



THINKING PRECAST?  
THINK FP MCCANN



# ARCHITECTURAL PRECAST SOLUTIONS

v1.1





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

**AGRICULTURE | ARCHITECTURAL PRECAST | BOX CULVERTS | BUILDING PRODUCTS  
DOCK LEVELLER PITS | DRAINAGE | FENCING | FILTER BED SYSTEMS | FLOORING  
POWER & INFRASTRUCTURE | RAIL | SPECIALIST PRECAST | STRUCTURAL PRECAST  
TANKS & CHAMBERS | TUNNELS & SHAFTS | WALLING**

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

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.*



# ARCHITECTURAL PRECAST SOLUTIONS

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

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

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## KEY ADVANTAGES

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

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



## INSTALLATION AS EASY AS....

# 1

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

# 2

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

# 3

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

# INSULATED PRECAST SANDWICH PANELS

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

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

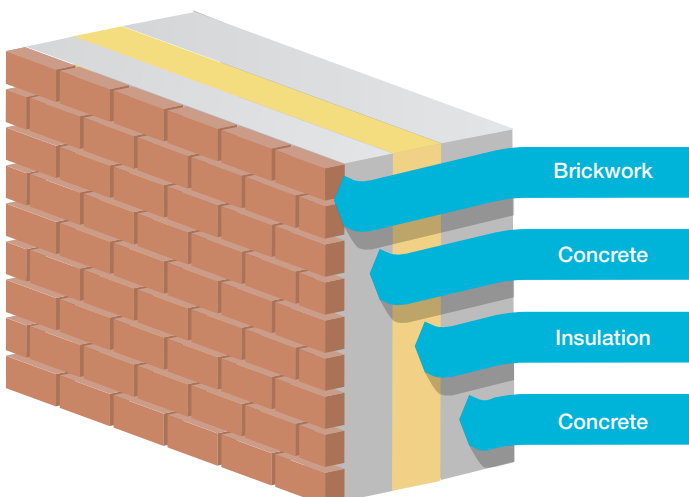
The external skin is connected to and supported by the internal skin using proprietary plastic ties. The ties have a low thermal conductivity which eliminates potential cold bridging.

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

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

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

## SANDWICH PANEL CROSS-SECTION



## FINISHES AVAILABLE INCLUDE:

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



# PRECAST CLADDING

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

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

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

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



## KEY ADVANTAGES

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



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

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

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

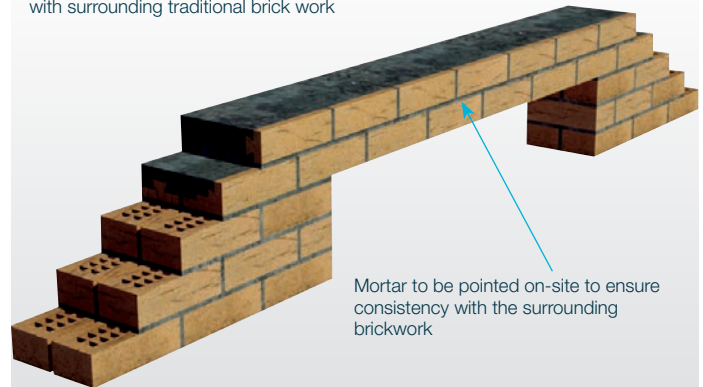
Precast concrete brick-faced lintels provide an excellent robust masonry support solution around door and window openings, whilst maintaining the effect of brick bonding throughout a facade.

## KEY ADVANTAGES

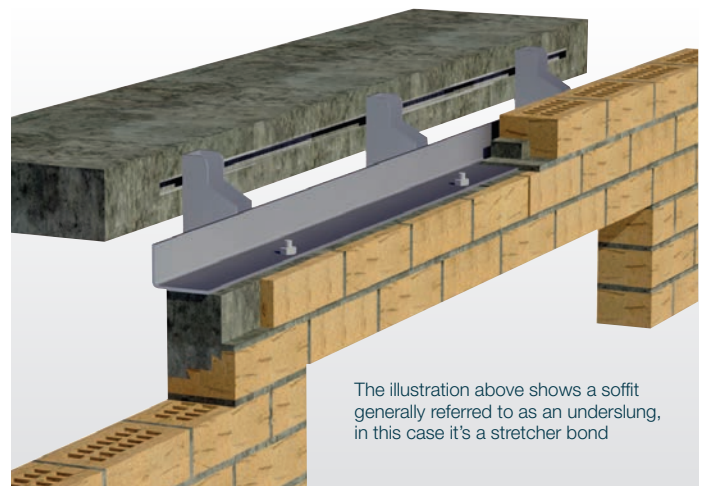
- Brick-faced lintels are structural bearing units that add stability to the masonry around an opening
- Using a brickwork support angle, brick-faced soffits/underslung units can be supplied in small component lengths, giving the appearance of a continuous span over an opening
- Components can be pointed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

