



INSULSHELL



WITH INSULSHELL YOU'RE PREPARED FOR THE FUTURE

- Full height panels
- Fire rated
- High standards of air tightness
- Fabric first approach
- Thermally modelled
- Exceeds Part E Acoustic Requirements
- Buildoffsite technology
- Rapid construction – no scaffolding required
- Suitable for new build residential or commercial projects



INSULSHELL

Insulshell is a highly adaptable F/R structural panel system incorporating robust insulation technology for use in new build, residential and commercial projects.

The patented interlocking panel system can be designed as a stand alone balloon frame providing a continuous insulated super structure, that can include external and party walls, roofs, intermediate or separating floors, and internal partitions or as an infill to alternative structurally framed buildings.

The technique allows the application of almost any external wall and roof finishes, of which many can be factory fitted as part of the buildoffsite process to further reduce construction time on site.

3D CAD design has been used to provide greater accuracy in structural design PI, backed by its engineers and design associates and rigorously tested to statutory BS and EN standards.

Insulshell provides an advancement in meeting the future demands for low energy use buildings by adopting the fabric first approach that the construction industry has been calling for.

BENEFITS OF USING INSULSHELL OVER TRADITIONAL METHODS OF CONSTRUCTION

- Full height panels available up to eight storeys
- Minimum 60 minute fire rating from factory construction which provides advanced protection during site construction
- Excellent air tightness results less than $1\text{m}^3/\text{hr}/\text{m}^2$ @ 50Pa recorded
- Able to achieve Passiv Haus thermal performance
- Significant contribution to Code for Sustainable Homes and BREEAM credit scores
- Exceeds Part E Acoustic Requirements
- Ultimate flexibility in design – to suit residential, commercial, education and health sectors
- Quicker to build – no scaffolding required
- Pre-glazed, pre-clad factory finished option available
- Offsite, built in quality assurance
- Reduced manual handling – less operatives – no site waste disposal
- High levels of occupant comfort

