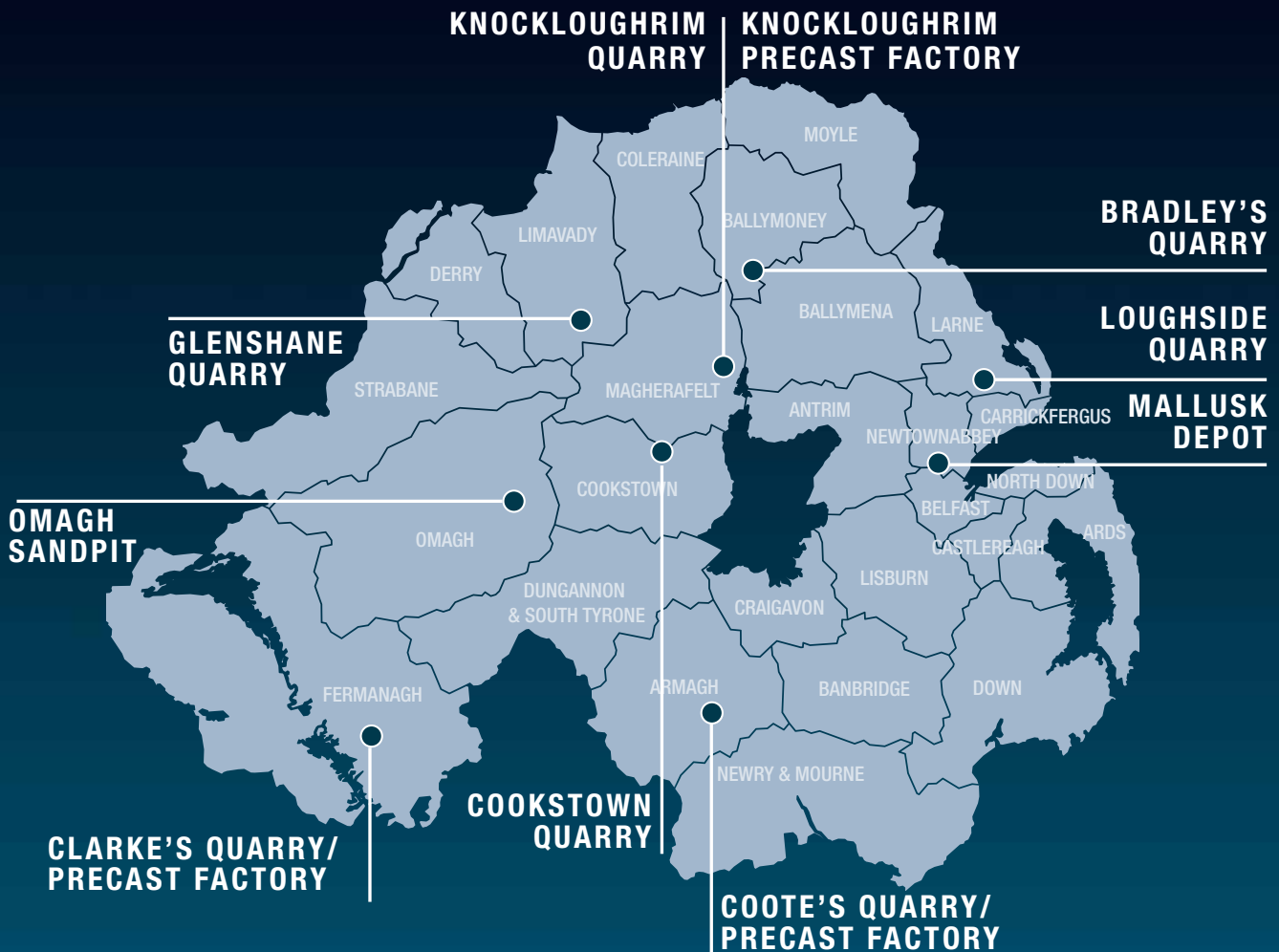


# THERMABEAM™

INSULATED GROUND FLOORING SOLUTION

v1.0 NI





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

With seven quarries, six ready mix concrete plants, three precast concrete manufacturing plants and a sandpit situated across Northern Ireland, the geographical spread of FP McCann's facilities gives us the ability to meet the building material and concrete needs of a variety of industrial sectors.

FP McCann provides the following product categories: ready mix concrete, quarry stone and aggregates, building products, precast concrete walling, agricultural and drainage products and surfacing products.

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.*



## INSULATED GROUND FLOORING SOLUTION

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# 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  $0.11\text{W/m}^2$  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<sub>2</sub> 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 a standard depth of 300mm 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,  $\lambda_{90/90}$  = 0.038 and Grey,  $\lambda_{90/90}$  = 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