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

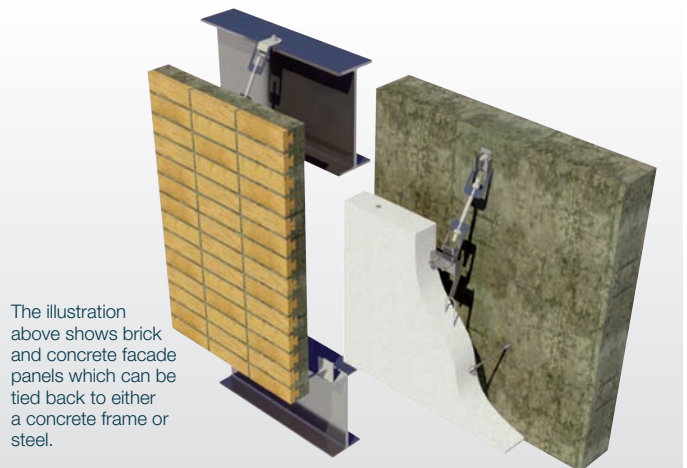
Bearing precast brick lintels illustrating different bond patterns stretcher and soldier to course in with surrounding traditional brick work



**Bearing Lintels**



**Underslung brick-faced soffits**



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

**Facade panels**

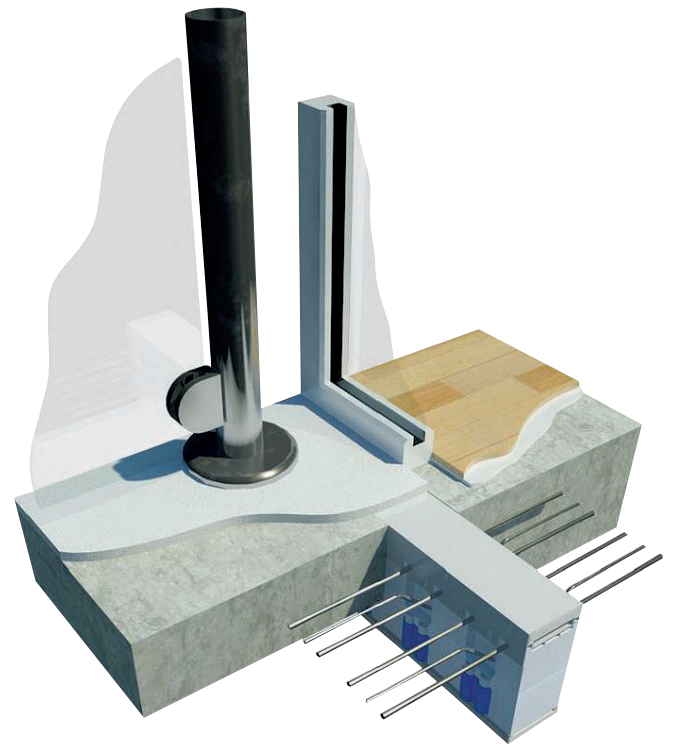
FP McCann offers a range of precast concrete balconies to suit all specifications. All of our products are designed and manufactured to meet client requirements including additional features and fittings.

## BALCONIES

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

## BENEFITS OF PRECAST BALCONIES

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



## PRECAST BALCONY CONNECTIONS

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

## BENEFITS OF PRECAST BALCONY CONNECTIONS

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

## CAST IN ITEMS

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

# PRECAST COLUMNS

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

## KEY BENEFITS OF COLUMNS

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



**Rectangular Column**



**Circular Column**

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

# WOLVERHAMPTON SCHOOL OF ARCHITECTURE CLADDING PANELS

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

Client: Wolverhampton University

Main Contractor: ISG

Architect: Associated Architects

Products Supplied: Portland Cement Precast Cladding  
Panels

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

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



# SHOREDITCH DEVELOPMENT ARCHITECTURE CLADDING PANELS

Site: Shoreditch High Street, London

Contractor: Montway

Client: Max Barney Development Ltd.

