

# Precast & Masonry 2025

Housing Survey Results

Sponge Cities

One Click LCA talk EPDs





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Front Cover Image – © Everton FC

Page 3 Image – © Banagher Precast Concrete, Silvertown Tunnel



# Welcome

**As the UK ramps up efforts to meet housing demand and upgrade national infrastructure, the link between the two has never been more critical.**

Major government infrastructure projects—whether rail, roads or utilities—are essential enablers of sustainable housing development. Yet without better integration and long-term funding alignment, opportunities are lost and delivery slows. For the precast and masonry sectors, this presents both a challenge and an opportunity to play a key role in shaping joined-up, future-ready communities.

Meanwhile with global trade blowing hot and cold especially in light of Trump's latest wave of tariffs it's a timely reminder of the value of strong, home-grown British manufacturing. When overseas supply chains get tangled, it's the UK's precast and masonry sector that keeps calm and carries on laying the foundations—quite literally. A great example and covered in the magazine is Everton's new stadium on Bramley-Moore Dock, where precast concrete has taken centre stage in delivering a world-class structure.

This latest edition of Precast & Masonry Magazine reflects both our pride in the sector's progress and our readiness to address key challenges. We open with the results of our recent Housing Survey, capturing public attitudes towards how homes are built and what qualities people value most. It's a revealing snapshot that informs our wider conversation on adapting to the everchanging.

As always safety and peace of mind remains a critical theme. The feature on fire safety in facades and structures explores the implications for both construction professionals and the insurance sector—an increasingly high-stakes area that is shaping specifications and decision-making across the board.

With flood resilience high on the agenda the article on Sponge Cities tackles how modern urban drainage and permeable surfaces can help build resilience into our towns and cities. With climate change accelerating the need for smarter water management, this is a timely read for anyone involved in planning or infrastructure.

Behind every block and beam are the hardworking teams across our membership who've shown resilience, skill, and an unwavering commitment to quality. Thanks to them, we're not just building homes and infrastructure—we're proving that British industry is very much alive and kicking.

Finally, don't miss our updated Meet the Team section—featuring the people who help make MPA such an active, responsive, and effective organisation.

Thank you all for your continued support.

**Mark Shepherd** | *Director, MPA Precast and MPA Masonry*

“This latest edition of Precast & Masonry Magazine reflects both our pride in the sector's progress and our readiness to address key challenges.”

# Sustainability Report at a glance

The 17th precast and masonry sector's sustainability report (2023 data) is now published.

This year's report will highlight how the sector is rapidly changing to address the climate emergency and the net zero carbon challenge. In the past, low carbon measures were implemented by only a small number of companies within the sector. This is no longer the case, with most precast and masonry manufacturers now implementing carbon reducing measures, and these are already having a significant impact on the sector's KPIs.

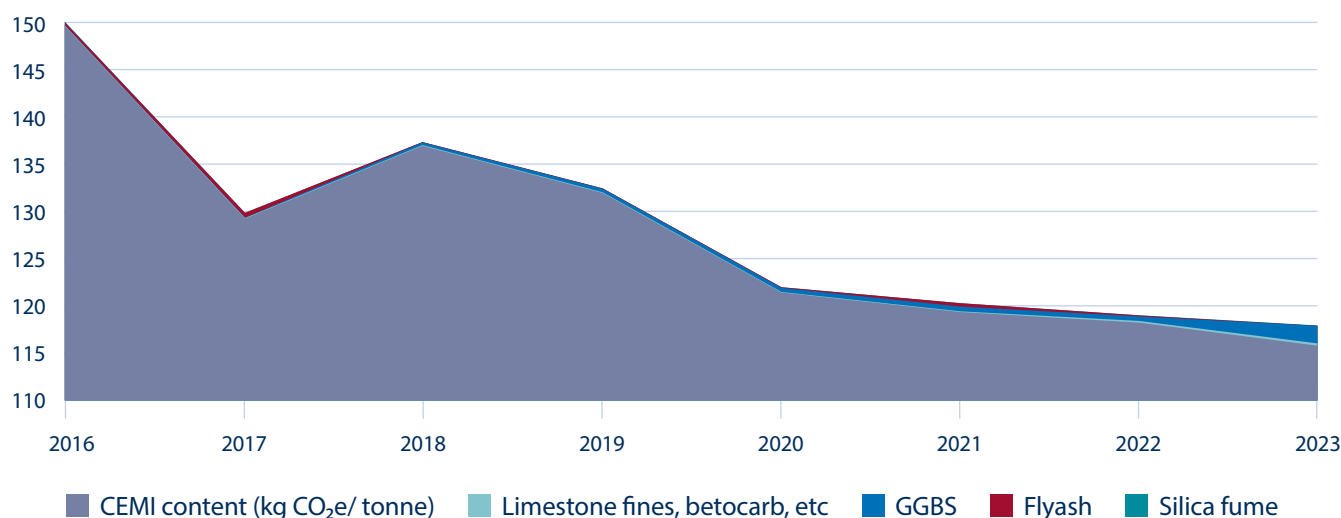
Key highlights from the report include:

## Low carbon cement replacement

Cement replacement with supplementary cementitious material (SCMs) has reached a new record in 2023, exceeding 20% (at 21.3%) for the second year across the whole sector. Use of SCMs for structural precast products has risen by well over 30% since 2019, leading to a significant drop in associated embodied carbon. Since 2016, carbon savings associated with the cement content of structural reinforced precast products alone exceeded 30 kg CO<sub>2</sub>e/ tonne of product.

Such a decarbonisation approaches is becoming widely common in the sector. 82% of our structural precast manufacturing member companies used low carbon SCMs on a regular basis in 2023 to reduce their products' embodied carbon.

GHG emissions associated with reinforced precast products' cement content (2016-2023) (kg CO<sub>2</sub>e/ tonne)



## Precast factory carbon emissions

Precast and masonry factory carbon emissions rose to 11.42 kg CO<sub>2</sub>e/t this year. This is higher than previous years mainly due to further shifts in the tonnage reported from masonry to reinforced precast, and also due to a switch in reporting methodology from CO<sub>2</sub> only to CO<sub>2</sub>e. Despite this, it remains significantly lower (by 42%) than factory carbon emissions back in 2010.

Almost two thirds of the electricity used in our members' factories in 2023 came from renewable sources, either generated on-site or delivered via green energy tariffs, such as REGO.

## Sustainable reinforcement and rebar

Over 58% of rebar can be traced back to the most carbon efficient mills in the United Kingdom where the carbon footprint of steel rebar can be as low as 360 kg CO<sub>2</sub>e/ tonne. Overall, over 77% of all the rebar and reinforcement strand used in precast concrete production in 2023 can be traced back to mills located in the United Kingdom or European Union.

## Factories' sustainable management systems

Over 88% of factories and sites are certified to both ISO 9001 and ISO 14001. Over 71% of factories also maintain H&S management systems in accordance with ISO 59001. BES 6001 (responsible sourcing) certification has also reached a record high, with 86% of tonnage now certified under that standard.



# Mind over Matter

## Why Mental Health Is the New Frontier in Workplace Safety

At The Health and Safety Event in Birmingham in April, HSE Chair Sarah Newton outlined HSE's vision to reduce work-related ill health, which affects 1.7 million workers annually. Sarah Newton explained that "It was a cultural transformation spanning decades, where safety became embedded in workplace practice rather than an afterthought. Now, we need a cultural shift of similar magnitude to prevent work-related ill health."

HSE statistics show that of the 1.7 million workers suffering from work-related ill health (new or long standing), 46% is attributed to stress, depression or anxiety.

To begin to have an impact on these figures we must first look to understand what stress actually is. The HSE in the UK defines stress as "the adverse reaction people have to excessive pressures or other types of demand placed on them". As employers, it is important we are able to differentiate between pressure and stress. Everyone needs a certain amount of pressure to function effectively, but excess pressure may, in some cases lead to employees feeling the effects of stress.

It is important to note that employers have a legal duty to prevent work-related stress. Managing stress is an absolute duty and to aid employers in understanding the work-related factors which may induce stress, HSE has produced a set of Management Standards which sets out six key risk factors alongside possible control measures.

During their inspection, HSE inspectors are increasingly asking businesses how they manage work-related stress. Having a robust risk assessment will help demonstrate this. MPA recently launched its "Work – Related Stress Risk Assessment Guidance" a great demonstration of the success we have across our Working Groups and in this case, our Mental Health and Wellbeing Group.

"1.7 million workers suffering from work-related ill health (new or long standing), 46% is attributed to stress, depression or anxiety."