\* Figures based on the Poly Plus Insulation

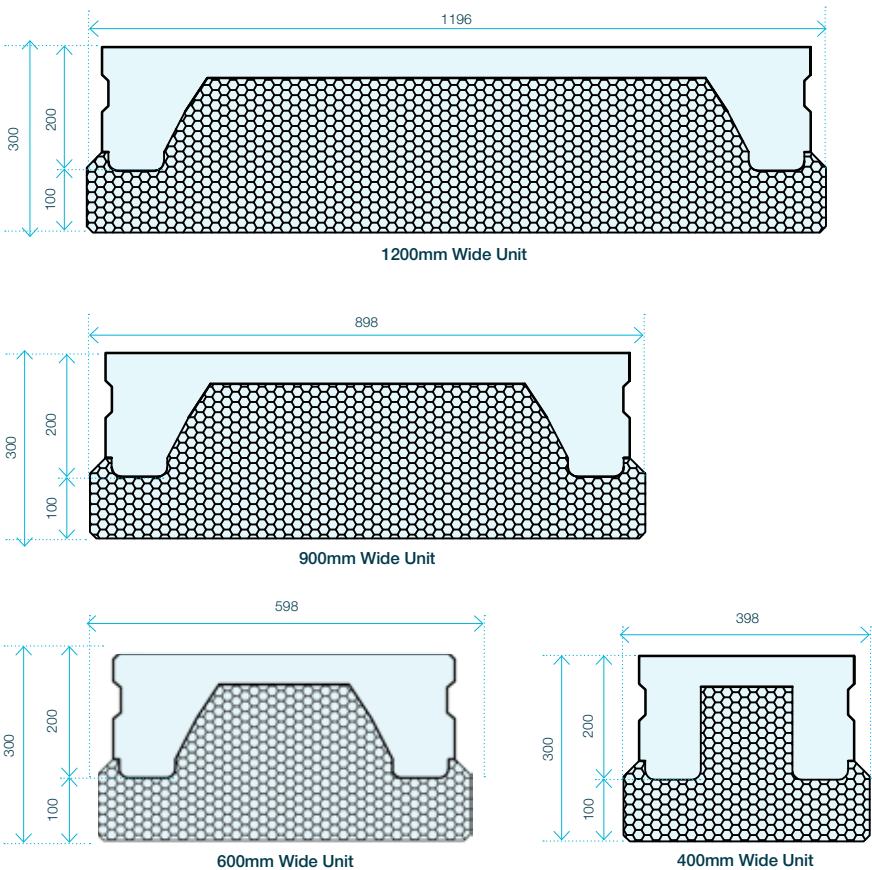
## ANCILLARY ITEMS

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™



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