann's Dock Leveller Pit systems offer high quality and durable precast system to meet your specific requirements.

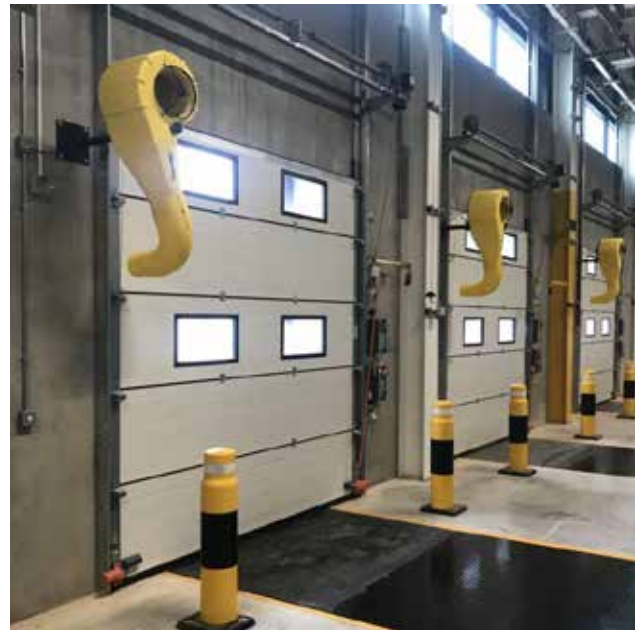
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SINGLE & DOUBLE DOOR PANELS

SINGLE DOOR PANELS

The Single door panel spans between Main stanchions and Intermediate stanchions over a single dock pit. Which ensures a rapid on site erection programme and eliminates the requirement for the more traditional areas of cladding and steel doorposts / rails.

Single panel sizes are generally provided up to a maximum height of 3800mm above Finished Floor Level and length 4000mm. Additional heights above FFL are achieved by the introduction of a lintel to the sit on top of the Prowall. Lintels may incur additional costs,



DOUBLE DOOR PROWALL

The panel spans between Main stanchions over a 2 dock pits per grid. By using the double Prowall system there is no requirement for intermediate stanchions offering cost savings for the Steel Columns and Foundations

Using the Double Door Prowall system ensures a rapid on site erection programme and eliminates the requirement for the more traditional areas of cladding and steel doorposts / rails. Double panel sizes are generally provided up to a maximum height of 3800mm above Finished Floor Level and length 8000mm. Additional heights above FFL are achieved by the introduction of a lintel to the sit on top of the Prowall. Lintels may incur additional costs



STONEHENGE PROWALL

The FP McCann Ltd Stonehenge Prowall walling system is designed in insulated reinforced precast concrete. The integral insulation will provide an elemental U-value of 0.27W/m²K. Better U-Values can be achieved by an increased insulation size but this will incur additional costs.

The system consists of Single Vertical legs and spanning Lintels. The Lintels span between Main stanchions and Intermediate stanchions over a single dock pit. The legs and lintels require to be clipped to the outside of the steel columns using galvanised fixing plates.

The Legs sits on top of the biscuit slabs or thickened front walls of the dock pit system, therefore the steel columns cannot be any further back or forward than the thickness of our Prowall. Using the Stonehenge system eliminates the requirement for the more traditional areas of cladding and steel doorposts / rails.

Where Intermediate stanchions are not available, temporary propping off the biscuit slab to the leg will be required at additional costs. Doors will only require support from steelwork above panels as tracks can be connected directly to internal face of Prowall and dock shelters externally if required. Door openings will be incorporated, to suit dock door openings which are above 3000mm high

For Stonehenge Prowall the head height clearance for installation is 6000mm above top of precast. To enable installation if the first sheeting rail cleat is less than 200mm above the top of the Prowall the cleat will be required to be bolted on by others after the Prowall installation. To complement the system above dock levellers, Prowall panels can be utilized above perimeter retaining walls as cladding panels.

Stone Henge Panels will have a standard steel mould finish based on a BS8110 type B Finish to the external face. The internal face will have a float finish based on BS8110 type A finish. In order to achieve a relatively consistent colour on the floated face, the units will be machine pan floated to bring the fine aggregate and cement paste to the surface, which is then finished off by a hand steel trowel to create a smooth even finish.

This process will be consistent across all FP McCann manufacturing depots. Note that due to the manufacturing processes and conditions, both mould and float finish can have an initial colour differential in the appearance, however in time, once the panels have weathered they will have a more consistent colour match.



SERVICE YARD RETAINING WALLS

The external service yard walls will sit on a concrete reinforced strip footing/base designed and installed by others. We have included for installation of the Excalibur fixings and grouting, however accurate casting of the supporting strip footing/base by main contractor is required as to ensure correct levels are achieved.

Any retaining walls over 1800mm high may require propping. Props provided by FP McCann Ltd. propping bases provided by others at no additional cost to FP McCann Ltd.

It is assumed that the above retained area to the rear of the retaining wall will be free draining and suitable land drain provided to avoid the possibility of build up of hydrostatic pressure. We have not included for weep holes. A Minimum of 1m clear working space behind the wall is required to install the connection dowels, grout and to dry pack beneath the walls to a maximum height of 40mm and a minimum of 10mm.

The slope to the top of the wall will be to our own design, along with maximization of panel lengths best suited to achieve the overall length of the wall. The total maximum height of the wall is to be 2000mm. Larger walls can be catered for with increased panel thickness and boot sizes at an additional cost. Panels will have a standard steel mould finish based on a BS8110 type B Finish to the flat face. The boot face will have a float finish based on BS8110 type A finish due to mould configurations.

The wall is to be protected from vehicular impact damage by use of Armco barrier or similar, by others.



DESIGN

The retaining wall has been based upon a nominal surcharge of 20kN/m²

All designs are carried out in accordance with Eurocode standards and relevant national annexes.



GROUND BEAMS

Precast concrete ground beams will be supplied and delivered / supplied, delivered and installed in lengths to span between stanchion bases. Ground beams will be fixed in position via an Excalibur bolt and fixing plate to the foundation pad.

The maximum length of span between stanchions is to be 7400mm. Ground beams will require a minimum of 300mm full bearing at each foundation base. Greater spans can be achieved by the introduction of a small intermediate concrete base by others at mid span for beams to bear upon. Ground beams of standard size will be cast in steel moulds, where non-standard beams are required; moulds may require formation partially in timber. The Ground beams are designed to support their self-weight only as standard, to form a permanent shutter to the edge of an in-situ concrete floor slab, but can be designed to accommodate specific loads subject to design at. Increased spans and loadings may incur an additional cost. The maximum length of ground beams is 10000mm.

All designs are carried out in accordance with Eurocode standards and relevant national annexes. Panels will have a standard steel mould finish based on a BS8110 type B Finish to the flat face. The boot face will have a float finish based on BS8110 type A finish due to mould configurations.

The FP McCann Ground beam system requires a head height clearance for installation of 8000mm above Finished Floor Level and a minimum of 1m clear working space behind the beams is required to install the Excalibur bolts, fixing plates, grout and to dry pack beneath the walls to a maximum height of 40mm and a minimum height of 10mm. Head height requirements can be reduced down to a minimum of 5000mm by Telehandler installation at an additional cost.

In-situ works to column areas and Mastic Joints to be by others.







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8 GOOD REASONS WHY YOU SHOULD USE CONCRETE DRAINAGE

1 SUSTAINABILITY

Concrete pipes outperform other types of pipeline solutions in a number of the environmental impact categories, such as human toxicity levels and chemical/hazardous waste generated. The CO2 emissions from concrete and cement production are relatively small compared to other building materials. Some 95 to 99% of ingredients used in the production of concrete pipes are sourced locally, so a considerable positive impact on the carbon footprint and fuel consumption associated with transporting these materials can be achieved.

2 STRENGTH

Concrete is much more durable than any other kind of pipe. Hence, it can carry more load at any given time and gains strength over time. It cannot be weakened by heat, moisture, mould or pests, nor will it rust. Underground concrete pipes have the ability to resist chemical attacks and massive impacts such as jetting, so blockages can be cleared easily.

3 QUALITY

Since precast concrete pipes are produced in highly controlled plant environments under rigid production standards and testing specifications, they achieve consistent high quality levels of performance.

The pipe production process will normally include computer-controlled mixing systems, computer-controlled weighing and proportioning systems, absorption testing and automated recording systems.

FP McCann's concrete pipes are manufactured in accordance with BS EN 1916 and BS 5911 and certified by Quality Assessment under the Kitemark Scheme and ISO 9001.

4 WHOLE LIFE VALUE

Due to its amazing structural properties and functional benefits, precast concrete pipes tend to attract lower insurance premiums than those built from other construction materials. The natural strength of precast concrete pipes enables recycled aggregate to be used as a bedding material, significantly reducing installation costs and the elimination of waste disposal costs.



5 FIRE-RESISTANCE

Being naturally fire-resistant, concrete forms a highly effective barrier to fire spread and it does not emit any toxic fumes when affected by fire. It will not produce smoke or drip molten particles. Therefore, in the majority of applications, concrete can be described as virtually 'fireproof'. Due to its inbuilt fire resistant properties, concrete not only maintains an airtight construction that stops smoke spreading, but also has the ability to keep its strength during a fire.

6 BEDDING PERFORMANCE

The superior strength of concrete pipes enables recycled aggregate to be used as a bedding material, thus reducing costs and environmental impact during installation. Since a full trench depth of granular material can actually be more expensive than the pipe, significant pipe bedding savings can be achieved when using a concrete pipe instead. FP McCann can advise on the optimum soil and ground conditions from geotechnical reports, to establish when this sustainable and cost-efficient solution can be deployed.

7 CHEMICAL RESISTANCE

Concrete pipes and manholes are resistant to sulphate and chemical attack. Concrete pipeline products with higher design chemical classes of DC3 and DC4 are capable of withstanding attack from the vast majority of aggressive ground environments in the UK.

8 HYDRAULIC EFFICIENCY

The rigidity and mass of concrete pipes (both within the pipe and pipe joints) allows it to retain its shape over its long service life, preserving structural integrity and hydraulic efficiency, by minimising the resistance to water flow that often occurs when the shape or integrity of a flexible pipe is compromised through deformation.

SPIGOT AND SOCKET PIPES

All of our spigot and socket pipes are manufactured and CE marked in accordance with European Standard BS EN 1916, the specification for unreinforced and reinforced concrete pipes (including jacking pipes) and fittings with flexible joints.



STANDARD PIPES

Nominal Size	DN	300	375	450	525	600	675	750	825	900	1050	1200	*1350	*1500	*1800	*2100	*2400
Internal Diameter	A	300	375	450	525	600	675	750	△805	900	1050	1200	1350	1500	1800	2100	△2380
Barrel Diameter	B	416	505	590	685	790	901	996	975	1080	1266	1460	1620	1800	2130	2460	2750
Socket Diameter	C	497	575	665	760	852	960	1060	1130	1235	1420	1590	1800	2010	2380	2650	2750
Effective Length	MM	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Actual Weight	KG	454	616	812	996	1420	1856	2194	1690	2060	2760	3630	4290	5330	7300	9160	10070
Reinforced		N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Approx. Pipes per load		61	45	34	28	22	15	12	17	13	10	8	6	5	4	3	2
Chamber Ring to suit †		1200	1350	1350	1500	1500	1500	1800	1800	1800	2100	2100	2400	2400	2700	3000	3600
MOL Availability		Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
Crushing Strengths	Kn/M	36	45	54	63	72	81	90	99	108	126	144	162	180	216	252	288
Nominal Joint Gap	MM	4	4	4	4	4	4	4	4	4	5	5	5	7	7	7	-
Maximum Joint Gap	MM	34	34	34	34	34	34	34	34	34	34	36	36	36	41	41	-
Maximum Deflection	° Degrees	2	2	2	2	2	2	1	1	1	1	1	0.5	0.5	0.5	0.5	-

† Minimum chamber ring size to suit pipe = DN size of pipe + 900

PIPE LUBRICANT

Pipes should only be joined using an FP McCann lubricant

Nominal size	DN	300	375	450	525	600	675	750	825	900	1050	1200	1350	1500	1800	2100
No. of joints per	KG	27	22	18	15	13	12	10	9	9	8	7	6	5	4	4

Sold in 2.5kg Tubs

ROCKER PIPES



Nominal Size	DN	300	375	450	525	600	675	750	825	900	1050	1200	*1350	*1500	*1800	*2100
Effective Length	MM	600	600	600	600	600	1000	1000	1250	1250	1250	1250	1250	1250	1250	1250
Approx. Weight	KG	145	180	220	300	365	800	950	1020	1020	1200	1605	2020	2755	4440	4620

* Lifting anchors available

SOCKET BUTT PIPES



Nominal Size	DN	300	375	450	525	600	675	750	825	900	1050	1200	*1350	*1500	*1800	*2100
Effective Length	MM	600	600	600	600	600	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Approx. Weight	KG	145	174	230	270	370	960	1175	945	1105	1500	1930	2435	3100	4300	5400

* Lifting anchors available

SPIGOT AND SOCKET PIPES



SPIGOT BUTT PIPES

Nominal Size	DN	300	375	450	525	600	675	750	825	900	1050	1200	*1350	*1500	*1800	*2100
Effective Length	MM	600	600	600	600	600	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Approx. Weight	KG	100	135	155	205	270	870	980	750	910	1170	1585	1850	2230	3005	3800

* Lifting anchors available



ONE PIECE BEND

Degree	11.25°			22.5°			45°			90°		
	Length (mm)		Weight (kg)	Length (mm)		Weight (kg)	Length (mm)		Weight (kg)	Length (mm)		Weight (kg)
	a	b		a	b		a	b		a	b	
300	115	103	66	160	148	79	257	245	112	618	509	167
375	239	140	117	294	195	142	413	314	199	735	636	270
450	127	79	109	196	148	139	344	296	232	745	698	352
525	97	194	140	179	276	200	335	436	400	828	965	750
600	149	137	188	240	228	289	437	425	513	973	961	898
750	384	115	502	499	230	661	744	475	1087	1412	1143	1810



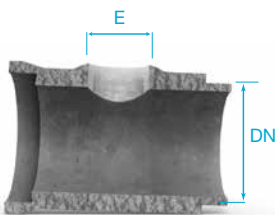
TWO PIECE BENDS - 11.25°, 22.5° & 45°

Nominal Size	DN	675	750	900	1050	1200	1350	1500	1800
Effective Length	MM	1000	1000	1250	1250	1250	1250	1250	1250
Approx. Weight	KG	775	925	1140	1515	1955	2425	2965	4105



THREE PIECE BENDS - 90°

Nominal Size	DN	675	750	825	900	1050	1200	1350	1500	1800	2100
Effective Length	MM	1750	1750	2500	1750	2500	2500	2500	2500	2500	3000
Approx. Weight	KG	850	1200	1900	2000	2600	3500	4200	5100	6800	7100

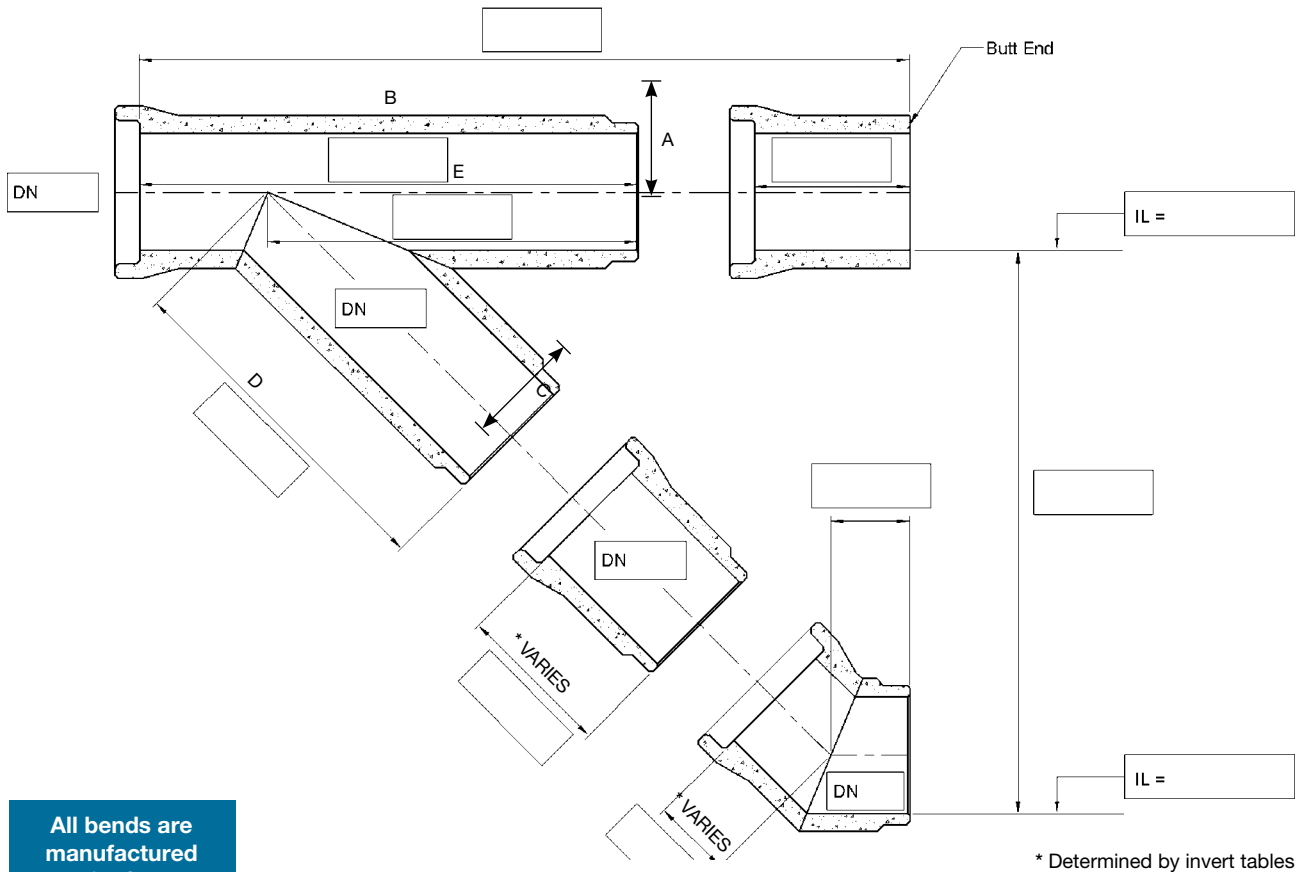


FASTFIT JUNCTIONS

Nominal Size	DN	300	375	450	525	600	675	750	825	900	1050	1200	1350	1500	1800
Branch Size	E	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Effective Length	MM	600	600	600	600	600	1000	1000	1250	1250	1250	1250	2500	2500	2500
Approx. Weight	KG	132	169	211	277	350	750	905	800	1140	1513	2427	4416	5120	7360

All junctions are to be fitted on their side. Junctions are not designed for vertical surface compaction and need to be surrounded in concrete.

OBLIQUE (45°) TUMBLING JUNCTION



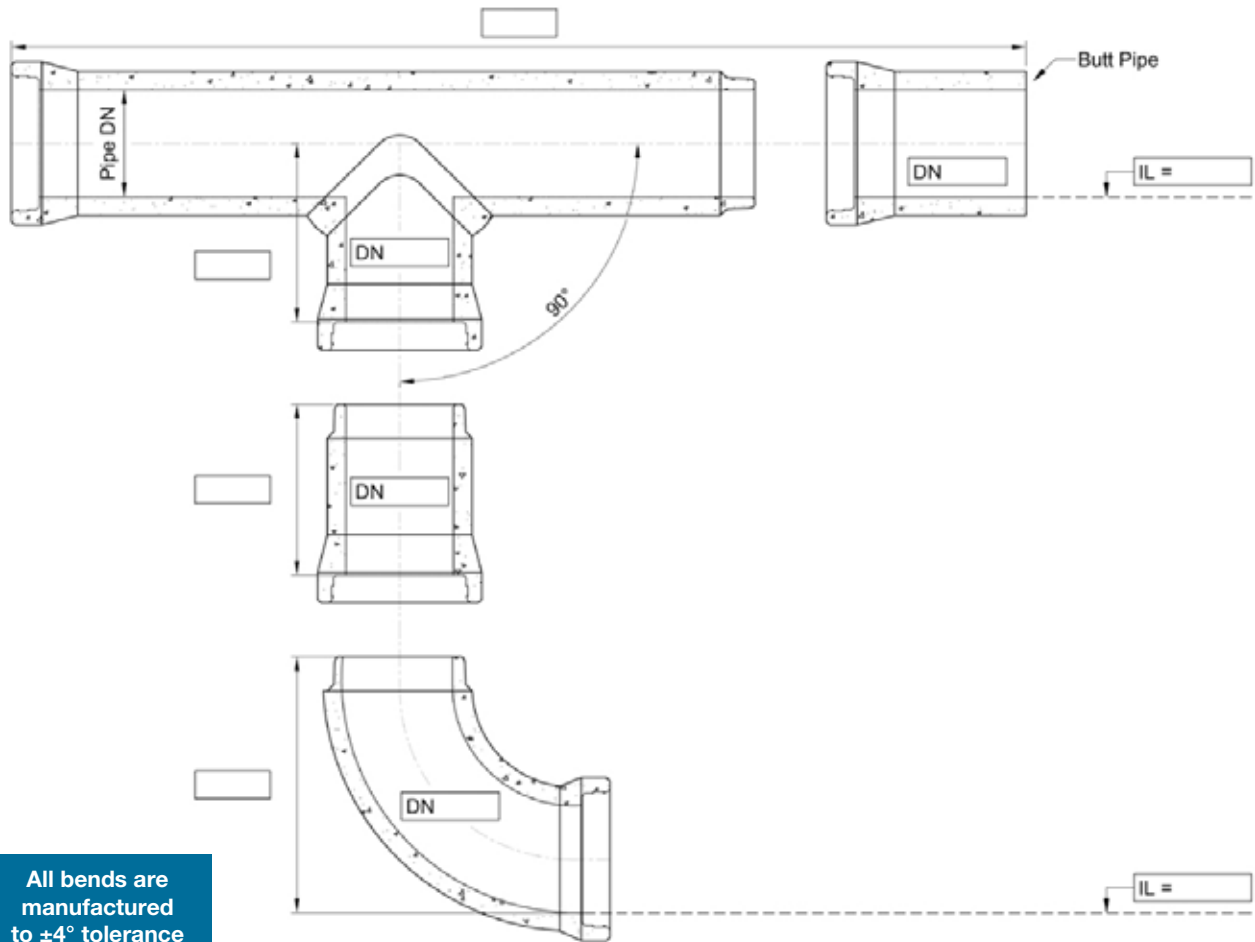
INSTRUCTIONS FOR USE

Please supply pipe diameter and invert levels only. FP McCann will complete the remaining details and return by email for customer approval.

Oblique (45°) Spigot Tumbling Bay Junction											
Main Pipe	Nominal Size	A	300	375	450	525	600	675	750	900	1050
	Effective Length	B	2500	2500	2500	2500	2500	2500	2500	2500	2500
Branch Pipe	Nominal Size	C	300	375	450	525	600	675	750	900	1050
	Effective Length	D	870	985	1087	1177	1329	1433	1558	1679	1896
	Effective Length	E	1424	1495	1533	1533	1652	1790	1739	1703	1795
	Approx Weight	Kg	520	696	873	1350	1458	2311	2828	3654	3875

Oblique (45°) Socket Tumbling Bay Junction											
Main Pipe	Nominal Size	A	300	375	450	525	600	675	750	900	1050
	Effective Length	B	2500	2500	2500	2500	2500	2500	2500	2500	2500
Branch Pipe	Nominal Size	C	300	375	450	525	600	675	750	900	1050
	Effective Length	D	870	985	1087	1329	1329	1433	1558	1679	1896
	Effective Length	E	1014	989	943	864	862	819	759	623	535
	Approx Weight	Kg	572	748	940	1450	1550	2400	3090	3885	4199

SQUARE (90°) TUMBLING JUNCTION



All bends are manufactured to $\pm 4^\circ$ tolerance

INSTRUCTIONS FOR USE

Please supply pipe diameter and invert levels only. FP McCann will complete the remaining details and return by email for customer approval.

Square (90°) Spigot Tumbling Bay Junction												
Main Pipe	Nominal Size	A	300	375	450	525	600	675	750	900	1050	1200
	Effective Length	B	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Branch Pipe	Nominal Size	C	300	375	450	525	600	675	750	900	1050	1200
	Effective Length	D	580	628	670	708	770	818	865	1163	1005	1100
	Effective Length	E	1219	1242	1238	1229	1257	1250	1250	915	1165	1165
	Approx Weight	Kg	484	640	827	1098	1396	1453	2457	2964	3370	4374

Square (90°) Socket Tumbling Bay Junction												
Main Pipe	Nominal Size	A	300	375	450	525	600	675	750	900	1050	1200
	Effective Length	B	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Branch Pipe	Nominal Size	C	300	375	450	525	600	675	750	900	1050	1200
	Effective Length	D	580	628	670	708	770	710	865	915	1005	1100
	Effective Length	E	1219	1242	1238	1229	1257	1250	1249	1163	1165	1165
	Approx Weight	Kg	540	685	854	1098	1453	1550	2542	3144	3398	4582

PIPE HANDLING/ LAYING INSTRUCTIONS

Recommended site work practice - open cut flexible jointed pipes

HANDLING & STORING PIPES

1. Time and place of off-loading should be agreed before the units arrive at the site. The contractor should provide suitable equipment for off-loading, stacking and stringing out of pipes on-site.
2. Off-loading should take place at the nearest hard road to the point of installation. To ensure the safety of all personnel, units must be left in a stable position, well clear of the edge of the trench.
3. Pipes should be inspected before off-loading to ensure that materials delivered correspond with the order placed.
4. Pipes should be carefully checked during off-loading to ensure no units are damaged. Any discrepancies should be recorded on the delivery docket.
5. Where stacking is necessary, this should be done on level ground and the bottom layer of pipes securely chocked to prevent the stack from collapsing. Pipes should be supported under the barrel so that the socket is free of load and to prevent the jointing faces from getting damaged. Preferably, they should be stacked barrel to barrel with sockets hanging over alternative sides.
6. For safety reasons and to prevent damage to the lower layers of pipe in the stack, pipes should not be loaded or stacked in a greater number of layers than is shown in the table below.
7. Avoid damage when handling, especially to ends of concrete pipes. Never drag or roll pipes over the ground.

Note: FP McCann's spigot and socket pipes from DN1350 can be handled using our purpose-built Anchor System. Special lifting anchors can be cast into pipes at manufacture. A Universal Head Link (available from FP McCann) can then be hooked onto the exposed anchor heads to lift the pipe. Lifting anchors are fitted to order.

LAYING PIPES

1. **Trench Excavation** The trench should be excavated to the line, gradient and width, as indicated in the contract documents or as agreed with the engineer. The safety of the public and site personnel is of paramount importance. Care should be taken to ensure personal safety at all times.
2. **Trench Width** Any increase in trench width above that specified could increase the load on the pipe, increasing the quantity of excavation and the bedding material required. A trench narrower than the specified width may impede the proper placing of bedding or backfill material or the correct jointing of pipes.
3. **Formation** Uniform support along the pipeline is essential. Rock outcrops and soft zones, which can cause differential settlement, should be dug out and replaced with compacted specified backfill material. De-watering may be necessary during pipe laying and subsequent backfilling

operations. The specified bedding material should be placed as detailed in the contract specification and trimmed to ensure uniform support of the pipe throughout the length of its barrel. Recesses should be prepared for the pipe sockets.

4. **Pipe Laying** Before being lowered into the trench, pipes and fittings should be inspected to ensure that they have not been damaged during handling and storage on-site. Units should be lowered carefully into the trench using a recognised lifting tackle, such as a concrete mechanical pipe lifter.
5. **Jointing** Using our pipe jointing instruction guide, all pipe spigots must be fully lubricated with the pipe lube supplied, just prior to being lowered into the trench. Please note: pipes should only be jointed using a FP McCann lubricant. The socket of the laid pipe should, at this stage, be prepared by removing the polystyrene forming ring to leave a clean seal, free from debris. The adjoining pipe should be lowered into position, as level as possible, centring the pipe spigot with the seal of the laid pipe so that the pipes are in line. On achieving this, apply pressure to the socket end of the adjoining pipe using a substantial piece of timber to protect the pipe from damage when pushing the pipe home. (see page 47 for details)
6. **Testing** Acceptance tests on the completed pipeline give an indication of the level of control of workmanship and materials during construction.
7. **Visual Testing** Check for obstructions and debris within the pipe, the structural soundness of pipes, that joints are properly sealed and that the pipe invert is even. Note: pipes smaller than DN750 may be inspected from manholes or by means of TV cameras.
8. **Watertightness** The watertightness of a pipeline may be checked using a water or air test. Such tests will reveal the existence of cracked or porous pipes or faulty joints. These tests should be made during and after laying and before backfilling. The test method will be detailed in the contract specification or referenced to an appropriate code of practice. In certain circumstances (e.g. where the distance between manholes is great, or when site conditions are such that backfilling must take place immediately or when laying small diameter pipelines), it is recommended that the pipeline is tested at regular intervals (say every 2/3 pipes) during construction (see page 47).
9. **Backfilling** This should take place after inspection and testing. The attention given to the backfill selection is of great importance. The placing and compaction of inappropriate backfill may cause damage to a new pipeline. The structural strength of the completed pipeline depends as much on good site workmanship as on the strength of individual pipes. Consequently, all backfill material must be selected and placed as detailed in the contract specification or recognised code of practice.

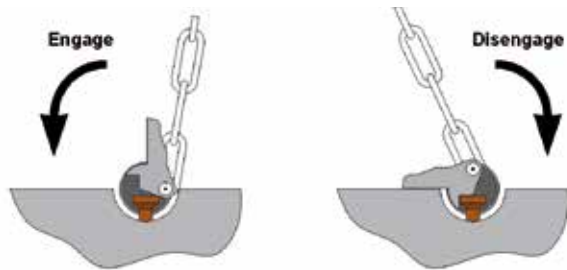
Note: For additional information on laying and testing pipes, please refer to the BPDA website: precastdrainage.co.uk

ANCHOR SYSTEM

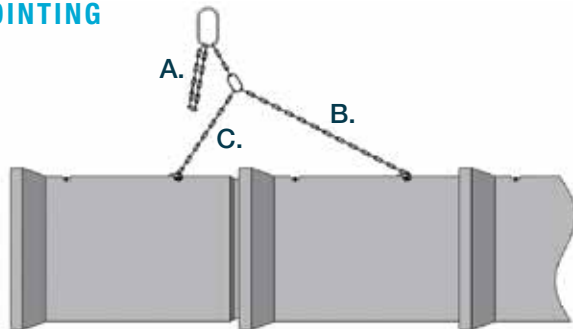
FP McCann's pipes from DN1350 should be handled using our purpose-built anchor system. Special lifting anchors are cast into pipes at manufacture. A universal head link (available from FP McCann online) can then be hooked onto the exposed anchor heads to lift the pipe.

Use the equal lengths (A & B) for lifting the pipe. Join the longer chain (C) onto the pipe already laid and place the shorter length (B) onto the hook. The pipe can then be jointed without moving the jib of the crane. www.fpmccann.co.uk/anchor-system

ENGAGING AND DISENGAGING THE EYE

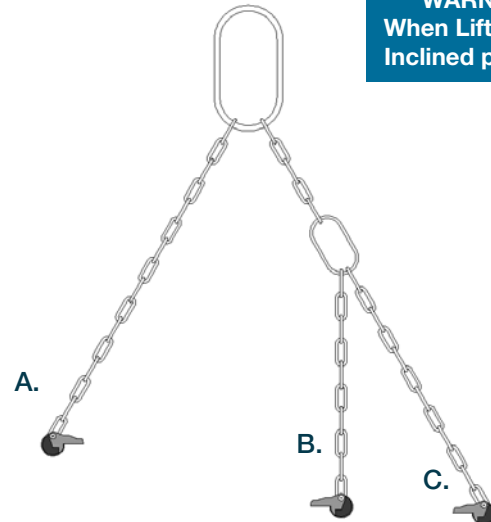


JOINTING

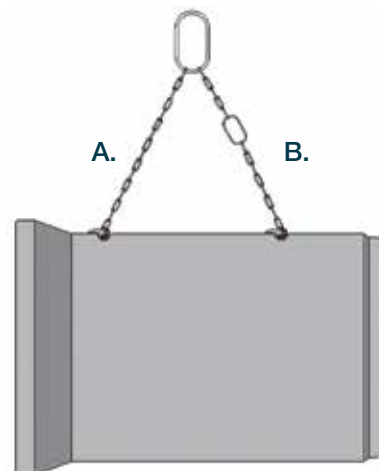


THE CHAIN SET

WARNING
When Lifting $\geq 45^\circ$
Inclined pull only



LIFTING AND HANDLING



Nominal Size	DN	300	375	450	525	600	675	750	825	900	1050	1200	1350	1500	1800	2100	2400
Anchor Availability		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	✓	✓	✓

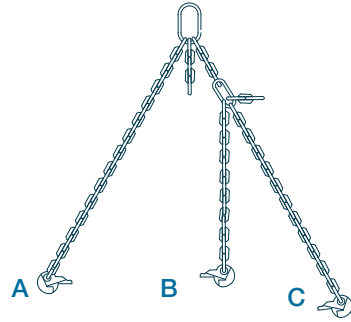
Anchor system available from 1350mm diameter upwards (Available in DN1200 in NI only) / * Lift only not jointing

NOTES:

- All dimensions are in mm.
- Weights in kg are based on a concrete density of 2500kg/m³.
- Where relevant, pipes are manufactured in accordance with BS EN1916.
- Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.
- Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.
- Lifting chains are not suitable for joining purposes in pipes of diameter DN2400. Joint in the traditional method.
- Do not install vertical junctions.

PIPE LIFTING INSTRUCTIONS

LIFTING CHAINS



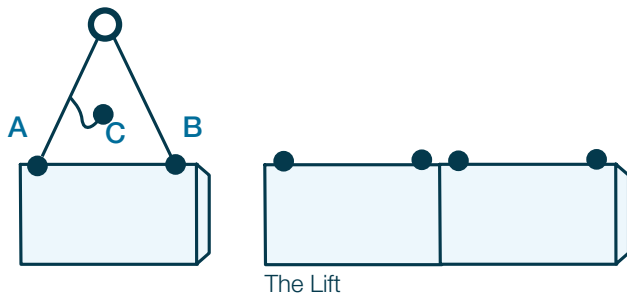
Nominal Size (mm)	1800	2100	2400
Medium Duty Chain Set	3	3	X
Heavy Duty Chain Set	X	X	*3

*Only suitable for Lifting not Joining

HANDLING/LIFTING INSTRUCTIONS

DN1800 to DN2400 pipes are designed and manufactured to incorporate FP McCann's jointing and lifting systems.

LIFT SYSTEM

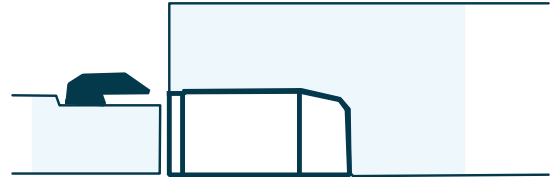


To lift the pipes, select the two short legs A and B on the chain set. Place the spherical coupling over the cast-in anchor and engage by turning the tail of the head link down to the concrete. The pipe can then be lifted as normal.

Never pass slings or other lifting appliances through the barrel and never lift more than one pipe at a time.

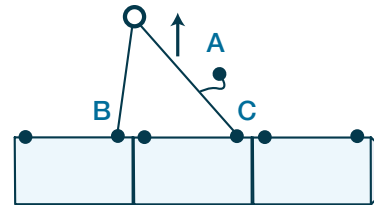
JOINTING

Ensure pipe sockets and spigots are not damaged. Ensure that integral seals are not damaged and apply the approved lubricant. For pipes without an integral seal, ensure the seal is of the correct size and is not damaged. Position the rubber ring on the end of the spigot. Under no circumstances use lubricants when using seals of this type, as they are pre-lubricated internally.



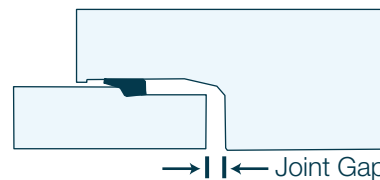
Ensure the tension is even.

Ensure each pipe to be laid is aligned with the laid pipeline and is fully supported along its length. Recommended method of joining pipes is shown below.



Lift joint

To joint the pipe using the chain system, attach the long leg A and the short leg B to the already laid pipe C. Take up the slack in the chains with the lifting pulley over the anchor of the laid pipe, and increase the upward force to joint the pipes. When jointed, ensure that there is no excessive slew or misalignment, this can easily be checked by reference to the joint gap.



WARNING
When Lifting $\geq 45^\circ$
Inclined pull only

NOTES:

- All dimensions are in mm.
- Weights in kg are based on a concrete density of 2500kg/m³
- Where relevant, pipes are manufactured in accordance with BS EN 1916.
- Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.
- Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.
- Lifting chains are not suitable for joining purposes in pipes of diameter DN2400. Joint in the traditional method.
- Do not install vertical junctions.
- In-wall pipes do not require lubrication.

ONE PIECE INTEGRAL RUBBER SEAL

FP McCann now provide a new type of integral seal for their precast concrete pipes. This new integrated seal is a simple, one-piece rubber compression connector which is embedded in the concrete when the pipe is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

FEATURES

- The seal complies with all relevant European standards, including EN 681-1, ISO 90001 and QR 4060
- Durable synthetic EPDM rubber seal with over 100 years shelf life
- Seal is cast accurately and stable at the precast factory
- Pipe is cast with numerous holding parts to keep the seal in place
- Clean, high quality sockets
- Ideal for use with mechanical laying techniques such as pipelifter
- Pipes arrive at site ready to be connected

Please note: During the changeover phase, our new integral seal is fully compatible with our current seal

BENEFITS

- Integrally cast into the structure of the pipe
- Environmentally friendly as it eliminates the need for the polystyrene strip
- Reduction in waste on site
- No cavities or steps in joints
- Almost zero push back
- Requires low insertion force
- Seal not sensitive to weather
- No clamps required to tighten or forget
- Fast and easy installation
- Pipes may be backfilled immediately
- Less time in excavation
- Durable, reusable casting forms

Important Jointing Information

The integral pipe-seal jointing system used in FP McCann's drainage products requires the use of a FP McCann proprietary lubricant, which can be supplied with all pipeline orders from us. Failure to use the proprietary lubricant in accordance with the instructions provided by the pipe-seal manufacturer / FP McCann, may give rise to problems with pipe jointing and seal performance and invalidate any warranty, implied or otherwise. FP McCann accepts no responsibility whatsoever for problems or loss of performance arising from any such failure.

AIR TEST ONLY

Air testing is a quick and easy way of checking a pipeline following installation. Correct assembly of joints, workmanship and the prevention of site handling damage can be identified by this test. FP McCann recommends the use of inflatable stoppers when air testing concrete pipes. Associated test equipment should be in good condition and in full working order. FP McCann recommends that this test is done every 2-3 pipes before backfilling, regularly following backfill during the installation and then at the finish; preferably before both manholes have been constructed.

The pipeline should be pressurised with air until the 'U' gauge (manometer) indicates 100mm. Allow a minimum of 5 minutes for stabilisation of the air pressure, longer may be needed in cold or very hot weather. Observe the fall in indicated pressure over a 5 minute test period. The test is successful if the residual pressure does not fall below 75mm within the 5 minute test period.

If the pressure falls sharply and the pipeline appears to have failed, the following checks should be carried out:

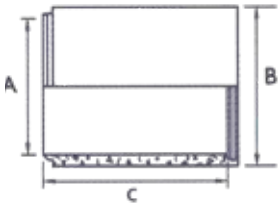
- Inspect the seal of the inflatable stopper against the inside of the pipe using soapy water. Use pipe lubricant or industrial soap to assist in providing a seal where necessary
- Check the connections, rubber tube and stoppers for leaks
- Temperature and humidity changes can significantly affect the test. It may be necessary to allow more time for stabilisation or repeat the test in extreme weather conditions

If difficulties are still being experienced following these checks, please contact FP McCann for further assistance.

Please note that failure to adhere to the advice given above and on the FP McCann website may result in any subsequent claims being invalid. Call-out charges may also apply if FP McCann's technical personnel have to attend on site.

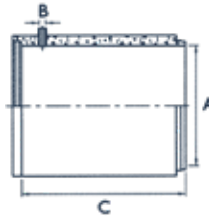
Failure to successfully pass an air test does not prohibit the acceptance of pipeline if a successful water test can be obtained in accordance with BS EN 1610.

PRE-LUBRICATED PIPES



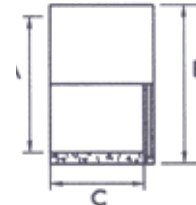
STANDARD PIPES

Nominal Size	DN	1800	2100	2400
Internal Diameter	A	1830	2076	2380
Barrel Diameter	B	2140	2410	2750
Effective Length	C	2500	2500	2500
Approx. Weight	KG	6525	7960	10070
Pipes per Load	Qty	4	3	2



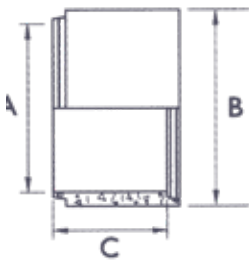
RIGHT ANGLE (90°) REDUCED JUNCTION

Nominal Size	DN	1800	2100	2400
Branch Supersleeve	A	100	100	100
Branch Supersleeve	B	150	150	150
Effective Length	C	2500	2500	2500
Approx. Weight	KG	6525	7960	10070



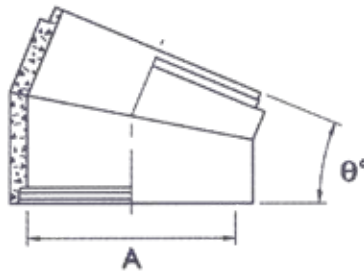
SPIGOTT/SOCKET BUTT PIPES

Nominal Size	DN	1800	2100	2400
Internal Diameter	A	1830	2076	2380
Barrel Diameter	B	2140	2410	2750
Effective Length	C	1250	1250	1250
Approx. Weight	KG	3370	4095	5195



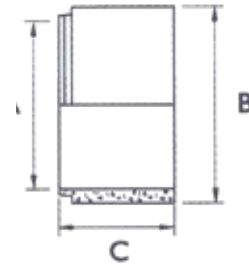
ROCKER PIPES

Nominal Size	DN	1800	2100	2400
Internal Diameter	A	1830	2076	2380
Barrel Diameter	B	2140	2410	2750
Effective Length	C	1250	1250	1250
Approx. Weight	KG	3310	4010	5040



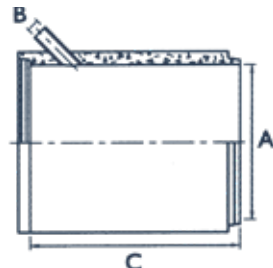
TWO PIECE BENDS

Nominal Size	DN	1800	2100	2400
Internal Diameter	A	1830	2076	2380
Angle θ°	11.25	3	3	3
Angle θ°	22.5	3	3	3
Angle θ°	45	3	3	3



SPIGOT BUTT PIPES

Nominal Size	DN	1800	2100	2400
Internal Diameter	A	1830	2076	2380
Barrel Diameter	B	2140	2410	2750
Effective Length	C	1250	1250	1250
Approx. Weight	KG	3020	3610	4670



45° REDUCED JUNCTION

Nominal Size	A	1800	2100	2400
Branch Supersleeve	B	100	100	100
Effective Length	C	2500	2500	2500
Approx. Weight	KG	6525	7960	10070

NB: Dimensions above are in mm.

Fastfits available 150mm Super sleeve made to order. Can connect to other pipes via additional adaptors not supplied

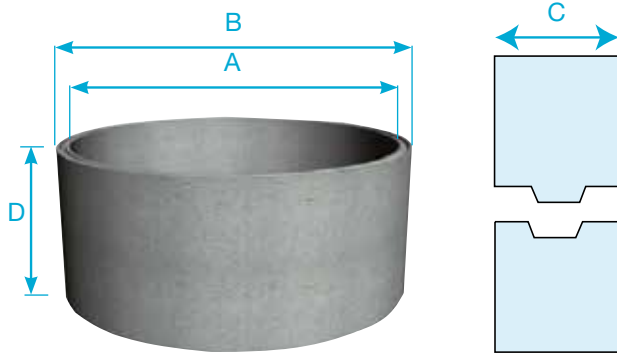
Note:

All junctions are to be fitted on their side. Junctions are not designed for vertical surface compaction.

Under no circumstances should lubricants be used when assembling pre-lubricated pipes; the seal is lubricated internally.

MANHOLE CHAMBERS

MANHOLE CHAMBERS (TONGUE & GROOVE JOINT)



Tongue and Groove Joint Profile



Nominal Size (A) (DN) (mm)	Available Depth of Section (D)				Wall Thickness (C) mm	Litres per metre	Barrel Diameter (B) mm	Approx Weight Kg. (per metre)	Approx. Products per load Qty. (metre)	Lifting Hole Qty/Dia. (per /unit) (mm)
	250mm (±25mm)	500mm (±25mm)	750mm (±50mm)	1000mm (±50mm)						
900	✓	✓	✓	✓	70	656	1040	520	38	3 x 45
1050	✓	✓	✓	✓	80	894	1210	690	34	3 x 45
1200	✓	✓	✓	✓	90	1167	1380	880	26	3 x 45
1350		✓	✓	✓	95	1478	1540	1050	22	3 x 45
1500		✓	✓	✓	100	1824	1710	1300	16	3 x 45
1800		✓	✓	✓	115	2544	2030	1750	12	3 x 45
2100		✓	✓	✓	125	3464	2350	2040	10	4 x 50
2400		✓	✓	✓	140	4514	2680	2790	8	4 x 50
2700		✓	✓	✓	150	5725	3000	† 3400	8	4 x 50
3000		✓	✓	✓	190	7069	3380	† 4700	5	4 x 50
3600		✓	✓	✓	185	10179	3970	5400	5	△ 3 x RD30
4000			✓	✓	200	12566	4400	*7200	4	△ 4 x RD36
										Dia ± 5mm

MOL from 900-1500 / * 2 piece chamber ring - 3600kg per piece (4m diameter)

△ 570 long wavy tail anchors † 5% Safety Factor

PRODUCT INFORMATION

- FP McCann's manhole chamber rings are manufactured with tongue and groove joints and comply with BS EN 1917 / BS 5911-3
- Manhole chambers from DN900 - DN1800 have 3 lifting points.
- Manhole chambers from DN2100 - DN3000 have 4 lifting points.
- DN3600 and DN4000 are outside of the scope of the British Standard (Non-Kitemark), but comply with all relevant provisions of the European Standard. DN4000 is supplied in two halves

NB: NI have 3 lifting points

WARNING
When Lifting ≥45°
Inclined pull only

RECOMMENDED SITE WORK PRACTICE - MANHOLE CHAMBERS

RECOMMENDED LIFTING EQUIPMENT

Nominal Size DN (mm)	Lifting Hole Qty/dia (p/Unit)	36mm lifting pin 3.5 t SWL	42mm lifting pin 3.5 t SWL	3 leg lifting chain 3.1t	4 leg lifting chain SWL 6.7 t
900	3 x 45mm dia	✓		✓	
1050	3 x 45mm dia	✓		✓	
1200	3 x 45mm dia	✓		✓	
1350	3 x 45mm dia	✓		✓	
1500	3 x 45mm dia	✓		✓	
1800	3 x 45mm dia	✓		✓	
2100	4 x 50mm dia		✓		✓
2400	4 x 50mm dia		✓		✓
2700	4 x 50mm dia		✓		✓
3000	4 x 50mm dia		✓		✓
3600	3 x RD30 (Loops)			✓	
4000	4 x RD36 (Loops)				✓

HANDLING & INSTALLING MANHOLES

1. Time and place of off-loading should be agreed before the units arrive at site. The contractor should provide suitable equipment for off-loading. For safety reasons, all chamber sections are loaded and delivered chimney fashion.
2. Off-loading should take place at the nearest hard road to the point of installation. When off-loaded, units should never be stored on their side (on the roll) but always be laid in the 'as installed' upright position.
3. Carefully inspect units during off-loading to verify that products are undamaged and comply with order placed. Note any discrepancies on the delivery docket and advise accordingly.