This guidance document describes the importance of carrying out an organisational level risk assessment that addresses work-related stress. It describes the legal context and touches on the moral and financial case for managing work related stress and the practical steps that need to be taken during the risk assessment process. The guidance is based on HSE's Stress Management Standards and includes templates and suggestions of control measures that organisations can adopt or adapt to manage work-related stress in each of the 6 areas; Demands, Change, Control, Relationships, Role and Support. The guidance should enable organisations to follow the steps necessary to produce a suitable and sufficient risk assessment as well as an action plan of how control measures will be implemented. The main target audience is H&S professionals and managers who may be required to carry out an organisational level risk assessment.

In 2024, our HSE partner brought together over 70 leaders from across industry at the HSE Prevention Summit to discuss ways in which we might collectively address work-related ill health and to agree a commitment to take positive action to improve the issue.

MPA were proud to represent industry and demonstrate the good progress being made that will contribute to HSE's objective to reduce work-related ill health, but it was also a great opportunity to identify key areas that can be focused on moving forward.

MPA's work will see us reaching out to members to understand the challenges and possible innovations to make a real difference for all those working within the minerals industry.

While we look to do our part in driving down the ill health figures through a focus on work-related stress, the wider wellbeing context should also be considered. The Chartered Institute of Personnel Development defines wellbeing as: 'The creation of an environment that promotes a state of contentment which allows employees to flourish and achieve their full potential for the benefit of them and the organisation'.

Caring for employees' wellbeing should be high on all businesses list of priorities from a human safety point of view. Research suggests that by encompassing health and wellbeing into the overall Health and Safety Sphere, we will see improvements in many areas. Better wellbeing can lead to less absenteeism, less presenteeism, improved employee engagement and performance and better workplace safety.

The World Health Organisation states "There is a wealth of data demonstrating that in the long term, the most successful and competitive companies are those that have the best health and safety records and the most physically and mentally healthy and satisfied workers".

In many cases, a reactive approach is taken to managing employee mental health. Often organisations will utilise interventions such as employee assistance programs, occupational health, counselling and mental health first aiders. Whilst there is a place for all of these, there is a need to focus on preventing issues in the first place. In the same way, we would seek to minimise risk of health and safety hazards in the workplace, a similar process should take place for work – related stress. We can now begin to see how creating a positive wellbeing culture can have an impact on our legal duty to prevent work-related stress.

Proactively taking steps to prevent stress occurring is preferential to reactively having to deal with both the causes of stress and the consequences. Given the current rates of work-related stress, many employers will find themselves on the back foot and reactively trying to address issues that have become embedded. To proactively manage stress effectively, HR and Health and Safety should work together to ensure the health hazards associated with the workplace are identified, understood and appropriately managed. Each will have important roles in ensuring effective communication, policy development and training, equipping managers and employees with the knowledge they need to keep themselves and their colleagues safe and healthy.

Written by Amy Harris, MPA Health & Safety Manager

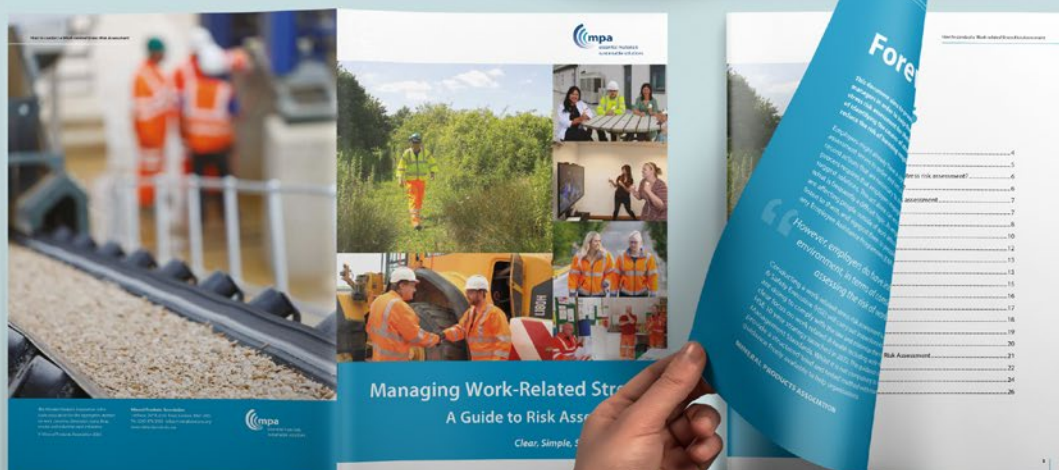
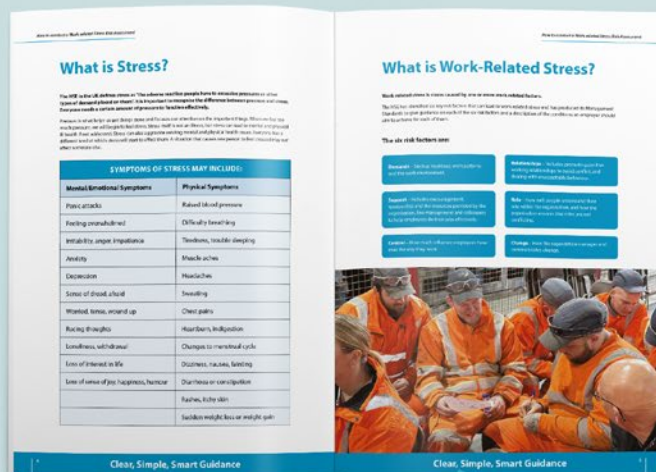
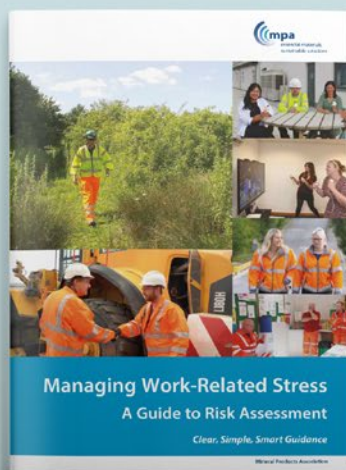
# Managing Work Related Stress Guidance Document

Download a copy at: [www.SafeQuarry.com](http://www.SafeQuarry.com)

**This guidance document describes the importance of carrying out an organisational level risk assessment that addresses work related stress.**

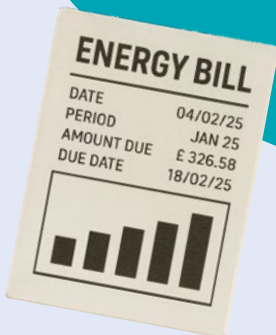
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# PACKAGING UP PUBLIC OPINION

## WITH COMMON SENSE PERSPECTIVES ON HOUSING



It is easy to lose touch with public opinion and focus on what internal industry trends are.

UK Concrete's Matthew Butcher looks at some home truths and commonsense reading of public opinion by channelling the thoughts of 'The Average UK Homeowner', not available in a toy store near you.

## THE STUDY

UK Concrete commissioned the market research agency Opinium to conduct an in-depth survey of the public about their attitudes to their homes, how they are built, and what they value in them. The survey of 5,000 adults, conducted at the start of 2025, aimed to get under the skin of what homeowners and renters feel about the UK housing challenge. In a period where many new homes are going to be delivered, we asked what exactly those that are going to live in them – and ultimately buy and rent them – prioritise. The answers shed light on what it is that people value, and may undermine some preconceptions, highlighting the need for a commonsense approach.

# 5000

UK CONCRETE SURVEYED  
5000 HOMEOWNERS  
AND PROSPECTIVE  
HOMEOWNERS



# PACKAGING UP PUBLIC OPINION

COMMONSENSE HOUSING HEROES

**NEW!**  
Now with  
**ENERGY  
ANXIETY &  
MOULD  
DETECTION  
MODE!**



**NEW!**  
Now with  
**NON COMBUSTIBLE  
WALL PANELS**

## THE AVERAGE UK HOMEOWNER

Home Truths

TURN PAGE  
TO CONTINUE





# AFFORDABILITY: IT'S THE ECONOMY STUPID...

The survey found that when asked what the government and industry's priorities for new housing should be, the top response was "affordability", with 64% putting that answer. This came ahead of any concerns about quality, safety or sustainability.

The vast majority of respondents to our research said both that the cost-of-living crisis had made them more aware of how energy efficient their current home was (69%), and that they would prioritise energy efficiency more now compared to two years ago, due to the rising cost of living (70%).



### COMMONSENSE CHECK:

This new generation of homes need to be built to meet the requirements for affordable housing. Not just in their upfront cost but in their energy efficiency to mitigate against the rising cost of bills. It's the economy, stupid...