/m<sup>2</sup>K**

ThermaBeam™ based on a P/A ratio of 0.2

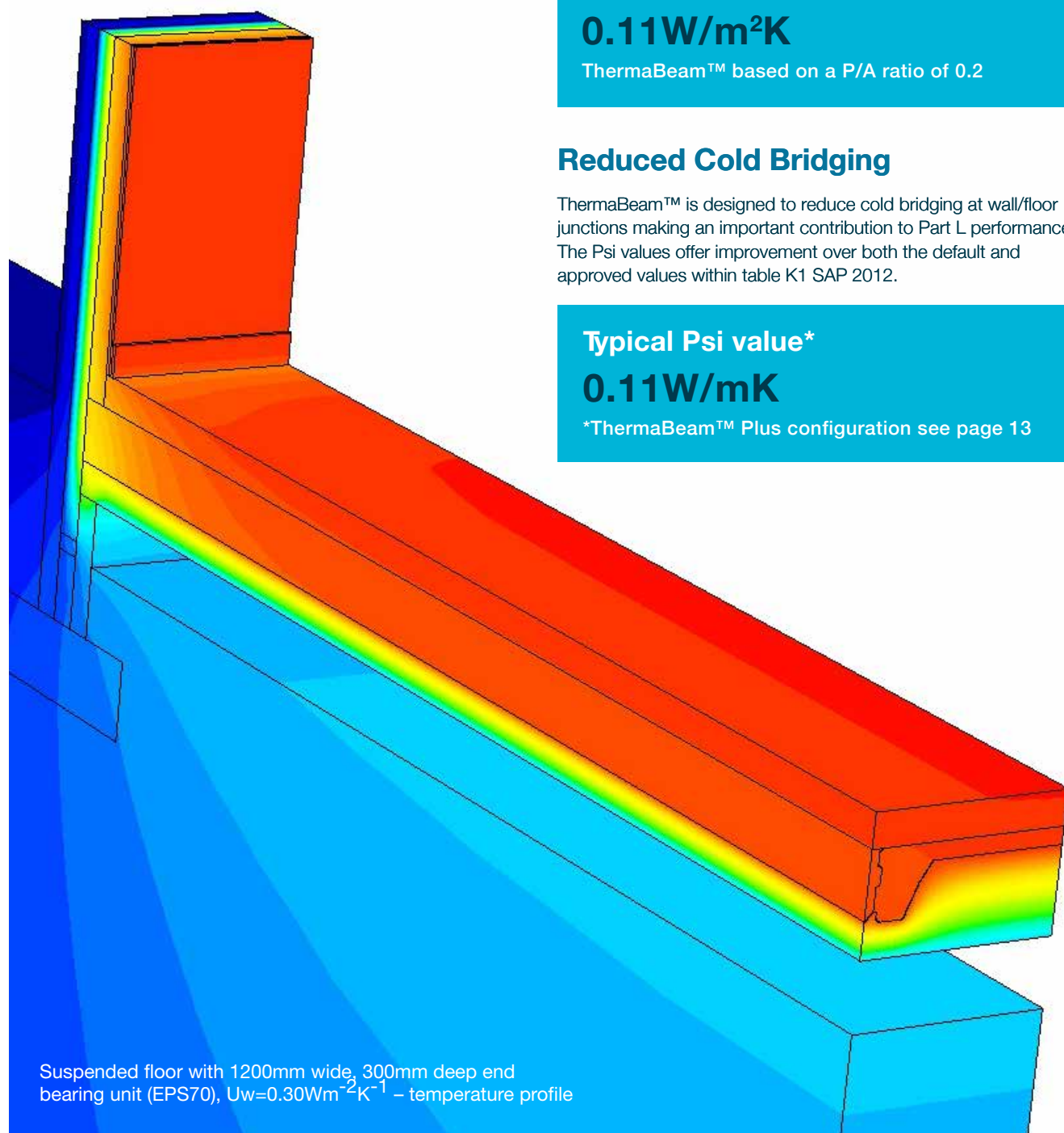
## Reduced Cold Bridging

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



