v1.0

fpmccann

NI/ROI PRECAST PRODUCT PORTFOLIO

CONCRETE FENCING

BUILDING PRODUCTS

PRECAST FLOORING

BESPOKE PRECAST

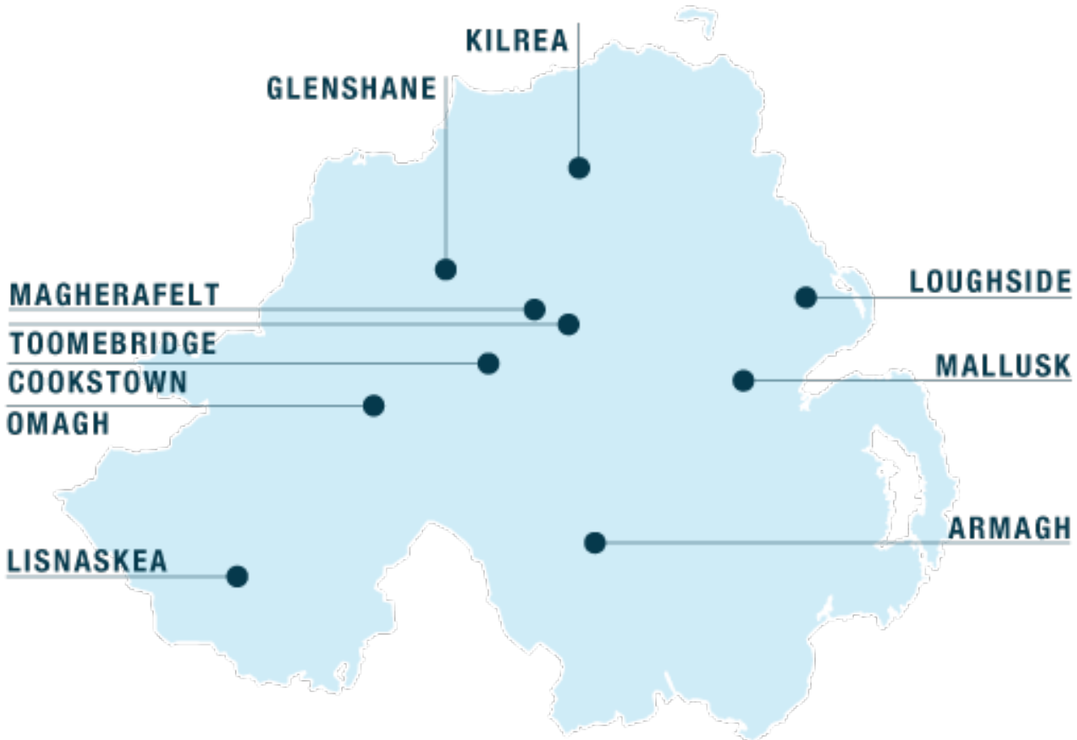
RETAINING WALLING

AGRICULTURAL PRECAST

PRECAST DRAINAGE

OFF-SITE SOLUTIONS

FPMCCANN.CO.UK



With seven quarries, seven ready mix concrete plants, four precast concrete manufacturing plants and a sandpit situated across Northern Ireland, the geographical spread of FP McCann's facilities gives us the ability to meet the building material and concrete needs of a variety of industrial sectors.

FP McCann provides the following product categories: ready mix concrete, quarry stone and aggregates, building products, paving, bagged products, flooring, fencing, specialist solutions, bridges, precast concrete walling, agricultural and drainage products and surfacing products.

By applying the DfMA principles, FP McCann's design engineers are able to evaluate individual precast concrete products part by part, in addition to documenting the assembly process step by step. This allows them to generate the cost, part count and assembly time to provide a benchmark to measure its success and identify the parts and process improvement opportunities. In turn, this has allowed FP McCann to design and manufacture more cost-effective and efficient high-quality precast concrete products with less wastage and greater on-site recycling.

As a result, increased productivity, combined with a reduction in production time and costs, allows FP McCann to be more competitive within the marketplace.

Please note: all information is correct at time of going to print.

Established in 1945, FP McCann is a family-run company with its headquarters in Knockloughrim, outside Magherafelt. With fifteen precast manufacturing plants, ten in England, four in Northern Ireland and one in Scotland, FP McCann is the UK's largest precast concrete manufacturer.

In Northern Ireland, FP McCann is spread over the following eight divisions: Ready Mix Concrete, Quarrying, Precast Concrete, Dry Silo Mortar, Surfacing, Construction, Porcelain & Natural Stone Paving and FP McCann Homes. FP McCann is committed to providing high-quality, cost-effective and sustainable building material and concrete solutions tailored to meet clients' budgets and expectations.

All our operations are carried out under the auspices of our Integrated Management System, which includes a quality management system accredited to ISO 9001, an environmental management system accredited to ISO 14001 and an occupational health and safety management system accredited to ISO 45001. Our products comply with European and British Standards. We hold BSI kitemark accreditation for all products manufactured to BS 5911, BS EN 1916 and BS EN1917. Other accreditations include QSRMC certification, Achilles RISQS and UVDB Verify Category B2 and WRc approvals.

FP McCann is a member of many trade associations including Mineral Products Association Northern Ireland (MPANI), British Precast Concrete Federation, British Precast Drainage Association, British Precast Architectural & Structural Association, Pipe Jacking Association, Achilles RISQS, Achilles UVDB, National House Building Council (NHBC) and the British Precast Flooring Federation.

FENCING POSTS & GRAVEL BOARDS

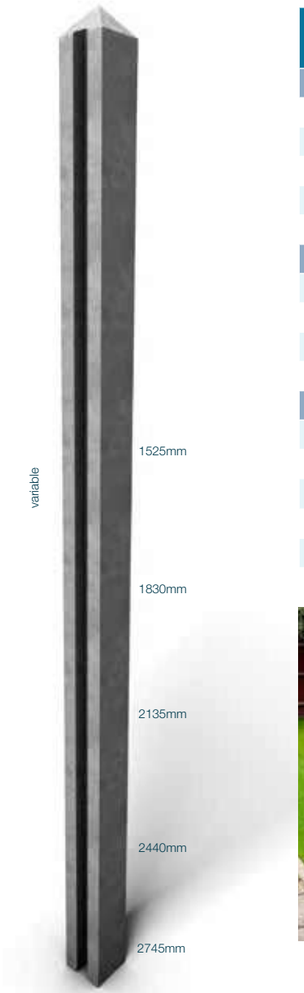
FP McCann's concrete post range is designed to support timber clad or chain-link wire fencing. All posts are reinforced and manufactured using C32/40N concrete. Three sides of the post have a smooth steel mould finish, the back side is trowel finished.

Our concrete slotted posts are sturdy, long-lasting and maintenance-free, and can be used with either Rockface or Plain gravel boards. The posts can also form a very decorative and long-lasting fence when used in conjunction with lattice or close board wooden fencing and a concrete gravel board to form the fence base.

Plain Gravel Board

Rockface High Profile Wet Cast Gravel Board

Plain Gravel Board (mm)	Rock Face Gravel Board (mm)
1800 x 300 x 50	1830 x 300 x 50



Product Code	Sizes (mm)	Sizes (ft/in)	No. per Tonne	No per Pack	Individual Weight (kg)	Pack Weight inc. Packaging (kg)
Slotted Posts - Intermediates						
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	3050	10'	17.86	30	56.0	1700
Slotted Posts - Corners						
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						
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	3050	10'	15.87	10	63.0	1650

UNIVERSAL POSTS

Universal Posts also known as multi-holes posts are very adaptable. They can be used to bolt timber panels or rails to the fence or fix chain link fencing.

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	1520x100x100	5'	27.99	40	35.7	1306
FPUNP180	1820x100x100	6'	23.08	40	43.3	1580
FPUNP240	2425x100x100	8'	16.88	30	59.3	1620
FPUNP275	2735x100x100	9'	15.88	30	63.0	1720
FPUNP255	2250x125x125	7'4"	12.05	16	83.0	1328

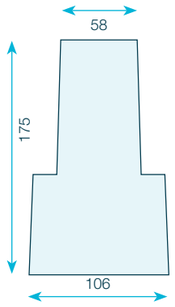
BEAM AND BLOCK SOLUTIONS

The traditional beam and block flooring system involves laying precast, prestressed concrete beams across or between walls, which are then infilled with concrete blocks. FP McCann manufactures 175mm deep floor beams, with a width of 106mm and spans up to 6 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.

KEY BENEFITS

- Quick installation
- Helps to eliminate problems associated with soil heave and shrinkage
- Excellent acoustic performance and fire resistance properties



175MM DEEP T BEAM

Span Load Table - 175mm Deep T Beam		Finishes = 1.74kN/m²					
		Superimposed load in kN/m²					
Floor case (based on 1950kg/m³ block density)	Floor self weight kN/m²	1.5	2	2.5	3	4	5
		Maximum clear span (m)					
Single beam - full block	2.36	4.092	3.575	3.295	2.846	2.502	3.24
Single beam - full block/narrow block, alternate	2.49	4.605	4.239	4.086	3.64	3.208	3.65
Single beam - narrow block	2.71	5.367	4.957	4.783	4.484	4.234	4.26

FP MCCANN'S PRECAST T BEAM FLOORING SUPPLIED FOR AN ONGOING HOUSING DEVELOPMENT IN CRAIGAVON

FP McCann recently supplied a total of 1500m of T Beams and 3500 corresponding concrete blocks have been supplied to the project to date, with more to be delivered over the coming months.

Rowan Park Housing Development consists of 24 units and was completed in early 2025.

Our Northern Ireland T Beam flooring system is manufactured at our Coote's Quarry in Armagh.

FP McCann's traditional beam and block flooring involves laying precast, prestressed concrete beams across or between walls. The beams are then filled with concrete blocks, which we also manufacture at our Coote's, Bradley's (Kilrea) and Clarke's (Lisnaskea) depots.

T Beam flooring is ideal for both residential and commercial projects, it has a number of key benefits, including its quick and easy installation, fire resistance and excellent acoustic properties. It can also be installed in all weather conditions and is ideal for areas with restricted access.

FP McCann manufactures 178mm deep floor beams, with a width of 106mm and spans up to 6 metres can be achieved, depending on loading conditions.

CONCRETE BLOCKS

Concrete blocks are manufactured at our Armagh, Kilrea and Lisnaskea depots to the highest regulatory standards.

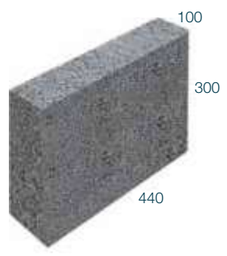
We manufacture:

- 4” / 6” / 12” Blocks
- 12” Short Blocks
- Cavity Blocks
- Fair Faced Block
- Soap Bars
- Concrete Brick

9 x 4 Solid Concrete Block*:
Dimensions: 440x215x100mm
Unit weight: 20kg
Comp Strength 5n /mm²
Available in 7n /mm² /
10n /mm² 21n /mm²

*Lightweight options available

9 x 6 Solid Concrete Block:
Dimensions: 440x215x150mm
Unit weight: 28kg
Comp Strength 7n /mm²
Available in 7n /mm² /
10n /mm²



12 x 4 Solid Concrete Block:
Dimensions: 440x300x100mm
Unit weight: 27.5kg
Comp Strength 7n /mm²
‘Short’ 12 x 4 Concrete Block
Dimensions: 350x300x100mm
Unit weight: 21kg
Comp Strength 7n /mm²

9 x 9 Cavity Block:
Dimensions: 440x215x215mm
Unit weight: 26kg
Comp Strength 5n /mm²
Available in 7n /mm² /
10n /mm²

6 x 4 Soap Bar:
Dimensions: 440x150x100mm
Unit weight: 12.5kg
Comp Strength 7n /mm²

4 x 4 Soap Bar:
Dimensions: 440x100x100mm
Unit weight: 9kg
Comp Strength 7n /mm²
Available in 10n /mm²

Concrete Brick:
Dimensions: 215x100x65mm
Unit weight: 3kg
Comp Strength 15n /mm²
Available in 21n /mm²

6 x 6 Concrete Brick:
Dimensions: 215x150x150mm
Unit weight: 17kg
Comp Strength 7n /mm²

Our blocks are manufactured in 7N, 10N, 15N and 21N strengths. We also manufacture high-strength blocks at customer specification.

PRESTRESSED CONCRETE LINTELS & PADSTONES

Our 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 British and Irish Standards.

Lintel Dimensions		
Length	Flat	Upright
450 - 3600	65x100	100x65
450 - 3600	100x140	140x100
450 - 3600	*100x215	*215x100
450 - 3600	65x215	215x65
450 - 3600	*140x140	*140x140
450 - 3600	*140x215	*215x140

*High strength available

Padstone Sizes (mm)
215 x 140 x 100
215 x 215 x 140
300 x 100 x 140
300 x 215 x 100
440 x 140 x 100
440 x 215 x 100
440 x 215 x 140

TIMBER FRAME STOOLED CILLS

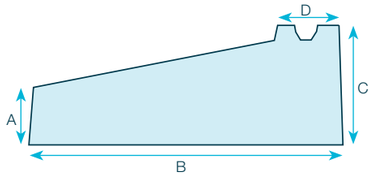
Precast concrete Timber Frame Stool Cill ideal for use under windows, ledges and transitions on Timber Framed House builds, with a 100mm wide stool. We manufacture our high-quality cills in accordance with BS standards. Standard finish only. Our Timber Frame 2 Course Stooled Cill is 140mm high and 220mm wide. It is available in 660mm, 772mm, 885mm, 998mm, 1110mm, 1222mm, 1335mm, 1447mm, 1560mm, 1672mm, 1785mm, 1898mm, 2010mm, 2122mm, 2235mm & 2460mm lengths.

CONCRETE CILLS

FP McCann’s high quality cills are manufactured in accordance with BS standards and are available in increments of 150mm from 0.5m to 3m. Bespoke sizes can also be designed and manufactured on request. Standard finish only.

PRODUCT DIMENSIONS

Cill Description	A	B	C	D
55mm face	55	265	85	60
90mm face	90	240	140	65
50mm South Cill	50	255	100	50



Please note: all measurements are in mm.

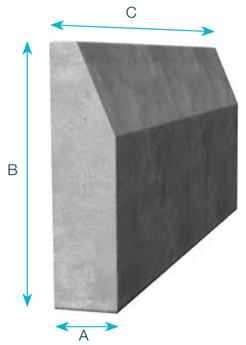
GARDEN EDGING & KERBING

FP McCann manufactures a complete kerb and channel range to fully satisfy all construction and infrastructure requirements. Standard finish only.

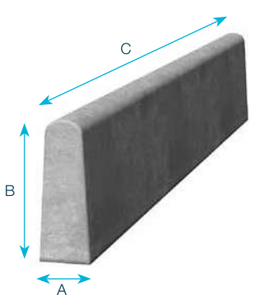
Description	A Width	B Height	C Length	No. (per lift)
10 x 5 Bull Nose	125	255	915	16
6 x 5 Bull Nose	125	150	915	14
10 x 5 Full Batter	125	255	915	16
6 x 5 Half Batter	125	150	915	16
10 x 5 Half Batter	125	255	915	16
10 x 5 Channel	125	255	915	16
6 x 2 Garden Edge Flat Top	50	150	915	60/100
6 x 2 Garden Edge Round Top	50	150	915	60/100
15” Dwarf Wall	90	380	915	24
24” Dwarf Wall	90	600	915	16
Dropper Kerb HB	125	255-150	915	16
10 x 5 Quadrant Kerb	125	255	915	16

Please note: A-C measurements are in mm.

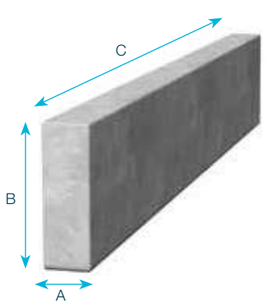
KERB & CHANNEL RANGE



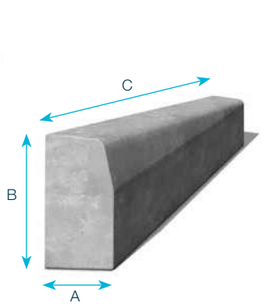
15” / 24” Dwarf Walls



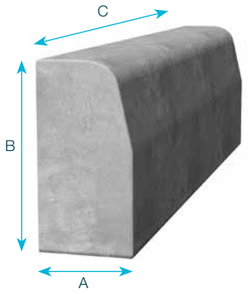
6x2 Round Top
Garden Edge



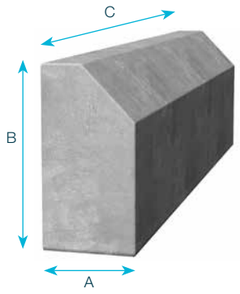
6x2 Flat
Top Garden Edge



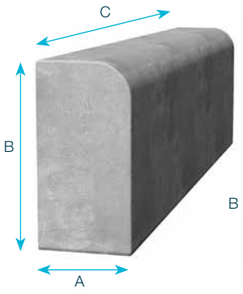
Dropper Kerb HB



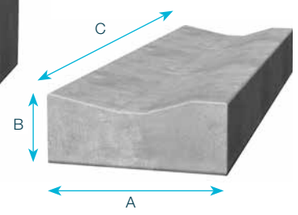
6x5 / 10x5
Half Batter



10x5
Full Batter



10x5 / 6x5
Bull Nose



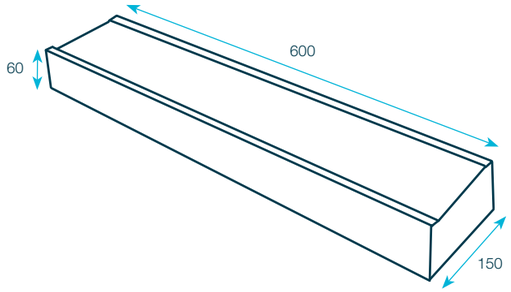
10x5 Channel Kerb

For details on FP McCann’s slot drain StormChannel™, go to page 64

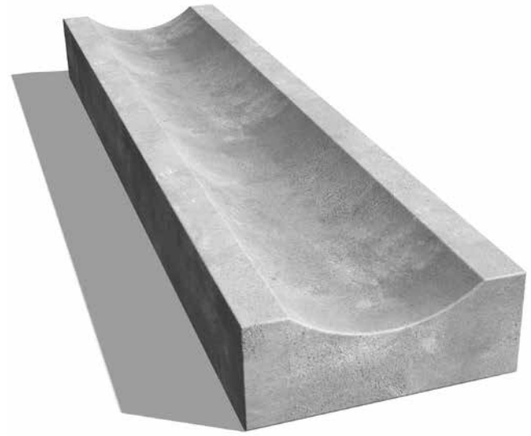
QUADRANT RADIUS KERB

Quadrant radius kerbs are designed for going around bends with ease, a flexible solution for some design detailing projects.

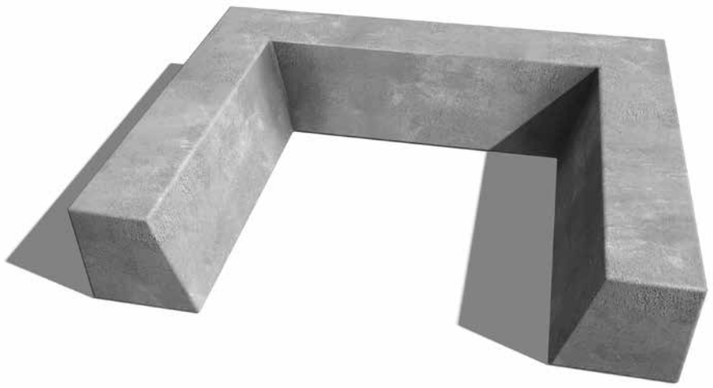
DRAINAGE KERB

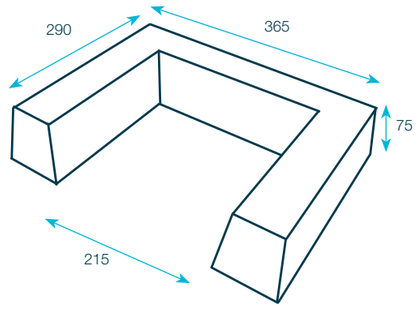


Please note: Kerb finish to front and back as from mould, to bottom as from steel float. All dimensions in mm.



BELFAST GULLY SURROUND



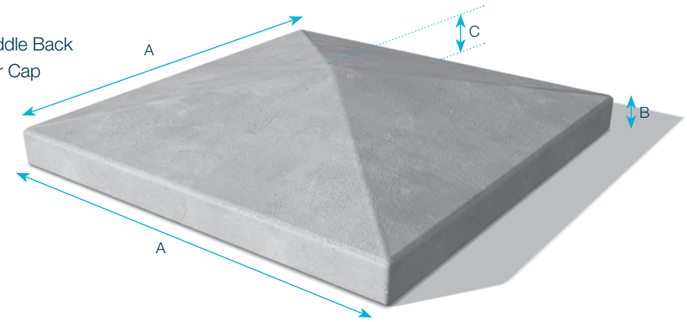


Please note: Kerb finish to front and back as from mould, to bottom as from steel float. All dimensions in mm.

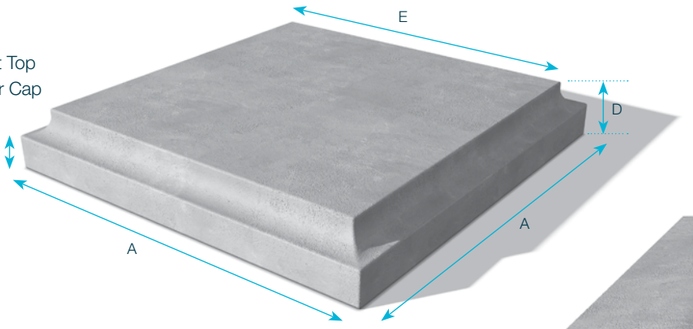
PIER CAPS & WALL COPINGS

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. Pier caps and wall copings are available in Saddleback or Flat Top. Standard finish only.

Saddle Back
Pier Cap



Flat Top
Pier Cap

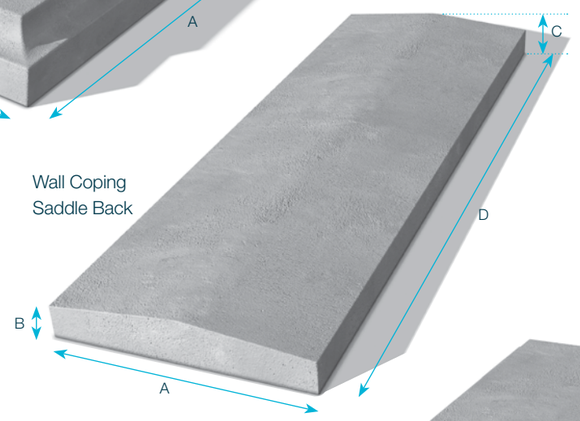


PIER CAP DIMENSIONS

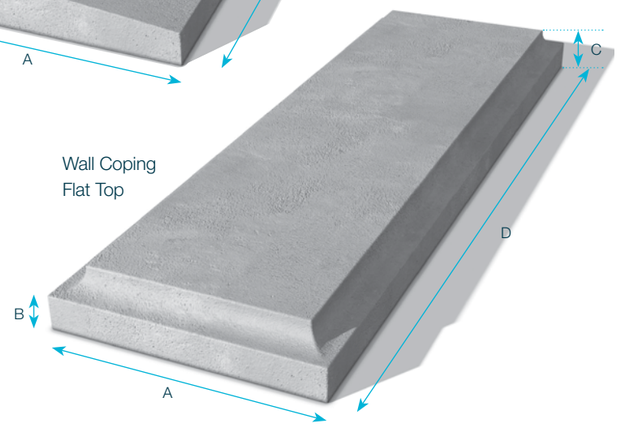
Description	A	B	C	D	E
8.5" Saddle back	215	30	55		
12" Saddle Back	300	40	70		
16" Saddle Back	400	50	85		
18" Saddle Back	450	50	100		
22" Saddle Back	560	50	120		
27" Saddle Back	685	50	140		
34" Saddle Back	850	75	170		
22" Flat Top	559	50		100	459
27" Flat Top	680	50		100	585
34" Flat Top	870	75		130	775

All measurements are in mm, unless otherwise stated.