CONSTRUCTION

To ensure that the manhole structure is vertical, accurate levelling of the formation or the in-situ concrete foundation is essential. Please note: the depths of each manhole can vary and are subject to tolerances; it is recommended that each unit installed has its depth measured prior to installation, to ascertain if the levelling requirements are satisfactorily met. Tongue and groove joints should be installed with the groove facing upward. Manhole sections fitted with double steps can be used at any depth. However, it is recommended that the deepest section of manhole units should be used whenever possible, in order to minimise the number of joints and costs. Precast cover slabs can be laid directly onto the shaft or chamber rings. To allow for any differential settlement between manhole and pipeline, a flexible joint incorporating short length rocker pipes should be constructed as close as possible to the outside of the manhole or the concrete surround, if used. Extra care must be taken to ensure that joints are properly made.

JOINTING

Precast manhole components are provided with joints formed within the wall section. These are sealed with cement and sand mortar, or with proprietary FP McCann mastic sealants. Precast concrete manhole units, well jointed, provide an adequate seal under normal conditions.

REINSTATEMENT

An in-situ concrete surround to precast concrete manholes is not necessary because a well-constructed precast manhole is a strong, durable structure with its own inherent strength and would only require a surround for exceptional structural reasons. However, under some specifications, a concrete surround is required where the depth from ground level to the base of the concrete chamber ring exceeds 4.5m. In this case, the surround should be of 150mm thickness. Backfilling should take place as each precast manhole section is placed. It must be brought up evenly and compacted around the manhole to prevent displacement.

TESTING

It is generally unnecessary to apply water tests to manholes. In normal working conditions, manholes are not normally full of water. Prevention of infiltration is of more relevance than exfiltration. If infiltration does occur, it can be seen and remedied by sealing using an appropriate method.

Note: When handling precast products on site, it is recommended that the contractor has the correct lifting equipment in place and adheres to the relevant lifting guidelines and standards.

Refer to the BPDA website for further information:

<https://www.precastdrainage.co.uk/page/pipe-laying-lifting>



MANHOLE SOAKAWAYS

MANHOLE SOAKAWAY CHAMBERS

Nominal Size DN (mm)	No. of 75mm holes per chamber			Wall Thickness mm	Litres per metre ring	Barrel Dia. mm	Approx Weight Kg. (p/metre)	Approx. Products per load Qty. (metre)
	500 mm	750 mm	1000 mm					
900	5	8	10	70	656	1040	520	46
1050	6	9	12	80	894	1210	690	34
1200	7	10	14	90	1167	1380	880	26
1350	8	11	15	95	1478	1540	1050	22
1500	8	13	17	100	1824	1710	1300	18
1800	10	15	20	115	2544	2030	1750	12
2100	12	18	24	125	3464	2350	2040	10
2400	14	20	27	140	4514	2680	2790	8
2700	15	23	31	150	5725	3000	† 3400	6
3000	17	25	34	190	7069	3380	† 4700	5
*3600	20	31	41	185	10179	3970	5400	5
*4000	23	34	45	200	12566	4400	6800	1.5

* DN3600/4000 see Manhole Chambers / DN3600/4000 Manhole Soakaways made to order † 5% Safety Factor

SEALING STRIP

Nominal Size DN (MM)	Sealant Size (metres)	No. of rolls p/joint (metres)	Rolls required Quantity
900	20 x 20 x 4	0.88	1
1050	20 x 20 x 4	1.00	1
1200	20 x 40 x 4	1.13	2
1350	20 x 40 x 4	1.25	2
1500	20 x 40 x 4	1.38	2
1800	20 x 40 x 4	1.63	2
2100	20 x 40 x 4	1.88	2
2400	20 x 40 x 4	2.13	3
2700	20 x 40 x 4	2.38	3
3000	12 x 120 x 6	1.75	2
3600	12 x 120 x 6	2.08	3
4000	12 x 120 x 6	2.33	3

Please note this is a guideline based on sealant supplied by FP McCann only.



DN4000 MANHOLE CHAMBER

DN4000 CHAMBER SECTION

Nominal Size (mm)	Section Depth (mm)	Wall Thickness (mm)	Approx. weight per section (kg)	Approx. weight per section when jointed (kg)
4000	1000	200	3400	6800
4000	750	200	2550	5100



DN4000 COVER SLAB – 2 PIECE UNIT (DETAIL FOR STANDARD 600 & 675 OPENINGS)

Nominal Size (mm)	Section Depth (mm)	Overall Thickness (mm)	Overall Diameter (mm)	Approx. weight of half section (mm)	Approx. weight of combined sections (kg)
4000	300	300	4500	6450	11,700

Cover slabs are manufactured in two sections, supplied with standard openings. Standard cover slabs are designed to withstand 30 units of Type HB loading, applied in accordance with BS 5911. If required, cover slabs can be designed to withstand 45 units of Type HB loading. For special opening cover slabs, an engineering drawing and steel specification may be required in order to achieve the desired loading requirement.

FP McCann will provide a technical installation sheet which must be adhered to when installing DN4000 manhole chambers. This is available online or from our sales team.

WIDE WALL MANHOLE CHAMBER

FP McCann's precast concrete wide wall manholes have been designed with a tongue and groove dimension to accommodate the use of bituminous sealant. FP McCann's approved sealant should be used at all times. The sealant requirement for wide wall manholes is 12mm x 120mm x 6m. When placing the sealing strip into position during installation, the ends of the strips must be overlapped by a minimum of 30mm and cut at an angle of 60 degree. The cut ends must then be pressed together. Full installation guidelines can be provided upon request or obtained from our website www.fpmccann.co.uk

DN1200, 1500 AND 1800MM WIDE WALL MANHOLE CHAMBERS

A 130mm thick wide wall chamber, in combination with the Easi-Base™ unit, provides a sealed watertight manhole system. This robust design means that the requirement for a concrete surround is eliminated.



WIDE WALL MANHOLE CHAMBERS DIMENSION

Nominal Size DN (mm)	Available Depth of Section				Wall Thickness (mm)	Barrel Diameter (mm)	Approx Weight Kg. (p/metre)	Approx. Products per load Qty. (metre)	36mm Lifting Pin 0.7t SWL	42mm Lifting Pin 3.5t SWL	3 leg lifting chain SWL 3.1t
	250mm (±25mm)	500mm (±25mm)	750mm (±50mm)	1000mm (±50mm)							
1200	✓	✓	✓	✓	130	1460	1520	16	Lifting clutches. FP McCann supplies recommended and approved lifting clutches.	✓	
1500	✓	✓	✓	✓	130	1760	1645	14		✓	
1800	✓	✓	✓	✓	130	2060	1970	12		✓	



PRODUCT BENEFITS

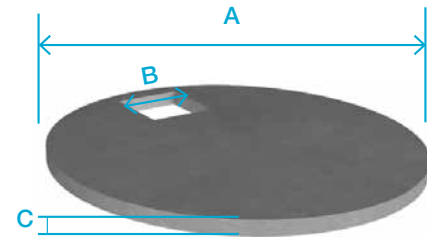
- Quick and easy installation
- Watertight structure
- Safe anchor lifting system (spherical head lifting system)
- Greater cost savings associated with using precast concrete over a traditional system
- No concrete back fill required, in accordance with 'Sewers for Adoption' 7th edition
- More environmentally friendly than a traditional system, almost 40% less carbon omitted during the concrete casting process
- Significant reduction in health and safety risks associated with using precast concrete

Please note: Wide Wall Manhole Chambers are manufactured with 3 x 45mm diameter lifting points to facilitate the safe anchor lifting system (spherical head lifting system).

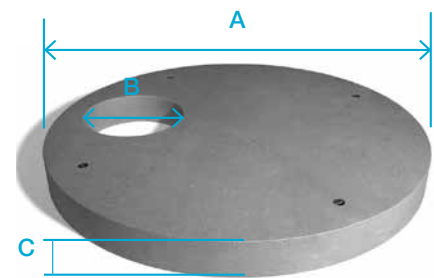
MANHOLE COVER SLABS & ACCESSORIES

Chamber DN (mm)	Outside Diameter (A) (mm)	Slab Thickness (C) (mm)	STANDARD COVER SLABS			STANDARD REDUCING SLABS		
			Opening Configuration B Size (mm)	Location	Approx. Weight (kg)	Opening Diameter B (mm)	Effective Depth (mm)	Approx. Weight (kg)
900	1080	150	600x600	CENTRAL	215			
			675x675					
1050	1240	150	600x600	ECCENTRIC	315			
			675x675	CENTRAL				
			750x750					
1200	1450	150	600x600	ECCENTRIC	455	900	200	385
			675x675					
			750x600					
1350	1580	170	600x600	ECCENTRIC	650	1050	200	695
			675x675					
			750x600					
			1200x675	CENTRAL		1200	200	550
1500	1740	175	600x600	ECCENTRIC	980	900	200	981
			675x675					
			750x600					
			1200x675	CENTRAL		1200	200	680
1800	2070	175	600x600	ECCENTRIC	1460	900	200	1495
			675x675			1050	200	1350
			750x600			1200	200	1220
			1200x675					
2100	2380	200	600x600	ECCENTRIC	2180	900	200	2130
			675x675			1050	200	2690
			750x600			1200	200	2540
			1200x675					
2400	2710	200	600x600	ECCENTRIC	2800	900	200	2815
			675x675			1050	200	2690
			750x600			1200	200	2540
			1200x675					
2700	3030	230	600x600	ECCENTRIC	3750	900	200	3695
			675x675			1050	200	3550
			750x600			1200	250	3410
			1200x675					
3000	3420	200	600x600	ECCENTRIC	4970	900	200	4970
			675x675			1050	200	4970
			750x600			1200	200	4970
			1200x675					
*3600 Two Piece	4000	300	600x600	ECCENTRIC	9250	Covers to suit Manholes greater than or equal to 1.5m deep cover level to pipe soffit.		
675x675								
750x600								
1200x675								
*4000 Two Piece	4500	300	600x600	ECCENTRIC	11700	*3600mm and 4000mm diameter cover slabs come in a 2 piece unit		
675x675								
750x600								
1200x675								

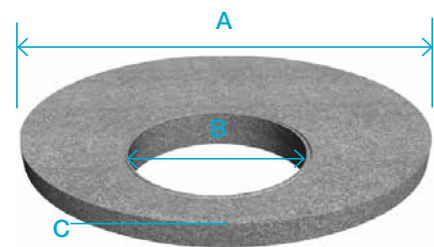
COVER SLABS



LANDING SLABS



REDUCING SLABS



Multiple access/other access sized cover slabs can be made to order

Note:

Cover Slab sizes 900-3000 are manufactured in accordance with BS 5911-3. DN3600 and 4000 cover slabs are generally designed in accordance with BS EN 1992-1-1, (for 30 units of Type HB loading, can also be designed to withstand 45 units of Type HB loading).

* Weights for DN3600 and DN4000 are estimated weights based on solid slabs.

STANDARD LANDING SLABS				
Chamber Section (DN)	Outside Diameter (A)	Opening Diameter (B)	Slab Thickness (C)	Approx. Weight (Kg)
1500	1730	900	200	826
1800	2050	900	200	1292
2100	2375	900	200	2030
2400	2705	900	200	2600
2700	3025	900	200	3880
3000	3330	900	200	4500

NB: All dimensions are in mm, unless stated otherwise

ADJUSTING UNITS & CORBEL SLABS

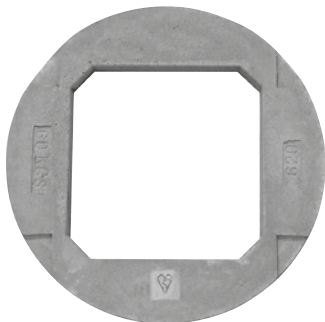
FP McCann manufactures a full range of adjusting units and corbel slabs that have the following advantages:

- Designed as seating for manhole cover
- Eliminates laying engineering bricks on-site
- Quicker to lay, ensuring reduced labour costs
- 65mm thick – similar to brickwork
- Sits on top of the manhole cover slab
- Eliminates brickwork vertical joint weakspots
- Quality product produced by vibration process
- Comprehensive strength, similar to Class B.Eng bricks

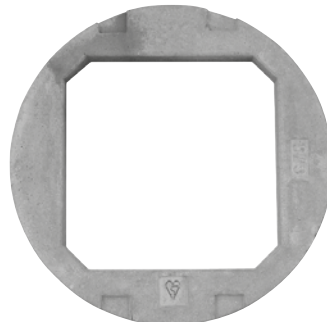
Manhole Type	Diameter (mm)	Opening Size (mm)	No. per Pack	Thickness (mm)	Weight (kg)
Type 2	1050	600 x 600	15	65	70
Type 2	1050	675 x 675	15	65	55
Type 2	1050	750 x 600	15	65	60
Type 2	1050	750 x 750	10	65	45
Type 2	1575 x 1050	1200 x 675	6	75	160
Type 1	1175 x 1025	600 x 600	10	65	125

Note: A 600 x 600 eccentric corbel slab is also available when using a ladder BS EN 1917 and BS 5911

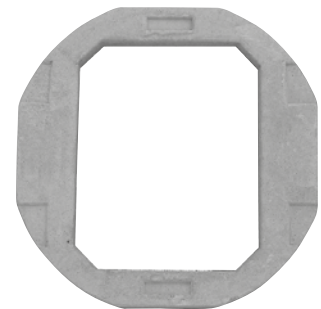
Type 2 - 600x600



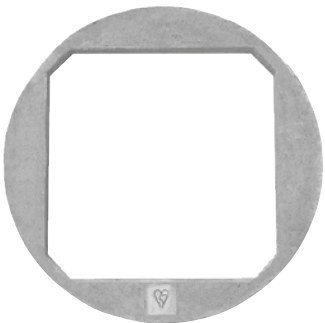
Type 2 - 675x675



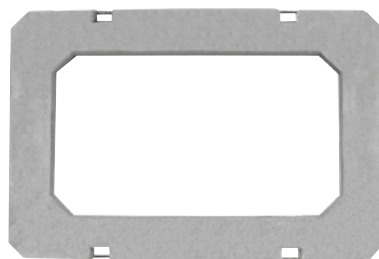
Type 2 - 750x600



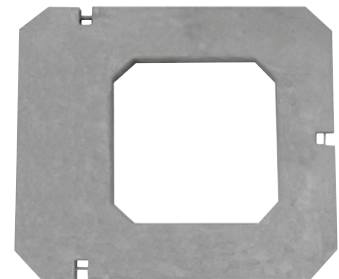
Type 2 - 750x750



Type 2 - 1200x675

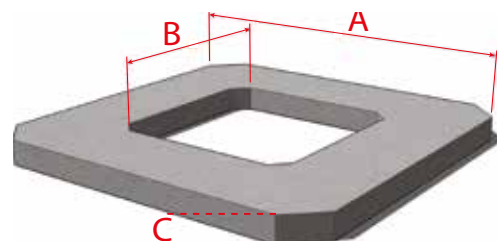


Type 1 - 600x600 Eccentric (Corbel)



LOTHIAN SLAB

Size (A) (mm)	Slab Thickness (C) (mm)	Openings (B) (mm)	Approx. Weight (kg)
1125x1125	75	600x600/675x675/750x600	140
1125x1125	150	600x600/675x675/750x600	290



DN1200 EASI-BASE™

FP McCann's DN1200 Easi-Base™ is a prefabricated manhole base unit with integral benching, channels and connectors, that provides an immediate and long-lasting watertight solution in the management of waste water.

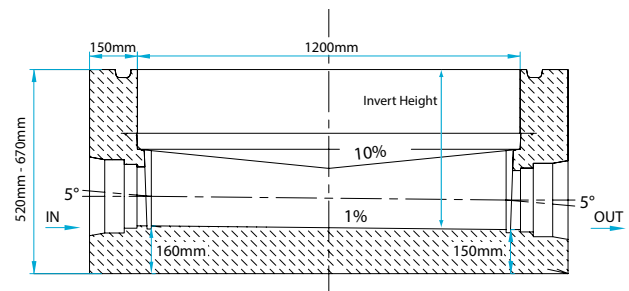
PRODUCT BENEFITS

- An extremely fast, efficient and economical method of constructing manhole bases on-site
- Accepted by all UK water companies
- Significant health and safety benefits
- An immediate watertight structure, allowing other trades to instantly follow on
- Factory prefabrication provides a quality finish to channelling and benching, and enables accurate combinations and variations for entry/exit pipes
- Connects with any type of pipe and is compatible with the DN1200 130mm thick wide wall chamber ring which eliminates the need for backfilling.
- Maintenance of channels and benches are aided by clean access for inspection
- Eliminates the risk of water pollution that is associated with traditional methods of manhole construction, such as concrete base formation integrity failures due to bad weather conditions, which results in groundwater being contaminated with polluted raw sewerage and clean groundwater infiltrating the already overloaded raw sewerage system of pipelines and treatment plants
- The 7th Edition of Sewers for adoption has now been published to include precast bases; Easi-Base™s are in full accordance with the guidance provided.
- Easi-Base™ is a kitemark product, manufactured and tested to BS EN1917
- WRc tested and approved
- An 80 year guaranteed base

The unique DN1200 Easi-Base™ utilises a polypropylene liner with prefabricated benching and channels. Pipe connection bells are pushed into the inlet and outlet points and the liner is then encased and embedded in concrete to provide its structural strength and integrity. The DN1200 Easi-Base™ is manufactured as a monolithic precast unit; it utilises the standard manhole tongue and groove joint and is ready for immediate use, in combination with either a standard 90mm thick manhole chamber or the new 130mm thick wide wall chamber ring.

The Easi-Base™ system connects with most type of pipe including Single wall uPVC, Twin wall, Concrete, Ductile Iron and Clay.

The DN1200 unit allows connection to channel diameters DN150 to DN300. FP McCann has developed a selection of adaptors to increase the range of pipe types accommodated. The type of pipe must be disclosed prior to placing the order, so that the correct adapters and seals are fitted.



DN1200 EASI-BASE™ UNITS					
Diameter	Internal Diameter	Size	Invert Level (for take off)	Depth	Weight
DN1200	150	SMALL	370	520	1.7
DN1200	150	MEDIUM	445	595	1.8
DN1200	150	LARGE	520	670	1.9
DN1200	225	SMALL	470	620	2.2
DN1200	225	MEDIUM	545	695	2.4
DN1200	225	LARGE	620	770	2.5
DN1200	300	SMALL	520	670	2.4
DN1200	300	MEDIUM	595	745	2.5
DN1200	300	LARGE	670	820	2.7

All sizes are in mm

PRODUCT FEATURES

- The DN1200 Easi-Base™ is made to an internal diameter of 1200mm with a tongue and groove joint profile to match standard DN1200 manhole chamber rings
- Wall thickness is 150mm
- The base has a 150mm floor thickness with the outlet invert at approximately 150mm from ground level
- A 1% fall exists across the channel toward the outlet (1:100)
- A gradient of 1:10 is present at the benching with the run-off toward the channel
- The height of the DN1200 Easi-Base™ unit varies in accordance with the diameter of the main channel running through the unit. (Please refer to the above table for heights)

DN1500 - DN2100 EASI-BASES™

FP McCann's bespoke Easi-Bases™ from DN1500 to DN2100 complement our existing manhole ranges and are produced as monolithic units, utilising standard manhole tongue and groove joints for connection with standard manhole chambers. These units are produced wholly from concrete and provide a variety of connection orientations using the Predl Clock System. They can accommodate concrete, clay, twinwall, ductile iron and uPVC pipes from 150mm to 1200mm.

The table below gives the dimensions associated with each size, including the overall height of the unit, the invert level for each different pipe diameter and the combination of pipe diameters accommodated. All Easi-Base™s are made level to soffit, (i.e. level-benching).



DN1500 - DN2100 EASI-BASE™ UNIT SIZES				
Diameter	Pipe Size	Invert Level to top of base	Finished Height	Weight (T)
DN1500	100	470	750	3.50
DN1500	150	470	750	3.50
DN1500	200	575	760	3.50
DN1500	225	575	760	3.50
DN1500	250	575	760	3.90
DN1500	300	705	950	3.90
DN1500	375	755	1000	4.60
DN1500	450	825	1100	4.60
DN1500	525	945	1200	4.70
DN1500	600	1015	1310	4.75
DN1800	100	470	750	6.00
DN1800	150	470	750	6.00
DN1800	200	575	760	6.10
DN1800	225	575	760	6.10
DN1800	250	575	760	6.10
DN1800	300	705	950	6.10
DN1800	375	755	1000	6.50
DN1800	450	825	1100	6.70
DN1800	525	945	1200	7.00
DN1800	600	1015	1310	6.50
DN1800	675	1175	1450	8.00
DN1800	750	1195	1450	7.75
DN1800	825	1255	1500	7.50
DN1800	900	1345	1560	6.85
DN2100*	150-1200	1900	2435	10.50

* 2 part unit / max Δ per unit All sizes are in mm
† 1 unit ex Knockloughrim depot

Please note: For standard liner orientations contact your area sales manager or local FP McCann depot

WEIGHTS & LIFTING MECHANISM DETAIL

Easi-Base™ (DN)	Lifting Mechanism	Quantity of Lifters Used per unit	Safe Working Load (S.W.L) per lifter (Tonnes)	Easi-Base™ Unit Max. weight (Tonnes)
1200	M24	3	2.5	1.5 - 2.5
1500	M36	3	6.3	3.5 - 5.0
1800	M36	3	6.3	6.0 - 8.0
2100	M36	3	6.3	6.5
* 2100	Utility Anchors & M36	3 & 3	5 & 6.3	11.0

* Manufactured in NI
 (Please note, weights will vary dependent upon pipe size and number of inlets/outlets.)

Our Easi-Base™ manhole systems are manufactured with cast-in lifting sockets to allow chains to be hooked on to lift the base in a safe manner, which will prevent damage during handling. It also negates the requirement to drill holes through the Easi-Base, thus ensuring absolute water tightness when installing in wet ground.



EASI-BASE™ WITH INTEGRAL SEAL

FP McCann's integral seal is a simple, reliable rubber compression connector which is embedded in the concrete when the manhole is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

FP McCann is the first precast concrete manufacturer in the UK to offer an integral seal on our Easi-Base™ DN1500 and DN1800 units. Our new integral seal system is a simple, reliable rubber compression connector which is embedded in the concrete when the manhole is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

FEATURES

- Connector is placed in the sealing position at the precast plant
- Manhole arrives at the jobsite ready to receive the pipe
- Pipe is beveled and lubricated, and then inserted through connector
- Manhole may be back filled immediately

BENEFITS

- Integrally cast into the *structure when the concrete is poured
- Requires low insertion force
- No clamps to tighten or forget
- Fast and easy installation
- Less time in the excavation
- Durable, reusable casting forms
- Reusable tooling holds connector in position during casting process.

* 1050mm and above pipe sizes require grouting using a e-proxy resin or similar approved product



SEALANT

DN1200	12mm x 120mm x 4.2m
DN1500	12mm x 120mm x 5.2m
DN1800/DN2100	12mm x 120mm x 6.0m

EASI-BASE ADAPTORS AND SEALS

Part No.	Size	Pipe O/D	Type	Description
FPM 101	225	250	Adaptor	PVC TW & Ultra Rib
FPM 102	225	N/A	Adaptor	End cap Stock
FPM 103	225	263	Adaptor	Clay (SuperSleeve)
FPM 104	225/150	N/A	Adaptor	Level Invert Reducer
FPM 105	225	268	Adaptor	PE Twin Wall
FPM 106	225	N/A	Seal	Uni bell Seal
FPM 107	225	263	Seal	Clay Adaptor Seal
FPM 108	150	170	Adaptor	Ultra Rib
FPM 109	150	N/A	Adaptor	End Cap
FPM 110	150	178	Adaptor	Twin Wall PE
FPM 111	150	178	Adaptor	Clay (SuperSleeve)
FPM 112	300	335	Adaptor	Ultra Rib
FPM 113	150	188	Adaptor	Naylor Densleeve
FPM 114	300	353	Adaptor	Twin Wall
FPM 115	150	160	Adaptor	Twin Wall PVC
FPM 116	225	278	Adaptor	Naylor Densleeve

Please note: all adaptors and seals are available from stock

FLEXI-FIT PIPE SEAL

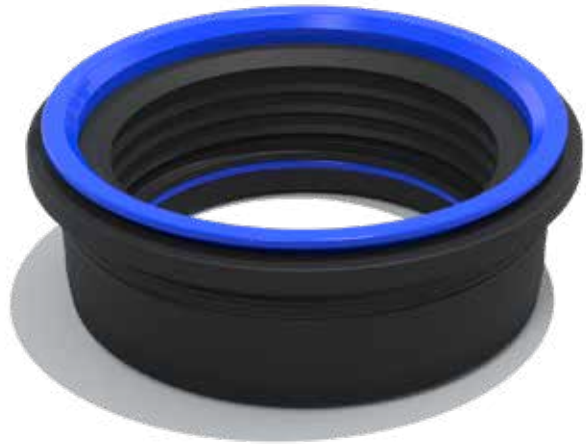
The Flexi-Fit pipe seal is a time and cost saving solution for fitting lateral (or branch) pipes into larger concrete pipes, manholes, junctions, catch pits or other concrete structures, at the time of casting or retro-fitting into a cored hole.

FP McCann is the first precast concrete manufacturer in the UK to offer an integral seal on our Easi-Base™ DN1500 and DN1800 units. Our new integral seal system is a simple, reliable rubber compression connector which is embedded in the concrete when the manhole is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

BENEFITS

- A Single product, universal solution
- Removes the need for adaptors
- Can be installed in seconds
- Can be cast into concrete during manufacture or cored and retro-fit
- Configuration can be altered in seconds
- Watertight connection for any DN150 Lateral*
- Smooth transition and level invert through to the connecting structure
- Integral product pipe stop removes the possibility of lateral intrusion
- Independently tested to over 1 bar pressure on all adoptable laterals

* Will not fit Naylor Clay pipes (>179mm)



Material	ABS & EPDM Rubber
Pressure Rating	0.75 bar
Standards	EN681-1



FLEXI-FIT SPECIFICATIONS



DN1050 HIGHWAYS AGENCY CATCHPIT

With its flexible rubber pipe connector seals, precast concrete catchpits can be utilised on a single lane carriageway, replacing the requirement to cast a base sump in-situ and construct the catchpit from a standard DN1050 manhole ring.

The innovative EPDM 40 flexible rubber seal at the connection points can accommodate pipe sizes DN150, DN225 and DN300. This negates the need to saw cut openings in the concrete wall and the use of wet mortar trades to seal the pipe surround.

Catchpits are supplied with factory fitted pre-marked EPDM 40 rubber blanks. The unique rubber blank/seal has preformed cutting grooves around the three DN entry sizes indicated. This allows for accurate cutting out to pipe diameter requirement. There is no similar system available on the market. Once pipes are fitted into the seal, up to 45 degrees of pipe deflection is permitted without breaking the seal.

Significant savings in time eliminates the need for follow-up finishing gangs. Reduced safety risks because the operative time in excavation is minimal and no power tools are required to cut concrete. Indirect cost benefits arise from saving up to 26 hours of labour time, related to the curing of wet trades on a traditional build.

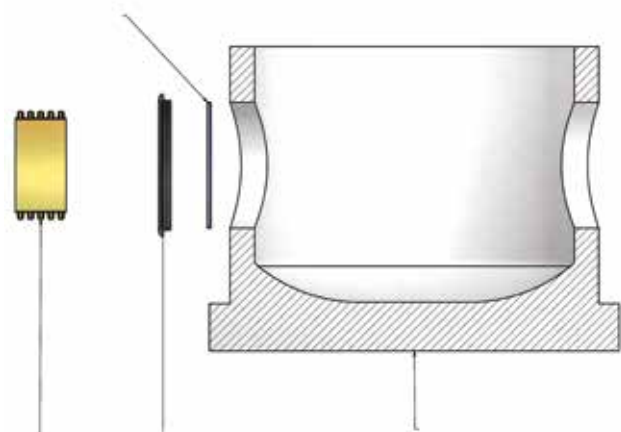
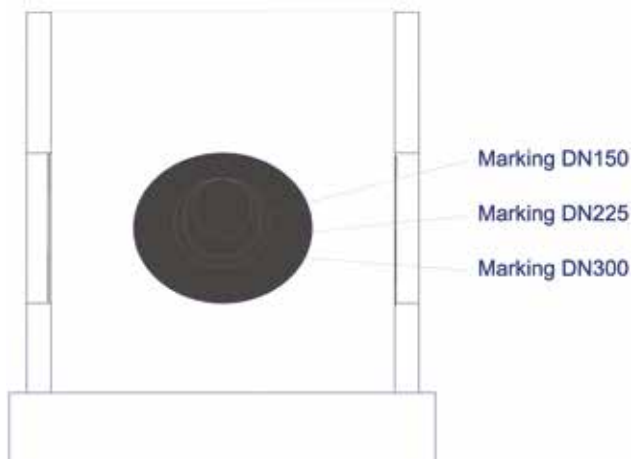
FP McCann's catchpit products are manufactured under BSI Kitemark approval to comply with BS EN 1917 and BS 5911, and are therefore fully compliant to HA's MCHW specification.



Can be used in straight through, 90° connection or straight through with a cross drain.



Once pipe is fitted to the connector, up to 45° of deflection is possible without breaking the seal.



CATCHPIT

The catchpit effectively provides a sealed sump manhole, a monolithic precast concrete unit fitted with connector seals, which can be used to connect to the following types of pipe: uPVC, twin wall, clay, ductile iron and concrete. The catchpit is designed to accommodate pipe sizes DN150 to DN1800 and is in line with highway specification.

PRODUCT BENEFITS

- Creates an immediate watertight structure
- Prefabricated off-site (minimising on-site labour and costs)
- Quick and efficient to install
- Accommodates connection to all types of pipe used in road and manhole construction
- Safety benefits gained in the construction of manholes as the pre-formed sump and connect seals eliminate on-site construction, thus greatly reducing labour activity within the manhole
- Quality is greatly increased as construction is within the factory environment and complies with BS EN 1917 and BS 5911
- Eliminates material wastage associated with current in-situ method
- Yields environmental benefits such as lower carbon footprint, less concrete used on-site and less excavated material removed from site
- Bespoke designs available



Nominal Size (dn)	Height (mm)	+ Max. Pipe Size (mm)	Chamber OD (mm)	Wall Thickness (mm)	Capacity (l)	**Approx. Weight (kg)		No. of Units per Load	Lifting Hole Qty/ da/ per unit
DN1050	* 1000	300	1210	80	650	1380		19	3no. ø45 lifting holes
DN1200	* 1000	300	1380	90	870	1600		16	3no. ø16 sockets and loops
DN1500T1	* 1400	600	1800	150	1800	4700		5	3no. utility anchors
DN1500T2	* 2400	675	1800	150	3300	7700		4	3no. utility anchors
DN1800T1	* 1500	600	2100	150	2700	^ 6300		4	3no. utility anchors
DN1800T2	* 2400	900	2100	150	5100	8300		3	3no. utility anchors
DN2100	* 2400	1500	2400	150	7000	^ 9000	11000	3	3no. utility anchors
DN2400	* 2700	1800	2700	150	10,500	^ 11700	14000	2	3no. utility anchors

* Height can be reduced to suit customers' requirements Based on 300mm sump. If a non-standard invert level is required, please specify when ordering

^ Lightweight catchpits (available on request)

** Maximum weight of a solid, full height unit with no holes
+ Based on a standard catchpit only. If larger pipe sizes are required, please contact FP McCann

VALVE CHAMBER

FP McCann designs and manufactures a bespoke range of reinforced valve chambers capable of housing any size and type of valve/pump. Valve chambers consist of a precast concrete sealed sump manhole with factory-fitted saddles to house the pump, and are used in the management of water, oils and chemicals.



Chamber Diameter	1200 - 3000mm
Chamber Height	900mm
Stool	Bespoke to project requirements
Pipe Size	150 - 375mm
Inlets / Outlets	Will vary to accommodate pipe size
Cover Slab Thickness	Will vary in accordance with chamber diameter
Base Thickness	250mm

PRODUCT BENEFITS

- Immediate watertight structure
- Reduced installation time/costs
- Accommodates connection to all types of pipe, including concrete, metallic, HDPE and clay
- Pump is raised off the ground and sits on a preformed concrete stool
- Easy and clean access for operation and inspection



STORMBRAKE™

VORTEX FLOW CONTROL SYSTEM



Vortex Flow Controls (VFCs) are commonly used in drainage systems to regulate the storm water runoff from urban areas. Through the use of vortex flow technology, FP McCann's StormBrake™ provides the solution to a variety of stormwater management problems. These include accurately controlling storm/surface water flow, minimising upstream storage requirements and reducing the risk of blockages compared to traditional orifice plates.

WHAT IS VORTEX FLOW TECHNOLOGY?

Vortex flow technology is based on the principle of a vortex hydrodynamics, where under sufficiently high upstream water levels a vortex is induced in the flow by the device. The vortex motion results in significant energy loss, creating a pressure drop across the device and restricting the discharge leaving the outlet. The geometric properties of the device control the amount of flow restriction and can be tailored to suit the design conditions for a specific site.

BENEFITS

- Reduces the amount of upstream storage required, minimising the cost of providing attenuation facilities
- Minimal maintenance required after installation. FP McCann's StormBrake™ is self-activating and function without any mechanical components
- Outlet clearances up to 6 times larger than an equivalent orifice plate, significantly reducing the risk of blockages and the associated maintenance costs
- Accurately designed to meet a wide range of design conditions:
 - flows up to 120l/s;
 - heads up to 3m
- Contains a bypass door which can be manually opened at ground level using a pull cable to allow easy access for inspection or blockage removal

For design conditions outside of this range, please contact FP McCann directly



DESIGN

FP McCann's StormBrake™ is manufactured using grade 304L / 316L stainless steel for increased durability, strength and resistance to corrosion and chemical damage. It consists of 3 main parts: an inlet section, a vortex chamber and an outlet. Each part can be configured to provide the most efficient solution to specific site requirements.

Each StormBrake™ is fitted with a pivoting bypass door on the front face in line with the outlet pipe. A stainless steel wire cable is attached to the bypass door and extends to the top of the manhole chamber. Upon pulling the cable the bypass door rotates and moves upwards, revealing a clear straight-through channel between the manhole and the outflow pipe. In the event of the StormBrake™ becoming blocked by debris, the bypass door allows fast discharge of water out of the chamber for maintenance.



STORMBRAKE™

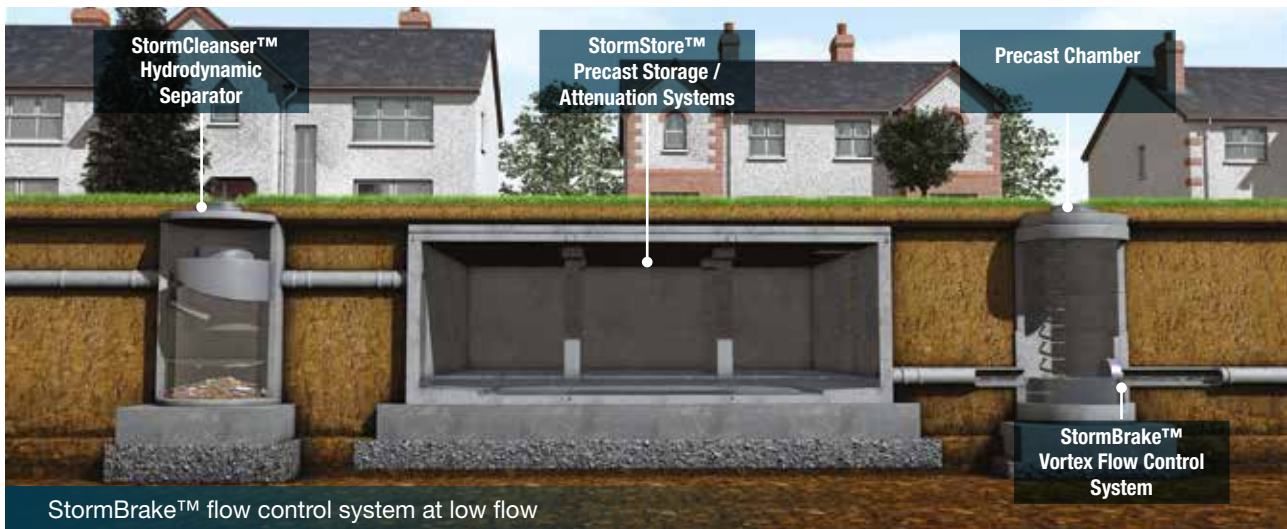
VORTEX FLOW CONTROL SYSTEM



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STORMBRAKE™

VORTEX FLOW CONTROL SYSTEM



FLOW STAGES

The performance of FP McCann's StormBrake™ is determined by relating the upstream head to the outflow leaving the device. Its performance is characterised by a head-flow curve, which produces a unique 'S'-shape, corresponding to the following three phases of flow:

(i) Pre-vortex phase – hydrodynamics governed by orifice flow. The flow generated by the upstream head is not large enough to induce a vortex in the StormBrake™. This phase occurs until the flush-flow point is reached.

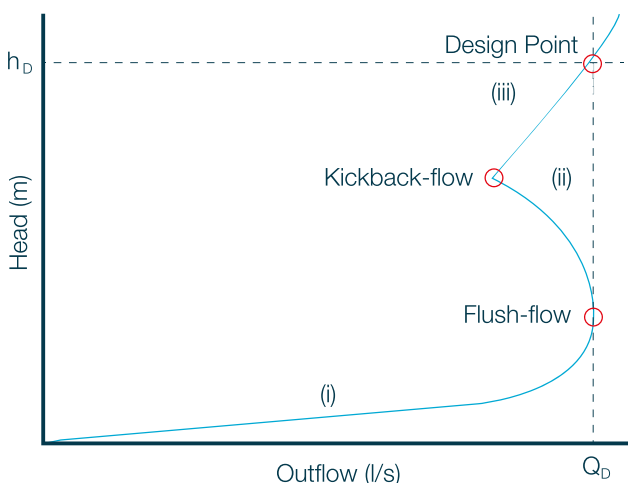
(ii) Transition phase – flow throttling initiated. Vortex continually forms and collapses, resulting in significant energy loss and lower flow rates despite increasing upstream head. This phase is bounded by the flush-flow and kickback points.

(iii) Vortex phase – vortex fully formed with central air core. The air core imposes a quasi-physical flow restriction, reducing the available area in the pipe for outflow.



By changing the geometry of the StormBrake™, the positions of the flush-flow and kickback points can be tailored to suit the clients' needs. For example, the curve below is ideal for situations where upstream storage capacity is limited. The flush-flow point occurs at the design flow, allowing for maximum discharge of water during the early stages of a storm, therefore minimising upstream storage requirements.

VFC HEAD-FLOW CURVE



TESTING

FP McCann's in-house development team test the StormBrake™ using a full scale test facility. The test-rig is constructed of the same components that would be used on site, increasing the accuracy and realism of the tests. The team works closely with university researchers to apply state-of-the-art experimental methods and computational fluid dynamics to the development process. To date, over 2.5 million litres of water has been used to characterise the performance of the StormBrake™. This volume is constantly increasing, due to continual development and rigorous hydrodynamic characterisation, ensuring maximum product performance to meet the requirements of each specific site.

INSTALLATION

- 1) Position the StormBrake™ so that the inlet is at the bottom and the outlet surround is resting on the inside of the outlet pipe. Mark the locations of the mounting points on the chamber wall;
- 2) Using the marked locations, drill holes to the required diameter and depth for the supplied masonry anchors. Fix the anchors to the drilled holes.
- 3) Attach the StormBrake™ to the anchor points, ensuring the neoprene gasket is flush with the chamber wall, and fasten the device by tightening the bolts. This will compress the neoprene gasket to provide a watertight seal between the device and the wall.
- 4) Fix the stainless steel wire cable from the bypass door to the underside of the manhole cover, vertically above the device. A secondary bracket is supplied and should be fitted halfway up the chamber to guide the bypass door cable in deeper chambers.
- 5) Adjust the length of the bypass cable accordingly, so that it reaches ground level whilst ensuring the bypass door can open if required.



STORMCLEANSER™

HYDRODYNAMIC SEPERATOR



FP McCann has designed and developed the enhanced StormCleanser™ for the treatment of urban catchment stormwater run-off.

The StormCleanser™ provides a cost-effective solution for designers, engineers and contractors involved in the provision of Sustainable Drainage Systems (SuDS). This unit has no moving parts, requires no power, and is constructed within standard precast concrete chambers.

The standard units come factory fitted in precast chambers and could also be installed on-site as required. The modular stainless steel built assembly is designed to provide installation simplicity. The separator internal assembly is fabricated out of stainless steel (304L/316L), per BSI BS EN 10088-2-2014. Stainless Steel material grade and composition, provides exceptional longevity due to high corrosion resistance. The lifespan of the internal assembly outlasts the lifespan of a typical precast concrete structure (100+ years).

The enhanced StormCleanser™ design allows for an inlet at varying angles with respect to the outlet. Moreover, the design also enables configuration with multiple inlets, at different orientations and of various sizes. The symmetric inlet design provides the freedom of clockwise or counter-wise flow direction, and allows the vortex formation with minimal hydrodynamic



losses and turbulence. when a higher flow inlet is placed ahead of a lower flow inlet. The changeable flow direction provides drainage engineers the freedom to set the desired orientation of multiple inlets. StormCleanser™ allows for preferential flow direction of the main inlet, providing optimum performance for a wide range of configurations. StormCleanser™ is developed with state-of-the-art hydraulics technology, using Computational Fluid Dynamics (CFD) modelling and full-scale experimentation.



STORMCLEANSER™

HYDRODYNAMIC SEPERATOR



OPERATION

The StormCleanser™ is specifically designed to remove suspended solids, hydrocarbons, and floatable debris from the stormwater run-off. Water and pollutants enter the system via the inlet pipe, where the internal geometry enables low energy forced vortex flow patterns. This allows the floatables to gather and solids to settle to the bottom of the treatment chamber for subsequent removal.

Settled sediment is retained within the sump storage of the unit, allowing easy access for suction cleaning. Re-suspension of the solids is minimised by the provision of a baffle plate (Catch Skirt), positioned above the sediment storage sump. A central core allows for convenient suction hose entry down to the sump for cleaning and maintenance. If there is a stormwater surge in excess of maximum treatment flow rate, it overflows a weir, bypasses the treatment zone and directly discharges through the outlet pipe. This helps to minimize the effects of scour within the treatment region and prevents wash out of retained sediment downstream.

APPLICATIONS

- SuDS based drainage networks
- Industrial Developments
- Housing Developments
- Highway Drainage Products
- Retail Parks
- Car Parks, Roads, Motorways and Trafficked Areas
- Commercial Centres
- Existing surface water sewer discharges
- Leisure Facilities



FEATURES

- Developed at inhouse high-flow Hydraulic Rig, and rigorously tested against actual rainfall inlet conditions
- High retention at most frequent rainfall events per annum
- High treatment flow rate to size ratio preventing oversized separators in the drainage design i.e. minimise footprint
- Wide range of chamber sizes (Ø1200 – Ø4000mm) and pipe sizes (Ø150 – Ø900mm)
- Tested using extremely fine sand particles starting from 2µm
- Modular and innovative design for multiple inlet orientation
- Choice of flow direction providing optimal configuration performance
- Complies with SuDS legislation

SPECIFICATIONS

MODEL	TANK DIAMETER	MAX TREATMENT FLOW RATE	PIPE SIZE	MIN. SEDIMENT STORAGE CAPACITY	MIN. OIL STORAGE CAPACITY	MAX. HEAD LOSS AT TREATMENT FLOW RATE
	(mm)	(L/s)	(mm)	(m³)	(L)	(mm)
PRE-SC1200	1200	43	300	0.50	320	240
PRE-SC1500	1500	67	375	0.82	630	300
PRE-SC1800	1800	96	450	1.23	1085	360
PRE-SC2100	2100	131	525	1.75	1725	420
PRE-SC2400	2400	172	600	2.38	2575	480
PRE-SC2700	2700	217	675	3.13	3670	540
PRE-SC3000	3000	268	750	4.01	5035	600
PRE-SC3600	3600	387	900	6.20	8703	720
PRE-SC4000	4000	477	900	8.00	11938	800

Notes:

- MTFR is per WRc specified Weighted Annualised Removal Efficiency of at least 50%, for a particle size distribution (PSD) with a D_{50} : 63µm and density of 2650 kg/m³
- Customized solutions such as: oriented inlet, multiple inlets, and different pipe sizes available as required
- Sediment storage capacity could be extended as required, per the desired maintenance frequency

STORMCHANNEL™

FP McCann's StormChannel™ is a heavy duty, precast concrete slot drainage channel designed to remove surface water from many areas, including roads, motorways, car parks, industrial, commercial and residential areas. This helps to prevent flooding and run-off.

FP McCann offers two types of StormChannel™ slot drain:

1. A precast concrete bullnosed kerb drainage channel has a linear slot drain and a profiled, oblong drainage channel.
2. A standard precast concrete drainage channel with an interrupted slot and stabiliser bars for increased stability.

PRODUCT BENEFITS

- Quick installation
- Minimal maintenance
- Excellent flow rates even at zero or shallow gradients
- Modular system
- Robust product
- Economical product
- Integrated watertight seal
- No concrete surround required
- Conforms to EN 1433



SCAN THE QR CODE TO SEE
OUR STORMCHANNEL™
INSTALLATION VIDEO

RANGE OF SIZES



300 Standard

400 Standard

400 Kerb

500 Standard

600 Standard

CAST IN GRATING



A unit with cast in grating to allow easy cleaning and maintenance

PRODUCT FEATURES

- Resilient up to class D400kN, E600kN or F900kN
- 300 and 400 Standard Stormchannel™ tested to Class E600
- 2% surface slope to the slot
- Supplied with interrupted slot only – slot width 30mm
- Spigot and socket end for correct alignment and joining

Additional connections can be provided on request to this precast slot drain solution. Junction boxes and sump units are also available in all sizes.

