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THINKING PRECAST?
THINK FP MCCANN

THERMABEAM™

INSULATED GROUND FLOORING SOLUTION

v3.0 GB

mpa British Precast

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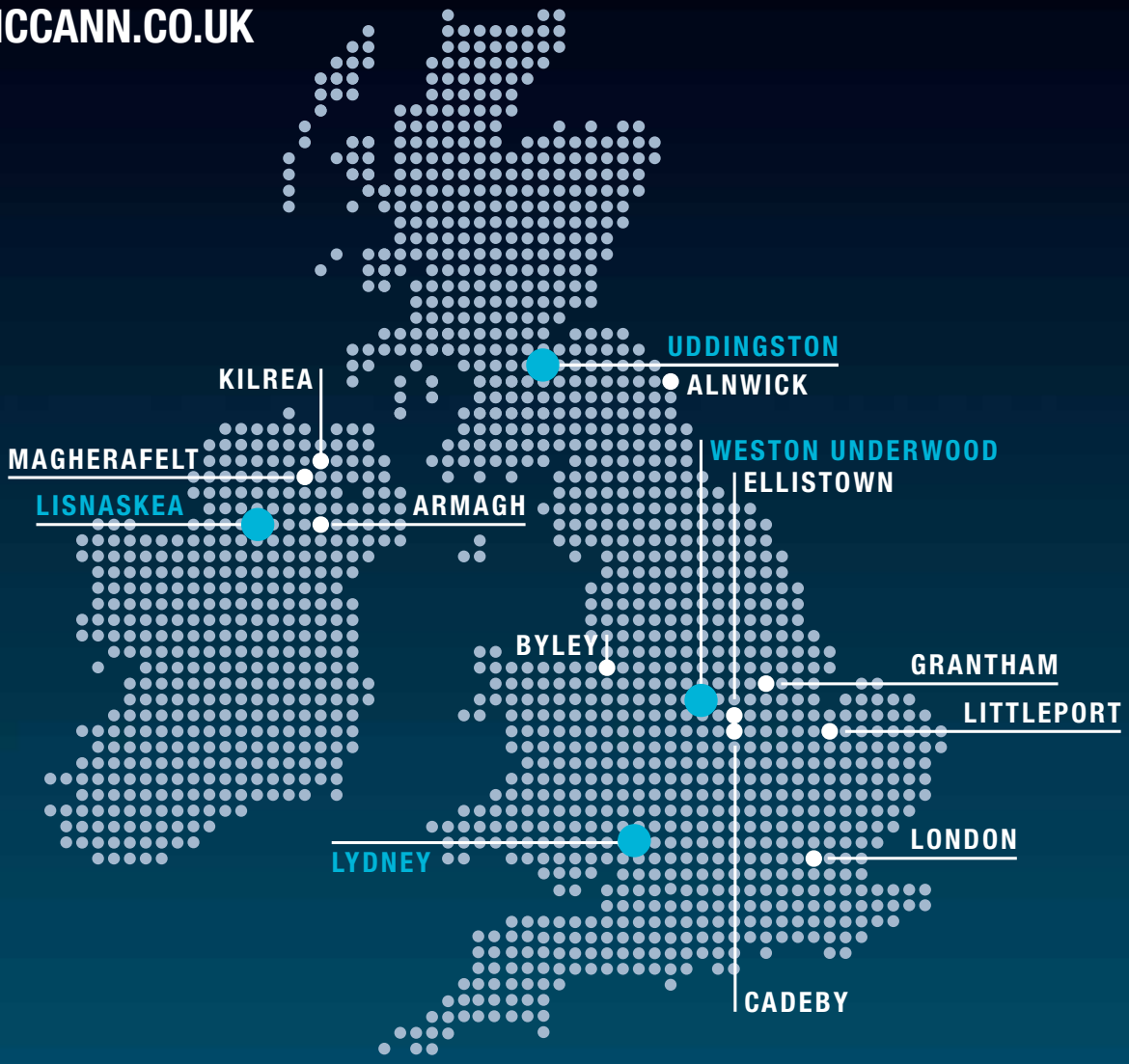


FP McCann is the UK's market leader in the manufacture, supply and delivery of precast concrete solutions. Our comprehensive precast concrete business extends to include:

AGRICULTURE I ARCHITECTURAL PRECAST I BOX CULVERTS I BUILDING PRODUCTS DOCK LEVELLER PITS I DRAINAGE I FENCING I FILTER BED SYSTEMS I FLOORING POWER & INFRASTRUCTURE I RAIL I SPECIALIST PRECAST I STRUCTURAL PRECAST TANKS & CHAMBERS I TUNNELS & SHAFTS I WALLING

Modern manufacturing plants at Alnwick (Northumberland), Armagh (Northern Ireland), Byley (Cheshire), Cadeby (Warwickshire), Ellistown (Leicestershire), Grantham (Lincolnshire), Lisnaskea (Northern Ireland), Littleport (Cambridgeshire), Lydney (Gloucestershire), Magherafelt (Northern Ireland), Uddingston (Lanarkshire) and Weston Underwood (Derbyshire) incorporate the latest computerised batching, distribution, casting, curing and handling systems and are operated by skilled and experienced workforces to ensure consistency of quality. Their geographical spread gives us an unrivalled ability to serve the construction industry throughout the UK and Ireland.

By applying the DFMA principles, FP McCann's design engineers are able to evaluate individual precast concrete products part by part, in addition to documenting the assembly process step by step. This allows them to generate the cost, part count and assembly time to provide a benchmark to measure its success and identify the parts and process improvement opportunities. In turn, this has allowed FP McCann to design and manufacture more cost-effective and efficient high-quality precast concrete products with less wastage and greater on-site recycling. As a result, increased productivity, combined with a reduction in production time and costs, allows FP McCann to be more competitive within the marketplace.

Please note: all information is correct at time of going to print.

THERMABEAM™

INSULATED GROUND FLOORING SOLUTION

AN INTRODUCTION TO THERMABEAM™

ThermaBeam™ is an insulated precast flooring system that combines both high performance expanded polystyrene (EPS) insulation and structural grade reinforced concrete, forming a continuous layer of insulation across the entire floor.

The ThermaBeam™ flooring system is manufactured in steel moulds to strict quality standards. The C45/55 structural concrete is cast onto the insulation, eliminating air gaps and minimising heat loss; thereby providing a significant reduction in cold bridging, resulting in an evenly spread thermal performance. U-Values as low as 0.10W/m² can be achieved. This is because the units bear on the inner leaf of cavity walls, a reduction in heat loss can be achieved at the wall-floor junction because the insulation extends beyond the floor to the face of the wall cavity, ensuring continuity of insulation at the junction.