Wall Coping
Saddle Back



Wall Coping
Flat Top



WALL COPING DIMENSIONS

Description	A	B	C	D
5" Saddle Back	125	30	45	600
6" Saddle Back	150	40	48	590
7" Saddle Back	175	50	75	906
9" Saddle Back	225	40	60	902
11" Saddle Back	275	30	50	600
12" Saddleback	300	40	55	905
12" Saddle Back TW	300	70	50	610
9" Flat Top	225	35	65	902
12" Flat Top	300	40	65	905
12" Once Weathered	300	70	50	915
13" Once weathered	325	60	50	915
22" Once Weathered	555	80		915
14" Twice weathered	355	75	50	610
16" Twice weathered	405	75	50	915

All measurements are in mm, unless otherwise stated.

AIR VALVE CHAMBERS

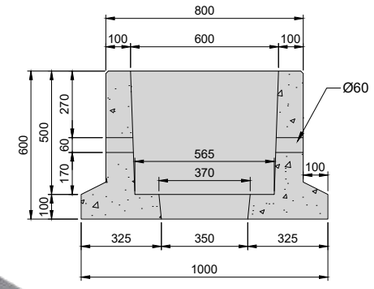
FP McCann's precast concrete air valve chambers are purpose-built enclosures designed to house and protect air release, air/vacuum, or combination air valves installed on pressurized water pipelines.

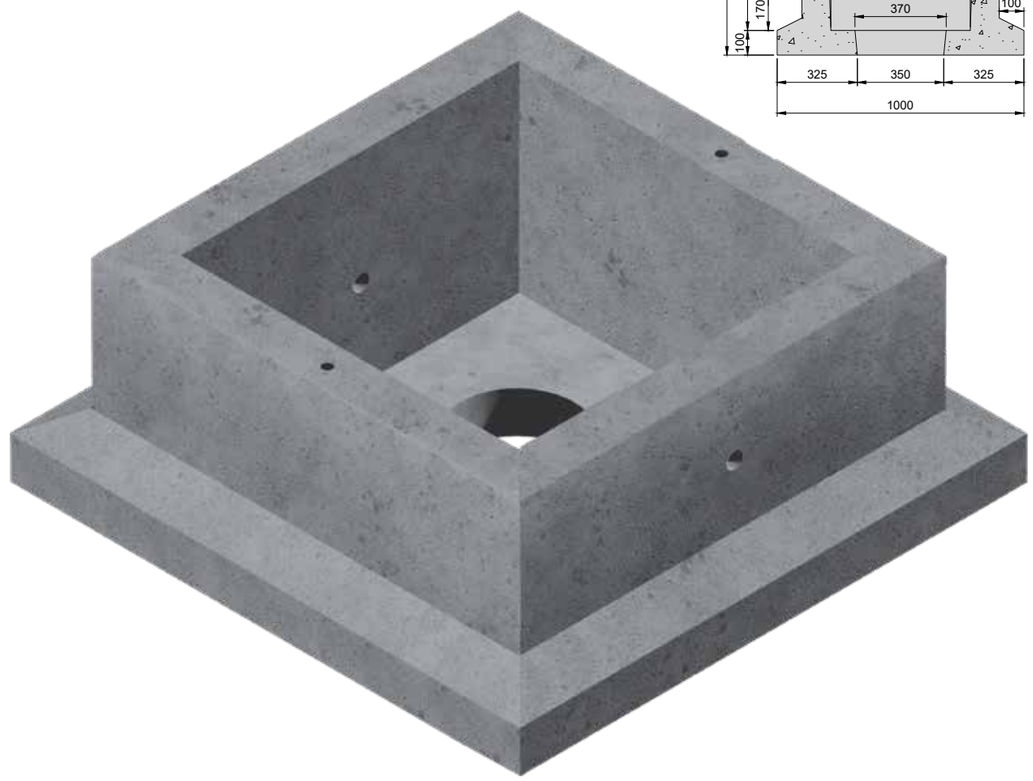
These valves are critical for maintaining pipeline efficiency and preventing issues such as air locking, water hammer, and vacuum collapse by automatically releasing or admitting air during system operation.

Internal Width	Internal Height	Internal Length	Weight (kg)	Lifters
600	500	600	645	2

FEATURES:

- Factory-produced for high quality
- Engineered to protect air valves in water transmission or distribution systems
- Quick and easy to install
- Designed to accommodate single air valve setups
- Access cover can be rated for pedestrian or vehicular traffic (BS EN 124)
- Resistant to corrosion, environmental exposure, and mechanical damage
- Cast-in lifting points





SLUICE VALVE CHAMBERS

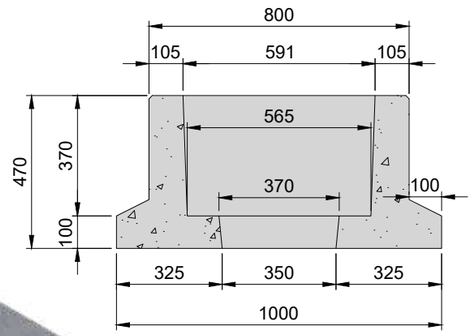
FP McCann's precast concrete sluice valve chamber is a factory-manufactured, modular structure designed to house and protect sluice valves used for controlling the flow of water in pipelines, typically in water distribution and wastewater systems.

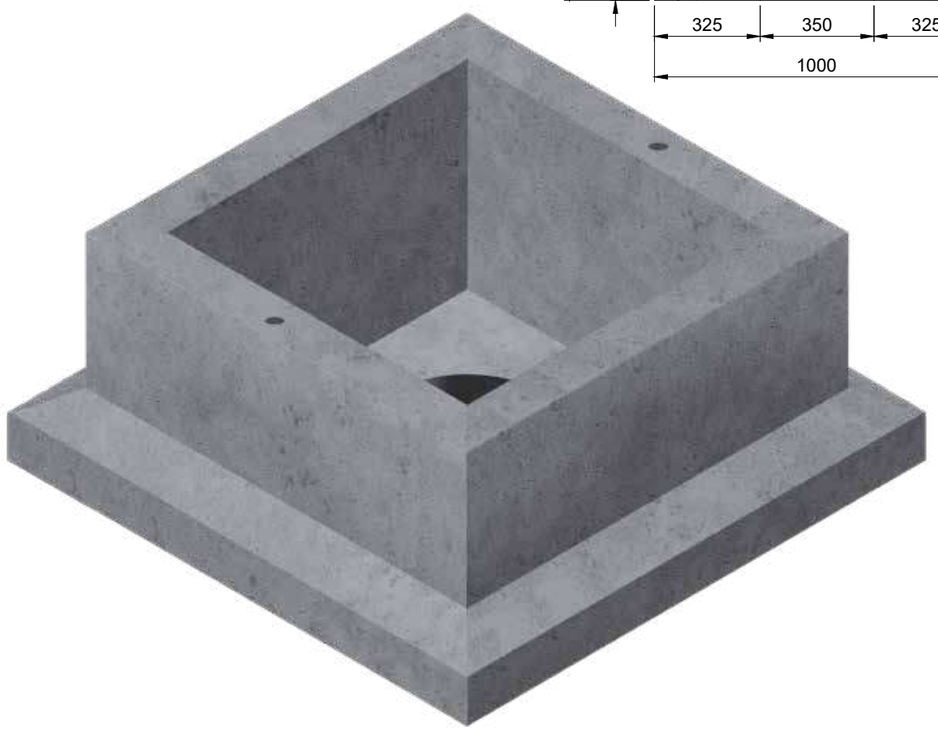
Constructed from concrete, these chambers provide a durable, watertight, and corrosion-resistant environment suitable for underground or surface installations.

FEATURES:

- Factory-cast for consistent quality and structural integrity
- Designed to accommodate sluice valves and associated pipework
- Available in standard or custom sizes
- Compatible with various pipe materials (PVC, DI, HDPE, etc.)
- Resistant to water ingress, soil loads, and environmental conditions
- Cast-in lifting points

Internal Width	Internal Height	Internal Length	Weight (kg)	Lifters
591	370	591	645	2





FIRE HYDRANT CHAMBERS

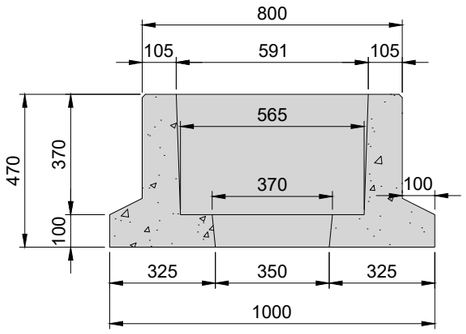
FP McCann's precast concrete fire hydrant chambers are durable, factory-manufactured enclosures designed to house and protect underground fire hydrant assemblies.

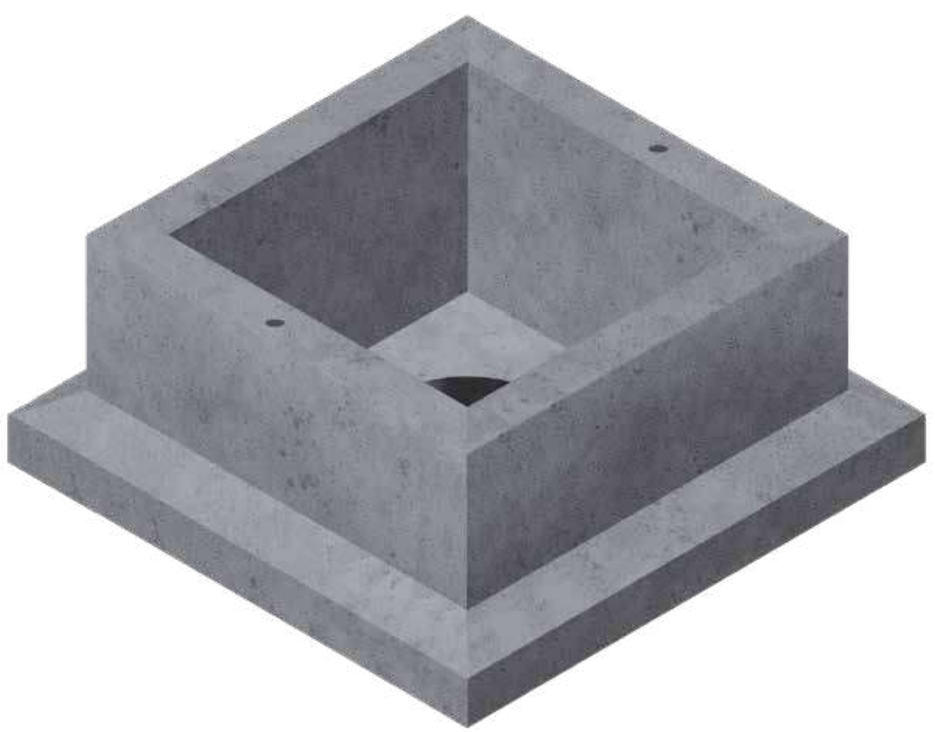
These chambers provide secure and easy access for fire services and maintenance personnel, ensuring reliable operation of hydrants in emergency situations.

FEATURES:

- Factory-cast for consistent quality and structural integrity
- Compatible with standard pillar or underground fire hydrants
- Watertight and resistant to environmental degradation
- Cast-in lifting points

Internal Width	Internal Height	Internal Length	Weight (kg)	Lifters
591	370	591	645	2





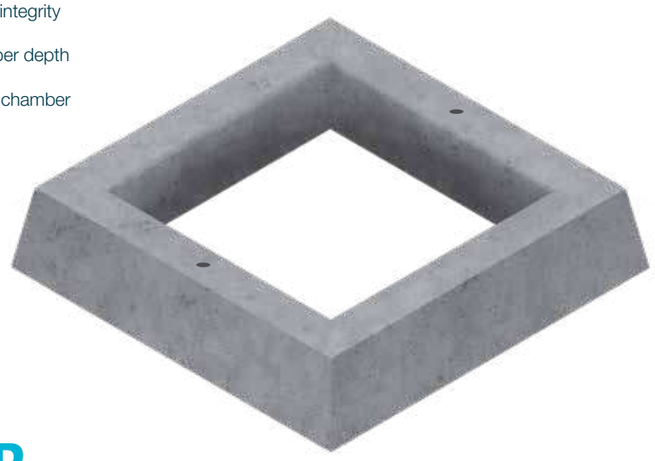
UNIVERSAL RISER

FP McCann's precast concrete universal risers are modular components designed to extend the height of underground utility chambers, such as inspection chambers, valve chambers and hydrant chambers.

Internal Width	Internal Height	Internal Length	Weight (kg)	Lifters
600	165	600	146	2

FEATURES:

- Factory-cast for consistent quality and structural integrity
- Modular and stackable to achieve desired chamber depth
- Standardized sizes for compatibility with multiple chamber types
- Easy to install, reducing on-site labuor and construction time
- Provides a watertight and structurally sound extension to underground chambers
- Cast-in lifting points



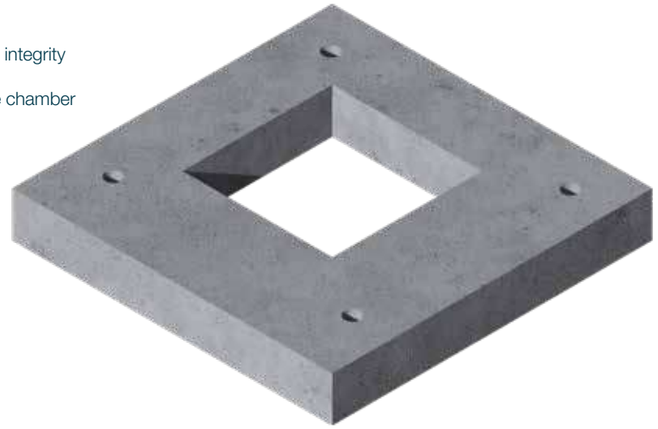
CHAMBER COVER SLABS

FP McCann's precast concrete cover slab is a factory-manufactured element designed to seal underground utility chambers, such as water meter chambers, valve chambers & fire hydrant chambers.

Internal Width	Internal Height	Internal Length	Weight (kg)	Lifters
750	225	750	4600	4
900	225	900	7150	4

FEATURES:

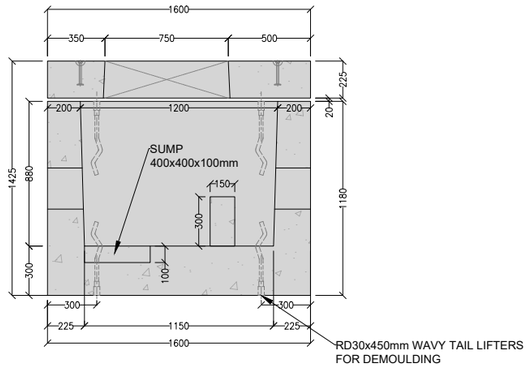
- Factory-cast for consistent quality and structural integrity
- Standardized sizes for compatibility with multiple chamber types
- Easy to install, reducing on-site labour and construction time
- Cast-in lifting points



IRISH BULK WATER METER CHAMBER

FP McCann's precast concrete Irish bulk water meter chambers are robust, factory-manufactured enclosures designed to securely house and protect bulk water meters and associated fittings in underground installations.

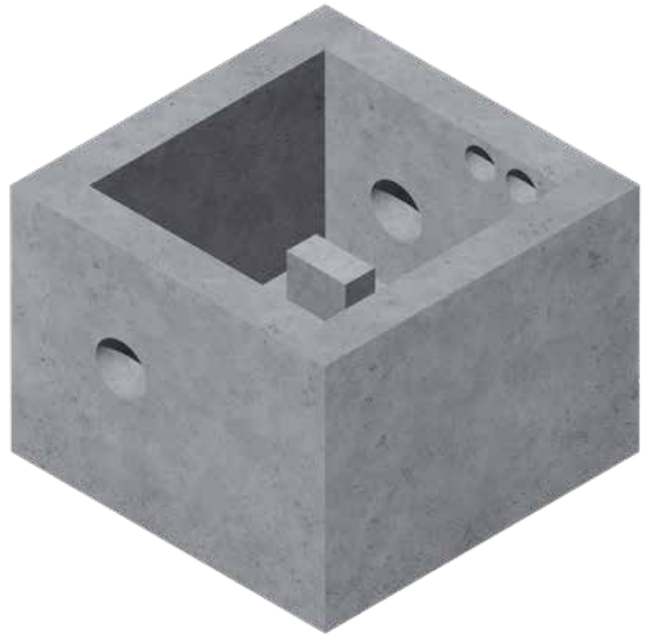
Both sizes of Irish bulk water meter chamber have a matching cover slab to fit perfectly onto the chamber. Fitted with integrated steps for easy access, sumped section and plinth for elevating and securing the water meter and associated valves.



- Reinforced concrete body with smooth or ribbed internal surfaces for durability and resistance to corrosion.
- Cast in entry/exit points to accommodate various pipe diameters and configurations.
- Internal mounting plinth to support water meters, valves, and ancillary equipment.
- Thermal insulation or frost protection for colder regions.

Width	Height	Length	Weight (kg)	No. of Lifters
1200	880	1200	4600	4
1500	900	1500	7150	4

Technical Information	
Mechanical Resistance	Vertical Strength 400kN
Chamber Weight	4190Kg *approx
Cover Slab Weight	1140Kg *approx
Opening Size	1200 x 1200mm
Durability	Suitable for standard servicing conditions



Features	
Integrated Duct Opening	Yes
Steel Reinforced	Yes
Integrated Steps	3
Lifting Points	4
Pipe Support Plinth	Yes

IRISH WATER HOUSE INSPECTION CHAMBERS

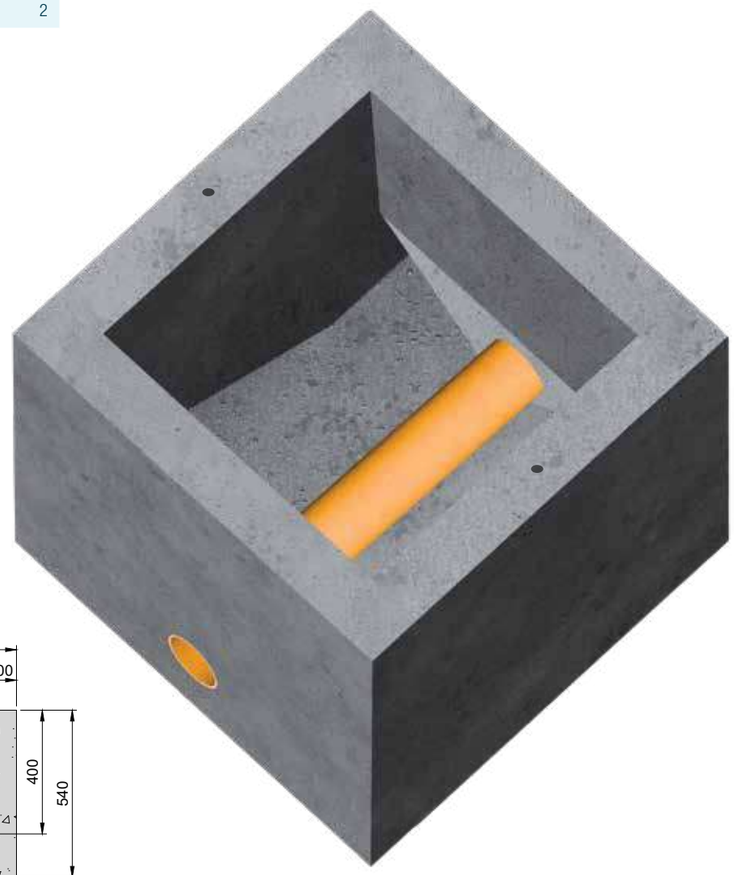
FP McCann's precast concrete inspection chambers are robust, factory-manufactured units designed to provide access to underground drainage and utility networks for inspection, maintenance, and cleaning.

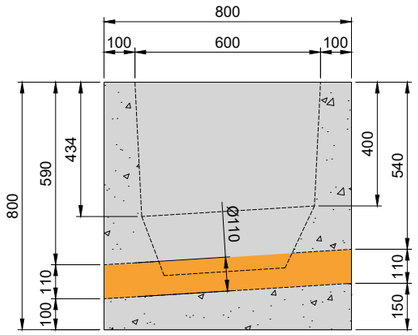
Used extensively in stormwater, foul water, and combined drainage systems, these chambers are an essential component in ensuring the proper function and accessibility of below-ground infrastructure.

FEATURES:

- Factory-produced for high quality and dimensional accuracy
- Constructed from durable, reinforced concrete (to standards such as BS EN 1917 or ASTM C478)
- Quick and efficient installation with modular design
- Compatible with various pipe materials (clay, PVC, concrete, etc.)
- Can be installed in highways, footpaths, or open areas depending on cover rating
- Ensures safe access for inspection and maintenance
- Cast-in lifting points

Internal Width	Internal Height	Internal Length	Weight (kg)	Lifters
600	590	600	645	2





HOUSE INSPECTION CHAMBERS

FP McCann's precast concrete inspection chambers are available in two sizes: 600 x 450 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
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 (kg)	No. of units per pallet	Wall/ Slab thickness (mm)
600x450x150 section	40	12	40
600x450x225 section	65	8	40
600x450x100 frame	45	8	100
600x450x55 lid	50	16	55
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.

COMMUNICATION BOXES

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

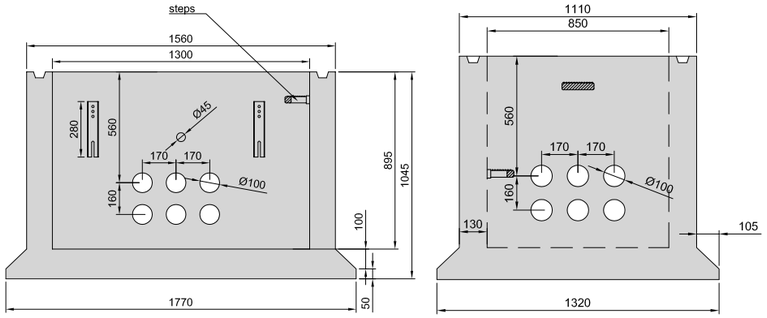
Communications boxes are mainly used in infrastructure works to include airports, railway projects, roads and housing developments. Cable pit chambers and other units for street lighting are also available in different sizes.

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 MCX

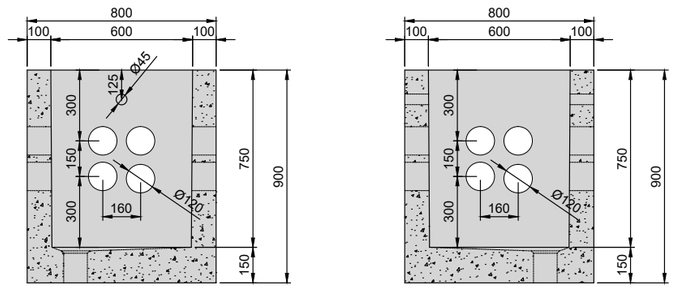


Dimensions	Length mm	Width mm	Height mm	Weight kg
Chamber	1300	850	900	2100
Riser	1300	850	300	300
Concrete Cover Slab*	1570	1120	150	300

COMMS MCX ADDITIONAL FEATURES

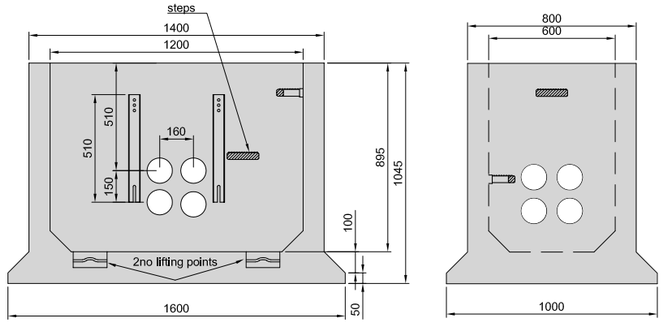
- Highway construction details MCX compliant
- *Complementary reinforced concrete riser and cover slab are available from FP McCann

COMMS 600



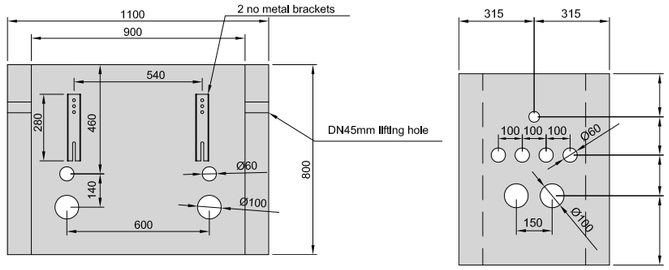
Length mm	Width mm	Height mm	Weight kg
600	600	750	806

COMMS C2



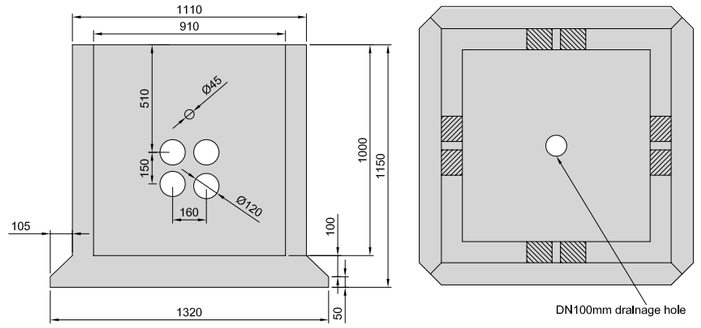
Length mm	Width mm	Height mm	Weight kg
1200	600	895	1440

COMMS J4



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

COMMS DP



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

MULTI-PURPOSE CHAMBERS

FP McCann's precast concrete multi-purpose 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 chambers can be supplied to suit any loading requirements including up to F900+ for airports and similar heavy-duty applications.