HOUSE INSPECTION CHAMBERS

FP McCann's precast concrete inspection chambers are available in four common sizes: 600 x 450, 750 x 600, 1000 x 675 and 1200 x 750mm. Manufactured in accordance with BS EN 1917 / BS5911, each section has a tongue and groove joint and can be sealed with a sand and cement mortar or bitumen sealant, in the same fashion as a circular manhole and chamber ring.

To complete the chamber, FP McCann has a range of covers and ground level components. FP McCann's frame (also known as a surround) and lid combination is designed to sit flush with the top course, such as tarmac or concrete surfacing or in grassy areas.

The lid itself features an anti-slip chequered finish and recessed lifting points to allow removal from the frame by use of standard lifting eyes.

Chamber Size (mm)	Cover
600x450	Frame and lid places straight on top of unit
750x600	Below surface slab with 600x450 access, allowing use of frame and lid
1000x675	Below surface slab with 600x450 access, allowing use of frame and lid
1200x750	Light or heavy duty below surface slab with 600x600 access, allowing use of standard steel access hole cover

Description Units (mm)	**Weight per unit (mm)	No. of units per pallet	Wall/ Slab thickness (mm)
600x450x150 section	40	12	40
600x450x225 section	65	8	40
600x450x300 section	85	6	40
600x450x100 frame	45	8	100
600x450x55 lid	50	16	55
750x600x150 section	60	6	55
750x600x250 section	100	4	55
750x600x70 cover slab (600x450 access)	75	8	*70
1000x675x150 section	94	6	60
1000x675x250 section	130	4	60
1000 x 675 x 76 cover slab (600x450 access)	130	8	*75
1200x750x150 section	120	6	75
1200x750x250 section	200	4	75
1200x750x80 cover slab (600x600 access)	185	6	*80

* Effective thickness
** Approximate weights



NOTE: For HIC's placed in depths greater than 1.5m, we recommend the use of a concrete surround.

GULLIES & SLABS RANGE

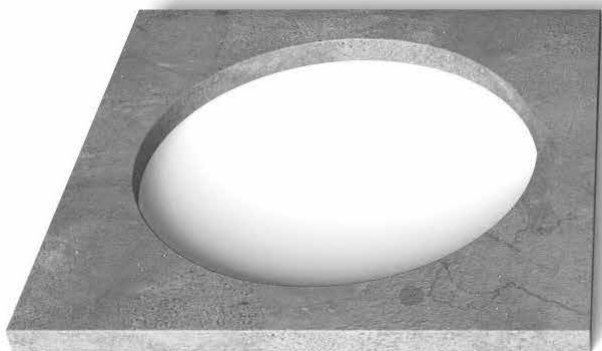
GULLIES

Dimensions (mm)			Nominal Weight (Kg)	Approx. Capacity (litres)	No. per load
Diameter Internal	Depth	Outlet			
375	750	150	180	51	66
375	900	150	200	67	66
450	750	150	215	71	60
450	900	150	255	95	60
450	1050	150	270	118	60
450	1200	150	280	142	60

PRODUCT BENEFITS

- The seal has been cast-in, thus preventing loss or damage on-site
- An integral seal and rodding eye for universal sealing characteristics
- The rodding eye closure has been recessed into the concrete to help eliminate dislodgment
- Reduced thickness, giving reduced weight and a smaller footprint for better vehicle utilisation
- Improved system that helps prevent any discharge of oil
- The gully is fully universal, suitable for all plastic and clay drainage products from 160mm to 186mm diameter
- Does not lose shape
- Does not float (self weight inhibits flotation)

STANDARD GULLY COVER



GULLY COVER SLABS

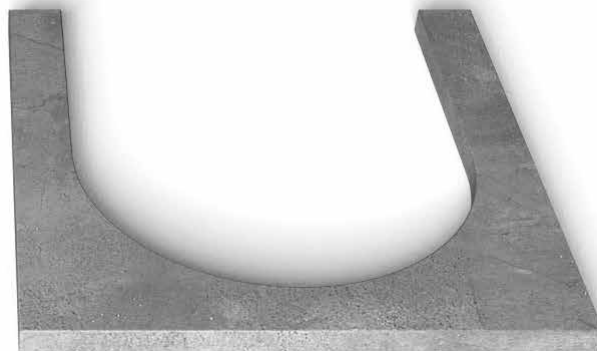
Dimensions (mm)	Standard	Horseshoe
Length (mm)	750	600
Width (mm)	650	650
Thickness (mm)	100	100
Weight (kg)	70	58
Hole Size (mm)	450	450
Qty/Pack	12	12

The Gully Cover Slab is designed as seating for a gully grate

PRODUCT BENEFITS

- Quicker to lay, ensuring reduced labour costs
- Use on top of 450mm diameter gully
- Eliminates laying engineering bricks on-site
- Sits flush to kerb for enhanced stability
- 100mm thick single piece unit
- Eliminates brickwork vertical joint 'weakspots'
- Greater stability than brickwork
- Quality product produced by vibration process
- Compressive strength similar to Class B.Eng. bricks

HORSESHOE GULLY COVER



FALL ARREST SYSTEM

AWARD-WINNING SAFETY SOLUTION FOR MANHOLE CONSTRUCTION

Clients, consultant engineers, contractors and suppliers all have a duty to mitigate hazards on-site, whenever reasonably practicable. One such hazard identified is the risk of operatives falling through manhole openings, particularly during the construction process and also in follow-up maintenance work.

Working with partners Severn Trent Water, engineer Grontmij and contractor to the water sector, Morgan Sindall plc, FP McCann has designed an award-winning safety solution. Our fall arrest system allows for safe working around the manhole opening prior to the fitting of the ironwork.

In the construction of a manhole, operatives often work unprotected from the opening at surface level when the final stages of completion occur. This includes the final brickwork up to the manhole frame and the mortar bedding of the frame itself.

With most standard cover slabs, the access point for man entry is open and it is left to the contractor to cover on-site. In many site situations, these openings remain for a number of days while phases of work are completed. Our fall arrest system immediately addresses this problem. The future production of all standard access cover slabs will incorporate the optional protective grid, which will remain in the slab even when the final D400 steel cover and frame are set in place at surface level.

The galvanised mild steel grid is available in four standard sizes:

- 610mm x 610mm
- 675mm x 675mm
- 750mm x 600mm
- 1200mm x 675mm

The fall arrest grid is seated on load-bearing corners cast into a standard range of manhole cover slabs. If a temporary fall arrest system is required, once the construction of the manhole is complete, the grid can be removed prior to the fitting of the ironwork. Alternatively, it can be a permanent fixture, left in place beneath the manhole lid. The spacing between the bars allows for ease of inspection and jetting of the manhole base during maintenance work.



RAIN HARVESTING CHAMBERS

FP McCann’s rain harvesting chamber is a bespoke precast water storage chamber that is compatible with water harvesting systems for residential, industrial/commercial and agricultural installations. Capturing rainwater for re-use offers significant cost savings for the user and benefits the environment by increasing water resources and further enhancing water amenity. The chamber complies with Environment Agency SuDS (Sustainable Urban Drainage System) directives.

The basic concept of harvesting rainwater is simple - rainwater is mostly collected from the roofs of buildings - it flows through gutters and downspouts and is then filtered and collected by a storage tank. From the tank, it can be recirculated or treated to produce a better quality of recycled water.



VOLUME CAPACITY OF STORAGE CHAMBERS

Internal Diameter (x1000mm)	Capacity (Litres)	Weight (kg)
DN1800	1200	1800
DN1800	1500	1900
DN2400	3000	5900
DN2400	5000	7250
DN2400	7000	8700



RAINWATER HARVESTING CHAMBER ADVANTAGES AND ENVIRONMENTAL BENEFITS:

Rainwater Harvesting Chamber Advantages and Environmental Benefits: FP McCann’s Rain Harvesting Chamber diagram

- Cost-effective re-use of a natural resource
- Conservation of mains water supplies
- Complies with SuDS directives
- Unobstructive (buried underground)
- Speedy installation – no ready mixed concrete backfill required
- Low maintenance
- 120-year design life on a concrete tank

The filtered rainwater is very soft and chlorine-free, making it particularly suitable for fabric washing and other uses such as toilet flushing, external cleaning and irrigation. Our rainwater harvesting chambers are available in 5 different capacities:

- Irrigation Only – 1200 litres & 1500 litres
- Small/Medium Domestic & Irrigation – 3000 litres & 5000 litres
- Large Domestic/Small Commercial & Irrigation – 7000 litres

ADD-A-STEP®

MODULAR MANHOLE LADDER



ADD-A-STEP® modular ladders are designed to allow easy access to chambers and are approved for use in potable water, waste water, highly corrosive and general construction applications. They are a cheaper, safer and a more user-friendly alternative to traditional stainless steel ladders.

The ADD-A-STEP® modular ladder system is designed to provide a product that can be supplied off-the-shelf for next day delivery. Each module of the ADD-A-STEP® ladder consists of two stiles, one rung and two retaining clips. Each stile measures 360mm long, 80mm wide and 32mm thick maximum dimension. The ladder width outside the stiles (upright) is 435mm.

The ADD-A-STEP® ladder has 30mm diameter rungs at 300mm centre spacing and the width or foot space inside the stiles is 375mm. Two types of wall brackets are supplied as standard, one for circular and one for square chambers. The ladder can be assembled on-site using the number of modules to achieve any length and can be trimmed to length using a standard hand saw without the need for expensive cutting equipment.

ASSEMBLED IN MINUTES

STAINLESS STEEL PULL-UPS AVAILABLE TO SUIT EX STOCK

BENEFITS

The modular design allows for more economical transportation than fully assembled ladders. The ADD-A-STEP® ladder requires no maintenance other than occasional cleaning with a pressure hose, if desired. The ladder has excellent insulation properties so it can be used in applications where electrical cables are present. Constructed from polybutylene (PBT), which is UV tolerant, it is a non-corrosive and a fully recyclable material; it can easily be cut on-site with no harmful shards or dust given off.

The ADD-A-STEP® ladder helps to reduce potential health and safety risks. At approximately 5kg per linear metre, the ladder is significantly lighter than galvanized or stainless steel alternatives and its yellow colour gives it high visibility properties, making it clearly visible when the manhole cover is raised. It is also a cheaper and more user-friendly alternative to traditional stainless steel manhole ladders. The ADD-A-STEP® system is fully compliant and tested to BS EN 14396, and is the only CE marked modular ladder system in the UK.



PLASTIC ENCAPSULATED LADDERS & RUNGS

This system ladder gives the user benefits of a durable plastic encapsulated ladder without the need to specify an exact length or fit on-site. In addition, a single specification can be used for all depths of access.

PRODUCT SPECIFICATIONS

BS EN 13101 Plastic Encapsulated Steps

WIS 4-33-01: 1990 Polypropylene Encapsulated Steps

PRODUCT APPLICATIONS

Concrete manholes and inspection chambers.
Renovation of existing structures.

MATERIALS

The plastic encapsulated ladder has a bright yellow coating and is made from high impact virgin polypropylene copolymer plastic. If the ladder is to be subject to prolonged exposure to daylight then black or UV stabilised material should be specified. It is reinforced with structural steel.



PERFORMANCE

Pull out load:	7.5kN minimum, when fitted in accordance with manufacturer's instructions
Deflection under load:	5mm maximum at 2.5kN
Permanent Set:	0 mm at 2.5kN
Impact:	20kg weight from 1 metre, no cracking
Chemical Resistance:	At least pH2 to 12
Integrity of plastic:	2M ohm at 500 volts DC
Thickness of plastic:	3mm minimum
Minimum cross section:	25mm diameter

PRODUCT BENEFITS

- Excellent corrosion resistance
- Visibility
- No sharp edges
- Eliminates need to specify exact length or fit on-site
- Steel reinforcement gives predictable deflection under load without causing brittle failure

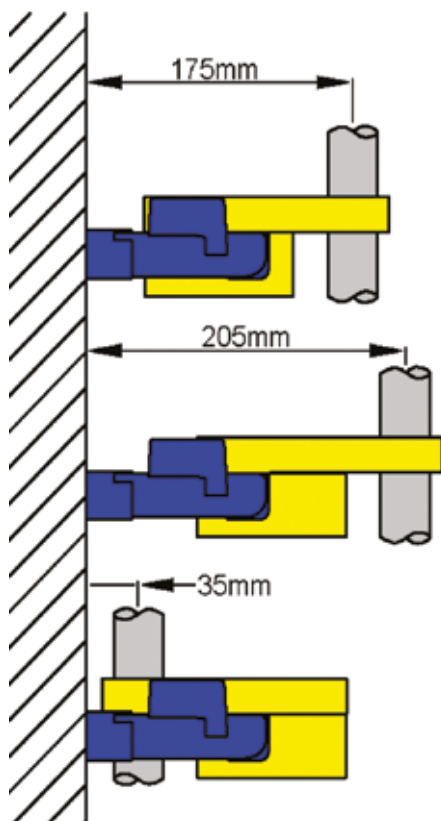
HANDHOLD ENTRY POLE SYSTEM

The handhold entry pole system is suitable for aiding maintenance engineers in the initial entry into a manhole from the surface level. Once fitted, the entry pole is a permanent fixture within the manhole, which is stored in the lowered position beneath the level of the cover.

When required, the entry pole can be easily extended by simply hooking the easy-to-reach loop located at the top of the pole, pulling the handle upwards and twisting, locking into position. The handhold then provides a stable support to aid the entrance of the manhole, as well as a clear visual indication of the location of the manhole, when open. This helps prevent injury of other people in the area. Once the engineer has used the entry pole to aid their return to the surface, the pole is simply twisted to unlock it from the raised position and lowered back into the manhole, ready for the next time it is needed.

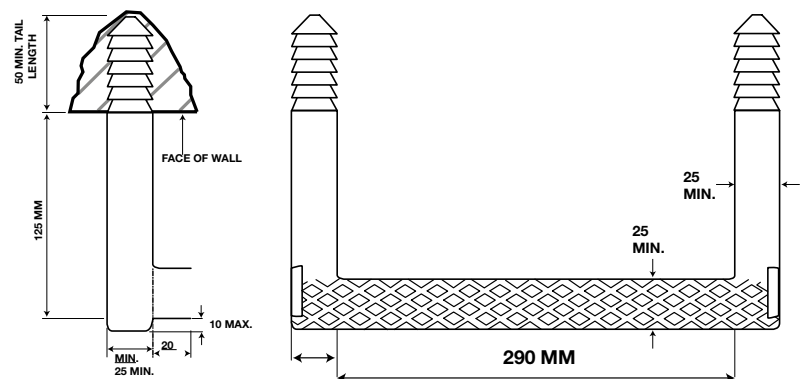
SPECIFICATION

The handhold has a pole length of 1200mm and can be assembled to give three different distances from the pole to the wall. This is designed to accommodate different cover positions.



PRODUCT BENEFITS

- Helps the user find the first step safely
- Creates visual aid to indicate location of manhole to other people in the area
- Easy to fit
- Easy to raise and lower
- High strength for ultimate safety
- Low cost
- Can be fitted to any Caswick step
- Two projections for round or flat walled manholes



HEADWALLS

FP McCann's precast concrete headwalls provide an ideal end connection point to outfall pipes into open watercourses such as rivers, culverts, collection and balancing pools.

They are a very efficient alternative to intrusive shuttering of soil embankments and costly on-site formwork with ready-mixed concrete, making them particularly suitable for use in hard to reach locations and in environmentally sensitive areas. Where time constraints exist such as in tidal flow situations, concrete headwalls can be quickly positioned, secured and backfilled, providing immediate stability around the point of water discharge.

The FP McCann headwall range can accommodate pipe sizes from DN150 to DN2100 and is suitable for usage with box culverts. Additionally, accessories such as flap valves, penstocks, silt traps, handrails and safety grates can be built in as part of the specification. A front weir wall can be fabricated onto any of the standard headwall range on request and installation is quick and easy.

BENEFITS

- Headwalls are designed and manufactured to BS EN 13369 & EC2 standards
- Prefabricated off-site
- Speedy and efficient to install
- Provides immediate stability and prevents soil erosion
- Valve and safety accessories available
- Significantly reduces the potential for floating debris to block the watercourse
- Flap valves and grates available
- Reduces carbon footprint as no need to bring in lorries to the site to pour in-situ



HEADWALL ACCESSORIES

PRODUCT BENEFITS

- Headwalls are designed to EC2 and manufactured to BS EN 13369. (Full design calculations available to illustrate design assumptions).
- Prefabricated off-site
- Speedy and efficient to install
- Durable, long-lasting and low maintenance
- No on-site shuttering or formwork required
- Provides immediate stability and reduces soil erosion
- Valve and safety accessories available
- Cost-effective solution
- Significantly reduces the potential for floating debris to block the watercourse
- Installation with 2 or 3 lifting anchors
- Flap valves and grates available
- Reduces carbon footprint as no need to bring in lorries to site to pour in-situ
- The extended toe unit is available for all sizes making the entire headwall range compliant with Sewers for Adoption (SFA) and Sewers for Scotland
- Headwalls meet the requirements indicated in Fig. C.5 (typical details) of Sewers for Adoption

Headwall Range	Up to & including Pipe Sizes	Max Pipe O.D. mm	Approx. Weight (Kg)
HW Small 100	300	450	1100
HW Small 150	300	450	1390
HW Medium 100	450	630	1540
HW Medium 150	450	630	2020
HW Large 100	900	1080	3020
HW Large 200	900	1080	4740
HW XL-T1	1500	1800	Part A / B 4725
HW XL-T2	1050	1260	Part A / B 4095
HW XL-T3	675	885	Part A / B 3465
HW XL-T4	375	505	Part A / B 2646
HW XXL-T1	2100	2460	Part A / B 10,150
HW XXL-T2	1500	1800	Part A / B 9205
HW XXL-T3	1050	1260	Part A / B 8421
HW XXL-T4	525	675	Part A / B 6915



MECHANICAL CONCRETE PIPE LIFTER



Fit a pipe lifter to your excavator and you can lay concrete pipes in around half the time with less cost and less hassle – but with greater safety.

Safer. No operative needed on vehicle during off-loading or in trench during pipe laying.

Easier. Simple to use. No special equipment & minimal training required.

Faster. Around 50% saving on installation time.

Cheaper. Fewer operatives plus greater productivity.

The Concrete Pipe Lifter makes light work of the installation of waste water pipelines. Within seconds, it can be attached to your excavator using a quick-hitch coupling. There are no hydraulic links or additional energy requirements.

There is no need for anyone to stand on the bed of the vehicle during off-loading (the biggest cause of accidents during pipe laying). There's no need for anyone to stand in the trench during installation and there are no slings or chains to trap hands and fingers. The whole operation is around 50% faster and you can reduce the size of your pipe laying team, so costs are lower too.

The Concrete Pipe Lifter is suitable for standard UK specification BS EN1916 concrete pipes from DN300 to DN1200.

The Manhole Lifter is a companion device that makes lifting manhole rings a safe and easy, one-man operation. It eliminates the risk of vehicle falls during off-loading. There are two versions available for precast concrete manhole rings from DN900 to DN1800 and from DN2100 to DN3000. It's capable of lifting rings from 250 mm to 1000 mm deep.

To buy or rent the Pipe Lifter, contact BPDA's supply partners visit: concretepipelifter.co.uk for details



KNOW YOUR LIFTERS

All of the precast concrete drainage products manufactured by FP McCann feature a lifting system to allow safe off-loading and installation in an efficient manner. Each system is suited to each type of product.

The information below will allow you to determine what lifting attachments are required. This list is not exhaustive and may be subject to change. Please contact FP McCann's technical department if you are unsure about any aspect of lifting. Please be aware that it is the contractor's responsibility to ensure all lifts are safe and compliant with legal requirements.

If you do not have the correct lifting equipment, please contact our sales department who will be happy to assist. **Please ensure you have ordered lifting equipment to arrive on-site, ready for when your load is delivered!**

Unless otherwise stated, FP McCann will only supply the eyes or attachments. Correct chains will need to be sourced by the contractor. Unless otherwise specified, access to the trailer will be required to insert the attachments.



PRODUCT	LIFTERS REQUIRED		NOTES
900 to 1800 Standard Chamber Rings and Soak-away	3No M24 Lifting Eye Pins inserted into holes through the ring wall.		Eyes should be on the INSIDE of the ring.
2100 to 3000 Standard Chamber Rings and Soak-away	4No M30 Lifting Eye Pins inserted into holes through the ring wall.		Eyes should be on the INSIDE of the ring.
3600 Standard Chamber Rings	3No RD30 Lifting Loops screwed into the top face of the ring		Please be aware that the loops are not intended for prolonged use.
4000 Standard Chamber Rings (2 part)	4No RD36 Lifting Loops screwed into the top face of the ring		Please be aware that the loops are not intended for prolonged use. Instructions for handling are shown on the product itself.
1200 to 1800 Wide-Wall Chamber Rings	3No 5t Spherical Head Clutch		Attach to the OUTSIDE of the ring.
300 to 1200 Standard Pipes and Fittings	Pipe Grab (below) or Slings		Slings are <u>not</u> supplied by FP McCann. DO NOT USE HOOKS! These can damage the pipes and can be dangerous!
1350 to 2100 Standard Pipes and Fittings	10t Spherical Head Clutch and Chain Sling Set		Clutches and chains allow safe lift and easy installation of units.
2400 Standard Pipes and Fittings	20t Spherical Head Clutch and Chain Sling Set		12-20 tonne shackle 2 leg lifting chain only
All Diameters of Standard Cover Slabs	None		Chain Hooks can be attached directly to all of our standard slabs without further equipment required.
Small Headwalls	2 No. 24mm Lifting Loops		Please be aware that the loops are not intended for prolonged use. Instructions for handling are shown on the product itself.
Medium & Large Headwalls	3 No. 24mm Lifting Loops		

MECHANICAL GRABS - The quicker, easier and safer option for handling rings and pipes. These attachments connect to site plant and allow off-loading and installation without any need for access to the trailer bed. Mechanical grabs are available for pipe diameters DN300 to 1200 and for ring diameters of DN900 to 3000. For further information, contact your sales representative. Easi-bases, headwalls and flow-control chambers come supplied with the correct lifters ready for use. Catchpits should be handled with a mechanical grab. All lifters supplied by FP McCann come with appropriate certification and are ready for use. Lifters should be incorporated into the contractors lifting equipment inspection regime under LOLER regulations or disposed of after use.

SAFE LIFTING OF STANDARD PRECAST CHAMBER RING SECTIONS

When lifting chamber ring sections with lifting eyes, it is important that the eyes are passed from the inside of the ring and the nut is attached to the outside of the ring to secure the pin. Hooks must be attached to the eyes on the inside of the chamber and lifted in a safe and controlled manner.

Lifting with the pins installed in any other way is dangerous and should not be attempted in any circumstances.

Lifting with the eyes on the outside is NOT safe and can crush the concrete section. When using lifting eye bolts with the nut not attached, the ring can become damaged or the eyes can pull out of the concrete.

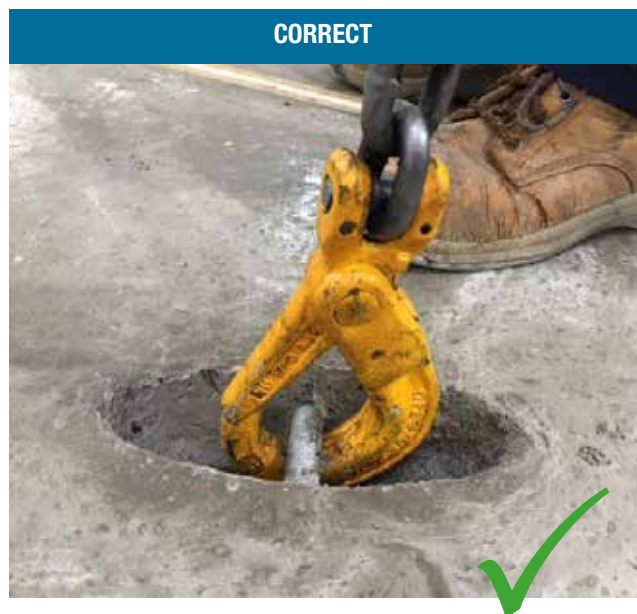
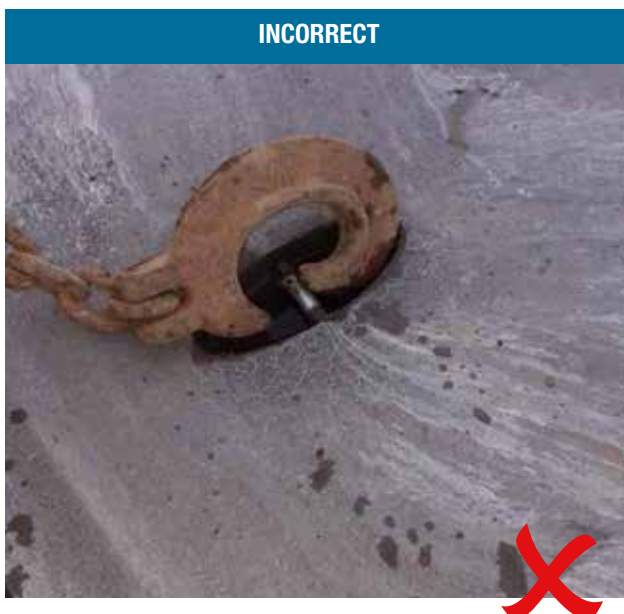
Please be aware that precast concrete rings are fragile. They have thin walls and are not reinforced, and can be easily broken when handled incorrectly.



Eyes passed through from the outside with hooks connected to the outer face of the ring. Pins can come loose if nuts not applied or the self-locking mechanism has not engaged and the concrete can be crushed by the chains.



Eyes passed through from the inside with the plate and nut applied to the thread on the outside, or self-locking mechanism engaged. Hooks are connected to the inside of the ring to allow for a safe lift with straight chains.









PRECAST FENCING SOLUTIONS

With over 30 years' experience in the manufacture of precast concrete solutions, FP McCann offers a wide range of precast fencing products.

Concrete posts offer a longer lasting alternative to wooden posts. Our comprehensive range includes slotted, recessed and morticed posts; plain, recessed and rock-faced gravel boards, Fenn-lite lightweight posts, deck posts, chain link and cranked top security posts, universal posts, repair spurs and bollards.

FP McCann's precast concrete fencing products are durable, easy to install and provide an attractive finish in combination with timber fencing panels. Our Fenn-Lite fencing products and gravel boards are up to 45% lighter and offer the same strength and durability as standard weight products.

Fencing customers can also place an order on our website via an easy to navigate online e-commerce tool.

FP McCann will deliver to locations throughout the UK and our sales and technical teams are on hand to discuss your requirements.

DeckPost	100
Slotted Posts	101
Gravel Boards / Bounadry Posts	102
Chainlink Posts	103
Cranked Top Security Posts	104
Morticed & Recessed Posts	105
Bollards, Universal Posts & Repair Spurs	106
Fenn-Lite Lightweight Fencing	107



DECKPOST

The FP McCann DeckPost is the durable precast solution for your decking requirements. Whether you plan to create an elevated decking area, or simply to level out irregular ground conditions, DeckPost is the obvious choice.

WHY USE DECKPOST?

FP McCann's Precast Decking Support Post is the durable alternative to wood. Available in four different lengths, this product provides a rot free option to replace timber posts used to support all decking projects.

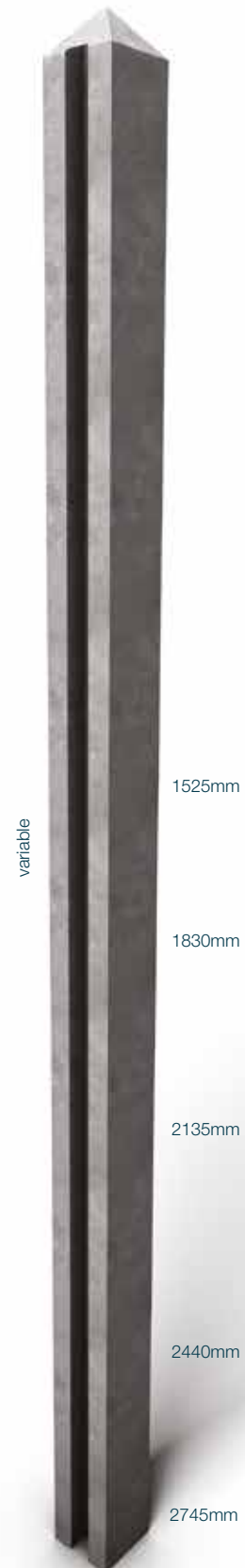


Product Code	Sizes in mm/in	No. per Tonne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
PREFPD ECP450	450x100x100 /18x4x4	90.91	120	11.00	1340
PREFPD ECP600	600x100x100 /24x4x4	71.43	72	14.00	1028
PREFPD ECP900	900x100x100 /36x4x4	47.62	48	21.00	1028
PREFPD ECP1200	1200x100x100 /48x4x4	37.04	36	27.00	992

Product Code	Sizes (mm)	Sizes (ft/in)	No. per tonne	No. per Pack	Weight (kg)	Pack Weight inc. Packaging (kg)
Slotted Posts - Intermediates						
FPSLP150MW	1525	5'	45.45	40	22.0	920
FPSLP180MW	1830	6'	37.04	40	27.0	1120
FPSLP210MW	2135	7'	32.26	30	31.0	960
FPSLP240MW	2440	8'	28.57	30	35.0	1080
FPSLP275MW	2745	9'	25.00	30	40.0	1220
Slotted Posts - Intermediates - Heavy Duty Lightweight						
PREFPHDSLPC305LW	3050	10'	13.70	18	73.0	1340
PREFPHDSLPC335LW	3350	11'	12.50	18	80.0	1460
PREFPHDSLPC366LW	3660	12'	11.40	18	88.0	1600
Slotted Posts - Corners - Light Weight						
FPSLPC150LW	1525	5'	28.74	6	34.8	218.8
FPSLPC180LW	1830	6'	23.62	6	42.3	260
FPSLPC210LW	2135	7'	20.41	6	49.0	300
FPSLPC240LW	2440	8'	16.95	6	59.0	360
FPSLPC275LW	2745	9'	15.23	6	65.7	400
Slotted Posts - Corners - Heavy Duty Lightweight						
PREFPHDSLPC305LW	3050	10'	12.80	6	78.0	438
PREFPHDSLPC335LW	3350	11'	11.40	6	88.0	543
PREFPHDSLPC366LW	3660	12'	10.60	6	94.0	579
Slotted Posts - Ends						
FPSLPE150MW	1525	5'	40.00	10	25.0	270
FPSLPE180MW	1830	6'	32.26	10	31.0	330
FPSLPE210MW	2135	7'	28.57	10	35.0	370
FPSLPE240MW	2440	8'	25.00	10	40.0	420
FPSLPE275MW	2745	9'	22.22	10	45.0	470
Slotted Posts - Ends - Heavy Duty Lightweight						
PREFPHDSLPE305LW	3050	10'	13.00	9	77.0	718
PREFPHDSLPE335LW	3350	11'	11.10	9	90.0	832
PREFPHDSLPE366LW	3660	12'	9.40	9	106.0	976
Gravel Boards For Slotted Posts - Light Weight						
FPGBP150LW Plain	1830x150x45	6"	48.31	40	20.7	840
FPGBP305LW-SD Plain	1830x305x45	12"	22.60	20	44.3	900
FPGBR150LW Recessed	1830x150x45	6"	50.96	40	19.6	800
FPGBR305LW Recessed	1830x305x45	12"	30.77	20	32.5	665
FPGBRF305WCLWHP Rock Faced HP	1830x305x45	12"	24.81	16	40.3	660
Recessed Posts - Light Weight						
FPARP250LW	2515	8' 3"	18.75	18	53.3	980
Morticed Posts - Light Weight						
FPMOR240LW	2440	8'	23.44	30	42.7	1300

SLOTTED POSTS

Product Code	Sizes (mm)	Sizes (ft/in)	No. per Tonne	No per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
Slotted Posts - Intermediates						
FPSLP150	1525	5'	35.09	40	28.5	1160
FPSLP180	1830	6'	28.99	40	34.5	1400
FPSLP210	2135	7'	25.42	30	39.3	1200
FPSLP240	2440	8'	22.39	30	44.7	1360
FPSLP275	2745	9'	18.99	30	52.7	1600
FPSLP305 NEW	3050	10'	17.86	30	56.0	1700
Slotted Posts - Corners						
FPSLPC150	1525	5'	20.34	6	49.2	301
FPSLPC180	1830	6'	17.19	6	58.2	355
FPSLPC210	2135	7'	15.00	6	66.7	406
FPSLPC240	2440	8'	12.66	6	79.0	480
FPSLPC275	2745	9'	11.09	6	90.2	547
Slotted Posts - Ends						
FPSLPE150	1525	5'	32.47	10	30.8	328
FPSLPE180	1830	6'	26.46	10	37.8	398
FPSLPE210	2135	7'	22.57	10	44.3	463
FPSLPE240	2440	8'	20.12	10	49.7	517
FPSLPE275	2745	9'	17.83	10	56.1	581
FPSLPE305 NEW	3050	10'	15.87	10	63.0	1650
Heavy Duty Slotted Posts - Intermediates						
FPHDSL150	1525	5'	20.20	18	49.5	812
FPHDSL180	1830	6'	16.81	18	59.5	972
FPHDSL210	2135	7'	14.60	18	68.5	1116
FPHDSL240	2440	8'	13.25	18	75.5	1228
FPHDSL275	2745	9'	12.12	18	82.5	1340
FPHDSL305	3050	10'	10.47	18	95.5	1548
FPHDSL335	3350	11'	9.57	18	104.5	1692
FPHDSL366	3660	12'	8.66	18	115.5	1868
Heavy Duty Slotted Posts - Corners						
FPHDSLPC305	3050	10'	10.10	6	99.0	600
FPHDSLPC335	3350	11'	9.16	6	109.2	661
FPHDSLPC366	3660	12'	8.46	6	118.2	715
Heavy Duty Slotted Posts - Ends						
FPHDSLPE150	1525	5'	18.87	9	53.0	444
FPHDSLPE180	1830	6'	15.63	9	64.0	532
FPHDSLPE210	2135	7'	13.51	9	74.0	612
FPHDSLPE240	2510	8'	12.20	9	82.0	676
FPHDSLPE275	2745	9'	11.11	9	90.0	740
FPHDSLPE305	3050	10'	9.71	9	103.0	844
FPHDSLPE335	3350	11'	8.85	9	113.0	924
FPHDSLPE366	3660	12'	8.06	9	124.0	1012



GRAVEL BOARDS & BOUNDARY POSTS



TUDOR BROWN WOOD-EFFECT



SLATE GREY WOOD-EFFECT



MAHOGANY WOOD-EFFECT

BENEFITS

- Durable alternative to wood
- Rot and maintenance-free
- Quick and easy to install
- Choice of colours available
- Precast concrete with an appearance of real timber
- Additional finishes coming soon

Note: All Artisan products are manufactured to order



**HIGH PROFILE ROCK
FACE WEST CAST**



**MEDIUM PROFILE
ROCK
FACE WEST CAST**



PLAIN-FACE



RECESSED



ROCK FACE SEMI-DRY



BRICK-EFFECT

Product Code	Sizes (mm)	Sizes (ft/in)	No. per Tonne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
Gravel Boards For Slotted Posts						
FPGBP150 Plain	1830x150x45	6"	36.10	40	27.7	1120
FPGBP305 Plain	1830x305x45	12"	17.17	20	58.3	1180
FPGBR150 Recessed	1830x150x45	6"	37.56	40	26.6	1080
FPGBR305 Recessed	1830x305x45	12"	21.62	20	46.3	940
FPGBRF305 Rock Faced Semi dry	1830x305x45	12"	19.14	20	52.3	1060
FPGBRF305WC Rock Faced Wet cast	1830x305x45	12"	18.43	20	54.3	1100
FPGBRF305WCHP Rock Faced WC High profile	1830x305x45	12"	16.90	16	59.1	960

BOUNDARY POSTS

Product Code	Sizes (mm)	Sizes (ft/in)	No. per Tonne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
Boundary Posts 4x4						
PRE FP BOU 0904X4	915x100x100	3'	50.56	60	19.8	1188
PRE FP BOU 1054X4	1070x100x100	3'6"	43.90	60	22.8	1368
PRE FP BOU 1204X4	1220x100x100	4'	38.50	60	26.0	1560
PRE FP BOU 1354X4	1370x100x100	4' 6"	33.58	60	29.8	1788



CHAINLINK POSTS

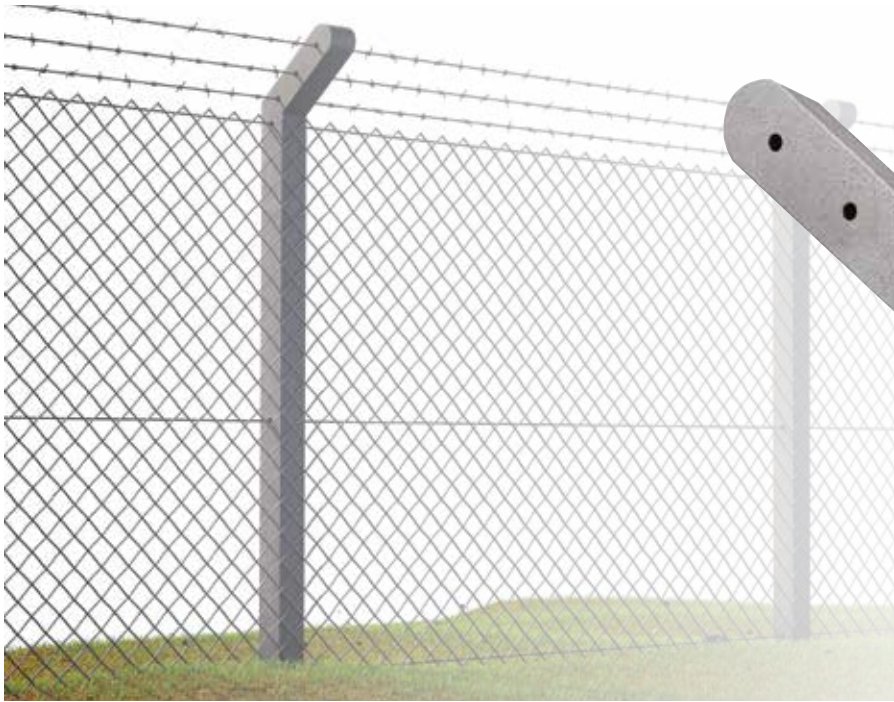


Product Code	Post Type	Sizes (ft/in)	No. per Tonne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)	Max. Wire Height
Chainlink Posts (1600mm)							
FPCHLI160	Inter*	5' 3"	36.42	44	27.5	1220	
FPCHLS1602W	2Way	5' 3"	17.69	15	56.5	860	
FPCHLS1603W	3Way	5' 3"	17.69	15	56.5	860	
FPCHLS160LHC	L/H Corner	5' 3"	17.69	15	56.5	860	3'
FPCHLS160RHC	R/H Corner	5' 3"	17.69	15	56.5	860	
FPCHLS160LHE	L/H End	5' 3"	17.69	15	56.5	860	
FPCHLS160RHE	R/H End	5' 3"	17.69	15	56.5	860	
FPCHLST150	5' Strut	5' 0"	41.20	44	24.3	1080	
Chainlink Posts (1900mm)							
FPCHLI190	Inter*	6' 3"	26.32	36	38.0	1380	
FPCHLS1902W	2Way	6' 3"	14.73	15	67.9	1030	
FPCHLS1903W	3Way	6' 3"	14.73	15	67.9	1030	
FPCHLS190LHC	L/H Corner	6' 3"	14.73	15	67.9	1030	4'
FPCHLS190RHC	R/H Corner	6' 3"	14.73	15	67.9	1030	
FPCHLS190LHE	L/H End	6' 3"	14.73	15	67.9	1030	
FPCHLS190RHE	R/H End	6' 3"	14.73	15	67.9	1030	
FPCHLST180	6' Strut	6' 0"	33.13	44	30.2	1340	
Chainlink Posts (2630mm)							
FP CHLI263	Inter*	8' 9"	16.02	27	62.4	1697	
FPCHLS2632W	2Way	8' 9"	10.38	10	96.3	975	
FPCHLS2633W	3Way	8' 9"	10.38	10	96.3	975	
FPCHLS263LHC	L/H Corner	8' 9"	10.38	10	96.3	975	6'
FPCHLS263RHC	R/H Corner	8' 9"	10.38	10	96.3	975	
FPCHLS263LHE	L/H End	8' 9"	10.38	10	96.3	975	
FPCHLS263RHE	R/H End	8' 9"	10.38	10	96.3	975	
FPCHLST240	8' Strut	8' 0"	25.04	33	39.9	1330	

*Inter chainlink post is tapered



CRANKED TOP SECURITY POSTS



Product Code	Post Type	Sizes (ft/in)	No. per Tonne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)	Max. Wire Height
Cranked Top Security Posts (3125mm)							
FPASI307	Inter	10' 3"	14.04	16	71.3	1152	6'
FPASS3072W	2W Strainer	10' 3"	8.53	5	117.2	598	
FPASS307EC	Ext. Corner	10' 3"	8.53	5	117.2	598	
FPASS307IC	Int. Corner	10' 3"	8.53	5	117.2	598	
FPASS307LHE	L/H End	10' 3"	8.53	5	117.2	598	
FPASS307RHE	R/H End	10' 3"	8.53	5	117.2	598	
FPCHLST240	8' Strut	8' 0"	25.04	33	39.9	1330	
Cranked Top Security Posts (3730mm)							
FPASI383	Inter	12' 3"	8.75	10	114.3	1155	8'
FPASS3832W	2W Strainer	12' 3"	5.17	5	193.6	980	
FPASS383EC	Ext. Corner	12' 3"	5.17	5	193.6	980	
FPASS383IC	Int. Corner	12' 3"	5.17	5	193.6	980	
FPASS383LHE	L/H End	12' 3"	5.17	5	193.6	980	
FPASS383RHE	R/H End	12' 3"	5.17	5	193.6	980	
FPCHLST305	10' Strut	10' 0"	13.27	12	75.3	916	

Please refer to our sales office for any special products required.

**CRANKED TOP
INTERMEDIATE**

**CRANKED TOP
STRAINER END**

MORTICED AND RECESSED POSTS



Product Code	Sizes (mm)	Sizes (ft/in)	No. per Tonne	No. per Pack	Individual Weight in kg	Pack Weight inc. Packaging (kg)
Morticed Posts - Intermediate						
FPMOR150	1525	5'	29.63	40	33.80	1370
FPMOR180	1830	6'	23.95	40	41.80	1690
FPMOR210	2135	7'	20.98	30	47.70	1450
FPMOR240	2440	8'	18.52	30	54.00	1640
FPMOR275	2745	9'	15.96	30	62.70	1900
FPMOR275DB*	2745	9'	15.95	30	62.70	1811
Morticed Posts - Corners						
FPMORC150	1525	5'	28.85	6	34.70	214
FPMORC180	1830	6'	24.00	6	41.70	256
FPMORC210	2135	7'	20.55	6	48.70	298
FPMORC240	2440	8'	17.49	6	57.20	349
FPMORC275	2745	9'	16.30	6	61.30	374
FPMORC275DB*	2745	9'	16.30	6	61.30	374
Recessed Posts						
FPARP145	1500	4' 11"	21.77	27	45.90	1260
FPARP175	1750	5' 9"	18.49	27	54.10	1480
FPARP220	2160	7' 3"	15.00	18	66.70	1220
FPARP250	2515	8' 3"	13.64	18	73.30	1340
FPARP307^	3125	10' 3"	10.00	9	100.00	920
Gravel Boards For Morticed/Recessed Posts						
FPGB240P	2400x150x50	7' 10½"	24.65	14	40.60	580
FPGB259P	2590x150x50	8' 6"	22.83	14	43.80	630
FPGB270P	2700x150x50	8' 10½"	21.60	14	46.30	660
FPGB2885P	2885x150x50	9' 5½"	19.77	16	50.60	720
FPGB300P	3000x150x50	9' 10"	19.10	16	52.40	745

^ To suit a 1.8m fence

* To suit a 2 metre fence

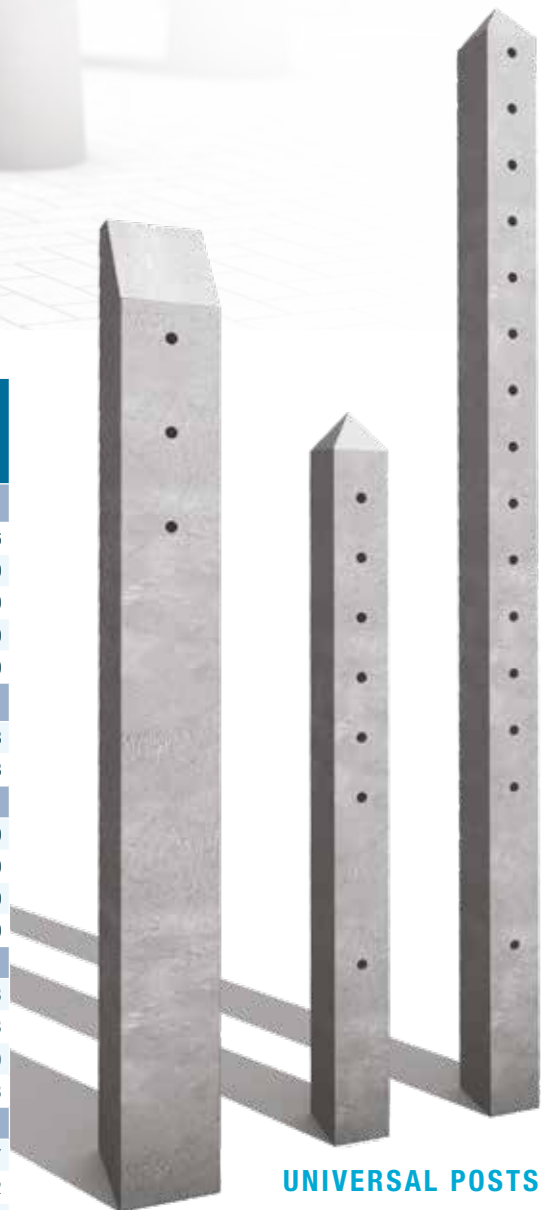
**MORTICED
CORNER**

**MORTICED
INTERMEDIATE**

BOLLARDS, UNIVERSAL POSTS AND REPAIR SPURS



Product Code	Sizes (mm)	Sizes (ft/in)	No. per Tonne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
Universal Posts - Intermediate						
FPUNP150	1525	5'	27.99	36	35.7	1306
FPUNP180	1830	6'	23.08	36	43.3	1580
FPUNP210	2135	7'	19.85	27	50.4	1380
FPUNP240	2440	8'	16.88	27	59.3	1620
FPUNP275	2745	9'	15.88	27	63.0	1720
Repair Spurs 3x3						
FP SUPP 099 3X3	990	3' 3"	74.63	70	13.4	953
FP SUPP 105 3X3	1070	3' 6"	69.44	70	14.4	1023
Repair Spurs 4x3						
FPSUP090	915x100x75	3'	65.73	70	15.2	1080
FPSUP105	1070x100x75	3' 6"	57.14	70	17.5	1240
FPSUP120	1220x100x75	4'	49.82	70	20.1	1420
FPSUP135	1370x100x75	4' 6"	44.16	70	22.6	1600
Repair Spurs 4x4						
FPSUP0904X4	915x100x100	3'	50.56	60	19.8	1188
FPSUP1054X4	1070x100x100	3' 6"	43.90	60	22.8	1368
FPSUP1204X4	1220x100x100	4'	38.50	60	26.0	1560
FPSUP1354X4	1370x100x100	4' 6"	33.58	60	29.8	1788
Screed Rail						
FPSRBF050	50x3000	2"	85.46	104	11.7	1237
FPSRBF100	100x3000	4"	38.34	48	26.1	1272
FPSRBF125	125x3000	5"	26.74	33	37.4	1254
FPSRBF150	150x3000	6"	21.43	30	46.7	1420
Bollards						
FPBOL135	1370x225	4' 6"	10.96	5	91	475



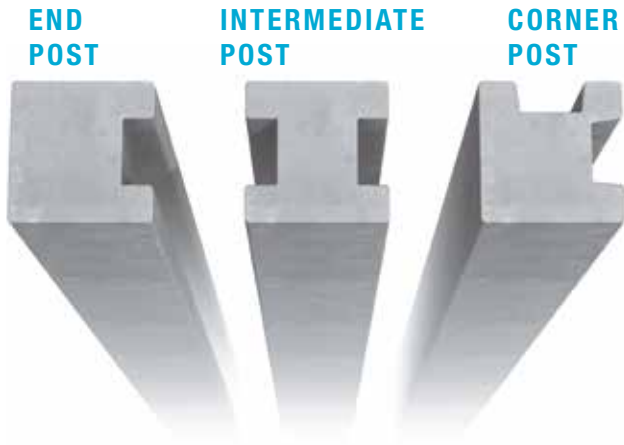
UNIVERSAL POSTS

REPAIR SPURS

Available in 4"x 4",
4"x 3" and 3"x 3"

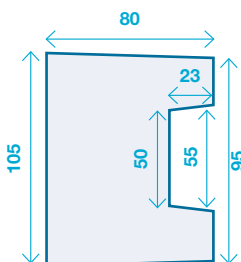
FENN-LITE LIGHTWEIGHT FENCING

Fenn-Lite™ offers a lighter alternative to standard weight slotted posts and gravel boards.