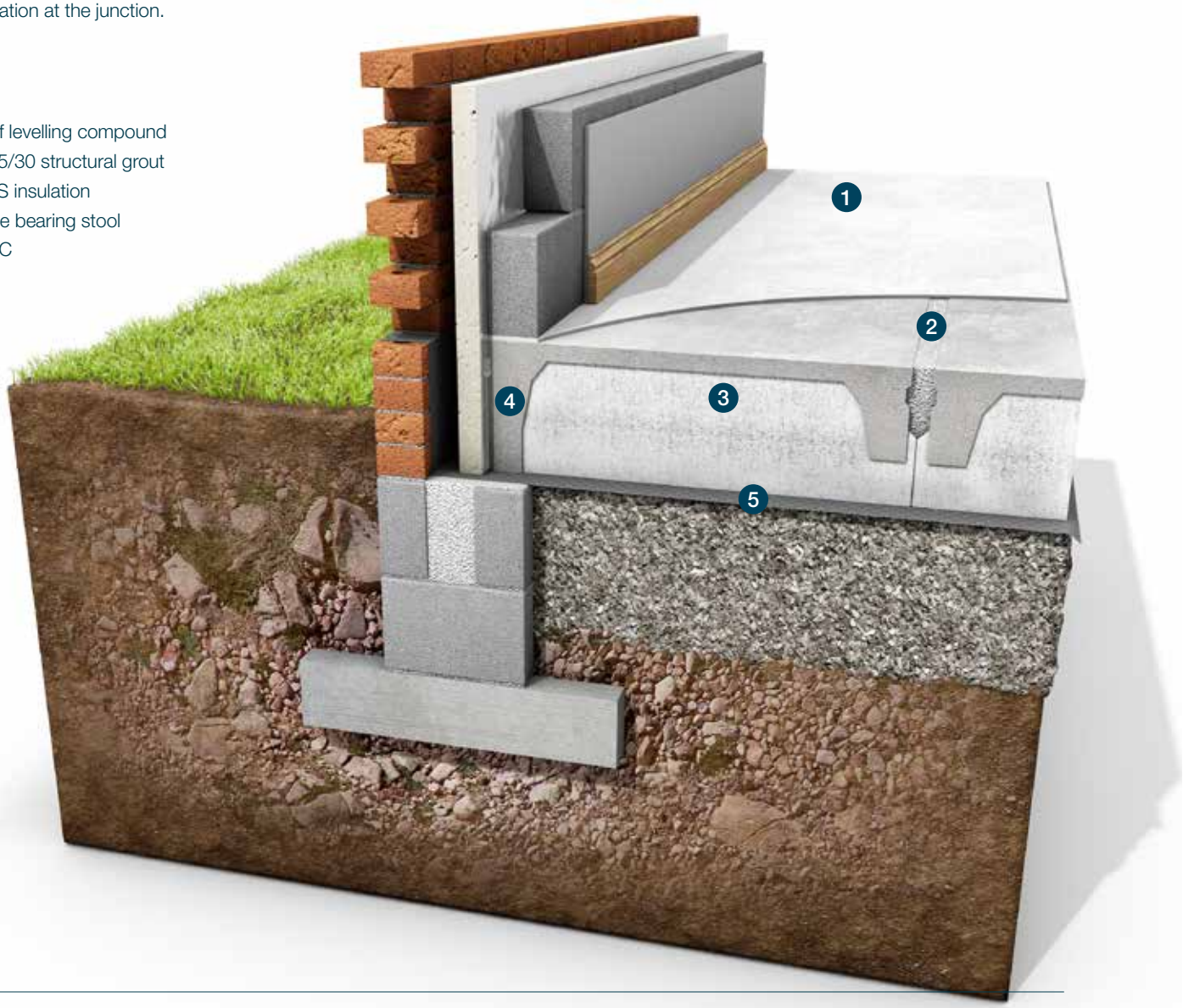
Therefore, the ThermaBeam™ flooring system is a more thermally efficient method of construction compared to traditional methods as it helps to maximise the thermal performance and energy rating of the building. With a choice of two insulation types available - poly or poly plus, it is the perfect solution for use as a ground floor in domestic and residential buildings.

The ThermaBeam™ flooring system also helps to reduce CO^2 emissions by decreasing the amount of non-renewable energy required to heat the building, helping to achieve the required Target Emissions Rating (TER).

ThermaBeam™ units are available in standard depths of 300mm and 375mm and a choice of four nominal widths – 400, 600, 900 and 1200mm.

KEY

1. Self levelling compound
2. C25/30 structural grout
3. EPS insulation
4. Side bearing stool
5. DPC



TECHNICAL SPECIFICATIONS

DESCRIPTION

The ThermaBeam™ flooring system consists of the following components:

EPS – moulded rigid boards in two grades in accordance with BS EN 13163 : 2012.
(white, λ*90/90* = 0.038 and Grey, λ*90/90* = 0.030)

Concrete – minimum grade C45/55 to BS EN 206 : 2013, BS 8500-1 : 2015 and BS 8500-2 : 2015

Steel reinforcement – to BS 4449 : 2005

Thermbeam unit	Perimeter/ Area Ratio	U-Value (W/m²K)
300mm	0.2	*0.11W/m²K
375mm	0.2	*0.10W/m²K

* Figures based on the Poly Plus Insulation

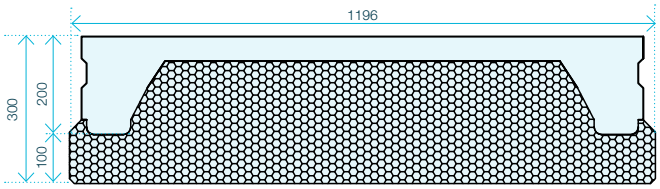
ANCILLARY ITEMS

The below items can form part of the overall floor construction:

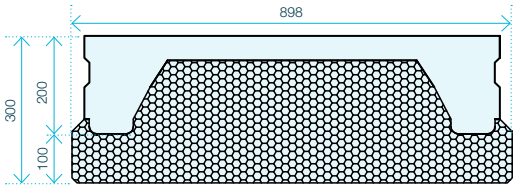
- Joint filling — concrete or sand-cement mortar with a strength class C25/30 and maximum aggregate size of 10mm
- **Concrete floor screed – typically between 25 and 100mm thick
- **Self-levelling compound
- **Timber battens – to receive floor finishes
- **Other suitable non-structural applied floor finishes
- **Damp-proof courses (dpcs), damp-proof membranes and gas barrier membranes (with third-party approval and compatible with EPS)
- Telescopic ventilators

** Items supplied by other companies

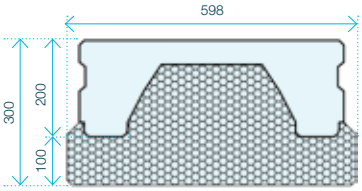
300MM THERMABEAM™



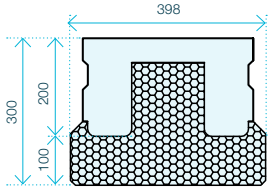
1200mm Wide Unit



900mm Wide Unit

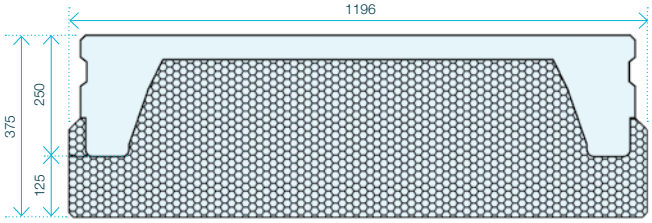


600mm Wide Unit

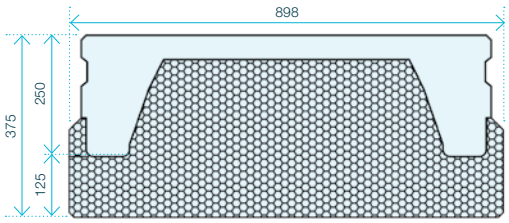


400mm Wide Unit

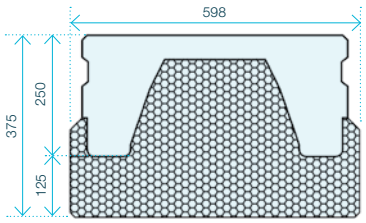
375MM THERMABEAM™



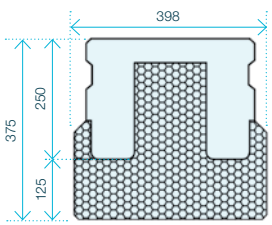
1200mm Wide Unit



900mm Wide Unit



600mm Wide Unit



400mm Wide Unit

All dimensions in mm

OUTSTANDING THERMAL PERFORMANCE

The system integrates structural concrete with expanded polystyrene insulation and the tightly butted units lock in the thermal performance efficiently across the slab.

Part L 2013 Compliance

ThermaBeam™ is available in 3 performance options designed to boost your building's performance within SAP. Please refer to our table for floor performance based on actual Perimeter/Area ratios.