CORE PANELS



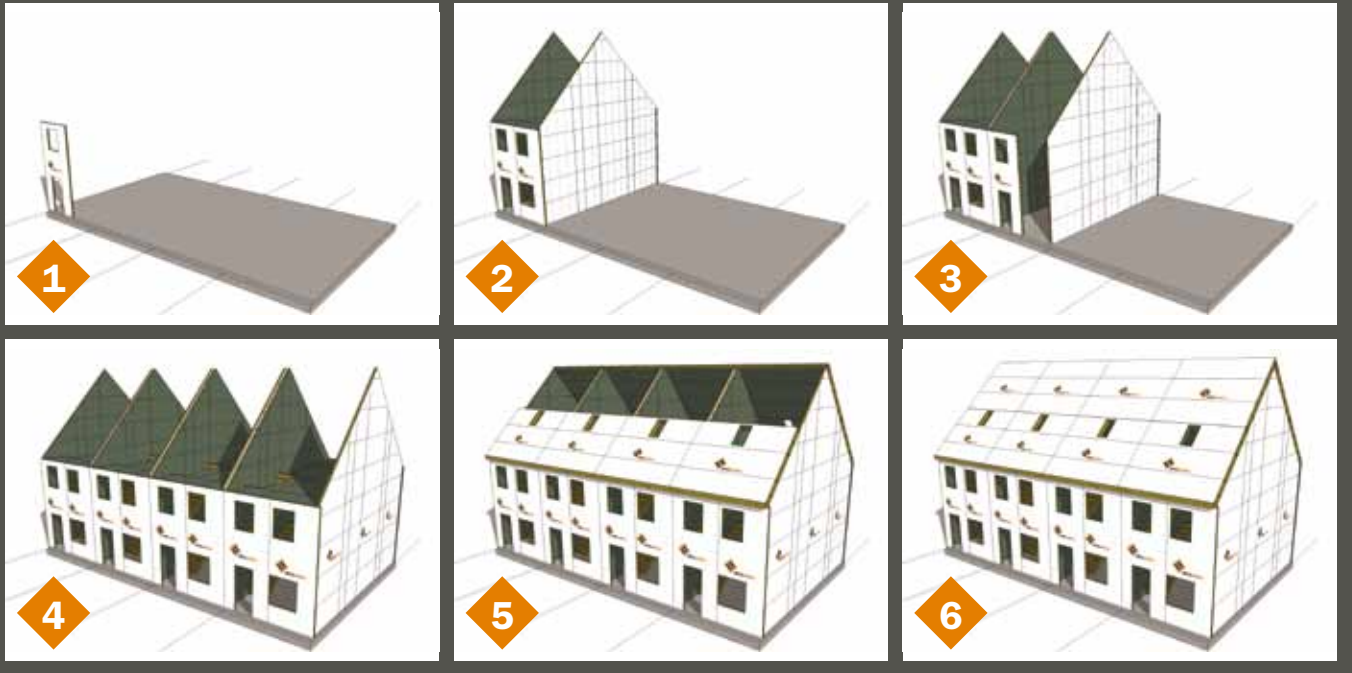


INSTALLATION

Site installation can be carried out by approved Insulshell installers at the client's request. Alternatively, full training for client's own installers is offered, together with initial supervision for total confidence.

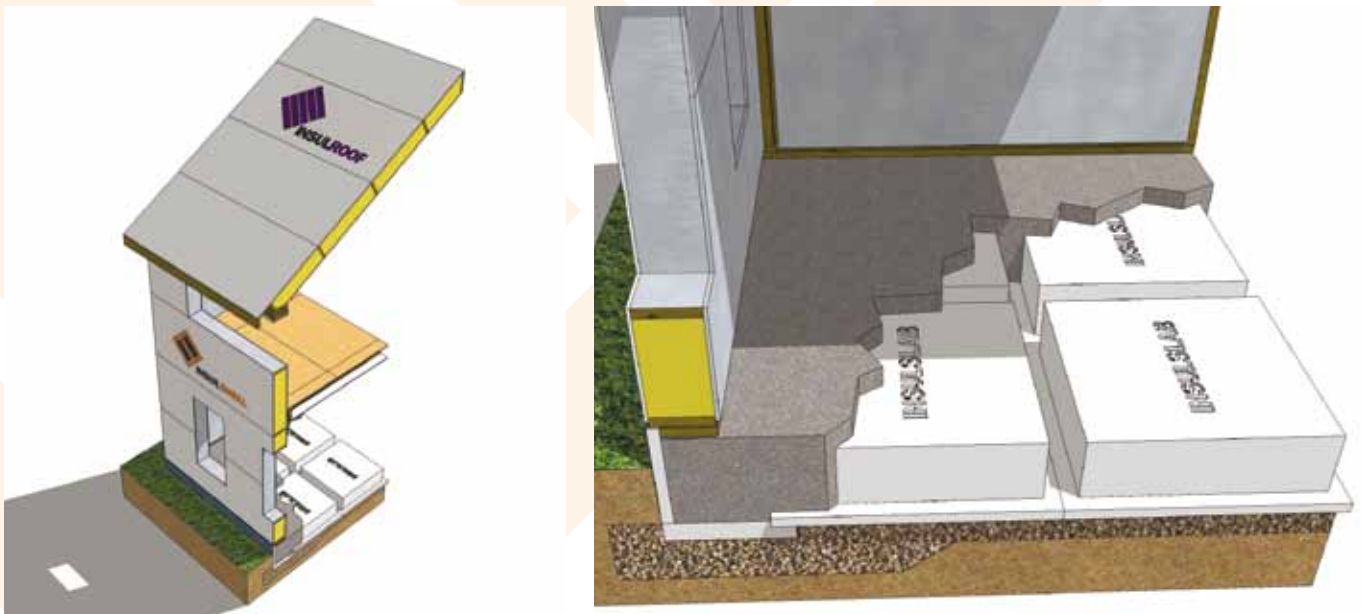
Checklists are used pre and post construction (fabrication and installation) to ensure the system is correctly constructed.