# 63%

**63% SUGGEST  
BUILDING QUALITY  
SHOULD BE TOP OF  
THE GOVERNMENT'S  
PRIORITIES FOR  
HOUSING**

# SAFE, WARM AND DRY... NOT LOCATION, LOCATION, LOCATION...

The fear that homes don't adequately protect residents from the various impacts of water is very high up the list of concerns. Asked what they most feared happening to their current home, a quarter of respondents said, "leaks or escape of water", the third highest concern. The biggest concern, however, echoed across other questions, was around damp and/or mould, cited by 32%. Damp and mould were also the third most popular answer to how respondents would improve their current homes, cited by 27%.

### COMMONSENSE CHECK:

Sorry Kirsty and Phil, but it isn't 'Location, location, location' or even sustainability, in fact the public's number one concern is the quality and comfort of their property. The public are especially sensitive to damage stemming from the escape of water, flooding and material/build quality issues causing damp, mould and pests. Masonry construction offers dimensional stability and structural integrity during and after flood events, a stable surface for waterproof membranes, fast restoration post-flood and is a non-degradable material that doesn't rot, rust or warp. No other construction methods offer this level of resilience.

Interestingly, the biggest reasons for respondents to be unhappy with their current homes were around either heating or cooling costs (such as poor insulation or ventilation), cited by 40% or damp or mould growth, cited by 41%. This compares to factors which might normally be assumed to be at the heart of buying decisions, such as "poor location" or access to local amenities and services, cited by just 13% and 6% respectively.

Clearly damp and mould issues can have several causes, however, one way to help prevent them is to focus on both the quality of materials used and also the quality of the build. This rang true with the survey respondents, with over half, 52%, saying that they would prioritise a home being built with high quality building materials and 63% of respondents suggesting that building quality should be top of the government's priorities for housing. The sustainability of materials on the other hand did not appear to be decisive for most in choosing a new home. Just 26% responded that finding a home built with environmentally friendly materials was part of what they would look for in a new property.

# 87%

**87% STATE FIRE RESISTANT  
MATERIALS IMPORTANT  
SAFETY MEASURE**

## FIRE SAFETY IS MORE IMPORTANT THAN EVER

Overall, 87% of respondents said having the home constructed from fire resistant materials was an important or very important safety measure – coming behind only protection from leaks and protection from mould and damp in salience to residents.

Since the Grenfell Tower fire in 2017, the role of flammable building materials has been widely discussed, resulting in changes to building regulations. It has also left residents in high-rise homes no longer viewed as fire safe with serious problems, with many left unable to sell their properties until remediation works are completed.

### COMMONSENSE CHECK:

Building out of non-combustible materials shouldn't only be a commonsense safety measure in buildings above seven stories but in homes of any height. Modular offsite and timber construction can claim fire safety of design on paper, but time and again the reality of fires propagating in these structures rears its head. Concrete and masonry are non-combustible with an A1 fire rating, their use in construction is the only way to give peace of mind to residents.

In the research, 53% of respondents said they were aware of the fire safety of their home's building materials when they moved in, well above the number that claimed knowledge around issues such as sound insulation and carbon footprint, and 21% said they feared fire damage to their home – the fourth most cited fear. This fear rose to 29% of residents of buildings above seven stories.

The news this year has already given one stark example of why this fear is not unfounded, with whole swaths of California destroyed by wildfires and some harrowing scenes in Los Angeles. The areas of the UK currently at risk in this way are limited but mitigating risk from fire is a key tenet of the new Building Safety Act and the use of noncombustible building materials is one lever the construction industry can pull to help reach this aim.

If only 53% of respondents are aware of the fire safety of building materials in their homes, then there needs to be much more information given to residents and prospective buyers to allow informed choices.

## TRIED, TESTED, UK MANUFACTURING

Government have repeatedly committed to building 1.5 million homes across the lifetime of the current parliament, and to that end have already brought forward significant reforms to the planning system intended to deliver the homes. The target, equivalent to building 300,000 homes a year for five years, would require a sustained uplift of over 35% on the volume of homes built in 2023/24.

This level of housing delivery was not seen as credible by a significant majority of respondents to the survey, with just 13% expressing confidence the target will be hit. In contrast, almost three fifths (59%) of respondents said they were not confident the target would be met.

The mineral products industry is fully behind the government's ambitions to build 1.5 million homes, and despite public scepticism, will do everything in its power to assist delivery.

Common sense suggests that if we are going to get anywhere close to delivering the required 300,000 houses per year both the government and housing developers need to focus on scaling up tried and tested construction solutions. The concrete and masonry industry in the UK is an established supply chain. It uses local, responsibly sourced materials with scope for expansion of manufacturing and employment opportunities. This sits in contrast to a lightweight modular sector that has seen a raft of bankruptcies

and business failures in recent years and timber construction that relies predominantly on imports. With this in mind, the concrete and masonry industry is concerned to see government support for the 'Timber in Construction Roadmap', especially without a similar plan to support a UK concrete industry which is a vital part of home-grown British material supply and manufacturing

Chris Leese, Chair of the MPA Executive Management Committee, agrees saying that: "Given that the timber roadmap plainly states that timber is combustible and can contribute to the spread of fire, it's frustrating and perplexing that Government seems so keen to support using more of it. Even more so with unresolved questions around how to prevent further global deforestation, when the UK is already the third largest timber importer in the world."

### COMMONSENSE CHECK:

A dependable and resilient local supply chain is essential. 1.5 million homes the UK desperately needs. The vast majority of any delivery will need to be masonry homes, and this should be acknowledged and supported. The concrete and masonry industry stands ready to work with the government in achieving its housing pledges.





# From data to decisions

How EPD uptake is transforming building design.  
Written by One Click LCA.

**Environmental product declarations (EPDs) have evolved from a regulatory checkbox into a cornerstone of low-carbon design and procurement.**

For manufacturers in the mineral products and concrete sectors, EPDs now serve as more than a transparency tool — they are central to how materials are selected, specified, and benchmarked across projects.

This evolution is driving a shift in how EPDs are produced, accessed, and analysed — and how they are being used more effectively across the construction value chain.

## Understanding the growing role of EPDs in building-level assessment

EPDs quantify the environmental impacts of a product across its life-cycle, most notably embodied carbon. Governed by standards such as EN 15804 and ISO 21930, they are increasingly required for public procurement, whole-life carbon assessments, and certification schemes like BREEAM and LEED.

What's changing is their use at building level. Designers are now integrating EPDs directly into life-cycle assessment (LCA) tools during early-stage planning, where individual product choices can significantly impact the total carbon footprint.

For manufacturers, this creates both pressure and opportunity. EPDs must not only be current and verified, but also digitally accessible, searchable, and compatible with design workflows. This is particularly true for carbon-intensive materials such as concrete, where regional materials, binder compositions, and mix designs create significant variation in carbon performance. Specific, product-level data allows for more informed decisions — whether comparing precast vs in-situ options or evaluating cementitious substitutions like GGBS.

## EPD uptake among manufacturers: From obligation to strategy

Many manufacturers are moving beyond compliance, recognising [EPDs as strategic tools](#) to engage with specifiers, contractors, and sustainability consultants.

Concrete producers, for example, are using EPDs to showcase how alternative materials — such as calcined clays or recycled aggregates — perform across multiple environmental indicators. This kind of evidence is increasingly vital as net-zero targets become mainstream in both public and private procurement.

Just as important is visibility: if an EPD isn't embedded in the digital tools used by designers, it risks being overlooked in favour of more accessible data from a competitor. The ability to ensure product data is visible and comparable at the right moment in design is now a key differentiator.

## Emerging analytics: Understanding use and influence

One of the most promising developments is the use of analytics to understand how EPDs are used in practice.

Traditionally, EPDs were hosted in static databases, with little feedback on who used them or in what context. This is now changing. Platforms such as One Click LCA — which offers the world's largest construction materials and EPD database — provide manufacturers with insight into how often their data appears in real-world building models, in which project types and regions, and how it compares to generic or competing options.

This allows technical, commercial, and sustainability teams to make more informed decisions about where to invest in new declarations, optimise existing products, or align messaging with market demand. [One Click LCA's Materials Compass](#) — the world's largest database with over 300,000 material datasets — is used by thousands of AEC professionals to find and compare materials in real-time. For manufacturers, being included and accurately represented in this environment is essential. If data isn't accessible where decisions are made, it's less likely to be specified — regardless of performance.

## The Future: Scalable EPDs and intelligent automation

As the industry scales up whole-life carbon assessments, traditional approaches to EPD creation are being stretched. Manufacturers, especially in concrete, need faster, more flexible systems to account for product variation and site-specific mixes.