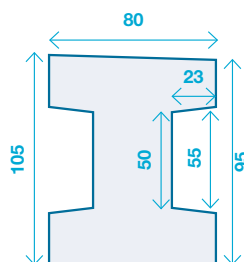


BENEFITS

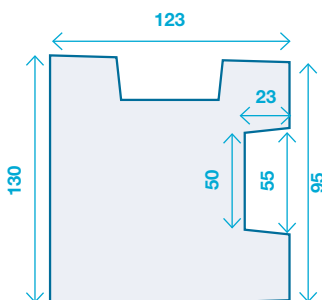
- Up to 45% lighter than conventional posts and panels
- Assists in compliance with manual handling requirements
- Easy to handle and install
- Reduced transport costs and CO² emissions
- Integral strength and wind resistance
- Posts available in 5 different lengths



End Post



Intermediate Post



Corner Post

Product Code	Sizes (ft/in)	No. per onne	No. per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
Slotted Posts - Intermediates					
FPSLP150MW	5'	45.45	40	22.0	920
FPSLP180MW	6'	37.04	40	27.0	1120
FPSLP210MW	7'	32.26	30	31.0	960
FPSLP240MW	8'	28.57	30	35.0	1080
FPSLP275MW	9'	25.00	30	40.0	1220
Slotted Posts - Intermediates - Heavy Duty Lightweight					
PREFPHDSLPC305LW	10'	13.70	18	73.0	1340
PREFPHDSLPC335LW	11'	12.50	18	80.0	1460
PREFPHDSLPC366LW	12'	11.40	18	88.0	1600
Slotted Posts - Corners - Light Weight					
FPSLPC150LW	5'	28.74	6	34.8	218.8
FPSLPC180LW	6'	23.62	6	42.3	260
FPSLPC210LW	7'	20.41	6	49.0	300
FPSLPC240LW	8'	16.95	6	59.0	360
FPSLPC275LW	9'	15.23	6	65.7	400
Slotted Posts - Corners - Heavy Duty Lightweight					
PREFPHDSLPC305LW	10'	12.80	6	78.0	438
PREFPHDSLPC335LW	11'	11.40	6	88.0	543
PREFPHDSLPC366LW	12'	10.60	6	94.0	579
Slotted Posts - Ends					
FPSLPE150MW	5'	40.00	10	25.0	270
FPSLPE180MW	6'	32.26	10	31.0	330
FPSLPE210MW	7'	28.57	10	35.0	370
FPSLPE240MW	8'	25.00	10	40.0	420
FPSLPE275MW	9'	22.22	10	45.0	470
Slotted Posts - Ends - Heavy Duty Lightweight					
PREFPHDSLPE305LW	10'	13.00	9	77.0	718
PREFPHDSLPE335LW	11'	11.10	9	90.0	832
PREFPHDSLPE366LW	12'	9.40	9	106.0	976
Gravel Boards For Slotted Posts - Light Weight					
FPGBP150LW Plain	6"	48.31	40	20.7	840
FPGBP305LW-SD Plain	12"	22.60	20	44.3	900
FPGBR150LW Recessed	6"	50.96	40	19.6	800
FPGBR305LW Recessed	12"	30.77	20	32.5	665
FPGBRF305WCLWHP Rock Faced HP	12"	24.81	16	40.3	660
Recessed Posts - Light Weight					
FPARP250LW	8' 3"	18.75	18	53.3	980
Morticed Posts - Light Weight					
FPMOR240LW	8'	23.44	30	42.7	1300





FILTER BED SYSTEMS

FP McCann offers a specialist design and build service for circular biological filter walls. The inherent flexibility of this well-proven system allows us to accommodate all ancillary requirements.

FP McCann's filter beds provide low whole life costs, due to the low energy and low maintenance required by the system.

Offering many advantages over ASP, Baff and Saff Treatment processes, the system uses zero energy, zero chemicals and has a very low carbon footprint.

Filter Bed Systems	110
Filter Bed Tiles	111
Filter Bed Wall Units	112

FILTER BED SYSTEMS

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Due to daily and seasonal temperature fluctuations, traditional brick, cast in-situ concrete and stiffly joined, freestanding filter bed structures have high levels of failure associated with the development of excessive circumferential stresses induced in the wall. During successive cycles of expansion and contraction, the passive pressures at wall/filter medium interface increase with time in a racking manner. This failure normally occurs suddenly, although it may take years to develop and even with thorough and regular visual inspection, it is difficult to predict.

As CIRA Report 58 states: "The failure by ring tension is characterised by vertical cracks which progressively increase in width, but many years may lapse before the wall collapses."



HIGH STRENGTH/HIGH FLEXIBILITY SOLUTIONS

In designing for long-term serviceability, it is essential to understand the nature of the stress escalation. FP McCann's filter beds incorporate a specifically designed and patented panel-to-panel connection assembly. This assembly combines the unique features of high strength (to enhance structural integrity) and high flexibility (to prevent the development of excessive circumferential stresses due to temperature variations). These failures make the assembly particularly durable and lead to a longer life.

DURABILITY

An important aspect of this assembly system is that passive pressures are reduced to acceptable levels and do not play a critical role in the structural performance of FP McCann's filter beds. FP McCann has extensive experience in the design and construction of filter bed retaining walls of ring tension-type. Many structures have been in service for over 40 years, with their expected lifespan much longer than this.



PATENTED AND RELIABLE

FP McCann's well-proven and patented system incorporates neoprene washers, which prevent damage arising from thermal movement and overcome the problem of failure caused by passive resistance. Used for many years by water companies and authorities nationwide, the FP McCann system not only offers total reliability but also proven value and design flexibility in the construction of new and the repair of existing filter bed walls.

DESIGN AND INSTALLATION

Utilising highly skilled and experienced installation teams, the precast units are erected to the highest of standards. FP McCann offers a full design and building service anywhere in the country.

FILTER BED TILES

Relatively light, very strong and easy to lay, perforated concrete filter bed floor tiles are a major advance on traditional clay tiling. They are designed to maintain all outflow requirements.

The tiles are manufactured using sulphate resistant cement, with a mix which gives a minimum concrete strength of 60N/mm² at 28 days. With maximum drainage outflow, outlet channels in the floor up to 600mm can be spanned, the well-proven tiling system allows for total coverage in any shaped bed (circular, a figure of eight, square or rectangular).

Project-specific drawings are provided to show the layout of tiles and can be installed by the customer or by FP McCann.

Made for strength and durability, the tiles are capable of carrying higher than normal design loading. Their configuration makes them far more resistant to damage and moving during media placement than traditional tiles.

PRODUCT DATA

- Concrete strength: min 60N/mm²
- SR cement, generally ex-fibre glass mould finish, plain finish on top
- 10mm granite aggregate: 1171kg/m³
- Water cement ratio: 0.45

INSTALLATION

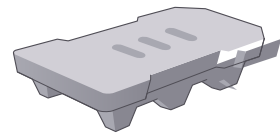
Laying the tiles on a concrete base is fast and efficient. Two men can lay at a rate of approximately 30m² per hour. Each 55kg tile covers an area of 0.5m², giving a large amount of coverage per tile. The tiles can also be machine laid with a vac-pad or by using a fork with modified tongs.

T SERIES TILES

Overall height of tiles: 125mm



T1: 707 x 707mm



T2: 700 x 347mm
(Chamfered corners
70 mm @ 45° one end)



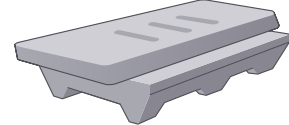
T3: 150 x 347mm



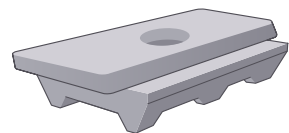
T4: 353 x 353mm

P SERIES TILES

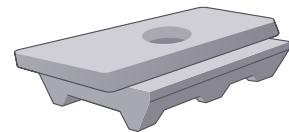
Overall height of tiles: 190mm



P1: 740 x 368mm with 3 slots



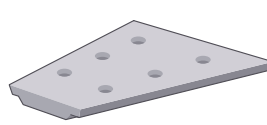
P2 (V): 740 x 368mm
As P1 with 130 mm dia
hole for ventpipe, no slots



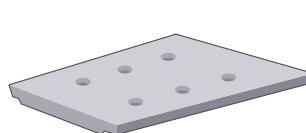
P1 (V4): 740 x 368mm
As P1 with 130 mm dia hole for ventpipe, no slots
P1 (V6): 740 x 368mm
As P1 with 130 mm dia hole for ventpipe, no slots

C SERIES TILES

Overall thickness of tiles: 63mm



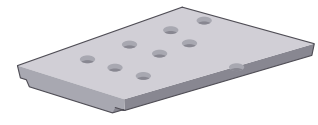
C1: 800x700mm reducing to
386mm



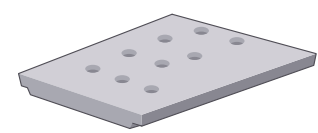
C3: 800x700mm reducing to 442mm
C3 lite: 800x591mm reducing to
345mm

S SERIES TILES

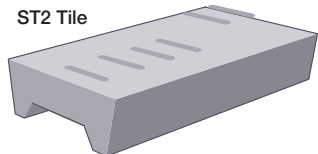
Overall thickness of tiles: 63mm



S22: 800x714mm reducing to 655mm



S45 lite: 700x728mm reducing to
693mm



ST2: 808 x 350 x 125mm
ST2 lite: 800 x 240 x 25mm

FILTER BED WALL UNITS

High strength, combined with a high degree of flexibility and a range of integrated fittings, makes filter bed wall units a durable, engineered solution for a wide range of projects.

DESCRIPTION

FP McCann's precast concrete wall units are available in a variety of heights. They are manufactured using sulphate-resisting cement, with a minimum concrete strength of 60 N/mm² at 28 days. Utilising fibreglass moulds, the wall has a formed finish to all visible faces of the units, with the internal face receiving a simple textured finish.

DESIGN FLEXIBILITY

The design flexibility of the system means that services such as inlets, wash outs and peripheral drainage, or other special features can be accommodated. Walls are designed to be free-standing. Within the design parameters, figures-of-eight and clusters are acceptable. Please refer to our technical department with regard to external mounding and media infill.

PRODUCT DATA

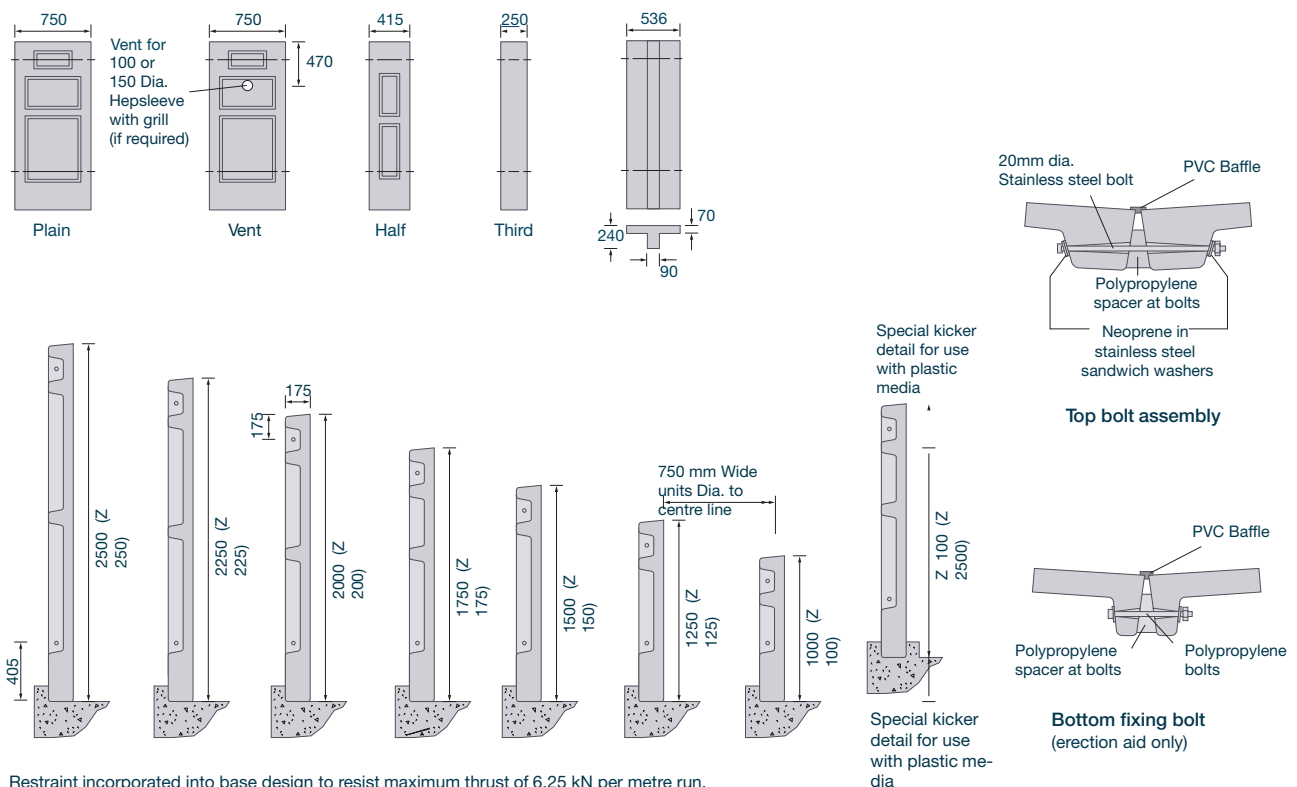
- Concrete: Min 60 N/mm²
- SR cement, generally ex-fibre glass mould finish, brush finish to unformed face

REMEDIAL FILTER BED WALL UNITS

Where existing walls are cracked, decayed or have failed, FP McCann is able to provide a full survey and design a tailored quotation with proposed remedial measures.

The design of the system allows cracked or collapsed walls to be surrounded quickly and economically. In addition, existing walls can also be increased in height.

Generally, the beds will remain operational whilst the work is carried out, with disruption kept to a minimum; thus avoiding the high cost of rebuilding. This remedial service is available anywhere



Restraint incorporated into base design to resist maximum thrust of 6.25 kN per metre run.





FLOORING SOLUTIONS

FP McCann offers an extensive range of flooring solutions including beam and block/poly flooring, hollowcore flooring, stairs and landings to the industrial, commercial and domestic markets.

Modern manufacturing facilities at Weston Underwood, Derbyshire and Uddingston, Lanarkshire and an in-house design team ensures we have the knowledge, experience and the manufacturing capacity to meet our customers' requirements.

FP McCann will deliver to locations throughout the UK and our sales and technical teams are on hand to discuss your requirements.

All our products are manufactured in accordance with relevant British and European standards and we are quality assured to ISO 9001 and OHSAS 18001 Health and Safety Management System.

Whether you require a small 60m² plot or a 10,000m² floor, we have the slabs and the capacity to suit your needs. We work with everyone from multinational construction companies, architects and engineers to self-employed builders and we will always aim to work efficiently and effectively to build solid working relationships.

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BEAM & BLOCK (T BEAM) FLOORING SYSTEM

The traditional beam and block flooring system involves laying precast, prestressed concrete floor beams across or between walls which are then infilled with concrete blocks.

FP McCann manufactures 150mm deep concrete floor beams which come in two widths – 110mm and 168mm. Spans of up to 7 metres can be achieved, depending on loading conditions.

This dry construction method can be used to produce high-quality economic ground and upper floors in residential and other building types.

Our quotations will stipulate the number and type of blocks required to complete the floor. Precast concrete floor beams are available on a supply only or a supply and fix basis.

Did you know that 75% of ground floors now utilise beam and block of some form? This could either be with a concrete block or a polystyrene panel.

KEY BENEFITS

- Free quotations available
- Concrete block and poly panel solutions available
- Lead-in times of 3-10 working days from receipt of order



BEAM & POLYSTYRENE PANEL FLOORING

FP McCann offers a choice of two energy-efficient beam and polystyrene panel systems, outlined below.



TOP SHEET SYSTEM

Our top sheet flooring system incorporates a polystyrene panel which sits within the depth of the floor beam, as well as including an overboard top sheet to sit on top of the floor. U-values of 0.11 W/m²K or better can be achieved with our top sheet system. This system is easier to install than the undercloaking system, creates very minimal waste and has been tested to allow block partitions to be built off the floor.

UNDERCLOAKING SYSTEM

We also supply an undercloaking system which incorporates one panel that fits within the floor beam depth, as well as falling beneath the level of the beam to allow for complete thermal coverage. U-values from 0.08 W/m²K or better can be achieved utilising the undercloaking system. This system has been around over 10 years now and is well known by the majority of installers. It offers a wider range in U-values and only requires 'one fix' when it comes to infilling with polystyrene as no top sheet is required.

BEAM & BLOCK ANCILLARIES AND ADDITIONAL SERVICES

Alongside our beam and block flooring solutions, we offer the relevant ancillary products such as end slips, closure units, ceiling clips, vents and air bricks. These extras will be detailed on our quotation and shown as either an extra-over or an inclusion.

VENTS AND AIR BRICKS

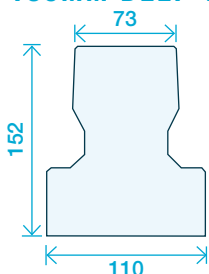


END SLIP

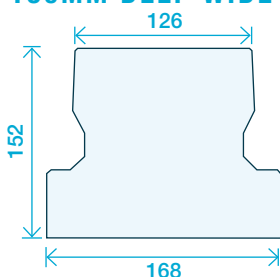


CLOSURE UNIT

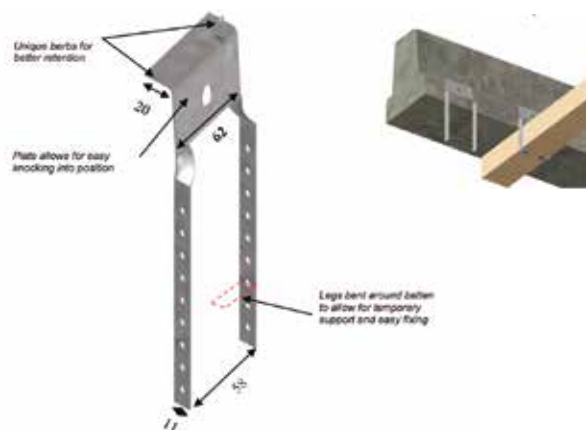
*150MM DEEP T BEAM



*150MM DEEP WIDE BEAM



CEILING CLIPS



SUPPLY & FIX

As well as offering products on a supply only basis, we also offer a supply and install service. Any contract undertaken on a supply and fix basis will include labour and plant, as necessary.

TRANSPORT

We have a range of delivery vehicles available including articulated vehicles, rear wheel steer trailers or rigid loads. Please contact us for further details.

MERCHANTS

Beams are readily available for stock and can be supplied in standard lengths. Blocks are available on a supply and fix basis only. For further information on this, please contact us.

Span Load Table - 150mm Deep T Beam		Finishes = 1.5kN/m ²					
		Superimposed load in kN/m ²					
Floor case (based on 1400kg/m ³ block density)	Floor self weight kN/m ²	1.5	2	2.5	3	4	5
150 DEEP T BEAM			Maximum clear span (m)				
Single beam - full block	1.78	4.30	4.10	3.90	3.74	3.46	3.24
Single beam - full block/narrow block, alternate	1.88	4.82	4.58	4.37	4.20	3.90	3.65
Single beam - narrow block	2.07	5.57	5.31	5.08	4.88	4.34	4.26

Span Load Table - 150mm Deep Wide Beam		Finishes = 1.5kN/m ²					
		Superimposed load in kN/m ²					
Floor case (based on 1400kg/m ³ block density)	Floor self weight kN/m ²	1.5	2	2.5	3	4	5
150 DEEP WIDE BEAM			Maximum clear span (m)				
Single beam - full block	1.96	4.75	4.67	4.56	4.37	4.07	3.81
Single beam - full block/narrow block, alternate	2.10	5.07	4.99	4.90	4.80	4.51	4.24
Single beam - narrow block	2.33	5.48	5.40	5.30	5.25	5.10	4.83

THERMABEAM™

THE INNOVATIVE ALTERNATIVE TO BEAM AND BLOCK FLOORING

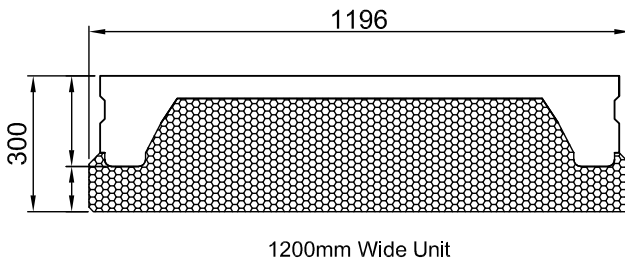
ThermaBeam™ is an insulated precast flooring system that combines both high performance expanded polystyrene (EPS) insulation and reinforced concrete, forming a continuous layer of insulation across the whole floor. The structural concrete is cast onto the insulation, eliminating air gaps, thereby minimising heat loss.

ThermaBeam™ units are available in a standard depth of 300mm, each with a choice of two insulation types - poly or platinum poly. All ThermaBeam™ units are grouted on-site using C25/30 sand cement mortar.

ThermaBeam™ unit	Perimeter/ Area Ratio	U-Value (W/m²K)
300mm	0.6	*0.14W/m²K

* Figures based on the Platinum Poly Insulation

300mm ThermaBeam™



APPLICATIONS

Residential ground floors.

As well as offering excellent insulating properties, and a significant reduction in cold bridging, the ThermaBeam™ system helps to reduce CO₂ emissions by decreasing the amount of non-renewable energy required to heat the building.



BENEFITS

- Low on-site costs and space required since units are manufactured off-site
- Fast installation, enabling a safe platform for follow-on trades within a few hours
- Excellent thermal performance due to its insulating properties. A reduction in cold bridging is achieved, resulting in better Psi (ψ) values
- U-Values as low as 0.10W/m² K, based on a P/A ratio of 0.2 can be achieved
- Helps building to achieve a higher energy-efficiency rating
- Reduced safety issues – reduced on-site working
- High quality units are designed in accordance with relevant BS EN standards: BS EN 1992-1-1:2004 (Eurocode 2: Design of concrete structures) and BS EN 13224:2001 (Precast Concrete Products – Ribbed Floor Elements
- Low carbon footprint – since less energy is required to heat building
- Spans up to 7.5m (depending on load)

HOLLOWCORE FLOORING

FP McCann manufactures precast concrete hollowcore flooring units. These units are a prestressed concrete slab normally 1200mm wide (part widths are also available if required) and a current depth range of 150mm to 450mm. In addition to this range, we also manufacture a 100mm deep precast concrete floor slab.

Our hollowcore slab production techniques are constantly being updated and developed to offer additional slab depths to the range and also increase efficiency and achieve higher quality. As with our other flooring products, hollowcore slabs can be used with masonry, steel precast and in-situ forms of construction.

Whether you require a small 60m² plot or a 10,000m² floor, we have the slabs and the capacity to suit your needs. We work with everyone from multinational construction companies, architects and engineers to self-employed builders and we will always aim to work efficiently and effectively to build solid working relationships



PRESTRESSED HOLLOWCORE FLOORING BENEFITS

- Long spans
- Quick installation, particularly when compared to wet concrete solutions
- Immediate working platform
- High load capacity
- Preformed holes for services
- A wide range of slab depths available
- Can be used with masonry, steel, precast and in-situ forms of construction

DESIGN & MANUFACTURE

- Designed to BS8110 and BS EN 1992-1-1
- Can be designed as a composite floor
- Lifting points can be provided
- All units can be offered with insulation preattached to the soffit
- Prestressed design with inherent pre-chamber (generally span/ 300)
- The fire-resistance rating of up to 2 hours
- 50 to 100-year lifespan
- Can easily incorporate disproportionate collapse details

TYPICAL APPLICATIONS

- Residential (Multi-occupancy)
- Offices
- Education
- Car Parks
- Retail
- Custodial

HOLLOWCORE FLOORING

HOLLOWCORE LOAD/SPAN TABLE

Spans indicated opposite allow for characteristic service load (live load kN/m²) + unit self WT + 1.5kN/m² for floor finishes.

Unit Depth (mm)	Self Weight (kN/m ²)	Fire Rating (hrs)	Characteristic Service Load kN/m ²									
			0.75	1.5	2.0	2.5	3.0	4.0	5.0	7.5	10.5	15.0
150	2.36	1	7.50	7.50	7.50	7.50	7.50	7.10	6.60	5.80	5.20	4.50
150H	3.02	1	7.50	7.50	7.50	7.50	7.40	6.90	6.40	5.60	5.10	4.40
200	2.98	*1	10.00	9.90	9.70	9.20	9.00	8.40	7.90	7.00	6.30	5.40
250	3.62	*1	12.50	11.70	11.30	10.90	10.50	9.80	9.30	8.20	7.50	6.40
260	3.47	*1	13.00	12.50	12.00	11.50	11.00	10.50	10.00	8.50	8.00	7.00
300	3.99	2	14.60	14.30	14.10	13.60	13.30	12.50	11.90	10.70	9.70	7.90
350	4.53	2	16.00	15.00	14.90	14.70	14.50	14.20	13.20	12.00	10.80	9.50
400	5.15	2	17.00	17.00	17.00	16.30	15.70	15.10	14.40	13.10	12.10	10.50
450	5.46	2	17.00	17.00	17.00	17.00	16.50	16.20	15.20	14.00	13.00	11.30

NOTE:

Tables are given as a guide only. When using maximum spans, consideration to the effect of camber/ deflection on finishes/ internal partitions is advised. Reinforcement patterns will vary, dependent on the spans/ loads specified.

Tables do not consider reduced capacities for potential service hole requirements or additional loads to those stated above. For alternative load/ span combinations, including service hole requirements or composite designs, please consult the FP McCann design office.

* 2hr available. Please consult the FP McCann design office for further details.

SOLID COMPOSITE PLANK LOAD/ SPAN TABLE

Unit Depth & Concrete Topping (mm)	Self Weight (kN/m ²)	Fire Rating (hrs)	Propped Y/N	Characteristic Service Load Kn/m ²									
				0.75	1.50	2.00	2.50	3.00	4.00	5.00	10.00	15.00	
75 + 75	3.57	1	N	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.50
75 + 100	4.24	1	N	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.65
100 + 50	3.55	*1	N	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.10	3.68
100 + 100	4.75	*1	N	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.30	3.90
75 + 75	3.57	1	Y	7.50	7.00	6.80	6.50	6.35	5.95	5.60	4.56	3.92	
75 + 100	4.24	1	Y	8.32	7.78	7.52	7.25	7.02	6.62	6.29	5.12	4.05	
100 + 50	3.55	*1	Y	7.80	7.27	7.00	6.75	6.50	6.10	5.60	4.10	3.65	
100 + 100	4.75	*1	Y	9.10	8.50	8.22	8.08	7.82	7.33	7.05	5.80	4.00	

INK JET PLOTTER

The ink jet plotter brings quality, detailing and dimensional benefits to our hollowcore flooring product. During the manufacturing process, the ink jet accurately details the exact dimensions from the designers AutoCAD drawings onto the top surface of the hollowcore.

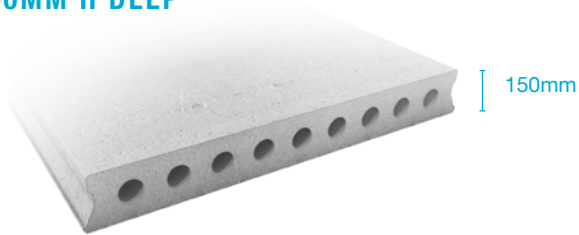
This ensures that the lengths and any required features are formed exactly as designed. The unique identification of each unit, together with the weight and traceability information, is also printed onto the flooring units.



AVAILABLE SLAB DEPTHS

A wide range of hollowcore slab depths are available to suit your requirements. Slabs can be used as a finished soffit. Good flexibility on cut width units reduces in-situ strips. Allows for full precast make up.

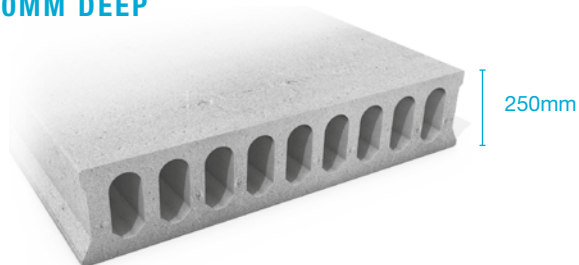
150MM H DEEP



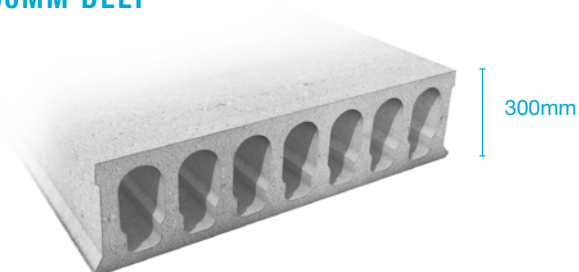
200MM H DEEP



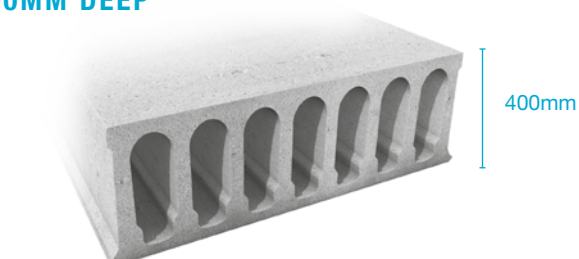
250MM DEEP



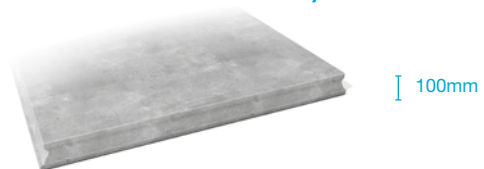
300MM DEEP



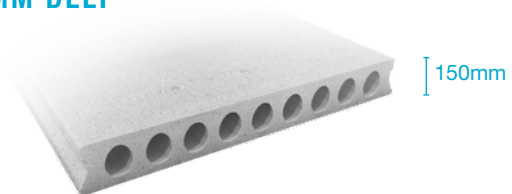
400MM DEEP



100MM DEEP (60/75/160 ALSO AVAILABLE)



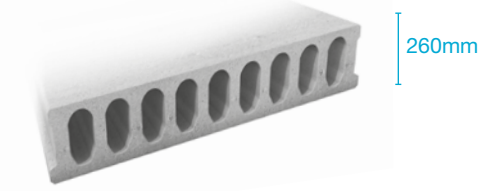
150MM DEEP



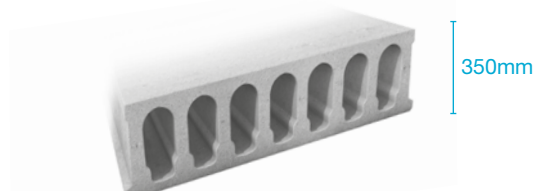
200MM DEEP



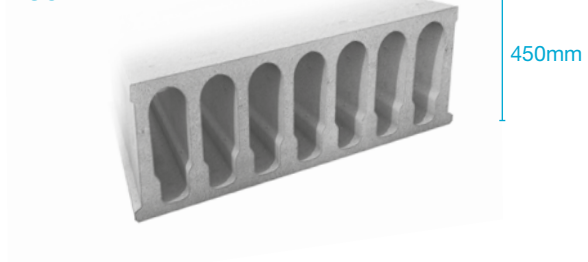
260MM DEEP



350MM DEEP



450MM DEEP



PRECAST STAIRCORES

FP McCann has vast experience in delivering bespoke precast stair core solutions based on two design options, stability cores and freestanding cores. The key difference being that stability cores provide lateral stability to the whole surrounding structure.

We offer a full design and installation service throughout the UK. We work closely with your design team at an early stage to develop the optimum solution to meet your needs. As a result, the minimum of temporary works is required on-site.

L and T shaped walls form our precast concrete stair cores. If the core dimensions suit, precast box units can also be adopted. Inside the stair core, FP McCann provides precast stairs and landings with cast-in lifting points making installation efficient and safe.

The wall thickness will depend on the type of stair core you choose (ie. stability or freestanding), fire rating and the number of storeys. However, with FP McCann huge production and mould capacity we have a solution for all scenarios.

We manufacture all the precast components using self-compacting concrete which results in a high-quality finish.



KEY BENEFITS

- Units produced in a factory-controlled environment
- Quick installation
- Increased health and safety with reduced temporary works
- Immediate working platform
- Inherent fire resistance

PRECAST STAIRS & LANDINGS

FP McCann provides precast concrete stairs and landings which allow immediate access to site personnel and following trades and also the final end-users.

Using FP McCann precast stairs helps to eliminate the need for expensive form work and temporary propping. All the flights have cast in lifting points to make installation efficient, easy and safe. FP McCann has built up vast knowledge and experience of different types of applications of precast concrete stairs and landings over the years. We can share this knowledge through our technical support, design and installation services.

KEY BENEFITS

- Self-compacting concrete provides a high-quality finish
- Cast on edge or flat, depending on finish requirements
- A range of casting options are available for integral or separate landings
- Quick installation
- Immediate access
- High load capacity

PRECAST CONCRETE STAIRS AND LANDING INSTALLATION SERVICE

Our specialist team will install your stairs with expertise and efficiency. Our installers are highly-trained and vastly experienced. By choosing to use our installation service we aim to get your job done quickly and safely. We can offer professional advice and guidance on compliance with health and safety legislation. Especially when it comes to working at height, we can supply the necessary fall protection whilst the staircases are installed.

When using our installation service, an FP McCann Contracts Manager will visit your 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.

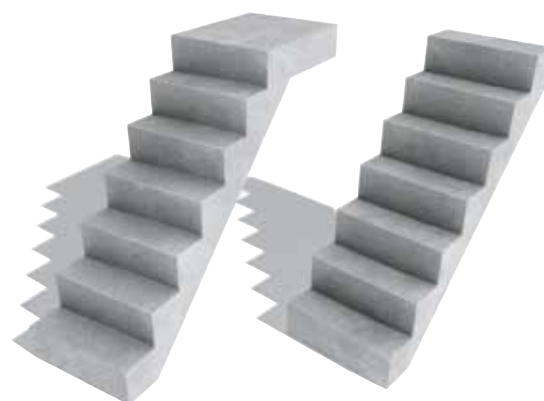
PRECAST CONCRETE STAIRS AND LANDING DESIGN SERVICE

With our designers years of experience, we can offer a design service covering many staircase applications, including creative solutions to unconventional applications.

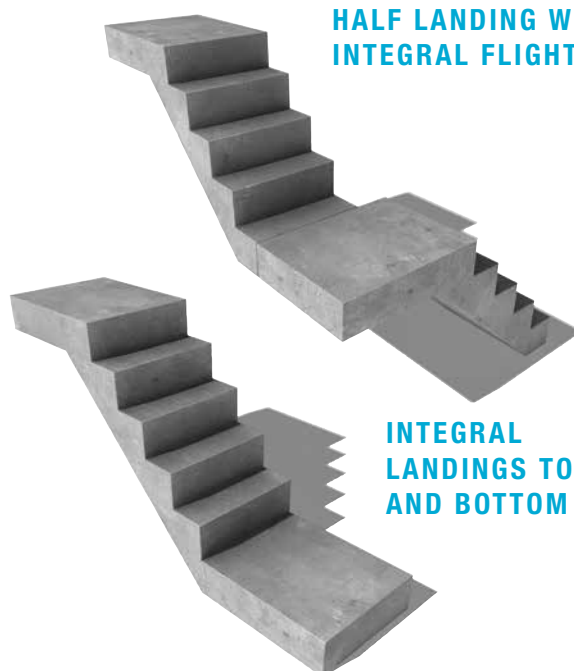


INTEGRAL TOP LANDING

STRAIGHT FLIGHT



HALF LANDING WITH INTEGRAL FLIGHT



INTEGRAL LANDINGS TOP AND BOTTOM





POWER & INFRASTRUCTURE

FP McCann offers a specialist range of precast reinforced concrete cable troughs and service trench systems, 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 offers easy access for maintenance and repair.

Three types of flush fitting lids are supplied in either reinforced precast concrete, GRP composite or steel tray. All lids are rated in accordance with the loading groups specified in BS EN 124.

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

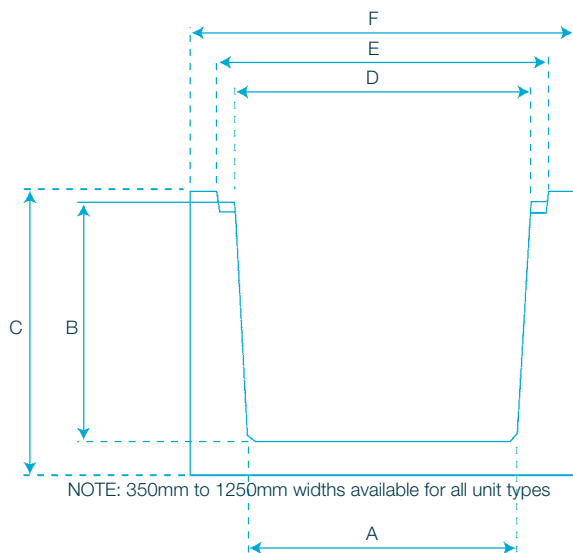
A site visit can be arranged for technical and procurement personnel. Please contact our sales team for further details.

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Airport Pit Solutions	138



TROUGHS – STRAIGHT UNITS

FP McCann's trough and service duct systems are designed and manufactured to comply with loading criteria as set out in accordance with BS EN 1433 (Troughs) and BS EN 124 (Lids). All standard troughs are one metre long. Two metre units are available on a made-to-order basis. All operations are conducted in accordance with FP McCann's quality management system, accredited to BS EN ISO 9001.



TROUGHS – STRAIGHT UNITS

*STRAIGHT UNIT TROUGH DIMENSIONS

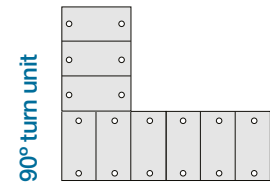
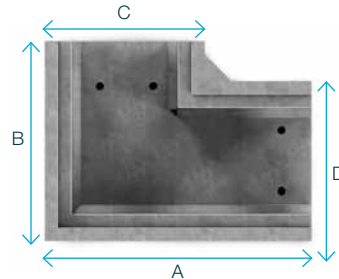
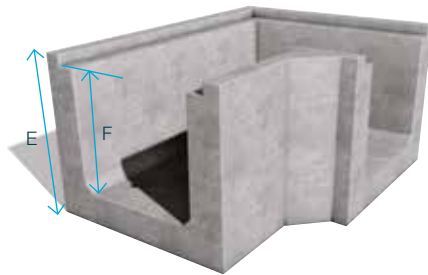
Coding	Width x Depth x Length (mm)	Loading group Class to BS EN 124	Rebate Depth mm	s/w† nominal (kg)	Supplied with Lid reference	Trough Dimensions (mm)					
						A	B	C	D	E	F
MT 350 300 ABCD SL	350 x 300 x 1000 Trough SL	A,B,C & D	50	450	ML 350 50 ODT A or ML 350 50 CDS A or ML 350 50 CDS B	350	350	525	385	510	635
MT 350 300 ABCD LL	350 x 300 x 1000 Trough LL	A,B,C & D	100	450	ML 350 100 RC AB or ML 350 100 ST CD	350	300	525	380	510	635
MT 450 450 ABCD SL	450 x 450 x 1000 Trough SL	A,B,C & D	50	596	ML450 50 ODT A or ML 450 50 CDS A or ML 450 50 CDS B	450	500	675	500	625	750
MT 450 450 ABCD LL	450 x 450 x 1000 Trough LL	A,B,C & D	100	596	ML 450 100 RC AB or ML 450 ST CD	450	450	675	495	625	750
MT 600 300 ABCD SL	600 x 300 x 1000 Trough SL	A,B,C & D	50	596	ML 600 50 ODT A or ML 600 50 CDS A or ML 600 50 CDS B	570	350	550	605	750	900
MT 600 300 ABCD LL	600 x 300 x 1000 Trough LL	A,B,C & D	100	596	ML 600 100 RC AB or ML 600 ST CD	570	300	550	600	750	900
MT 600 600 ABCD SL	600 x 600 x 1000 Trough SL	A,B,C & D	50	810	ML 600 50 ODT A or ML 600 50 CDS A or ML 600 50 CDS B	570	600	800	630	750	900
MT 600 600 ABCD LL	600 x 600 x 1000 Trough LL	A,B,C & D	100	810	ML 600 100 RC AB or ML 600 ST CD	570	550	800	625	750	900
MT 750 500 ABCD SL	750 x 500 x 1000 Trough SL	A,B,C & D	50	923	ML 750 50 ODT A or ML 750 50 CDS A or ML 750 250 TH CD	750	550	750	805	955	1125
MT 750 500 ABCD LL	750 x 500 x 1000 Trough LL	A,B,C & D	100	923	ML 750 100 RC AB or ML 750 100 ST CD	750	500	750	800	955	1125
MT 750 750 ABCD SL	750 x 750 x 1000 Trough SL	A,B,C & D	50	1115	ML 750 50 ODT A or ML 750 50 CDS A or ML 750 250 TH CD	750	800	1000	830	955	1125
MT 750 750 ABCD LL	750 x 750 x 1000 Trough LL	A,B,C & D	100	1115	ML 750 100 RC AB or ML 750 100 ST CD	750	750	1000	825	955	1125
MT 1000 500 ABCD SL	1000 x 500 x 1000 Trough SL	A,B,C & D	50	1108	ML 1000 50 ODT A or ML 1000 50 CDS A or ML 1000 50 250 TH CD	1000	550	750	1055	1230	1425
MT 1000 500 ABCD LL	1000 x 500 x 1000 Trough LL	A,B,C & D	100	1108	ML 1000 100 RC AB or ML100 ST CD	1000	500	750	1050	1230	1425
MT 1000 750 ABCD SL	1000 x 750 x 1000 Trough SL	A,B,C & D	50	1331	ML 1000 50 ODT A or ML 1000 50 CDS A or ML 1000 50 250 TH CD	1000	800	1000	1080	1230	1425
MT 1000 750 ABCD LL	1000 x 750 x 1000 Trough LL	A,B,C & D	100	1331	ML 1000 100 RC AB or ML100 ST CD	1000	750	1000	1075	1230	1425
MT 1000 1000 ABCD SL	1000 x 1000 x 1000 Trough SL	A,B,C & D	50	1539	ML 1000 50 ODT A or ML 1000 50 CDS A or ML 1000 50 250 TH CD	1000	1050	1250	1105	1230	1425
MT 1000 1000 ABCD LL	1000 x 1000 x 1000 Trough LL	A,B,C & D	100	1539	ML 1000 100 RC AB or ML100 ST CD	1000	1000	1250	1100	1230	1425
MT 1250 750 ABCD SL	1250 x 750 x 1000 Trough SL	A,B,C & D	75	1484	ML 1250 250 TH CD	1250	775	1000	1330	1505	1700
MT 1250 750 ABCD LL	1250 x 750 x 1000 Trough LL	A,B,C & D	150	1484	ML 1250 150 RC AB or ML 1250 ST CD	1250	700	1000	1320	1505	1700
MT 1250 1000 ABCD SL	1250 x 1000 x 1000 Trough SL	A,B,C & D	75	1708	ML 1250 250 TH CD	1250	1025	1250	1355	1505	1700
MT 1250 1000 ABCD LL	1250 x 1000 x 1000 Trough LL	A,B,C & D	150	1708	ML 1250 150 RC AB or ML 1250 ST CD	1250	950	1250	1345	1505	1700
MT 1250 1250 ABCD SL	1250 x 1250 x 1000 Trough SL	A,B,C & D	75	1915	ML 1250 250 TH CD	1250	1275	1500	1380	1505	1700
MT 1250 1250 ABCD LL	1250 x 1250 x 1000 Trough LL	A,B,C & D	150	1915	ML 1250 150 RC AB or ML 1250 ST CD	1250	1200	1500	1370	1505	1700

*All dimensions contained within this brochure are nominal and do not take into account manufacturing tolerances.