Achieve U-value as low as

0.11W/m²K

ThermaBeam™ based on a P/A ratio of 0.2

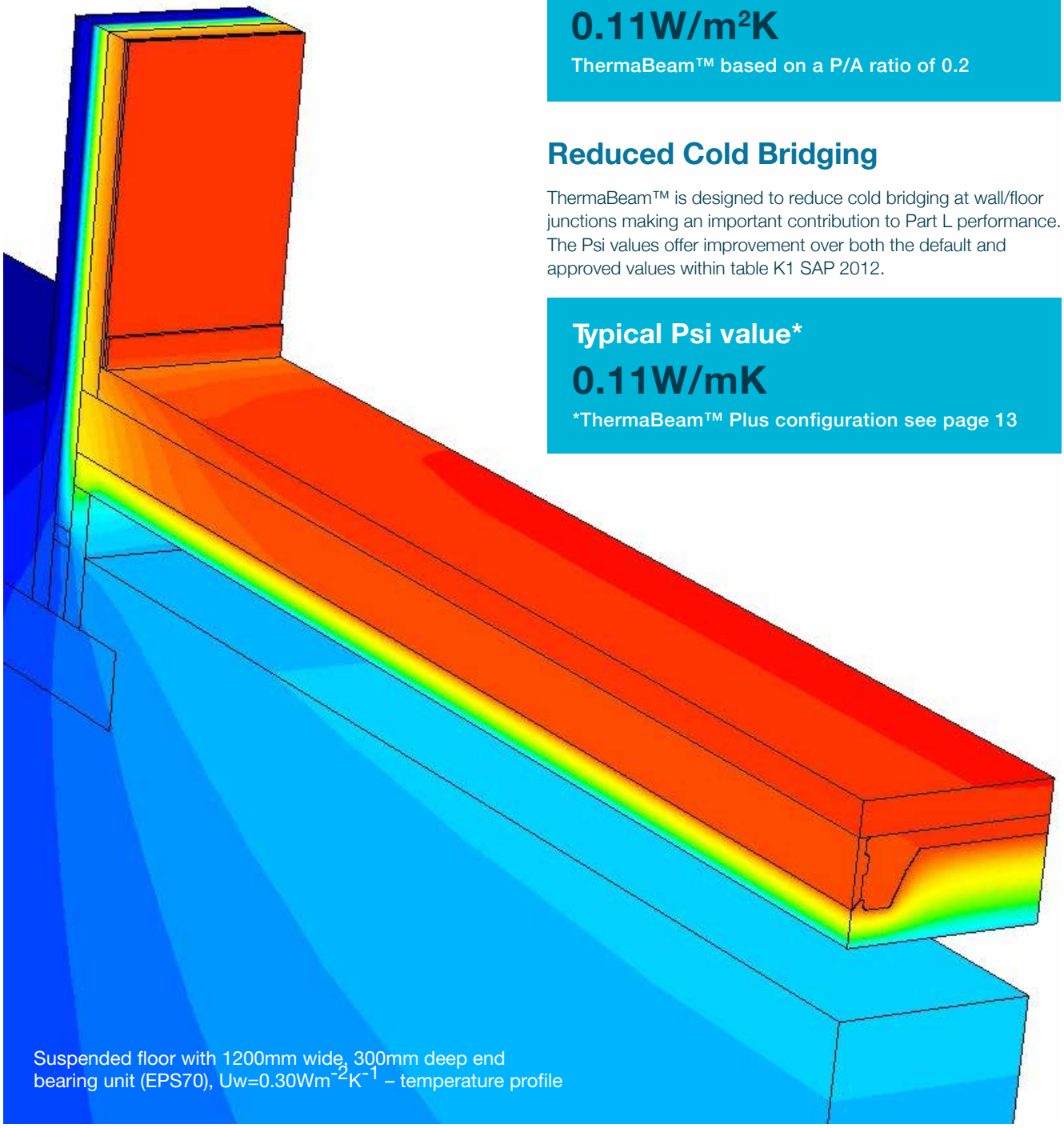
Reduced Cold Bridging

ThermaBeam™ is designed to reduce cold bridging at wall/floor junctions making an important contribution to Part L performance. The Psi values offer improvement over both the default and approved values within table K1 SAP 2012.

Typical Psi value*

0.11W/mK

***ThermaBeam™ Plus configuration see page 13**

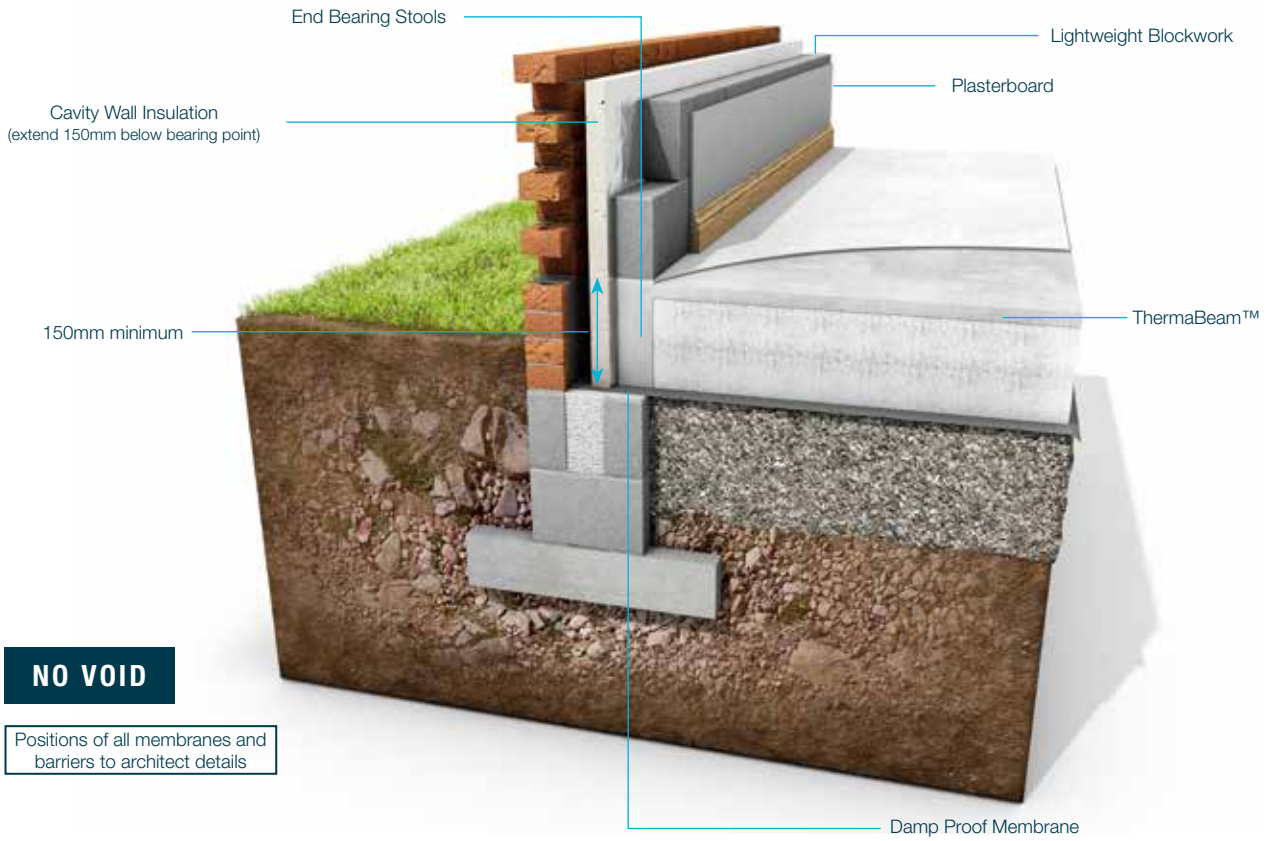


Suspended floor with 1200mm wide, 300mm deep end bearing unit (EPS70), Uw=0.30Wm^{-2}K^{-1} – temperature profile