One Click LCA is addressing this by enabling manufacturers to streamline and scale EPD delivery through:

- Template-based modelling to standardise data across product lines
- Pre-verification workflows to speed up third-party review
- AI-assisted tools for identifying hotspots, optimising mixes, and simulating lower-impact alternatives
- API integrations that automate the exchange of large data volumes with internal systems and customer platforms

These capabilities support a shift toward EPDs on demand — allowing manufacturers to generate verified, project-specific declarations without restarting the entire LCA process. For concrete, this means site-specific variations or SCM changes can be accurately declared in real time.

AI further enhances early-stage decision-making, identifying carbon-intensive elements and suggesting improvements without compromising structural performance. Crucially, these tools support — not replace — human expertise, enabling teams to focus on strategic decisions while automating repetitive tasks.

## Implications for the mineral products sector

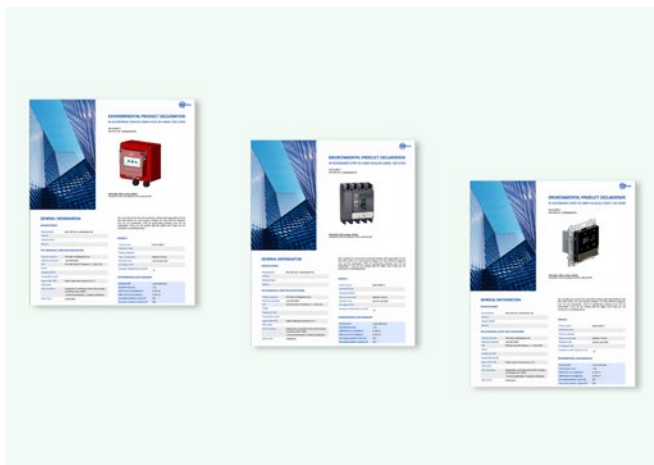
For concrete and other mineral product manufacturers, this shift represents both a challenge and an opportunity. EPDs are no longer just passive documents — they are live components of digital construction and influence real procurement decisions.

Manufacturers who invest in accessible, verifiable, and digitally integrated EPDs will be better positioned to meet evolving client expectations, win low-carbon projects, and inform innovation pipelines. At the same time, industry bodies have a vital role to play in standardisation, education, and ensuring sector data is well-represented in the digital design environment.

## Why scalable, automated EPDs are now business-critical

EPDs are becoming smarter, faster, and more impactful. What began as a compliance requirement is now central to how sustainable buildings are designed and delivered.

As AI, automation, and analytics reshape the environmental data landscape, the ability to generate, interpret, and act on high-quality EPD data will be a defining factor for manufacturers. In high-impact sectors like concrete, this is no longer optional — it is fundamental to remaining competitive in a carbon-conscious construction industry.





# Precast in Healthcare

Repeatable, realistic and risk-free

**A restructured New Hospitals Programme is focused on a changing NHS estate and a deliverable programme over the next decade. Repeatable construction using homegrown materials and offsite construction techniques are going to be key to derisking projects and delivery, says Mark Shepherd, Director MPA Precast and MPA Masonry.**

When Wes Streeting, Secretary of State for Health & Social Care unveiled Labour's revised New Hospitals Programme (NHP) earlier this year, he was quick to brand the previous administration's programme target of 40 new hospital projects by 2030 as undeliverable.

Realistic delivery in a challenging fiscal environment means that the new programme is based on a new staged delivery timetable. Wave zero will see the delivery of projects which are already in the advanced stages of development completed within the next three years. Wave one will then follow with projects in construction between 2025 and 2030 and waves two and three will be completed right up to 2039.

Prior to the NHP, each new hospital building would have been designed, developed and built as a standalone bespoke project for an NHS Trust. The programme is focused on standardisation, using the repeatability of designs to build better and faster as part of a coordinated national plan overseen by the Department of Health & Social Care and NHS England.

While the NHS programme is clearly not as ambitious on timescales as it once was, it is still competing for resources – people, materials and plant – at a time when infrastructure and housing pipelines are set to be significant over the next decade.

Like other sectors, it is also attempting to deliver a complex programme when global materials supply chains, particularly for imported steel, are unpredictable due to the impact of President Trump's tariffs on the global economy.

Against this backdrop it's important that the Government and NHS estate maximise the speed and repeatability of offsite construction and also use component-led construction to reduce on site labour and de-risk the delivery of the NHP programme.

The revised programme also provides a major opportunity to retain as much economic value in the UK as possible.

Precast concrete is an established Modern Method of Construction (MMC) offsite solution and is increasingly playing a vital role in delivering high-quality, efficient healthcare buildings. Part of an essential UK concrete manufacturing sector, precast uses homegrown materials to reduce the demand for imports, ensure security of supply, while cutting carbon and protecting high skilled jobs.

Importantly, precast concrete components enable faster construction with minimal disruption which is crucial for live hospital environments but also repeatable hospital designs.

With consistent factory-controlled quality, precast elements provide excellent fire resistance, acoustic separation, and thermal performance, all of which are essential for patient safety, comfort, and operational efficiency.





## Award-winning precast healthcare innovation

In the midst of the Covid-19 pandemic, John Sisk & Son engaged Techcrete to provide 348 precast concrete panels for the Rock Wing at Mater Misericordiae University Hospital in Dublin.

Designed by Scott Tallon Walker Architects, the brief was to create a modern wing which would provide the hospital with occupancy for an additional 5,000 patients annually.

Techcrete's punch window panels incorporate a terracotta veneer, with an acid etched finish to the concrete elements and glazing which was installed at their facility in Dublin. The flat wall panels to the stair core feature concrete fins, echoing the solar shading provided by the window fins on the main elevations. Dummy joints to the top of the stair core provide an additional design feature. The hospital emblem was cast into the large wall panel to the main building entrance using a bespoke rubber mould.

The Rock Wing won both 'Building of the Year (Medical and Health)' at the Building and Architect Awards 2024 and the 'Public Buildings and Infrastructure' award at the RIAI Awards the same year, as well as 'Healthcare Project of the Year' at the 2025 Irish Building and Design Awards this spring in Dublin.

Steven McGee, Chief Operating Officer, Sisk Ireland & UK said: "This is an amazing example of a value for money approach to speedily developing a healthcare asset in super quick time during the pandemic."

Although Modern Methods of Construction (MMC) are often associated with lightweight materials, precast concrete has long been established as a reliable MMC solution. The use of precast concrete panels for both floor and wall units has been proven over many years, offering significant benefits such as structural integrity, durability, fire resistance, and acoustic performance - often surpassing those of lightweight alternatives.

Concrete is an inherently non-combustible material with the highest fire safety rating of class A1, reducing risk in a hospital environment.

From a health and safety perspective, construction workers can be better protected on MMC projects as its techniques reduce both the amount and scope of traditional onsite construction activities. The installation of precast concrete has recently seen new innovations, including the use of air-inflated crash bags and nets to ensure that workers operate in the safest environment when fitting the precast elements.

The delivery of the newly revised NHP programme remains an ambitious plan but with new pragmatic timeframes. With standardised, high quality designs it can be a blueprint for offsite delivery and an economic catalyst for the sector. Precast concrete has an important role in de-risking projects and delivering a new, modern NHS estate that's fit for the future.

# MPA Spotlight

Working hard for you



## MPA Precast and MPA Masonry

MPA Precast and MPA Masonry are specialist product groups within the Mineral Products across the UK. Together, they champion the use of concrete in modern methods of construction, supporting sustainable, safe and high-performance solutions from offsite manufacturing to durable, resilient masonry for homes and buildings.

**The Mineral Products Association is the trade association for the UK's aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and industrial sand industries. The MPA works to promote sustainable practices, influence policy and support innovation across the industry.**

Within the MPA sits MPA Concrete, a group of concrete focused constituent organisations and product groups, each with a specific function to support the concrete industry in the UK. Operating together under the MPA umbrella provides combined strength while facilitating cost-effective use of resources and expertise. With all the work going in the sector it is important to get to know some of the people behind the scenes.

Every team member in the MPA plays a vital role in delivering for members but here we spotlight just some of those most directly involved in the precast and masonry sectors who are working hard for you.



**Mark Shepherd | Director,  
MPA Precast & MPA Masonry**

Mark leads both MPA Precast and MPA Masonry, providing strategic direction and championing innovation across the sectors. He oversees technical and marketing support for members and associates, driving industry collaboration and promoting the value of precast and masonry solutions.



**Phil Cox |  
Special Advisor**

Areas of key responsibility include member liaison and special projects.



**Colin Nessfield |  
Technical Manager, MPA Precast**

Areas of key responsibility include precast technical guidance, technical support and BSI committee representation. Secretariat for the architectural & structural, paving and flooring technical committees. Colin is also the current president of the Institute of Concrete Technology (ICT).



