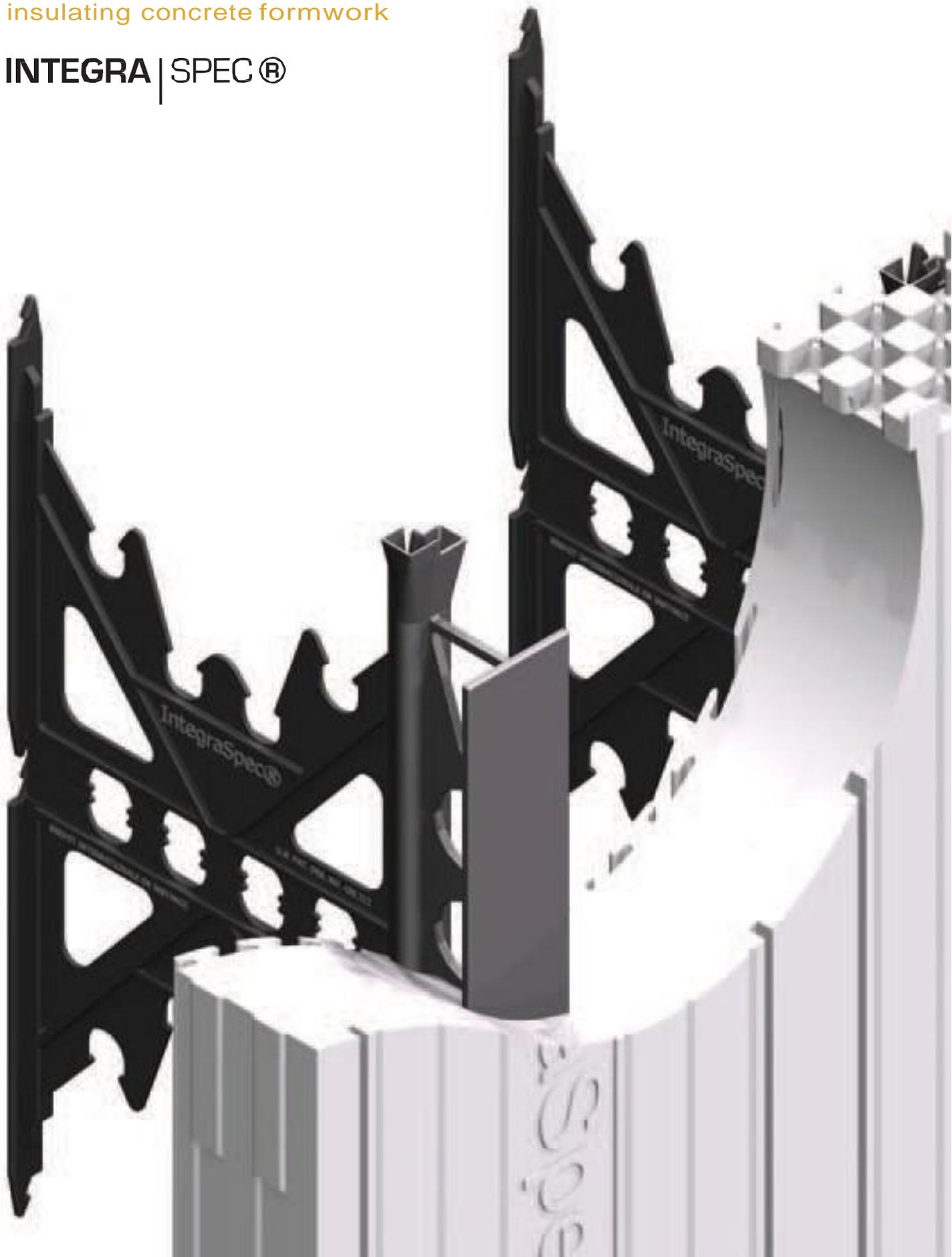


insulating concrete formwork

INTEGRA | SPEC®



Innovative icf solutions

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why icf?

Insulating Concrete Formwork (ICF) is an innovative, sustainable, high performance building system. It enables fast construction of creative, flexible buildings with low running costs and a long life.

Air leakage accounts for a large percentage of energy loss in the home.

ICF consists of twin walled expanded Polystyrene (EPS) built on site to create formwork walls. When the walls are in place the formwork is filled with ready-mixed concrete. When the concrete has set, the formwork stays in place providing an insulated wall structure that is ready to accept the roof and floors.

The benefits of ICF over more traditional methods of construction are simple and plentiful as you will see in this brochure, proving that this system is now becoming widely understood as an innovative alternative.

where can it be used?