Air Leakage and Acoustic Testing can also be carried out upon request to confirm performance when necessary.



A COMPLETE BUILDING ENVELOPE

Insulshell is designed to incorporate the entire super structure if required, in addition the system is able to accommodate almost any finish internally and externally. Insulshell when combined with Insulslab SFRC (steel fibre reinforced concrete) foundation system provides a holistic approach and is modelled to achieve a high thermal performance to exceed current Building Regulations.





INSULSHELL CONCEPT HOUSE

Working to the Standard Assessment Procedure or SAP as it is widely known, Insulshell, combined with an element of renewable technology, can deliver a neutral carbon dwelling i.e. greater than 100% Dwelling Emission Rate reduction.

Recent case studies have indicated that Insulshell's holistic design is capable of providing this impressive level of performance but is also able to do so at a recognised affordable build cost.

By applying the 'Fabric First' approach Insulshell supports the Fabric Energy Efficiency Standards or FEES within the Standard Assessment Procedure to a level that only requires minimal renewable technology to achieve ultimate energy reduction targets as illustrated in the tables below.

Concept House 2 Storey (92m² GIFA)

Walls U value	Roof U value	Floor U value	Y value	Pressure Test	Heating	MVHR	PV	DER<TER	FEES	CfSH Level
0.2	0.15	0.1	0.04	1	High Efficiency Gas Boiler	High Efficiency MVHR	None	25.71%	59.8	4
0.1	0.1	0.1	0.04	1	High Efficiency ASHP	High Efficiency MVHR	3.43kW	104.26%	45.4	5

Concept House 3 Storey (120m² GIFA)

Walls U value	Roof U value	Floor U value	Y value	Pressure Test	Heating	MVHR	PV	DER<TER	FEES	CfSH Level
0.2	0.15	0.1	0.04	1	High Efficiency Gas Boiler	High Efficiency MVHR	None	25.86%	52.1	4
0.1	0.1	0.1	0.04	1	High Efficiency ASHP	High Efficiency MVHR	3.92kW	102.64%	40.3	5

Concept House Street Scene





STREAMLINING A SUSTAINABLE SELF BUILD

When a self build vision became an on-site reality for Craig and Jane Devonshire, it soon became clear that essential cost control had the potential to conflict with the desire to create a highly energy efficient home for their family. However, the excellent thermal insulation and fast track construction benefits afforded by Insulshell meant that the Devonshires were able to take their self build home through to an efficient and sustainable completion.

Having found an ideal self build plot in Teversal, Nottinghamshire, the Devonshires promptly commenced the design and planning process for their four bedroom 'Eco Home'. Favouring the 'Fabric First' approach to achieving high levels of energy efficiency, they set about researching the latest building envelope systems available on the market. Craig Devonshire explains: "We initially looked at other modern methods of construction but they were simply proving too costly for our budget. The architect was keen on timber frame but we felt there must be something else out there that could deliver the high levels of insulation we needed, reduce the speed of construction and at the same time – be within budget!"

This led to the identification of Insulshell – a new fire rated engineered structural panel incorporating robust insulation technology.

The Devonshires specified Insulshell as a full balloon frame system which saw their two storey home constructed and water tight in just a matter of days. The full height panels were delivered pre-fabricated and then in collaboration with the Insulshell team, the patented jointing method carried out on-site to erect the exterior envelope. The intermediate floor was then laid in place using pre-fabricated cassettes – which were precision fitted with the ductwork required for the heat recovery and whole house ventilation system. This precision manufacture and exact installation of Insulshell delivered maximum air tightness at every critical thermal junction as well as offer superior levels of insulation.

Whilst the thermal performance and speed of construction of Insulshell was proven, importantly for the Devonshires, the system

also overcame a number of practical challenges encountered on the plot. "During the planning application phase, we faced some opposition because of the close proximity to existing houses. Traditional techniques might have taken us four months to reach a water tight stage, but using Insulshell it was only a matter of days, which almost eliminated the disruption to our new neighbours.