**Steve Callow | Manager,  
Masonry and Concrete Products**

Areas of key responsibility include being secretariat to MPA Masonry sector groups for Aircrete Technical, Principals, Scottish Blocks & Marketing and secretariat to MPA Precast Drainage Technical and Marketing.



**Anvit Gadkar |  
Technical Manager, MPA Masonry**

Areas of key responsibility include technical lead for MPA Masonry, supporting members with guidance, standards and technical matters. Secretariat for the Concrete Block and Aircrete Block technical committees.



**Christine Giddens |  
Accounts Executive**

Areas of key responsibility include statistics collection and analysis, purchase and sales ledger and credit control.



## The Concrete Centre

The Concrete Centre provides material, design and construction guidance. Its aim is to enable all those involved in the design, use and performance of concrete to realise its structural, aesthetic and sustainability potential. The Concrete Centre provides published guidance, seminars, courses, online resources and industry research to the design community.

### Concrete team members and MPA divisions who work closely with the precast and masonry sectors:

For more detail of the structure and strategic priorities and campaigns of the MPA refer the latest **MPA Charter and Members' Handbook**.



**Elaine Toogood |**  
Senior Director of Concrete and  
Director of The Concrete Centre

Elaine oversees all activity and campaigns delivered by The Concrete Centre, UK Concrete, MPA Ready-Mixed Concrete, MPA Precast and MPA Masonry.

## UK Concrete

UK Concrete engages with stakeholders across the construction sector, providing thought-leadership on the benefits of concrete in the UK. It advocates for sustainability and innovation, ensuring concrete remains a key solution for a low-carbon, resilient built environment. UK Concrete manages and maintains the UK Concrete Industry Sustainable Construction Strategy.



**Tony Jones | Technical Director**  
of The Concrete Centre

Areas of key responsibility include structural engineering, Eurocode 2, fire performance and chair of the MPA Standards Committee.



**Hafiz Elhag | UK Concrete**  
Sustainability Manager  
(Concrete Products)

Areas of key responsibility include Environmental Product Declarations, Sustainability & Environment Committee, Carbon & Sustainability Strategy.



**Amy Aldred | UK Concrete**  
Membership Manager

Areas of key responsibility include, overseeing membership communications and marketing, key point of contact for all new and existing members. Secretariat to the UK Concrete steering group and the management committees of MPA Precast and MPA Masonry.



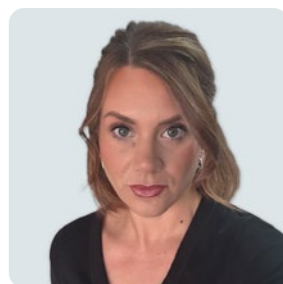
**Matthew Butcher | UK Concrete**  
Campaigns and Communications  
Manager

Areas of key responsibility include UK Concrete campaign coordination, PR, marketing and project management. Supporting MPA Precast and MPA Masonry marketing.



**Léa Mealing | UK Concrete Social**  
Media and PR Executive

Areas of key responsibility include managing MPA Precast, MPA Masonry and UK Concrete social media and websites, campaign and project support.



**Amy Harris |**  
Health and Safety Manager

Areas of key responsibility include first point of contact for incident/ HIPO alerts, secretariat for the MPA Precast and Masonry Health and Safety committees and organises the MPA Health and Safety Awards.





Banagher Precast Concrete Ltd and Explore Manufacturing Ltd - part of Laing O'Rourke

## Everton Football Stadium Case Study

**Everton Football Club's new 52,888 seater stadium, set along the historic banks of the River Mersey, Liverpool, has officially opened its doors for the 2025/2026 football season.**

This world-class stadium is a testament to modern engineering, utilising cutting-edge construction techniques and the expertise from industry-leading companies including, Laing O'Rourke - Explore Manufacturing and Banagher Precast Concrete. Each company played a crucial role in delivering this iconic project, which blends sustainable practices, digital precision and innovative building methods.

As the main contractor, Laing O'Rourke has overseen the entire stadium construction since being appointed by Everton Football Club in February 2020. With a £555 million project budget, Laing O'Rourke has leveraged its extensive experience in delivering complex sports infrastructure. The company's expertise in managing large-scale, intricate builds has been essential in maintaining both the ambitious timeline and budget.

From the early stages of development, the team worked closely with Everton Football Club to refine the stadium's design, navigating complex planning processes and coordinating with local authorities. Their integrated approach, supported by an in-house supply chain, allowed them to efficiently respond to the challenges posed by the stadium's unique dockside location. Laing O'Rourke's contribution is evident in the detailed preservation of historical features, including the Grade II listed dock wall and the stabilisation of the site's hydraulic tower, demonstrating their commitment to heritage alongside modern development.

Banagher Precast Concrete, a leader in precast concrete manufacturing, supplied critical structural elements for the Everton Stadium. They provided bespoke double-step terracing units and other key precast components. The company's advanced manufacturing capabilities ensured that the components were produced to exacting specifications and delivered on time.





“With a £555 million project budget, Laing O’Rourke has leveraged its extensive experience in delivering complex sports infrastructure.”

The terracing units, produced offsite in Banagher’s Irish facilities, were shipped directly to Liverpool, minimising on-site construction time and labour. These double-step units were engineered specifically for Everton’s stadium to create the perfect balance between durability, safety and spectator experience. By manufacturing the components offsite, Banagher Precast significantly reduced construction waste and improved quality control, key aspects of the project’s sustainability efforts. Their partnership with Laing O’Rourke exemplifies how offsite construction methods can drive both efficiency and sustainability in large-scale developments.

The Explore Manufacturing part of Laing O’Rourke was a vital player in the project and brought its specialised capabilities in offsite manufacturing to the Everton Stadium build. As part of Laing O’Rourke’s in-house supply chain, Explore Manufacturing was responsible for producing a wide range of precast elements, including structural beams, columns and cladding systems, which formed the stadium’s structural backbone.

Explore Manufacturing’s precision-driven approach leveraged cutting-edge technologies and Design for Manufacturing and Assembly (DfMA) principles. By producing components offsite and ensuring meticulous quality control, Explore Manufacturing helped streamline the construction process, reducing on-site complexities and minimising disruption to the surrounding area. Their contributions were integral to achieving the project’s ambitious timelines while maintaining the highest standards of safety and durability.

The collaboration between Laing O’Rourke - Explore Manufacturing and Banagher Precast Concrete is a prime example of how modern methods of construction (MMC) and digital innovations like Building Information Modelling (BIM) can enhance both the efficiency and sustainability of large projects. BIM was crucial in the planning and execution of the Everton Stadium, enabling digital visualisation of every stage of construction. This minimised risks, improved project management, and provided a digital blueprint for future maintenance or upgrades.

By employing DfMA principles, all parties ensured that large components could be fabricated offsite to precise specifications and assembled with minimal waste and maximum efficiency. This approach was critical in meeting the stadium’s tight deadlines, particularly in the context of a complex, dockside construction environment.

Beyond its impressive structural design, Everton Football Stadium stands as a model of sustainable construction and community engagement. Its location, just a short distance from Liverpool’s city centre, allows fans to walk or take public transport to matches, reducing the carbon footprint of game-day travel. Laing O’Rourke and Banagher Precast Concrete both worked with local organisations to create jobs, provide skills training and engage with the local community throughout the construction process.

The site’s transformation from a historic dock to a world-class stadium has been carefully managed with sustainability in mind. Initial groundwork, including the infilling of the dock with 450,000 cubic meters of sand dredged from the Irish Sea, was conducted with a minimal environmental impact. Marine life was carefully relocated and heritage structures were preserved, ensuring that the project respected both the natural environment and the historical significance of the site.