Architect: 21st Architecture

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

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

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

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

In total, 249 individual units were supplied from FP McCann's Littleport factory over a 10 week period and installed using a single tower crane, eliminating the use of any scaffolding on the building. Over 33,000 individual handmade bricks each measuring 528mm long x 40mm high were cast on at the factory, making 221 cladding panels totalling 623m<sup>2</sup> and pointed with mortar; colour as specified by the architect. The 28 acid etched panels (243m<sup>2</sup>) for the side of the building facing the car park were colour matched to the brick façade.



# REAL LIFE FIRE TESTING



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

## FIRE PERFORMANCE & FUTURE WORK

The insulated precast sandwich panels contained the fire while maintaining their structural integrity despite being exposed to multiple fire scenarios. Although explosive spalling on the exposed surface of concrete was observed during the tests, this spalling was relatively small and would have required limited remedial work. During the tests, the PIR insulation core of the sandwich panels remained encased within the layers of the precast concrete. The outer concrete layers, due to their low thermal conductivity, protected the PIR insulation core from direct exposure to heat and flames. As a result, the PIR insulation core remained unharmed. FP McCann has initiated an intensive study to realise the behaviour of insulated precast sandwich panels exposed to fire. Furthermore, a successful KTP project between FP McCann and FireSERT at Ulster University provided a scientifically fire rated precast solution with the aim to ensure the safety of occupants and properties where the insulated precast sandwich panels are used for building and construction purposes. FP McCann aim to build a better, safer future and would encourage other manufacturers to follow a similar testing schedule incorporating real life scenario fire testing.

## THE FIRE TEST

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

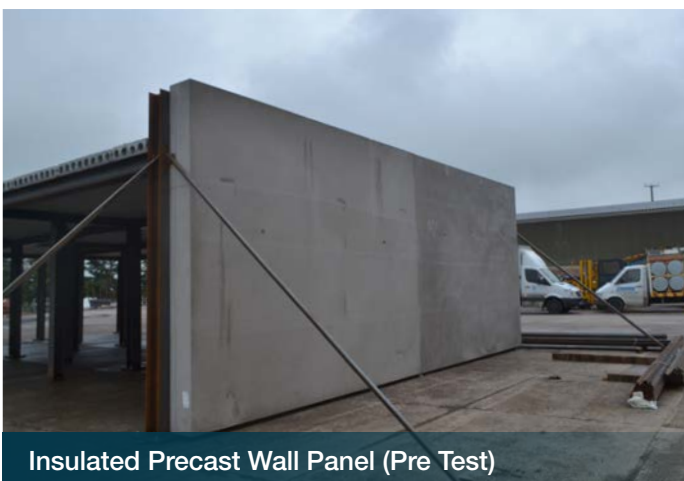
These panels were installed along one side of the test compartment and detailed instrumentation was applied to monitor the temperatures in the wall panels and in the test compartment. The instrumentation consisted of thermocouples, which were provided to record the temperatures in the inner and outer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

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



## SCAN ME!

SCAN THE QR CODE TO VIEW OUR FIRE TEST VIDEO



Insulated Precast Wall Panel (Pre Test)



Insulated Precast Wall Panel (Post Test)

# REAL LIFE FIRE TESTING



Post Test Core Samples



Post Test Core Samples

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**BOX CULVERTS**

Weston Underwood 01335 361269

**BUILDING PRODUCTS**

Cadeby 01455 290780

**DOCK LEVELLER PITS**

Weston Underwood 01335 361269

**DRAINAGE**

Ellistown 01530 240000 (England/Wales) Magherafelt 028 7954 9026 (Scotland/NI)

**FENCING**

Cadeby 01455 290780

**FILTER BED SYSTEMS**

Littleport 01353 861416

**FLOORING**

Weston Underwood 01335 361269 Uddingston 01698 803300

**POWER & INFRASTRUCTURE**

Littleport 01353 861416

**RAIL**

Littleport 01353 861416

**SPECIALIST PRECAST**

Littleport 01353 861416

**STRUCTURAL PRECAST**

Byley 01606 843500 Grantham 01476 562277 Littleport 01353 861416

**TANKS & CHAMBERS**

Littleport 01353 861416

**TUNNELS & SHAFTS**

Cadeby 01455 290780

**WALLING**

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Uddingston 01698 803 300 (Scotland) Magherafelt 028 7954 9026 (NI)

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