ICF is being used by designers, installers and occupiers across Europe, America, Canada and Asia. It is extremely efficient and has many properties that make it ideal for:

- Apartments
- Basements
- Care homes
- Commercial buildings
- Hospitals
- Hotels
- Residential homes
- Schools
- Stables
- Swimming pools
- And many more...



thermal performance

Thermal mass is the ability of any material to store heat and release it within a 24 hour cycle. Thermal storage is the ability of a material to minimise temperature fluctuations and act as a stabiliser on internal conditions.

In the former, it is necessary to allow the heat to be able to dissipate from the material, whilst in the latter it is important to insulate the heated material.

IntegraSpec is the only manufacturer with an ICF system that can offer both solutions. By utilising the exposed concrete face option offered by the system, it is possible to insulate only one side of the concrete mass. By using the system in its normal format, you are able to take advantage of the thermal storage of the concrete mass.

Debate still rages on over the benefits of using one option versus the other. Further research and measurement will ultimately decide which option performs better. With the flexibility of the IntegraSpec ICF system, both options can be maximised making it extremely versatile and very user friendly.

This is the way in which the density, heat capacity and thermal conductivity of a wall can slow the passage of heat - from one side to another (decrement delay), and also attenuate gains as they pass through (decrement factor).

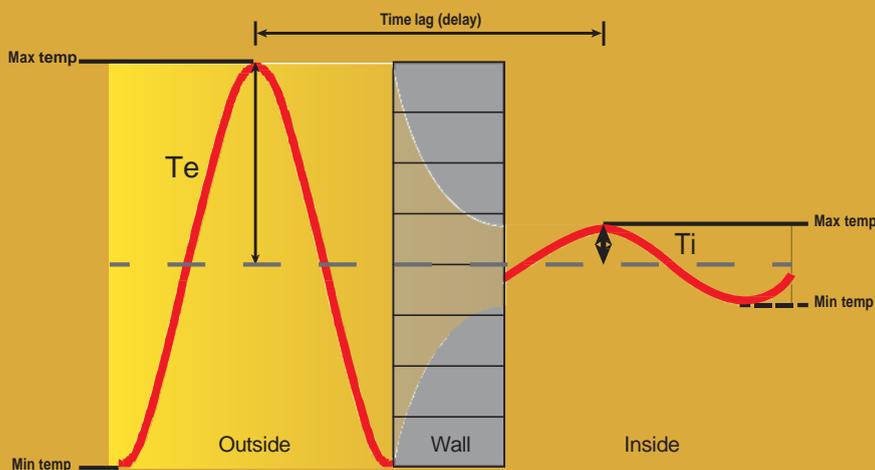
Problems with overheating can be reduced by designing for a long decrement delay of around nine hours or more, supported by a low decrement factor. The IntegraSpec ICF system achieves over nine hours ensuring that summer overheating does not occur.

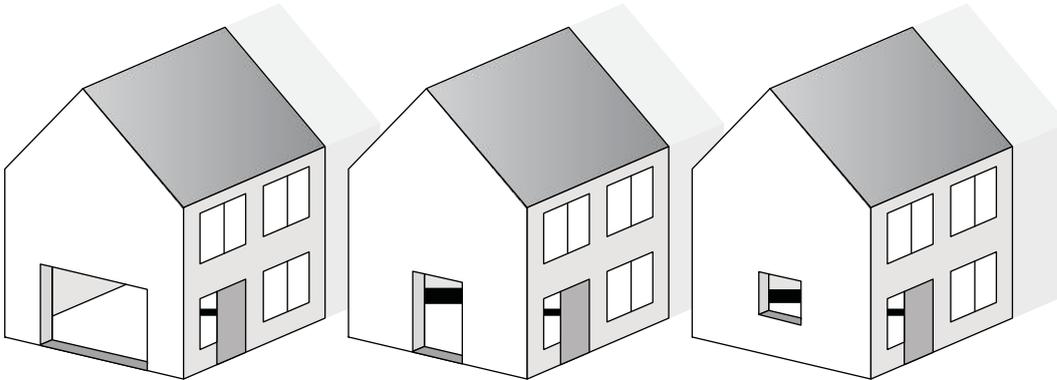
The overall benefits of achieving a longer decrement delay increases performance and efficiency as heat energy is continually conserved. This means that, with the same insulation, a concrete home stays warmer in the winter and cooler in the summer.

In addition to the thermal mass benefits, there are three other main factors to appreciate when comparing the IntegraSpec thermal performance.

These three factors are air-tightness, u-values and thermal bridging (PSI) values. It is the high performance levels of all these factors within an ICF wall that allows the assessor the most flexibility. The overall thermal requirements of the scheme can reduce the need for other more expensive technologies.

