

For more information on CEMEX visit www.barbourproductsearch.info

BLENDED CEMENT CONCRETE

Your first choice for sustainability, performance and versatility

THE BLENDED BENEFIT

Is pure your preferred choice? Better think again. CEMEX blended cement concrete is more sustainable, stronger and easier to work with. And its versatility makes it the key to profitability for more and more construction projects around the UK, from large pours and slabs in buildings to bridges, tunnels, marine structures and more.



The cement used in traditional concrete is pure Portland cement, now known as CEM I. In blended cement concrete, CEMEX adds an extra ingredient, usually fly ash or ground granulated blast furnace slag (GGBS).

This extra ingredient means that less CEM I is required per cubic metre, and this is where many of the benefits come from. By using concrete that contains less pure CEM I – an energy intensive substance to manufacture – contractors can significantly reduce their environmental impact.

The composition of blended cement concrete means that it also has exceptional working properties. It's more chemically resistant and less permeable for improved strength and handling. It's more cohesive, so it can be pumped easily to difficult sites. And it has an extended setting time, so you have a longer window to get the right results.

BLENDING CEMENT CONCRETE IS FIRST CHOICE FOR MAJOR PROJECTS LIKE THE QUEEN ELIZABETH II BRIDGE IN KENT.

Readymix concrete specification		Ecopoint benefits vs CEM I
GEN 1 (S2) & GEN 1 (S3)	30% fly-ash mix	+ 9%
	50% GGBS mix	+ 19%
RC30	30% fly-ash mix	+ 10%
	50% GGBS mix	+ 22%
RC35	30% fly-ash mix	+ 10%
	50% GGBS mix	+ 22%
RC40	30% fly-ash mix	+ 11%
	50% GGBS mix	+ 23%

Making cement is energy intensive, generating up to 176kg CO₂ for each tonne of concrete manufactured. Because blended cement concrete contains significantly less CEM I than traditional concrete, it's considerably more environmentally friendly. The reduction in greenhouse gas emissions can be as high as 40 per cent, depending on the mix and application. This is reflected in improved

Ecopoints scores (see table), which are helping contractors around the UK to meet the tough conditions of tender documents and win new business. Indeed, sustainability is one of the factors driving the spread of blended cement concrete across Europe.

A further environmental benefit is that it re-uses by-products from other industries. Fly ash is captured from coal power stations, while GGBS is a by-product of the iron and steel industry. (Blended cement concrete with GGBS has a greater environmental benefit because a larger proportion of cement tends to be replaced – typically 50% vs 30%.)

FIRST FOR SUSTAINABILITY

Blended cement concrete is a lower carbon building material, with up to 40 per cent less embodied carbon. Its Ecopoints score and Green Guide rating is also better than standard concrete, allowing you to meet increasingly tough sustainability requirements and win new business. It's the concrete you need to improve the built environment whilst lessening your impact on the natural one.



BLENDED CEMENT CONCRETE HELPS CONTRACTORS MEET INCREASINGLY TOUGH SUSTAINABILITY CRITERIA.



FIRST FOR WORKABILITY

Blended cement concretes are great to work with. You'll find them easier to handle, pump and place with precision – even in adverse weather conditions. And their chemical composition reduces the risk of problems and unwanted chemical reactions.

Improved handling

- Less water required for a given workability
- Better pumping properties due to increased cohesion of the mix
- Easier to compact

Enhanced working window

- Longer setting time means more time for getting the right finish
- Helps you avoid cold joints, a major benefit for large or mass concrete pours

Chemical features

- Less free lime content reduces permeability and promotes long-term strength
- Reduced alkalinity of concrete minimises risk of alkali-silica reaction
- Lower heat of hydration reduces risk of early-age thermal cracking



THE WORKING PROPERTIES OF BLENDED CEMENT CONCRETE HELP TO MAKE AMBITIOUS PROJECTS LIKE CANARY WHARF UNDERGROUND STATION VIABLE.

YOUR BEST PROTECTION AGAINST AGGRESSIVE CHEMICAL CONDITIONS IN THE GROUND.



FIRST FOR STRENGTH

Blended cement concretes give exceptional results. They're more resistant to sulfates, chlorides and acids, so your structures will perform even in the chemically aggressive conditions becoming prevalent around the UK. And they continue developing strength over the weeks and months after setting, resulting in a superior ultimate strength.