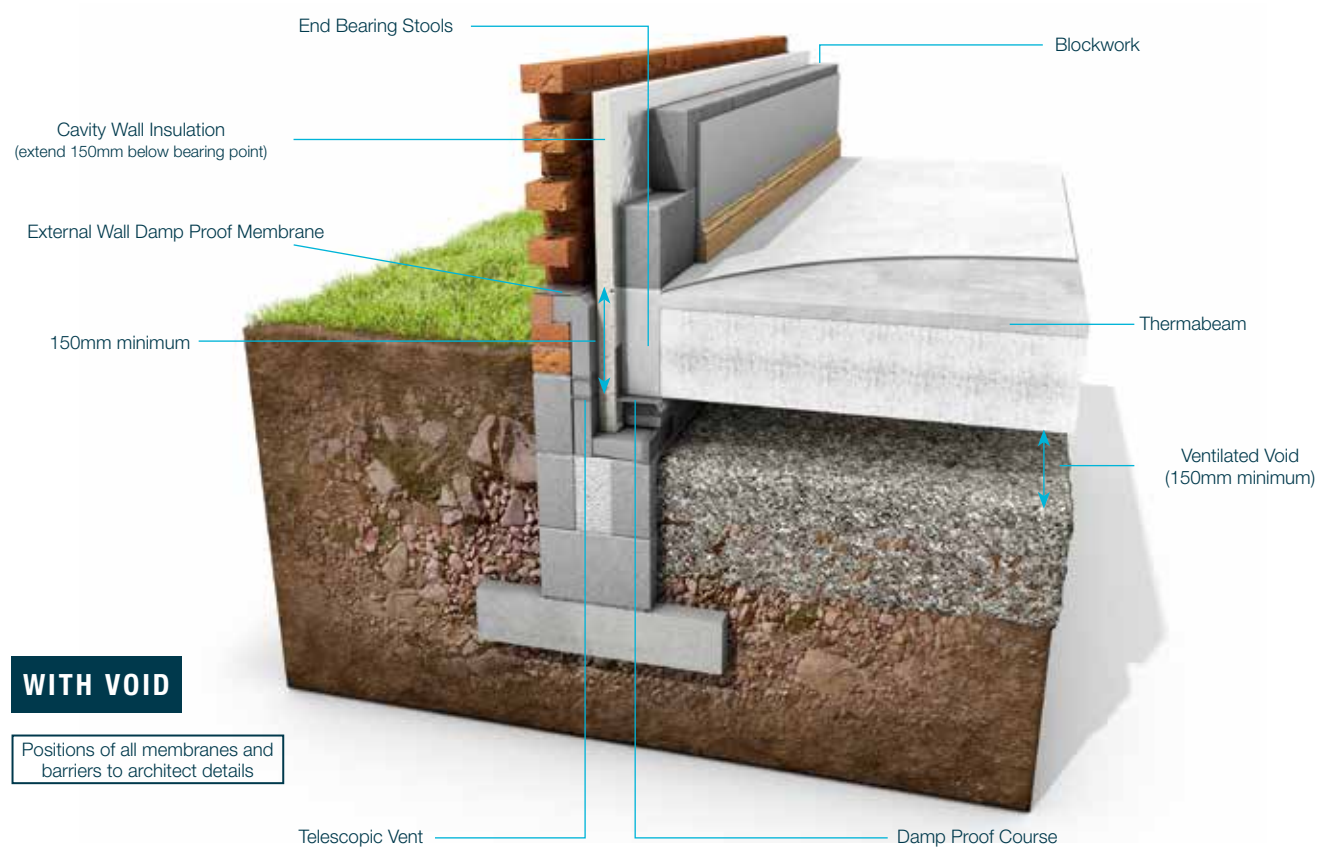
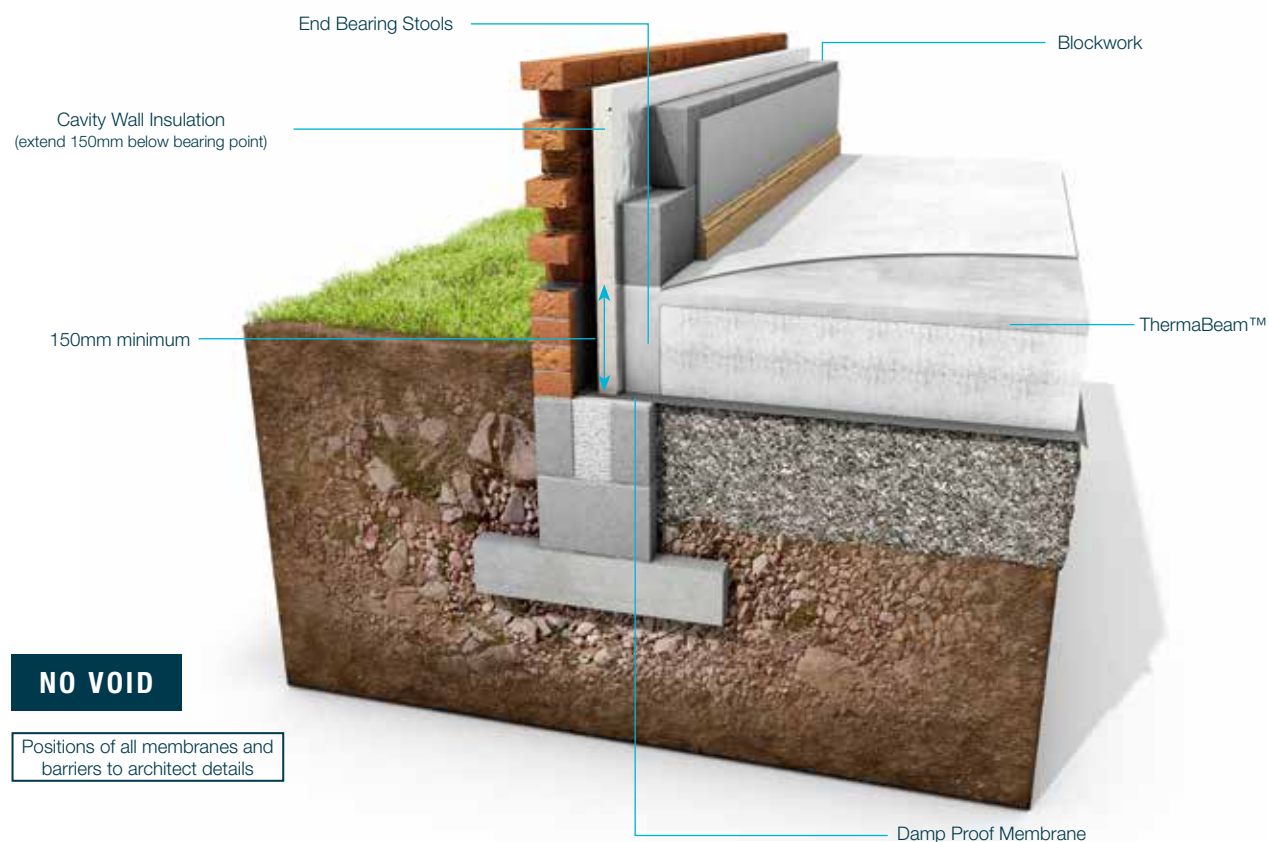
Suspended floor with 1200mm wide, 300mm deep end bearing unit (EPS70),  $U_w=0.30\text{Wm}^{-2}\text{K}^{-1}$  – temperature profile