TYPICAL CONSTRUCTION DETAILS

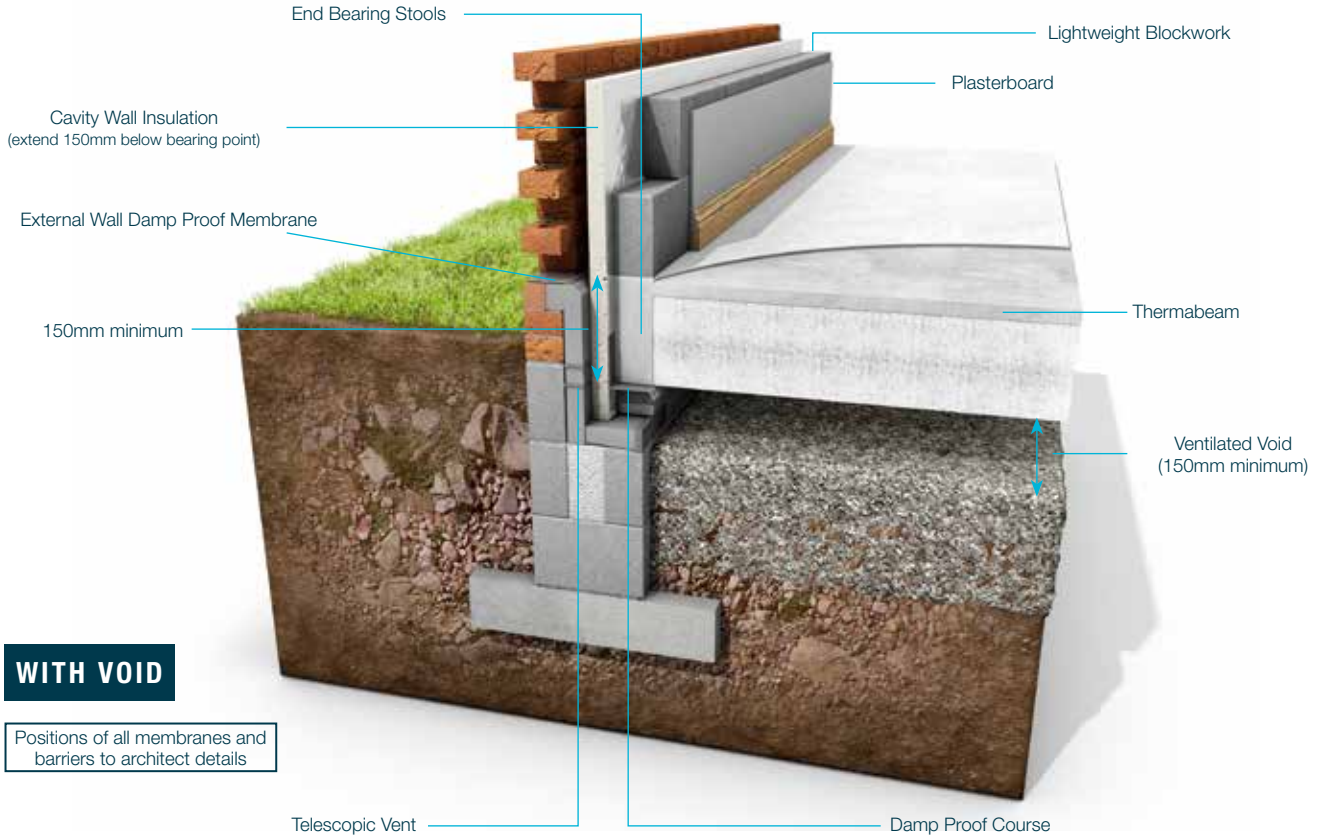
END BEARING DETAILS

MASONRY



NO VOID

Positions of all membranes and barriers to architect details

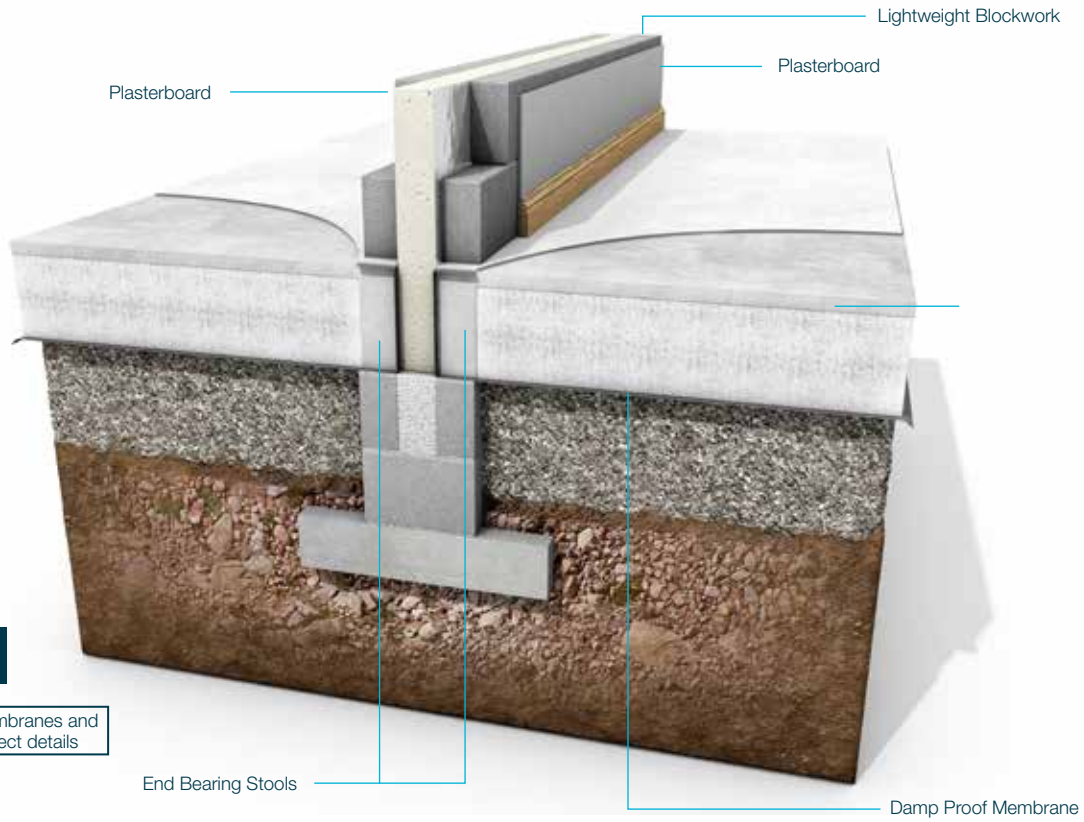


WITH VOID

Positions of all membranes and barriers to architect details

PARTY WALL DETAILS

MASONRY



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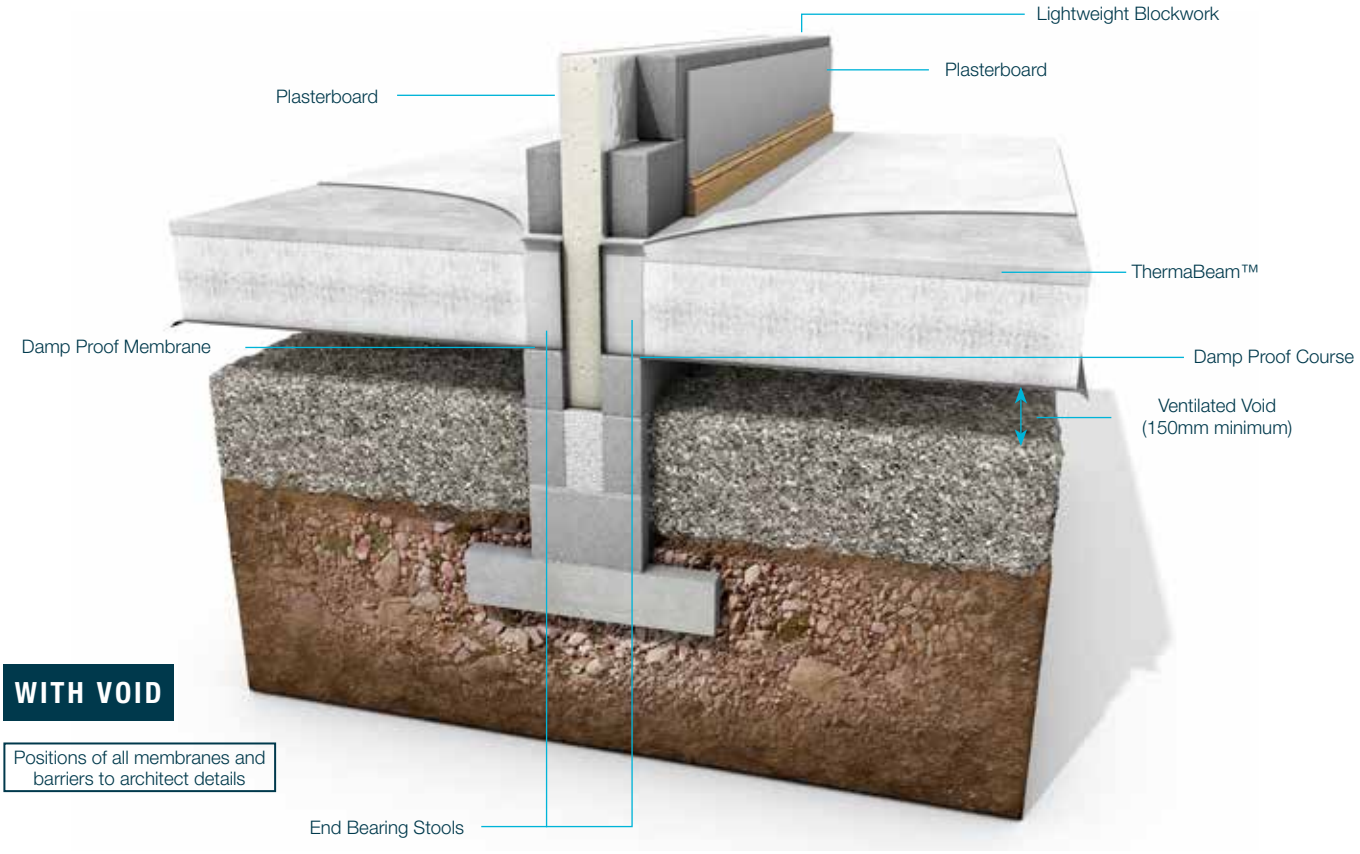