Enhanced chemical protection

- Reduced threat of sulfate attack, an increasing problem around the UK as more brownfield sites are developed
- Improved resistance to chlorides, a particular problem for marine construction or buildings near to the sea or vehicle routes where de-icing salt is used
- Better protection for steel reinforcement

Improved aesthetics

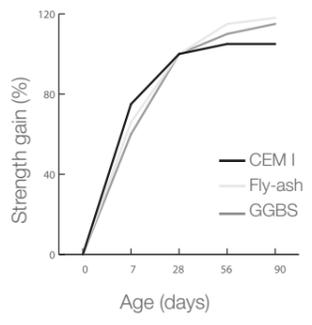
- Superior surface finish
- Lighter or darker colour depending on whether GGBS or fly ash is used

Reduced permeability

- Increased durability
- More protection from wetting, drying, freezing and thawing

Superior final strength

Blended cement concrete develops strength more slowly than traditional concrete due to slower early hydration, but carries on developing strength over the weeks and months after setting. This results in a superior final strength compared to traditional concretes.



BLENDED CEMENT CONCRETE'S SUPERIOR STRENGTH CREATES ICONIC STRUCTURES THAT WILL LAST DECADES.

YOUR BEST PROTECTION AGAINST AGGRESSIVE CHEMICAL CONDITIONS IN THE GROUND.



Our experts will help you to find the mix and grade of concrete right for you – for instance, fly-ash or GGBS?

	Fly ash	GGBS
Where it comes from	By-product from coal fired power station that would otherwise go to landfill	By-product of iron-making process that would otherwise go to landfill
Final appearance of concrete	Generally darker	Generally lighter
Compatible with admixtures?	Yes	Yes
Need to cure?	Yes	Yes
Sulfate protection?	✓	✓ ✓
More cohesive?*	✓	✓

* Due to the materials slower reactivity, power floating times may be marginally extended, particularly in cold weather

THERE'S A BLENDED CEMENT CONCRETE FOR VIRTUALLY ANY APPLICATION AND FINISH.

Blended cement concretes are a diverse family of building materials, and it's important to determine the right specifications for your project. Our experts will work closely with you to help you harness their versatility. We offer a flexible solution-based service, designing, manufacturing and delivering a huge range of blended cement concretes to our customers including our flagship high-performance concrete brand, Evolution. www.cemex.co.uk/evolution



FIRST FOR VERSATILITY

There's a blended cement concrete solution that will help meet the challenges of any large-scale construction project. By varying the elements in the mix and their proportions, we can help you specify a concrete that perfectly matches the requirements of your next project.



A MORE ADVANCED CEMENTITIOUS OFFERING FROM CEMEX IS THE KEY TO MORE PROFITABLE CONCRETE SOLUTIONS.

Watertight logistics

CEMEX has the nationwide scale, presence and resources to get the right amounts of the right specification concrete to you at the right times, wherever you're working. Our size and resources allow us to flex our supply to meet any requirements, with round-the-clock service and delivery.

Online plant locator now available at www.cemexlocations.co.uk

Total information

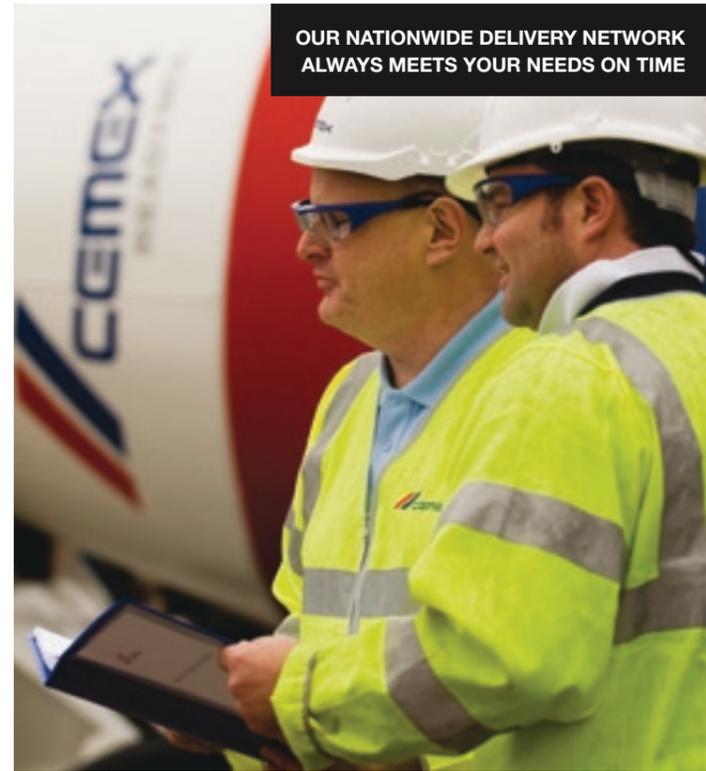
Knowledge is success – that's why we strive to keep you informed at all times, with delivery information and telephone support. We also deliver streamlined electronic back-office support to minimise queries and maximise transparency, and complete technical information and case studies to help you plan with confidence.