# TYPICAL CONSTRUCTION DETAILS



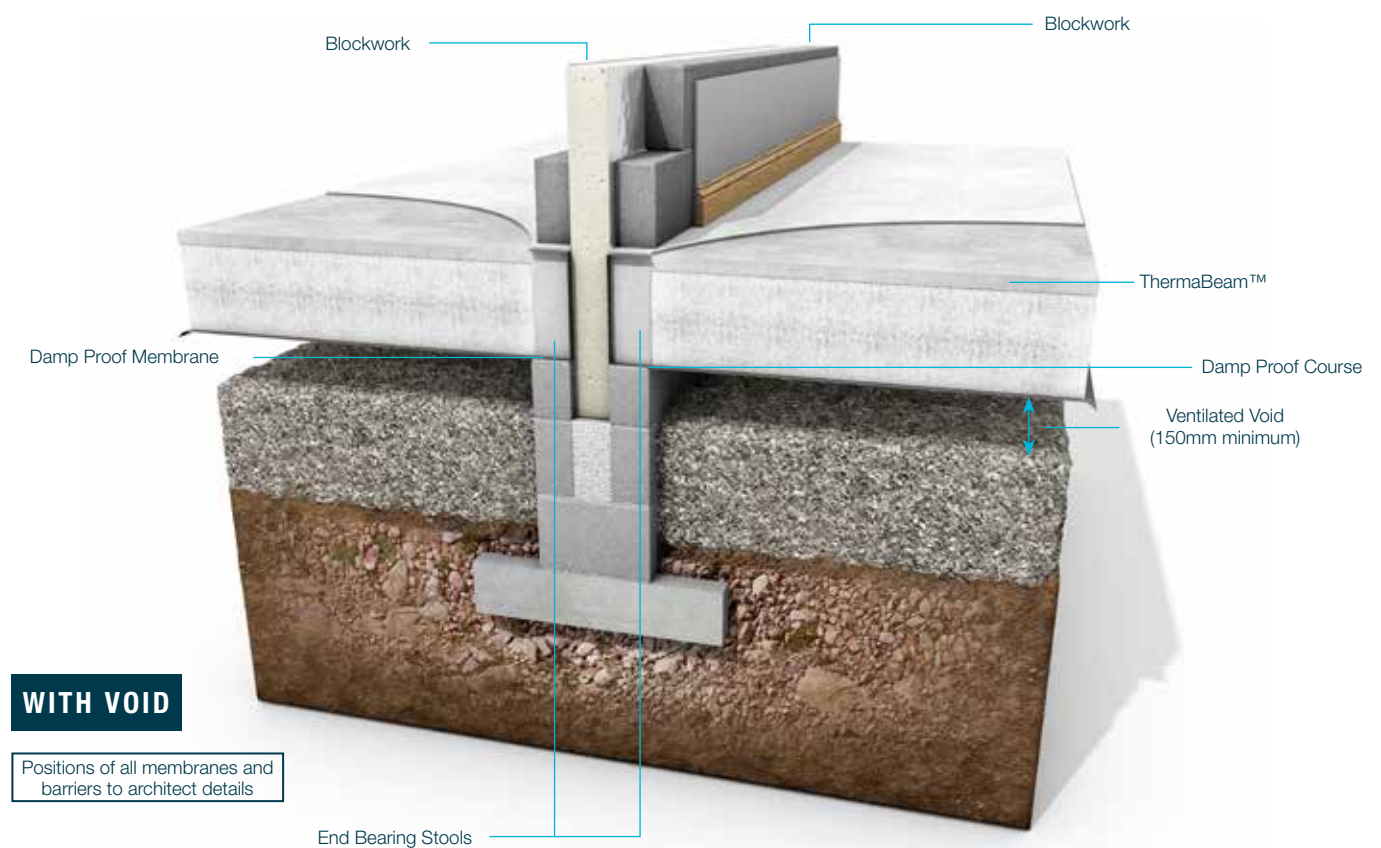
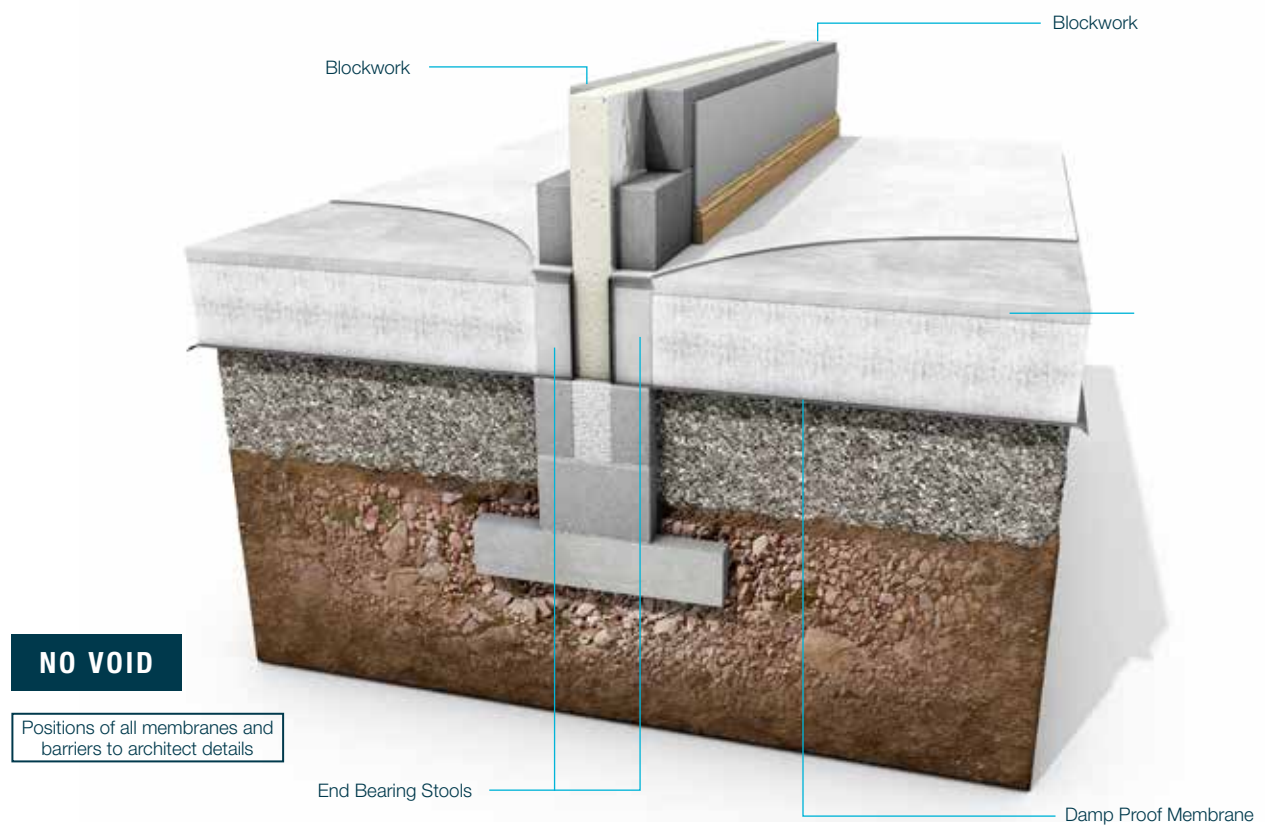
# END BEARING DETAILS

