

WHAT IS ICF CONSTRUCTION

Learn how to future-proof your projects
with ICF today.

WHAT'S IN THIS GUIDE?

If you've been looking for a building material recently, you may have come across Insulated Concrete Formwork. Commonly referred to as ICF, it is a Modern Method of Construction that has been growing in popularity for many reasons. As an insulated solid wall construction method, it can quickly construct properties that deliver a high build quality and superior levels of energy efficiency.

This guide will break down exactly what ICF is, how it works, and the benefits this building system can bring. So, whether you're an architect, developer, self-builder, or homeowner, we answer all your questions about ICF construction.



WHAT IS ICF

CONSTRUCTION

ICF stands for Insulated Concrete Formwork. It's a MMC that uses blocks made from two layers of insulating material with a hollow core. In the UK, the most commonly available systems are made from either expanded polystyrene (EPS) or woodcrete.

These ICF blocks are stacked and then fixed into place via an interlocking detail which removes the need for intermediary mortar and significantly speeds up the build process. Walls are usually built in stages (typically first floor height) before concrete is poured into a central cavity a strong insulated shell.

Once cured, the ICF blocks remain in place to deliver two layers of an insulating material which wraps the building both inside and out.



EPS

EPS systems are available in two formats. Panel systems are available as two EPS sheets that connect using metal or plastic ties to form the block. Moulded systems are manufactured and delivered to the site as pre-formed blocks.



WOODCRETE

This uses natural material wood mixed with cement and water to create a solid block. The units are available pre-insulated or without insulation.



THE HISTORY OF ICF

Although classed as ‘modern’, ICF has its roots in the post-Second World War era, when it was used to help rebuild European cities devastated by bombing.

Its popularity grew steadily over the decades, first with self-builders who valued its environmental credentials, and more recently with developers drawn to its durability, cost-effectiveness, and time-saving benefits.

Today, the core application method and materials remain much the same. This provides homeowners, developers, and architects with a wealth of research and statistical data proving the lifespan, environmental performance, and resilience of an ICF building.

BUILDING WITH ICF



ARCHITECTS

With ICF, the design possibilities are virtually limitless. From single homes to large-scale developments, schools, and commercial buildings, the system can flex to suit almost any vision. ICF has its own logic and methodology, which, when understood and applied correctly, opens the door to an impressive range of features - curves, arches, intricate details, and complex angles included. It also integrates seamlessly with both standard and non-standard materials, systems, and products.



DEVELOPERS

When adopting an MMC system, it can often result in learning a whole new way of building. One of the big advantages of using ICF is that it follows traditional construction methods, allowing it to seamlessly blend into your current building programme. The system is also incredibly quick to build with, simplistic to learn, and doesn't require much heavy plant equipment. The strength of the concrete core means the same build method can be used for structural elements, including supporting walls or overhangs.



SELF BUILDERS

Thanks to its simplicity, ICF is an excellent choice for first-time self-builders. At its core, you only need three main materials: formwork, steel reinforcement, and concrete, with the same system used for above-ground, below-ground, and even for retaining walls. Securing finance is also straightforward, with options like Buildstore's Guaranteed Cost-Based Mortgages specifically designed for self-build projects, including ICF homes.



HOMEOWNERS

The solid concrete core sitting next to the insulating ICF blocks provides numerous benefits to homeowners due to its strength and insulating properties. The airtight structure helps to improve the overall indoor environment by reducing the amount of dust, pollen, moisture and condensation within the building. The double layers of insulation can significantly lower energy bills and the strength of the walls helps to make a safe home in areas at risk from floods and high winds.

THE BENEFITS OF ICF

SPEED

Building with an ICF block is so fast it is possible to get a standard ground floor structure up within days. Thanks to the insulating properties of the blocks, work can carry on through winter, with concrete pouring possible in most weather conditions. This means delays are minimal and construction schedules stay on track.

STRENGTH

The insulating material in each ICF block allows the concrete to dry quickly but cure slowly. This process enables the concrete to gain additional strength with minimal cracking. That's why this method isn't just for above-ground walls, but you'll also find it being used in basements, retaining walls, and even swimming pools.



THE BENEFITS OF ICF

COST SAVINGS

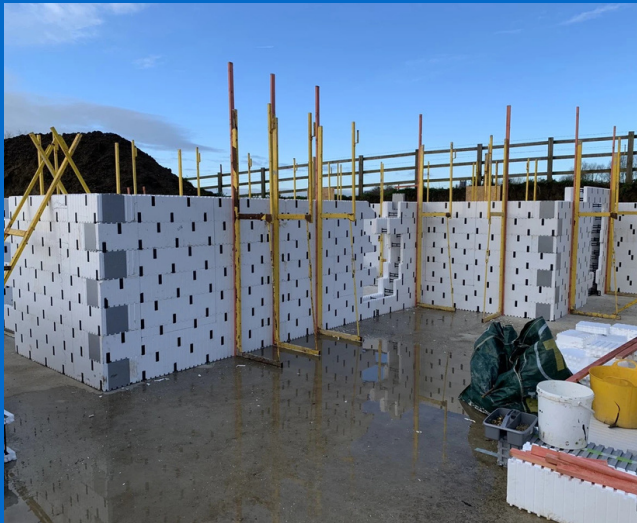
While the obvious cost saving for developers when building with ICF is the way it speeds up construction build times. However, there are numerous other cost savings. The system does not require the skills of skilled trades and can provide the perfect training platform for apprentices. Changes can be made easily and cost-effectively on the build right up until the concrete is poured. The insulating material in the ICF block also enables construction to continue in almost all weather conditions to keep your project on track.

ENERGY EFFICIENCY

With ICF, energy efficiency is built in. The concrete core sits in direct contact with insulation on both sides, delivering excellent thermal performance and airtightness. In fact, ICF already meets and exceeds Part L Uplift measures and should easily meet the new Future Homes Standards 2025 measures.



GALLERY





ABOUT THE ICFA



Established in 2002 to promote the use of Insulating Concrete Forms (ICF) across the UK, the ICFA represents manufacturers, suppliers, and installers of ICF systems. The association works to educate both the construction industry and the public on the benefits of ICF construction, while also promoting innovative solutions to tackle key industry challenges.

The ICFA has set clear targets for growth: they aim to increase market share by a minimum of 10% in above-ground external walls of domestic residences and position ICF homes, including those with basements, as the market-leading choice for building on flood plains.

**Still got a question in mind?
Get in touch with us!**



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**ICFA - Insulating Concrete
Formwork Association**