† maximum self weight = nominal self + 5%, which should be used to size lifting equipment

Available as 2.0m units as a made to order

CORNER UNITS

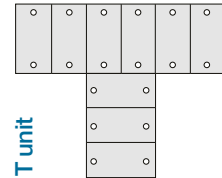
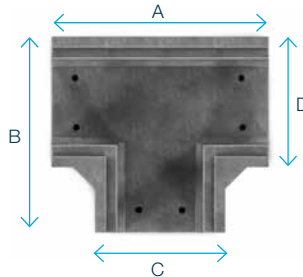
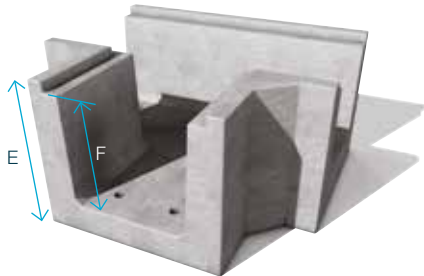


*CORNER UNIT TROUGH DIMENSIONS

Coding	Width x Depth x Length (mm)	s/w† nominal (kg)	Supplied with Lid reference	Trough Dimensions (mm)					
				A	B	C	D	E	F
MT 350 300 1085 ABCD SL	350 x 300 x 1085 Trough SL Corner	690	ML 350 50 OM A or ML 350 50 CDS A or ML 350 50 CDS B	1085	1070	635	635	525	350
MT 350 300 1085 ABCD LL	350 x 300 x 1085 Trough LL Corner	670	ML 350 100 RC AB or ML 350 100 ST CD	1085	1070	635	635	525	300
MT 450 450 1198 ABCD SL	450 x 450 x 1198 Trough SL Corner	913	ML 450 50 A OM or ML 450 50 CDS A	1198	1073	750	750	675	500
MT 450 450 1198 ABCD LL	450 x 450 x 1198 Trough LL Corner	892	ML 450 100 RC AB or ML 450 50 CDS B or ML 450 100 ST CD	1198	1073	750	750	675	450
MT 600 300 1335 ABCD SL	600 x 300 x 1335 Trough SL Corner	970	ML 600 50 OM A or ML 600 50 CDS A or ML 600 50 CDS B	1335	1085	900	900	550	350
MT 600 300 1335 ABCD LL	600 x 300 x 1335 Trough LL Corner	945	ML 600 100 RC AB or ML 600 ST CD	1335	1085	900	900	550	300
MT 600 600 1335 ABCD SL	600 x 600 x 1335 Trough SL Corner	1245	ML 600 50 OM A or ML 600 50 CDS A or ML 600 50 CDS B	1335	1085	900	900	800	600
MT 600 600 1335 ABCD LL	600 x 600 x 1335 Trough LL Corner	1220	ML 600 100 RC AB or ML 600 ST CD	1335	1085	900	900	800	550
MT 750 500 1550 ABCD SL	750 x 500 x 1550 Trough SL Corner	1928	ML 750 50 OM A or ML 750 50 CDS A or ML 750 250 TH CD	1595	1550	1125	1125	750	550
MT 750 500 1550 ABCD LL	750 x 500 x 1550 Trough LL Corner	1928	ML 750 100 RC AB or ML 750 100 ST CD	1595	1550	1125	1125	750	500
MT 750 750 1550 ABCD SL	750 x 750 x 1550 Trough SL Corner	2376	ML 750 50 OM A or ML 750 50 CDS A or ML 750 250 TH CD	1595	1550	1125	1125	1000	800
MT 750 750 1550 ABCD LL	750 x 750 x 1550 Trough LL Corner	2376	ML 750 100 RC AB or ML 750 100 ST CD	1595	1550	1125	1125	1000	750
MT 1000 500 1220 ABCD SL	1000 x 500 x 1220 Trough SL Corner	2254	ML 1000 50 OM A or ML 1000 50 CDS A	1845	1608	1425	1425	750	550
MT 1000 500 1220 ABCD LL	1000 x 500 x 1220 Trough LL Corner	2213	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	1845	1608	1425	1425	750	500
MT 1000 750 1220 ABCD SL	1000 x 750 x 1220 Trough SL Corner	2707	ML 1000 50 OM A or ML 1000 50 CDS A	1845	1608	1425	1425	1000	800
MT 1000 750 1220 ABCD LL	1000 x 750 x 1220 Trough LL Corner	2675	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	1845	1608	1425	1425	1000	750
MT 1000 1000 1220 ABCD SL	1000 x 1000 x 1220 Trough SL Corner	3137	ML 1000 50 OM A or ML 1000 50 CDS A	1845	1608	1425	1425	1250	1050
MT 1000 1000 1220 ABCD LL	1000 x 1000 x 1220 Trough LL Corner	3850	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	1845	1608	1425	1425	1250	1000
MT 1250 750 2125 ABCD SL	1250 x 750 x 2125 Trough SL Corner	3800	ML 1250 150 RC AB or ML 1250 150 ST CD or ML 1250 75 OM A or ML 1250 75 CDS A	2125	2113	1700	1700	1000	775
MT 1250 750 2125 ABCD LL	1250 x 750 x 2125 Trough LL Corner	3852	ML 1250 150 RC AB or ML 1250 150 ST CD or ML 1250 75 OM A or ML 1250 75 CDS A	2125	2113	1700	1700	1000	700
MT 1250 1000 2125 ABCD LL	1250 x 1000 x 2125 Trough LL Corner	4250	ML 1250 150 RC AB or ML 1250 150 ST CD	2125	2113	1700	1700	1250	950
MT 1250 1250 2125 ABCD SL	1250 x 1250 x 2125 Trough SL Corner	4853	ML 1250 75 OM A or ML 1250 75 CDS A	2125	2113	1700	1700	1500	1275
MT 1250 1250 2125 ABCD LL	1250 x 1250 x 2125 Trough LL Corner	4797	ML 1250 150 RC AB or ML 1250 150 ST CD	2125	2113	1700	1700	1500	1200

*All dimensions contained within this brochure are nominal and do not take into account manufacturing tolerances. Supporting angle iron is included.
† maximum self weight = nominal self + 5%, which should be used to size lifting equipment. Additional sizes are available upon request.

TEE UNITS

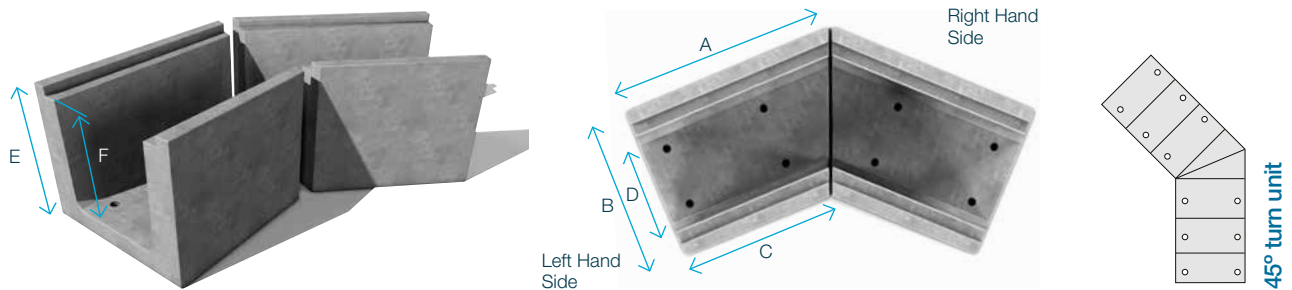


*TEE UNIT TROUGH DIMENSIONS

Coding	Width x Depth x Length (mm)	s/w† Nominal (kg)	Supplied with Lid reference	Trough Dimensions (mm)					
				A	B	C	D	E	F
MT 350 300 1500 ABCD SL	350 x 300 x 1085 Trough SL Tee	843	ML 350 50 OM A or ML 350 50 CDS A or ML 350 50 CDS B	1500	1085	635	635	525	350
MT 350 300 1500 ABCD SL	350 x 300 x 1085 Trough LL Tee	818	ML 350 100 RC AB or ML 350 100 ST CD	1500	1085	635	635	525	300
MT 450 450 1500 ABCD SL	450 x 450 x 1500 Trough SL Tee	1060	ML 450 50 A OM or ML 450 50 CDS A	1500	1198	750	750	675	500
MT 450 450 1500 ABCD LL	450 x 450 x 1500 Trough LL Tee	1060	ML 450 100 RC AB or ML 450 50 CDS B or ML 450 100 ST CD	1500	1198	750	750	675	450
MT 600 300 1500 ABCD SL	600 x 300 x 1500 Trough SL Tee	1150	ML 600 50 OM A or ML 600 50 CDS A or ML 600 50 CDS B	1500	1335	900	900	550	350
MT 600 300 1500 ABCD LL	600 x 300 x 1500 Trough LL Tee	1123	ML 600 100 RC AB or ML 600 ST CD	1500	1335	900	900	550	300
MT 600 600 1500 ABCD SL	600 x 600 x 1500 Trough SL Tee	1448	ML 600 50 OM A or ML 600 50 CDS A or ML 600 50 CDS B	1500	1335	900	900	800	600
MT 600 600 1500 ABCD LL	600 x 600 x 1500 Trough LL Tee	1423	ML 600 100 RC AB or ML 600 ST CD	1500	1335	900	900	800	550
MT 750 500 2000 ABCD SL	750 x 500 x 2000 Trough SL Tee	2055	ML 750 50 OM A or ML 750 50 CDS A or ML 750 250 TH CD	2000	1550	1125	1125	1000	550
MT 750 500 2000 ABCD LL	750 x 500 x 2000 Trough LL Tee	2114	ML 750 100 RC AB or ML 750 100 ST CD	2000	1550	1125	1125	1000	500
MT 750 750 2000 ABCD SL	750 x 750 x 2000 Trough SL Tee	2449	ML 750 50 OM A or ML 750 50 CDS A or ML 750 250 TH CD	2000	1550	1125	1125	1000	800
MT 750 750 2000 ABCD LL	750 x 750 x 2000 Trough LL Tee	2449	ML 750 100 RC AB or ML 750 100 ST CD	2000	1550	1125	1125	1000	750
MT 1000 500 2000 ABCD SL	1000 x 500 x 2000 Trough SL Tee	2391	ML 1000 50 OM A or ML 1000 50 CDS A	2000	1838	1425	1425	750	550
MT 1000 500 2000 ABCD LL	1000 x 500 x 2000 Trough LL Tee	2357	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	2000	1846	1425	1425	750	500
MT 1000 750 2000 ABCD SL	1000 x 750 x 2000 Trough SL Tee	2818	ML 1000 50 OM A or ML 1000 50 CDS A	2000	1838	1425	1425	1000	800
MT 1000 750 2000 ABCD LL	1000 x 750 x 2000 Trough LL Tee	2792	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	2000	1846	1425	1425	1000	750
MT 1000 1000 2000 ABCD SL	1000 x 1000 x 2000L Trough SL Tee	3205	ML 1000 50 OM A or ML 1000 50 CDS A	2000	1838	1425	1425	1250	1050
MT 1000 1000 2000 ABCD LL	1000 x 1000 x 2000 Trough LL Tee	3198	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	2000	1846	1425	1425	1250	1000
MT 1250 750 2500 ABCD SL	1250 x 750 x 2500 Trough SL Tee	3816	ML 1250 150 RC AB or ML 1250 150 ST CD or ML 1250 75 OM A or ML 1250 75 CDS A	2500	2125	1700	1700	1000	775
MT 1250 750 2500 ABCD LL	1250 x 750 x 2500 Trough LL Tee	3892	ML 1250 150 RC AB or ML 1250 150 ST CD or ML 1250 75 OM A or ML 1250 75 CDS A	2500	2125	1700	1700	1000	700
MT 1250 1250 2500 ABCD SL	1250 x 1250 x 2500 Trough SL Tee	4768	ML 1250 75 OM A or ML 1250 75 CDS A	2500	2125	1700	1700	1500	1275
MT 1250 1250 2500 ABCD LL	1250 x 1250 x 2500 Trough LL Tee	4714	ML 1250 150 RC AB or ML 1250 150 ST CD	2500	2125	1700	1700	1500	1200

*All dimensions contained within this brochure are nominal and do not take into account manufacturing tolerances. Supporting angle iron is included.
† maximum self weight = nominal self + 5%, which should be used to size lifting equipment. Additional sizes are available upon request.

TYPICAL 22.5° ANGLED UNITS



*CORNER UNIT TROUGH DIMENSIONS

Coding	Width x Depth x Length (mm)	s/w† nominal (kg)	Supplied with Lid reference	Trough Dimensions (mm)					
				A	B	C	D	E	F
MT 350 300 1085 ABCD SL	350 x 300 x 1085 Trough SL Corner	690	ML 350 50 OM A or ML 350 50 CDS A or ML 350 50 CDS B	1085	1070	635	635	525	350
MT 350 300 1085 ABCD LL	350 x 300 x 1085 Trough LL Corner	670	ML 350 100 RC AB or ML 350 100 ST CD	1085	1070	635	635	525	300
MT 450 450 1198 ABCD SL	450 x 450 x 1198 Trough SL Corner	913	ML 450 50 A OM or ML 450 50 CDS A	1198	1073	750	750	675	500
MT 450 450 1198 ABCD LL	450 x 450 x 1198 Trough LL Corner	892	ML 450 100 RC AB or ML 450 50 CDS B or ML 450 100 ST CD	1198	1073	750	750	675	450
MT 600 300 1335 ABCD SL	600 x 300 x 1335 Trough SL Corner	970	ML 600 50 OM A or ML 600 50 CDS A or ML 600 50 CDS B	1335	1085	900	900	550	350
MT 600 300 1335 ABCD LL	600 x 300 x 1335 Trough LL Corner	945	ML 600 100 RC AB or ML 600 ST CD	1335	1085	900	900	550	300
MT 600 600 1335 ABCD SL	600 x 600 x 1335 Trough SL Corner	1245	ML 600 50 OM A or ML 600 50 CDS A or ML 600 50 CDS B	1335	1085	900	900	800	600
MT 600 600 1335 ABCD LL	600 x 600 x 1335 Trough LL Corner	1220	ML 600 100 RC AB or ML 600 ST CD	1335	1085	900	900	800	550
MT 750 500 1550 ABCD SL	750 x 500 x 1550 Trough SL Corner	1928	ML 750 50 OM A or ML 750 50 CDS A or ML 750 250 TH CD	1595	1550	1125	1125	750	550
MT 750 500 1550 ABCD LL	750 x 500 x 1550 Trough LL Corner	1928	ML 750 100 RC AB or ML 750 100 ST CD	1595	1550	1125	1125	750	500
MT 750 750 1550 ABCD SL	750 x 750 x 1550 Trough SL Corner	2376	ML 750 50 OM A or ML 750 50 CDS A or ML 750 250 TH CD	1595	1550	1125	1125	1000	800
MT 750 750 1550 ABCD LL	750 x 750 x 1550 Trough LL Corner	2376	ML 750 100 RC AB or ML 750 100 ST CD	1595	1550	1125	1125	1000	750
MT 1000 500 1220 ABCD SL	1000 x 500 x 1220 Trough SL Corner	2254	ML 1000 50 OM A or ML 1000 50 CDS A	1845	1608	1425	1425	750	550
MT 1000 500 1220 ABCD LL	1000 x 500 x 1220 Trough LL Corner	2213	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	1845	1608	1425	1425	750	500
MT 1000 750 1220 ABCD SL	1000 x 750 x 1220 Trough SL Corner	2707	ML 1000 50 OM A or ML 1000 50 CDS A	1845	1608	1425	1425	1000	800
MT 1000 750 1220 ABCD LL	1000 x 750 x 1220 Trough LL Corner	2675	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	1845	1608	1425	1425	1000	750
MT 1000 1000 1220 ABCD SL	1000 x 1000 x 1220 Trough SL Corner	3137	ML 1000 50 OM A or ML 1000 50 CDS A	1845	1608	1425	1425	1250	1050
MT 1000 1000 1220 ABCD LL	1000 x 1000 x 1220 Trough LL Corner	3850	ML 1000 100 RC AB or ML 1000 100 CDS B or ML 1000 100 ST CD	1845	1608	1425	1425	1250	1000
MT 1250 750 2125 ABCD SL	1250 x 750 x 2125 Trough SL Corner	3800	ML 1250 150 RC AB or ML 1250 150 ST CD or ML 1250 75 OM A or ML 1250 75 CDS A	2125	2113	1700	1700	1000	775
MT 1250 750 2125 ABCD LL	1250 x 750 x 2125 Trough LL Corner	3852	ML 1250 150 RC AB or ML 1250 150 ST CD or ML 1250 75 OM A or ML 1250 75 CDS A	2125	2113	1700	1700	1000	700
MT 1250 1000 2125 ABCD LL	1250 x 1000 x 2125 Trough LL Corner	4250	ML 1250 150 RC AB or ML 1250 150 ST CD	2125	2113	1700	1700	1250	950
MT 1250 1250 2125 ABCD SL	1250 x 1250 x 2125 Trough SL Corner	4853	ML 1250 75 OM A or ML 1250 75 CDS A	2125	2113	1700	1700	1500	1275
MT 1250 1250 2125 ABCD LL	1250 x 1250 x 2125 Trough LL Corner	4797	ML 1250 150 RC AB or ML 1250 150 ST CD	2125	2113	1700	1700	1500	1200

*All dimensions contained within this brochure are nominal and do not take into account manufacturing tolerances. Supporting angle iron is included.
† maximum self weight = nominal self + 5%, which should be used to size lifting equipment. Additional sizes are available upon request.

LIFTING METHOD



1. Position trough on a level flat area. Fix in lifting loops to each of the four lifting points. Check loops are secure.



2. Attach lifting chains to all four lifting loops.



3. Ensure lifting chains are symmetrical then begin lift.



4. Lift slowly and with care, then place trough in position. Ensure trough is in line and level. Then remove lift chains and unscrew lifting loops.

TROUGH LIDS

CONCRETE



Load Class
5 tonne

GRP SOLID TOP WITH ANTI-SLIP FINISH

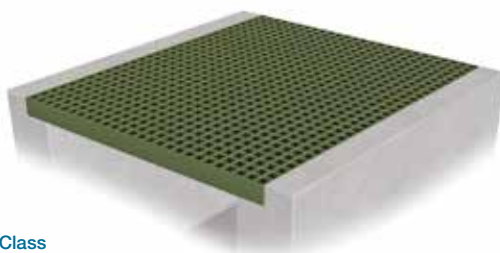


Load Class

Pedestrian - A15
Cars and Vans - B125

HGV and HD Vehicles - C250
HGV and HD Vehicles - D400

GRP OPEN MESH WITH ANTI-SLIP FINISH



Load Class

Pedestrian - A15
Cars and Vans - B125

HD STEEL CONCRETE COMPOSITE

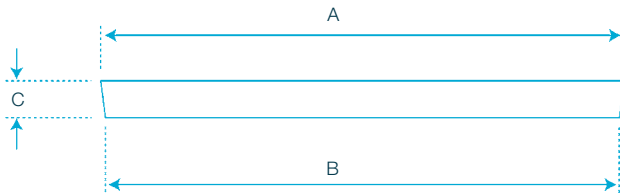


Load Class

HGV and HD Vehicles at road crossings
11.5 Tonne wheel load

NB: All concrete and steel composite covers have cast-in lifting sockets. GRP covers can have lifting slots and locking devices, if required.

TROUGH LID DIMENSIONS



Drawing representative of concrete and steel infill concrete lids only, GRP lids are supplied with straight edge profiles.

Lid Coding	Lid Length (mm)	Reference	Description	Loading group Class to BS EN 124	s/w ^Δ nominal (kg)	Lid Dimensions (mm)		
						A	B	C
ML 350 50 OM A	1000	350 GRP Open Mesh Lid	GRP Open Mesh Lid Lid to fit 350 wide trough with 50 deep rebate 1.5T SWL	A & B	11.7	494	494	50
ML 350 50 CDS A	1000	350 GRP Solid Top Lid	GRP Solid Top Lid to fit 350 wide trough with 50 deep rebate 1.5T SWL - 5T SWL	A & B	14.6	494	494	50
ML 350 50 CDS B	500/1000	350 GRP Solid Top Lid	GRP Solid Top Lid to fit 350 wide trough with 50 deep rebate 5T SWL - 11.5T SWL	B, C, D	8.6	494	494	50/100
ML 350 100 RC AB	500	350 5T Concrete Lid	Reinforced concrete recessed Lid to fit 350 wide trough with 100 deep rebate 5T SWL	A & B	61.5	504	484	100
ML 350 100 ST CD	500	350 11.5T Recessed Steel Tray Lid	Composite (steel tray + concrete infill) Lid to fit 350 wide trough with 100 deep rebate 11.5T SWL	C & D	61.5	504	484	100
ML 450 50 OM A	1000	450 GRP Open Mesh Lid	GRP Open Mesh Lid to fit 450 wide trough with 50 deep rebate 1.5T SWL	A & B	14.4	609	609	50
ML 450 50 CDS A	1000	450 GRP Solid Top Lid	GRP Solid Top Lid to fit 450 wide trough with 50 deep rebate 5T SWL	A & B	18.0	609	609	50
ML 450 50 CDS B	500/1000	450 GRP Solid Top Lid	GRP Solid Top Lid to fit 450 wide trough with 50 deep rebate 5T SWL - 11.5T SWL	B, C, D	10.6	609	609	50/100
ML 450 100 RC AB	500	450 5T Concrete Lid	Reinforced concrete recessed Lid to fit 450 wide trough with 100 deep rebate 5T SWL	A & B	76.0	619	599	100
ML 450 100 ST CD	500	450 11.5T Recessed Steel Tray Lid	Composite (steel tray + concrete infill) Lid to fit 450 wide trough with 100 deep rebate 11.5T SWL	C & D	76.0	619	599	100
ML 600 50 OM A	1000	600 GRP Open Mesh Lid	GRP Open Mesh Lid to fit 600 wide trough with 50 deep rebate 1.5T SWL	A & B	17.4	734	734	50
ML 600 50 CDS A	500/1000	600 GRP Solid Top Lid	GRP Solid Top Lid to fit 600 wide trough with 50 deep rebate 5T SWL	A & B	21.6	734	734	50
ML 600 50 CDS B	500/1000	600 GRP Solid Top Lid	GRP Solid Top Lid to fit 600 wide trough with 50 deep rebate 5T SWL - 11.5T SWL	B, C, D	12.8	734	734	50/100
ML 600 100 RC AB	500	600 5T Concrete Lid	Reinforced concrete recessed Lid to fit 600 wide trough with 100 deep rebate 5T SWL	A & B	91.4	744	724	100
ML 600 100 ST CD	500	600 11.5T Recessed Steel Tray Lid	Composite (steel tray + concrete infill) Lid to fit 600 wide trough with 100 deep rebate 11.5T SWL	C & D	91.4	744	724	100
ML 750 50 OM A	1000	750 GRP Open Mesh Lid	GRP Open Mesh Lid to fit 750 wide trough with 50 deep rebate 1.5T SWL	A & B	22.2	929	929	50
ML 750 50 CDS A	500/1000	750 GRP Solid Top Lid	GRP Solid Top Lid to fit 750 wide trough with 50 deep rebate 1.5T SWL - 6.5T SWL	A, B, C	27.6	929	929	50/100
ML 750 100 RC AB	500	750 5T Concrete Lid	Reinforced concrete recessed Lid to fit 750 wide trough with 100 deep rebate 5T SWL	A & B	116.9	949	929	100
ML 750 100 ST CD	500	750 11.5T Recessed Steel Tray Lid	Composite (steel tray + concrete infill) Lid to fit 750 wide trough with 100 deep rebate 11.5T SWL	C & D	116.9	949	929	100
ML 750 225 TH CD	500	750 11.5T RC Top Hat Lid	Reinforced concrete top hat Lid to fit 750 wide trough 11.5T SWL	C & D	307.0	1125	905	250
ML 1000 50 OM A	1000	1000 GRP Open Mesh Lid	GRP Open Mesh Lid to fit 1000 wide trough with 50 deep rebate 1.5T SWL	A & B	28.6	1204	1204	50
ML 1000 50 CDS A	500/1000	1000 GRP Solid Top Lid	GRP Solid Top Lid to fit 1000 wide trough with 50 deep rebate 1.5T SWL - 6.5T SWL	A, B, C	35.7	1204	1204	50/100
ML 1000 100 RC AB	500	1000 5T Concrete Lid	Reinforced concrete recessed Lid to fit 1000 wide trough with 100 deep rebate 5T SWL	A & B	151.1	1224	1204	100
ML 1000 100 ST CD	500	1000 11.5T Recessed Steel Tray Lid	Composite (steel tray + concrete infill) Lid to fit 1000 wide trough with 100 deep rebate 11.5T SWL	C & D	151.1	1224	1204	100
ML 1000 225 TH CD	500	1000 11.5T RC Top Hat Lid	Reinforced concrete top hat Lid to fit 1000 wide trough 11.5T SWL	C & D	391.0	1425	1205	225
ML 1250 150 RC AB	500	1250 5T Concrete Lid	Reinforced concrete recessed Lid to fit 1250 wide trough with 150 deep rebate 5T SWL	A & B	263.0	1499	1469	150
ML 1250 150 ST CD	500	1250 11.5T Recessed Steel Tray Lid	Composite (steel tray + concrete infill) Lid to fit 1250 wide trough with 150 deep rebate 11.5T SWL	C & D	279.0	1499	1479	150
ML 1250 225 TH CD	500	1250 11.5T RC Top Hat Lid	Reinforced concrete top hat Lid to fit 1250 wide trough 11.5T SWL	C & D	468.0	1700	1480	225

*All dimensions are nominal dimensions and do not take into account manufacturing tolerances.

^Δmaximum self weight = nominal self + 5%, which should be used to size lifting equipment

Note: Load class dictates lid thickness. Please contact our sales office for further details.

BESPOKE TROUGHS

TRANSITION T



CRUCIFORM



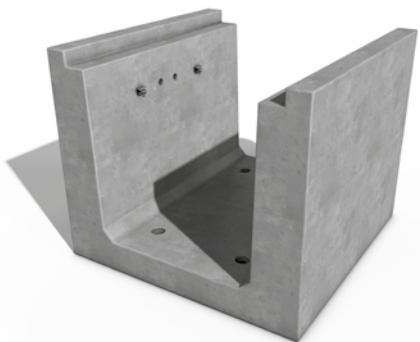
TRANSITION STRAIGHT



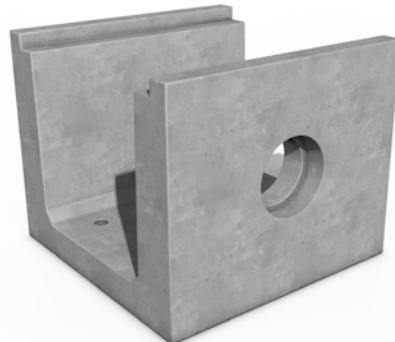
STOP END



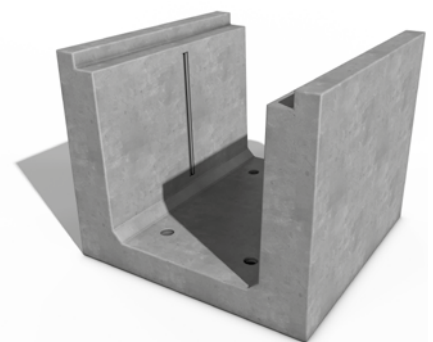
BESPOKE FEATURES



CAST-IN FIXING SOCKETS
For fixing brackets in the sidewall



SIDEWALL HOLES & BASE HOLES*
Side entry points for pipes, ducts and cables



UNI-STRUT CHANNELS
For fixing brackets at different levels

PRECAST SWITCH GEAR BASES

These are made to order, complete with cast-in sockets, fixings and protrusions to the client's design or by FP McCann's bespoke design [subject to commercial and design parameters]. Please contact our sales office for more details.



FIRE & BLAST WALLS

FP McCann manufactures two types of prestressed panels that are ideal for both fire and blast walling. With the choice of vertical cantilever panels or horizontal panels and columns, fire and blast walling is designed to contain fire from 30 minutes up to 4 hours, depending on the thickness of the panel.

Rapid installation is possible due to the tongue and grooved joints. Standard column sections are 500mm x 700mm, with a made-to-order height to customer requirements. Fire walls and columns can be manufactured to the clients' own design or to FP McCann's design specification.

Panel Thickness (mm)	Fire Rating (hrs)
80	0.5
120	1.5
160	3.0
200	4.0

KEY FEATURES AND BENEFITS

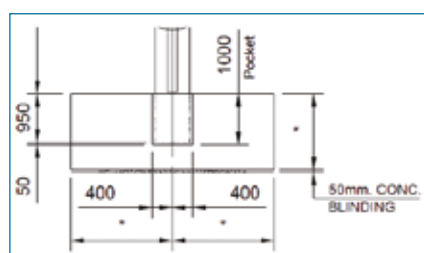
Vertical Cantilever Panels

- Overall wall heights of up to 7 metres can be achieved
- The panels are designed to be cast into a foundation. Cradles can be supplied to assist with this method of installation

Horizontal Panels

- Overall wall heights of up to 10 metres 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
- It negates the need for a full length trench to be excavated and poured with concrete, instead favouring easily formable localised pockets at specific centres

TYPICAL POCKET DETAILS



MULTI-PURPOSE COMMUNICATION CHAMBER

FP McCann's precast concrete MLSC multi-purpose communication chambers can be adapted to suit any site requirements. Their flexible design means that they can be factory fitted with duct couplers, step irons, sump units and rebated walls, as required. Multi-purpose communication chambers can be supplied to suit any loading requirements including up to F900+ for airports and similar heavy duty applications.

PRODUCT FEATURES

- Available in a large range of sizes from 1250mm x 1250mm to 3000mm x 3000mm
- Available in heights up to 2400mm
- Riser units and cover slabs available
- Suitable for a variety of applications especially for the energy and water industries
- Heavy duty loading
- Easy access for maintenance

CAST-IN ITEMS

If required, the chambers can be delivered with pre-fitted;

- Steps
- Recesses for beam
- Ladders
- Rebates for lids
- Duct Couplers
- Earthing Rods
- Sumps
- Starter Bars

STANDARD SIZES

Internal		Coverslab Thickness (mm)	Wall Thickness (mm)	Base Thickness (mm)	Max Height (mm)	Weight at Max Height (tonnes)
Length (mm)	Width (mm)					
1250	1250	250	200	200	2400	9.0
1500	1500	250	200	200	2400	10.7
2000	1500	250	200	200	2400	12.5
2000	2000	250	200	200	2400	14.4
2500	2000	300	200	200	2400	16.3
2500	2500	300	200	200	2400	18.4
3000	2500	300	200	200	2400	20.4
3000	3000	300	200	200	2400	22.6

Units can be poured in any increment of 100mm from 400mm up to a maximum single unit height of 2400mm internal.

A two or more piece solution is also available if the depth required is greater than 2400mm - or if there are on site weight restrictions which need to be met.



COMMS BOXES

Unique cable and junction protection boxes are made from reinforced concrete and can be installed in minutes. The one piece construction design provides easy access for cable jointing and maintenance.

Communications boxes are mainly used in infrastructure works to include airports, railway projects, roads and housing developments. Cable pit chambers and other units for street lighting are also available in different sizes.

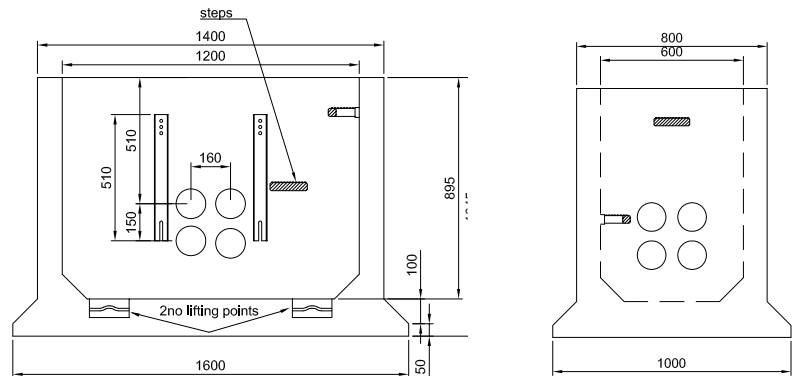
FEATURES

- 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 good Builders Merchants
- Bespoke duct arrangements available on request

* Comms J4 has no base, sump or steps

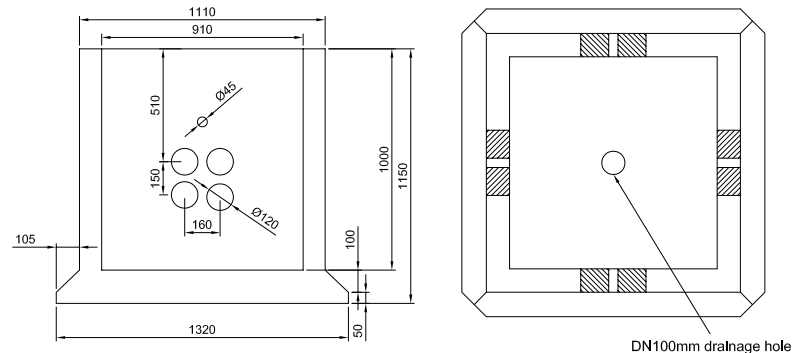
^ Comms DP has no ironmongery or steps fitted

COMMS C2



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

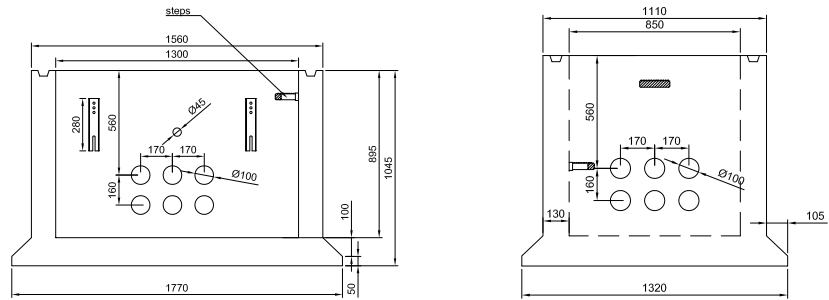
COMMS DP



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

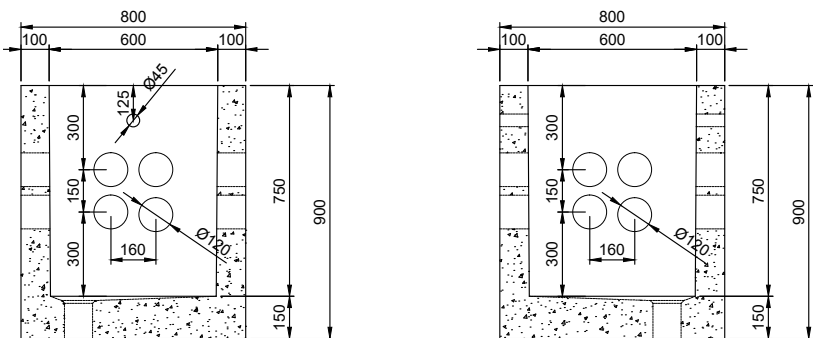
COMMS BOXES

COMMS MCX



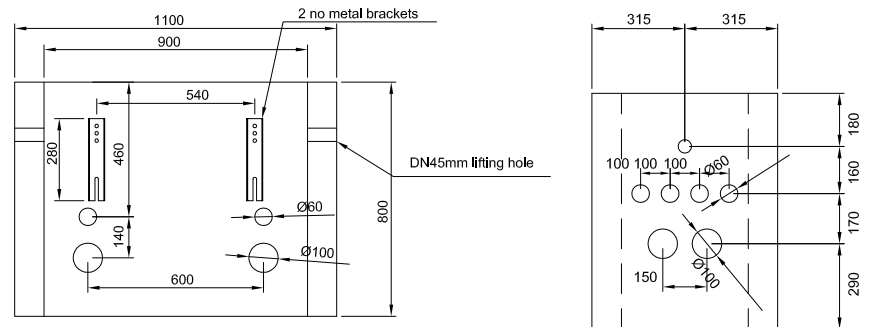
Dimensions	Length mm	Width mm	Height mm	Weight kg
Chamber	1300	850	900	2100
Riser	1300	850	300	300
Concrete Cover Slab*	1570	1120	150	300

COMMS 600



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

COMMS J4



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

AIRPORT PIT SOLUTIONS

Precast bespoke pit solutions now provide a real alternative to in-situ built pits.

Most airfield projects require the construction of large concrete pits for the main electrical and communication installations. Traditionally, due to their size, these have been constructed in-situ. A modular concrete design has been developed which is factory produced and then assembled on site.

This whole approach has produced a solution which has made a significant and sustainable contribution towards reducing the impact of construction works in the airport environment, including time spent on-site, runway possessions and noise.

The end product is of a consistently high quality and has the added value of being easier to maintain and alter in the future.

WHY CHOOSE AN OFF-SITE SOLUTION?

Traditionally, pits have been created using in-situ construction methods. This process has proved to be labour intensive, time consuming, noisy and wasteful, whilst potentially posing a number of safety hazards, particularly on projects associated with deep excavations. Off-site construction reduces a number of safety hazards and also reduces the man hours required on-site by 95 per cent from 300 down to 15 hours per pit.

This reduction impacts upon the amount of traffic deliveries to site, therefore reducing site storage and site waste. It also eliminates possible delays during construction, thereby improving programme reliability.



FLEXIBLE DESIGN

The design of the pits incorporates specially formed plastic sleeves which contain built-in stoppers.

The collars are placed in a cluster arrangement avoiding the need to know exactly where future cable runs are. Once a cable location is known, the built-in stopper within the plastic sleeve can be easily removed.

The added benefit of the built-in stopper is that during installation and throughout its life, water ingress through the ducts is prevented.

PRODUCT BENEFITS

- 95 per cent reduction in site man-hours for pit construction
- 85 per cent reduction in on-site construction programme
- 55 per cent reduction in lorry movements for deliveries
- Virtual elimination of on-site waste
- Elimination of need for confined space working
- Significant reduction in site noise
- Provision of a consistently high quality product
- Product designed for future alterations

Where large repetition exists, FP McCann is able to develop a pit solution to suit the specific needs of the client. Typically, these could provide high quality infrastructure for utility companies where large numbers of standard pits are required and where site conditions and constraints require a quick build time.

PRECAST AIRPORT PIT TYPES

PP3 – made up of varying thickness sections to give the required pit depth – 2.3mtrs square internal

PP5 – As above – 1.5mtrs square internal

PE1 – made up of one box unit and a precast cover that has a F900 single access cover encast – 800mm x 725mm x 1.2mtrs deep internal

PE2 A – as above but has a precast cover that has a F900 double access cover encast – 1500mm x 700mm x 1100mm deep internal

PE2 B – as above but has a precast cover that has a F900 double access cover encast – 1500mm x 700mm x 1350mm deep internal

PE2 C – as above but has a precast cover that has a F900 double access cover encast – 1500mm x 700mm x 1500mm deep internal

PE3 A - as above but has a precast cover that has a F900 triple access cover encast – 2300mm x 700mm x 1100mm deep internal

PE3 B - as above but has a precast cover that has a F900 triple access cover encast – 2300mm x 700mm x 1350mm deep internal

PE3 C - as above but has a precast cover that has a F900 triple access cover encast – 2300mm x 700mm x 1500mm deep internal

PIT TYPE	UNIT	DESCRIPTION	UNIT WEIGHT (TONNES)	EXT. LENGTH (MM)	EXT. WIDTH (MM)	EXT. DEPTH (MM)	INT DIMS (M)
PP3	A	Base Unit	5.84	3500	3500	350	2.3 x 2.3
PP3	B	Jacking Unit	5.15	2900	2900	600	2.3 x 2.3
PP3	C	Duct Unit	4.64	2900	2900	850	2.3 x 2.3
PP3	X	Duct Unit	5.98	2900	2900	1100	2.3 x 2.3
PP3	D	Spacer Unit	6.32	2900	2900	800	2.3 x 2.3
PP3	E	Spacer Unit	3.93	2900	2900	500	2.3 x 2.3
PP3	F	Spacer Unit	3.14	2900	2900	400	2.3 x 2.3
PP3	G	Spacer Unit	2.34	2900	2900	300	2.3 x 2.3
PP3	H	Cover '2' part lid	7.94	2940	2940	400	2.3 x 2.3
PP3	H3	Cover '3' part lid	8.97	2940	2940	500	2.3 x 2.3
PP3	H3 'O'	Cover '3' part lid	8.97	2940	2940	500	2.3 x 2.3
PE2	A	Base Unit	5.31	2100	1300	1100	1.5 x 0.7
PE2	B	Base Unit	6.41	2100	1300	1350	1.5 x 0.7
PE2	C	Base Unit	7.07	2100	1300	1500	1.5 x 0.7
PE2	CVR	Cover '2' part lid	1.80	2130	1330	300	1.5 x 0.7
PP5	A	Base Unit	3.87	2700	2700	350	1.5 x 1.5
PP5	B	Jacking Unit	3.73	2100	2100	600	1.5 x 1.5
PP5	C	Duct Unit	3.64	2100	2100	850	1.5 x 1.5
PP5	X	Duct Unit	4.67	2100	2100	1100	1.5 x 1.5
PP5	D	Spacer Unit	4.23	2100	2100	800	1.5 x 1.5
PP5	E	Spacer Unit	2.65	2100	2100	500	1.5 x 1.5
PP5	F	Spacer Unit	2.12	2100	2100	400	1.5 x 1.5
PP5	G	Spacer Unit	1.59	2100	2100	300	1.5 x 1.5
PP5	H	Cover '2' part lid	3.84	2140	2140	400	1.5 x 1.5
PE1	A	Base Unit	3.87	1400	1325	1150	0.8 x 0.725
PE1	CVR	Cover '1' part lid	1.37	1430	1355	300	0.8 x 0.725
PE3	A	Base Unit	6.58	2900	1300	1000	2.3 x 0.7
PE3	B	Base Unit	7.97	2900	1300	1250	2.3 x 0.7
PE3	C	Base Unit	8.81	2900	1300	1400	2.3 x 0.7
PE3	CVR	Cover '3' part lid	2.35	2940	1340	400	2.3 x 0.7





RAIL SOLUTIONS

Manufactured to Network Rail specification, FP McCann is a nominated approved supplier of precast concrete cable troughs and concrete platform copings to the rail sector. The FP McCann series of troughs and lids are Network Rail approved; Certificate Number: PA 05/01429

FP McCann manufactures a standard range of precast concrete railway platform components to Network Rail Specification NR/L3/CIV 030; these include modular platform systems, platform copings, platform edge warning paving (tactiles) and oversail blocks. Nosing slabs to London Underground specification are also available.

All products are manufactured under a quality assurance system assessed against BS EN 9001 by BSI.

FP McCann is a Supply Line and RISQS approved company; Achilles Supplier number 061598.

For all your product enquiries, please contact our sales team at the Littleport office on 01353 861416.

Platform Coping Units	142
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PLATFORM COPING UNITS

FP McCann is an approved manufacturer and supplier of platform copings to Network Rail and London Underground specifications. Copings are manufactured in full accordance with the requirements of NR/L3/CIV/030 and are accredited as conforming to the pendulum test slip resistance requirements of BS EN 13036-4.

Network Rail copings are available in two industry approved sizes 930x760x100 and 1219x914x100. Network Rail dual copings are available in two industry approved sizes 930x1160x100 and 930x1260x100. Requests for non-standard product sizes and colours can be accommodated. London Underground nosing slabs are available from stock.

PRODUCT BENEFITS

- Manufactured to NWR specification
- Meets NR/L3/CIV/030 requirements
- A one piece unit consisting of a standard copier unit combined with contrasting colour tactile section
- Available with optional pre-painted white and/or yellow lines factory applied for visual warning, saving time and labour on site, with obvious benefits in health and safety
- Available with optional cast-in lifting inserts to aid installation
- Available with grit blasted or acid etched finish as standard
- One piece unit not only saves time during installation, but avoids the problems associated with joining coping and tactile units, such as trip hazards, de-bonding during temperature fluctuations and freeze/thaw exposure
- Reduced whole life costs due to the reduced maintenance and serviceability required with one piece units

AVAILABLE FINISHES:

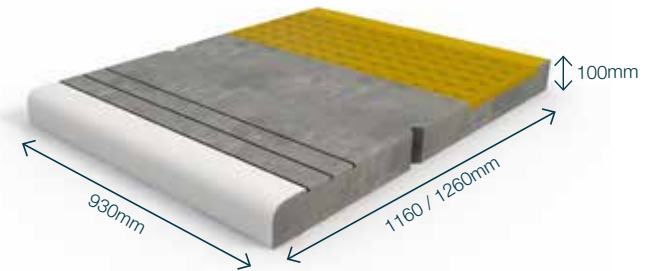


Acid Etched

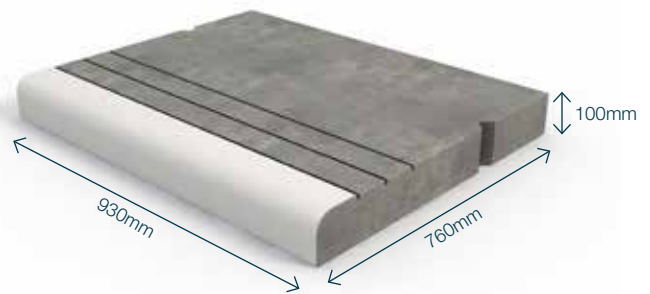


Exposed Aggregate

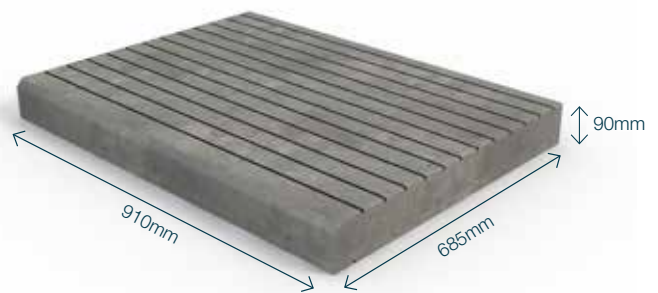
DUAL PLATFORM COPING UNIT*



STANDARD PLATFORM COPING UNIT*



LONDON UNDERGROUND COPING^Δ



ADDITIONAL FINISHES:



*White line optional

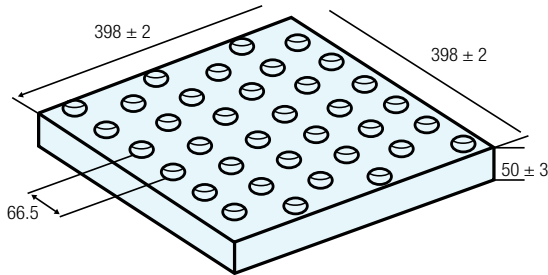


^Δ Acid Etched Finish Only

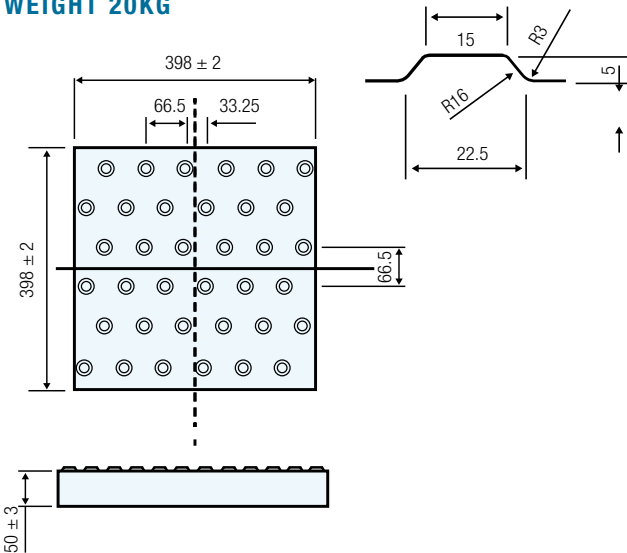
PLATFORM COPING UNITS

OFFSET TACTILE PAVING

All sizes are in mm

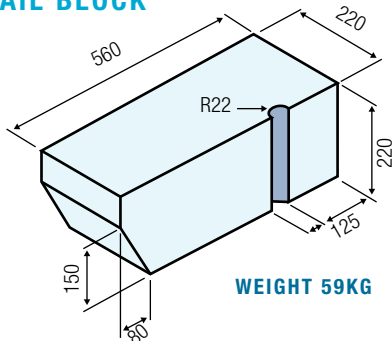


WEIGHT 20KG



To denote off Street/Rail application to the visually impaired, FP McCann supplies flat domed offset tactile paving units in accordance with BS EN 1339. Approved for use in both surface and underground platforms, this product is available in buff, charcoal grey and standard grey colours.