FP McCann's multipurpose chambers also known as duct access chambers, or cable drawpits are typically used in Utilities, Power, Telecommunication & Water sectors.

CAST-IN ITEMS

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

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

PRODUCT FEATURES

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

Internal		Wall Thickness (mm)	Base Thickness (mm)	Max Height (mm)	Weight at Max Height (tonnes)
Length (mm)	Width (mm)				
1250	1250	200	200	2400	9.0
1500	1500	200	200	2400	10.7
2000	1500	200	200	2400	12.5
2000	2000	200	200	2400	14.4
2400	1800	200	200	2400	14.1
2500	2000	200	200	2400	16.3
2500	2500	200	200	2400	18.4
3000	2500	200	200	2400	20.4
3000	3000	200	200	2400	22.6

MANCHESTER AIRPORT T2 PROJECT

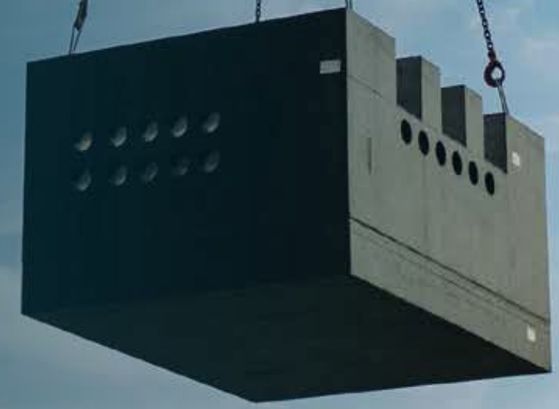
FP McCann have manufactured and installed 9 precast concrete power and communication cable drawpit chambers for the Manchester Airport Transformation Programme. Main contractor, Laing O'Rourke, is responsible for the design and construction of an extension to Terminal 2.

The installation of nearly 40km of high voltage (HV) and low voltage (LV) cables are integral to the 'power on' of Terminal 2, and as part of these works FP McCann has manufactured and delivered 9 large precast concrete cable drawpit chambers which sit under the link bridge to the first of the aircraft piers. The precast concrete chambers protect these cables in safe, readily accessible housing, and have been designed to F900 loading due to the location of the chambers. This means that the chambers and their associated covers are capable of withstanding 900kN test loads.

With site constraints and very tight vehicle access, each of the 9 chambers were supplied on a just-in-time basis from FP McCann's Byley precast factory in Cheshire. Each chamber consists of a base unit and a number of riser sections which vary in weight from 6 tonnes to 15 tonnes. The top riser units all have castellated tops to enable steel cross beams and covers to be cast on site.

The chambers themselves range in dimensions from 3mx3m to approximately 6mx3m and all are around 1.75m deep. Each chamber has duct couplers cast in at the factory as determined by the specified bespoke layout thereby enabling a quick installation process. In addition, steps have been cast into each section and a sump formed in the chamber base units whilst a waterproof bitumen coating has been applied to all external faces.

The Manchester Airport Transformation Programme includes the Terminal 2 extension, a 3,800-bay multi-storey car park, the addition of three new piers and extension to the existing forecourt.



CONCRETE SAFETY BARRIERS

FP McCann's interlocking precast concrete modular jersey barriers are suitable 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

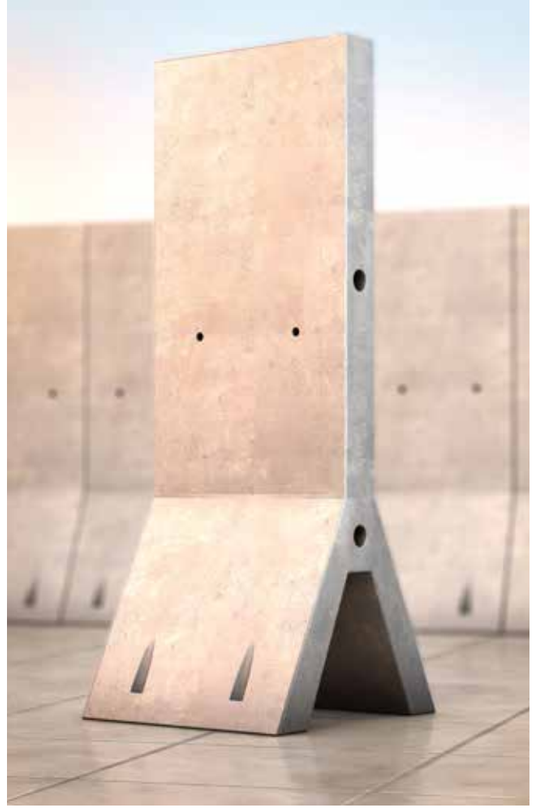
Length (mm)	Width (mm)	Height (mm)	Weight (kg)
1500	500	800	900

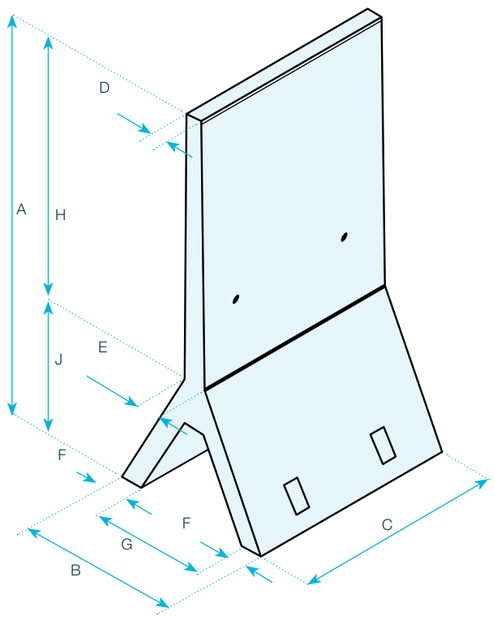
ROCKET WALLS™

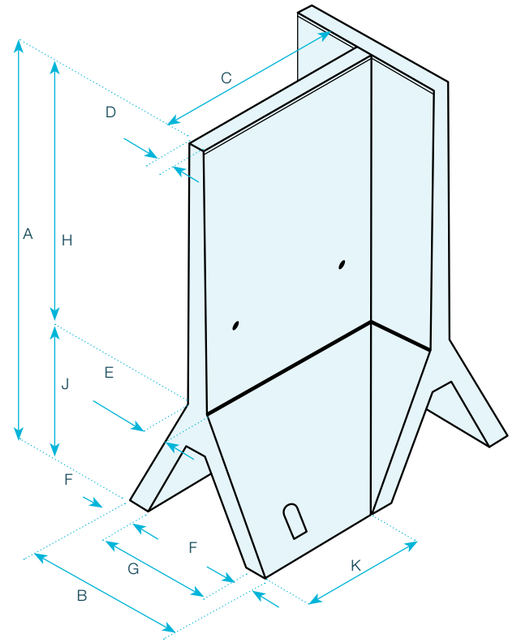
Our Rocket Walls™ are high quality, freestanding, precast concrete units. They are designed to be sited on an existing concrete floor slab or foundation and bolted down using fixing bolts to prevent movement, for improved site safety and maximum efficiency. It is this uniqueness that makes them suitable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

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.

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 6m high, with a standard width of 1m. Also available in 2m width depending on height dimensions.

PRODUCT BENEFITS

- Large range of sizes available
- Quick and easy installation
- 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 1m widths
- Available with heel feature to reverse

PRODUCT APPLICATIONS

- Storage facilities
- Division walls
- General soil retention
- Waste recycling bunkers
- Making up levels within buildings
- Bunker walls
- Retaining walls
- Landscaping of housing estates

STANDARD SIZES

The loading 18 kN/m³ is approximately a bulk density of 1835 kg/m³

Height (mm)	Width (mm) straight unit	Width (mm) corner unit	Weight (kg) straight unit	Weight corner unit (kg)
1000	1000	1000 x 1000	440	790
1500	1000	1000 x 1000	710	1170
1750	1000	1000 x 1000	870	1390
2000	1000	1000 x 1000	1010	1580
2500	1000	1250 x 1250	1500	2950
3000	1000	1500 x 1500	1960	2350
3750	1000	2310 x 2310	2950	2780

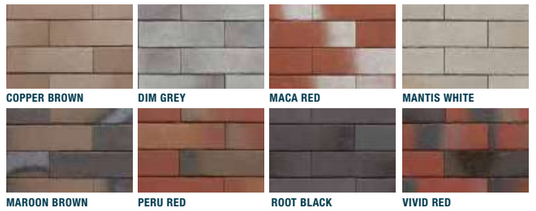
(Includes 5% lifting allowance)

BED WALLS WITH BRICK SLIPS

ARMIS RANGE - 4-6 WEEK LEAD TIME

ARMIS RANGE - 12 WEEK LEAD TIME

PELARIS RANGE - 4-6 WEEK LEAD TIME



PELARIS RANGE - 12 WEEK LEAD TIME

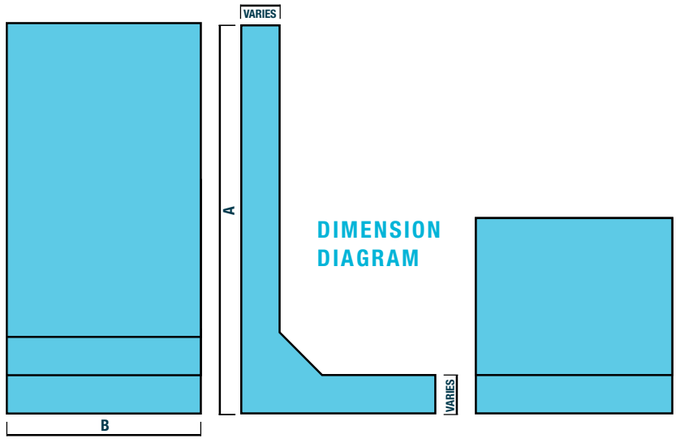
FASANIS RANGE - 12 WEEK LEAD TIME

L WALL HEIGHTS AVAILABLE:

Please refer to the bed wall drawings for dimensions

Heights (A)	Widths (B)
1.0m	1.0m-4.0m
1.5m	1.0m-4.0m
1.75m	1.0m-4.0m
2.0m	1.0m-4.0m
2.5m	1.0m-3.0m
3.0m	1.0m-2.0m
3.5m	1.0m-2.0m

DIMENSION DIAGRAM



FEATURES AND BENEFITS

- Reduced embodied CO^2 and reduction in CO^2 from transport.
- Prolonging raw material (less material per m²).
- Lighter product and easier to handle than traditional bricks.
- Conforms to EN ISO 10545-12
- Fully frost resistant.
- Low water absorption (less than 3% absorption).
- High standard of fire safety (A1 fire rating).
- More cost effective than traditional cut brick slips.
- Slips can be assembled off-site, reducing on-site labour.
- Brick slip finish for finished wall
- Larger lengths for quicker install
- Retain material up to 19kN/m3 with an AoR 20°
- Loads up to 50kN/m2 surcharge when loaded over the toe/base of the unit
- Tight size tolerances (+/-2mm) - precise corners available.

FIRE WALLS

FP McCann manufactures two types of prestressed panels that are ideal for fire walling. With the choice of vertical cantilever panels or horizontal panels and columns, fire 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 vary dependant on overall wall height and are made to order to suit customer requirements. Fire walls and columns can be manufactured to the clients' own design or to FP McCann's design specification.

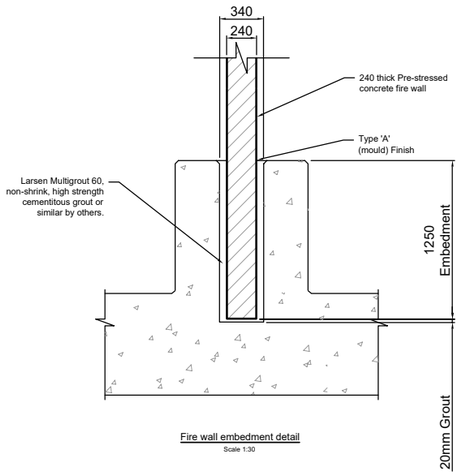
Panel Thickness (mm)	Fire Rating (hrs)
80	0.5
120	1.5
160	3.0
200	4.0
240	4.0

KEY FEATURES AND BENEFITS

Vertical Cantilever Panels

- Overall wall heights of up to 7.5 metres effective height can be achieved
- The panels are slotted and grouted into a preformed pocket in the bund/ foundation

EXAMPLE OF VERTICAL POCKET DETAIL

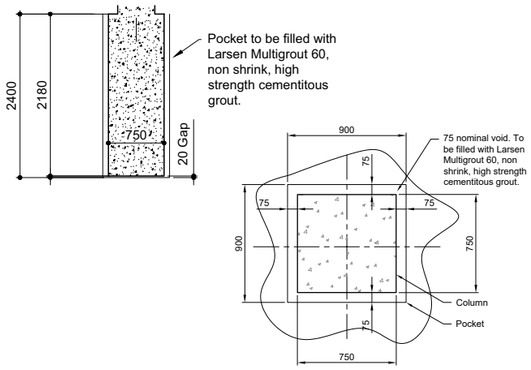


Fire wall embedment detail
Scale 1:30

Horizontal Panels

- Overall wall heights of up to 10 metres effective height can be achieved
- Panels slot between precast columns and are embedded into the ground via preformed pockets, which are then grouted into position using high-strength grout
- 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

EXAMPLE OF HORIZONTAL POCKET DETAIL



Typical Section through Column at pocket level
Scale 1:20

EASI-BLOC™

Easi-Bloc™ is a precast concrete block offering solutions where limited space is available for containment. They are simplistic in design allowing for effortless handling and speed of installation. Easi-Bloc™ comes in 4 sizes. They are available in a plain or rock faced finish making them ideal for a variety of applications.

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.

PRODUCT BENEFITS

- Cost-effective
- Interlocking design for easy alignment and added security
- Quick installation
- Durable
- Cast-in lifting pin makes them easy to lift
- Reusable product

PRODUCT APPLICATIONS

- Segregation
- Temporary roadblocks
- Security barricades
- Storage bays
- Agricultural bays suitable for grain, silage, etc.
- Earth retention
- Aggregate bays
- Partition walling
- Landscaping
- Waterways / Shoreline defences
- Highways
- Retaining wall

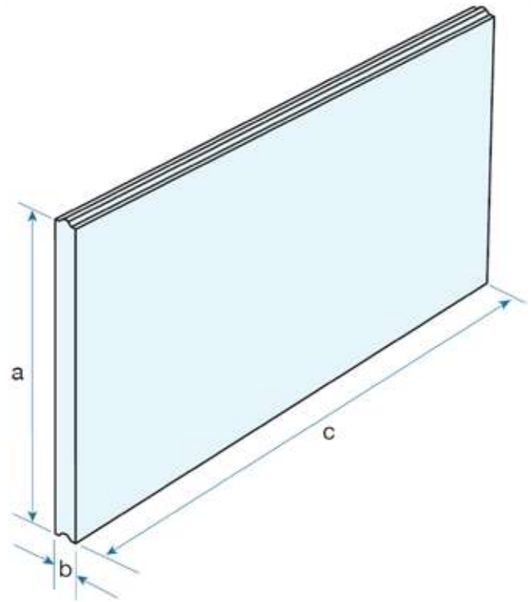
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	
1200	600	450	750	*Forklift Hole
600	600	450	375	*Forklift Hole
1400	700	700	1700	
700	700	700	850	

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 since our wall panels are manufactured using prestressed concrete, it 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



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				

FP MCCANN'S PRECAST HORIZONTAL WALL PANELS USED IN QUARRY AGGREGATE STORE

FP McCann recently installed its own dry aggregate storage shed at its Bradley's Depot, Kilrea. The shed was manufactured using our precast horizontal wall panels.

The storage shed was constructed using more than 1400 tonnes of concrete wall panels.

Our prestressed horizontal panels allow walls to be constructed quickly and efficiently. They are manufactured using prestressing wires and C45/55 concrete, which gives them in-built strength and resilience. Panels can be removed and re-sited, allowing the flexibility to change the configuration of a structure should future needs require it. They offer a much more stable and durable alternative to the traditional steel sheet construction.

The shed offers a weatherproof storage option for aggregates, keeping them dry, separated and easily accessible.

This method of construction could also lend itself well to a grain or silage store in an agricultural setting. Our panels are available in a 0.6m and 1.2m height, with three thickness options: 120mm, 160mm or 200mm; panel length can be made to suit the project requirements.

CATTLE SLATS

FP McCann produces 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						
Length (ft)	8ft	9ft	10ft	11ft	12ft	13ft
Width (mm)	305	305	305	305	305	305
Depth (mm)	305	305	305	305	305	305
Weight (Kg)	518	583	648	713	778	842

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

Slurry channels	
Length (mm)	2400
Width (mm)	1200
Depth (mm)	1200
Weight (Kg)	2400

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 produces a range of agricultural water troughs in different sizes.

All water trough 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.

PRODUCT BENEFITS

- Robust and durable
- Edges designed to prevent injury to cattle

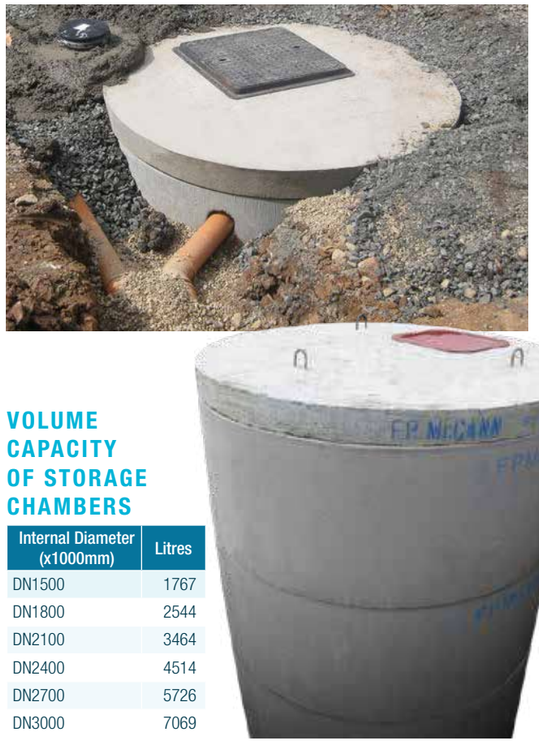
Water Troughs			
Capacity (Gallons)	Depth (mm)	Breadth (mm)	Length (mm)
300	788	1117	2185
150	610	915	1829
75	457	762	1525
40	356	559	1498
20	254	457	1525

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

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 CO_2 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

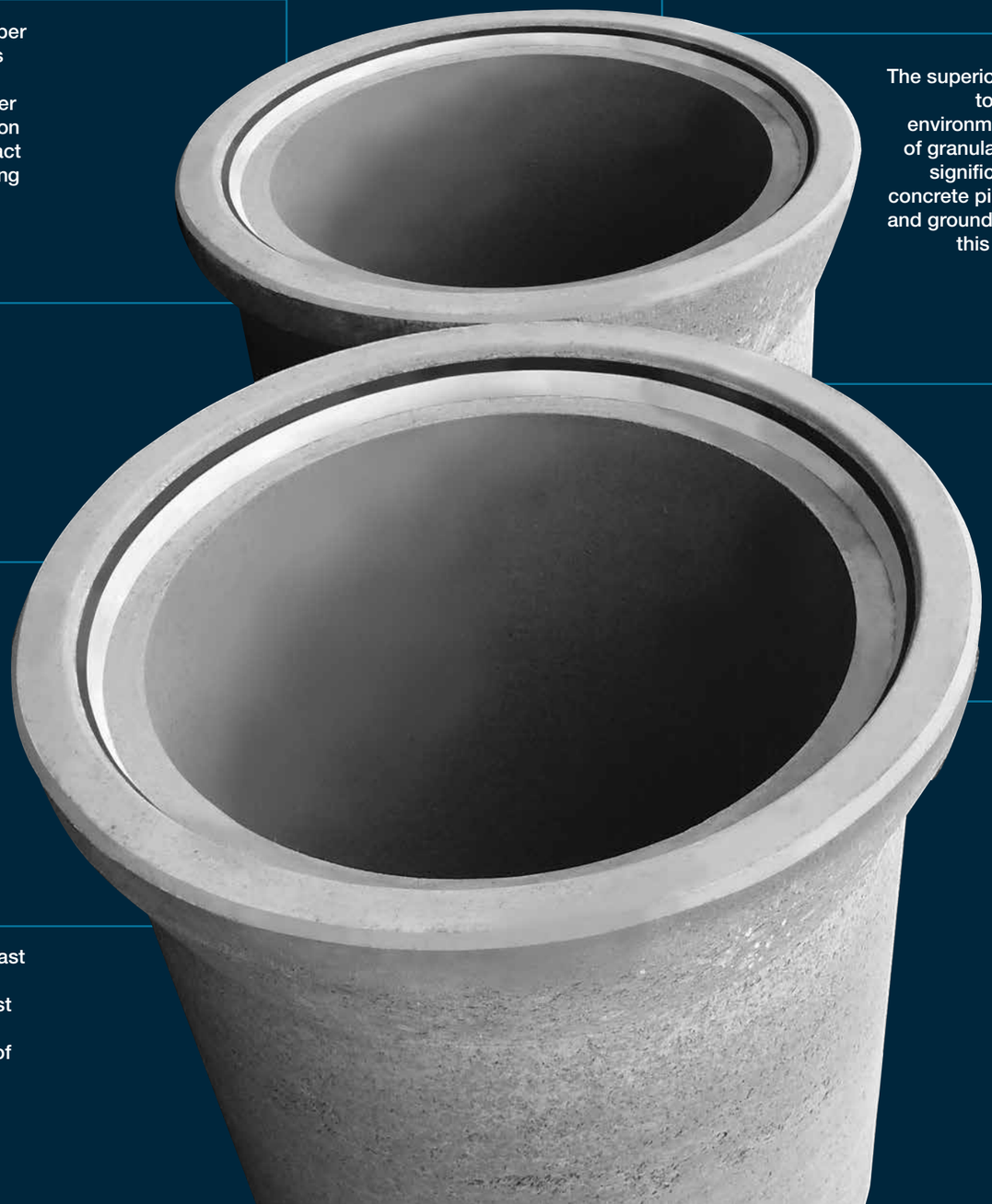
Concrete is much more durable than any other kind of pipe. Hence, it can carry more load at any given time and gains strength over time. It cannot be weakened by heat, moisture, mould or pests, nor will it rust. Underground concrete pipes have the ability to resist chemical attacks and massive impacts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

fpmccann DRAINAGE

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. They are also designed to meet BS 5911 for concrete pipes and ancillary products.