These three factors, together with the benefits of the thermal mass, can be considered as the ICF effect.





Open Garage Door

y=0.15 (SAP default)
 2.1m x 3.3m (6.93m²) opening
 This will produce heat loss equivalent to the thermal bridge losses calculated using y = 0.15 for this house type.

Open Patio Door

y=0.08 (Accredited details)
 2.1m x 1.8m (3.78m²) opening
 This will produce heat loss equivalent to the thermal bridge losses calculated using y = 0.08 for this house type.

Open Window

y=0.03 (Thermally modelled junctions)
 1.25m x 1.25m (1.56m²) opening
 This will produce heat loss equivalent to the thermal bridge losses calculated using y = 0.03 for this house type.

If the SAP calculation were to replace the linear thermal bridge loss calculation with a 'hole in the wall' that produced equivalent heat loss, it would look something like the end terrace example below.

Thermal bridging

Due to the absence of cavities and junctions found in the structure of a more traditional construction, the high performance formwork of the IntegraSpec ICF system increases efficiency by minimising the incidence of thermal bridging.

Thermal bridging creates uncomfortable cold spots around joints and cavities and is a huge source of heat loss from a building.

In thermal models, y values of 0.015 can be achieved.

Air tightness

Using the IntegraSpec ICF system ensures a minimum level of air leakage due to the sealing effect of the concrete and the low permeability of the formwork.

This highly effective system provides a simple and robust structure that will maintain a strong air barrier over the long life of a building, increasing energy efficiency and allowing controlled ventilation.

Air permeability tests on projects utilising our system have shown results as low as 0.42 m³/hour/m².

U-values

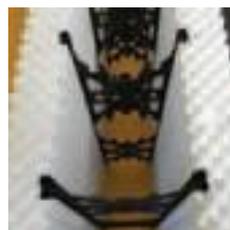
The system can offer the following values without external finishes:

Installation Method	Core thickness (mm)	Web size (mm)	additional Insulation† (mm)	Wall thickness (mm)	U-Value* (w/m ² k)
Standard	100	100	None	230	0.24 (0.21)**
Standard	125	125	None	225	0.23
Standard	150	150	None	280	0.23
Standard	200	200	None	330	0.22
Standard	250	250	None	380	0.21
Standard	300	300	None	430	0.20
Enhanced	150	200	50	330	0.16**
Enhanced	150	250	100	380	0.12**
Enhanced	150	300	150	430	0.10**

*All values are indicative and require calculation due to variation in finishing components used.

**Assumes the use of enhanced EPS grade.

† Additional insulation can be supplied in any thickness to suit a specific u-value.



standard Installation



enhanced Installation

"IntegraSpec has the lowest thermal bridge heat loss of any building system we have encountered so far. To date C4Ci has thermally modelled over 30 building systems, and produces the lowest Y-value we have seen – typically 0.02 or lower. This will yield significant benefits in SAP calculations using the system."

Dr LRJ Whale C4Ci
 Consultants for Construction Innovation



The IntegraSpec ICF system has been confirmed as the best in the UK for the prevention of thermal bridging.

Innovative icf solutions

"Making the decision to use the IntegraSpec ICF system as the framework to develop our recent apartment project was definitely the right one. As well as the energy efficiency benefits, the product more than exceeded my expectations in how quickly and easily the installation took shape. From the client's perspective, they were extremely impressed with how swiftly the development progressed and I would definitely recommend using it again."

Joe Grogan
Developer

Development details: The development comprised of 22 apartments – mixed bedroom varied between 49m² and 58m² and two bedroom varied between 75m² and 95m². The building has a 200mm core and the apartments were split over three and four storeys. The development ran from Oct 2004 to Dec 2005 and was the first IntegraSpec ICF building in the UK and Ireland.

design flexibility

The creative potential of an innovative or unusual design can be maximised by the brilliant flexibility of the IntegraSpec ICF system and the variations in the range of product components.

No other ICF system on the market has the ability to provide curved edges and freeform shapes as easily. It is perfect for designers and architects.



www.casabellaverde.com

acoustics

The solid mass of the IntegraSpec ICF system's concrete core reduces airborne noise supported by the formwork which acts as a sound absorption system. The concrete core can be virtually any thickness, so is ideal for managing noise and party walls.

Standard construction using a 150mm concrete core has been field tested and exceeds the current building regulations, achieving 48 Dntw +Ctr. Further improvements can be achieved by using denser plasterboards and/or resilient bars. Guidance should be sought from the relevant dry lining material supplier.