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Positions of all membranes and barriers to architect details

SIDE BEARING DETAILS

MASONRY

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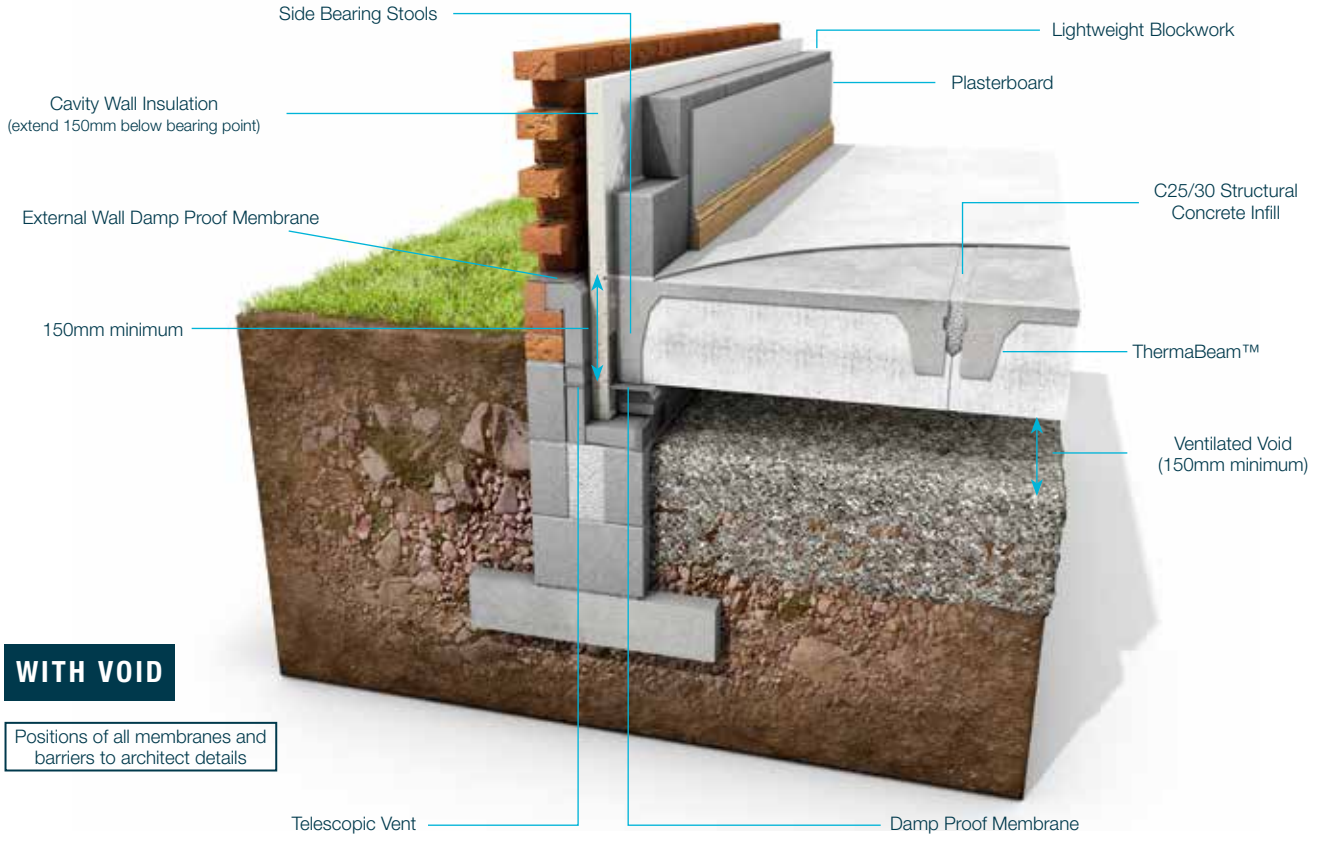
Positions of all membranes and barriers to architect details