STANDARD PIPES

Nominal Size	DN	300	375	450	525	600	675	750	900	1050	1200	*1350	*1500	*1800	*2100	*2400
Internal Diameter (A)	MM	300	375	450	525	600	675	750	900	1050	1200	1350	1500	1800	2100	△2380
Barrel Diameter (B)	MM	416	505	590	685	790	901	996	1080	1266	1460	1620	1800	2130	2460	2750
Socket Diameter (C)	MM	497	575	665	760	852	960	1060	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
Actual Weight	KG	454	616	812	996	1252	1856	2194	2060	2760	3630	4290	5330	7300	9160	10070
Reinforced		N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Approx. Pipes per load		61	45	34	28	22	15	12	13	10	8	6	5	4	3	2
Chamber Ring to suit †		1200	1350	1350	1500	1500	1500	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
Crushing Strengths	Kn/M	36	45	54	63	72	81	90	108	126	144	162	180	216	252	288
Nominal Joint Gap	MM	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	36	36	36	41	41	-
Maximum Deflection	°Degrees	2	2	2	2	2	2	1	1	1	1	0.5	0.5	0.5	0.5	-

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

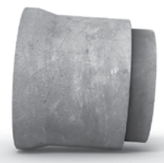
* Lifting anchors available
△ Please note internal dimensions

PIPE LUBRICANT

Pipes should only be joined using an FP McCann lubricant

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

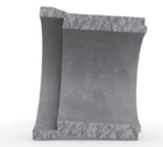
Sold in 2.5kg Tubs



ROCKER PIPES

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

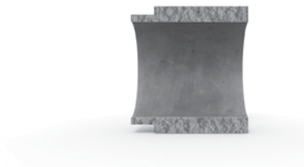
* Lifting anchors available



SOCKET BUTT PIPES

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

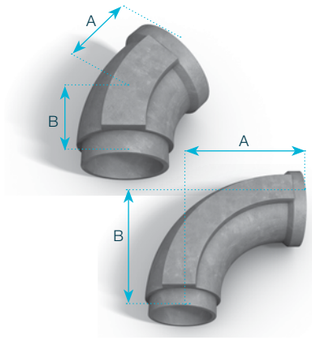
* Lifting anchors available



SPIGOT BUTT PIPES

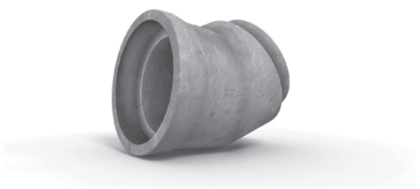
Nominal Size	DN	300	375	450	525	600	675	750	900	1050	1200	*1350	*1500	*1800	*2100
Effective Length	MM	600	600	600	600	600	1250	1250	1250	1250	1250	1250	1250	1250	1250
Approx. Weight	KG	100	135	155	205	270	870	980	910	1170	1585	1850	2230	3005	3800

* Lifting anchors available



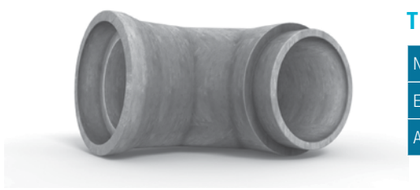
ONE PIECE BEND

Degree	11.25°			22.5°			45°			90°		
Nominal size (DN)	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



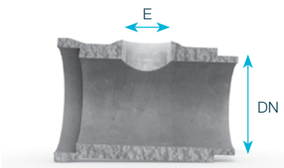
TWO PIECE BENDS - 11.25º, 22.5º & 45º

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



THREE PIECE BENDS - 90º

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

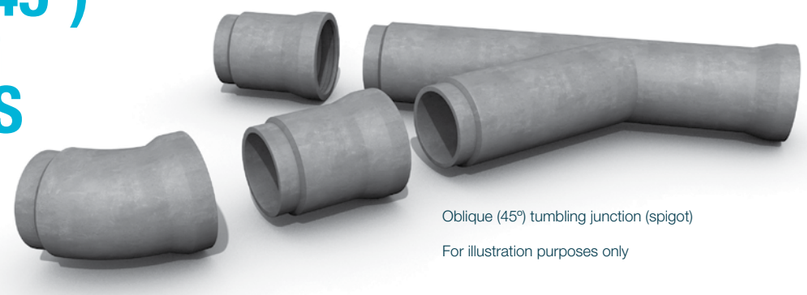


FASTFIT JUNCTIONS

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.

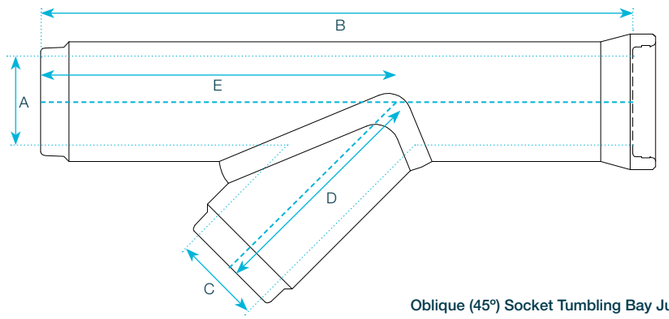
OBLIQUE (45º) TUMBLING JUNCTIONS



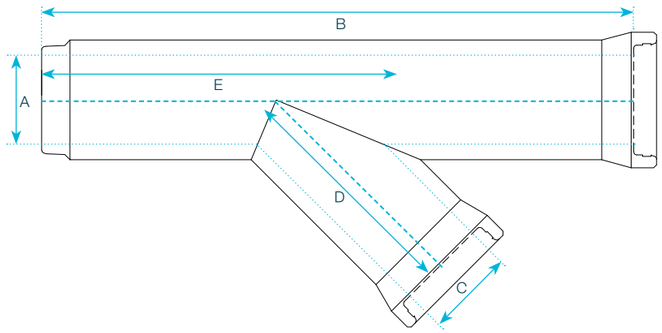
Oblique (45º) tumbling junction (spigot)

For illustration purposes only

Oblique (45º) Spigot Tumbling Bay Junction



Oblique (45º) Socket Tumbling Bay Junction



All bends are manufactured to ±4° 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.

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

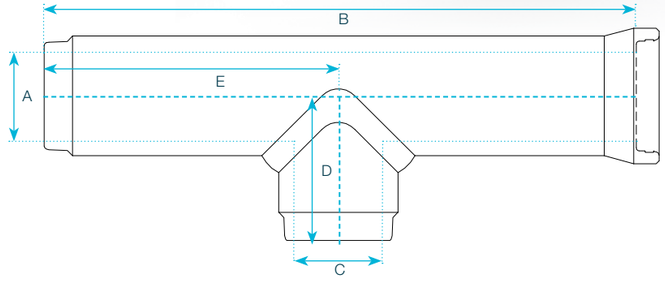
Oblique (45°) Socket Tumbling Bay Junction											
Main Pipe	Nominal Size	A	300	375	450	525	600	675	750	900	1050
	Effective Length	B	2500	2500	2500	2500	2500	2500	2500	2500	2500
Branch Pipe	Nominal Size	C	300	375	450	525	600	675	750	900	1050
	Effective Length	D	870	985	1087	1329	1329	1433	1558	1679	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 (90º) TUMBLING JUNCTIONS

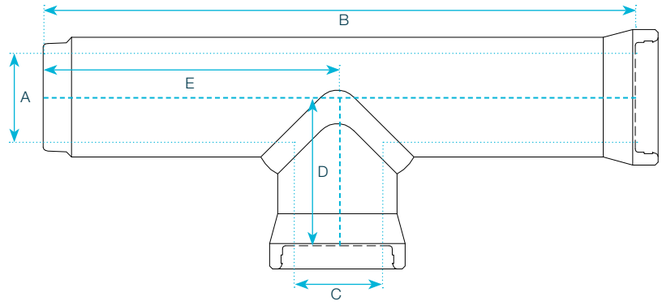
Square (90º) tumbling junction (spigot)

For illustration purposes only

Square (90º) Spigot Tumbling Bay Junction



Square (90º) Socket Tumbling Bay Junction



All bends are manufactured to ±4° tolerance

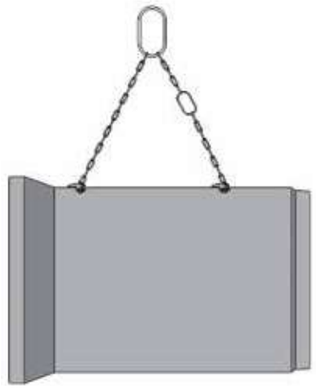
INSTRUCTIONS FOR USE

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

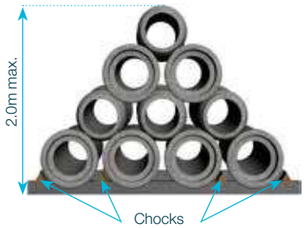
1. Time and place of off-loading should be agreed before the units arrive at site. The contractor should provide suitable equipment for off-loading, stacking and stringing out of pipes on-site.
2. Off-loading should take place at the nearest hard road to the point of installation. To ensure the safety 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



DN	No of layers
300 - 375	4
450 - 600	3
750 - 900	2
> 1050	1

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 68101, ISO 9001 and QR 4060
- Durable synthetic EPDM rubber seal with over 100 years' shelf life
- Cast accurately at the precast factory to create a stable seal
- 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 pipe lifter
- 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 (A.T.O.)

INFLATABLE PIPE STOPPER

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.

FLEXI-FIT PIPE SEAL

Introducing the new range of sizes for FP McCanns Flexi-Fit seal.

FF150

Designed to be used in junctions and large diameter pipes.

FF150 Base

Designed to be used in manhole bases and catchpits. Lateral support is required.

FF225

Designed to be used in manhole bases and catchpits. Lateral support is required.

The Flexi-Fit 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.

Each seal uses three component parts to adapt its internal size to suit the lateral pipe being fitted. The user can simply remove components to increase the internal diameter of the seal. All components conform to the latest standards for below ground applications. The universal nature of the Flexi-Fit range means that any lateral pipe of the same nominal diameter can be fitted. The Flexi-Fit removes the need to purchase and store multiple seals and adaptors for different pipe materials, simplifies project planning and supports specification changes.

BENEFITS

- 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 & DN225 Lateral
- Smooth transition and level invert through to the connecting structure
- Designed to remove the possibility of lateral intrusion
- Independently tested to 0.5 bar pressure on all adoptable laterals

FLEXI-FIT PIPE SEAL

PIPE FITTING OPTIONS

Option 1 - Full product

Product	Pipe Type
FF150 FF150 Base	**DN150:** PVC Smooth Marley Quantum Polysewer Cast Iron Ultra 3
FF225	**DN225:** PVC Smooth Cast Iron Ultra 3

Option 2 - Inner Bush removed

Product	Pipe Type
FF150 FF150 Base	**DN150:** Ultrarib
FF225	**DN225:** Marley Quantum Polysewer Ultrarib

Option 3 - Outer Body only

Product	Pipe Type
FF150 FF150 Base	**DN150:** Supersleeve Clay All Twinwall pipe types
FF225	**DN225:** Supersleeve Clay All Twinwall pipe types

Note: the pipe seal must be used in the first groove.

*Not suitable for Naylor Clay - adaptor required with FF150/225

FLEXI-FIT PIPE SEAL

Product Code	FF150 / FF150 Base / FF225
Description	DN150/DN225 Universal connector
Core Hole Size	198 +0/-1mm & 294 +0/-1mm
Material	ABS & EPDM Rubber
Pressure Rating	0.5 bar
Jetting Resistance	180 bar
Temperature Range	-50°c to 80°c constant, 100°c intermittent
Standards	BS EN 681-1:1995 WIS 4-35-01

INSTALLATION

5 EASY STEPS

- Using the correct equipment, core a 198mm or 294mm hole at the selected position into the concrete pipe, manhole or junction. Ensure the cored hole and surrounding area is clean and free from slurry/debris.
- Remove the two inner body components from the main outer body as shown in image 2.
- Press the rubber into the 198mm/294mm cored hole until fully seated, a little force will be required.
- Lubricate the outside of the casting socket using water (if required).
- Using a chock of wood and hammer (if required) drive the casting socket into the outer body evenly around the circumference.

Note: It is recommended that a diamond tipped core drill be used to core the 198mm / 294mm holes.

GENERAL INFORMATION

Flexi-Fit Seal has been certified by the British Standards Institution (BSI) as a company of assessed capability, with a quality management system which meets the requirements of BS EN ISO 9001:2015.

A materials cost calculator is available on request. For further information on FP McCann's precast drainage solutions, contact the sales team: SCOTLAND/NI: 028 7954 9026 | ENGLAND/WALES: 01530 240000

FALL ARREST SYSTEM

Award-Winning Safety Solution For Manhole Construction

The client, consultant engineer, 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 have designed a safety award-winning 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 the 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.

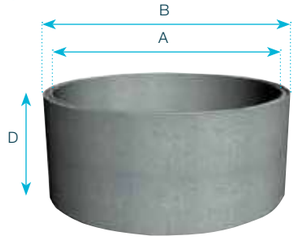
The galvanised mild steel grid is available in four standard sizes:

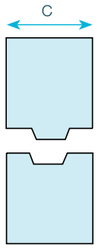
- 610mm x 610mm
- 675mm x 675mm
- 750mm x 600mm
- 1200mm x 675mm

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.

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	3 x 45
2400		✓	✓	✓	140	4514	2680	2790	8	3 x 45
2700		✓	✓	✓	150	5725	3000	3370	8	3 x 45
3000		✓	✓	✓	190	7069	3360	3830	5	3 x RD36
3600		✓	✓	✓	185	10179	3970	5400	5	△ 3 x RD36
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

PRODUCT INFORMATION

- FP McCann's manhole chamber rings are manufactured with tongue and groove joints and comply with BS EN 1917 / BS 5911-3
- DN3000, 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

WARNING
When Lifting ≥45°
Inclined pull only

SEALING STRIP

Number of rolls of Sealant required

Ring Diameter	Sealant	1 ring	2 rings	3 rings	4 rings	5 rings	6 rings	7 rings	8 rings	9 rings	10 rings
900	22x22x4.5m	1	2	3	3	4	5	6	6	7	8
1050	22x22x4.5m	1	2	3	3	4	5	6	6	7	8
1200	22x22x4.5m	1	2	3	4	5	6	6	7	8	9
1350	22x22x4.5m	1	2	3	4	5	6	7	8	9	10
1500	22x22x4.5m	1	3	4	5	6	7	8	9	10	11
1800	32x38x3.35m	2	4	6	7	9	11	12	14	16	17
2100	32x38x3.35m	2	4	6	8	10	12	15	16	18	20
2400	12x120x6m	1	2	3	4	4	5	6	8	7	8
2700	12x120x6m	2	3	5	6	8	9	10	12	13	15

Please note this is a guideline based on sealant supplied by FP McCann 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	3 x 45mm dia		✓		✓
2400	3 x 45mm dia		✓		✓
2700	3 x 45mm dia		✓		✓
3000	3 x RD36 (Loops)		✓		✓
3600	3 x RD36 (Loops)			✓	
4000	4 x RD36 (Loops)				✓

Dia + 5mm

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 Thick-ness 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	3370	6
3000	17	25	34	190	7069	3360	3830	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

DN4000 MANHOLE CHAMBER

The DN4000 manhole chamber sections can be used in a variety of applications such as:

- Water treatment plants
- Storage tanks
- Stormwater attenuation systems
- Catchpits

The DN4000 chamber ring is supplied with a standard tongue and groove joint, connecting bolts and butyl rubber sealant for jointing purposes. The units are designed for use with the FP McCann ladder system. Single units (half ring) are lifted using 3 no. threaded lifting loops connected into threaded lifting sockets that are cast into the units, all of which must be used. Assembled units (full ring) are then lifted using 4 threaded lifting loops.

The 4 metre chamber section comes as a two part unit, which allows for ease of transport and handling.

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

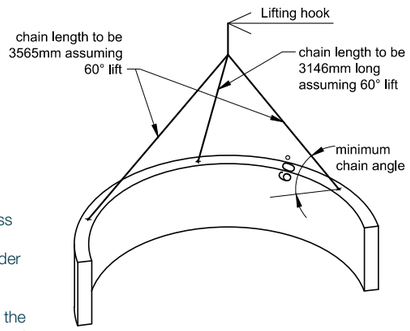
DN4000 COVER SLAB – 2 PIECE UNIT (DETAIL FOR STANDARD 600 & 675 OPENINGS)

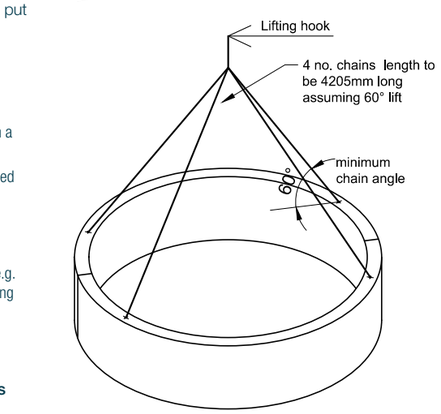
Nominal Size (mm)	Section Depth (mm)	Overall Thickness (mm)	Overall Diameter (mm)	Approx. weight of half section (mm)	Approx. weight of combined sections (kg)
4000	300	300	4500	6450	11,700

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.

DN4000 LIFTING/HANDLING & INSTALLATION GUIDE





1. Lifting

Single units (half ring) are lifted using 3 no. threaded lifting loops connected into threaded lifting sockets that are cast into the units, all of which must be used. The chain angle should not be less than 60 degrees to the horizontal. In order to lift without tilt, the chain lengths will differ. Refer to the diagram opposite for explanation of minimum chain angle and lengths. Alternatively, a spreader beam may be used. Complete units (full ring) are lifted using 4 threaded lifting loops attached to threaded lifting sockets cast into the units. Refer to the diagram opposite for explanation of the location of the lifting sockets to be used. The chain angle should not be less than 60 degrees to the horizontal. Alternatively, a spreader beam may be used. Note: Using 3 chains to lift a full ring will put unnecessary stress on the concrete and may cause the concrete around the join to crack.

Unit weight and identification of lifting points will be marked on each casting for information.

2. Handling & Installation

It is recommended that the two piece chamber ring is jointed before lifting into place:

- Place the two units on a level surface, ideally on 2 skids to reduce resistance when jointing and also to maintain a clean joint
- Place both halves side by side, ensuring both are at the correct orientation i.e. with bolt holes in line with threaded sockets
- Insert the M24x200 threaded pins with the 60mm threaded side placed into the cast-in sockets
- Place a strip of bituminous sealant along the small recess of the vertical joint on both halves of the ring
- Once bolts and sealant are in position, the 2 halves of the unit must be pulled together using a ratchet system e.g. a chain block fixed to the cast-in M24 x 80 sockets on opposite ends of the units. (Do not use the wall end bolting system to pull the units together as this may crack the concrete and damage the joint)
- The completed ring can then be manoeuvred into place, as detailed above

Half-rings can be lifted into final position and the chamber can be built up, a half unit at a time.

Please note it is the end-user's responsibility to ensure safe access and lifting procedures are followed at all times.

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

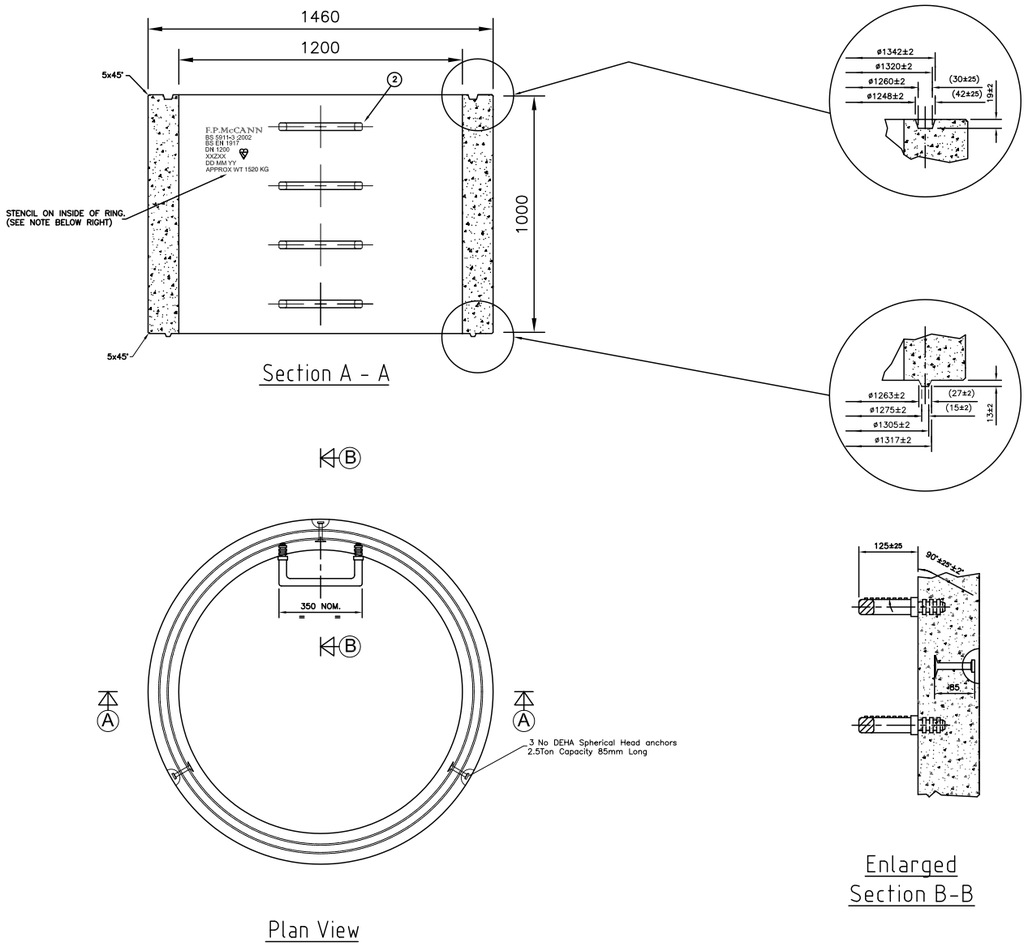
A 130mm thick wide wall chamber, in combination with the Easi-Base™ unit, provides a sealed watertight manhole system. This robust design means that the requirement for a concrete surround is eliminated.

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).

WIDE WALL MANHOLE CHAMBER DIMENSIONS



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			✓

MANHOLE COVER SLABS & ACCESSORIES

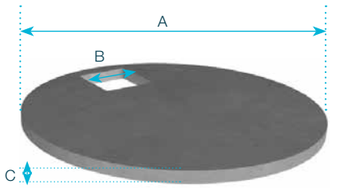
STANDARD LANDING SLABS				
Chamber Section (DN)	Outside Diameter (A)	Opening Diameter (B)	Slab Thickness (C)	Approx. Weight (Kg)
1500	1730	900	200	826
1800	2050	900	200	1292
2100	2375	900	200	2030
2400	2705	900	200	2600
2700	3025	900	200	3880
3000	3330	900	200	4500

NB: All dimensions are in mm, unless stated otherwise

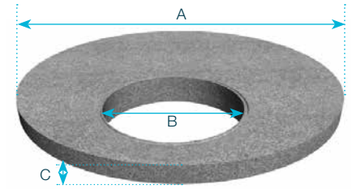
			STANDARD COVER SLABS			STANDARD REDUCING SLABS		
			Opening Configuration B					
Chamber DN (mm)	Outside Diameter (A) (mm)	Slab Thickness (C) (mm)	Size (mm)	Location	Approx. Weight (kg)	Opening Diameter B (mm)	Effective Depth (mm)	Approx. Weight (kg)
900	1080	150	600x600	CENTRAL	215			
			675x675					
1050	1240	150	600x600	ECCENTRIC	315			
			675x675					
			750x750	CENTRAL				
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	680
1500	1740	175	600x600	ECCENTRIC	980	900	200	981
			675x675			1050	200	835
			750x600			1200	200	680
			1200x675	CENTRAL				
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	215	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. *3600mm and 4000mm diameter cover slabs come in a 2 piece unit		
			675x675					
			750x600					
			1200x675					
*4000 Two Piece	4500	300	600x600	ECCENTRIC	11700			
			675x675					
			750x600					
			1200x675					

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.