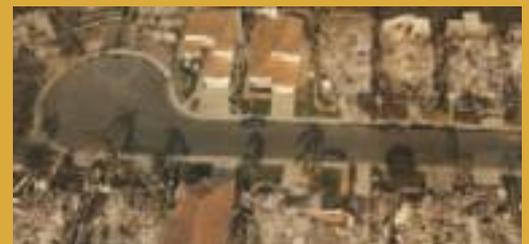
speed of construction

Constructing an IntegraSpec ICF system building is quick, up to 4m² per hour is achievable!

The fast, easy construction of a watertight building allows the supporting trades access on site quickly, ensuring a swift project process and delivery.

fire performance

Concrete cannot be set on fire and will not burn. Essentially the IntegraSpec ICF system is safe and provides an excellent level of protection against fire. It has been proven to provide a three hour protection against fire – depending on the thickness of the concrete core.



Three ICF houses in this San Diego suburb showed their resilience in the face of the devastating bush fires of October 2007.



safety/structural solidity

The health and safety aspects of the IntegraSpec ICF system are numerous. It is quick and easy to construct, the level of mechanical equipment and power tools required are minimal and the components are lightweight.



The ICF system is robust and designed to withstand the pressures of wet concrete. These elements provide and promote an altogether safe construction environment.

The energy-efficient buildings produced by the system assist in meeting CO₂ reduction commitments around the world. Installers in earthquake and hurricane zones have increased confidence in the robust nature of an IntegraSpec ICF development.

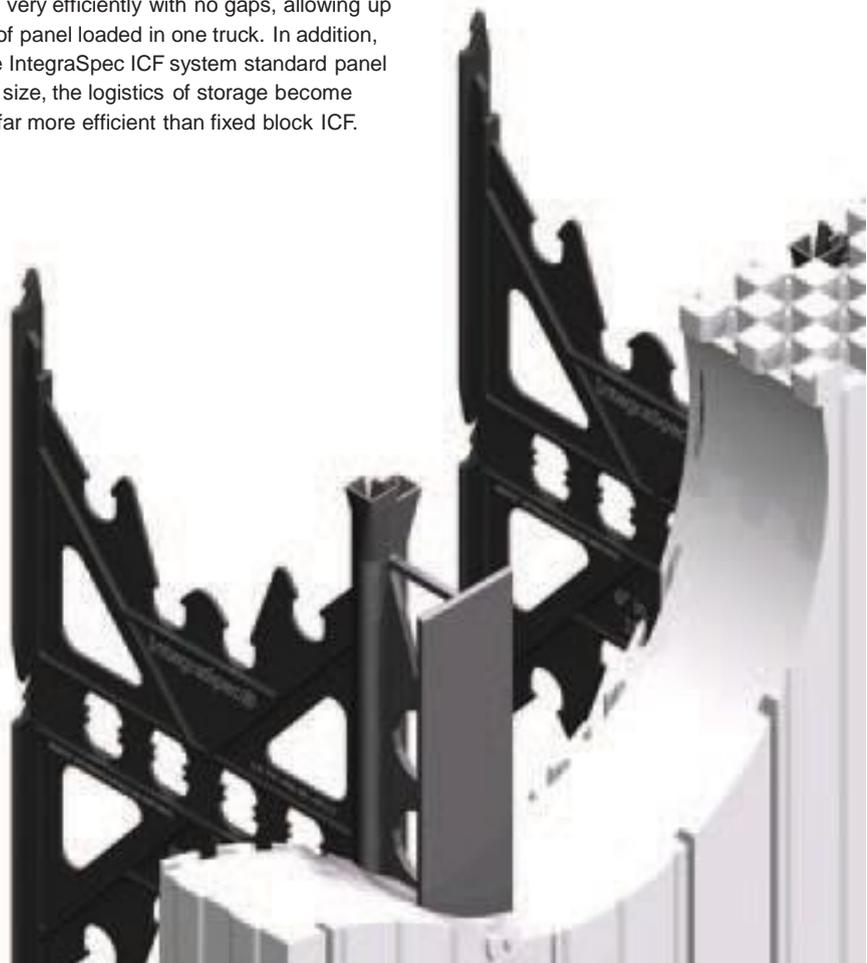
sustainability

The considered structure and good practice of building with an ICF system results in sustainable architecture, exceeding the energy efficiency requirements as part of compliance with Building Regulations. The Expanded Polystyrene (EPS) does not contain CFCs or HCFCs.

Every element of the IntegraSpec ICF system is geared towards energy efficiency, low waste and long life. All the components used in an ICF system structure are either made from recycled material or can be recycled.