## MASONRY



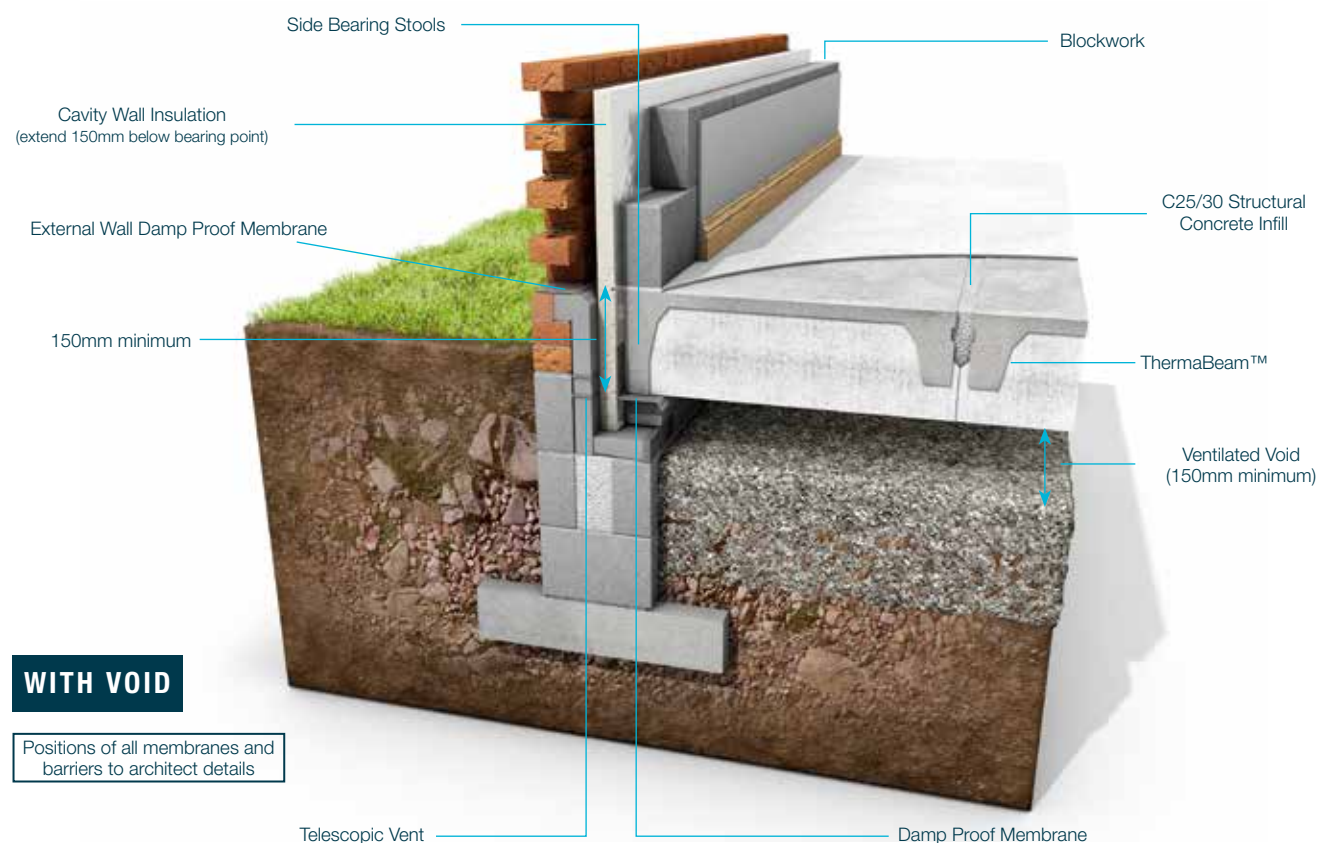
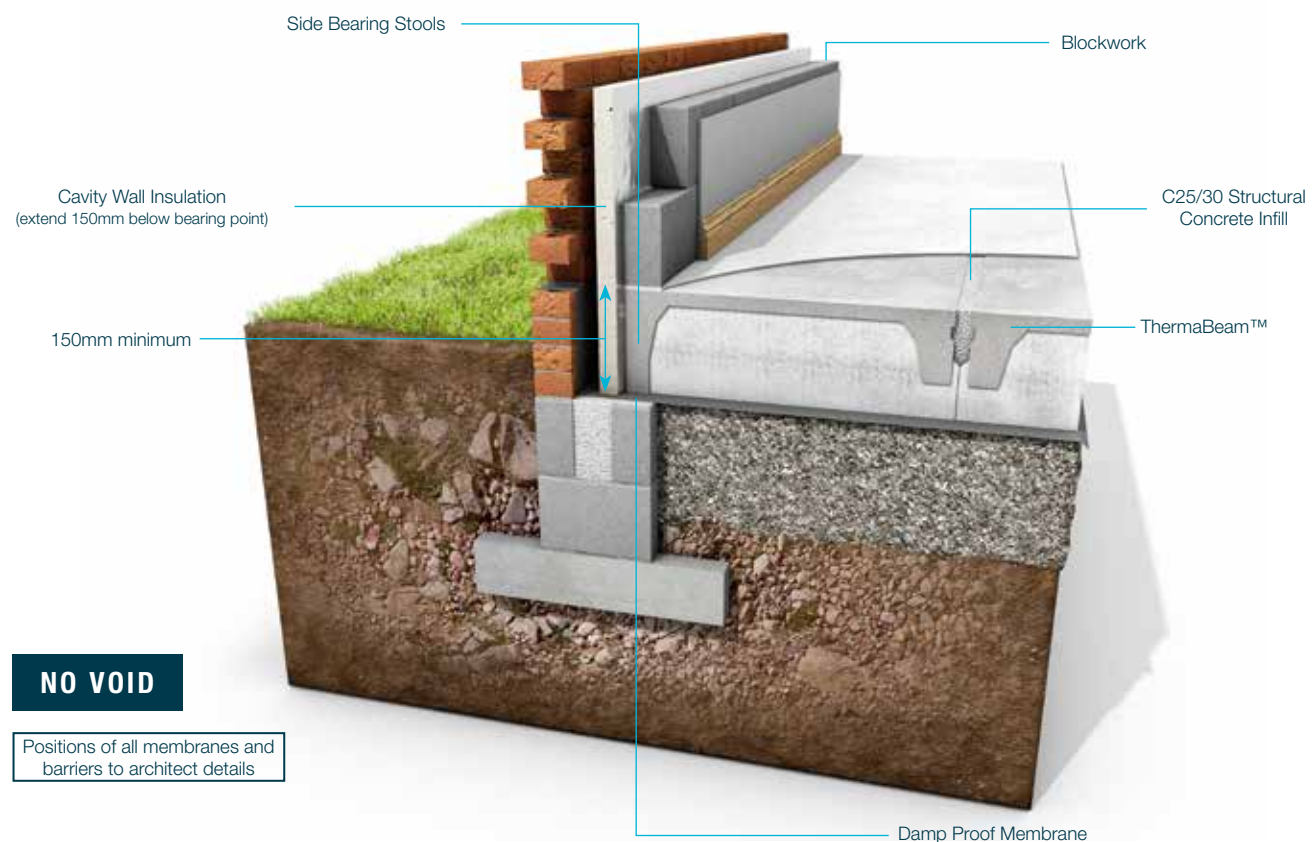
# PARTY WALL DETAILS