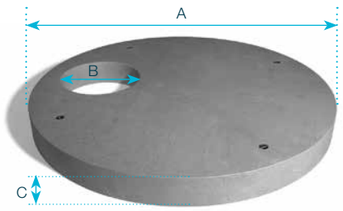
COVER SLABS



REDUCING SLABS



LANDING SLABS



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

ADJUSTING UNITS & CORBEL SLABS

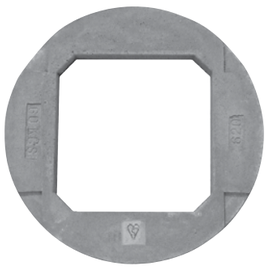
Manhole Type	Diameter (mm)	Opening Size (mm)	No. per Pack	Thickness (mm)	Weight (kg)
Type 2	1050	600 x 600	15	65	70
Type 2	1050	675 x 675	15	65	55
Type 2	1050	750 x 600	15	65	60
Type 2	1050	750 x 750	10	65	45
Type 2	1575 x 1050	1200 x 675	6	75	160
Type 1	1175 x 1025	600 x 600	10	65	125

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

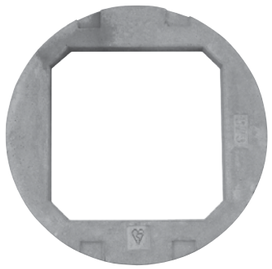
FP McCann manufactures a full range of adjusting units and corbel slabs that have the following advantages:

- 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 weak spots
- Quality product produced by vibration process
- Comprehensive strength, similar to Class B.Eng bricks

Type 2 - 600x600

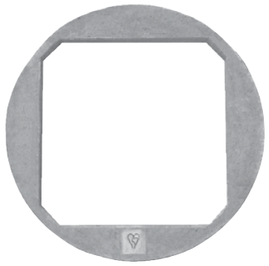


Type 2 - 675x675

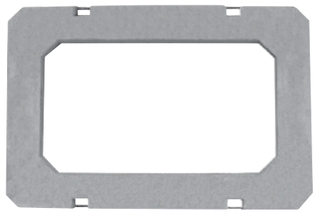


Type 2 - 750x600

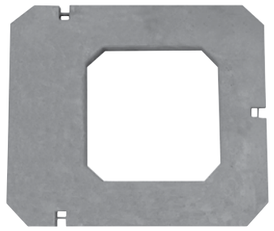
Type 2 - 750x750



Type 2 - 1200x675

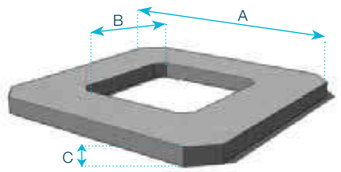


Type 1 - 600x600 Eccentric (Corbel)



LOTHIAN SLAB

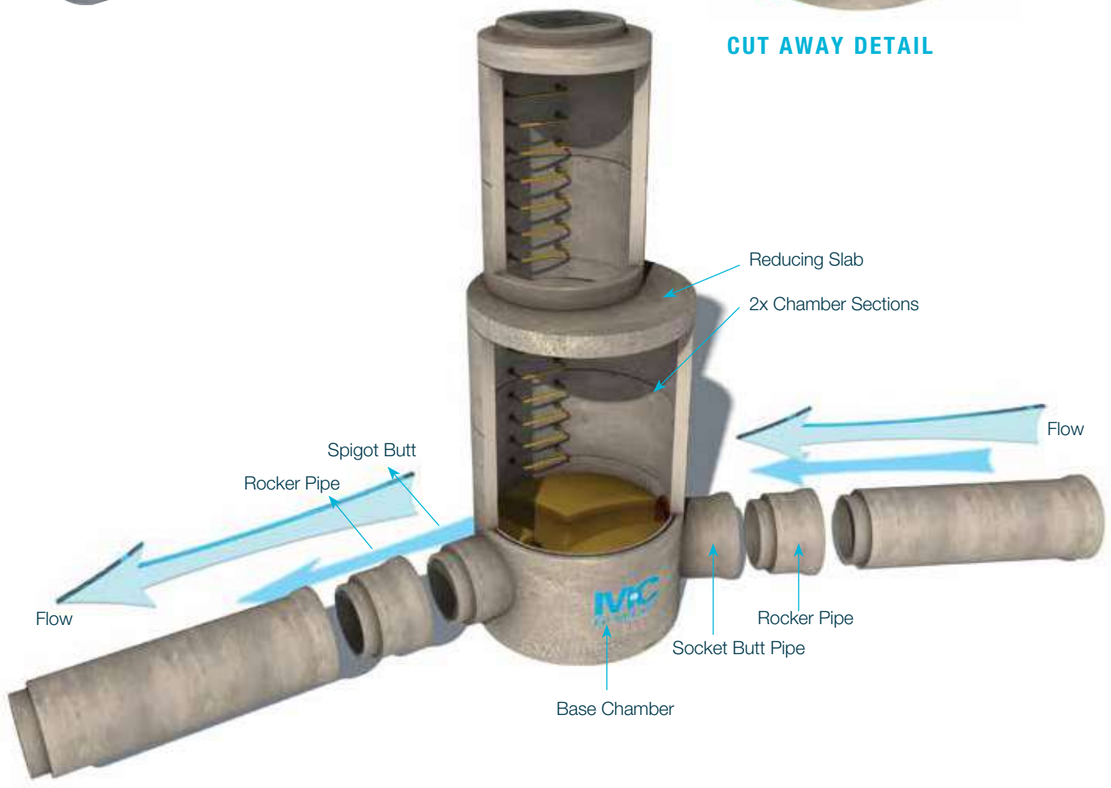
Size (A) (mm)	Slab Thickness (C) (mm)	Openings (B) (mm)	Approx. Weight (kg)
1125x1125	75	600x600/675x675/750x600	140
1125x1125	150	600x600/675x675/750x600	290



MANHOLE CONSTRUCTION

DETAIL OF MANHOLE CONSTRUCTION

CUT AWAY DETAIL



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.

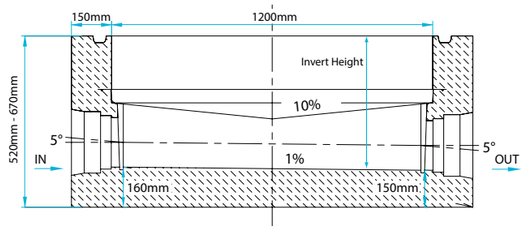
PRODUCT BENEFITS

- 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 sewage and clean groundwater infiltrating the already overloaded raw sewage system of pipelines and treatment plants
- The 7th Edition of Sewers for adoption has now been published to include precast bases; Easi-Base™ units 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 types 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

Easi Base Diameter	Internal Diameter (MM)	Size	Invert Level (for take off) (MM)	Height (MM)	Weight (tonnes)
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

*Unit for Matrix. Distance from Outlet invert to top of Base Unit

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)

SEALANT

DN1200	22mm x 22mm x 3.6m	**DN1800**	32mm x 38mm x 5.7m
DN1500	22mm x 44mm x 4.5m	**DN2100**	32mm x 38mm x 6.7m

DN1200 RANGE OF LINER ORIENTATIONS

Pipe Size (mm)	PREDL REFERENCE
150	P1, P13, P135, P13579, P14, P147, P149, P15, P157, P158, P159, P16, P169 P17, P18, P19, P2-, P2, P24, P248, P25, P258, P259, P26, P268, P27, P28, P29 P3-, P3, P35, P357, P358, P359, P36, P37, P38, P39, P4-, P4, P45, P46, P469 P47, P48, P49, P5-, P5, P5+, P56, P57, P579, P58, P59, P6, P6+, P68, P69, P7, P7+, P79, P8, P8+, P9
200 *	P1, P15, P159, P19, P2, P3, P4, P5, P59, P6, P7, P8, P9
225	P1, P14, P149, P15, P157, P158, P159, P16, P169, P17, P18, P19, P2-, P2, P248, P25, P257, P258, P259, P26, P27, P28, P29, P3-, P3, P35, P357, P358, P359, P37, P38, P39, P4-, P4, P46, P48, P49, P5-, P5, P5+, P57, P58, P59, P6, P6+, P69, P7, P7+, P8, P8+, P9
250 *	P1, P15, P159, P19, P2, P25, P3, P35, P4, P5, P57, P58, P59, P6, P7, P8, P9
300	P1, P15, P159, P17, P18, P19, P2-, P2, P25, P27, P28, P29, P3-, P3, P35, P37, P38, P39, P4-, P4, P5-, P5, P5+, P57, P58, P59, P6, P7, P7+, P8, P8+, P9

150 Pipe: PVC (EN1401), Polysewer, Marley Quantum, Twinwall, Ultra Rib, Supersleve Clay, Naylor Clay

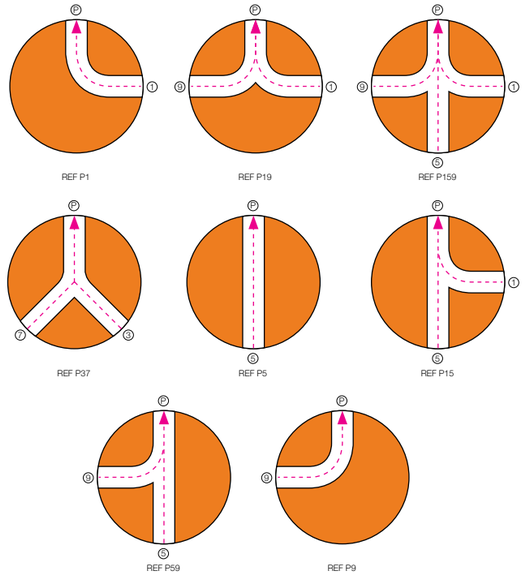
200 Pipe: PVC (EN1401)

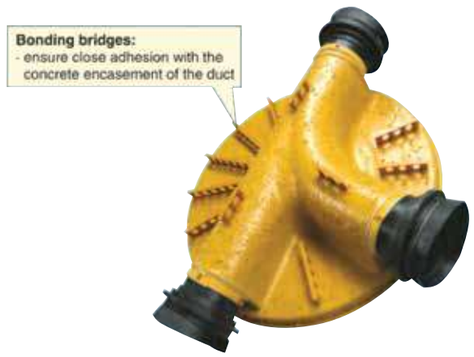
225 Pipe: Polysewer, Marley Quantum, Twinwall, Ultra Rib, Supersleve Clay, Naylor Clay

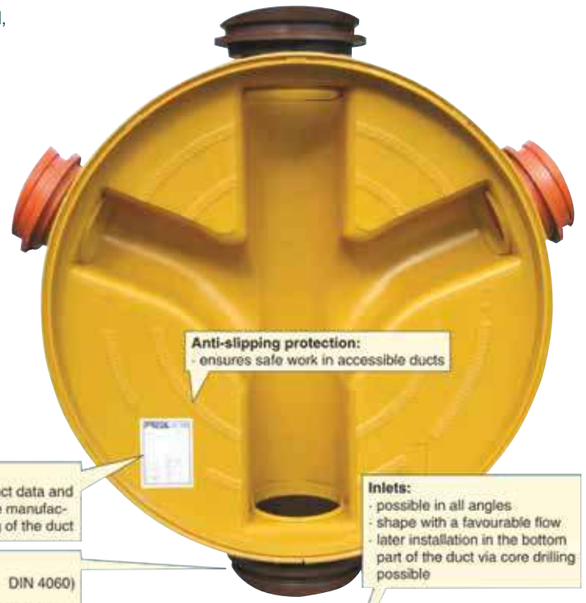
250 Pipe: PVC (EN1401)

300 Pipe: PVC (EN1401), Polysewer, Marley Quantum, Twinwall, Ultra Rib, Supersleve Clay, Naylor Clay, Concrete

EXAMPLES OF PREDL LINERS STANDARD STOCK







PREDL® liners are currently used in Germany, Austria, France, Spain, Portugal, Italy, Norway, Denmark and Poland and have achieved accredited quality standards within Europe. FP McCann with franchise partner PREDL® are the first in the British Isles to introduce this new technology to manhole construction. There are over 1500 basic forms of the PREDL® manhole liner that can be delivered in more than 100,000 variants.

EASI-BASE™ ORDER FORM

ORDER DETAILS

Merchant: .....

Merchant Contact: .....

Contractor: .....

Contact Name: .....

Contact Tel: .....

Job Details / Address: .....

Manhole Ref: .....

Chamber Dia (mm): .....

Order your Easi-Base™ using the PREDL Clock diagram. The outlet is 'P' with inlets available in any combination from 1-9. Any angles from 90°- 270° are available in accordance with the latest sewers for adoption compliance.

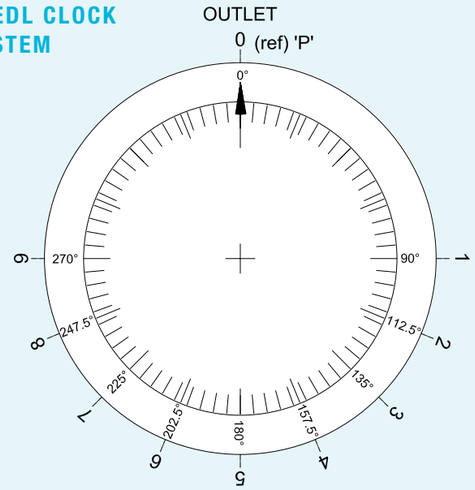
Please consider the example, and use the table below to place your order. One form is required per Easi-Base™.

We can offer a bespoke take-off service on all manholes upon placement of order.

NOTES

1. One form required per Easi-Base™.
2. It is essential the pipe type is given correctly to ensure the correct pipe seals are provided.

PREDL CLOCK SYSTEM



SPECIFYING AND ORDERING YOUR EASI-BASE UNIT

Combinations and variants in entry pipe diameters and orientations can be chosen from the PREDL Clock diagram.

When ordering, it is important to remember that the 'P' refers to the position of the outlet leading from the manhole. All other orientations are specified as a reference from the 'P' position; the next reference is then given as the main channel; each inlet is then referenced firstly by the largest diameter, then by numerical order.

Please see the examples below.

- P5 is a DN1200 Easi-Base™ with straight-through inlet at 180° from the outlet position. Note a 1% fall in the channel exists towards the outlet position 'P'.
- P59 refers to a DN1200 Easi-Base™ with the main channel inlet at 180° from the outlet 'P' position and an additional second inlet at 270°.

Using the PREDL clock reference system, FP McCann can ensure the accuracy of each channel connection.

	Outlet	Inlet 1	Inlet 2	Inlet 3	Inlet 4	Inlet 5
PREDEL Ref.	P					
Angle	0°					
Pipe Size						
Pipe Type						
Add. Info.						
EXAMPLE - P519						
PREDEL Ref.	P	1	5	9	-	-
Angle	0°	90°	180°	270°	-	-
Pipe Size	300mm	150mm	300mm	150mm	-	-
Pipe Type	Wavin Ultrarib	Wavin Ultrarib	Wavin Ultrarib	Wavin Ultrarib	-	-
Add. Info.						

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 opposite gives the dimensions associated with each size, including the overall height of the unit, the invert level and the combination of pipe diameters accommodated. All Easi-Base™ units 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

WEIGHTS AND LIFTING MECHANISM DETAIL

Easi-Base™ (DN)	Lifting Mechanism	Lifters Used per unit	Safe Working Load (S.W.L) per lifter (Tonnes)	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	Utility Anchors & M36	3 & 3	5 & 6.3	11.0

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 bevelled 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

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, twinwall, clay, ductile iron and concrete. The catchpit is designed to accommodate pipe sizes DN150 to DN1800 and is in line with highway specification.

Catchpit Chamber

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	375	1210	80	650		1380	19	3no. ø45 lifting holes
DN1200	* 1000	375	1380	90	870		1600	16	3no. ø16 sockets and loops
DN1500T1	* 1400	525	1800	150	1800		4700	5	3no. utility anchors
DN1500T2	* 2400	750	1800	150	3300		7700	4	3no. utility anchors
DN1800T1	* 1500	525	2100	150	2700		Δ 6300	4	3no. utility anchors
DN1800T2	* 2400	900	2100	150	5100		8300	3	3no. utility anchors
DN2100	* 2400	1350	2400	150	7000	Δ 9000	11000	3	3no. utility anchors
DN2400	* 2700	1800	2700	150	10,500	Δ 11700	14000	2	3no. utility anchors

* Height can be reduced, contact technical department for further details. Based on 300mm sump. If a non-standard invert level is required, please specify when ordering

** 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

Δ Lightweight catchpits (available on request)

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™

A NEW FORCE IN VORTEX FLOW TECHNOLOGY

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

FP McCann's StormBrake™ flow control chamber combines an integral base and side walls with provision for inlet and outlet connections.

It can be used in a number of applications, including:

- As a silt-trap
- As a valve chamber
- As a flow rate controller (requires installation of FP McCann's StormBrake™ flow control device, sold separately)

SIZES AVAILABLE

StormBrake™ flow control chambers are available between DN1200 - DN3000 Bespoke larger units can be manufactured to client specification.

FLOW RATE CONTROL

FP McCann's StormBrake™ vortex flow control device is designed to limit stormwater outflow to a specific discharge rate. For further details, contact our drainage sales team.

PRODUCT BENEFITS

- Minimal maintenance required after installation. FP McCann's StormBrake™ is self-activating and functions without any mechanical components
- Outlet areas of up to 6 times larger than an equivalent orifice plate, significantly reducing the risk of blockages and the associated maintenance costs
- Reduces the amount of upstream storage required, minimising the cost of providing attenuation facilities
- Accurately designed to meet a wide range of design conditions. For design conditions outside of this range, please contact FP McCann directly
- 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
- Provides minimal flow restriction at low upstream heads to allow fast discharge of water during the initial stages of a storm

STORMCLEANSER™

HYDRODYNAMIC SEPARATOR

FP McCann has designed and developed a new range of hydrodynamic separators for the treatment of urban catchment stormwater run-off. StormCleanser™ provides a cost-effective solution for designers, engineers and contractors involved in the provision of Sustainable urban Drainage Systems (SuDS). The unit has no moving parts, requires no power and is constructed within standard precast reinforced concrete chamber rings. All internal flow components are manufactured in GRP, ensuring long life performance.

INDEPENDENT TESTING

FP McCann's StormCleanser™ (1200mm diameter model) has been independently tested by WRc at their research and development centre and achieved excellent total solids and hydrocarbon removal at design flow rates.

Total solid removal rates ranging from 85% to 92% have been recorded. The StormCleanser™ has demonstrated high level removal rates when design flows were exceeded.

The system is also effective in the removal of hydrocarbons, litter and other stormwater debris.

OPERATION

The StormCleanser™ is specifically designed to remove suspended solids, hydrocarbons, and floatable debris from the stormwater runoff. 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.

PRODUCT BENEFITS

- WRc tested and easy to install and maintain
- Effectively removes and treats wide flow range
- Complies with SuDS legislation
- Cost-effective downstream defence mechanism

PRODUCT APPLICATIONS

- Housing developments
- Highway drainage projects
- Commercial/Industrial sites
- Leisure facilities
- Retail parks
- Car parks, roads, motorways and trafficked areas
- Existing surface water sewer discharges
- Sustainable Urban Drainage Schemes (SuDS)

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)	(m^3)	(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/m^3
- 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™

INTRODUCING STORMCHANNEL™ FROM FP MCCANN

Heavy-Duty Surface Water Management – Engineered for Performance

FP McCann is proud to introduce StormChannel™ — a robust, precast concrete drainage solution specifically developed to manage surface water in high-demand environments efficiently. From motorways and industrial zones to commercial estates and urban streetscapes, StormChannel™ is the go-to choice for resilient and reliable drainage performance.

StormChannel™ is available in a diverse array of sizes and configurations to meet various project requirements, including standard units, kerb-integrated designs, sump units, and rodding point options. This extensive selection offers exceptional flexibility for both designers and contractors, enabling them to tailor solutions to specific site conditions and regulatory requirements.

The innovative modular design of StormChannel™ ensures that installation is not only quick and straightforward but also minimises disruption to the surrounding environment. Additionally, its materials are selected for their resilience, resulting in low maintenance requirements and long-term cost-effectiveness. This combination of efficiency and durability enables project teams to implement drainage solutions that stand the test of time without sacrificing performance or quality.

KEY BENEFITS:

- Fast Installation with no concrete surround required
- Robust Construction to withstand heavy traffic loads (up to Class F900)
- Watertight System with spigot and socket joints for secure, aligned connections
- Modular & Scalable — suited to any scheme size or complexity
- Integrated Slope promotes efficient water flow towards the slot
- Fully Compliant with BS EN 1433

Backed by FP McCann's extensive manufacturing expertise and commitment to innovation, StormChannel™ sets a new standard in precast linear drainage.

FEATURES:

- Resilient up to classes D400, E600 or F900
- ED300 and ED400 Standard StormChannel™ tested to Class F900
- 2% surface slope to the slot
- Spigot and socket end for correct alignment and joining
- Supplied with interrupted slot (170x30mm)
- Rodding points and sump units are available with inspection grate for cleaning and inspection
- Blanked spigot/socket end units available

Additional connections can be provided on request. Junction box sump unit also available in all sizes.

StormChannel™	Length (mm)	Height (mm)	Weight (T)	Width (mm)	Drainage Cross Section (m^2)
ED300 Standard	2500	555	1.40	520	0.0707
ED400 Standard	2500	745	1.70	520	0.1262
ED400 Kerb	2500	795	1.70	520	0.1262
ED500 Standard*	2500	805	2.30	700	0.1973
ED600 Standard*	2500	995	2.60	700	0.2828

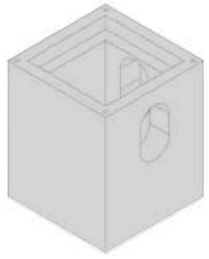
*only available on request.

STANDARD

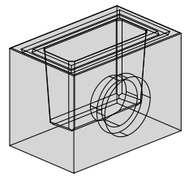
KERB

RODDING POINT

SUMP UNIT



MLSC UNIT



LOWER SUMP UNIT

GULLIES & SLABS RANGE

GULLY LIFTER

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)

GULLY COVER SLABS

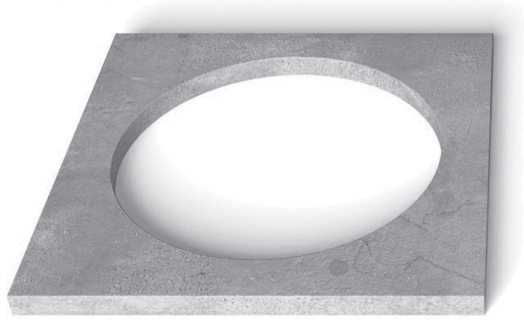
Dimensions (mm)	Standard	Horseshoe	65 Standard	65 Horseshoe
Length (mm)	750	600	750	600
Width (mm)	650	650	650	650
Thickness (mm)	100	100	65	65
Weight (kg)	70	58	51	37
Hole Size (mm)	450	450	450	450
Qty/Pack	12	12	12	12

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

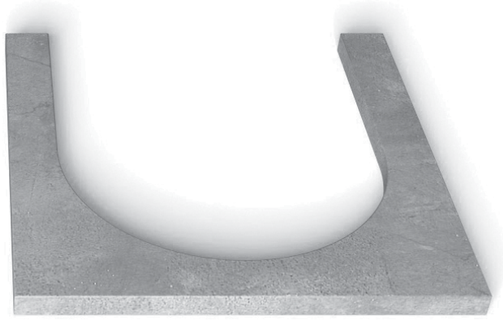
PRODUCT BENEFITS

- 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 and 65mm thick single piece units available
- Eliminates brickwork vertical joint 'weakspots'
- Greater stability than brickwork
- Quality product produced by vibration process
- Compressive strength similar to Class B.Eng. bricks

STANDARD GULLY COVER



HORSESHOE GULLY COVER



Note: Gullies and Gully cover slabs manufactured in accordance with BS 5911-6

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 ladder system 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

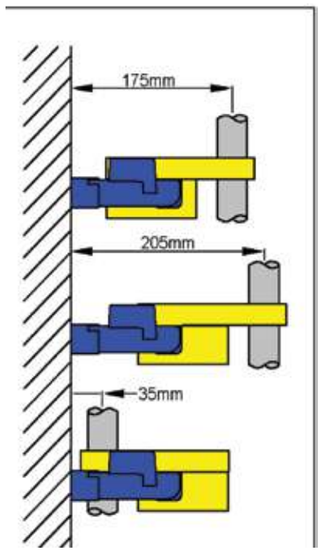
The handhold entry pole system is suitable for aiding maintenance engineers in the initial entry into a manhole from the surface level. Once fitted, the entry pole is a permanent fixture within the manhole, which is stored in the lowered position beneath the level of the cover. When required, the entry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

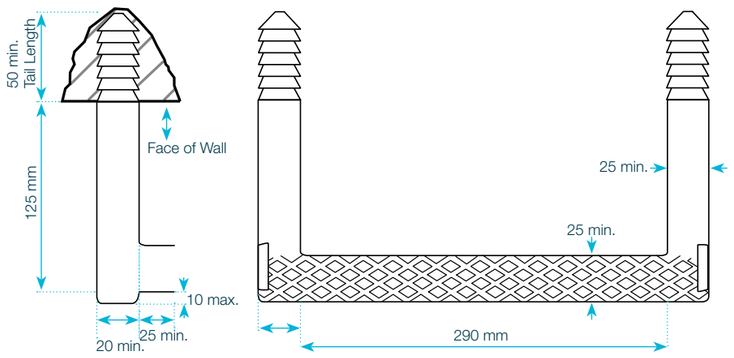
SPECIFICATION

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 ponds. 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 grating can be added 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.

KEY SITE SAFETY BENEFITS

Safety hand rails can be used with our full range of headwalls. Health and safety risks are minimised because the construction work takes place off-site and installation is quick and easy.

Please note: Bespoke grates and handrails are available on request. Please contact FP McCann for information on correct installation

Small Headwall

Medium Headwall

Large Headwall

XL-T4 Headwall

XXL-T2 Headwall

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

NB: The above dimensions are in mm.