Transporting the ICF system uses minimal fuel, the panels pack very efficiently with no gaps, allowing up to 1,000m² of panel loaded in one truck. In addition, because the IntegraSpec ICF system standard panel fits any wall size, the logistics of storage become simple and far more efficient than fixed block ICF.

Flexible, fast, safe and long lasting, the IntegraSpec ICF system is the ultimate in user-friendly construction systems.



why integraspec?

The user friendly ICF system

IntegraSpec is a leading innovator in the development of ICF. It has a number of genuine unique features that distinguish it as one of the most user friendly systems on the market.

IntegraSpec is one of the most successful ICF UK manufacturers.



unique features

- *Unique independent 'standard panel' design allows more flexibility than building with a fixed block ICF system. For example standard panels are used whether installing a 100mm wall or insulating a 2m foundation, this is achieved by simply changing the web size.*
- *Patented interlocking web system which reduces the need for excessive bracing or tracks during concrete pours. The interlocking webs also eliminate panel separation and panel lift at the base of the wall.*
- *Truly flexible core sizes are achieved with a choice of six different web sizes, then any width beyond that with the unique H clip. The IntegraSpec ICF system walls have been built up to 1,200mm thick.*
- *Universal bi-directional panels which are fully reversible with no top or bottom and no left or right, eliminate waste and reduce installation time. For example, when cutting panels to form a gable end, both parts of the cut panel can be used. One part would fit on the inside face, the other would be rotated and would fit on the outside face.*
- *The IntegraSpec ICF system inserts or 'rails' are interconnected and therefore create a vertical spine every 200mm on both the inside and outside panels. The benefit of this feature is the elimination of panel compaction during concrete placement. Some other ICF systems require that a gap be left over the doors and windows to compensate for panel compaction.*
- *The IntegraSpec ICF uses HIPS (High Impact Polystyrene) plastic for its inserts and variable width webs. Due to the HIPS plastics complimentary nature to EPS (Expanded Polystyrene), a mechanical bonding is created through the manufacturing process, providing a thermal weld between these two products. This greatly reduces the risk of panel blow out during concrete pours and allows a pour of up to 3.0m in height creating, a truly monolithic core.*
- *Dovetail grooves are located on the inside face of the IntegraSpec ICF system panels, these create a mechanical bond between the panels and the concrete structure. As concrete cures it contracts within the panels, the dovetail grooves allow the concrete to 'grab hold' of the panels creating a superior bond.*
- *The dovetailed grooves also perform another function; they accept the IntegraSpec cavity closers. Forget about pressure treated wood, plywood or vinyl window shuttering systems. The cavity closers are very cost effective and installed with zero waste. There are no carpentry skills or tools required, airtight and watertight windows and doors are assured.*



- *The cavity closers are also energy efficient. Unlike other ICF systems that use a wood shuttering system, the wood will shrink away from the concrete and visa versa. This antiquated methodology creates air infiltration around window openings.*
- *A unique feature of the system is the H clip; this connects two webs together to create any concrete core thicknesses specified. IntegraSpec have successfully poured 1200mm thick concrete walls.*
- *IntegraSpec uses a 'commercially' designed ICF system that you can use in residential foundation construction. Not the other way around.*
- *Design freedom is unlimited with IntegraSpec ICF system's versatile product line. The brick ledge panel can also be used as an architectural relief. The use of different web thickness can easily create vertical or horizontal reliefs.*
- *Any type of exterior finish can be applied to the IntegraSpec ICF system, including conventional cladding solutions such as brick, stone, wood, renders and many more.*
- *All panels are shipped 'flat-packed' in manageable bundles, wrapped in white plastic. They are lightweight and easy to handle. IntegraSpec can fit more panels per load than other ICF systems. Up to 450m² of wall area in a standard 40ft trailer.*

manufacturer, supplier and innovator

IntegraSpec is one of the most successful ICF manufacturers; the company supplies innovative walling solutions across the UK construction industry.

Innovation

The IntegraSpec ICF system is tried and tested; the company continually strives to find new ways of using the system and maximising the benefits - offering a forward thinking approach to all customers.

Experience

The IntegraSpec service is based on 20 years of experience in Europe, America, Canada, Asia and recently in the UK, with new projects growing rapidly across the country. This experience adds confidence and a high success rate to each new project.

Unique

IntegraSpec has built an excellent reputation for unique product engineering which has led them to stand out amongst the competition. The system has numerous patented elements and is the most technically advanced in the market making it the obvious first choice.

Supplier relationships

The open collaboration and strong relationships that exist between IntegraSpec supply chain partners and suppliers creates mutual benefits for all customer groups. As a result, projects run smoothly, efficiently and on time.