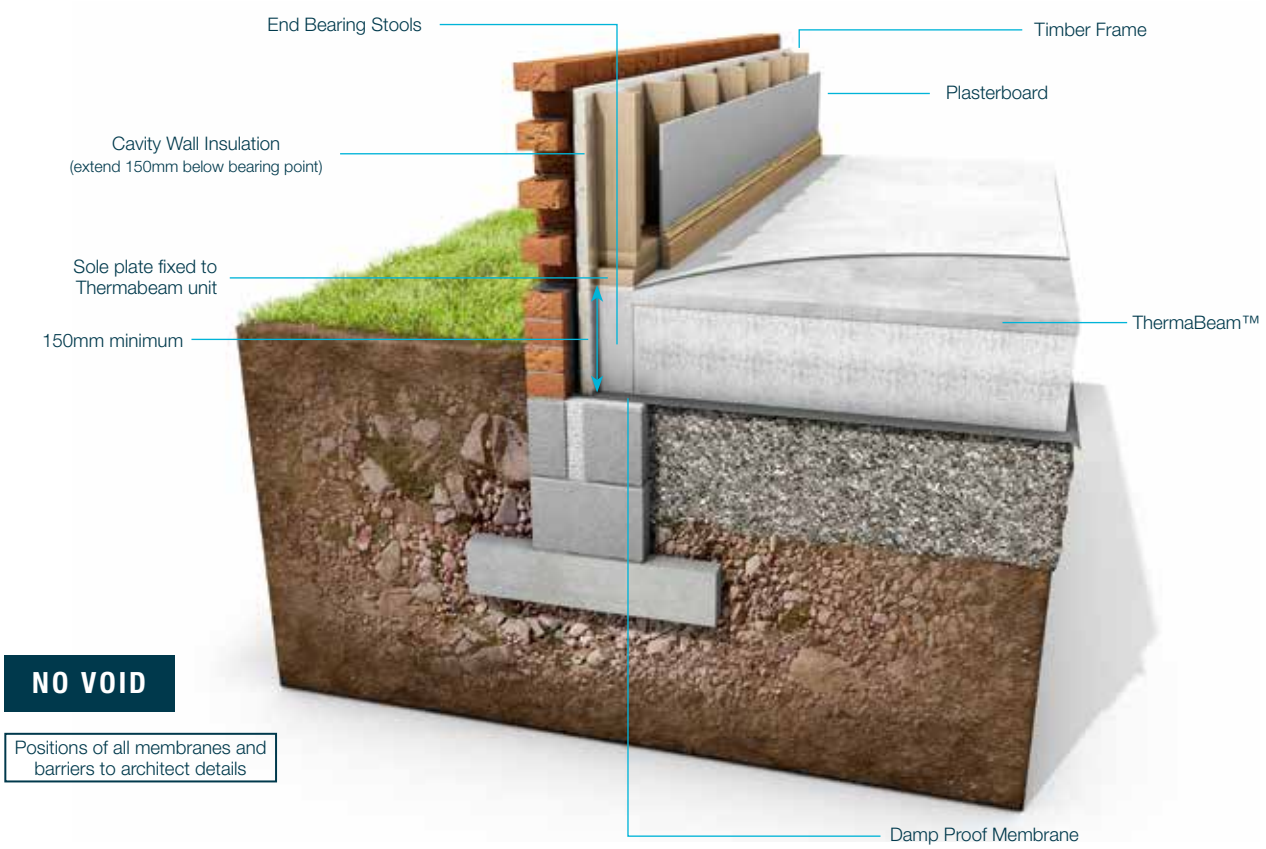


WITH VOID

Positions of all membranes and barriers to architect details

END BEARING DETAILS

TIMBER FRAME



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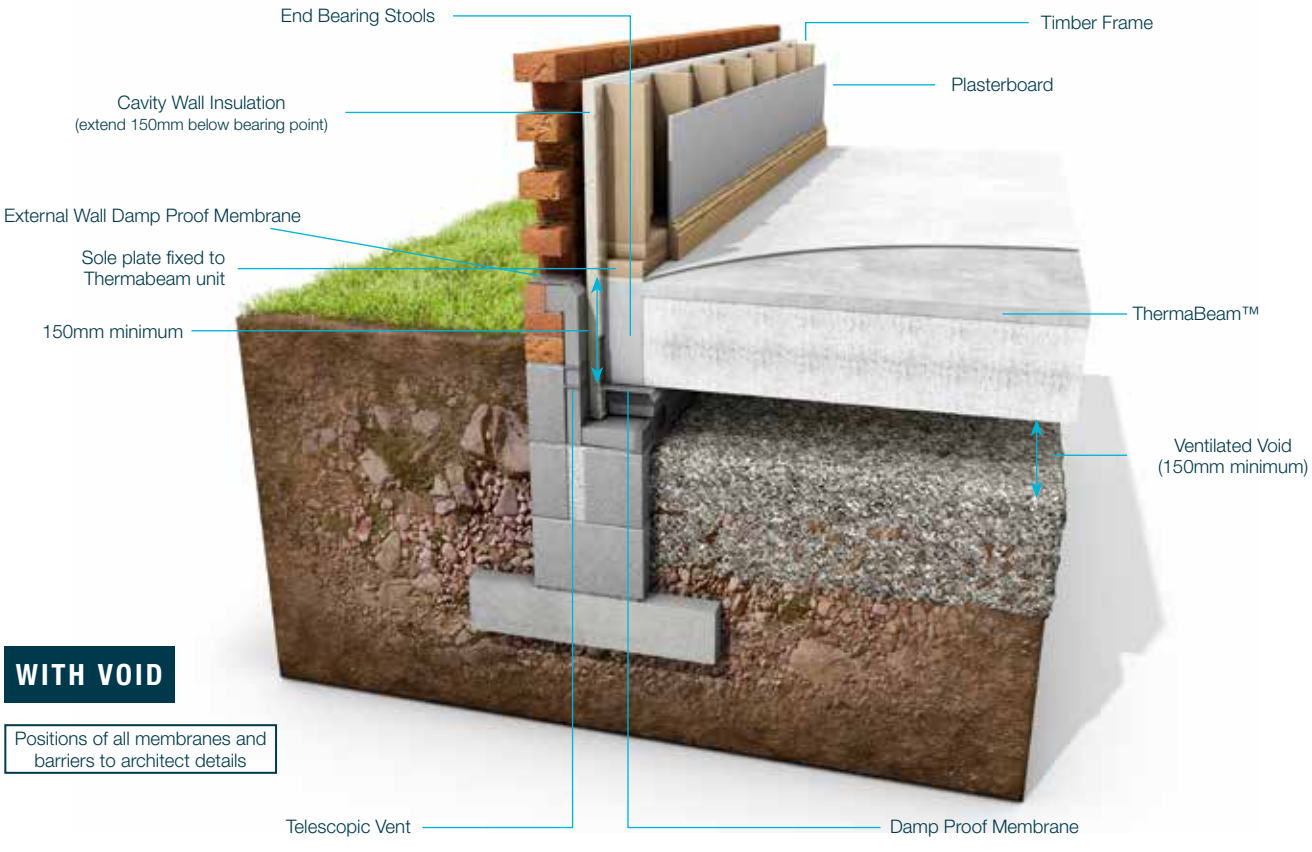
Positions of all membranes and barriers to architect details



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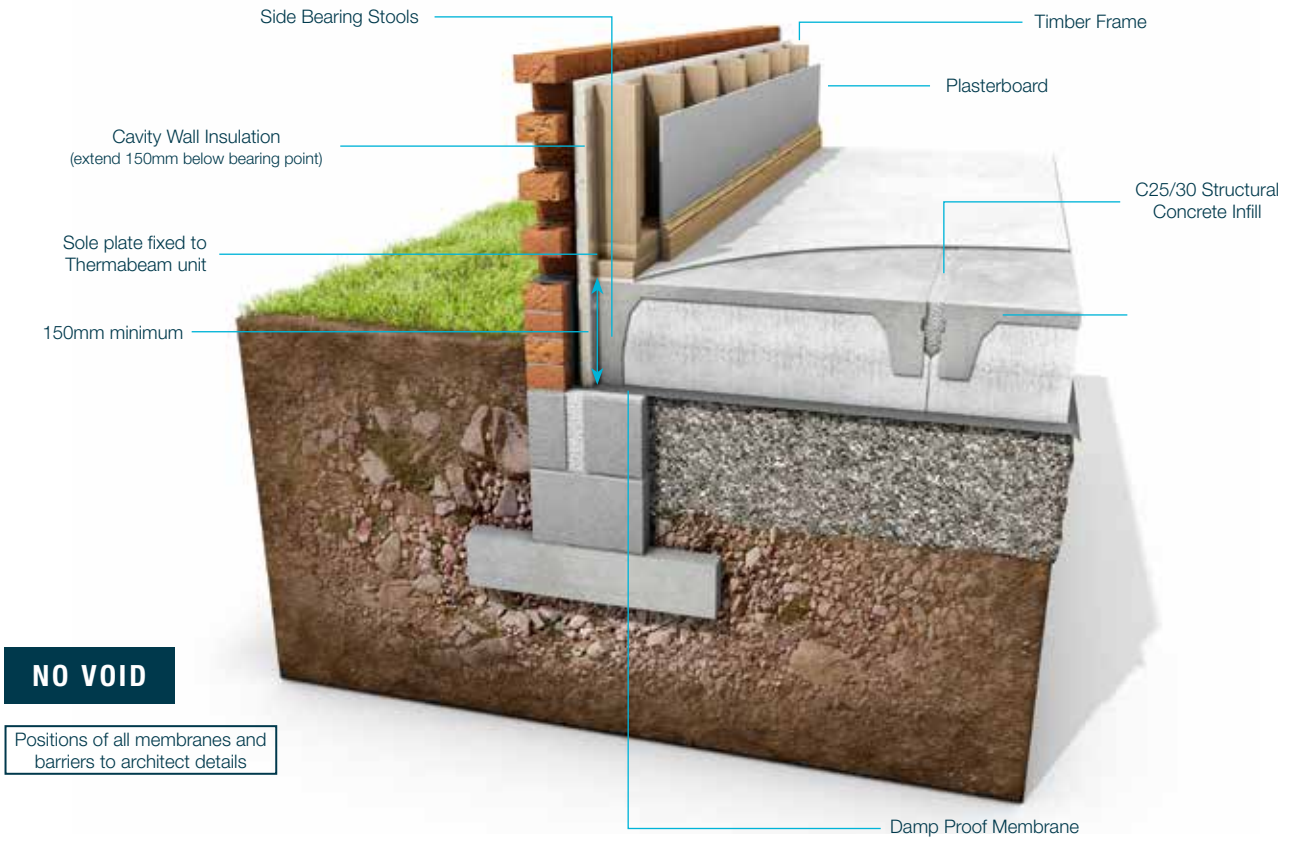
Positions of all membranes and barriers to architect details