OVERSAIL BLOCK



Supplied to individual customer requirements, FP McCann manufactures a standard oversail block. The integral unit is formed to key in with the platform edge. The block has a location notch for coping pavement dowels. The oversail block is manufactured in accordance with BS EN 1339.



COMPLEMENTARY PRODUCTS

Other complementary products include locating insets (large and small), imperial measurement cable trough lids (11"x 36"), precast concrete posts and rail ballast boards. Through our fencing division, we can also supply security chain link posts, universal posts, bollards, gravel boards and screed rails.



BUFF



CHARCOAL GREY



STANDARD GREY

PLATFORM EXTENSIONS AND NEW PLATFORMS

FP McCann provides a number of construction solutions for new build platforms and platform extensions. These range from the very traditional approach, through to the latest innovations in modular design. Every station can provide a different set of challenges and FP McCann has the right solution to answer these challenges.



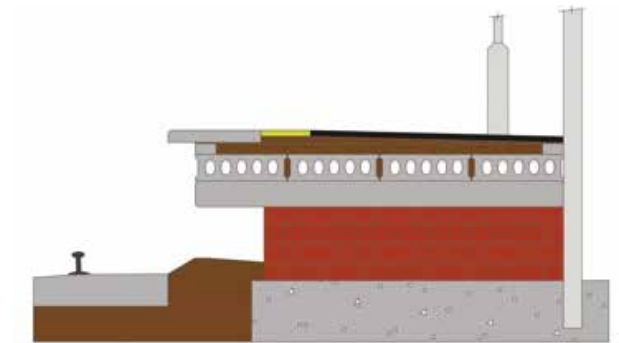
PRECAST REINFORCED CONCRETE RETAINING WALL

The traditional platform construction can be replaced with a FP McCann precast platform retaining wall. This can be combined with FP McCann's oversail blocks to provide an offsite solution to the traditional construction method.



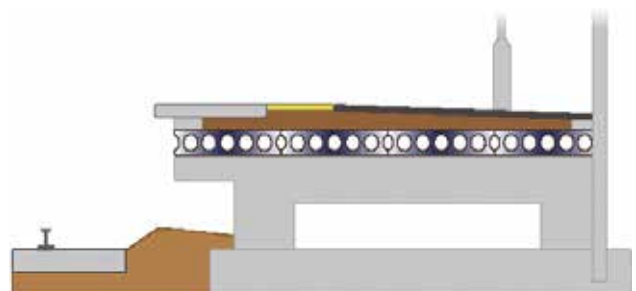
PRESTRESSED HOLLOWCORE PLANKS AND REINFORCED CONCRETE BEAMS

The use of hollowcore widespan flooring planks reduces labour and time on site, while providing a cost-effective working platform.



PRESTRESSED HOLLOWCORE PLANKS AND REINFORCED CONCRETE CROSSWALLS

Removing the need for masonry work, a precast crosswall can be combined with hollowcore planks to provide a more efficient construction system that can be installed with greater speed.



PLATFORM EXTENSIONS AND NEW PLATFORMS



TABLE AND KICKER UNIT



FRONT/REAR WALL AND SLAB



CROSSWALL AND SLABS



RETAINING FRONT WALL BLOCK



PLATFORM SLAB



CROSSWALL



HOLLOWCORE PLANKS



CANTILEVER BEAM





SPECIALIST SOLUTIONS

FP McCann's specialist precast division manufactures a wide range of high quality precast components to the construction industry. The range of specialist products includes railway platforms, precast stairs and terracing units. We also have the ability to manufacture bespoke precast solutions to match our customers' exact requirements.

Lords Cricket Ground London	148
Raeburn Place, Edinburgh	150
Cardiff Ice Arena	152



LORDS CRICKET GROUND LONDON

Site: Ice Arena Wales, Cardiff Bay International Sports Village

Client: Greenbank Partnerships

Main Contractor: Kier Construction

Products Supplied: Bespoke Precast Concrete Terracing Units

Two brand new three tier stands are well underway at Lord's Cricket Ground the home of Marylebone Cricket Club (MCC). The £52 million phase 2 redevelopment is scheduled for completion for the start of the 2021 cricket season and will see capacity increased by an additional 2,600 spectators. Building of the Compton and Edrich stands commenced in summer 2019 with global construction specialist ISG the successful contract bidder.

FP McCann is playing a major part in the construction works supplying the total package of precast concrete seat terracing, walls and stair flights which are being installed within the steel frame stand structures. This prestigious contract is running in conjunction with the redevelopment of the Oval cricket ground onto which the FP McCann is supplying a precast façade system.

In total, FP McCann has delivered in excess of 1,350 individual precast concrete units with a combined weight of 3,700 tonnes. The order comprises terrace seating units, 'U' shaped balconies combining front facade, base slabs and step blocks. Additional items include precast concrete vomitory walls, precast stair flights and landings. All products have been manufactured at the Company's specialist precast facilities at Littleport (Cambs), Grantham (Lincs) and Byley (Cheshire).



RAEBURN PLACE EDINBURGH

Site: Raeburn Place

Client: The Raeburn Place Foundation / Edinburgh Academicals

Main Contractor: Robertson Central East

Products Supplied: Precast Terracing, Structural Units, Tunnel Walls, Precast Stair Units & Hollowcore Flooring Slabs

A brand new 2,500 seat sports stand is nearing completion in the Stockbridge area of Edinburgh. The stand is part of a major redevelopment in Raeburn Place, the location of Scotland's oldest rugby ground and the home of The Edinburgh Academical Football Club. Once complete, the historical site, which held the world's first rugby international in 1871, will also comprise training facilities, a museum of international rugby and nine new retail outlets.

In total, FP McCann has supplied in excess of 200 individual precast concrete units comprising mainly straight terrace seating units, base slabs, and double step blocks. Additional items include precast vomitory and tunnel walls, precast concrete stairs flights and landings and 200mm deep hollowcore flooring slabs. All products have been manufactured at the Company's specialist precast facility at Uddingston.





CARDIFF ICE ARENA

Site: Ice Arena Wales, Cardiff Bay International Sports Village

Client: Greenbank Partnerships

Main Contractor: Kier Construction

Products Supplied: Bespoke Precast Concrete Terracing Units

A £17.5 million 3,000 seat ice arena is nearing completion in Cardiff with FP McCann playing a major part in the construction by supplying the precast concrete terracing units onto which the spectator seating will be located.

The centre to be named 'Ice Arena Wales' is part of the £400 million Cardiff Bay International Sports Village and will become the new home of the Cardiff Devils ice hockey team. It is expected to open early next year.

The contract to build the new two-rink facility was awarded to Kier Construction early in 2014 by developer Greenbank Partnerships. FP McCann successfully tendered for the precast concrete special terracing units and steps and has worked closely with the Kier team throughout the 70 week build programme to ensure all product specifications and delivery requirements have been met.







STRUCTURAL PRECAST SOLUTIONS

At FP McCann we believe in working with you as a partner from the start, offering our expertise in designing and manufacturing rooms to suit your every individual project.

Far from being an 'off the shelf' solution, our structural solutions are 'made to measure' whilst maintaining our design philosophies and standard details.

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CROSSWALL CONSTRUCTION

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 quality assured production and provides a highly flexible layout.

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

All units are manufactured off-site at our Byley and Grantham depots and are 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.

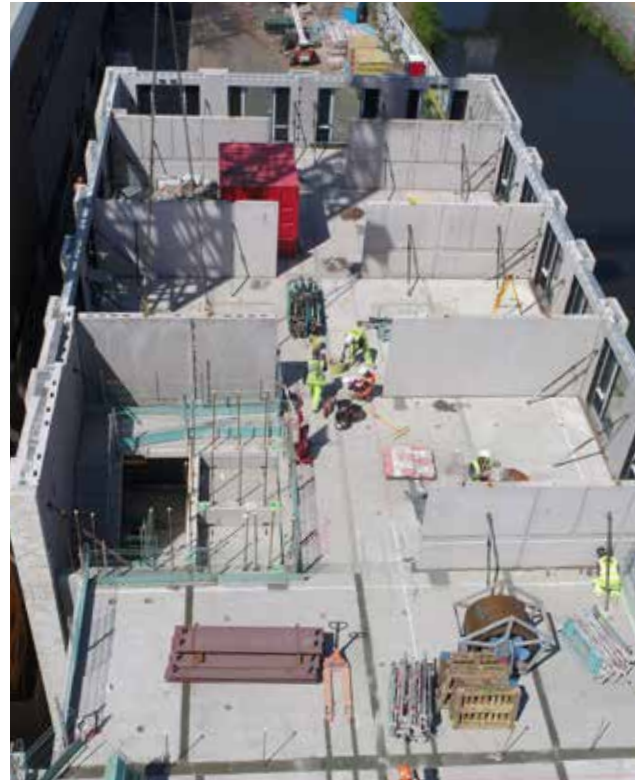
THE CONCEPT

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 takes over.

FP McCann supplies 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 completed 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.



CROSSWALL CONSTRUCTION

THE 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).

Unless specified otherwise loadings 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.

THE 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.

The manufacturing process is carried out by a highly skilled and experienced workforce. Concrete of the exact specifications is batched automatically by the automated 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 ISO 9001 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.



CROSSWALL CONSTRUCTION

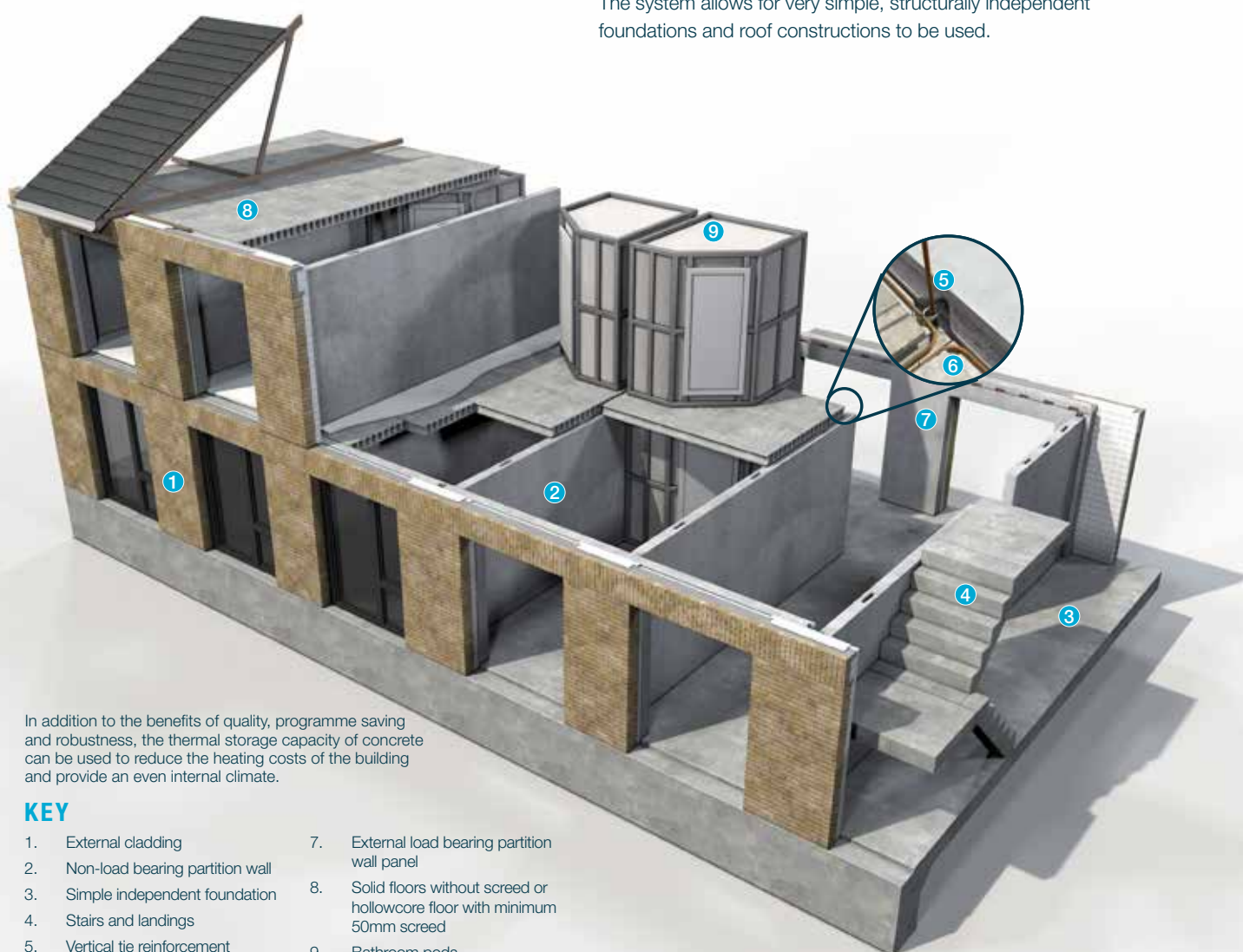
PRECAST CROSSWALL STRUCTURAL ENGINEERING SYSTEM

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 using 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.

KEY

- | | |
|------------------------------------|-----------------------------------------------------------------------------|
| 1. External cladding | 7. External load bearing partition wall panel |
| 2. Non-load bearing partition wall | 8. Solid floors without screed or hollowcore floor with minimum 50mm screed |
| 3. Simple independent foundation | 9. Bathroom pods |
| 4. Stairs and landings | |
| 5. Vertical tie reinforcement | |
| 6. Horizontal tie reinforcement | |

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.



MOTEL ONE, MANCHESTER

Motel One is a 330-bed hotel situated in the busy Piccadilly area of Manchester. The hotel is fourteen and seven storeys respectively and wraps around the Monroes Public House.

Using our factory engineered precast concrete system, which included acid-etched composite panels in a Portland Hue colour, the façade comprised of large floor to ceiling glazed window panels for each bedroom, which were fitted and glazed at the factory before delivery to site.

FP McCann played a key role in delivering this contemporary hotel. Our meticulous planning enabled us to complete the project within 26 weeks, reducing normal build time by 50% whilst ensuring that our customer's key performance requirements were met. These included speed, quality, safety, programme and budget.



HOTELS



HOLIDAY INN EXPRESS, BRIDGEWATER

The 138 room accommodation situated at Junction 24 of the M5 motorway is one of the Zeal Hotel group's new Gen 4 hotel schemes for Holiday Inn Express (HIEx) developments. Once complete in spring 2019, it is ideally located to part serve the local workforce and visitors to the new Hinkley Point C nuclear power station.

Architect on the project is Aros and the consultant structural engineer is Clegg Associates, who have also employed the design services of Practech Design Studio (PDS) for the detailing of the external façade.



RAMADA HOTEL, CREWE

FP McCann used its precast crosswall system to form four floors consisting of 112 bedrooms within a 10 week period. The structure took a modular approach to ensure time and cost efficiencies. Around 600 precast pieces were manufactured at our Byley factory, to ensure that on receipt of order the installation could be completed in as little time as possible without compromising quality.

Stability of the finished build was achieved by the diaphragm action of floor planks acting between precast crosswall panels in two directions.



STUDENT ACCOMMODATION

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 LOCKS, BIRMINGHAM

The University Locks building has achieved a Breeam 'Very Good' rating. This project involved the construction of 659 student rooms totalling 21,405m² in the form of cluster flats, with a main southern tower standing at 19 storeys high. FP McCann's precast concrete modular room system was utilised, using a process where walls, floor and ceiling slabs are linked together to form a unique crosswall construction.

In total, some 3,500 individual precast units were installed to form the structural frame and encompass the cladding envelope. The five panels framing each pair of bedrooms consist of walls 180mm thick and floor slabs 175mm thick. Window and door openings have been accommodated and each bedroom has four conduits cast into the walls for electrics and communications networks.

External facade panels are of sandwich panel construction, either 525mm or 725mm thick. The inner leaf is 195mm with an external thickness of 80mm. The insulation between the concrete faces is either 250mm or 450mm thick.



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 essential 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 1,885m³ of precast concrete.



STUDENT ACCOMMODATION



SWANSEA UNIVERSITY BAY CAMPUS

St Modwen, the regeneration specialist behind the new £450 million Swansea University Bay campus, signed another agreement to provide an additional £50m of student accommodation and student facilities at the site which opened its doors in September 2015.

The accommodation agreement will see 545 additional student apartments for occupation during the first quarter of 2016. Main building contractor Galliford Try was appointed to the contract in 2014 and work commenced on the land, formerly a BP distribution hub in autumn last year.



UNIVERSITY OF EAST LONDON

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.



PRIVATE APARTMENTS, PRS & SOCIAL HOUSING

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.



ST. JAMES COURT, BIRMINGHAM

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 elevation 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.



THE LANSDOWNE BUILDING, BIRMINGHAM

FP McCann's precast concrete walls, columns, beams, stairs, hollowcore flooring planks and architectural sandwich panels were used on a brand new 16 storey, 206 unit residential apartment building called The Lansdowne.

Both the structural and architectural facade teams at FP McCann worked closely with the designers SRC and Building Design Group (BDG) architects on the project to ensure all aspects of the build met the exacting specification standard. FP McCann took around nine days to complete each floor.



PRISONS / SECURE ACCOMMODATION

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.



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.



HMP BELMARSH

DfMA in construction of a 600 cell prison four storey house block together with associated buildings to provide education, rehabilitation, training, hospital, sports, healthcare, worship, kitchens, recycling, storage, visits, administration works, horticulture and security. FP McCann's precast concrete structure address this important environmental aspect.

FP McCann contributed to Value Engineering (VE) in developing VE solutions along with specialist subcontractors (e.g. M&E). As we had worked with Skanska and the same M&E contractors on previous projects such as HMP Dovegate, we were able to take lessons learnt on these projects and apply them to HMP Belmarsh to provide a higher quality and more efficiently built prison.

The 600 cell Living Unit was the world's first for prison construction to achieve BREEAM "Outstanding" and won a BREEAM award for the Prisons category at the Ecobuild Awards.



PRISONS / SECURE ACCOMMODATION



WEST MIDLANDS POLICE DEPARTMENT

This major project comprised of the refurbishment of West Midlands Police's headquarters in Birmingham city centre, a building which spans 17,000 square metres in total .

FP McCann provided Hybrid Precast Structure for the West Midlands Police department. This consists of Insulated sandwich panels, RC shaft walls, slabs and columns, Hollowcore flooring and Peikko Delta beams.

The scope of work included internal reconfiguration and refurbishment, replacement and upgrade of building services, over-cladding of the existing facade with an insulated render system, and new windows.



HMP SHOTTS

DfMA in construction of a 285 cell prison houseblock and a multi-function building providing training and education facilities.

Our early involvement with the client's team and main contractor enabled us to highlight risks on concepts and provide an input into build ability such as connections from floor slabs to ground beams etc.

Integrating our design and installation teams on site enabled faster development of solutions on any problems that arose. Our design and installation teams also provided advice for the future Phase 2 scheme completed by Laing O'Rourke Construction.



CAR PARKS & FRAMES

Precast multi-storey car park structures are designed and manufactured using a number of structural precast elements, including columns, beams, spandrels, stairs, lift shafts, hollowcore flooring slabs and wall panels. Due to their reduced self-weight, hollowcore flooring slabs can achieve clear spans of up to 16m; this reduces the requirements for vertical columns, creating better maneuverability and therefore the risk of damage to vehicles and the car park's structure.

FP McCann manufactures three main types of precast frame construction:

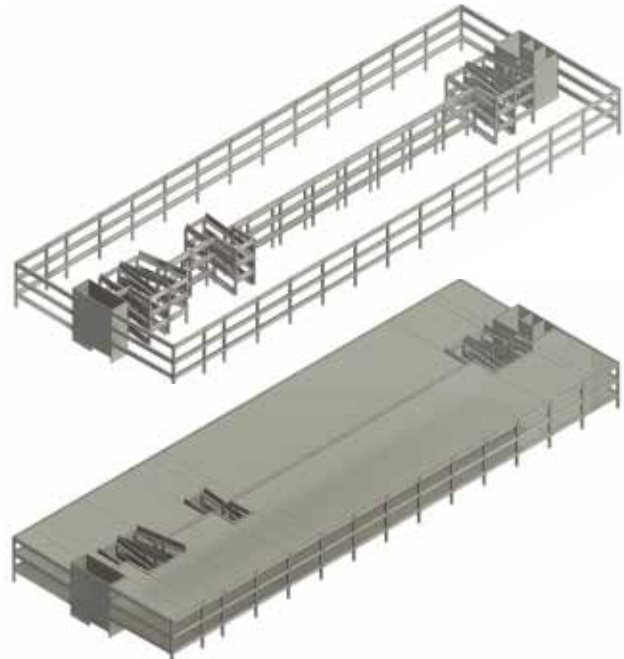
1. Portal Frames
2. Column and Beam
3. Crosswall Construction

APPLICATIONS

- Low-rise and multi-storey offices
- Elevated car parks
- Retail, industrial and warehousing developments

PRECAST BEAMS

- FP McCann manufactures a range of precast concrete beams including
- Ground beams – span between foundations or bases to support brick/blockwork
- Spandrel beams- span between columns around the perimeter of a building, providing load-bearing support to floor and roof loads
- Spine beams – span the length of a building, providing load-bearing support to floor slabs on either side
- Lintel beams – span above door and window openings, providing load-bearing support to the structure above
- Balcony beams – are beams cast with an integral balcony
- Raker beams – span between columns, providing structural support for terracing units and can be made to any size or length



BENEFITS OF USING PRECAST CONCRETE FRAMES

- Speed of construction is increased as follow-on trades can commence much earlier
- Quick installation since the structure is fabricated off-site
- Offsite construction enables a high standard of workmanship in factory conditions – reduces the potential for accidents and is not affected by weather or labour shortages etc.
- Wide variety of quality finishes achievable and concrete can be left exposed
- Maintenance-free – no need to paint or periodically replace beams as you would with alternative types of beams such as timber beams, which can rot, or steel beams – which can rust and corrode
- Fire-resistant – concrete has its own built-in fire resistance, which can also help to keep insurance costs down etc. and there is no requirement for a site applied fire coating as with other systems
- Economical – lower total cost due to speed of construction, lower labour costs as welders or skilled workers are not required for installation; concrete frames are not as expensive as steel beams and have lower maintenance costs
- The high thermal capacity of concrete can reduce the demand for heating, ventilation and air conditioning, unlike alternative types of frames
- Flexible design – concrete can be cast into any shape, for example, arch-shaped beams, required to suit a variety of project plans and elevations

PRECAST GROUND BEAMS

Precast concrete ground beams will be supplied and delivered / supplied, delivered and installed in lengths to span between stanchion bases. Ground beams will be fixed in position via an Excalibur bolt and fixing plate to the foundation pad.

The maximum length of span between stanchions is to be 7400mm. Ground beams will require a minimum of 300mm full bearing at each foundation base. Greater spans can be achieved by the introduction of a small intermediate concrete base by others at mid span for beams to bear upon. Ground beams of standard size will be cast in steel moulds, where non-standard beams are required; moulds may require formation partially in timber.

The Ground beams are designed to support their self-weight only as standard, to form a permanent shutter to the edge of an in-situ concrete floor slab, but can be designed to accommodate specific loads subject to design at. Increased spans and loadings may incur an additional cost

The maximum length of ground beams is 10000mm.

All designs are carried out in accordance with Eurocode standards and relevant national annexes

Panels will have a standard steel mould finish based on a BS8110 type B Finish to the flat face. The boot face will have a float finish based on BS8110 type A finish due to mould configurations.

The FP McCann Ground beam system requires a head height clearance for installation of 8000mm above Finished Floor Level and a minimum of 1m clear working space behind the beams is required to install the Excalibur bolts, fixing plates, grout and to dry pack beneath the walls to a maximum height of 40mm and a minimum height of 10mm. Head height requirements can be reduced down to a minimum of 5000mm by telehandler installation at an additional cost

In-situ works to column areas and Mastic Joints to be by others.



SPECIFICATION

This estimate is based on the use of our own tried and tested specifications and details. We therefore reserve the right to amend any specification or details where in our opinion the use of standard FP McCann Ltd specifications and details is beneficial.



PRECAST STAIRCORES

FP McCann has vast experience in delivering bespoke precast stair core solutions based on two design options, stability cores and freestanding cores. The key difference being that stability cores provide lateral stability to the whole surrounding structure.

We offer a full design and installation service throughout the UK. We work closely with your design team at an early stage to develop the optimum solution to meet your needs. As a result, the minimum of temporary works is required on-site.

L and T shaped walls form our precast concrete stair cores. If the core dimensions suit, precast box units can also be adopted. Inside the stair core, FP McCann provides precast stairs and landings with cast-in lifting points making installation efficient and safe.

The wall thickness will depend on the type of stair core you choose (ie. stability or freestanding), fire rating and the number of storeys. However, with FP McCann huge production and mould capacity we have a solution for all scenarios.

We manufacture all the precast components using self-compacting concrete which results in a high-quality finish.



KEY BENEFITS

- Units produced in a factory-controlled environment
- Quick installation
- Increased health and safety with reduced temporary works
- Immediate working platform
- Inherent fire resistance



PRECAST STAIRS & LANDINGS

FP McCann provides precast concrete stairs and landings which allow immediate access to site personnel and following trades and also the final end-users.

Using FP McCann precast stairs helps to eliminate the need for expensive form work and temporary propping. All the flights have cast in lifting points to make installation efficient, easy and safe. FP McCann has built up vast knowledge and experience of different types of applications of precast concrete stairs and landings over the years. We can share this knowledge through our technical support, design and installation services.

KEY BENEFITS

- Self-compacting concrete provides a high-quality finish
- Cast on edge or flat, depending on finish requirements
- A range of casting options are available for integral or separate landings
- Quick installation
- Immediate access
- High load capacity

PRECAST CONCRETE STAIRS AND LANDING INSTALLATION SERVICE

Our specialist team will install your stairs with expertise and efficiency. Our installers are highly-trained and vastly experienced. By choosing to use our installation service we aim to get your job done quickly and safely. We can offer professional advice and guidance on compliance with health and safety legislation. Especially when it comes to working at height, we can supply the necessary fall protection whilst the staircases are installed.

When using our installation service, an FP McCann Contracts Manager will visit your 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.

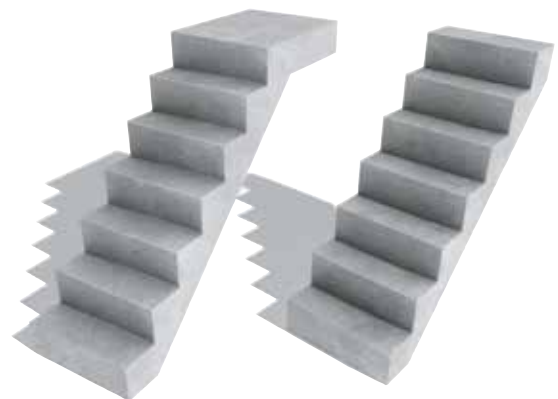
PRECAST CONCRETE STAIRS AND LANDING DESIGN SERVICE

With our designers years of experience, we can offer a design service covering many staircase applications, including creative solutions to unconventional applications.

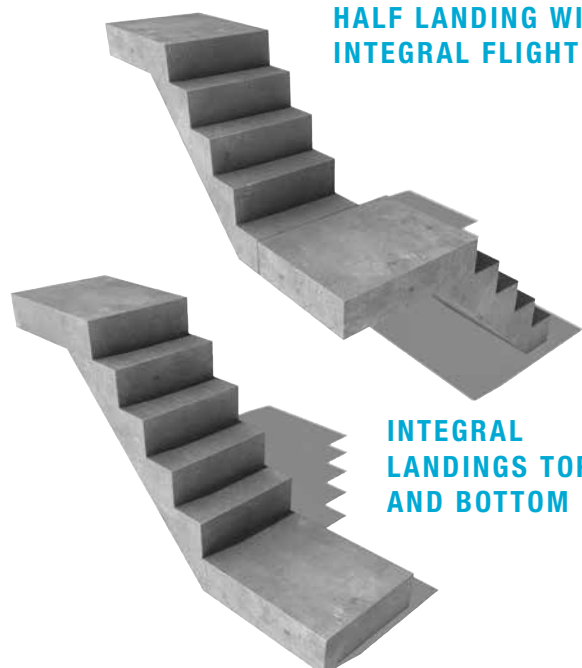


INTEGRAL TOP LANDING

STRAIGHT FLIGHT



HALF LANDING WITH INTEGRAL FLIGHT



INTEGRAL LANDINGS TOP AND BOTTOM

PRECAST LIFT SHAFTS

FP McCann manufactures precast modular lift shafts which can be tailored to suit any project. Since construction is completed off-site, the lift shaft are erected very quickly, greatly assisting the build programme schedule.

FP McCann's lift shafts can be built from 1200mm each way up to 2750mm, in increments of 50mm. Wall thickness starts at 150mm, but this can be increased to 200mm or 250mm.

Our standard lift design supports all loading from the lift equipment during installation, operation and maintenance. The lift shaft can also be designed to support vertical loads from other structural elements such as beams and slabs.

We work closely with your lift supplier to ensure that all components are accurately positioned, including channels and recesses.

We use a water resisting concrete admixture to cast the lift pit sections, to protect against water ingress.

Lift shafts that are at least 4 stories high may need to be restrained at intervals moving up the building, assumed to be achieved by tying back to the main structure. If shafts are to be erected ahead of the main structure, it may be necessary to provide temporary support.

KEY BENEFITS

- Quick and easy to install
- Flexible, bespoke modular design
- Off-site construction minimises disruption on-site
- Minimal on-site labour and costs
- Minimal on-site health and safety risks
- Cast-in fittings provided for lift installation
- 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



SINGLE LIFT SHAFT DOUBLE LIFT SHAFT



TRIPLE LIFT SHAFT



PRESTRESSED HOLLOWCORE FLOORING

FP McCann manufactures precast concrete hollowcore flooring units. These units are a prestressed concrete slab normally 1200mm wide (part widths are also available if required) and a current depth range of 150mm to 450mm. In addition to this range, we also manufacture a 100mm deep precast concrete floor slab. FP McCann manufactures three main types of precast frame construction:

Our hollowcore slab production techniques are constantly being updated and developed to offer additional slab depths to the range and also increase efficiency and achieve higher quality. As with our other flooring products, hollowcore slabs can be used with masonry, steel precast and in-situ forms of construction.

Whether you require a small 60m² plot or a 10,000m² floor, we have the slabs and the capacity to suit your needs. We work with everyone from multinational construction companies, architects and engineers to self-employed builders and we will always aim to work efficiently and effectively to build solid working relationships

HOLLOWCORE FLOORING BENEFITS

- Long spans
- Quick installation, particularly when compared to wet concrete solutions
- Immediate working platform
- High load capacity
- Preformed holes for services
- A wide range of slab depths available
- Can be used with masonry, steel, precast and in-situ forms of construction

TYPICAL APPLICATIONS

- Residential (Multi-occupancy)
- Offices
- Education
- Car Parks
- Retail
- Custodial



DESIGN & MANUFACTURE

- Designed to BS8110 and BS EN 1992-1-1
- Can be designed as a composite floor
- Lifting points can be provided
- All units can be offered with insulation preattached to the soffit
- Prestressed design with inherent pre-chamber (generally span/ 300)
- The fire-resistance rating of up to 2 hours
- 50 to 100-year lifespan
- Can easily incorporate disproportionate collapse details



UNIVERSITY OF BIRMINGHAM STUDENT ACCOMMODATION

Site: University Locks, Curzon Street, Birmingham City Centre

Client: Birmingham City University

Main Contractor: John Sisk & Son

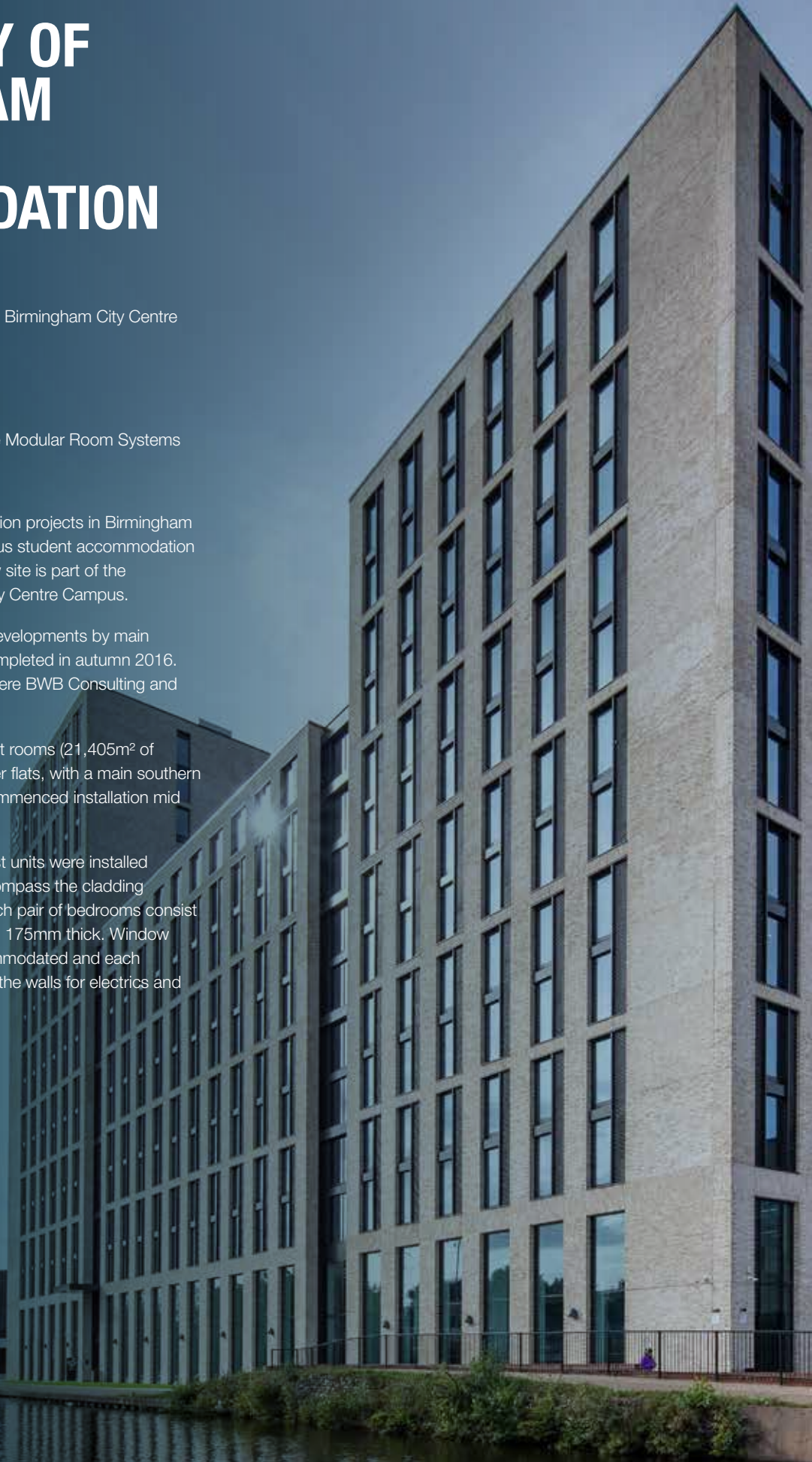
Products Supplied: Precast Concrete Modular Room Systems

One of the most prominent regeneration projects in Birmingham is the £48 million canal side prestigious student accommodation scheme at University Locks. The new site is part of the Birmingham City University (BCU) City Centre Campus.

The project carried out for Alumno Developments by main contractors John Sisk & Son was completed in autumn 2016. Structural engineers for the project were BWB Consulting and Architects, Glen Howells Associates.

The scheme to construct 659 student rooms (21,405m² of accommodation) in the form of cluster flats, with a main southern tower standing at 19 storeys high commenced installation mid 2015.

In total, some 3,500 individual precast units were installed to form the structural frame and encompass the cladding envelope. The five panels framing each pair of bedrooms consist of walls 180mm thick, and floor slabs 175mm thick. Window and door openings have been accommodated and each bedroom has four conduits cast into the walls for electrics and communications networks.





ST PETERS SQUARE HOTEL MANCHESTER

Site: Hotel One, St Peters Square

Contractor: Property Alliance Group

Client: Motel One

Products Supplied: Acid etched cladding panels

St. Peters Square Manchester, is a 20 storey hotel and apart-hotel with triple punched window facade sandwich panels with a formliner finish within a crosswall construction solution manufactured off-site by FP McCann.

This new property will be the third in the city for Motel One, with their first Manchester venture – the 330-bed Motel One in Piccadilly - opened in 2015, and a 298-bed hotel on Cross Street.

This is all part of Motel One's rapid expansion plan which involves the opening of eight hotels across Europe, and plans in the pipeline for 25 additional Motel One sites across major European metropolises.



AC MARRIOT HOTEL MANCHESTER

Site: Marriot Hotel, Manchester

Client: AC Marriot

Main Contractor: Bardsley Construction / FP McCann

Products Supplied: Precast concrete sandwich panels, stairs and landings, crosswalls and solid floors

FP McCann's structural precast concrete building and architectural facades division is supplying and installing the complete package of modular precast components on a brand new £15.5 million four star hotel by AC Marriot in Manchester.

Working in partnership with main contractor Bardsley Construction, the building of the 9 storey, 172 bedroomed hotel commenced in early summer 2017 and is on schedule to open early in 2019.

In total, some 1,000 individual units will make up the precast structural frame including 250 solid floor slabs, 300 cross walls and 251 brick-faced facade panels. Also included in the build are precast stairs and landings and stair and lift cores.

The units are being delivered on a 'just-in time' basis from the company's Byley depot. The FP McCann contracting team have been erecting an entire floor every two weeks, and have completed works to the 6th floor, including the decorative cladding to the ground floor podium slab and columns. The single handling operation ensures that the components are installed with minimal risk of damage.

AC HOTEL MANCHESTER CITY







PRECAST TANKS & CHAMBERS

FP McCann's bespoke tank and chamber systems can offer many advantages over traditional in-situ built units. Due to their simplistic and flexible design, they can be used for a variety of different applications. For example, standard manhole chambers, draw pits, pumping stations and CSO chambers can all be made from the same design.

Stormchamber™	180
Drawpits	182
Stormtank™	183
Stormhold™	184

COMPLEMENTARY PRODUCTS

- StormChannel™	186
- StormBrake™	187
- StormCleanser™	190

STORMCHAMBER™

MULTIPURPOSE CHAMBER SYSTEM

FP McCann's StormChamber™ multipurpose chamber system is a single piece chamber system made up of a base unit, risers and cover slab to suit chamber depth and the specific application. A 3D dimensional drawing is available on request. This flexible modular system is suitable for most tank and chamber applications.

STORMCHAMBER™ – INTERNAL DIMENSIONS

1250 x 1250mm	2500 x 2000mm
1500 x 1500mm	2500 x 2500mm
2000 x 1500mm	3000 x 2500mm
2000 x 2000mm	3000 x 3000mm

The above size range does not generally have toe units.

Sizes above 3000x3000mm up to a maximum size of 5000x3500mm. The length and width of these chambers can be adjusted up/down in 250mm increments to suit requirements. The height of the chamber is flexible up to 6 metres, with 8 metres possible, subject to calculations.

If chamber dimensions are critical and don't fit with the above range, we can usually offer a solution.

TYPICAL CONSTRUCTION/ INSTALLATION

(Subject to specific application)

- Base unit is placed on level concrete blinding or type 1 sub base
- Riser unit/s are placed onto the base unit, if required
- Hydrophilic swell, butyl sealant and bearing strips are placed in the joint between the base unit and riser unit/s
- Internal wall is fitted at factory or at the site and is connected with threaded rod, nuts and washers
- Pipework is connected and backfilling takes place
- Cover slab is bedded on with high strength mortar, contained to the inside by butyl sealant strip

You should consider the overall installed cost of the chamber when taking into account all the benefits and cost savings detailed below, not the upfront material cost.



STORMCHAMBER™

MULTIPURPOSE CHAMBER SYSTEM

BENEFITS

- Concrete surround is not required, saving time and money on site installation. Up to 85% reduction in on-site construction programme
- Pipe penetrations are done at the factory, avoiding the need for cutting or core drilling on site
- Weir walls, flow controls etc can be factory fitted if required. Up to 95% reduction in site man-hours for pit construction
- Virtual elimination of on-site waste
- 55% reduction in lorry movements for deliveries
- Traffic calming/ management reduction
- Elimination of the need for confined space working
- Significant reduction in site noise
- Clear openings to suit requirements
- Reduces enclosed spaces work and working at depth
- Reduction in Health and Safety and Dynamic Risk Assessment issues
- Enhanced functionality - product can be designed for future alterations
- A flexible modular system with a high quality factory finish
- Greatly reduces long term maintenance costs
- Smaller units may be adjusted using alternative increment if required

PRODUCT APPLICATIONS

- Flow control chambers
- CSO chambers
- Drawpits
- Overflows
- Pumping-stations
- Large manholes
- Clean water storage
- Headwalls
- Sludge tanks
- Attenuation tanks
- Pumping-stations
- Basements
- Pedestrian Loading (10kN surcharge)
- Motorway Loading
- Port and Airfield Loading

DESIGNED TO THREE DIFFERENT LOADING CATEGORIES:

- Pedestrian Loading (10kN surcharge)
- Motorway Loading
- Port and Airfield Loading



DRAW PITS

Precast bespoke pit solutions provide a real alternative to in-situ built pits.

Part of our StormChamber™ multipurpose chamber range, FP McCann's draw pits can be adapted to suit any site requirements. Their flexible design means that they can be factory fitted with duct couplers, step irons, sump units, rebated walls and ring beam units, as required.

The below size range do not generally have toe units. Sizes above 3000 x 3000mm up to a maximum size of 5000 x 3500mm. The length and width of these chambers can be adjusted up/down in 250mm increments to suit requirements. The height of the chamber is flexible up to 6 metres, with 8 metres possible, subject to calculations. If chamber dimensions are critical and don't fit with the above range, we can usually offer a solution.

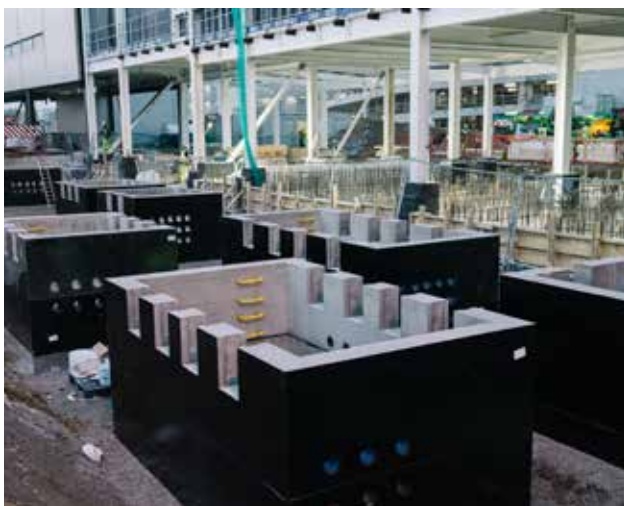
Drawpits can be supplied to suit any loading requirements such as F900+ for airports and similar heavy duty applications.

This whole approach has produced a solution which has made a significant and sustainable contribution towards reducing the impact of construction works on-site, including time spent on-site, noise pollution etc.

The end product is of a consistently high quality and has the added value of being easier to maintain and alter in the future.



Draw Pit Internal Dimensions	
1250 x 1250mm	2500 x 2000mm
1500 x 1500mm	2500 x 2500mm
2000 x 1500mm	3000 x 2500mm
2000 x 2000mm	3000 x 3000mm



ADDITIONAL BENEFITS

- Concrete surround is not required, saving time and money on site installation
- Pipe penetrations are done at the factory, avoiding the need for cutting or core drilling on site
- 95 per cent reduction in site man-hours for pit construction
- 85 per cent reduction in on-site construction programme
- 55 per cent reduction in lorry movements for deliveries and traffic calming
- Significant reduction in confined space working and working at depth
- Significant reduction in site noise
- Significant reduction in the number of potential safety hazards and DRA issues
- Modular system with a consistently high quality product
- Clear openings to suit requirements
- Product designed for future alterations
- Virtual elimination of on-site waste
- Reduces long term maintenance

STORMTANK™

MULTIPURPOSE PANEL SYSTEM

The StormTank™ multipurpose panel system is an underground structure consisting of wall panels, an in-situ or precast concrete base and cover slab, which are assembled on-site by the contractor or an approved installer using a range of standard jointing types. The panels can be made with cast-in pipe connections, recesses and openings and have penstocks or flap valves pre-installed. Internal weir-walls, overflows, underpasses and baffle walls can also be incorporated into the structure.

This system can be used for a variety of uses such as CSO chambers, storage tanks, large size manholes, pumping stations, valve chambers etc. The main advantage of using this system is that there is no size limitation, except for the height, which cannot exceed six metres, with a two metre overburden. A detailed installation guide is available. Please contact FP McCann for further details.

PRODUCT APPLICATIONS

- Air-infiltration chambers
- Hydro-brake chambers
- Large CSO chambers
- Water storage tanks
- Pumping stations
- Attenuation tanks
- Large manholes
- ASP structures
- Sludge tanks
- Basements
- Headwalls

DESIGNED TO 2 DIFFERENT LOADING CATEGORIES

- Pedestrian Loading (10kN surcharge)
- LM1 Motorway Loading



STORMHOLD™

LARGE DIAMETER PIPE STORMWATER MANAGEMENT SYSTEM

The production of water-impermeable surfaces in construction is inevitable. This includes roof areas on buildings, car parks, loading bays and road pavements. The provision of these surfaces interrupts the natural drainage process, creating increased stormwater run-off in respect to both volume and flow rate.