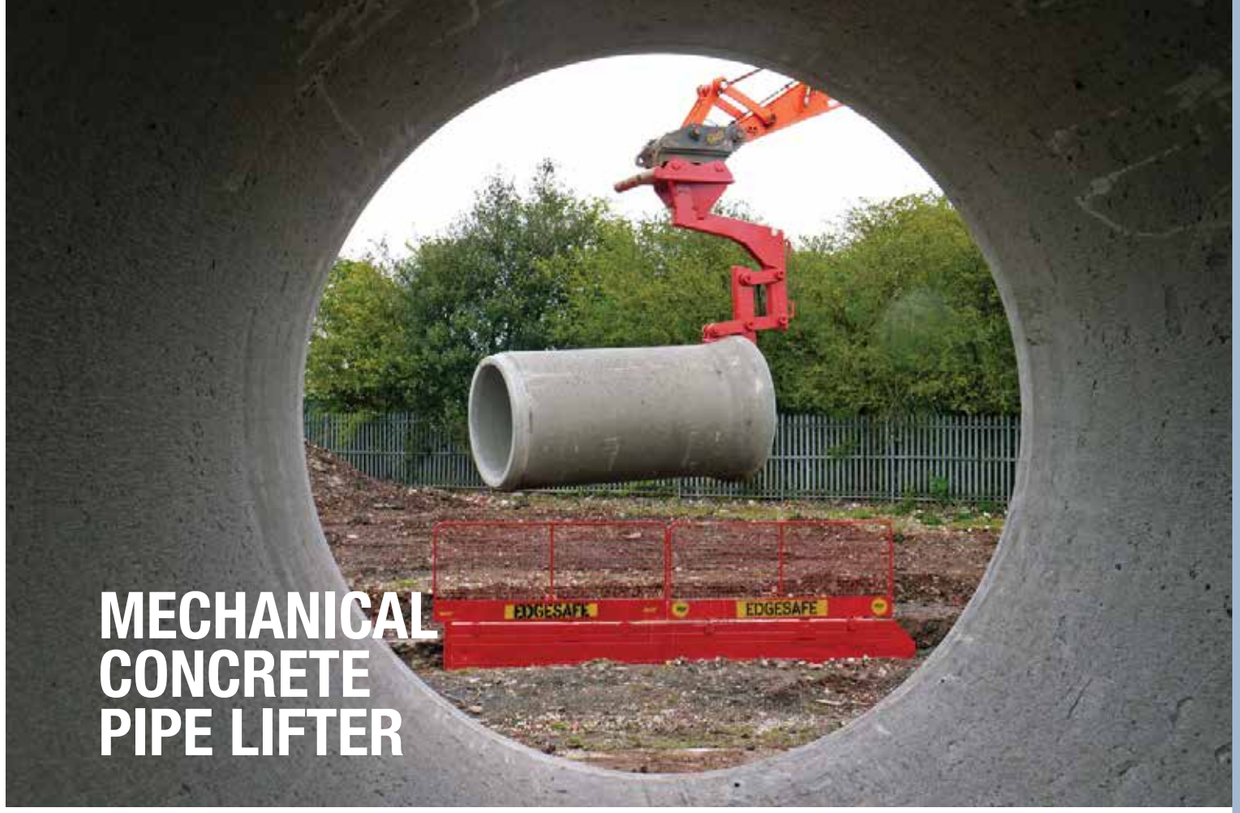
ACCESSORIES

Please note: Bespoke grates and handrails are available on request. Please contact FP McCann for information on correct installation

Typical Front Wall Grate

Typical Basket Grate

Typical Handrail



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 <u>NOT</u> 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.

INCORRECT

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.

CORRECT

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.

For safe lifting in situations when access to the product is restricted (i.e. when stacked high or on a trailer bed, a mechanical grab should be employed). Wide wall chamber rings are lifted via a different method (see page 54).

Bespoke chamber components such as Easi-Bases™ and StormBrake™ Flow Control Chambers will feature a separate handling method. Reference should be made to appropriate drawings or handling information.

STORM-HOLD™

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 of 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 Storm-Hold 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.

Storm-Hold 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

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

For details on material cost savings whilst using concrete drainage, visit the BPDA website **www.precastdrainage.co.uk/calculators/material-cost**

STORM-HOLD™

LARGE DIAMETER PIPE STORMWATER MANAGEMENT SYSTEM

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 900m 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 kite marked 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.

STORMSTORE™

TANK AND CHAMBER SYSTEMS

FP McCann's Stormstore™ range of precast tank and chamber systems is the most extensive in the UK. Products manufactured include StormTank™ bespoke precast concrete panel system, StormChamber™ bespoke precast concrete chamber system, a precast concrete storm and waste water management system called Modular Tank System and StormHold™ stormwater management system. Complementary products include StormCleanser™ hydrodynamic separator, StormBrake™ vortex flow control system and StormChannel™ heavy-duty precast concrete slotted drainage channel.

KEY ADVANTAGES OF OUR RANGE

- From receiving the specification, designs can be returned within 2 days
- Complete design package provided, including calculations and drawings
- Manufactured off-site, including factory-fitted pipework and flow control connections, ensures consistent quality, lower construction costs, faster installation and lower health and safety issues
- Design service life of 100 years
- Overall cost of the project can be estimated no matter how complicated the design
- Bespoke designs can be used for reproductions and for future alterations
- No vertical shuttering required, unless an in-situ floor is installed
- Complies with all relevant British Standards and Eurocodes

FP MCCANN PRECAST CONCRETE STORMTANK™ INSTALLED AT COLORITE MANUFACTURING PLANT IN BELFAST

FP McCann has supplied and installed a 536 cubic metre precast concrete StormTank™ on behalf of Colorite (Europe) Ltd at their plastics manufacturing plant in Belfast, Northern Ireland.

The newly-installed StormTank™ has internal dimensions measuring 32 metres long by 9 metres wide at a height of 2.1 metres, with a precast weight of just under 280 tonnes. It is situated under a landscaped area close to the existing factory building.

Colorite is a US-based company with headquarters in Ridgefield, New Jersey. It manufactures and supplies plastics to various industries worldwide, including the medical device industry. Their plastics manufacturing facility at Springbank Industrial Estate in Belfast is the company's only European base.

The Tank has been installed as part of upgrades to the company's fire regulation policies. In the event of a fire being detected within the factory, water will pump to the newly fitted sprinkler system from the external water sprinkler storage tank to extinguish the fire.

Once the sprinkler/pumped system is activated, this causes the penstock valve to close our newly installed storm drainage outlet. During this period, all water from the factory is then carried through the storm drainage system and enters the StormTank™.

After the fire is extinguished and the water from the sprinklers has stopped, the water in the StormTank™ is then tested to check for contamination. Once approved for discharge, the penstock valve can reopen, and the Storm Tank is then emptied via the existing water drainage system.

FP McCann's Contracts Division were also the main contractor on site for the job. They undertook a series of works, including excavating the area housing the tank to depth; setting the external and internal walls; placing mesh for the internal base and for the in-situ roof slab.

Over 100 individual steel reinforced precast concrete panel sections were used during the installation, with the majority being manufactured at FP McCann's Byley precast factory in Cheshire and shipped over to Belfast Docks, where they were then collected and brought to site. The middle roof panels were manufactured in Northern Ireland at FP McCann's Knockloughrim Precast Facility.

The sections consisted of 20 external panels, 14 internal panels and 72 roof slabs. Reid Engineering completed the installation of the precast tank in just nine days.

FP McCann's Ready Mix Concrete was also utilised for the mud mat, internal base and the in-situ roof slab, supplied from the company's nearby Mallusk Depot.

Speaking on behalf of Colorite (Europe) Ltd, Michael Deitz, Sr. Director of Capital Project Management Tekni Plex, said: ***"We had to take into consideration several factors on tank design to accommodate plans for our new strategic fire prevention policy. Robustness, lifespan, space constraints, as well as low maintenance performance, were key to our choice of tank. FP McCann's StormTank™ fitted both the design and performance criteria. FP McCann's Contracts Division were also the main contractor on site for this work, and they managed the groundworks, in-situ concrete pours and other associated works in a timely, efficient and safe manner. We will definitely consider FP McCann for any future projects."***

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 3-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 do 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

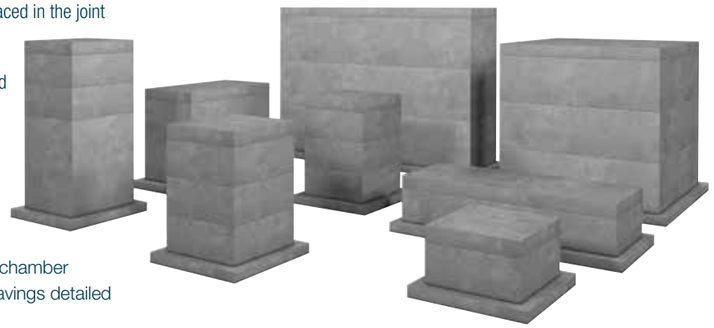
(Subject to specific application)

- 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 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.

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 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 increments, if required



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

wrc approved PT/433/0119

DRY WEATHER FLOW CHANNELS

Prefabricated dry weather flow channels for pipes and box culverts are available. Half round (or equivalent) channels can be cast into the floor of the units at any position, with a choice of equivalent half round diameters.

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

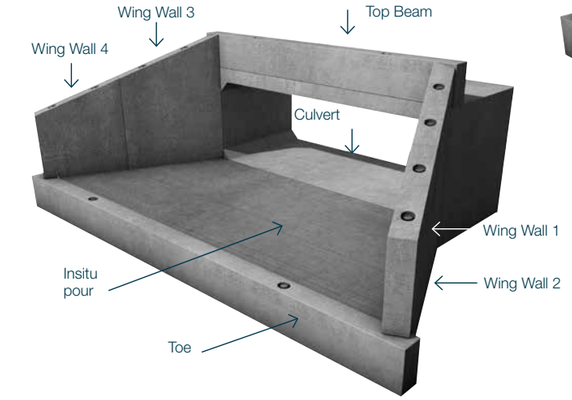
Design loading criteria is generally specified by the scheme engineer and ideally, should include as a minimum the information below:

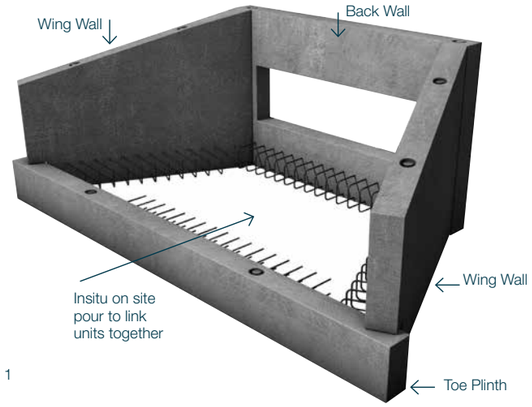
- Internal span
- Internal height
- Metres required
- Number of runs
- Minimum depth of fill over the culvert unit
- Maximum depth of fill over the culvert unit
- Culvert usage
- Surface loading conditions : green field, highway etc
- Invert type

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**

Internal height mm	Width mm (internal span)															
	1000	1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500	4800	5100	5400
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.

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

MEMBER OF THE PJA PIPE JACKING ASSOCIATION

BRITISH TUNNELLING SOCIETY

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.

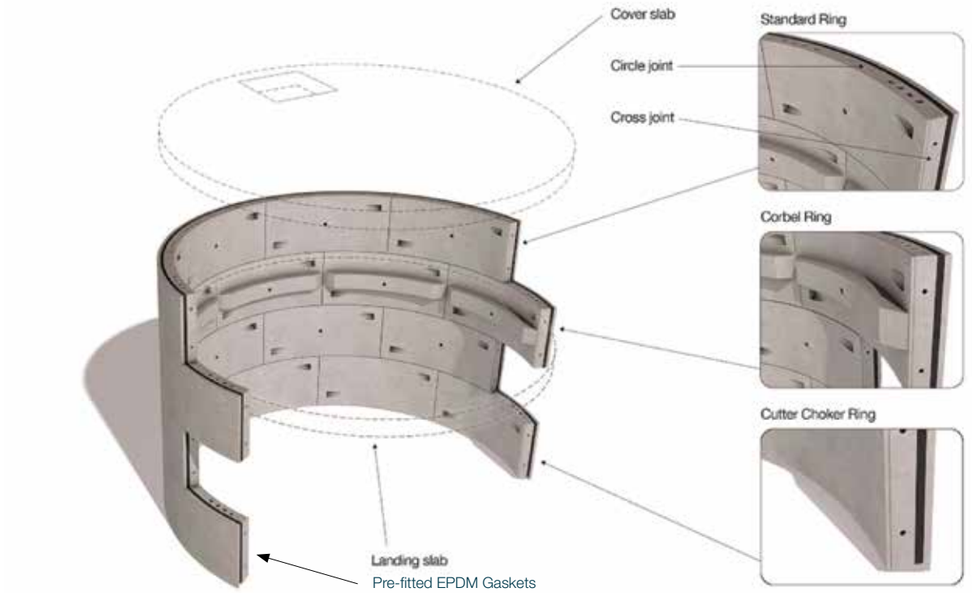
QUALITY

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) (m^3)	Wt per Standard ring* (tonnes)	Standard segment weight* (Kg)	Corbel segment weight* (Kg)	Choker segment weight* (Kg)	Cutter / choker seg wt* (Kg)	Excavations m^3 per standard ring			Grout per ring (m^2)	Caulking	
											mm over extrados					
Internal diameter (m)	External diameter (m)	Width (m)	Ord	Top							0	25	50		Circle (lin m)	Cross (lin m)
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

Size				No of segments per ring	Vol per ring (m^3)	Weight per ring* (tonnes)	Average weight/ segment (kg)
Internal diameter (m)	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

Size			Segments per ring			Vol per ring (m^3)	Weight per ring* (tonnes)
Internal diameter (m)	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.

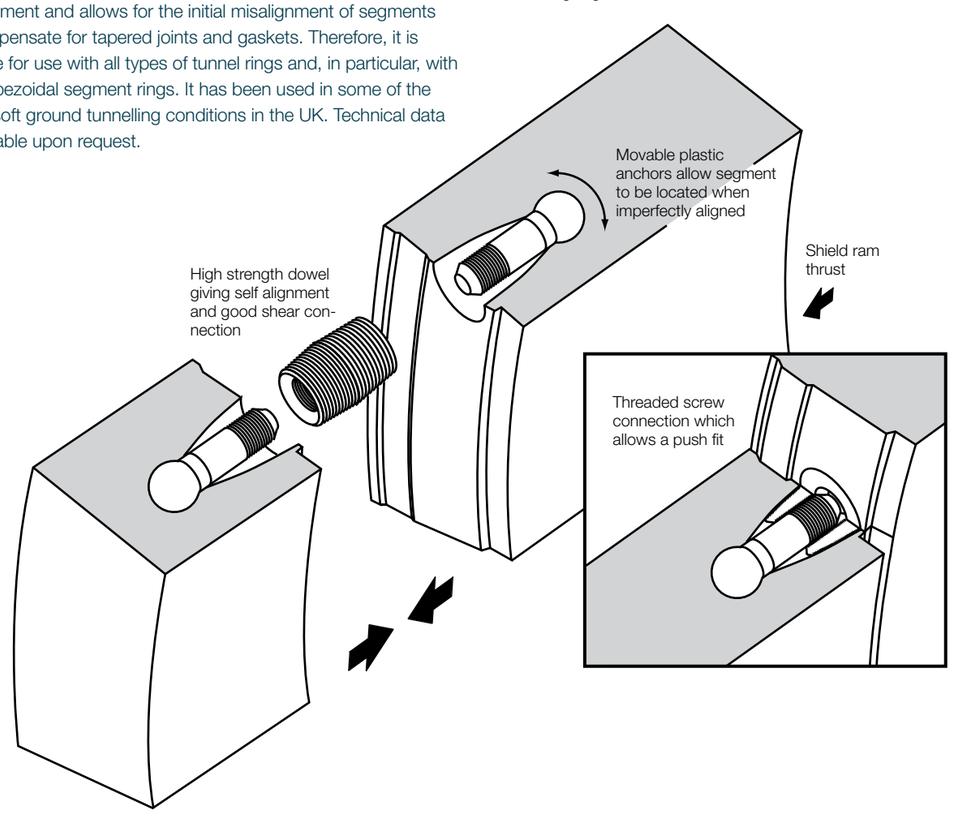
Suitable for use with packings, hydrophilic seals and EPDM compression gaskets, it is fast and easy to build and has no pockets/recesses to fill.

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)
mm	1000	750	500	mm	mm	Qty per unit
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)**
mm	10mm	20mm	10mm	20mm	Kg
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.

JACKING PIPES

MEMBER OF THE PIPE JACKING ASSOCIATION

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/mm^2

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.

JACKING PIPES

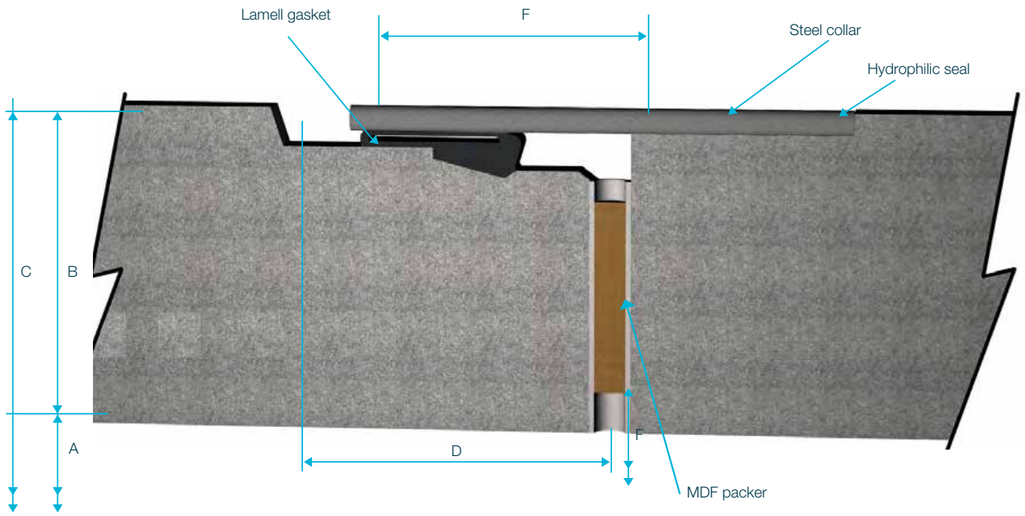
MEMBER OF THE PIPE JACKING ASSOCIATION

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



JACKING PIPES

MEMBER OF THE PIPE JACKING ASSOCIATION

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.

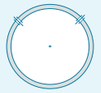
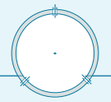
LEAD PIPE

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.

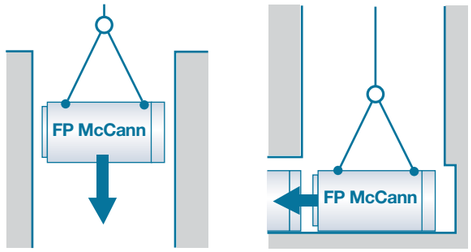
Time saving - lifting eyes are engaged and disengaged by rotation in a few seconds.

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

Easi-lift Handling System



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:

- 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

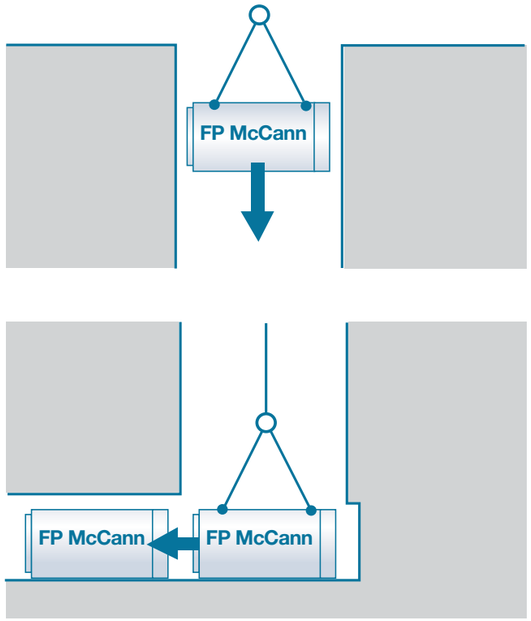
FP McCann's jacking pipes are robust and should arrive on site in good condition. Care in handling is simply a matter of common sense.

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.

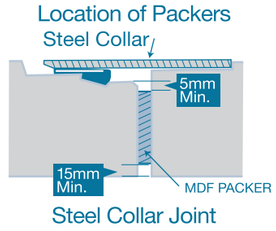


IF EASI-LIFT IS NOT USED THEN:

- 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.

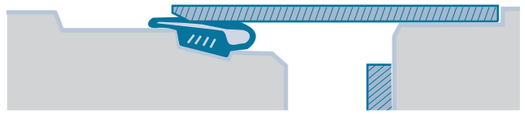


JOINTING USING THE LAMELL SEAL

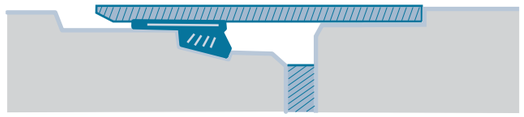
Prior to placing ensure the gasket and the joint surfaces are clean. Lubrication is not required and **MUST NOT** be applied.

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.

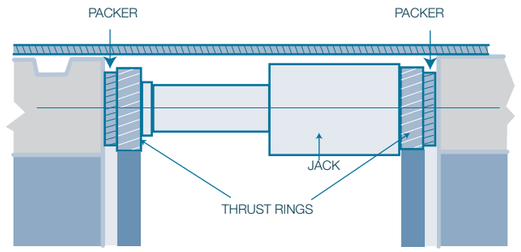


STANDARD INTERJACK INSTALLATION

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.

JACKING LOADS

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 (Fjmax *) 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					
	Approx. number of			Approx. number of			Approx. number of	
Nominal Dia. mm	pipes	metres	Nominal Dia. mm	pipes	metres	Nominal Dia. mm	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

VACUFLUSH CHAMBERS

There are two main methods of shaft construction: -

In the caisson method, where ground conditions are soft or weak, a shaft can be constructed by using a cutting edge at ground level (either a concrete cutting edge or a steel cutting edge) and building rings of segmental shaft linings on top of the of the cutting edge, such that the shaft is then pushed down from ground level as the underground material is excavated from the inside. As the shaft is pushed down, additional rings of shaft linings are added until the required depth is achieved. In this way, each ring is built at or near ground level and the rings can be securely bolted together from the back (extrados) of the shaft wall. Bolting from the back removes the need for installers to be inside the shaft, removing the risk of falls.

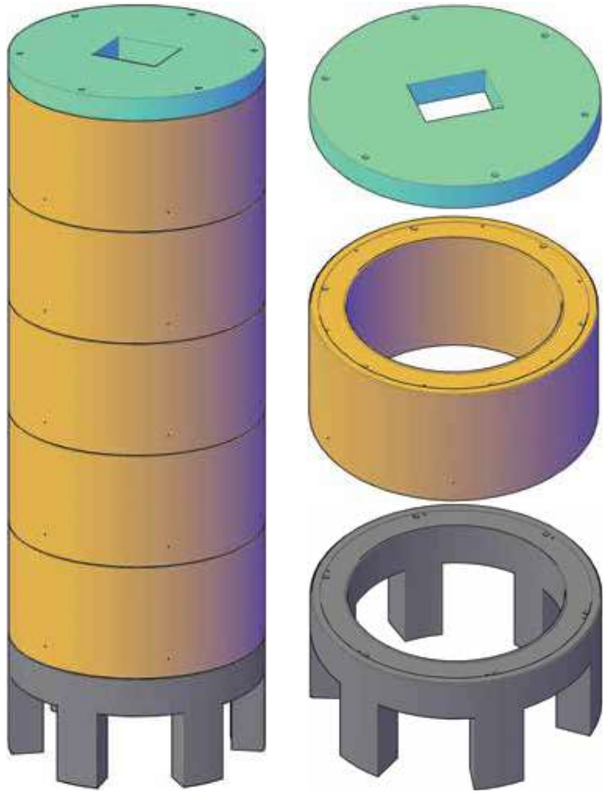
I.D	O.D	Width (m)	O	T	Key	Volume	Weight (T)
2.44**	2.74	0.610	3	2	1	0.745	1.862
3.05**	3.35	0.750	4	2	1	1.131	2.828
3.35**	3.66	0.750	4	2	1	1.237	3.093
3.66**	3.96	0.750	4	2	1	1.347	3.368
4.00	4.36	1.000	5	2	0	2.360	5.900
4.50	4.86	1.000	6	2	0	2.646	6.616
5.00	5.36	1.000	7	2	0	2.930	7.330
5.50	5.90	1.000	8	2	0	3.580	8.950
6.00	6.45	1.000	10	2	0	4.400	11.000
6.50	6.95	1.000	10	2	0	4.754	11.885
7.00	7.45	1.000	12	2	0	5.107	12.768
7.50	7.95	1.000	12	2	0	5.460	12.600
8.00	8.50	1.000	10	2	0	6.460	15.120
9.00	9.50	1.000	14	2	0	7.265	18.163
10.50	11.10	1.000	12	2	0	10.180	25.450
12.50	13.15	1.000	16	2	0	13.100	33.520
15.00	15.75	1.000	14	2	0	16.870	42.175
17.50	18.25	1.000	16	2	0	22.500	56.250
20.00	21.00	1.000	22	2	0	32.200	80.500
25.00	26.00	1.000	26	2	0	40.055	102.542
27.00	28.00	1.000	28	2	0	43.140	112.160

VACUFLUSH CHAMBERS

In the underpinning method, where ground conditions prevent the use of cutting and pushing the shaft down, a ground level collar ring is constructed and then the area within the shaft is excavated from the inside.