Efficient solutions

IntegraSpec continually strive to ensure the most efficient and appropriate solution can be found for every project undertaken. This ensures the final installation will be completely fit for purpose for many years to come.

Quality

IntegraSpec have developed an excellent reputation for offering ICF system installations to the highest level of quality at competitive rates within the UK. This has been key to their success. Investing in the IntegraSpec ICF system will ensure a robust, long lasting structure.

Environmental

IntegraSpec recognise that activities have an impact on the environment, which is why every effort is made to demonstrate commitment by continually improving environmental performance. The product is geared toward energy efficiency and low waste.

The IntegraSpec service is based on 20 years of experience in Europe, America, Canada, Asia and recently in the UK, with new projects growing rapidly across the country.



The IntegraSpec policy is to deliver safe, professional services and products to meet the needs of customers.

scale

As a company, IntegraSpec have experience and success across a diverse range of projects worldwide, from UK, Europe, America, Canada and Asia.

Each country comes with challenges regarding building and living conditions, such as potential earthquakes, flooding and fire hazards. These make the user friendly and robust nature of the IntegraSpec ICF system key to delivering consistent construction across the globe.

uk manufacturer

The UK has adopted ICF systems as a credible approach to innovative building projects. IntegraSpec supports this by manufacturing their products in the UK, ensuring quick delivery and support to the UK construction industry.

quality and service

The quality of the products and services that IntegraSpec deliver is critical and every effort is made to ensure that customer requirements and expectations are exceeded.

Understanding customer requirements, utilising the skills and expertise of staff to improve the quality of service, and ensuring the use of appropriate products from design through to handover is imperative.

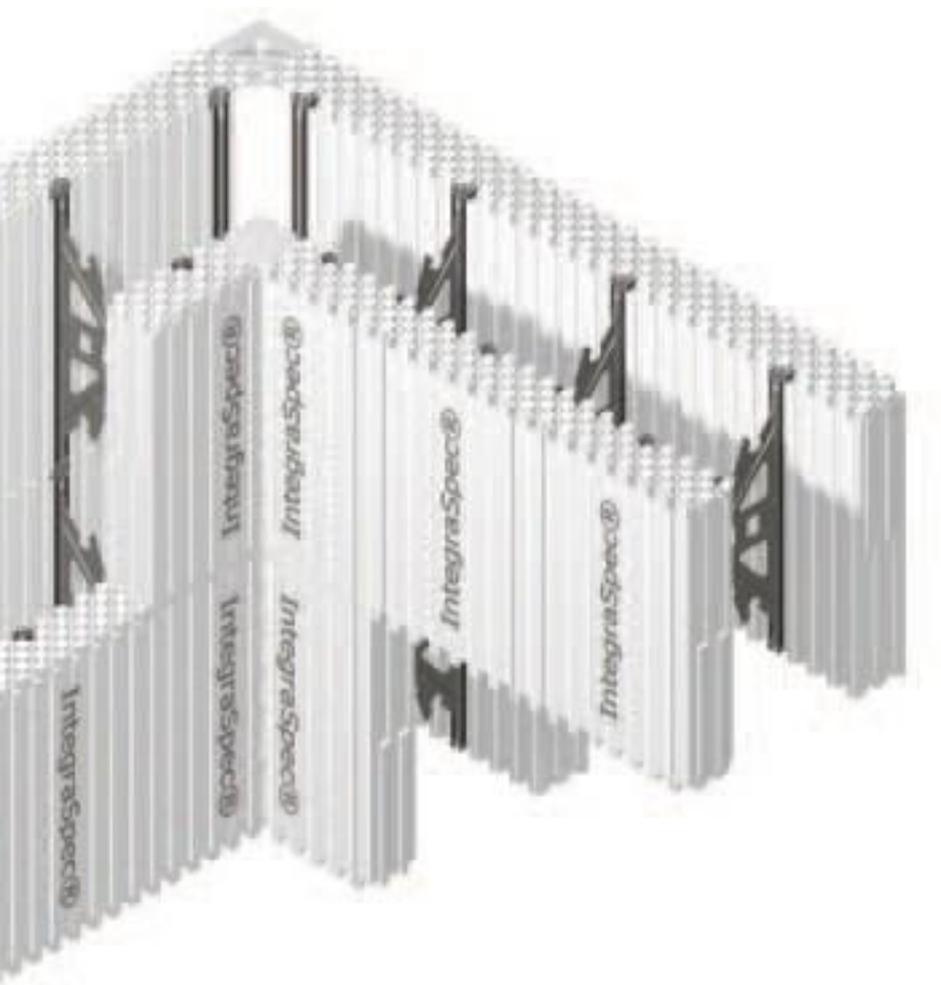
The IntegraSpec policy is to deliver safe, professional services and products to meet the needs of customers. There is a commitment to continuous improvement in the service offered and the systems developed to manage delivery.

estimating and design

IntegraSpec are able to provide quotations for either the supply only, or supply and fix of the system through our network of approved contractors.