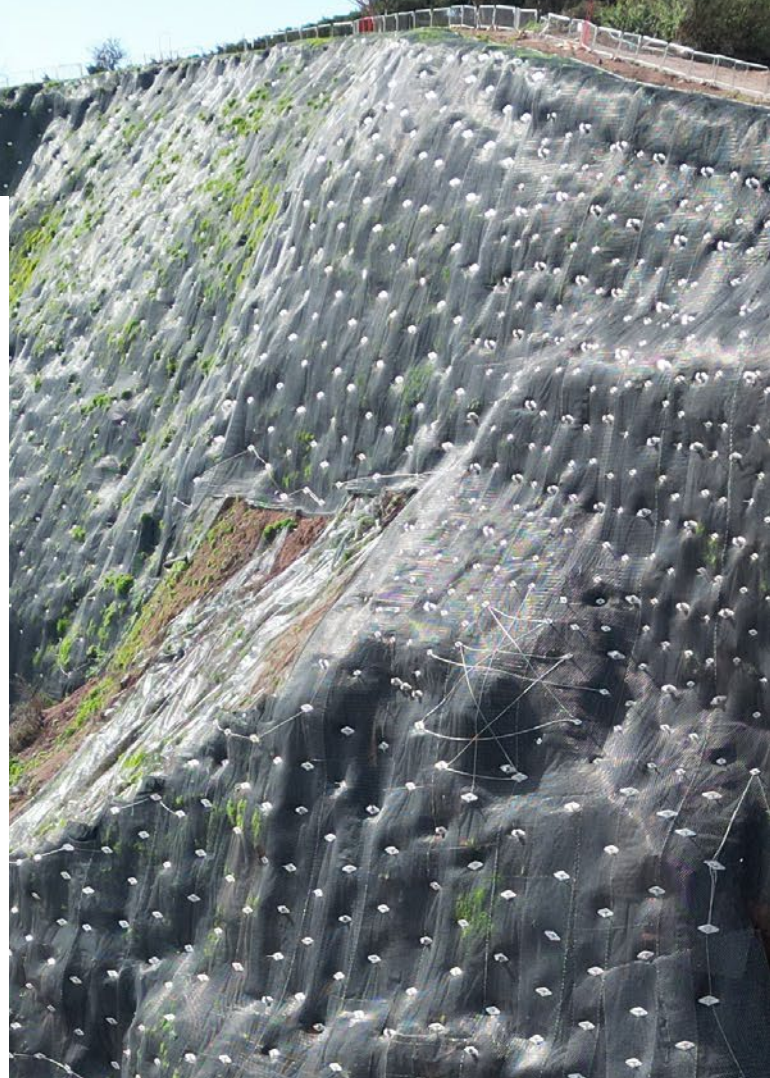


Cornish Concrete Products Ltd

# South Devon Railway Resilience Programme Case Study

**The completion of the 109m-long rockfall shelter at Parsons Tunnel, near Holcombe, marks a major milestone in Network Rail's Southwest Rail Resilience Programme.**

This programme was designed with the aim of protecting the coastal railways, running between Exeter and Newton Abbot, from extreme weather. On this route there was a particular focus on protecting the railway line from any potential rockfalls as steep cliffs cover that route.





This £48 million rockfall shelter is part of the wider Southwest Rail Resilience programme which was initiated following the 2014 storms that caused disruptions and cut of services to the peninsula for eight weeks. The programme has seen a total investment of £165 million, which includes the construction of a new sea wall at Dawlish and ongoing work to install additional protective measures between Dawlish and Holcombe. To ensure that there were minimal disruptions to the train services and to maintain the safety of the workers and passengers, most of the construction work took place during the night.

Cornish Concrete Products Ltd played a central role in the project, manufacturing a total of 185 precast concrete units. Each unit was specifically designed and coloured red to match the local sandstone, ensuring that the structure blended seamlessly with the natural surroundings whilst providing the necessary durability to withstand the extreme weather conditions. The structure itself is open on the seaward side, so that passengers are still able to continue to enjoy the coastal views. All of the precast concrete units were then transported to site and installed to create a protective shelter.

To build the shelter, a gantry crane running along the rails was used to move the precast units into place. Due to the space constraints between the cliffs and the sea, the gantry crane proved to be invaluable to meet the unique challenges of working in such a confined space. The roof shelter was covered with 4,100 tonnes of red sand and 5,132m<sup>3</sup> of foam concrete which was used to backfill between the shelter and the cliff edge. Stainless steel netting measuring 7000m<sup>2</sup> and secured with 1,400 soil nails was installed above the structure to add an additional layer of protection, to the bridge, against potential rockfall.

The completion of the Parsons Tunnel rockfall shelter is a vital step in ensuring the resilience of this crucial rail link, blending innovative engineering with thoughtful design. It not only enhances passenger safety but also preserves the natural beauty of the surrounding Cornish coastal landscape.

Images – © Network Rail

“The roof shelter was covered with 4,100 tonnes of red sand and 5,132m<sup>3</sup> of foam concrete”



Decomo UK Ltd

## Fitzrovia Benefits From A Precast Façade Case Study

**The Fitzrovia, Tottenham Court Road, London, sits at a juncture between more modern development and the old Victorian and Edwardian building stock of the area.**

The design marries the need for rejuvenated retail and office space with an elegant historic feel. The new building replaces an unsalvable 1960s building with a six-storey mixed-use development which will provide 65,000 sq. ft. of Grade A office space and 11,000 sq. ft. of retail space. The striking façade of the building is clad in three different facing materials, the most notable being the celadon-glazed terracotta which adorns the scalloped bays on the Tottenham Court Road and Bayley Street elevations. As you move round to the Morwell Street elevation the frontage transitions from the terracotta bays to brick clad premium residential units, with a distinctive grey basalt base to the façade tying the elevations together.

“The new building replaces an unsalvable 1960s building with a six-storey mixed-use development which will provide 65,000 sq. ft. of Grade A office space and 11,000 sq. ft. of retail space.”





### Why a precast façade

Before settling on the design, multiple façade design options were considered for the project including unitised curtain wall, SFS with rainscreen and precast concrete. Ultimately, it was precast concrete which was chosen to best accommodate the scalloped profile and curved nature of the design. Precast concrete also offers limited penetrations to the weather line compared to the likes of a rainscreen system which have a significant amount of bracketry leading to thermal bridging. Thinner facing material is also possible with a faced precast solution than on a typical rainscreen solution.

Precasters Decomo were given the task, by contractors Kier and PCE, of bringing to life the distinctive design created by award-winning architects Stiff + Trevillion. The complex textured terracotta cladding panels are donut shaped and faced with extruded terracotta tiles. The precast backing provides a very robust substrate for the various facing materials, resulting in good impact performance. This meant that there was no need for a sub-frame to support the ceramic reducing the materials used.

Fire performance should always be a key consideration, especially in a residential development. The inherent non combustibility of concrete sets it apart from other construction materials, reducing risk. Concrete façade build-ups like the ones on the Fitzrovia also benefit from fire stops and cavity barriers being simpler to achieve than with a rainscreen type construction methodology where there are lots of cavities inherent in the build-up.

### Sustainable

The Fitzrovia is designed to the highest environmental standards, achieving BREEAM Outstanding with a strong focus on health and wellbeing, as well as being awarded a 5 Star Design for Performance NABERS rating. Using Ground Granulated Blast-Furnace Slag (GBBS) in the concrete mix saved 25,000 kg of CO<sub>2</sub> across the project and the use of Basalt fibre reinforcement (BFR) instead of steel mesh saved over an additional 30,000 kg of CO<sub>2</sub>.

The social impact of the project was a key consideration for contractors PCE. In dense urban environments like London, construction traffic, noise, and activity can cause significant disruption. By utilizing offsite Design for Manufacture and Assembly (DfMA) concrete solutions, Kier, PCE, and Decomo effectively minimised these disturbances.

### MMC benefits

Offsite manufacture not only reduces site activity and improves quality but also boosts health and safety with less working at height and manual handling. The offsite approach also reduces required deliveries by up to 80%, waste by up to 90%, with a significant reduction in noise and dust.

Speed of precast installation is also a big reason to go down the concrete MMC route and without the requirement for material storage on site, the programme can be designed around just-in-time delivery. For the Fitzrovia, completion was achieved in 26 weeks from starting on site with only 25 or less operatives onsite at any one time. The large nature of the panels and with up to 6 being installed per day meant that significant areas of the façade could be made fully weather tight quickly.

Over 2,100 units were manufactured and installed for The Fitzrovia from 6 different offsite specialists across the UK and Europe, testament to the strength and depth of the precast concrete supply chain. This included brick-faced sandwich panels, stairs, landings, upstands, twin and solid walls. Additionally, 5,000m<sup>2</sup> of concrete in-situ flooring and over 1,000 hollowcore slabs helped reduce material usage.





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# Fire resistance: a national priority

**It's thankfully very rare that we see tragic incidents of fire hitting the headlines, and we can only hope that we never again witness something at the same scale of the Grenfell Tower tragedy. However, the threat of fire in the spaces we live and work remains.**

It is because of this that fire safety is now seen by the public as a significant housing issue. Earlier this year, UK Concrete commissioned independent research to survey the views of 5,000 homeowners as well as private and social renters across the UK, with a proportion of these people living in medium to high rise buildings.

Asked how important the construction of their home from fire resistant materials was, 95 per cent of residents in buildings above seven stories said it was very or somewhat important. Nearly three in ten of those living in buildings higher than seven stories (29 per cent) said they feared fire damage to their home.

So against this societal and legislative backdrop post Grenfell, how can we ensure that our tall buildings are designed to protect against fire and give peace of mind to the people that occupy, own and insure them?