Additional rings are then installed underneath the collar ring and further excavations are carried out to allow the next ring to be fitted and so on until the required depth is achieved. This form of construction only allows for the rings to be bolted together from the front (intrados) of the shaft wall.

Typically, shaft sinking operations usually commence with caissoning the shaft until such times that hard ground is reached which forces a change to underpinning to complete the work. Traditionally this would have meant a change in the bolts and fittings required however with the invention of our patented universal shaft lining the segments can be bolted from both the back or the front without the need to change fittings.



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.

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.

FP McCann can offer initial budgetary costs within a 3-5 working day period following receipt of full project drawings.
To avail of this free service, simply send your project details and drawings to sales@fpmccann.co.uk

CROSSWALL CONSTRUCTION

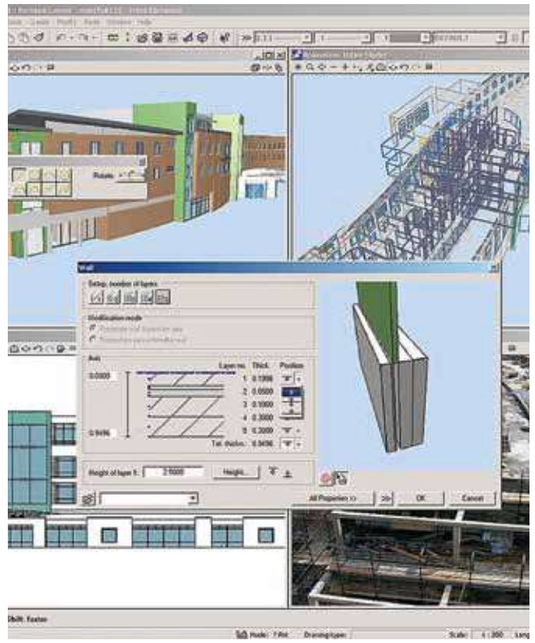
THE DESIGN

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

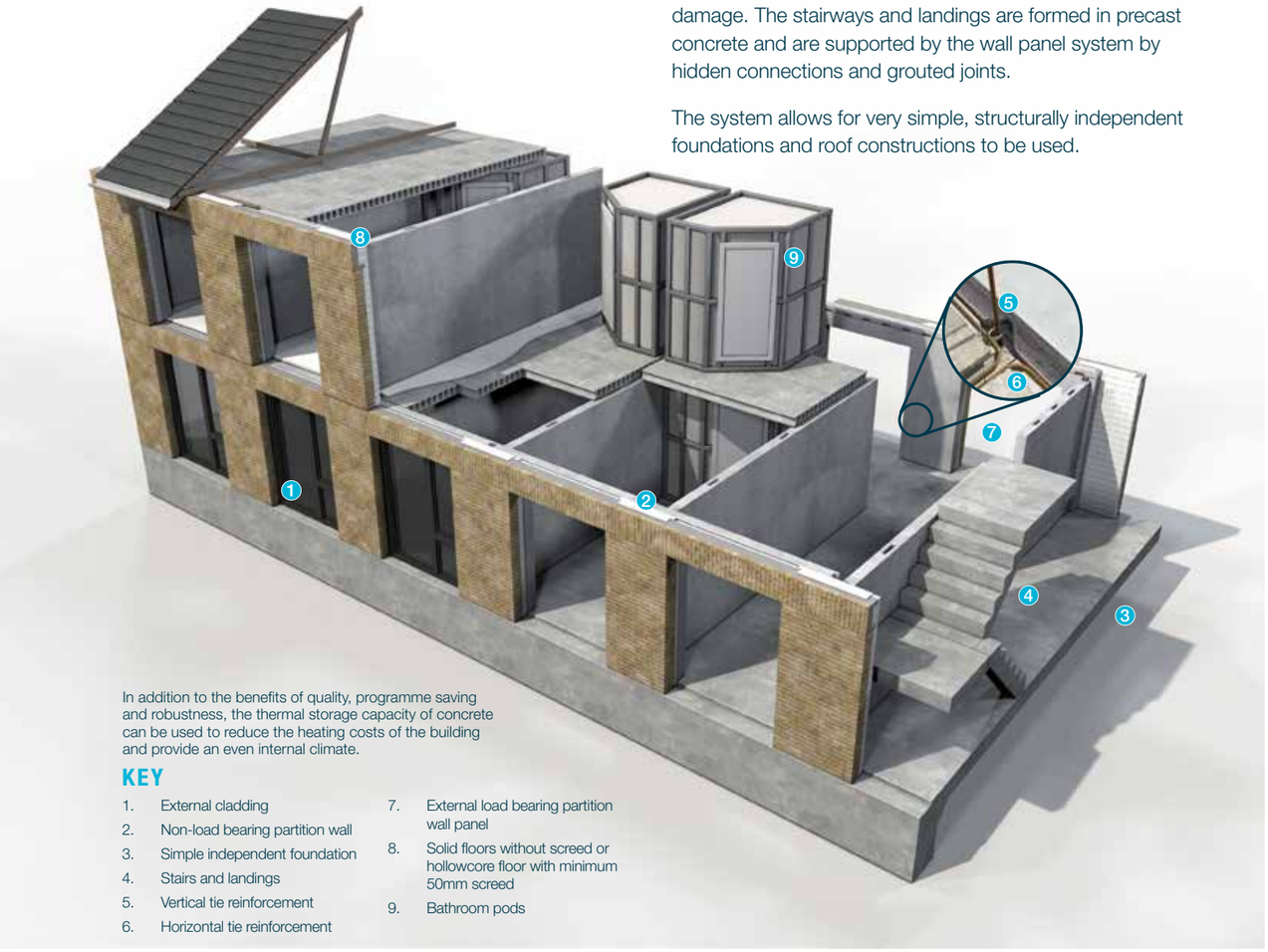
PRECAST CROSSWALL STRUCTURAL ENGINEERING SYSTEM

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

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.

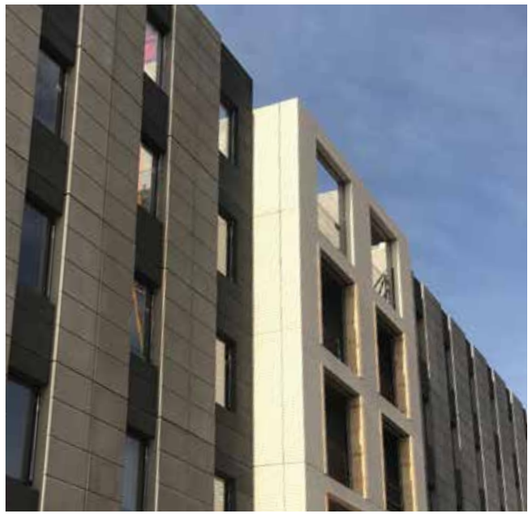
FP McCann played a key role in delivering this contemporary hotel. Our meticulous planning enabled us to complete the project within 26 weeks, reducing normal build time by 50% whilst ensuring that our customer's key performance requirements were met. These included speed, quality, safety, programme, 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 21,405m^2 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 1,885m^3 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.

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.

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.

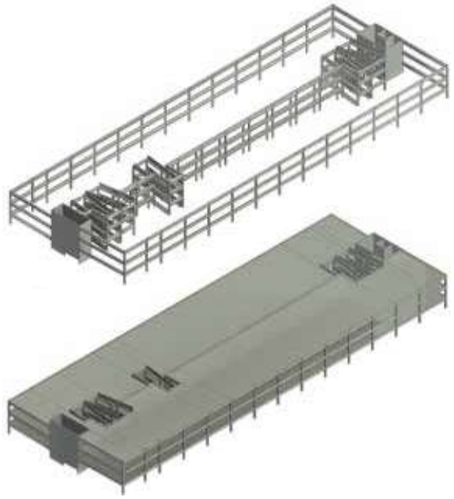
Both the structural and architectural facade teams at FP McCann worked closely with the designers SRC and Building Design Group (BDG) architects on the project to ensure all aspects of the build met the exacting specification standard. FP McCann took around nine days to complete each floor.

CAR PARKS & FRAMES

Precast multi-storey car park structures are designed and manufactured using several 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 manoeuvrability 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



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

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

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.

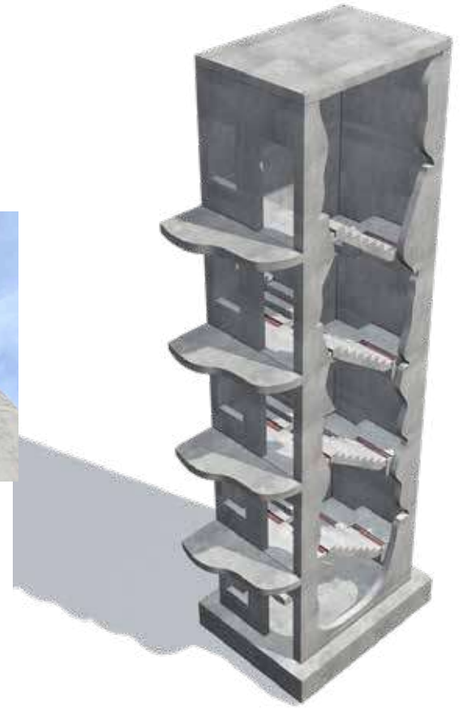
L and T shaped walls form our precast concrete stair cores. If the core dimensions suit, precast box units can also be adopted. Inside the stair core, FP McCann provides precast stairs and landings with cast-in lifting points making installation efficient and safe.

The wall thickness will depend on the type of stair core you choose (i.e. 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

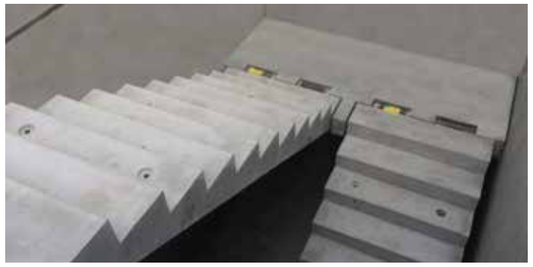
- Units produced in a factory-controlled environment
- Quick installation
- Increased health and safety with reduced temporary works
- Immediate working platform
- Inherent fire resistance



PRECAST STAIRS & LANDINGS

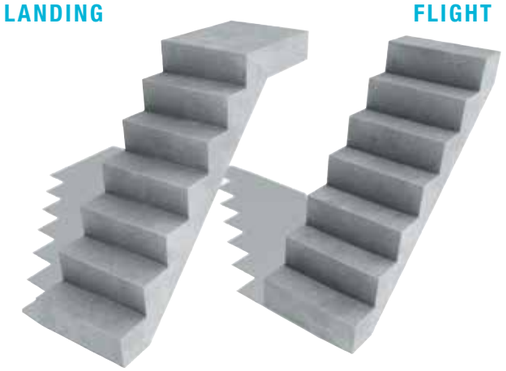
FP McCann provides precast concrete stairs and landings which allow immediate access to site personnel and following trades and the final end-users.

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.

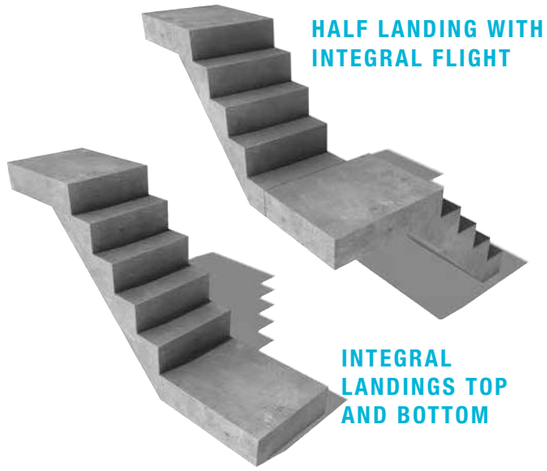


INTEGRAL TOP LANDING

STRAIGHT FLIGHT



HALF LANDING WITH INTEGRAL FLIGHT



INTEGRAL LANDINGS TOP AND BOTTOM

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.

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 is 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

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. 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.

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 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 60m^2 plot or a 10,000m^2 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 pre-attached 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 LEICESTER STUDENT ACCOMMODATION

Site: Freeman's Common Village, Leicester University

Client: Equans (Partners – Equitix, University of Leicester)

Main Contractor: Equans

Products Supplied: Precast Concrete Crosswall Modular Building System/Insulated Sandwich Panels (Architectural Finish); Precast Stairs and Landings;

FP McCann's structural precast concrete building and architectural façades division has worked in collaboration with regeneration and facilities management company Equans on the £200 million contract to build student accommodation at the Freeman's Common Student Village, part of Leicester University.

The flagship scheme includes seven residential blocks, a 550 space multi-storey car park and the creation of a new 9,000m² teaching and learning centre.

Architect on the project Sheppard Robson designed the residential development which will be completed in 2022. The regeneration of the site which includes refurbishment of the historic grade 2 listed Freeman's Cottages creates a new gateway link through to the city centre.

Working closely alongside Sheppard Robson and managing build partner/client Equans, FP McCann's engineers and supply/install teams were able to satisfy the requirement for the design and build of two of the seven residential blocks whilst fully embracing Modern Methods of Construction (MMC). The key elements of MMC on the project include prefabricated insulated sandwich panels with integrated external brick faced and acid-etched finishes, factory fitted windows, first fix services and factory finished internal walls and ceilings.

UNIVERSITY OF YORK STUDENT ACCOMMODATION

Site: University of York. New Student Accommodation

Client: University of York/Equitix

Main Contractor: Graham

Products Supplied: Precast Concrete Crosswall/Insulated Sandwich Panels (Architectural Finish) Modular Building System; Precast Stairs and Landings; Precast Structural Columns; Architectural Cladding Panels

FP McCann's structural precast concrete building and architectural façades division has worked in close partnership with national construction group Graham on the construction of a 1480 bed student accommodation project, part of York University's "Campus for the Future" masterplan. The £130 million flagship scheme which will help transform the Heslington East Campus commenced in 2019 and is due for completion ahead of the 2022 academic year.

Architect on the project Sheppard Robson designed the residential development in a natural waterside setting which has been broken down into 18 blocks that step down from four to three storeys in height as they get closer to the waterfront. The strong, simple forms of the precast concrete modular blocks, characterised by striking architectural finishes, have been designed to be a modern interpretation of the character of the university's original 1960s campus.

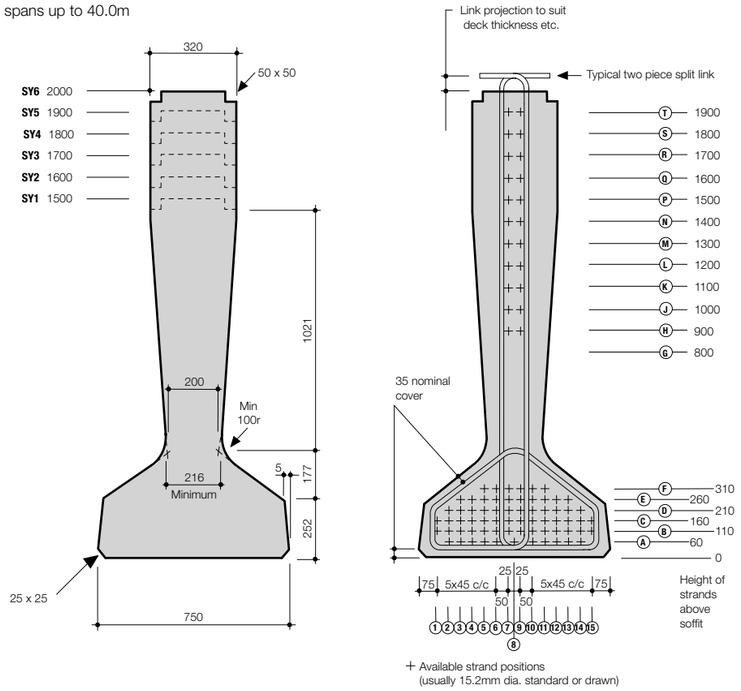
Working closely alongside Sheppard Robson and main contractor Graham, FP McCann were able to satisfy the requirement for the design and build project to fully embrace Modern Methods of Construction (MMC). The key elements of MMC include prefabricated insulated sandwich panels with integrated external brick faced, acid-etched and stencilled finishes, factory fitted windows, first fix services and factory finished internal walls and ceilings.

PRECAST BEAMS

Standard prestressed concrete bridge beam

SY Beam Range

Simply supported spans up to 40.0m



+ Available strand positions (usually 15.2mm dia. standard or drawn)

Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 \times 10^6$		Approximate self weight kN/m
				Top fibre Zt	Bottom fibre Zb	
SY1	1500	549158	598.35	132.59	199.81	13.73
SY2	1600	581158	650.06	153.97	225.00	14.53
SY3	1700	613158	701.59	176.16	250.69	15.33
SY4	1800	645158	752.98	199.16	276.98	16.13
SY5	1900	677158	804.23	223.09	303.97	16.93
SY6	2000	709158	865.36	247.89	331.72	17.73

Span loading 45 Units HB loading (inc. 2.4 kN/m ^{2} for finishes)

Span (m)	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
SY1															
SY2										Beams at 1.400cts					
SY3															
SY4															
SY5															
SY6															

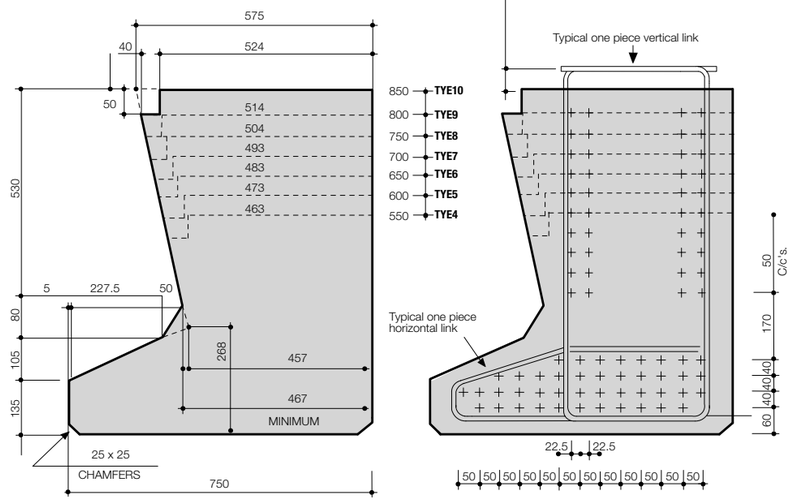
PRECAST BEAMS

Standard prestressed concrete bridge beam

TYE Beam Range

For use as the edge beam in beam and slab deck construction.

Simply supported spans up to 17.5m.



+ Available strand positions (usually 12.5mm dia. standard or drawn)

Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 \times 10^6$		Approximate self weight kN/m	Distance from vertical face to centroid Yc mm
				Top fibre Zt	Bottom fibre Zb		
TYE4	550	316670	246.79	28.87	33.01	7.91	300.01
TYE5	600	342630	271.33	32.48	39.34	8.56	296.88
TYE6	650	369100	296.39	38.70	48.17	9.23	294.50
TYE7	700	396070	321.90	45.55	53.50	9.90	292.54
TYE8	750	423550	347.79	53.02	61.31	10.59	291.54
TYE9	800	451540	374.03	61.13	69.62	11.29	290.77
TYE10	850	480040	400.57	69.89	78.41	12.00	290.37

Span loading 45 Units HB loading (inc. 2.4 kN/m ^{2} for finishes)

Span (m)	7	8	9	10	11	12	13	14	15	16	17	18
TYE4												
TYE5												
TYE6												
TYE7												
TYE8												
TYE9												
TYE10												

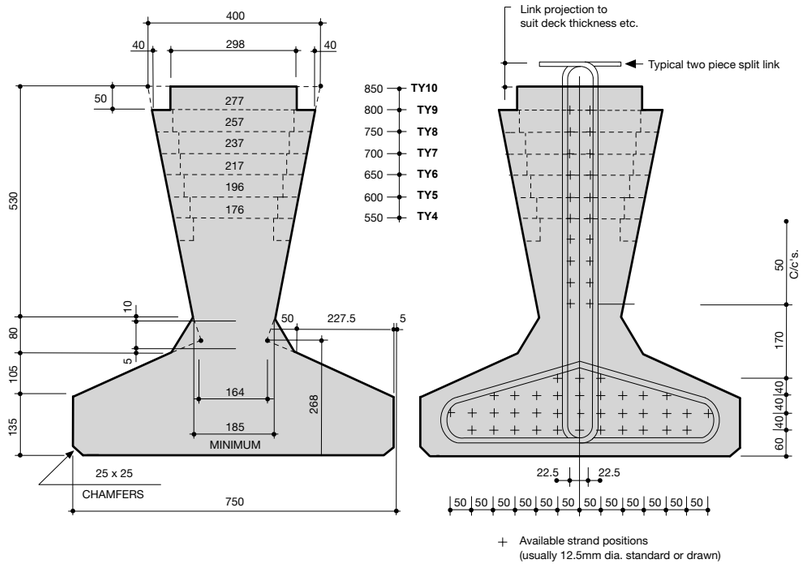
PRECAST BEAMS

Standard prestressed concrete bridge beam

TY Type 1 Beam Range

For use in beam and slab deck construction.

Simply supported spans up to 17.5m.



+ Available strand positions
(usually 12.5mm dia. standard or drawn)

Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 x 10^6$		Approximate self weight kN/m
				Top fibre Zt	Bottom fibre Zb	
TY4	550	221300	193.45	13.91	25.64	5.53
TY5	600	235722	215.83	17.65	31.42	5.89
TY6	650	251158	240.07	22.07	37.68	6.28
TY7	700	267608	265.96	27.18	44.35	6.69
TY8	750	285073	293.28	32.99	51.38	7.13
TY9	800	303550	321.86	39.54	58.74	7.59
TY10	850	323044	351.52	46.83	66.41	8.08

Span loading 45 Units HB loading (inc. 2.4 kN/m² for finishes)

Span (m)	7	8	9	10	11	12	13	14	15	16	17	18
TY4												
TY5												
TY6												
TY7												
TY8												
TY9												
TY10												

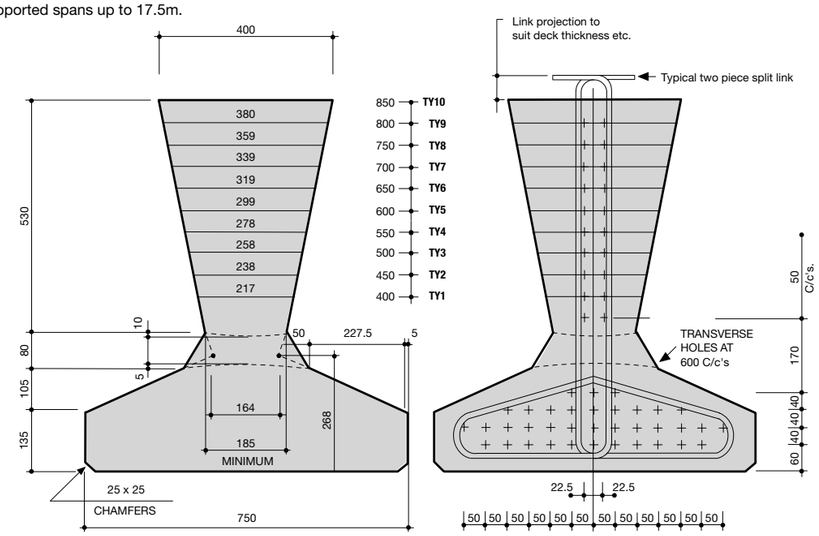
PRECAST BEAMS

Standard prestressed concrete bridge beam

TY Type 2 Beam Range

For use in solid infill deck construction.