Working closely with structural engineers who are experienced in the use and design of ICF systems ensures the most cost effective solution can be achieved. Standard structural design details which can be applied to most standard constructions are also available.

IntegraSpec work in partnership with exterior finishing contractors to ensure a full range of finishes can be applied.



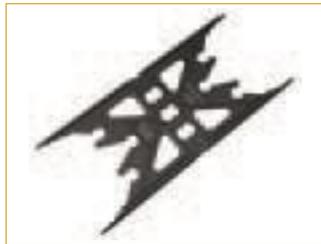
product range

The IntegraSpec ICF system offers a range of components providing ease and flexibility across all elements of construction. It is strong, airtight, has superb acoustic and thermal bridging performance and is an A+ rated thermal insulant*.



standard panel

- Includes patented bi-directional/reversible technology.
- Superior design dramatically reducing form lift, compression and blow outs.
- Panel size 1220mm x 311mm x 63.5mm.



webs

- Available in 102mm, 127mm, 152mm, 203mm, 254mm, and 305mm widths.
- Uniquely designed to provide optimal concrete flow.
- Interlocks on both ends to eliminate panel lift when placing concrete.
- Easily adjusts to half heights maintaining interlocking feature.
- Designed to carry multiple layers of steel which can be fixed both horizontally and vertically.



h clip

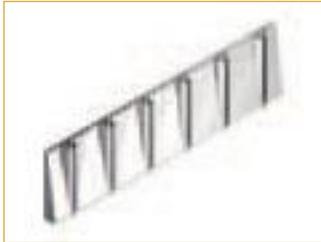
- Available in 1,200mm lengths.
- Uniquely designed to join one or more IntegraSpec webs.
- Offers limitless concrete core thickness opportunities using the same panel system.
- Easily cut or stacked to any height required.
- Provides enormous design flexibility for commercial use.



inserts

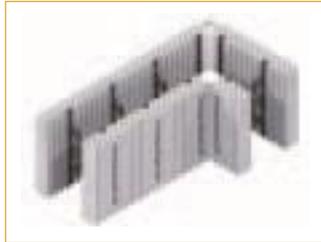
- Vertical fastening strip/stud.
- Tested to provide maximum pull resistance (680N average ultimate load).
- Recessed 19mm behind easy to locate embossed IntegraSpec logo.
- 40mm width provides easy to hit surface for nails and/or screws.
- Made with high impact polystyrene for superior fusion to EPS and a stronger wall system.

*Expanded Polystyrene has scored the highest A+ summary in the BRE global green guide specification, making it a leading insulation material.



taper top panel

- Engineered to provide additional concrete surface at the top of an IntegraSpec wall.
- Engineered for interior floor/ joist support.



90° corner unit (152mm)

- Same patented technology as the IntegraSpec standard panel.
- Additional inserts found close to exterior corner for drywall/cladding fastening.
- Extra fastening opportunity directly in exterior corner by inserting wood/steel strip in void.



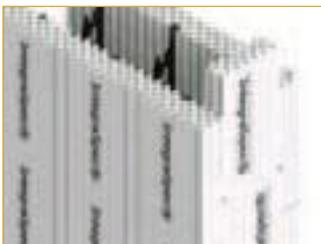
90° commercial corner unit (203mm)

- Same patented technology as the IntegraSpec standard panel.
- Additional inserts found close to exterior corner for drywall/cladding fastening.
- Designed to withstand greater concrete pressures at wider widths.



45° corners (152mm)

- Same patented technology as the IntegraSpec standard unit.



cavity closers

- Available in 102mm, 152mm and 202mm sizes.
- Uniquely designed to provide secure wall ends where necessary.
- Easily slides in place into our dovetail grooves of any IntegraSpec panel.
- Includes an Insert for convenient installation of windows/doors/framing.
- Provides unequalled insulation protection and a single substrate for render.
- Eliminates the need for costly wood or plastic shuttering and one less concern for air leaks.



headers

- Available in 102mm, 152mm and 202mm sizes.
- Taper designed to dam bottom of lintels.
- Include a steel fastening strip for convenient installation of windows/doors/framing.
- Provides better insulation protection and a single substrate for render.
- Eliminates the need for costly wood or plastic shuttering and one less concern for air leaks.
- The headers come with dovetail grooves for improved concrete adhesion.