A large part of fire safety measures can come down to the choice of materials used in building design. It may seem obvious, but by using non-combustible materials in construction, the industry can create safer, more resilient and longer life buildings so that if a fire does occur, the damage and spread is limited.

“Nearly three in ten of those living in buildings higher than seven stories (29 per cent) said they feared fire damage to their home.”



## A wider range of materials and risks

These measures become all the more pertinent in tall multiple occupancy buildings such as flats, hotels, build to rent developments and student accommodation. In all of these markets, Modern Methods of Construction (MMC) encompassing different materials and methods have in the last decade played an increasing role.

Consequently, the days of looking at a building and knowing how and what it has been built with and easily establishing functionality and insurance risk have gone. While some forms of MMC have been around for decades, given the boost to sustainability and build efficiencies over traditional construction as well as changing government policies on procurement, its use is increasing. This has led to a much broader range of materials being used, which has subsequently increased risk in the built environment.

One of the current challenges in many buildings is the risk of fire spread in cavities between volumetric MMC modules, particularly when they contain combustible material. It is essential that all forms of MMC receive the appropriate level of scrutiny required to demonstrate compliance with the functional requirements of the building regulations.

Greater assurance is needed that the fire performance of materials, elements, and building systems have been fully considered, have been tested appropriately, and provide the level of safety that residents should always receive.

And it's not just residents who require peace of mind. Insurers want to determine how resilient buildings are to extreme scenarios such as fire, water escape and flood, how much of the building would be lost and how long it would take to rebuild and have the building in use again. This requires understanding the materials and design and how that will impact, for example, where fire spreads.

With high levels of scrutiny being placed on building facades, the Mineral Products Association wanted to demonstrate the performance, robustness and peace of mind which can be delivered by non-combustible concrete cladding systems.

## A test designed to reassure

Concrete is an inherently non-combustible material, meaning it doesn't burn or contribute to fire – nor does it give off toxic fumes or smoke. With the highest fire safety rating of class A1, it doesn't need to be tested to ensure its non-combustibility.

That said, to show just how resilient this material can be, the UK concrete industry carried out a fire test of precast concrete cladding panels to give people the confidence that concrete facades won't contribute to the spread of fire across buildings.

We commissioned the Fire Protection Association (FPA), the UK's leading fire safety organisation, to carry out the test. The test was specifically designed to represent what would happen if a fire were to break out of a window or other major opening within a concrete facade.

During the test period, in which a timber crib in a chamber behind an opening in the concrete panels was set alight, temperatures in excess of 600°C were recorded on the external face of the cladding 2.5m above the opening. Despite the ferocity of this fire, temperatures on the internal face barely rose above an ambient level and remained cool enough to touch, showing how effectively concrete can act as a heat shield between the fire and anything behind it.

Once the fire was extinguished, the panels exhibited minor cosmetic damage, but were otherwise structurally sound. If the panels had been in use on a real building, the work needed to restore the appearance would be minimal.

## Concrete is the low risk solution

Considering the ferocity and temperature of the fire, the fact that the damage sustained to the panels was only cosmetic and could be quickly repaired is testament to their fire resistance performance.

Building with non-combustible materials means building resilience into the spaces we occupy. While the best protection is always prevention, if a fire does break out, concrete is a reliable material and a low-risk solution that can save lives and property.

We hope that this fire test can help to give peace of mind to insurers, owners and occupiers of buildings that those built with concrete offer a long term resilience and protection against the threat of fire.

There have been several high-profile fires across the country in recent years where construction methods have been questioned, and rightly so. Competence, as with any building and construction methodology, and material selection, together with its related fire performance, is critical to delivering a safe building for occupants. While any doubts about materials and methods remain, the only sensible and responsible design choice is to build with materials such as concrete that have a proven safety record and do not burn.

For further information and to access the fire test reports visit: <https://www.mpaprecast.org/Resources/Structures-facades-guidance.aspx>





# Can SuDS and Sponges prevent our cities taking a financial bath?

**Climate change is undeniably making the UK hotter, but it is also making it wetter. The impacts of extreme weather events like flooding are set to cause huge disruption in the future.**

The costs are already starting to bite with a third of England's critical infrastructure, including roads, railways, energy networks and water systems at risk. The physical impacts of flood events to property, buildings and transport infrastructure costs £2.4bn annually, rising to £3.6bn by 2050 ['From risk to resilience: The case for flood-resilient communities, economy and growth, Public First, 2025'](#).

The financial costs don't end with physical damage, on average, workers are unable to reach their workplace for 10 days after a flood event, causing £290m in lost output. Increasing flood events will also create other downward pressures on the economy and employment levels due to a lack of business confidence. While increased provision for flood defences is important, this can never mitigate against all sources of climate risk.

For this reason, the resilience of our urban environments to the effects of climate change is increasingly recognised by city planners, developers, insurers, architects and clients, as a pressing concern. In December 2024, UK Concrete held a roundtable bringing these groups together to discuss the resilience of our cities. The subsequent MPA report ['Driving growth, embedding climate resilience: a national strategic priority for our cities'](#) highlights the challenges of looking past just carbon accounting and short-term financial constraints to address longer term climate risks and the possibility of stranded assets. As part of discussions, it was articulated that investors and insurers had begun to "supercharge" the debate around designing in climate resilience, by demanding assessments on issues such as flooding as part of weighing up potential investments.

## Step forward 'sponge cities'

One route to designing in flood resilience to our cities is to make them 'spongier'. Now the association between concrete and a sponge is intuitively a contradiction, one that is made worse by the longstanding belief, not entirely unfounded, that adding concrete to our urban environments has been responsible for increased surface runoff and flooding events. Recent press coverage of the international 'Sponge City' concept presents an opportunity to counter this perception and explain the essential role concrete will play in making our cities spongier.

## What is a sponge city?

The concept has been described as 'a form of a sustainable drainage system on an urban scale and beyond'. The UK Rivers Trust offers this useful summary: 'A Sponge City is designed to mimic natural processes, allowing urban areas to absorb, store, and purify rainwater, much like a sponge soaks up water. Sponge Cities can effectively reduce the risk of flooding while simultaneously enhancing the quality of urban life.'

The term 'sponge city' was coined by landscape architect Kongjian Yu, a professor at Peking University, for his concept of urban areas designed to cope with excess rainfall and avoid flooding, using a range of nature-based techniques inspired by traditional landscape management. Yu said: 'The sponge city concept adapts these ancient principles into urban planning, by incorporating permeable surfaces, green spaces, and constructed wetlands.'

Sponge cities were accepted in China as nationwide urban construction policy in 2014 applying to new build, expanded and rebuilt buildings and communities, roads and squares, parks, green spaces and urban water systems. Some 30 cities in China are already implementing this policy.





**“A Sponge City is designed to mimic natural processes, allowing urban areas to absorb, store, and purify rainwater, much like a sponge soaks up water.”**  
– The UK Rivers Trust

### Are sponge cities repackaged SuDS?

In the UK, ‘sustainable drainage systems’ (SuDS) have been in use since the mid-1990s, albeit with slow uptake and delayed government implementation. The principles and techniques involved are fundamentally the same as those in sponge cities, but with some differences in scale of application and responses to local weather or ground conditions.

In essence, they make extensive use of green infrastructure, but permeable paving and concrete drainage systems play an essential role as well. As the Rivers Trust says: ‘One of the key components of a Sponge City is permeable pavements. Unlike traditional street surfaces, permeable paving allows rainwater to infiltrate the ground, reducing surface runoff and replenishing groundwater. These pavements not only reduce the risk of flooding but also mitigate the heat island effect, making urban areas more comfortable during hot weather. Other benefits include eliminating ‘ponding’, reducing the risk of ice forming on the surface and no rain splashing from standing water’.

There are, however, important differences between SuDS and sponge cities. As the name suggests, sustainable drainage systems began by focusing on drainage techniques to reduce flooding and pollution. SuDS are often designed by drainage engineers and effectively grafted onto previously designed layouts as an afterthought. At this later design stage, the multiple potential benefits of SuDS and permeable paving are often missed.

In contrast, for sponge cities, water is a fundamental consideration as part of holistic master planning. This is both a challenge and a huge opportunity for those hoping to design in resilience to our cities. Actions and developments can’t be viewed in isolation but must form part of a wider strategy or else not only risk becoming stranded assets but also hamper efforts in other areas. Planners and architects need to ensure techniques such as permeable paving are fully integrated from the very start of the design process and used creatively to optimise its diverse benefits, complementing important green infrastructure.

More on the benefits of SuDS can be found in [Concrete Futures Magazine Spring 2025](#) which exposes the myths around their implementation.