SIDE BEARING DETAILS

TIMBER FRAME



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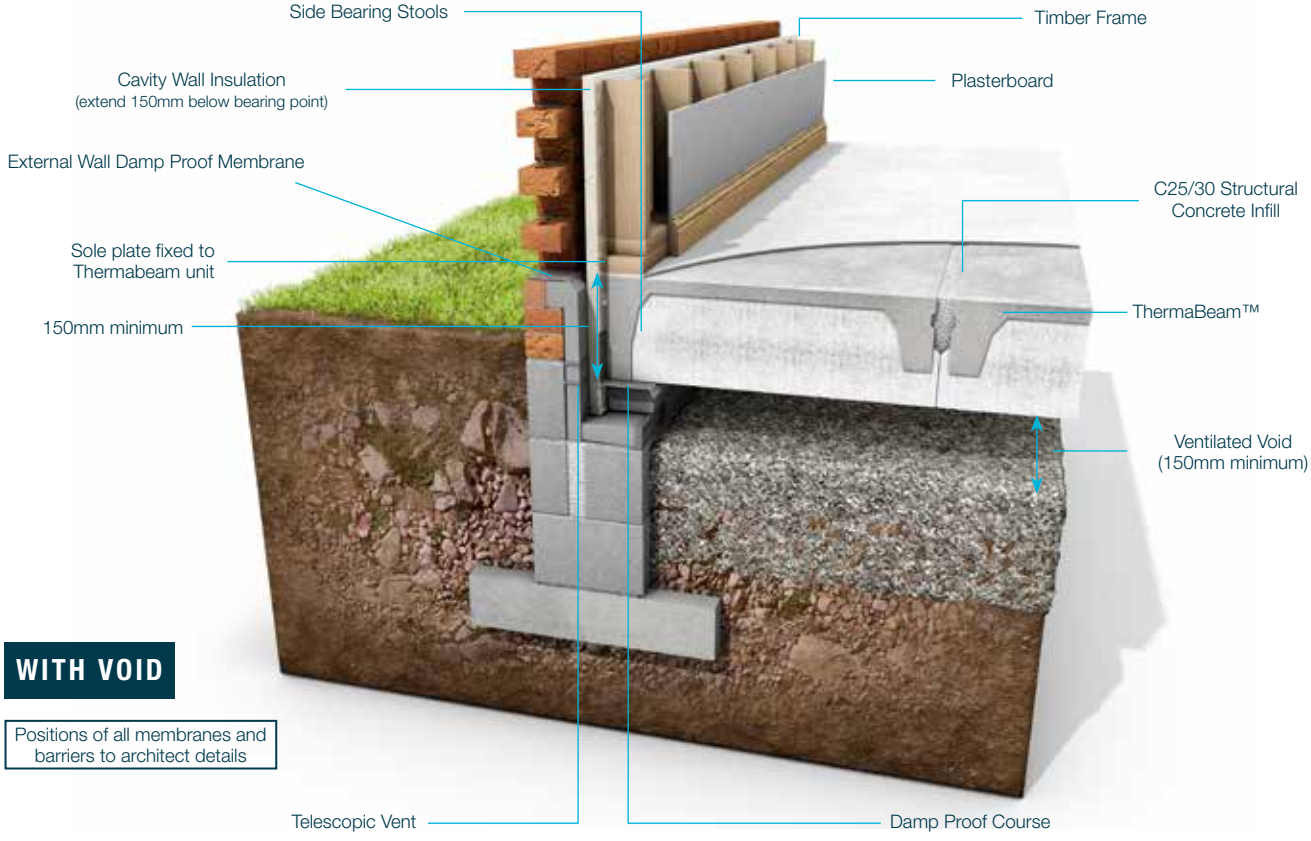
Positions of all membranes and barriers to architect details



WITH VOID

Positions of all membranes and barriers to architect details

BENEFITS OF THERMABEAM™

Fast installation
Units are manufactured offsite and are not affected by adverse weather

Excellent thermal performance
Due to its superior insulating properties

Low U-Values achieved
As low as 0.10W/m² K, based on a P/A ratio of 0.2

Higher energy
Efficiency rating achievable

Building Regulations compliant

Economical
Low on-site costs, zero wastage on-site, minimal on-site labour costs and minimum space required

Cast-in service openings* option
To facilitate quick installation on site

Reduced safety issues
Reduced on-site working

Safe working platform
Follow-on trades are achievable within a few hours

Low carbon footprint
Since less energy is required to heat building

European and British Quality Standards compliant:

BBA certified

Spans up to 7.5m achievable

Flexible design
To meet customer's design and loading requirements

Interstitial and surface condensation risk is minimised

* Service openings can only be cast-in during manufacture if their position/sizes are agreed at the design stage.

DELIVERY AND INSTALLATION

LOAD SPAN - 300MM THERMABEAM™

Based on a typical domestic variable load of 1.5kN/m²

Standard Rib Section	Clear Span between supports (mm)		
Floor Finish	No Partitions	Stud Partitions (1.0kN/m²)	***Blockwork Partitions (6.0kN/m)
100mm Concrete Screed	6275	5800	5450
75mm Concrete Screed	6600	6050	5700
50mm Concrete Screed	7000	6300	6000
25mm Levelling Screed	7500	6800	6400
10mm Levelling Screed	7500	6950	6600

LOAD SPAN - 375MM THERMABEAM™ PLUS

Based on a typical domestic variable load of 1.5kN/m²

Heavy Rib Section	Clear Span between supports (mm)		
Floor Finish	No Partitions	Stud Partitions (1.0kN/m²)	***Blockwork Partitions (6.0kN/m)
100mm Concrete Screed	7150	6600	6350
75mm Concrete Screed	7500	6900	6650
50mm Concrete Screed	7500	7200	6950
25mm Levelling Screed	7500	7500	7500
10mm Levelling Screed	7500	7500	7500

INSTALLATION PROCESS

The ThermaBeam™ units sit on the inner leaf of the cavity with a 100mm bearing on the side of the units and on the ends.

Once in position the joints are filled with a structural concrete grout to form a single floor plate.

Building on perimeter walls can start immediately. Within 72 hours, full structural strength is achieved, enabling loading of the floor to commence.**

A self-levelling compound* or screed is then used to complete the ThermaBeam™ floor surface, which is then ready to accept internal floor finishes.

* Not supplied by FP McCann.
** Loadings not to exceed those specified on the individual ThermaBeam™ layouts.
*** Subject to design based on individual wall locations.

CASE STUDY /
FP MCCANN'S INNOVATIVE THERMABEAM™ FLOORING LAYS DOWN SOLID FOUNDATIONS FOR NEW HOMES IN DERBYSHIRE

FP McCann's new precast concrete insulated ThermaBeam™ flooring system has recently been installed on a housing development at Drakelow, South Derbyshire. The developer, Lioncourt Homes, is building 70 new properties on the Rosliston Road site.

Site:	Rosliston Road, Drakelow
Contractor:	Friel Construction
Client:	Lioncourt Homes
Products Supplied:	ThermaBeam™ Flooring System

Civil engineer and ground worker Friel Construction, the contractor responsible for drainage, roads and foundation construction to ground floor level, is utilising the brand new Thermabeam flooring system on one of the plots as an initial trial, in support of FP McCann's development of the innovative alternative to traditional solid slab flooring.

The unique precast concrete units come in standard widths up to 1200mm and at 300mm deep; achieving spans up to 7.5 metres. This enables quick installation, allowing a safe platform for follow-on trades in a matter of hours.

ThermaBeam™ combines both high performance expanded polystyrene (EPS) and reinforced concrete, forming a continuous insulated floor with a significant reduction in cold bridging. Excellent thermal properties are achieved and the system helps to reduce CO^2 emissions by decreasing the amount of non-renewable energy required to heat the building.