Simply supported spans up to 17.5m.



+ Available strand positions
(usually 12.5mm dia. standard or drawn)

Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 x 10^6$		Approximate self weight kN/m
				Top fibre Zt	Bottom fibre Zb	
TY1	400	188790	145.55	7.69	13.45	4.72
TY2	450	200170	161.46	9.71	17.34	5.00
TY3	500	212560	179.77	12.34	21.99	5.31
TY4	550	225970	200.27	15.61	27.27	5.65
TY5	600	240390	222.78	19.54	33.09	6.01
TY6	650	255830	247.07	24.14	39.36	6.39
TY7	700	272280	272.94	29.42	46.03	6.81
TY8	750	289740	300.21	35.40	53.04	7.24
TY9	800	308220	328.69	42.11	60.38	7.70
TY10	850	327710	358.23	49.56	68.04	8.19

Span loading 45 Units HB loading (inc. 2.4 kN/m² for finishes)

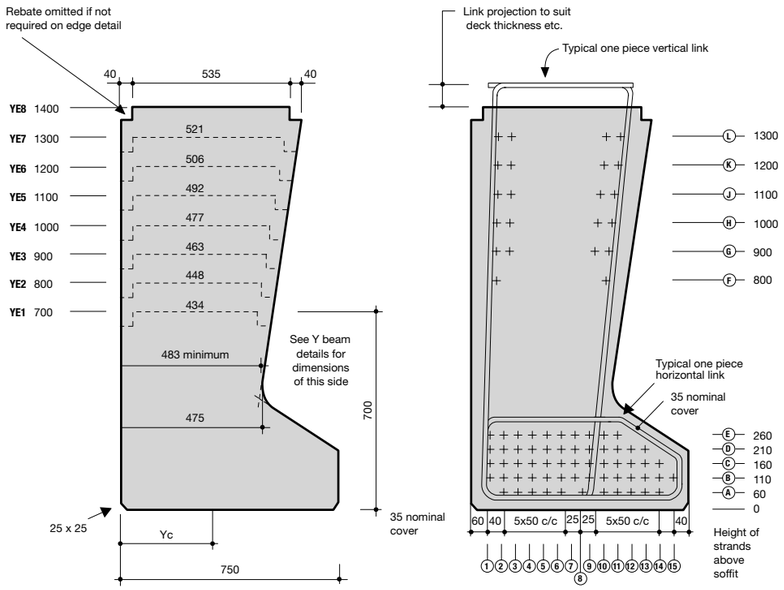
Span (m)	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
TY1															
TY2															
TY3															
TY4															
TY5															
TY6															
TY7															
TY8															
TY9															
TY10															

PRECAST BEAMS

Standard prestressed concrete bridge beam

YE Beam Range

Simply supported spans up to 32.0m.

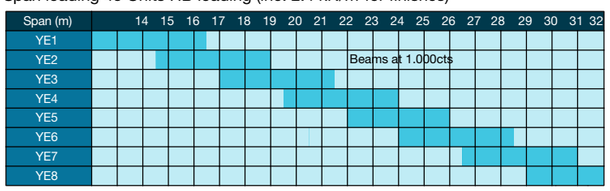


+ Available strand positions (usually 15.2mm dia. standard or drawn)

Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 \times 10^6$		Approximate self weight kN/m	Distance from vertical face to centroid Yc mm
				Top fibre Zt	Bottom fibre Zb		
YE1	700	414820	313	43.54	53.71	10.37	310
YE2	800	467669	362	58.24	70.52	11.69	305
YE3	900	521960	412	75.42	89.39	13.05	302
YE4	1000	577692	463	95.12	110.29	14.44	299
YE5	1100	634867	515	117.37	133.18	15.87	298
YE6	1200	693483	568	142.24	158.08	17.34	298
YE7	1300	753541	622	169.78	184.98	18.84	298
YE8	1400	815041	677	200.06	213.93	20.38	298

Span loading 45 Units HB loading (inc. 2.4 kN/m^2 for finishes)

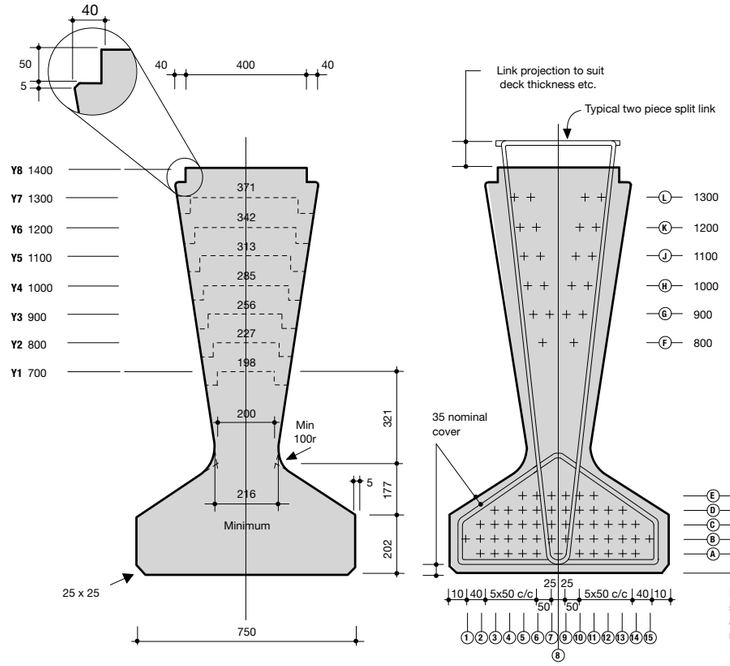


PRECAST BEAMS

Standard prestressed concrete bridge beam

Y Beam Range

Simply supported spans up to 32.0m. Allows inspection and maintenance of bearings.

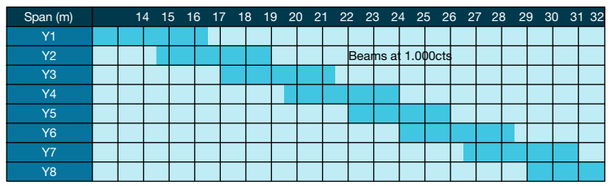


+ Available strand positions (usually 15.2mm dia. standard or drawn)

Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 \times 10^6$		Approximate self weight kN/m
				Top fibre Zt	Bottom fibre Zb	
Y1	700	309202	255	24.85	43.40	7.73
Y2	800	339882	299	35.02	58.78	8.50
Y3	900	373444	347	47.88	76.27	9.34
Y4	1000	409890	400	63.53	95.41	10.25
Y5	1100	449220	456	82.06	116.02	11.23
Y6	1200	491433	515	103.58	138.00	12.29
Y7	1300	536530	576	128.15	161.31	13.41
Y8	1400	584708	639	155.98	186.01	14.62

Span loading 45 Units HB loading (inc. 2.4 kN/m^2 for finishes)



PRECAST BEAMS

Standard prestressed concrete bridge beam

Typical Specification

Concrete

Transfer cube strength 40 N/mm ^{2}.
28 day cube strength 50 N/mm^{2}.
(Higher strengths can be accommodated where necessary).

Cement

Cement usually complies with B.S.12 - Portland.
The following may also be used:-
B.S.3892 - p.f.a.

Admixtures

Comply with B.S.5075 - Concrete admixtures.

Aggregates

Comply with B.S.882 - Concrete aggregates from Natural Sources.

Prestressing Strands

Comply with B.S.5896 with Class 2 relaxation.

12.5mm dia.standard at 123 kN max. initial force in inverted 'T' and 'TY' beams
(alternatively 12.7mm dia. drawn strand at 146.3 kN max. initial force can be used).

15.2mm dia.standard at 174 kN max. initial force in 'Y','YE', 'M','SY','U' and 'UM' beams
(alternatively 15.2mm dia. drawn strand at 210 kN max. initial force can be used).

Secondary Reinforcement

Complies with B.S.4449 or B.S.4482

Length shown on drawings

The length of beams shown on customers drawings is assumed to be the casting length of the beams and that the engineer has taken into consideration the effects of shrinkage and creep.

Tolerances

Unless specifically agreed otherwise beams will be made to the full tolerances shown in DTp specification. Clause 1710.8 (or B.S.8110 Part 1, Clause 6.11.3 and 6.11.4).

Surface Finish

Top. Rough as cast - DTp Class 2, Clause 1710.8.
Sides & Soffit. F5 - DTp Clause 1708.4 (or B.S.8110 Clause 6.1.3 Type A).

Camber

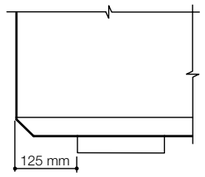
All prestressed beams will have an upward camber due to prestress.

Fixing, inserts, cast in sockets

In side, soffit and ends - should be avoided wherever possible.

Bearings

Bearings for bridge beams should be considered on the merits of each particular application. As a general rule, however, the edge of the bearing closest to the abutment should be detailed at least 125mm in from the end of the beam. (See sketch). Cast in items cannot project below the soffit line of prestressed units.



Weight

The customer should assume a concrete density of 2.5 t/m ^{3}.

Quality Assurance

We are a B.S.I. Registered Firm to BS.EN.ISO.9001

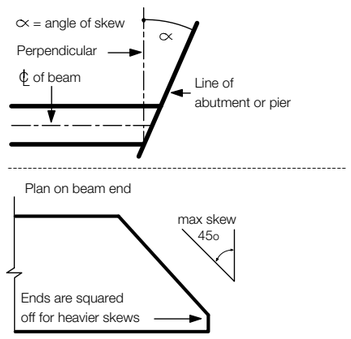
Quality Control

We carry out strict quality control procedures at all stages of manufacture. Copies of all necessary certificates on cement, aggregates, strand, stressing records, cube tests and beam tests are retained within our quality system.

Skews

Skewed ends to beams are expensive and should be avoided wherever possible. However, we are able to produce these details to any angle required, up to a maximum of 45 ^{o}, beyond which there is a risk that, during manufacture, damage to beam ends may result. Reinforcement. Only reinforcement in the end zone of the beam should be skewed. All other reinforcement in the body of the beam should be detailed square to the section.

Note: A square deck has a zero skew



Stacking

Positions of stacking timbers should be approx. 500mm from the ends of a beam and projecting links should be positioned accordingly.

PRECAST PIERS

Boscombe Pier of the Year

The newly restored pier at Boscombe has been voted Pier of the Year 2010 by the National Piers Society.

Boscombe pier, which has previously been described as “one of the coolest piers in the country” by UK designer Wayne Hemingway, beat 10 others shortlisted in the annual poll of the Society’s 600 members. The award is designed to acknowledge and reward commitment to restoring piers.

Councillor Anne Filer, Cabinet Member for Leisure and Tourism, said: “I’m delighted that Boscombe has won this prestigious award in the year that we are celebrating Bournemouth’s bicentenary. The newly restored pier will provide a lasting legacy for future generations of residents and visitors.”

Commenting on the award, Gavin Henderson from the National Piers Society said: “For too long second fiddle to its sister pier at Bournemouth, Boscombe pier now deservedly shines in its own right.”

In contrast to the wrought-iron and ornate detail of Britain’s Victorian piers, Boscombe Pier is a stylish post modern structure featuring a Grade II listed entrance building with a distinctive ‘flying wing’ design. It also features a central windbreak with historic panels telling the fascinating story of the pier. The Grade II listed building was completely refurbished in 2008 including repairs to the concrete structure, replacement of the structurally unsound end section with a new viewing platform, new wooden decking, handrails, lighting and windbreak. Most recently, additional public benches have been installed from where the public can sit and enjoy the view.

On hearing of the award, John Amos, chairman of the Friends of Boscombe Pier group ‘Inspieration’, said: “Boscombe Pier offers an attractive and distinctive alternative to other piers with arcades, bars and theatres. Winning the Pier of the Year award is a great honour and everyone involved in the pier’s restoration, reopening and the events held on it since can feel very proud.”

The award will be presented at the Society’s Annual General Meeting in Bournemouth on Saturday 12 June at 2pm.

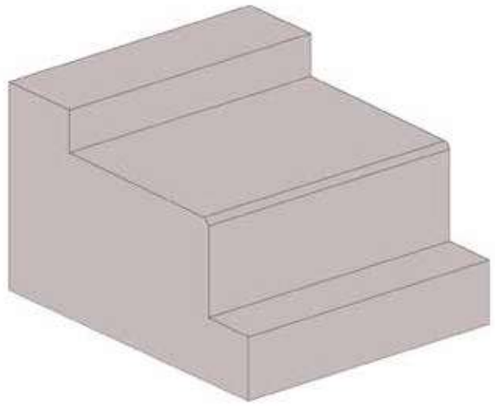
BESPOKE SEA DEFENSE

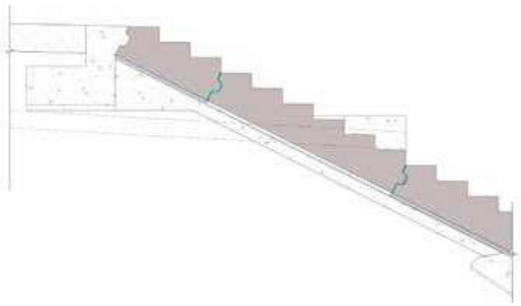
Stepped Revetment Units

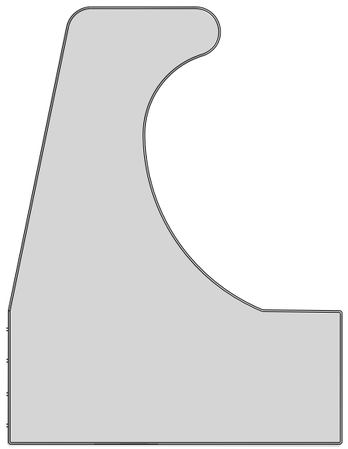
The precast revetments are manufactured in step formations in a range of incremental lengths and are installed in rows, with tapering joint widths which provide the lateral curvature necessary to match the shape of the coastline.

Units are craned into position onto the prepared coastal foundation with the aid of a specially designed and manufactured vacuum operated lifting device which grips the units on their upper face. This enables the units interlocking tongue and groove connection between panels to be made without the presence of lifting eyes on any visible surface.

The revetment step units provide an attractive walkway and pedestrian access to the sandy beach in addition to their wave and flood resistance.

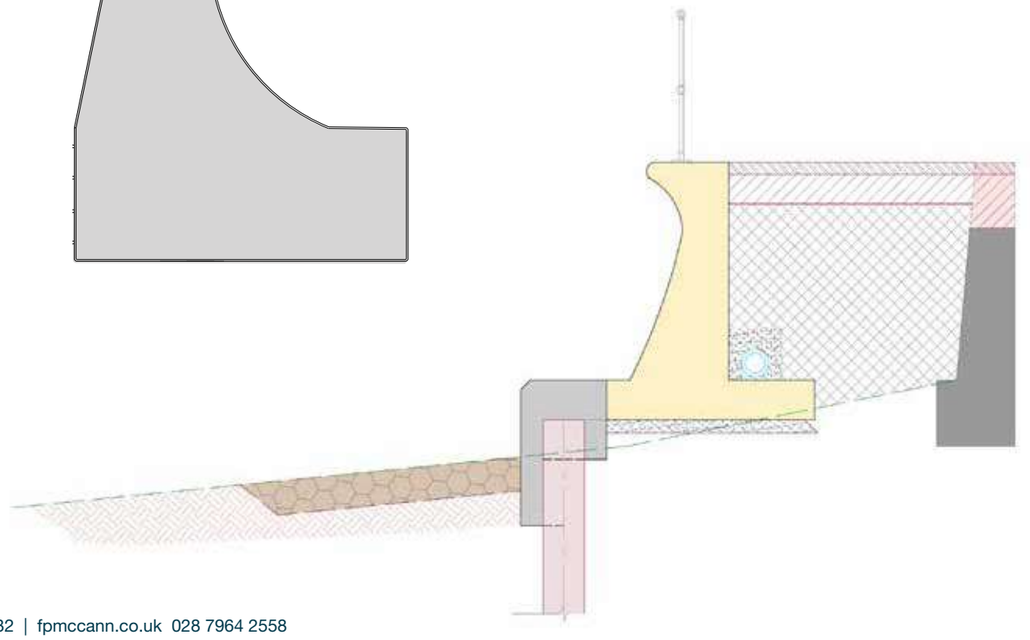






Wave Wall

Our bespoke precast concrete wave walls are manufactured with a curve to reflect wave energy back into the sea and reducing erosion at the base. They are customised to fit in specific locations and project requirements.



FP MCCANN BESPOKE PRECAST WALLS INSTALLED ON LARGS SEA DEFENCE SCHEME

A £4.0 million project to upgrade a sea defence wall in the North Ayrshire town of Largs is nearing completion. The existing seawall originally constructed in the 1970's had deteriorated over time and no longer provided the additional protection it was designed for.

Principal designer and coastal marine engineer RPS Group working on behalf of client North Ayrshire Council, determined that a 300 metres long bespoke design precast concrete wall encapsulating and extending along from the existing Largs Bay promenade seawall would provide the best form of protection from wave action and immediate coastal erosion.

Main contractor appointed on the project is Glasgow based building contractor and civil engineer RJ McLeod Contractors LTD. In consultation with the RPS Group engineers together with input from FP McCann's specialist precast design team, a wall consisting of a wave reflecting curved top has been installed to the same height as the existing promenade wall, varying between 1.0m and 4.0m high along its length. The promenade itself has been widened following infill works between the existing and new walls. Prior to seawall works commencing, a temporary tide protection wall consisting of precast 'lego' blocks was put in place to allow for safe working

The FP McCann marine grade precast concrete wall units manufactured at the Company's Uddingston factory in South Lanarkshire consist of a corrosion inhibiting admixture and abrasion resisting aggregate. In total,138 individual seawall units have been delivered by FP McCann and installed by the specialist RJ McLeod Contractors LTD contracting team; the smallest unit weighs 3.0 tonnes and the largest 22.50 tonnes.

PRECAST TERRACING

Precast terracing from FP McCann has been developed to offer a ‘one-stop’ terracing solution for customers working within the stadia sector.

Precast terracing components are factory engineered, minimising cost, time and health and safety implications on site. Designed under bs8110 principles, each section is cast from high quality timber and steel moulds to a type a finish.

FP McCann’s concrete designs provide stadia terraces with imposed loadings, seating, raker beams, terrace units and vomitory walls. Produced to exist under exposed conditions, precast terracing is fire resistant and aims to accommodate the requirements of dynamic performance.

FLEXIBLE DESIGN, VARIETY AND A SOLUTION FOR ALL OCCASIONS

FP McCann offers a wide range of moulds to suit the demands of all stadia projects. Individual moulds can be modified to create standing terraces with varying tread and riser dimensions. Spans can vary considerably depending on whether they are simple precast or designed as pre-stressed units.

Offering a complete bespoke solution that varies according to scale and design, FP McCann continues to invest in research and development programmes that enable existing moulds to be adapted and meet the ever-evolving needs of this sector. FP McCann’s innovative in house design solutions have proven to be cost effective, whilst product development has reduced the component weight and erection time to a minimum.

RELIABLE DELIVERY AND INSTALLATION

Providing a full design, manufacture, delivery and installation service means FP McCann can provide a valuable service at every stage of the contract. Close attention to detail and precision production control ensure FP McCann meets the strict quality and programming requirements of stadia projects.

Just in time delivery assists sites where space and access is limited and has the added benefit of significantly reducing construction programmes as well as the associated health and safety risks.

The streamlined delivery and off-site production remove unnecessary work activities from the congested site environment.

PROJECT LIST

STADIA

	Capacity
Tottenham Hotspur Stadium	62,000
Ricoh Arena, Coventry	38,500
Brighton & Hove Albion FC	30,750
Bristol City FC Ashton Gate Stadium	27,000
Leicester Tigers RFC Stadium	25,000
Co-op Live Arena, Manchester	23,500
MK Dons FC Stadium	22,000
Brentford FC Community Stadium	17,250
Doncaster Rovers FC Stadium	15,000
Northampton Saints RFC Stadium	15,000
Salford City RLFC Stadium	12,000
Tallaght Stadium, Dublin	10,500
AFC Wimbledon Plough Lane Stadium	9,200
Liverpool FC Anfield Rd extension	8,500
Wolves FC, Stan Cullis Stand	8,000
Preston North End FC	6,000
Alexander Stadium, Birmingham	5,300
Cardiff City FC, Upper Tier	5,000
Fulham FC Riverside Stand	4,000
Swansea Indoor Arena	3,500
Manchester United FC Old Trafford Stadium	3,000
Cardiff Ice Arena	3,000
Lords Cricket Ground, London	2,600
Raeburn Place Stadium, Edinburgh	2,500
Kia Oval Cricket Ground, London	2,300
Finn Harps FC Stadium	2,200
Aughrim GAA Stadium	2,000
Cliftonville FC Stand	1,600
Derry City FC, Main Stand	1,000
Total No. of Seats	**368,200**

TOTTENHAM HOTSPUR STADIUM

Site: Tottenham Hotspur Stadium, London

Main Contractor: Mace

Products Supplied: Straight and Curved Terrace Seating Units; Base Slabs, Double Step Blocks; Vomitory and Lift Shaft Walls; Stair Flights and Landings and Balcony Units

FP McCann was contracted to manufacture and deliver precast concrete units for the construction of the New White Hart Lane Stadium.

The project scope entailed the construction of a completely new structure on a brownfield site directly adjacent to their existing stadium, consisting of an entirely precast concrete main stadium bowl with a steel and glass canopy structure mounted above the seating area.

The concrete mix used was designed to minimize the finishing work required to the units and to ensure a consistent unit quality. The mix has sustainability credentials to reduce its carbon footprint. In total, approximately 15,000m^3 of concrete were used in the project, equating to 2,500 lorry loads. We also employ renewable energy sources to power our production facilities as a means of offsetting the carbon produced in the manufacturing process.

The result of this mix design was to create a material with the correct flow, working time and robustness that allowed for next day de-moulding and minimal finishing work, resulting in a blow hole free finish to the external faces of the units. The mix also met the aesthetic requirements for the new stadium, as it produced a lighter coloured concrete rather than the traditional grey mix.

The terracing units were designed to be both robust and relatively light, aiding both manufacturing and installation. This was achieved by increasing the unit steel content to allow the depth to be reduced, thus reducing the concrete volume. Terracing units were installed onto large precast raker beams, which presented challenges in terms of steel fixing, mould work, production and transport. The design had to be robust enough to support rows of terracing units, but light enough to be transported to London by road and installed using tower cranes. This was again achieved with a slight increase in reinforcement density resulting in reduced depth and overall volume.

BRENTFORD COMMUNITY STADIUM

Site: Brentford Community Stadium

Main Contractor: Buckingham Construction Group

Products Supplied: Precast Concrete Terracing units

As Brentford Football Club unveiled its state-of-the-art Community Stadium, one of the most striking features underpinning the 17,250-seat venue's construction was the use of high-quality precast concrete terracing, supplied by leading infrastructure manufacturer FP McCann.

Situated in the heart of a major urban regeneration area, the stadium is not only home to Brentford FC but also accommodates London Irish Rugby Club and serves as a modern events venue. Delivered under a tight programme and spatial constraints, the project called for innovative construction solutions—and precast concrete was pivotal.

FP McCann was selected to manufacture and deliver the full suite of precast terracing units, forming the primary spectator tier structure. With components engineered at FP McCann's dedicated precast facility, the project benefited from factory-controlled quality and precision, as well as reduced on-site labour and installation time.

"Our precast systems are ideal for fast-track stadium construction," said a spokesperson for FP McCann. "The Brentford Community Stadium project demonstrates how off-site manufacturing can align with modern construction needs—efficiency, safety, and performance."

The constrained site—bordered by railway lines and major roads—required a just-in-time delivery schedule. FP McCann worked closely with the main contractor to ensure seamless logistics, providing units to match the build programme without disrupting local infrastructure.

The durability and consistency of precast concrete also offered long-term performance advantages, ensuring compliance with both structural and aesthetic requirements laid out by the club and architects.

Since opening in 2020, Brentford Community Stadium has drawn praise for its fan-friendly design and future-ready construction. FP McCann's terracing forms the backbone of the fan experience, providing safe, stable, and visually impressive viewing platforms that will serve thousands for decades to come.

"The use of FP McCann's precast terracing was instrumental in meeting our timeline and quality standards," said the Project Manager for the main contractor. "Their collaborative approach and technical expertise were a key asset on this complex build."

As one of the UK's most trusted precast specialists, FP McCann continues to support major construction projects nationwide, delivering robust and sustainable solutions in infrastructure, housing, and commercial sectors.

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