Consistent quality

CEMEX guarantees consistent quality, meaning you can be 100% confident our concretes will perform as needed. We also manufacture our own cement, admixtures, fly-ash and GGBS, and can draw on an unparalleled network to source more. That means we have unique control over our concrete supply chain and can help you maintain continuity of supply, even when materials are in short supply.

Comprehensive cement supply

In addition to concrete, CEMEX offers a wide range of high-quality cementitious solutions including sustainable blended cements. Our CEM 2 cement uses fly ash, reducing CO₂ by up to 25% per tonne produced. Our CEM 3 cement uses by-products from the steel industry, reducing CO₂ by up to 45% per tonne. We also harness innovation to improve the efficiency of our cement logistics.



OUR NATIONWIDE DELIVERY NETWORK ALWAYS MEETS YOUR NEEDS ON TIME

BENEFIT FROM THE CEMEX NETWORK

From our international R&D facility in Switzerland, to our links with universities and centres of excellence worldwide, CEMEX continually invests in innovation. At our National Technical Centre in Warwickshire, we don't only develop cutting-edge services and solutions, we also have a dedicated team in place, ready to share its unrivalled expertise in blended cement concretes and other CEMEX products. The National Technical Centre also holds UKAS accreditation in 53 British and European Standard test procedures, ensuring our lead in the race for excellence in the heavy building materials market today.

SAFETY AND SUSTAINABILITY IN ALL WE DO

CEMEX aims to be a positive force wherever we work, and we are committed to sustainable operations across our business. Our philosophy is to actively engage with all the communities we serve, and to invest in a wide range of sustainability-related charities and initiatives in the UK and worldwide.

Embracing sustainable development

CEMEX is committed to sustainability, both because it is the right thing to do and because our sustainable approach will help us to achieve our business goals. For example, it will allow us to continue as the preferred supplier to the industry, to drive further efficiencies, and to protect long-term resources. As part of our commitment to social, environmental and economic responsibility, we seek to:

- Reduce emissions
- Improve efficiency of production and logistics

- Develop innovative products and services
- Engage with our employees
- Increase transparent dialogue with stakeholders
- Measure and control impacts
- Contribute to sustainable communities

Find out more about CEMEX and sustainability at www.cemex.co.uk/sustainability

Taking health and safety seriously

CEMEX has global and UK policies designed to help us achieve our simple safety target: zero injuries. We are committed

to promoting the wellbeing of our employees, and are engaged in a number of external initiatives to improve public safety and awareness.

CEMEX takes every step to ensure our products are safe to transport, store, handle, use and dispose of. We publish a range of safety sheets outlining the main hazards and precautions that should be taken when handling our products.

You can download these from www.cemex.co.uk/productsafety



About CEMEX

CEMEX is one of the world's leading providers of building materials including ready-mixed concrete, aggregates, cement and asphalt. Our annual sales in over 50 countries are over \$23 billion.

In the UK, we invest to develop advanced products and services while promoting a sustainable future. Take our new £30m production plant in Tilbury, built to serve the fast-developing yet congested South East. Or the fact that we plant more than 30,000 trees over 95 hectares nationwide, every year.

To find out more about our blended cement concretes and other solutions for the building industry, visit www.cemex.co.uk/readymix or call the CEMEX Helpline on **0800 667827**.