In construction off-site, the structural concrete is cast onto the insulation layer, eliminating any air gaps in the finished product. Once installed, the ThermaBeam™ floor is simply grouted using a standard C25/30 sand cement mortar.

Commenting on the installation process, site manager for Friel Construction, Darren Yapp says, ***"The ThermaBeam™ units were simply and safely lifted into position in a single process, significantly increasing levels of productivity compared with traditional methods of ground floor construction. Additionally, this practice of build means we don't have excessive stocks of materials on the ground, which allows for a safer and cleaner working environment".***

For further information on our ThermaBeam™ flooring system, contact our sales team at **sales@fpmccann.co.uk**

CASE STUDY / NORTHAMPTONSHIRE HOUSEBUILDER ADOPTS NEW THERMABEAM™ FLOORING SYSTEM

Northamptonshire developer Snowdon Homes is utilising FP McCann's precast concrete insulated ThermaBeam™ flooring system on 24 prestigious properties on a new development in North Kilworth, South Leicestershire. Following a recent successful installation trial of the system in Derbyshire, the North Kilworth contract represents FP McCann's commercial launch of ThermaBeam™.

Client:	Snowdon Homes
Products Supplied:	ThermaBeam™ Flooring System
Other FP McCann Products supplied:	Precast 'T' beam and block, drainage pipe, chamber rings and cover slabs.

The continuous insulated reinforced concrete floor slabs are manufactured and delivered to site from FP McCann's Weston Underwood and Lydney factories and are being installed by their specialist floor slab fixing team with each visit planned in line with phased release of plot foundation work.

The unique precast concrete units being supplied to site, are in standard widths; 400mm, 600mm, 900mm and 1200mm with each slab at 375mm deep achieving spans up to 7 metres long. Once installed, the ThermaBeam™ floor is simply grouted using a standard C25/30 sand cement mortar.

As an innovative alternative to traditional solid slab flooring, ThermaBeam™ can be installed quickly and efficiently allowing follow on trades to work from a safe platform in a matter of hours. Individual loads can be delivered on a 'just-in-time' basis and lifted into position straight from the delivery vehicle which minimises the amount of stock held on the ground. On-site manual handling is minimal thereby providing additional health and safety benefits.

ThermaBeam™ combines both high performance expanded polystyrene (EPS) and reinforced concrete forming a continuous insulated floor with a significant reduction in cold bridging. Excellent thermal properties are achieved with U-values as low as 0.10W/m^2 and the system helps to reduce CO emissions by decreasing the amount of non-renewable energy required to heat the building. In construction off-site, the structural concrete is cast onto the insulation layer, eliminating any air gaps in the finished product. Subject to design, service openings can be factory or site formed. FP McCann also offer 300mm deep insulated floor slabs and the ThermaBeam™ flooring system is available nationwide.

FP McCann has also supplied precast 'T' beam flooring and standard precast drainage products including pipes DN750 and DN1200; wide wall chamber rings DN1200 and DN1800; gullies, seating and cover slabs up to DN2100.

Commenting on ThermaBeam™ Build Director for Snowdon Homes Glyn Pepper says, ***"Using the ThermaBeam™ flooring system will increase productivity and enhance health and safety on our sites. The product helps minimise waste compared with other methods of ground floor construction and vehicle movements are reduced, all contributing to overall environmental benefits".***

ACCREDITATION AND QUALITY

CERTIFICATION

The ThermaBeam™ flooring system has received accreditation from the British Board of Agrément under BBA Certificate No. 19/5618. You can see the first page of this certifcate on the following page or view in full at www.fpmcccann.co.uk/quality.

BUILDING REGULATIONS

ThermaBeam™ complies with the relevant section of the following regulations:

- The Building Regulations 2010 (England & Wales)
- The Building (Scotland) Regulations 2004
- The Building Regulations (Northern Ireland) 2012

NHBC

The ThermaBeam™ flooring system is accepted by NHBC in relation to their Standards, Chapter 5.2 Suspended Ground Floors.

QUALITY

ThermaBeam™ units are manufactured in accordance with ISO 9001 Quality Standards and are designed to BS EN 1992-1-1:2004 Eurocode 2, BS EN 13224:2004 Precast Concrete Products – Ribbed Floor Elements, BS EN 1992-1-1:2004 (Eurocode 2: Design of concrete structures), BS EN 13224:2001 (Precast Concrete Products – Ribbed Floor Elements and EN ISO 13370:1998 (Thermal Performance).

The ThermaBeam™ flooring system can significantly contribute towards achieving the Code for Sustainable Homes levels 4-6 as well as Passivhaus standard.

Should you require any further detailed technical assistance in any area, please contact the ThermaBeam™ Technical Team at sales@fpmccann.co.uk.

DELIVERY*

Prior to delivery, a member of the ThermaBeam™ sales team will contact your site-representative to confirm all details for delivery. This will include checking access, obstructions and bearings. There will be detailed lift plans and method statements prepared for each installation.

INSTALLATION

The ThermaBeam™ installation crews are available to install the Thermabeam units. With its allweather construction capability, up to 400m2 of ThermaBeam™ can be safely installed per day, leaving a safe working platform for follow-on trades.

GROUTING*

All ThermaBeam™ units are grouted on-site by our experienced installation crews.

* Available for supply and fix orders only

FP McCann Ltd
3 Drumard Road
Magherafelt
Derry
BT45 8QA

Tel: 028 7964 2558 Fax: 028 7964 4224
e-mail: sales@fpmccann.co.uk
website: www.fpmccann.co.uk

Agrément Certificate
19/5618
Product Sheet 1

FP McCANN PRECAST CONCRETE

THERMABEAM INSULATED PRECAST CONCRETE GROUND FLOOR SYSTEM

This Agrément Certificate Product Sheet(1) relates to Thermabeam Insulated Precast Concrete Ground Floor System, comprising precast concrete and expanded polystyrene insulation composite elements for use in conjunction with a non-structural sand/cement screed, self-levelling compound, timber batten or other suitable applied floor finishes and suitable for use as a suspended ground floor in domestic and residential buildings.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

SCAN QR CODE TO VIEW OUR FULL BBA CERTIFICATE

KEY FACTORS ASSESSED

Structural performance — ground floors incorporating the system are suitable for domestic and residential applications, subject to the maximum imposed loads (see section 6).
Thermal performance — floors incorporating the system can contribute to meeting the national Building Regulation requirements (see section 7).
Condensation risk — floors incorporating the system can help minimise the risk of interstitial and surface condensation (see section 8).
Durability — floors incorporating the system will have adequate durability for the design life of the building (see section 10).

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 30 January 2019

Paul Valentine
Technical Excellence Director

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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clientservices@bbacerts.co.uk
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fpmccann

ThermaBeam™ being manufactured at our Weston Underwood facility

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sales@fpmccann.co.uk

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Uddingston Glasgow
Lanarkshire
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MAGHERAFELT OFFICE:
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M 07711 777953
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AGRICULTURE
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ARCHITECTURAL PRECAST
London 020 3905 7640

BOX CULVERTS
Weston Underwood 01335 361269

BUILDING PRODUCTS
Cadeby 01455 290780

DOCK LEVELLER PITS
Weston Underwood 01335 361269

DRAINAGE
Ellistown 01530 240000 (England/Wales) Magherafelt 028 7954 9026 (Scotland/NI)

FENCING
Cadeby 01455 290780

FILTER BED SYSTEMS
Littleport 01353 861416

FLOORING
Weston Underwood 01335 361269 Uddingston 01698 803300 Magherafelt 028 7954 9026 (NI)

POWER & INFRASTRUCTURE
Littleport 01353 861416

RAIL
Littleport 01353 861416

SPECIALIST PRECAST
Littleport 01353 861416

STRUCTURAL PRECAST
Byley 01606 843500 Grantham 01476 562277

STORMTANK™ - TANKS & CHAMBERS
Weston Underwood 01335 361269

TUNNELS & SHAFTS
Cadeby 01455 290780

WALLING
Grantham 01476 562277 Lydney 01594 847500
Uddingston 01698 803 300 (Scotland) Magherafelt 028 7954 9026 (NI)

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