In many cases, this increase in stormwater flow and volume is a problem as the local sewer or watercourse does not have the sufficient capacity to cope. This problem could be alleviated by an increase in the size of the stormwater sewer or watercourse, thus providing the capacity within the drainage system to cope with the increased surface water. This, however, may be expensive, cause major infrastructure disruption, and can often be completely unfeasible.

Legislation under Planning Policy Statement 25 and Building Regulations approved Document H3 for flood risk assessment (SuDS), has created the need for planners and developers to design and install effective stormwater management systems.

The types of systems that can be employed to overcome these issues are well documented and varied. Quite often they can be very technically demanding in their operation, maintenance and construction. The selection of a system will depend on site constraints, position, expected loading, geographical limitations and inevitably cost.

The StormHold™ system offers a complete solution to the stormwater attenuation problem and utilises a tried, tested and approved method of stormwater storage. FP McCann can provide the complete package of design, product specification and supply of products and installation advice.



PRODUCT FEATURES

- Available in a range of sizes
- Can use and combine a number of techniques and products such as pipes, culverts, tanks, manifold systems and soakaways
- A complete solution with all connections
- Established and familiar products
- Can be laid in short lengths
- The system can be adapted to load-bearing and non-load bearing applications
- 120 year design life
- Adoptable by water companies
- Manufactured in accordance with a BSI accredited quality management system conforming to ISO 9001
- Available straight from stock

STRUCTURAL

The inherent structural strength of concrete is well documented and can be designed to meet the severest of loading criteria.

StormHold™ systems can be tailored to suit low load situations, for example, when the tank is to be situated below verges or gardens.

BENEFITS

- System can be designed specifically to suit the application
- Quick construction using a standard joint
- No need for fabrication on-site or external specialist contractors
- Straightforward installation using known techniques, no need to retrain
- Can be installed under roads and car parks
- Can cope with construction plant loading
- Flotation is not a concern – no need for geotechnical anchors when located below the water table
- Long term solution
- Enhanced bedding performance - the superior strength of concrete pipes enables recycled aggregate to be used as a bedding material, thus reducing costs associated with granular material and environmental impact during installation.

STORMHOLD™

LARGE DIAMETER PIPE STORMWATER MANAGEMENT SYSTEM

DESIGN

The design of the system can be tailored to suit most structural and hydraulic criteria.

RELEVANT LEGISLATION/ INFORMATION

- Planning Policy Statement 25 (PPS25) December 2009
- Department of Communities and Local Government (DCLG)
- Future Water February 2008, Department for Environment, Food and Rural Affairs (DEFRA)
- The Pitt Review, Learning Lessons from the 2007 floods by Sir Michael Pitt
- The Code for Sustainable Homes February 2008, Department for Communities and Local Government (DCLG)
- The SuDS Manual 2007, CIRIA C697
- Sustainable drainage systems - hydraulic, structural and water quality advice 2004, CIRIA C609
- Flood and Water Management Act 2010

FP McCann's StormHold™ systems can be designed to suit a wide range of construction projects and drainage schemes. Precast concrete attenuation components include products such as side entry manholes, stop end bends and spigot and socket end wall pipes. These products can either be engineered into an on-line sewer pipe system or utilised off-line as single or multiple stormwater holding tanks.

FP McCann's storm attenuation products comply with the requirements set out within 'Sewers for Adoption 7th Edition' and are made from Kitemarked precast concrete components, which comply with the relevant Standards: BS EN 1916 / BS 5911-1 and Manholes BS EN 1917.

EXAMPLES

Spigot and Socket Tank End Wall Pipes
(Adaptor/Fitting - BS EN 1916)

- Consists of a standard 2500mm long flex pipe with a cast-in end wall. Inlet/outlet holes are generally cored into the wall

Side Entry Manholes (Junction - BS EN 1916)

- Entry shafts factory-fitted to pipes 900mm diameter and above
- Ideal for use in restrictive locations where conventional manhole build is not possible
- Can be supplied in left or right hand configuration. Access steps can be fitted, if required
- Can be used in conjunction with an end wall pipe
- Additional chamber sections or a reducing slab can be used to build height

Stop End Bends (Bend - BS EN 1916)

- Tank end access for pipes 900mm diameter and above
- Access steps fitted, if required
- Drainage inlet/outlet holes cored, as requested
- Additional chamber sections or a reducing slab can be used to build height

Side Entry Manhole with Bend (Junction/Bend - BS EN 1916)

- 2500mm long Easi-Flex standard pipe with cast-in bend
- Entry shaft fitted to pipes 900mm diameter and above

Mid Entry Manholes (Junction/Bend BS EN 1916)

- Standard pipe with a sealed manhole joint, complete with fitted slab
- Manhole joint and slab factory-fitted to pipes 1200mm and above
- Access to the tank via winch or removable ladder. Reduced access via slab, available on request
- Additional chamber sections or a reducing slab can be used to build height

End Entry Manholes (Junction - BS EN 1916)

- Standard pipe with a sealed manhole joint, fitted slab and cast-in end wall
- Manhole joint and slab factory-fitted to pipes 1500mm diameter and above
- Drainage inlet/outlet holes cored, as requested
- Access steps factory-fitted, if required

PRODUCT BENEFITS

- Flexibility of design - adaptable to meet client requirements
- Products can be used in space restrictive on-line sewer systems, providing the required storage volume
- Reduction in construction times
- Quality assured and kitemarked products used
- Sustainable systems with design life in excess of 100 years
- Site safety benefits related to reduction of man hours spent in excavation
- Ease of access for maintenance
- Can be linked to other SuDS related systems such as rainwater capture and re-use

Note: Concrete haunching should be used to provide local stiffening to the concrete pipes with manhole entries. Use a minimum 150mm thickness surround to the pipe, extending to a height of 300mm above the pipe, in order to support the shaft joint.

STORMCHANNEL™

FP McCann's StormChannel™ is a heavy duty, precast concrete slot drainage channel designed to remove surface water from many areas, including roads, motorways, car parks, industrial, commercial and residential areas. This helps to prevent flooding and run-off.

FP McCann offers two types of StormChannel™ slot drain:

1. A precast concrete bullnosed kerb drainage channel has a linear slot drain and a profiled, oblong drainage channel.
2. A standard precast concrete drainage channel with an interrupted slot and stabiliser bars for increased stability.

PRODUCT BENEFITS

- Quick installation
- Minimal maintenance
- Excellent flow rates even at zero or shallow gradients
- Modular system
- Robust product
- Economical product
- Integrated watertight seal
- No concrete surround required
- Conforms to EN 1433



SCAN THE QR CODE TO SEE
OUR STORMCHANNEL™
INSTALLATION VIDEO

RANGE OF SIZES



300 Standard

400 Standard

400 Kerb

500 Standard

600 Standard

CAST IN GRATING



A unit with cast in grating to allow easy cleaning and maintenance

PRODUCT FEATURES

- Resilient up to class D400kN, E600kN or F900kN
- 300 and 400 Standard Stormchannel™ tested to Class E600
- 2% surface slope to the slot
- Supplied with interrupted slot only – slot width 30mm
- Spigot and socket end for correct alignment and joining

Additional connections can be provided on request to this precast slot drain solution. Junction boxes and sump units are also available in all sizes.

STORMBRAKE™

VORTEX FLOW CONTROL SYSTEM



Vortex Flow Controls (VFCs) are commonly used in drainage systems to regulate the storm water runoff from urban areas. Through the use of vortex flow technology, FP McCann's StormBrake™ provides the solution to a variety of stormwater management problems. These include accurately controlling storm/surface water flow, minimising upstream storage requirements and reducing the risk of blockages compared to traditional orifice plates.

WHAT IS VORTEX FLOW TECHNOLOGY?

Vortex flow technology is based on the principle of a vortex hydrodynamics, where under sufficiently high upstream water levels a vortex is induced in the flow by the device. The vortex motion results in significant energy loss, creating a pressure drop across the device and restricting the discharge leaving the outlet. The geometric properties of the device control the amount of flow restriction and can be tailored to suit the design conditions for a specific site.

BENEFITS

- Reduces the amount of upstream storage required, minimising the cost of providing attenuation facilities
- Minimal maintenance required after installation. FP McCann's StormBrake™ is self-activating and function without any mechanical components
- Outlet clearances up to 6 times larger than an equivalent orifice plate, significantly reducing the risk of blockages and the associated maintenance costs
- Accurately designed to meet a wide range of design conditions:
 - flows up to 120l/s;
 - heads up to 3m
- Contains a bypass door which can be manually opened at ground level using a pull cable to allow easy access for inspection or blockage removal

For design conditions outside of this range, please contact FP McCann directly



DESIGN

FP McCann's StormBrake™ is manufactured using grade 304L / 316L stainless steel for increased durability, strength and resistance to corrosion and chemical damage. It consists of 3 main parts: an inlet section, a vortex chamber and an outlet. Each part can be configured to provide the most efficient solution to specific site requirements.

Each StormBrake™ is fitted with a pivoting bypass door on the front face in line with the outlet pipe. A stainless steel wire cable is attached to the bypass door and extends to the top of the manhole chamber. Upon pulling the cable the bypass door rotates and moves upwards, revealing a clear straight-through channel between the manhole and the outflow pipe. In the event of the StormBrake™ becoming blocked by debris, the bypass door allows fast discharge of water out of the chamber for maintenance.



STORMBRAKE™

VORTEX FLOW CONTROL SYSTEM



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STORMBRAKE™

VORTEX FLOW CONTROL SYSTEM



FLOW STAGES

The performance of FP McCann's StormBrake™ is determined by relating the upstream head to the outflow leaving the device. Its performance is characterised by a head-flow curve, which produces a unique 'S'-shape, corresponding to the following three phases of flow:

(i) Pre-vortex phase – hydrodynamics governed by orifice flow. The flow generated by the upstream head is not large enough to induce a vortex in the StormBrake™. This phase occurs until the flush-flow point is reached.

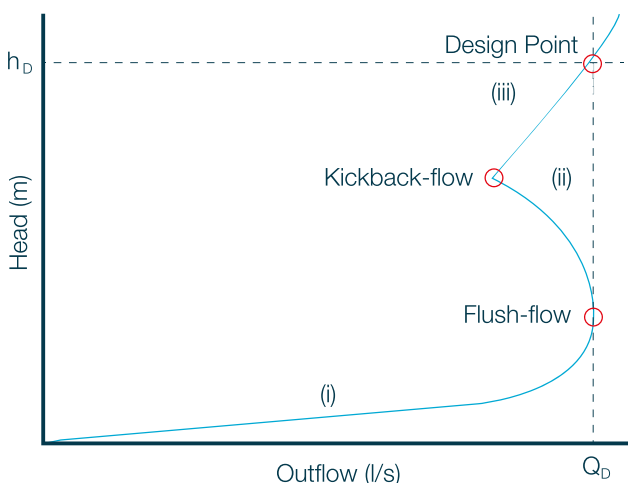
(ii) Transition phase – flow throttling initiated. Vortex continually forms and collapses, resulting in significant energy loss and lower flow rates despite increasing upstream head. This phase is bounded by the flush-flow and kickback points.

(iii) Vortex phase – vortex fully formed with central air core. The air core imposes a quasi-physical flow restriction, reducing the available area in the pipe for outflow.



By changing the geometry of the StormBrake™, the positions of the flush-flow and kickback points can be tailored to suit the clients' needs. For example, the curve below is ideal for situations where upstream storage capacity is limited. The flush-flow point occurs at the design flow, allowing for maximum discharge of water during the early stages of a storm, therefore minimising upstream storage requirements.

VFC HEAD-FLOW CURVE



TESTING

FP McCann's in-house development team test the StormBrake™ using a full scale test facility. The test-rig is constructed of the same components that would be used on site, increasing the accuracy and realism of the tests. The team works closely with university researchers to apply state-of-the-art experimental methods and computational fluid dynamics to the development process. To date, over 2.5 million litres of water has been used to characterise the performance of the StormBrake™. This volume is constantly increasing, due to continual development and rigorous hydrodynamic characterisation, ensuring maximum product performance to meet the requirements of each specific site.

INSTALLATION

- 1) Position the StormBrake™ so that the inlet is at the bottom and the outlet surround is resting on the inside of the outlet pipe. Mark the locations of the mounting points on the chamber wall;
- 2) Using the marked locations, drill holes to the required diameter and depth for the supplied masonry anchors. Fix the anchors to the drilled holes.
- 3) Attach the StormBrake™ to the anchor points, ensuring the neoprene gasket is flush with the chamber wall, and fasten the device by tightening the bolts. This will compress the neoprene gasket to provide a watertight seal between the device and the wall.
- 4) Fix the stainless steel wire cable from the bypass door to the underside of the manhole cover, vertically above the device. A secondary bracket is supplied and should be fitted halfway up the chamber to guide the bypass door cable in deeper chambers.
- 5) Adjust the length of the bypass cable accordingly, so that it reaches ground level whilst ensuring the bypass door can open if required.



STORMCLEANSER™

HYDRODYNAMIC SEPERATOR



FP McCann has designed and developed the enhanced StormCleanser™ for the treatment of urban catchment stormwater run-off.

The StormCleanser™ provides a cost-effective solution for designers, engineers and contractors involved in the provision of Sustainable Drainage Systems (SuDS). This unit has no moving parts, requires no power, and is constructed within standard precast concrete chambers.

The standard units come factory fitted in precast chambers and could also be installed on-site as required. The modular stainless steel built assembly is designed to provide installation simplicity. The separator internal assembly is fabricated out of stainless steel (304L/316L), per BSI BS EN 10088-2-2014. Stainless Steel material grade and composition, provides exceptional longevity due to high corrosion resistance. The lifespan of the internal assembly outlasts the lifespan of a typical precast concrete structure (100+ years).

The enhanced StormCleanser™ design allows for an inlet at varying angles with respect to the outlet. Moreover, the design also enables configuration with multiple inlets, at different orientations and of various sizes. The symmetric inlet design provides the freedom of clockwise or counter-wise flow direction, and allows the vortex formation with minimal hydrodynamic



losses and turbulence. when a higher flow inlet is placed ahead of a lower flow inlet. The changeable flow direction provides drainage engineers the freedom to set the desired orientation of multiple inlets. StormCleanser™ allows for preferential flow direction of the main inlet, providing optimum performance for a wide range of configurations. StormCleanser™ is developed with state-of-the-art hydraulics technology, using Computational Fluid Dynamics (CFD) modelling and full-scale experimentation.



STORMCLEANSER™

HYDRODYNAMIC SEPERATOR



OPERATION

The StormCleanser™ is specifically designed to remove suspended solids, hydrocarbons, and floatable debris from the stormwater run-off. Water and pollutants enter the system via the inlet pipe, where the internal geometry enables low energy forced vortex flow patterns. This allows the floatables to gather and solids to settle to the bottom of the treatment chamber for subsequent removal.

Settled sediment is retained within the sump storage of the unit, allowing easy access for suction cleaning. Re-suspension of the solids is minimised by the provision of a baffle plate (Catch Skirt), positioned above the sediment storage sump. A central core allows for convenient suction hose entry down to the sump for cleaning and maintenance. If there is a stormwater surge in excess of maximum treatment flow rate, it overflows a weir, bypasses the treatment zone and directly discharges through the outlet pipe. This helps to minimize the effects of scour within the treatment region and prevents wash out of retained sediment downstream.

APPLICATIONS

- SuDS based drainage networks
- Industrial Developments
- Housing Developments
- Highway Drainage Products
- Retail Parks
- Car Parks, Roads, Motorways and Trafficked Areas
- Commercial Centres
- Existing surface water sewer discharges
- Leisure Facilities



FEATURES

- Developed at inhouse high-flow Hydraulic Rig, and rigorously tested against actual rainfall inlet conditions
- High retention at most frequent rainfall events per annum
- High treatment flow rate to size ratio preventing oversized separators in the drainage design i.e. minimise footprint
- Wide range of chamber sizes (Ø1200 – Ø4000mm) and pipe sizes (Ø150 – Ø900mm)
- Tested using extremely fine sand particles starting from 2µm
- Modular and innovative design for multiple inlet orientation
- Choice of flow direction providing optimal configuration performance
- Complies with SuDS legislation

SPECIFICATIONS

MODEL	TANK DIAMETER	MAX TREATMENT FLOW RATE	PIPE SIZE	MIN. SEDIMENT STORAGE CAPACITY	MIN. OIL STORAGE CAPACITY	MAX. HEAD LOSS AT TREATMENT FLOW RATE
	(mm)	(L/s)	(mm)	(m³)	(L)	(mm)
PRE-SC1200	1200	43	300	0.50	320	240
PRE-SC1500	1500	67	375	0.82	630	300
PRE-SC1800	1800	96	450	1.23	1085	360
PRE-SC2100	2100	131	525	1.75	1725	420
PRE-SC2400	2400	172	600	2.38	2575	480
PRE-SC2700	2700	217	675	3.13	3670	540
PRE-SC3000	3000	268	750	4.01	5035	600
PRE-SC3600	3600	387	900	6.20	8703	720
PRE-SC4000	4000	477	900	8.00	11938	800

Notes:

- MTFR is per WRc specified Weighted Annualised Removal Efficiency of at least 50%, for a particle size distribution (PSD) with a D_{50} : 63µm and density of 2650 kg/m³
- Customized solutions such as: oriented inlet, multiple inlets, and different pipe sizes available as required
- Sediment storage capacity could be extended as required, per the desired maintenance frequency



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TUNNELS AND SHAFTS

The FP McCann range of tunnel and shaft products have been developed to meet the requirements of the latest industry standards, which include the British Tunnelling Society Specification and the Civil Engineering Specification for the Water Industry. Designed to facilitate the ease of construction and speed of installation, FP McCann's tunnelling and shaft systems offer strength, stability and overall performance in all types of ground conditions. Tunnel and shaft products are manufactured in accordance with FP McCann's Quality Management System, BSI accredited to ISO 9001.

- Products manufactured include:
- Smoothbore Tunnel and Shaft Linings
- Cover and Landing Slabs
- Caisson Units
- Jacking Pipes

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MEMBER OF THE
PJA
PIPE JACKING ASSOCIATION

SMOOTHBORE TUNNEL AND SHAFT LININGS

FP McCann has developed a comprehensive range of smoothbore shaft and tunnel linings. Each size is specifically designed to meet the tunnelling industry's exacting and varied needs, recognising the key criteria as being strength, stability and the capability of performing in all types of ground conditions.

DESIGN FEATURES

All rings, with the exception of the cutter choker, comprise of ordinary segments and two top segments. The top segments have one tapered cross joint so that they can be installed with an EPDM gasket. The cutter choker comprises all ordinary segments.

SEALING

FP McCann is the only precast concrete manufacturer to supply pre-fitted, tailor-made EPDM rubber gaskets on the full range of smoothbore shaft and tunnel linings. The gaskets provide an immediate water tight seal on construction and are fully compliant with the requirements of the British Tunnelling Society specification. Speed of build, safety and increase on-site productivity are key benefits.

CONNECTION

Cross joint connections are made using a spear bolt passing through a pocket in one segment and a plastic socket in the adjacent segment. Circle joint connections are made using a T bolt passing through a hole in one segment and into a T box in the adjacent segment. Bolts are designed to fully compress the gasket. All connections are sherardised. (Other finishes to fittings, including galvanised, are available on request). FP McCann manufactures front bolted and back bolted linings on all diameters. For diameter 10.5m and above, universal linings are available to allow for changes in construction method. (Build manual available upon request).



RING TYPES

Segmental rings are front or back bolted and include:

1. Standard rings
2. Corbel rings
3. Recessed rings (standard, choker or cutter choker)
4. Choker rings
5. Combined cutter choker rings

MIX AND REINFORCEMENT

Each segment is wet cast to achieve a smooth internal finish. The concrete mix provides a Design Chemical Class 4 (DC4) with a minimum 28 day characteristic cube strength of 55 N/mm². Alternative mixes are available. The segments are reinforced with either a reinforcing cage or structural synthetic and steel fibres to suit both design and customer requirements.

BUILD METHODS

The segmental rings are suitable for underpinning, caisson and chimney construction methods.

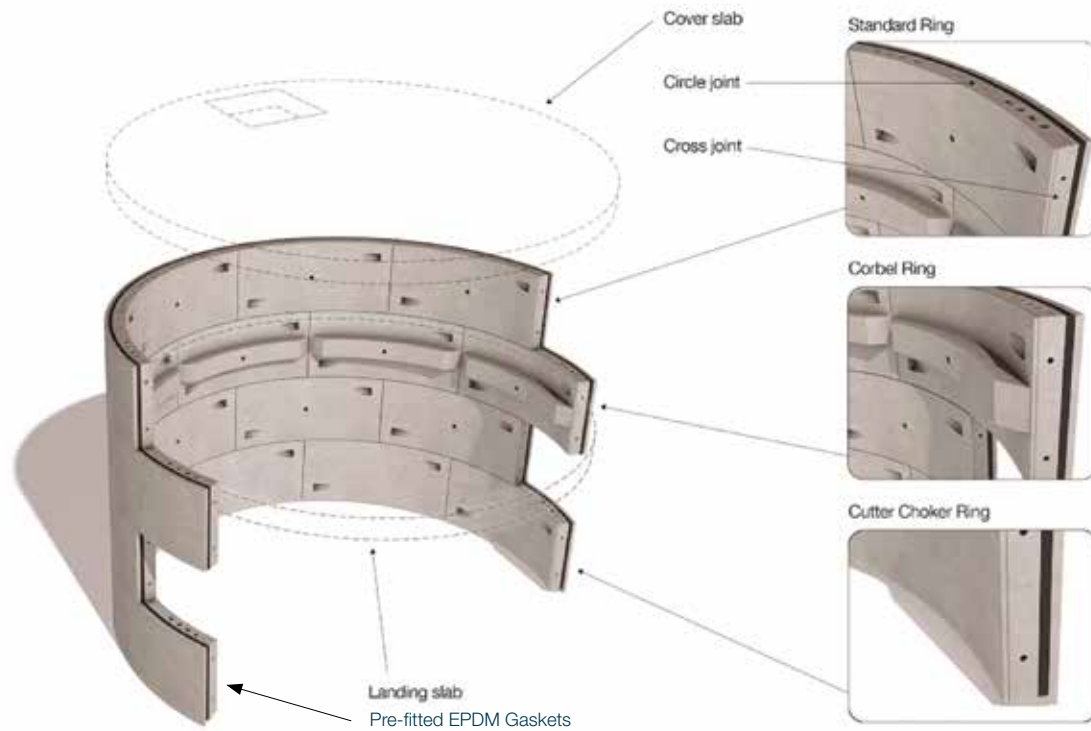
QUALITY

FP McCann conducts all operations using an Integrated Management System accredited to ISO 9001.

KEY FEATURES AND BENEFITS

- Smooth internal faces
- Simple locking process
- Speedy installation
- Immediate watertight seal
- Cost-effective
- Added safety features
- Technical advice and support

SMOOTHBORE TUNNEL AND SHAFT LININGS



FP MCCANN SMOOTHBORE SHAFT LININGS

Size (Standard ring)			Segments per ring (Std ring)		Vol per ring (Std ring) (m³)	Wt per Standard ring* (tonnes)	Standard segment weight* (Kg)	Corbel segment weight* (Kg)	Choker segment weight* (Kg)	Cutter / choker seg wt* (Kg)	Excavations m³ per standard ring			Grout per ring (m³)	Caulking	
Internal diameter (m)	External diameter (m)	Width (m)	Ord	Top							mm over extrados				Circle (lin m)	Cross (lin m)
											0	25	50			
3.050	3.450	1.00	3	2	2.04	5.11	1021	1149	1296	1364	9.35	9.62	9.90	10.84	9.66	5.00
3.660	4.060	1.00	4	2	2.43	6.06	1011	1140	1280	1345	12.95	13.27	13.59	12.75	11.58	6.00
4.000	4.400	1.00	4	2	2.64	6.60	1100	1244	1391	1463	15.21	15.55	15.90	13.82	12.64	6.00
4.500	4.900	1.00	5	2	2.95	7.38	1055	1194	1332	1400	18.86	19.24	19.63	15.39	14.22	7.00
5.000	5.400	1.00	6	2	3.27	8.17	1021	1156	1289	1354	22.90	23.33	23.76	16.96	15.79	8.00
5.500	5.900	1.00	6	2	3.58	8.95	1119	1270	1411	1484	27.34	27.81	28.27	18.54	17.36	8.00
6.000	6.450	1.00	7	2	4.40	11.00	1222	1369	1506	1585	32.67	33.18	33.70	20.26	18.93	9.00
6.500	6.950	1.00	8	2	4.75	11.88	1188	1331	1463	1540	37.94	38.48	39.04	21.83	20.50	10.00
7.000	7.450	1.00	8	2	5.11	12.77	1277	1456	1571	1653	43.59	44.18	44.77	23.40	22.07	10.00
7.500	7.950	1.00	9	2	5.46	13.65	1241	1416	1527	1605	49.64	50.27	50.90	24.98	23.64	11.00
8.200	8.700	1.00	10	2	6.64	16.59	1383	1559	1669	1757	59.45	60.13	60.82	27.33	25.84	12.00
9.000	9.500	1.00	10	2	7.26	18.16	1514	1708	1826	1922	70.88	71.63	72.38	29.85	28.35	12.00
10.500	11.100	1.00	12	2	10.18	25.45	1818	2015	2130	2284	96.77	97.64	98.52	34.87	33.07	14.00
12.500	13.200	1.00	12	2	14.13	35.32	2523	2941	2895		136.85	137.89	138.93	41.47	39.35	14.00
15.000	15.700	1.00	14	2	16.88	42.20	2637	2890	3024		193.59	194.83	196.07	49.32	47.20	16.00
17.500	18.300	1.00	16	2	22.49	56.23	3124		3524		263.02	264.46	265.90	57.49	55.06	18.00
20.000	20.900	1.00	18	2	28.91	72.28	3614		4025		343.07	344.71	346.36	65.66	62.91	20.00
25.000	25.900	1.00	22	2	35.98	89.95	3748		4172		526.85	528.89	530.93	81.37	78.62	24.00

*Nominal weights. Increase by 5% for sizing of lifting equipment and reduce by 5% for floatation design.

SMOOTHBORE TUNNEL AND SHAFT LININGS

FP McCann designs and manufactures a bespoke range of both Trapezoidal and Expanded Segmental Smoothbore tunnel linings, designed to provide durability, speed and ease of installation in tunnel construction. Trapezoidal tunnel linings are developed to work alongside technologically advanced tunnel boring machines, with linings designed and manufactured to suit the exact project requirements.

Tunnel segments can be modified to suit a variety of joint fixings, segment thickness and tunnel diameters. The latest manufacturing techniques incorporate steel fibre dosing to guarantee a high quality, reliable product. The wedge-shaped design of individual segments eliminates the requirement for a special closure segment.

FP McCann has the in-house expertise to manufacture concrete moulds to meet the latest BTS specification. Alternatively, projects can be supplied utilising specialist manufactured steel moulds, if required.



TRAPEZOIDAL TUNNEL LININGS

Internal diameter (m)	Size			No of segments per ring	Vol per ring (m ³)	Weight per ring* (tonnes)	Average weight/segment (kg)
	External diameter (m)	Min Ring Width (m)	Max Ring Width (m)				
2.440	2.800	0.990	1.010	6	1.48	3.70	617
2.850	3.210	0.988	1.012	6	1.71	4.28	714
3.050	3.400	1.187	1.209	6	2.12	5.31	885
4.000	4.450	0.975	1.025	8	2.99	7.47	933

*Nominal weights. Increase by 5% for sizing of lifting equipment and reduce by 5% for floatation design.

EXPANDED TUNNEL LININGS

Internal diameter (m)	Size			Segments per ring			Vol per ring (m ³)	Weight per ring* (tonnes)
	External diameter (m)	Ring Width (m)		Ord	Top	Key		
2.590	2.950	1.000		5	2	1	1.57	3.92
3.050	3.400	1.200		5	2	1	2.13	5.32

*Nominal weights. Increase by 5% for sizing of lifting equipment and reduce by 5% for floatation design.

TUNNELOCK

PLASTIC TUNNEL LINING CONNECTION

Combining the advantages of a solid dowel and a secure threaded connection, this self-locking plastic connector provides a superb circle joint fixing for tunnel linings.

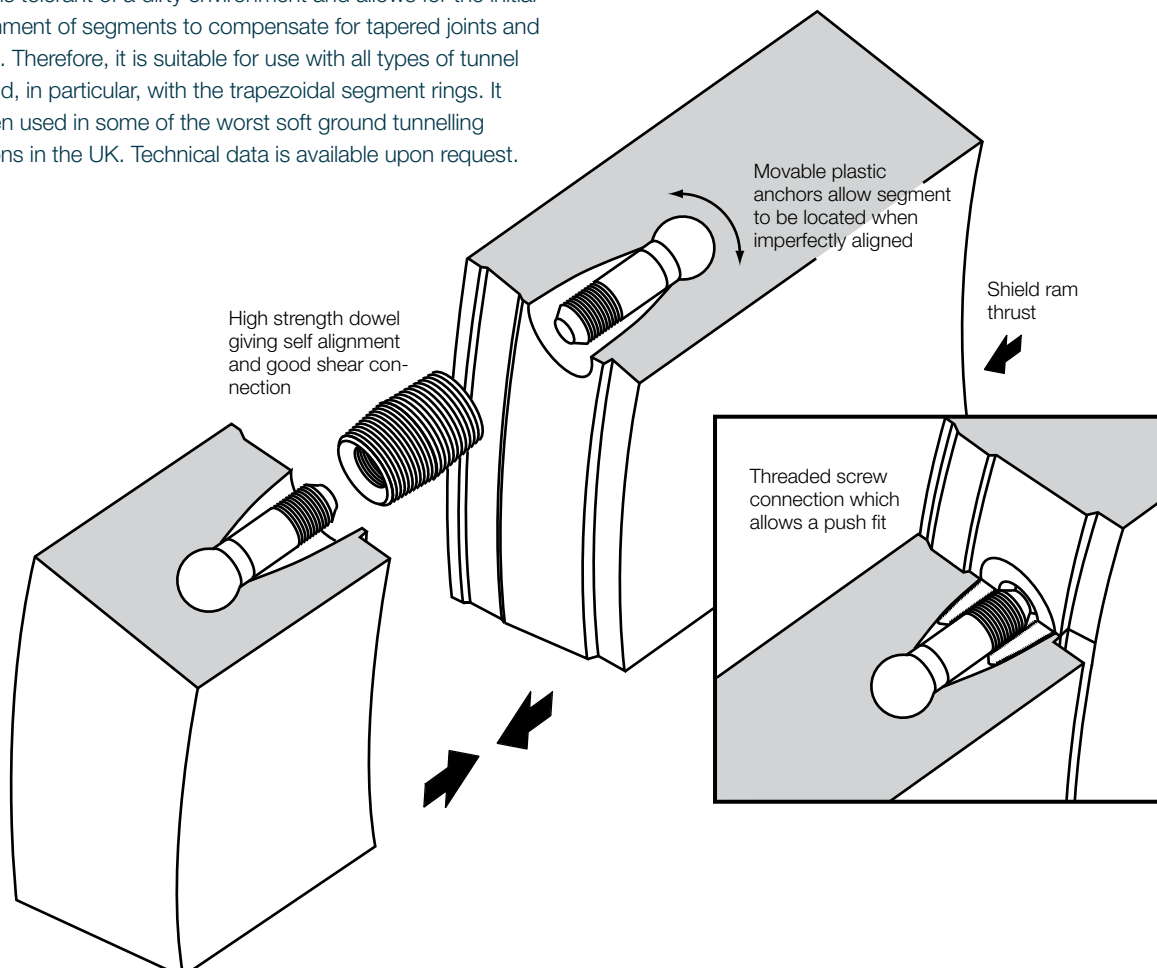
Suitable for use with packings, hydrophilic seals and EPDM compression gaskets, it is fast and easy to build and has no pockets/recesses to fill.

DESIGN

The Tunnelock circle joint connection has been developed over many years to provide the ideal connection between tunnel rings. Manufactured from a high strength durable plastic, it combines the advantages of a bolted connection with the speed, economy and alignment characteristics of a dowel. The system has been developed in conjunction with major tunnelling contractors and is suitable for use in traditional open face shields or with the latest full face tunnel boring machines. The dowels allow a very fast ring erection sequence and are designed to reduce lipping between segments. The secure interlocking system is tolerant of a dirty environment and allows for the initial misalignment of segments to compensate for tapered joints and gaskets. Therefore, it is suitable for use with all types of tunnel rings and, in particular, with the trapezoidal segment rings. It has been used in some of the worst soft ground tunnelling conditions in the UK. Technical data is available upon request.

BENEFITS

- Highly durable connection with no corrodible parts
- Fast ring construction
- Minimum building clearance (50mm standard, 75mm heavy duty) allows the use with most types of tunnelling machine and ram length
- The rigid dowel action of the coupler re-aligns the segment and minimises the stepping of joints
- No extra reinforcement required
- Suitable for trapezoidal segment rings
- Simple and easy to use
- Does not induce bursting forces in the concrete
- No circle joint pockets to fill
- Suitable for use with all types of sealing system, including EPDM compression gaskets and hydrophilic seals
- Self-locking
- Self-aligning



COVER AND LANDING SLABS

Reinforced cover and landing slabs are an integral part of FP McCann's tunnels and shafts product range, manufactured at the company's specialist precast concrete facility.

Both cover and landing slabs are cast to design specifications and made to order for just-in-time delivery. On-site, the slabs can be quickly installed and provide an integral secure shaft cover or internal landing.

SIZES

Cover and landing slabs are generally circular to match the FP McCann range of smoothbore shaft segments and other segmental linings. They are available in 1, 2, 3 and 4+ sections. The standard range of sizes are highlighted opposite. A bespoke design facility is available for non-standard shapes and sizes.



One piece Cover Slabs			
Shaft internal diameter (mm)	Shaft external diameter (mm)	Slab thickness (mm)	Total slab weight (T)
2100	2350	250	2.82
2400	2680	275	4.03
2700	3000	275	5.05
3000	3360	300	6.92
Two piece Cover Slabs			
Shaft internal diameter (mm)	Shaft external diameter (mm)	Slab thickness (mm)	Total slab weight (T)
3000	3360	300	6.92
3660	4060	300/325	9.84/11.27
4000	4400	350	13.84
4500	4900	375	18.39
5000	5400	400	23.82
Three piece Cover Slabs			
Shaft internal diameter (mm)	Shaft external diameter (mm)	Slab thickness (mm)	Total slab weight (T)
5000	5400	400	23.82
5500	5900	425	30.21
Four + piece Cover Slabs			
Shaft internal diameter (mm)	Shaft external diameter (mm)	Slab thickness (mm)	Total slab weight (T)
5500	5900	425	30.21
6000	6450	450	38.23
6500	6950	475	46.85
7500	7950	525	67.76
8000	8500	550	81.15
9000	9500	600	110.58
10500	11100	675	169.83
12500	13200	775	275.75



COVER AND LANDING SLABS

Cover Slabs with RC Beams			
Shaft internal diameter (mm)	Shaft external diameter (mm)	Slab thickness (mm)	Number of RC beams
8000	8500	250	2
9000	9500	250	2
10500	11100	275	2
12500	13200	350 to 250	2, 3 or 4
15000	15700	400 to 300	2, 3 or 4
Cover Slabs with RC Beam or Pre-stressed Beams			
Shaft internal diameter (mm)	Shaft external diameter (mm)	Slab thickness (mm)	Number of RC beams
20000	20900	Special	Special
25000	25900	Special	Special
One piece Landing Slabs			
Shaft internal diameter (mm)	Slab diameter (mm)	Slab thickness (mm)	Total slab weight (T)
2100	2050	175	1.50
2400	2350	175	1.97
2700	2650	200	2.87
3000	2950	200	3.55
Two piece Landing Slabs			
Shaft internal diameter (mm)	Slab diameter (mm)	Slab thickness (mm)	Total slab weight (T)
3000	2950	200	3.55
3660	3610	225	5.99
4000	3950	250	7.97
4500	4450	275	11.12
5000	4950	300	15.01
5500	5450	325	19.71
6000	5950	350	25.30
Three + piece Landing Slabs			
Shaft internal diameter (mm)	Slab diameter (mm)	Slab thickness (mm)	Total slab weight (T)
6000	5950	350	25.30
6500	6450	375	31.86
7500	7450	425	48.17
8000	7950	450	58.08
9000	8950	500	81.79



MIX AND REINFORCEMENT

Slab sections are wet cast in fabricated steel moulds and are steel cage reinforced. The concrete mix design is to a standard characteristic strength of 55N/mm² at 28 days. Alternative mixes are available.

DESIGN FEATURES

Design and detailing can be undertaken by FP McCann to our customers' design specification. Reinforced cover slabs are generally designed to withstand loads in accordance with the recommendations of relevant British Standards (e.g. BS EN 1990 and BD37/01, usually adopting 30HB loading or Eurocodes with appropriate load models, in conjunction with relevant overburden). Landing slabs are designed for an imposed loading of 5kN/m².

LIFTING AND HANDLING

Depending on lifting requirements on site, FP McCann is able to supply fitted lifting loops or cast-in sockets and spherical head lifting anchors.

QUALITY STANDARDS

Shaft cover slabs and landing slabs are manufactured in accordance with FP McCann's quality management system, BSI accredited to ISO 9001.

KEY FEATURES AND BENEFITS

- No formwork or ready mixed concrete required
- Simple jointing system
- Speedy installation
- Bespoke design and casting service
- Technical advice and support

CAISSON UNITS

FP McCann manufactures a range of reinforcing units suitable for sinking by the caisson method. Caisson shaft units can be supplied with diameters of 2100mm up to 4000mm. Caissons are manufactured within the scope of the ISO9001 accredited Quality Management System and in accordance with BS EN 1917 and BS5911-3, where appropriate[^].

Open caisson-sinking techniques permit a shaft structure to be progressively sunk, either under its own weight or with the aid of caisson jacks, in a controlled manner from the surface to a predetermined depth. Caisson shafts are constructed using a metal cutter ring and a base section with rings being added on top as excavation proceeds. The technique is suited to shaft construction through weak soils, high-plasticity clays, silts, sands and gravel, particularly below the water table.



FP MCCANN CAISSON RANGE

Caissons Shafts DN	Available Depths (mm)			Barrel DN	Wall Thickness	Lifting (Cast in Socket)
	1000	750	500			
2100	✓	✓	✓	2350	125	3 No. RD24 Wavy Tail Inserts
2400	✓	✓	✓	2680	140	3 No. RD24 Wavy Tail Inserts
2700	✓	✓	✓	3000	150	3 No. RD30 Wavy Tail Inserts
3000	✓	✓	✓	3360	180	3 No. RD30 Wavy Tail Inserts
3600	✓	✓	✓	3970	185	3 No. RD30 Wavy Tail Inserts
*4000	✓	✓	✗	4400	200	6 No. RD36 Wavy Tail Inserts

*DN4000 supplied as a two piece unit.

CAISSON RINGS - TABLE OF WEIGHTS (DN 2100-4000)

Caissons Shafts DN	Cutting Shoe Weight (Kg)		Approx. Weight p/metre Caisson (with cutting shoe) (Kg)**		Approx. Weight p/metre Caisson (without cutting shoe)**
	10mm	20mm	10mm	20mm	
2100	320	581	2590	2851	2270
2400	378	635	3278	3535	2900
2700	441	794	3931	4284	3490
3000	529	953	5209	5633	4680
3600	641	1148	6361	6868	5720
*4000	725	1298	7585	8158	6860

* DN4000 supplied as a two piece unit.

** Nominal weights increase by 5% for sizing lifting equipment and reduce by 5% for floatation design. Base units may be fitted with a light duty (10mm) or a medium duty (20mm) cutting shoe.

FP McCann provides an extensive range of concrete pipes and fittings. All products are manufactured from high quality raw materials and are sulphate resistant.

FP McCann's jacking pipes enable pipe installation where the opening of trenches is neither practical nor cost-effective.

FP McCann's jacking pipes are made from dense, durable reinforced concrete. The mix provides a design chemical class 4 (DC4), with a minimum 28 day characteristic cube strength of 50N/mm²

They are manufactured in accordance with BS EN 1916 and BS 5911-1 and certified by Quality Assessment under the kitemark scheme and ISO 9001.

FEATURES

- Self-lubricating joint gasket
- Built-in handling system with an extensive range to suit most machines and shields



Q&A ON JACKING PIPES

Q. What is pipe jacking?

- A. Pipe jacking is a technique for the installation of underground pipes, ducts and culverts with minimal environmental disruption. Jacking pipes can also act as conduits for other utilities like gas, electricity and telecommunications.

Q. How does it work?

- A. Tunnelling excavation, by machine or by hand, takes place between two shafts or caissons, whilst specially designed pipes are pushed through the ground by powerful jacks.

Q. Why is pipe jacking used?

- A. Primarily to install water and sewerage systems where the opening of trenches is impractical; for example, in environmentally sensitive areas, under railways, motorways, rivers, canals, buildings and in crowded urban sites.

Q. What are the cost advantages?

- A. Jacking is cost-effective when compared with deep open cut methods and other forms of tunnelling. It offers low maintenance costs, speed and safety of installation with fewer joints, smooth internal finishes and improved flow characteristics without the need for secondary linings required by some segmental systems.

Q. What are the environmental advantages?

- A. Minimum excavation means less disturbance, less pollution, less noise, fewer lorry movements and a reduction in the need for costly traffic diversions and delays. There is a reduced risk of settlement, damage or movement to other structures and services.

Q. What types of concrete jacking pipe are there?

- A. Pipes with steel collars are manufactured to BS EN 1916 and BS 5911-1. Steel collar pipes incorporate an accurately rolled collar manufactured from BS EN 10025-2:2004 S275 mild steel. They can be used on both machine dug and hand dug drives.

Q. What is meant by micro tunnelling?

- A. Refers to non-man entry sizes installed by machine, though some consider it to include larger pipes installed by remote control methods.

FP MCCANN'S JACKING PIPE RANGE

DN* (mm)	Bore Diameter A (mm)	Wall Thickness B (mm)	Outside Diameter C (mm)	Length Metres	Weight Kg Approx	Spigot Length D (mm)	Socket Length E (mm)	Packer Size Width (mm)	Packer Size Thickness (mm)	Int.Dia to Packer F (mm)	Proof Load kN/m	Maximum Load KN/m
# 450	450	77	604	1.20	430	115	110	33	12	480	36	# 54
# 600	585	90	764	1.20	640	125	110	46	15	611	48	# 72
# 600	585	90	764	2.00	1050	125	110	46	15	611	48	# 72
900	904	98	1100	2.50	2120	130	125	56	15	934	72	108
1000	980	110	1200	2.50	2580	130	125	66	15	1010	72	120
1200	1200	115	1430	1.20	1590	130	125	68	18	1230	96	144
1200	1200	115	1430	2.50	3250	130	125	68	18	1230	96	144
1400	1350	125	1600	2.50	3950	130	125	78	18	1380	112	168
1500	1500	140	1780	2.50	4910	130	125	93	18	1530	120	180
1800	1830	155	2140	2.47	6490	134	125	110	18	1860	145	216
2000	1950	190	2330	2.35	8150	134	125	145	18	1980	160	240
2000	1950	190	2330	2.50	8600	134	125	145	18	1980	160	240
2000	1980	175	2330	2.50	8040	134	125	130	18	2010	160	240
2000	2076	167	2410	2.47	7900	134	125	122	18	2106	160	240
2400	2425	200	2825	2.50	11190	145	140	150	18	2455	200	300

Alternative Length of Pipes (Maximum length 2.5m)

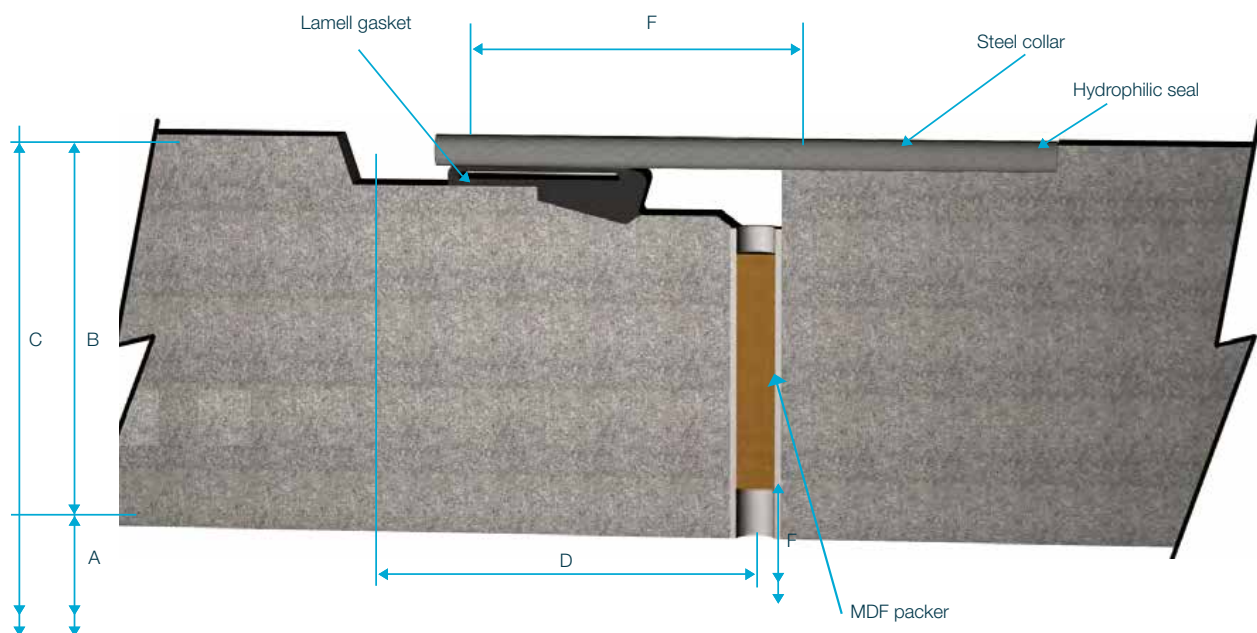
Alternative length of pipes in some of the sizes shown above can be manufactured to order.

FP McCann is always interested in adding to the above range, and would be pleased to discuss the supply of any sizes not shown.

* Nominal size as given by Table 6 BS 5911-1.

These items are not covered by BS EN 1916 and BS 5911-1 but have been designed and tested using the same criteria.

Weights given are the nominal weights increased by 5% to allow for variations in material unit tolerance



LEAD PIPES

Lead pipes are located at the front of the drive. It is standard practice to fit a steel shield over the lead pipe in every hand dug drive, providing protection to miners and facilitating steering.

Machine dug drives do not usually require a lead pipe as the contractor can adapt the machine to fit over a standard pipe spigot.



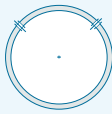
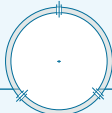
LEAD PIPE

SPECIAL CHARACTERISTICS

- A flat end instead of a spigot - 600mm long by 20mm deep rebate
- Joint gaskets are not supplied as standard with lead Grout Sockets or Lubrication Holes

Designed to reduce friction during jacking, lubricating or grout sockets can be cast into standard pipes to suit customer requirements. They are normally 1 1/4" BSP steel sockets fitted with plugs. Conical non-return valves are supplied as standard. The ratio of pipes with grout sockets to standard pipes varies, depending on ground conditions. As a guide, it can be one pipe in every three or one in every five.