UK Concrete Report: [Driving growth, embedding climate resilience: a national strategic priority for our cities](#)

For all things Concrete paving and drainage visit: [www.mpaprecast.org](http://www.mpaprecast.org)

### Can Spongy New Towns be the Garden Cities of the 21st Century?

In the absence of Schedule 3 in England, which would make local authorities responsible for mandatory SuDS provision in new developments, there is an increasing potential role for city and regional mayors in setting policies around the climate resilience of our cities. There is maybe no better opportunity to put the concept of sponge cities into practice than the new towns proposed by the government.

The Idea of embedding sustainability into new town developments is nothing new. The late 20th century saw the creation of the ‘Garden Cities’ movement, originally the vision of Ebenezer Howard. Although not without criticism, the Garden Cities were widely seen as a success introducing more green space, healthier surroundings and access to nature right from the design stage. They presented an opportunity to reimagine urban design without the constraints of existing development.

The new towns proposed by the labour government have this opportunity again. If the proposed new towns are to be spongy climate resilient cities, they will have to make effective use of concrete block permeable paving and concrete drainage systems.







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# Rewriting the Rules Below Ground

How MPA's Groundbreaking Research is Shaping the Future of Drainage Design

**In 2023, MPA Precast launched a major research initiative in collaboration with the National Buried Infrastructure Facility (NBIF) to challenge legacy design standards for buried pipelines.**

Long held assumptions within the drainage industry—particularly regarding the strength and performance of precast concrete pipes—suggested there was untapped potential to enhance design efficiency, lower costs, and significantly reduce embodied carbon.

Concrete pipes, with their robust material properties, have always offered a compelling case for smarter design choices. Backed by data dating as far back as 2011, MPA Precast has consistently championed the shift from traditional bedding approaches to more efficient alternatives. One key focus: moving from Class S bedding (a full surround of pea gravel) to Class B bedding (a half surround), which can deliver Whole Life Carbon (WLC) savings of over 10%.

Even more compelling, MPA Precast Drainage members—through the “Heavyweight Champion” project have demonstrated cost savings of up to 40% simply by adopting alternative bedding materials. Yet, despite this evidence, default designs persist, often out of habit rather than engineering necessity.

This is where the industry-led research comes in. By questioning outdated norms and validating alternatives with rigorous analysis, MPA Precast and NBIF are paving the way for change. In 2024, scoping work continued with MPA Technical Consultant Mark Flavell working alongside Professor Assad Faramarzi and Dr Wuzhou Zhai at NBIF. Together, they developed a plan to leverage NBIF's powerful Finite Element Analysis (FEA) capabilities to simulate various bedding scenarios and assess their real-world impacts.

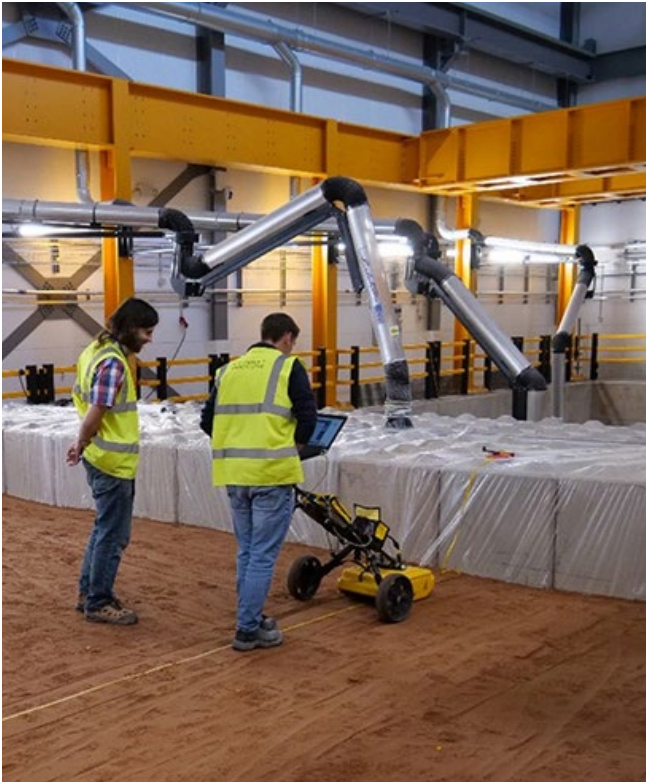
The study's overarching goal: to establish new, evidence-based methodologies for calculating bedding factors—methods that reduce the reliance on virgin materials and deliver genuine sustainability gains. The potential outcomes are significant: revised standards, more efficient pipelaying practices, lower construction costs, and measurable reductions in carbon impact across infrastructure projects.

In late 2024, the report Finite Element Analysis of Bedding Factor for Precast Concrete Pipes was delivered to MPA Precast Drainage members. Its findings were compelling—showing that, in all but the most extreme cases, there is a strong case for shifting bedding classes. MPA Precast unveiled these results at the Highways UK exhibition, generating considerable interest from across the civil engineering sector.

But the journey doesn't stop at simulations. In 2025, the research enters its final phase: in-pit testing of concrete pipes, putting theory into practice with real-world data. This marks the culmination of two years of collaboration between MPA Precast and NBIF. Supported by grant funding from the EPSRC Impact Acceleration Account (IAA), the team will test the physical performance of concrete pipes against the specifications outlined in the FEA studies. IAA has praised the initiative for its forward-thinking scope and tangible industry relevance.

This next phase will provide critical validation, helping strengthen the research foundation with empirical data. Both MPA Precast and the University of Birmingham are committed to ensuring the study's outcomes have maximum industry impact, particularly in influencing updates to British Standards, helping bring pipelaying methodologies firmly into the modern era.



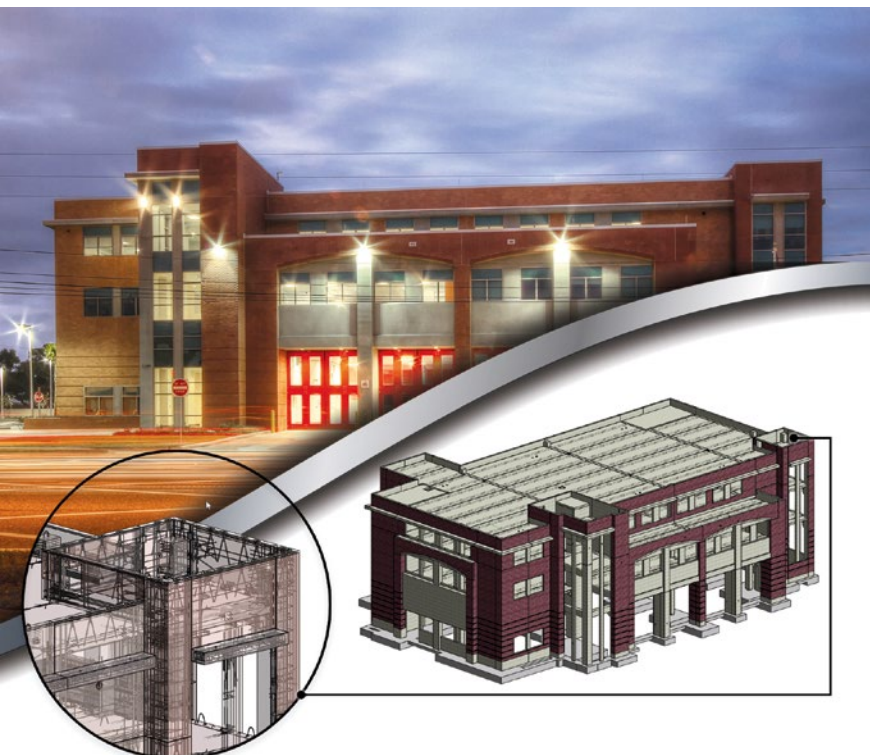


The ripple effects of this work could be transformative. Organisations such as National Highways, Network Rail, housing developers, utilities providers, and private contractors all of whom rely on legacy standards stand to benefit. Adopting the updated methodologies could accelerate cost savings and carbon reductions across the sector.

It's a pivotal moment for the precast drainage industry. This groundbreaking research is part of a broader collaboration between MPA Precast and the University of Birmingham, including work by Dr Nicole Metje, Dr Mehran Torbaghan, and Dr Bahman Ghiassi on themes such as decarbonisation, climate change resilience, and the recarbonation potential of concrete products. These partnerships are helping position the industry at the forefront of innovation and sustainability.

Written by Steve Callow, MPA Precast

"MPA Precast has consistently championed the shift from traditional bedding approaches to more efficient alternatives."



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**Web** [www.mpaprecast.org](http://www.mpaprecast.org) | [www.mpamasonry.org](http://www.mpamasonry.org)

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