chamfered cavity closers & headers

- Available in 102mm, 152mm and 202mm sizes.
- Taper designed to dam bottom of lintels.
- Includes a steel fastening strip for convenient installation of windows/doors/framing.
- Provides better insulation protection and a single substrate for render.
- Eliminates the need for costly wood or plastic shuttering and one less concern for air leaks.
- The headers come with dovetail grooves for improved concrete adhesion.



brickledge

- Engineered for maximum support of brick and easily stepped for changing grades.
- Provides the necessary support for brick at the top of a foundation or joist surround.



t walls

- Provides better interlocking protection at corners.

why you?

Your first choice for ICF

The benefits are simple - from the designer to the occupier, the IntegraSpec ICF system is innovative, flexible and meets the needs of all customer groups.

The flexibility of the IntegraSpec ICF system makes it extremely easy to work with.

the designer

Creative opportunities

Curves and unusual lines can be created giving a building a unique quality with innovative shapes.

Flexibility

With few components and a modular structure, the flexibility of the IntegraSpec ICF system makes it extremely easy to work with. It can cope with any scale of project from bespoke domestic properties to education, or multi-storey health buildings.

Finishes

The exterior of an IntegraSpec ICF system building can be completed in a variety of cladding solutions. Colours and textures can be added to the design of the building to create impact.

Compatibility

The IntegraSpec ICF system is compatible with many other building or supplier systems such as foundations, flooring, internal walling and other structural features.

High standards

The quality of the products and services that IntegraSpec deliver is critical. The system components and service during the design stage are key to fulfilling the project requirements and delivering the best solution possible. IntegraSpec only deliver to qualified installers.

Modern

Designing a building using the IntegraSpec ICF system is an innovative approach to construction. It is key to developing energy efficient buildings that are quick to build across many industries, from domestic housing to commercial, retail or industrial buildings that will outlive any wood framed buildings by many years.





the installer

Speed of construction

Constructing a building using the IntegraSpec ICF system is quick, with up to 50% less time than traditional methods. The system is purpose built for ease and speed of construction whatever the scale of project.



Reduced labour

The IntegraSpec ICF system requires less labour than a traditional building project. This allows for a more cost-effective focused workforce and better budget control.



Weather proof shell

The speed in which a watertight environment can be built using the IntegraSpec ICF system adds to the fast construction times. Other trades, such as plumbing and electricians can then gain access to complete the project. This also extends the building season throughout Autumn and Winter.



Simple installation

Installing an IntegraSpec ICF system requires training and skill, but this is minimal compared to other forms of modern construction methods. Clearly marked cut lines allow fast and accurate window and door placement, plus cutting of gable ends.

Less equipment and transportation

The need for heavy mechanical plant and equipment is significantly reduced. Few power tools are required and transportation costs are less.

Safe

The IntegraSpec ICF system construction site has a radically reduced health and safety risk. The reduction in machinery, labour and transportation creates a safer environment. There is less noise and the materials can be easily carried as they are lightweight and reduce the risk of injury.



the occupier

Low running costs

The high level of insulation that comes with installing an IntegraSpec ICF system creates an energy efficient environment that costs less to heat and cool and therefore costs less to run.

Acoustics

The structure of the IntegraSpec ICF system gives it an inherent sound absorption quality that reduces impact sound and airborne noise. This gives a building a high level of sound insulation and reduces noise from adjoining properties and outside.

Healthy environment

An IntegraSpec ICF system is extremely efficient when it comes to factors such as heating, cooling and ventilation. This significantly reduces drafts and the formation of mould resulting in a healthier living environment.

Fire resistant

Offering better fire safety compared to traditional timber framed construction, an IntegraSpec ICF system has a high resistance to fire due to the materials it is made of. Concrete does not burn and so offers confidence and peace of mind when constructing a safe environment against fire. The system has been shown to offer a three hour fire resistance, based on a 150mm concrete core.

Minimum maintenance

Ongoing maintenance costs are dramatically reduced as the IntegraSpec ICF system is robust, designed to withstand the elements and built to last.

Accepted by planner and insurers

The IntegraSpec ICF system has been approved by the Council of Mortgage Lenders (CML) as a proven alternative to traditional building methods.

Long life and adaptable for the future

The IntegraSpec ICF system offers a strong, safe, energy efficient, sustainable building alternative. It is durable over time; an ICF system building should more than exceed the average lifespan of a traditionally constructed building.

get in touch

You can contact IntegraSpec to discuss your project. Trained professionals are on hand to talk about your requirements in detail and help you get started.

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