TABLE SHOWING STANDARD CONFIGURATIONS OF GROUT SOCKETS

Pipe Diameter mm	Number	Location
900-1800	2 holes per pipe	
1950 - 2400	3 holes per pipe	

PACKERS

It is important that suitable packing material is used between adjacent pipes to ensure even stress distribution and load transfer. We recommend medium density fibre board (MDF). FP McCann can supply and fix packers at works, although the contractor usually supplies and fixes them on site prior to pipe installation. It is important that packers are fitted in the correct position.

INTERMEDIATE JACKING STATIONS (INTERJACKS)

Interjacks are frequently installed on drives where the jacking forces required exceed the capability of the pipe or the jacks. Installing interjacks relieves pressure on the whole drive length by first pushing the section of pipes in front of the interjack using jacks installed within the interjack itself; the rear section of pipes is then pushed by the main jacks. Each interjack station comprises two pipes, a lead and a trail, with a steel can or shield which is either cast integrally with the lead pipe - a fixed can, or fitted around the pipe separately - a loose can. The interjack trail pipe is common to both fixed and loose can types. The choice of interjack type is usually left to the contractor's preference.

FIXED CAN INTERJACKS

These are used with steel collar pipes. FP McCann provides the lead pipe with the can already fitted. It then becomes the contractor's responsibility to fit suitable steel thrust rings, packers and jacks inside the can.

LOOSE CAN INTERJACKS

Generally used with in-wall jointed pipes and have a lead pipe with a short 300mm by 20mm recess in place of the socket. The contractor provides the can as well as the thrust rings, packers and jacks.

INTERJACK TRAIL PIPES

Recognisable by their long 1400mm by 20mm rebate instead of the normal spigot. Two recesses are located towards the end of the rebate to take special sealing rings provided by FP McCann. Lubrication points are positioned between the recesses.



INTERJACK TRAIL PIPE

JACKING PIPES

To assist the contractor in adopting a safe working method for lowering heavy pipes into deep, confined spaces, the FP McCann Easi-lift handling system is available for pipes from DN 900 to DN 2400. Galvanized lifting anchors are cast into the pipe wall and are used in conjunction with certified lifting shackles and chains to provide a safe, speedy and accurate system of off-loading, stacking and placing. Anchors are positioned below the outside diameter of the pipe to avoid any potential to snag or plough.

BENEFITS OF JACKING PIPES

Safe - Easi-lift ensures a positive horizontal lift every time, no weight balancing is required.

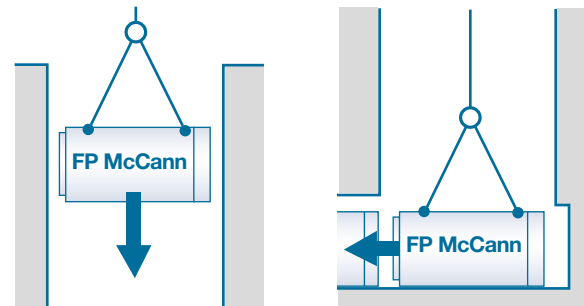
Accurate - pipes can be lowered down deep shafts and onto the jacking cradle in one smooth, easy operation.

Time saving - lifting eyes are engaged and disengaged by rotation in a few seconds.

Cost saving - eliminates the purchase of cumbersome slings and reduces the risk of damage to pipes.

No leaks - through lifting holes which need sealing.

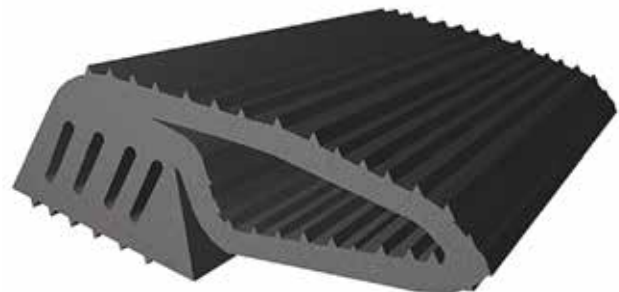
Lamell is a fast, efficient, easy-to-fit pipe joint seal. Incorporating an innovative, self-lubricating SBR gasket, the Lamell seal is ideal for use in wet conditions. Lamell provides a reliable, flexible, water-resistant seal requiring no additional lubrication



PIPES FOR SPECIAL REQUIREMENTS

FP McCann's jacking pipes are designed to meet all normal in-service conditions. However, there are situations which demand special consideration. FP McCann can offer a number of options to help combat more extreme conditions, such as:

- Additional cover for reinforcement beyond the British Standard minimum 15mm. This acts as a sacrificial layer where aggressive effluent or attrition is anticipated, so prolonging the life of the pipe
- Stainless steel collars to suit ground or effluent conditions
- Alternative mix designs to suit ground or effluent conditions
- Protective coatings or linings to suit ground or effluent conditions
- Special strength pipes with increased reinforcement
- Secondary seals can be provided if requested
- Note: special requirements or non-standard products should be ordered in advance of their anticipated delivery dates.



JACKING PIPE INSTALLATION

HANDLING AND JOINTING - GENERAL

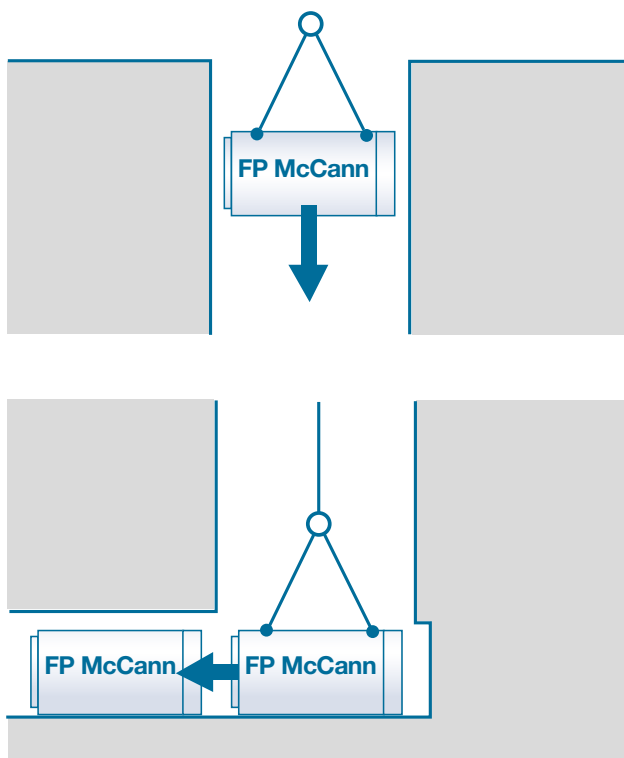
FP McCann's jacking pipes are robust and should arrive on site in good condition. Care in handling is simply a matter of common sense.

DO TAKE EXTRA CARE WITH THE JOINTS.

Lifting appliances should be capable of smooth hoisting, lowering and travelling with the heaviest pipe and must satisfy the required safety regulations.

EASI-LIFT HANDLING SYSTEM

This is the simplest, safest and most efficient way of handling FP McCann's jacking pipes, DN 900 and above. Place the lifting eyes over the cast-in anchors and rotate ensuring the lugs on each eye are pointing towards the centre of the pipe before commencing the lift.

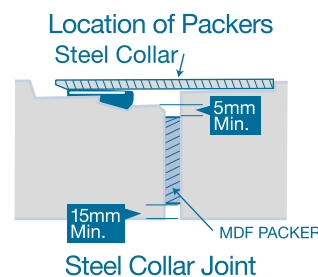


IF EASI-LIFT IS NOT USED THEN:

- Webbed slings should be used to handle pipes round the barrel rather than through the bore. Should slings be used through the bore, pipe ends must be protected from chafing. Wire ropes and chain slings are not recommended.
- Pipes should be stacked on firm, level ground. The bottom layer must be securely chocked and the height of the stack should not exceed two metres.
- Store rubber rings and gaskets away from strong sunlight and frost.

PACKERS

It is preferable to fit packers just prior to jointing as they remain clean and dry and are less likely to work loose. It is important they are fitted concentrically and should be offset from the pipe faces as per the minimum dimensions shown below, especially the inside bore.



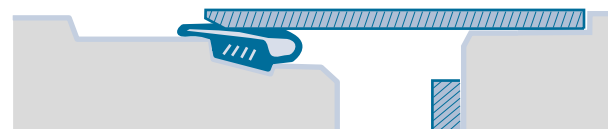
JOINTING USING THE LAMELL SEAL

Prior to placing ensure the gasket and the joint surfaces are clean. Lubrication is not required and **MUST NOT** be applied.

- 1 Locate the gasket in the spigot recess against the shoulder with the mantle towards the spigot end of the pipe. Ensure gasket is stretched evenly around the spigot.



- 2 Advance the pipe so that the rubber gasket is in uniform contact with the lead in edge of the steel collar of the pipe with which it is to be jointed.



- 3 Push the pipe concentrically so the sliding mantle peels over the shoulder into position in the narrow annular space between the spigot and the steel collar surface.



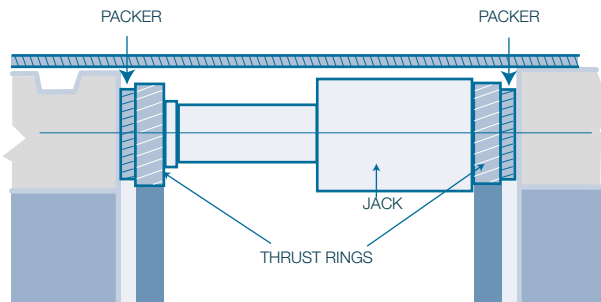
STANDARD INTERJACK INSTALLATION

It is assumed that:

All preparatory work will have been completed before the installation of the interjack, ie. Drilling and fixing of brackets, fixing of segmented thrust rings and hydraulics
The jacks are securely restrained so they will not become misaligned during use

IMPORTANT

The hydraulic jacks must be positioned so that their centre line is the same as that of the pipe wall. All thrust rings should be of adequate stiffness to prevent joint loading.



Typical position of jacks relative to pipe wall



ASSEMBLING A FIXED CAN INTERJACK

1. When installing the lead pipe into the drive a suitable spacer must be inserted into the can to provide adequate clearance between it and the pit thrust ring

IMPORTANT

No Load should be applied to the end of the steel can.

2. Fit the seals to the interjack trail pipe ensuring that they are fitted in the correct position to maintain a watertight seal. Lubrication points (usually 3/4" BSP) are provided between the two seals to allow effective lubrication
3. Lubricate the two parts of the interjack station. Both the inside of the steel can and seals must be liberally coated. Use FP McCann lubricant. Petroleum lubricants must not be used as this will cause degradation of seals
4. While jointing ensures the trail pipe is offered up squarely and neither of the two gaskets are displaced during assembly. During use the interjack station must be continuously lubricated by maintaining a minimum pressure of 5psi (0.4 bar) between the seals, preferably by automatic systems
5. If the final location of the seals is in doubt, the trail pipe must be withdrawn and the procedure repeated

ASSEMBLING A LOOSE CAN INTERJACK

Follow the previous 5 steps, remembering the steel can is added separately and is usually supplied by the contractor.

Note: Standard interjack stations are designed to withstand an internal pressure of 0.07N/mm². We cannot guarantee performance at pressures above this figure. It is not normally possible to fit Interjack pipes with the Easi-Lift handling system.



FP McCann's jacking pipes are designed to meet the requirements of British Standard 5911 Part 1 and European Standard BS EN 1916. The Maximum Jacking Force (F_{jmax} *) which can be applied to a pipe is determined by the pipe strength, the configuration of the thrust ring and the tunnel alignment, i.e. the angular deflection between pipes.

The maximum load decreases as angular deflections occur during jacking.

Should deflection exceed that which can be accommodated by the packer, the maximum load decreases significantly. The figures below are for guidance only. For further assistance, contact FP McCann's technical department.

* It is important to note that the table indicates the loads for which each pipe was designed and does not include any safety factor used by the contractor (Refer to clause 5.3.4 BS EN 1916)

MAXIMUM DESIGN LOADS - (TONNES)

Pipe Nominal Size mm	Pipe I/D mm	Pipe O/D mm	Packer Depth mm	Packer Thickness (mm)	Angular Deflection				
					0**	Angle Varies ***	0.25	0.5	1.0
					degrees		degrees	degrees	degrees
450	450	604	33	12	111	56	56	56	35
600	585	764	46	15	200	100	100	86	52
900	904	1100	56	15	365	183	183	117	73
1000	980	1200	66	15	468	234	234	141	86
1200	1200	1430	68	18	581	291	252	156	95
1350	1350	1600	78	18	749	375	298	186	112
1500	1500	1780	93	18	994	497	365	227	134
1800	1830	2140	110	18	1427	714	461	287	166
1950	1950	2330	145	18	2029	1015	612	373	203
1980	1980	2330	130	18	1832	916	556	343	192
2100	2076	2410	122	18	1790	895	534	332	188
2400	2425	2825	150	18	2573	1287	687	419	225

** The load must be perpendicular to the joint face (no deflection and all jacking forces perfectly square)

*** There is angular deflection but there is no joint gap i.e. any deflection being taken up within the packer

HAULAGE LOAD QUANTITIES

In-wall joint 2.5m long			Steel Collar joint 2.5m long					
Nominal Dia. mm	Approx. number of		Nominal Dia. mm	Approx. number of		Nominal Dia. mm	Approx. number of	
	pipes	metres		pipes	metres		pipes	metres
900	8	20.0	900	11	27.5	1950	3	7.50
1050	6	15.0	1000	9	22.5	2100	3	7.50
1200	5	12.5	1200	7	17.5	2400	2	5.00
1500	4	10.0	1350	6	15.0	Microtunnelling pipes 2m long		
1800	3	7.50	1500	5	12.5	600	24	48.0
2000	2	5.00	1650	4	10.0	675	21	42.0
2400	2	5.00	1800	3	7.50	Microtunnelling pipes 1.2m long		
1.2m long			1.2m long			450	60	72.0
900	17	20.4	1200	15	18.0	600	40	48.0

Table showing quantities per 24.5 tonne load



MOTEL ONE

MONROES

MONROES

MONROES



PRECAST WALLING SOLUTIONS

FP McCann offers an industry leading range of standard and bespoke, retaining and containing walling solutions. From supply only to fully designed and fitted schemes, FP McCann can offer a full service. With over 90 years' of combined experience at our Lydney, Grantham and Uddingston plants, we are able to deliver high quality precast concrete products at competitive market rates.

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L WALLS

FP McCann's precast L wall units are ideal for forming both retaining and containing structures in residential, commercial, industrial and waste developments.

PRODUCT FEATURES

- L Wall units are an ideal product where speed of installation is necessary
- They offer a fast, cost-effective solution to constructing retaining and containing developments
- Standard sizes range from 1m high up to 3.75m high, with a width of 1m for all units. 2m widths are available for certain heights

PRODUCT BENEFITS

- Large range of sizes available
- Quick and easy installation, only 1 crane lift
- Create storage bays without imposing a load to the building frame
- No specialist trades required
- Can be loaded either side or both sides of the stem
- Retain material up to 18kN/m³ and AoR 30° or an additional 10kN/m³
- Stability
- Corner units available for the 1m widths
- No heel – sheer reverse face (GB only)
- Available with heel feature to reverse (NI only)

PRODUCT APPLICATIONS

- Storage facilities
- Division walls
- General soil retention
- Waste recycling bunkers
- Making up levels within buildings
- Bunker walls
- Retaining walls

INSTALLATION STEPS

- Position the units on to the shimmed concrete foundation.
- Dry pack mortar to the edge of the base of the units to create a seal to the perimeter.
- Through the 30mm preformed holes, drill a 20mm diameter hole, 150mm deep into the foundation.
- Fill holes with Silka Anchorfix-1 resin to a level so that when the dowels are inserted, the resin becomes level with the top of the foundation (as a minimum).
- Insert the B.16 dowel bar into the resin. Ensure that the bar is pushed to the base of the drilled hole.
- Ensure the units are uniformly supported by using the grouting hole to completely flood the shimmed void (and grouting hole) with Parex C.S grout.
- Grout around the dowel using a suitable high flow, non-shrink structural grout so that the dowel is completely encapsulated.
- Do not touch the dowel bar or unit until grout has achieved full strength, in accordance with grout manufacture guidelines.

FOUNDATIONS

The foundation requirements should be determined by a qualified engineer. Units placed on a concrete foundation should be bedded on mortar and wedged to attain correct alignment. FP McCann recommends that L wall units are suitably anchored to the foundation.



L WALLS - STRAIGHT UNITS

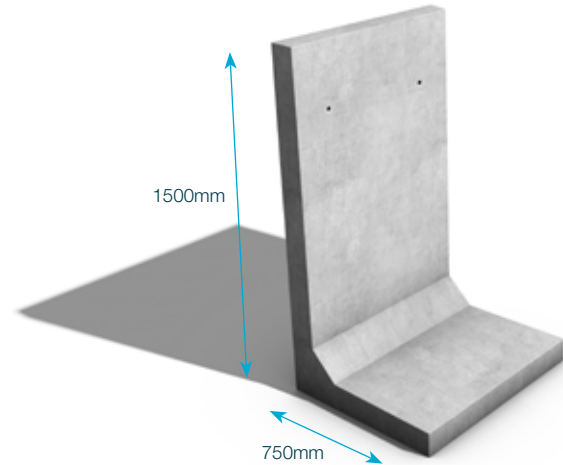
STANDARD SIZES

Designed for retained material with a density of 18 kN/m³
(approximate bulk density of 1835 kg/m³)

Height (mm)	Width (mm) straight unit	Weight (kg) straight unit	Width (mm) corner unit	Weight corner unit (kg)
1000	1000	440	1000 X 1000	790
1500	1000	710	1000 X 1000	1170
1750	1000	870	1000 X 1000	1390
2000	1000	1010	1000 X 1000	1580
2500	1000	1500	1250 X 1250	2950
3000	1000	1960	1500 x 1500 (2 Piece)	2350
3750	1000	2950	2310 x 2310 (4 Piece)	2780

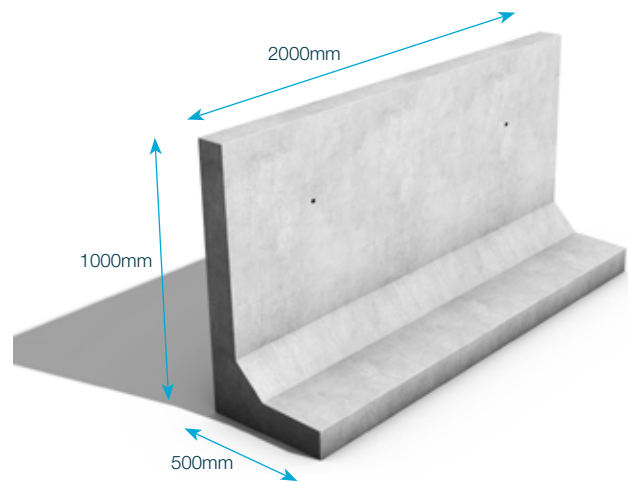
(Include 5% lifting allowance)

STANDARD L WALL SIZES



ANCHORS FOR STANDARD CONDITIONS

Unit		Minimum Embedment		Anchor	
Height (mm)	Width (mm)	Foundation (mm)	Unit (mm)	No. & Type	Length (mm)
1000	1000	150	80	2 no. B.16	250
1500	1000	150	80	2 no. B.16	250
1750	1000	150	105	2 no. B.16	275
2000	1000	150	105	2 no. B.16	275
2500	1000	150	105	4 no. B.16	275
3000	1000	150	130	4 no. B.16	300
3750	1000	150	155	6 no. B.16	325



HANDLING AND INSTALLATION



Units are delivered laid down on their edge and are fitted with 2 no. recessed lifting anchors. Quick release loops (1) and erection shackles (2, 3 & 4) are available for purchase and can be used in conjunction with customer's plant to offload and erect.

Conformity with current lifting legislation and vehicle off-loading is the customer's responsibility.

PRESTRESSED HORIZONTAL PANELS

FP McCann's prestressed horizontal panels allow you to construct walls quickly and efficiently with the future-proof option of re-siting, if required; providing the ideal solution where the adaptability of buildings is important. Our wall panels are manufactured using prestressing wires and a C45/55 concrete, which gives them in-built strength and resilience.

PRODUCT BENEFITS

- Tongue and grooved joints for easy alignment and positive sealing
- Smooth impervious surface which is easily washed down
- Prestressed panels absorb minor accidental damage
- More cost-effective – more versatile than blockwork
- Tailor-made lengths and a variety of widths
- Simplistic and quick installation
- No foundation required



STABILITY AND DURABILITY

FP McCann's prestressed panels are highly resistant to accidental damage, as they can flex on impact when normal block walls could crack. Panels are easily removed and re-sited within the existing farm plant, providing flexibility to change a configuration of the structure as the client's future needs evolve.

Considerable wall heights can be achieved through stacking horizontal panels (spanning between columns or fixed within the walls). Various panel heights are available including 1000mm, 1200mm and 1500mm; these can be mixed and matched according to the client's requirements.

This system is particularly useful for raising internal and external ground levels in or around a building frame, or for kingpost applications to retain an earth bank.

FOUNDATIONS

Connected to the building frame by transmitting the load against stanchions, these panels are held in place with bolts and cleats and do not require foundations.

PRESTRESSED VERTICAL CANTILEVER PANELS

The FP McCann Prestressed Vertical Cantilever Panel system provides the user with a more cost-effective and time-efficient system when comparing against a traditional on-site, in-situ wet-cast system.

PRODUCT FEATURES

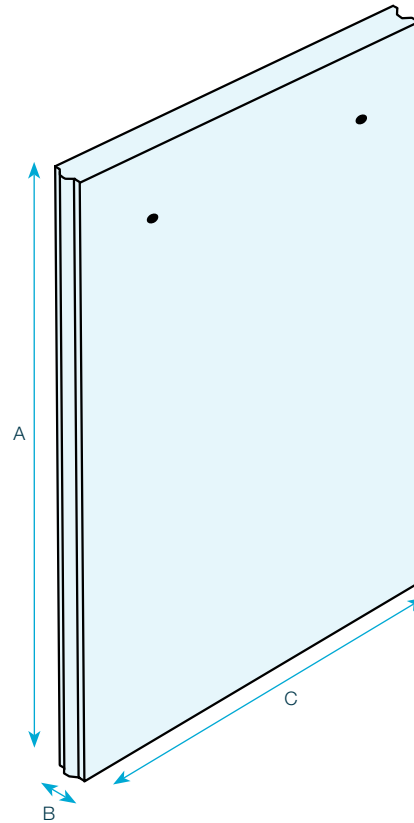
- The vertical cantilever panels are prestressed, allowing greater strength in a more slender panel
- Prestressing reduces the incidence of tensile cracking in the panels
- The concrete used for the prestressed panels is designated as a C45/55 grade
- The foundation can be individually designed to suit site and loading requirements
- The prestressed panels are tongue and grooved together, allowing effective sealing between units without stressing the sealant
- The units are lighter so require smaller site lifting vehicles
- The prestressed unit can be lifted and handled more easily on site
- Manufactured on 70m long prestressing beds, retained heights of up to 4m can be achieved for many material types
- Manufactured to ISO 9001 and ISO 14001

Depending on the prestressed panel thickness, security or fire walls can achieve a fire exposure rating of up to 4 hours and effective heights of up to 7.5m maximum. The units are cast as standard with a Class A steel mould finish to one side and all edges, complete with hand trowelled finish to the other face.

During the casting process, Wavy Tail Lifters can be cast-in to the top edge of the panel to assist with on-site installation.

PANEL APPLICATIONS

- Soil retention
- Retention of materials / aggregates
- Silage clamps
- Underground slurry stores
- Basements of structures
- Waste recycling bunkers
- Prison security walls
- Substation fire walls
- Flood alleviation schemes



Dimensions - Vertical Panel				
(a) Panel Lengths	To suit the project, limited by load/span and handling considerations			
(b) Panel Thickness	120mm	160mm	200mm	240mm
(c) Panel Widths	1.5m standard, 1m and 1.2m special order			



ROCKET WALLS™

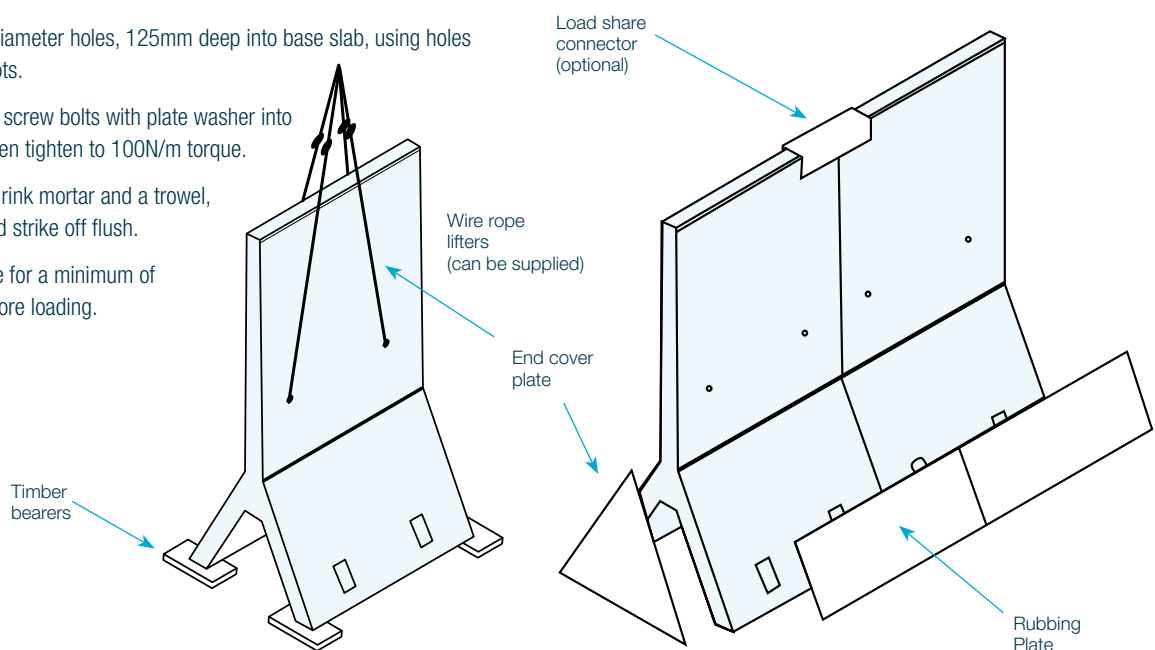
Our Rocket Walls are high quality, freestanding, precast concrete units. They are designed to be sited on an existing concrete floor slab or foundation and, for improved site safety and maximum efficiency, are bolted down using fixing bolts to prevent movement. It is this uniqueness that makes them suitable for a variety of uses.

PRODUCT BENEFITS

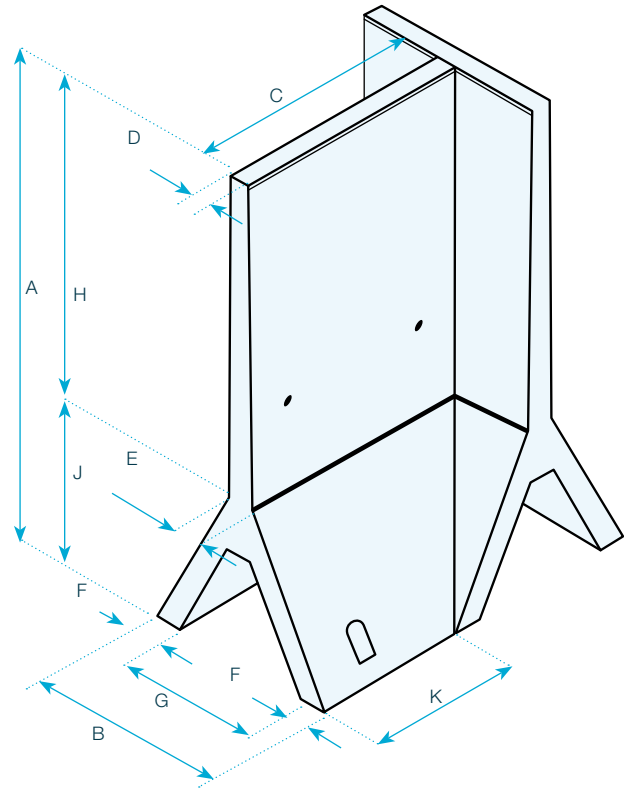
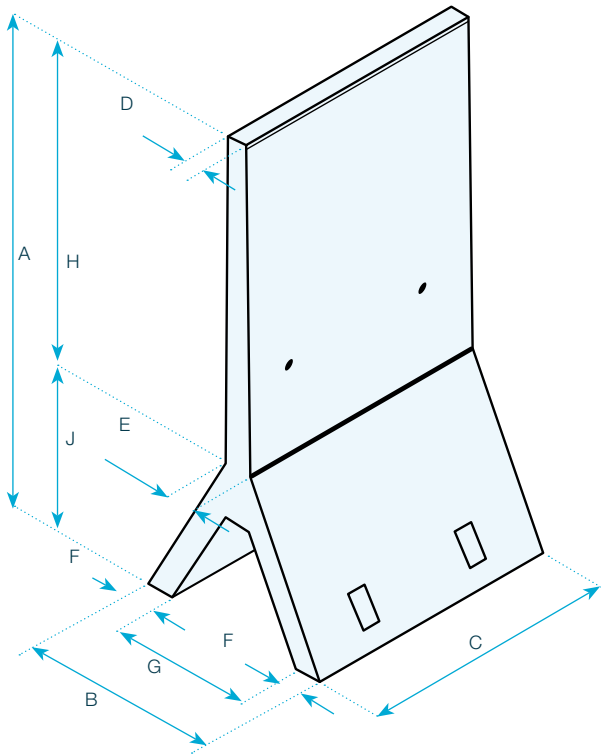
- Simply installed and easily moved
- Designed for materials up to 16kN/m³
- Manufactured to ISO quality and environmental standards
- Inverted Y shape design provides high capacity
- Value engineering means less concrete than typical alternatives
- Engineered to allow for up to 4m high units and 1.25m wide
- No protruding foot
- Ideal for bunkers and division walls
- Self-shedding units – prevents the lodging of stored material
- Corner units available
- Load one side or both

GUIDELINES FOR INSTALLATION

1. Position, line and level wall units on continuous mortar bed, both sides.
2. Strike mortar off flush.
3. Drill 16mm diameter holes, 125mm deep into base slab, using holes in unit as pilots.
4. Insert 16mm screw bolts with plate washer into each hole, then tighten to 100N/m torque.
5. Using non-shrink mortar and a trowel, fill recess and strike off flush.
6. Leave to cure for a minimum of 48 hours before loading.



ROCKET WALLS™ STRAIGHT AND CORNER UNITS



Dimensions - Rocket Wall™ (Straight)										
Height (m)	Weight (kg)	a	b	c	d	e	f	g	h	j
2.4	1100	2400	970	1250	100	131	131	710	1600	800
3.0	1860	3000	1200	1250	110	150	165	870	2000	1000
4.0	2820	4000	1650	1250	110	170	185	1280	2600	1400

Please note: A-J measurements are in mm.

UNIT SCREW BOLT REQUIREMENTS

Height (m)	2.4 unit	2.4 corner	3.0 unit	3.0 corner
Screw bolts required (no.)	4	2	6	2
Diameter (mm)	20	20	20	20
Length (mm)	300	300	300	300
Length in foundation (mm)	190	190	190	190



Dimensions - Rocket Wall™ (Corner)											
Height (m)	Weight (kg)	a	b	c	d	e	f	g	h	j	k
2.4	1091	2400	970	1200	100	131	131	710	1600	800	759
3.0	1842	3000	1200	1200	110	150	165	870	2000	1000	680
4.0	GA Drawing available upon request										

Please note: A-K measurements are in mm.

Height (m)	4.0 unit	Corner
Threaded rod fixed with a split grip (no.)	6	12
Diameter (mm)	20	20
Length (mm)	300	300
Length in foundation (mm)	170	170



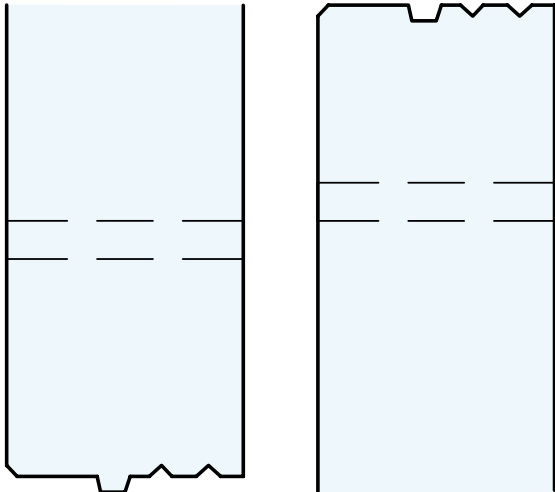
FLOOD DEFENCE WALLS

STANDARD SIZES

Designed for retained material with a density of 18 kN/m³
(approximate bulk density of 1835 kg/m³)

Height (mm)	Width (mm)
1000	1500
1500	1500
1750	1500
2000	1500
2500	1500
3000	1500

(Include 5% lifting allowance)



*optional joint detail

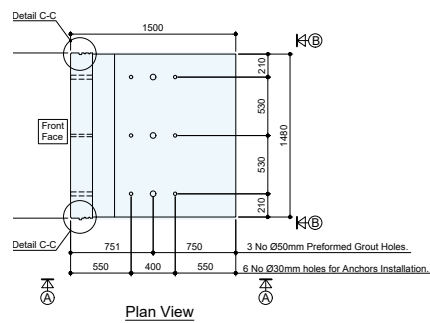
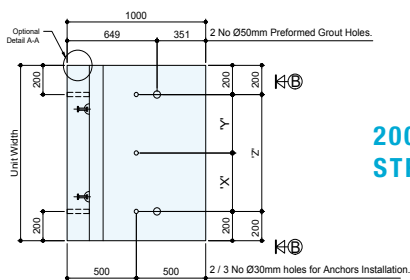
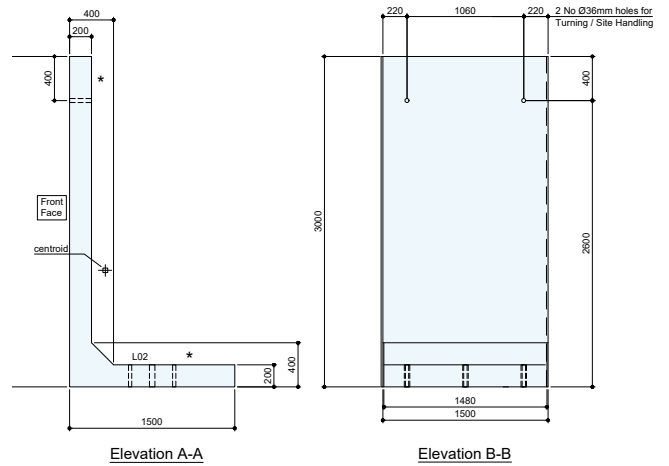
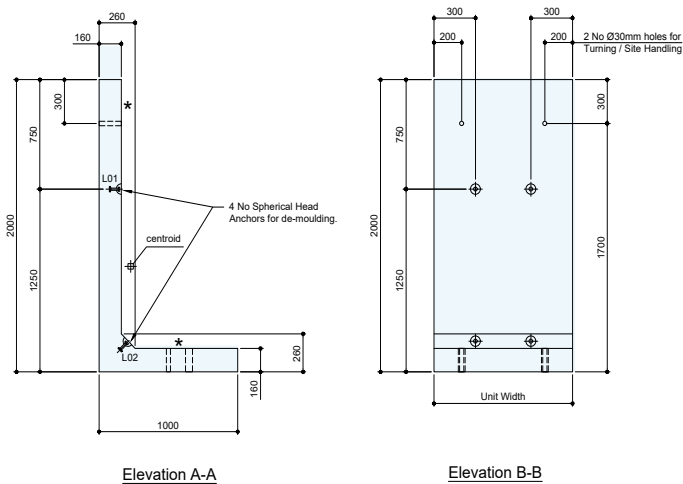
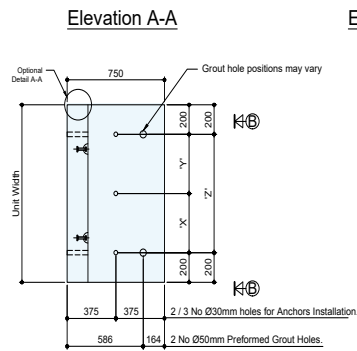
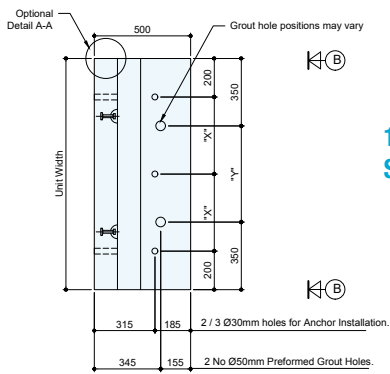
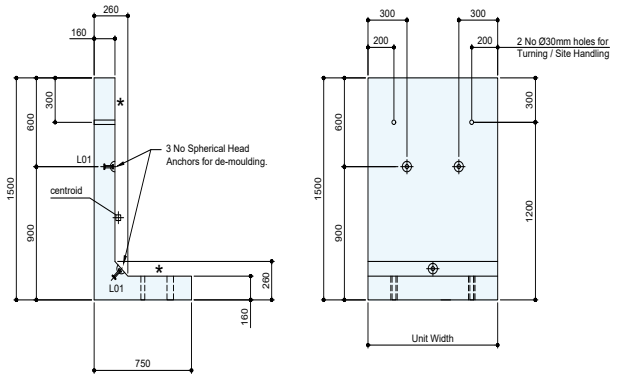
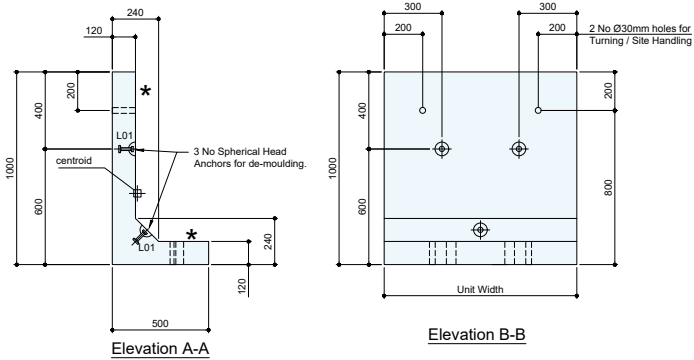


ANCHORS FOR STANDARD CONDITIONS

For anchor requirements please refer to unit drawings.



FLOOD DEFENCE WALLS



T WALLS

T wall units are an ideal product where speed of installation is necessary. They offer a fast, cost-effective solution to constructing retaining and containing developments. Standard sizes range from 2m high up to 4m high, with a width of 1m for all unit sizes.

PRODUCT BENEFITS

- Large range of sizes are available
- Quick and easy installation
- Create storage bays without imposing a load to the building frame
- Can retain material on both sides
- Retain material up to 18kN/m³

FOUNDATIONS

The foundation requirements should be determined by a qualified engineer. Units placed on a concrete foundation should be bedded on mortar and wedged to attain correct alignment. Where it is necessary to anchor the unit to the foundation, see the 'Stability' section.

STABILITY

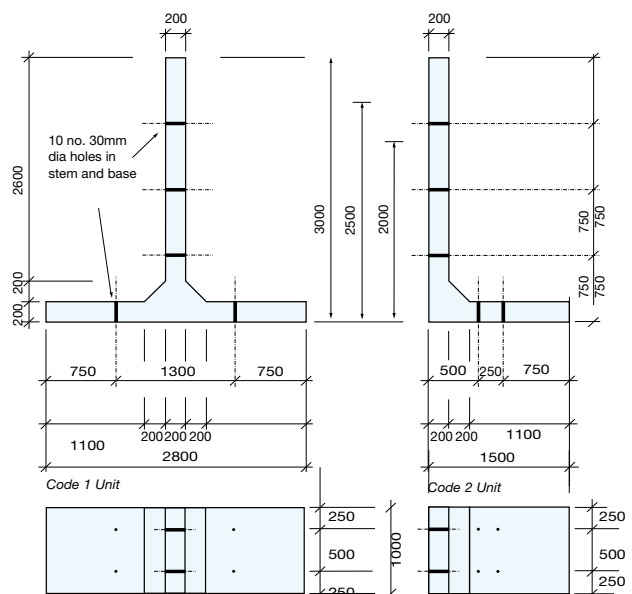
Anchors comprise of 4 no. B.16 high yield deformed bars with a nominal penetration of 150mm both into the foundation and the unit, used with two part resin mortar (as for retaining walls), in accordance with the manufacturer's instructions.

1. Position the T walls onto the concrete foundation and align using a cement mortar bed and shims, as required.
2. With the 30mm diameter holes in the unit base as a guide, drill into the foundation to the required depth using a 28mm diameter rotary percussive drill to give rough-sided holes (do not use a diamond drill which leaves a smooth sided hole).
3. Pour sufficient mixed resin into the hole first, then insert the B.16 bar to the full depth so that the resin covers and encapsulates the bar.



STANDARD SIZES AND UNIT DIMENSIONS

Unit height (mm)	Weight code 1 (kg)	Weight code 2 (kg)
2000	2304	1632
2500	2544	1872
3000	2784	2112
4000	3600	3360



ANDACRIB CONCRETE CRIB RETAINING WALLS

Andacrib is a modular precast concrete crib retaining wall system, which has been designed to cater for the most onerous loading conditions demanded of structures in highway, industrial and commercial sectors.

Andacrib's unique design, incorporating generous header to header bearing surfaces, ensures that all primary loads are remote from the exposed face. The design also allows for the various header lengths to be mixed within the same structure for maximum economy, whilst maintaining a consistent visual appearance.

Andacrib header units can be linked into double or triple skin walls, whilst internal and external curves can be formed.



EASI-BLOC™

Easi-Bloc™ is a precast concrete block offering solutions where limited space is available for containment.

Blocs are simplistic in design, allowing for effortless handling and speed of installation. Easi-Bloc comes in two sizes, making them ideal for a variety of applications.



PRODUCT APPLICATIONS

Andacrib's flexibility enables it to be utilised in a variety of situations:

- Road and railway embankments and cuttings
- Bridge and underpass wing walls and approach ramps
- Sewerage / water treatment plant developments
- Local authority developments, schools, public service buildings, etc
- Airport development and improvements
- Retail parks
- Service stations
- Car parks
- Leisure developments

COMPOSITION AND MANUFACTURE

Andacrib concrete components conform with Class 2 Sulphate Resistance and 'very severe' salt attack conditions, as required by both BS EN 1992 and BS EN 1990. The concrete has a design strength of 50 N/mm². Andacrib headers and stretchers are steel reinforced and fully comply with the requirements of BS EN 1992.

DURABILITY

A completed Andacrib wall provides a substantial, maintenance-free structure with a design life in excess of 120 years and its design meets Highway Agency requirements.

PRODUCT APPLICATIONS

- Segregation
- Temporary road blocks
- Security barricades
- Storage bays
- Agricultural bays suitable for grain, silage, etc.
- Earth retention
- Aggregate bays
- Partition walling
- Landscaping
- Waterways / Shoreline defences
- Highways
- Retaining wall

Easi-Bloc contains a central cast-in lifting loop for ease of handling and installation. Products are manufactured to comply with the requirements of BS EN 1992-1-1:2004.

Length (mm)	Width (mm)	Height (mm)	Weight (kg)
1200	600	450	750
600	600	450	375
*1400	700	700	1700
*700	700	700	850

CONCRETE SAFETY BARRIERS

Our precast concrete, interlocking jersey barriers are ideal to use for a variety of applications, including many types of temporary works.

PRODUCT APPLICATIONS

- Segregation
- Temporary road blocks
- Security barricades
- Traffic management
- Flood defence
- Rockfall

PRODUCT BENEFITS

- Cost-effective
- Easy to handle and install
- Durable
- Interlocking design for easy alignment and added security
- Free-standing unit
- Provides a high level of containment
- Absorbs the impact of a moving vehicle
- Slows down the impacting vehicle quickly
- Product can be painted on request
- Reusable product



PRODUCT DIMENSIONS

Length (mm)	Width (mm)	Height (mm)	Weight (kg)
1500	500	800	900

PYRA-BLOC™

Pyra-Bloc is a modular precast concrete safety barrier unit consisting of four 1-metre square pyramids with interlocking connectors. Its unique design will prevent vehicle movement, as vehicles will become impaled whilst trying to drive over them.

PRODUCT APPLICATIONS

- Airports
- Factories
- Power stations
- Service Stations

PRODUCT DIMENSIONS

Length (mm)	Width (mm)	Height (mm)	Weight (kg)
4000	1000	1000	5200

PRODUCT BENEFITS

- Durable – has a design life of 60+ years
- Simplistic and quick installation, including four integral lifting points
- Interlocking design for easy alignment and added security
- Smooth impervious surface which is easily washed down
- Operational under power failure conditions



WALLCAST

DECORATIVE PRECAST WALLING & FENCING

FP McCann now offer a new range of precast wall panels in our wallcast range. With its reduced installation time and reduction in manual labour, wallcast is an efficient and cost effective solution to standard traditionally constructed walls.

PRODUCT BENEFITS

- Integrated panel and column wall sections allow for quick and easy installation
- Easier boundary wall installation saves time and reduces labour costs
- Unique rigid footing system allows for safer boundary wall installations
- Textures can be applied to both sides of boundary walls for optimal beauty and curb appeal

RECKLI MAT FINISH



INSTALLATION PROCESS





FPMCCANN.CO.UK

AGRICULTURE

Lydney 01594 847500 Grantham 01476 562277

ARCHITECTURAL PRECAST

Byley 01606 843500 Grantham 01476 562277 Littleport 01353 861416

BOX CULVERTS

Weston Underwood 01335 361269

BUILDING PRODUCTS

Cadeby 01455 290780

DOCK LEVELLER PITS

Weston Underwood 01335 361269

DRAINAGE

Ellistown 01530 240000 (England/Wales) Magherafelt 028 7954 9026 (Scotland)

FENCING

Cadeby 01455 290780

FILTER BED SYSTEMS

Littleport 01353 861416

FLOORING

Weston Underwood 01335 361269 Uddingston 01698 803300

POWER & INFRASTRUCTURE

Littleport 01353 861416

RAIL

Littleport 01353 861416

SPECIALIST PRECAST

Littleport 01353 861416

STRUCTURAL PRECAST

Byley 01606 843500 Grantham 01476 562277 Littleport 01353 861416

TANKS & CHAMBERS

Littleport 01353 861416

TUNNELS & SHAFTS

Cadeby 01455 290780

WALLING

Grantham 01476 562277 Lydney 01594 847500
Uddingston 01698 803 300 (Scotland)

**THINKING PRECAST?
THINK FPMCCANN**