"There was also virtually no mess or waste on-site, which again pleased the neighbours and reduced the cost burden on us as self-builders to pay for spoil or waste to be removed."

As a builder by trade, Craig appreciates the need to constantly move forward and explore new construction techniques, he concludes: "Going forward, building is going to change. Our own self build project gave me the chance to try something new before working with it from a commercial perspective. You've got to practice what you preach and Insulshell is most definitely an excellent solution wherever thermal insulation, speed of build and cost control are all critical factors."

"Having worked in the house several times since the windows were installed and the envelope completely airtight, Insulshell is proving to perform very well. It actually feels like there is heating on when you walk in, even on especially cold mornings! The passive ventilation works really well and cools the house in a matter of minutes so we have no concerns about overheating. I am already confident that we could comfortably live in the house with no heating on – with the exception of any unusual cold snaps we occasionally experience in the winter months."



DESIGNING-OUT BUILD COSTS

Having helped construct almost 30 Eco-stores for a British multinational grocery and general merchandise retailer in the past three years, B & K Structures appreciates the importance of flexibility, competitiveness and delivering projects on time, within budget. When tendering for its latest project in West Bromwich, these factors were combined with the need to increase speed of construction. B & K Structures knew that success for this tender lay in an innovative approach at design stage – leading the company to partner with Insulshell to value engineer the specification and deliver a highly efficient and cost effective exterior envelope solution.

Spanning an extensive 100,000 square foot area and reaching a height of approximately eight metres (gable ends), the new retail site in West Bromwich was to be no mean feat to construct. Tendering for the structural works of the project, B & K Structures assessed the existing client specification – a timber wall cassette with white Eurobond infill panels – and saw the potential for the Insulshell system to be used as an alternative non-structural infill panel.

Nick Milestone, B & K Structures, explains: “With every single project we tender for it is essential we have looked at every angle to maximise our chances of success. With the West Bromwich site, we recognised that the Insulshell system could offer time and cost savings and so brought in the technical team to work with B & K Structures during the design and costing stage.”

In consultation with the Insulshell technical team, B & K Structures were able to design-out a number of costs in the overall project delivery and at the same time realise significant advances in the construction programme. These included factory-fitting the external cladding to the Insulshell panels, which allowed a single installation sequence to take the glulam frame through from interior panel to exterior finish.

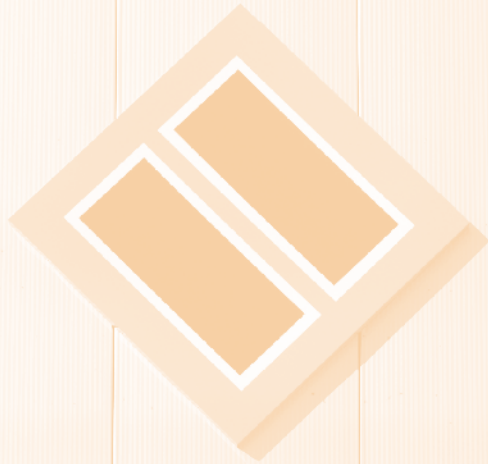
Having value-engineered the specification, Insulshell supported B & K Structures in securing the project by attending joint technical meetings with the client design team – resulting in full approval of the proposed revised system.

Faced with extremely short timescales, once on-site the B & K Structures and Insulshell teams completed the installation of 550m² in just three days.

Reflecting on the successful and challenging completion of the project, Nick concludes: “From design to installation the Insulshell team only had 10 weeks in total and just three days on-site. The seamless way in which they integrated with our own design team is testament to their in depth knowledge of what works, both on paper and in practice. It was our reputation on the line – and the project was a success. We are thoroughly pleased and it has no doubt opened more doors for us.”

SCOPE OF INSUSHELL





INSULSHELL

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Email sales@insulshell.co.uk

Visit www.insulshell.co.uk

INSUL RANGE:



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