## MASONRY



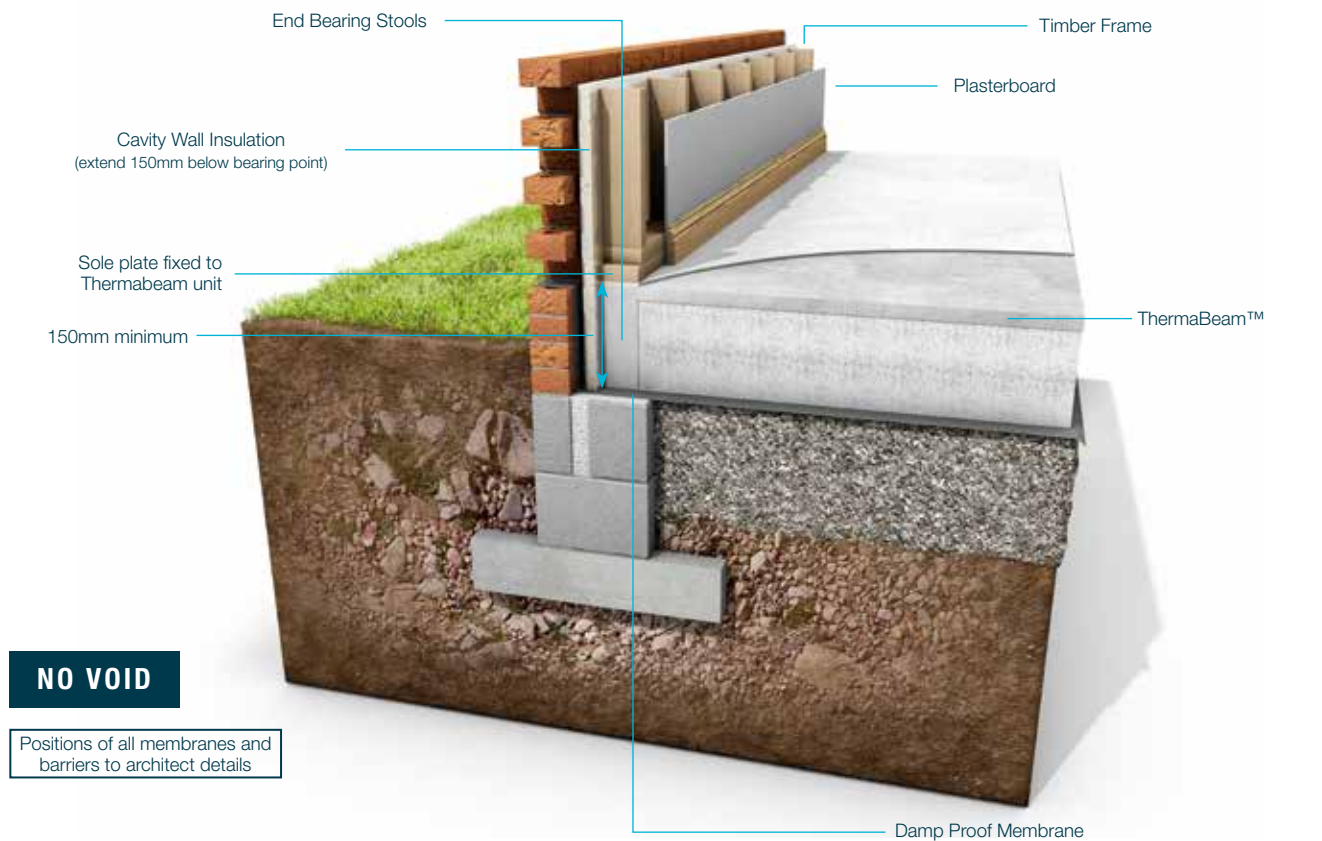
# SIDE BEARING DETAILS

## MASONRY



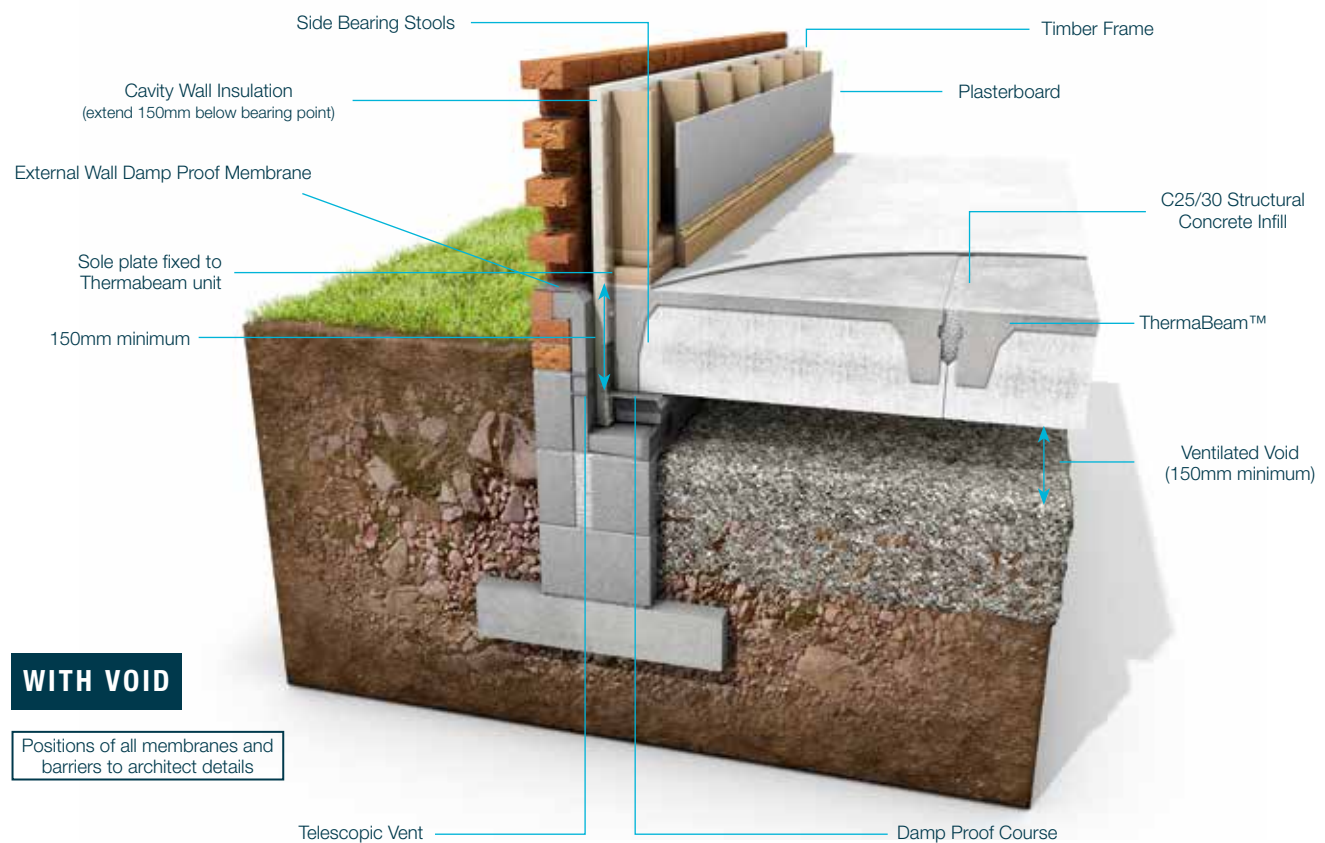
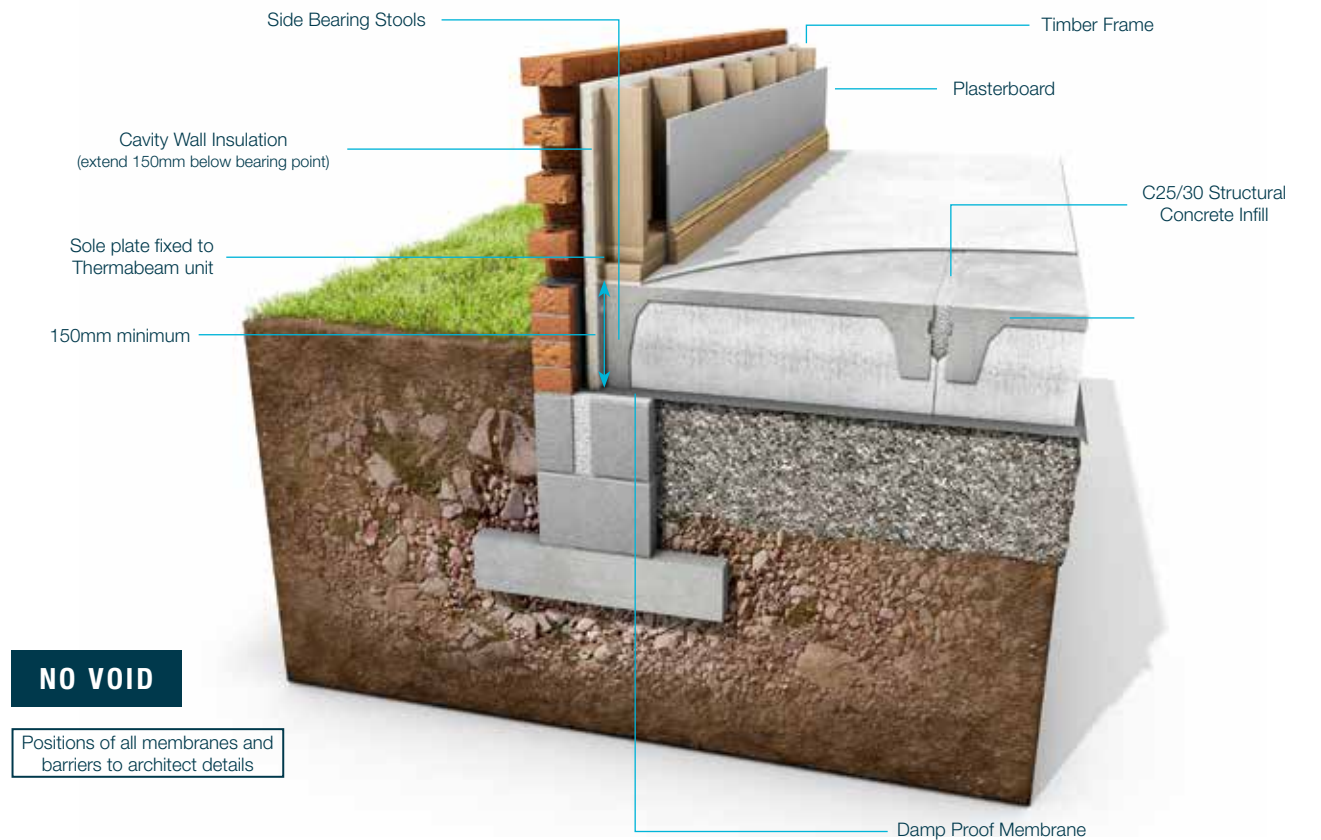
# END BEARING DETAILS

## TIMBER FRAME



# SIDE BEARING DETAILS

## TIMBER FRAME



# 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 0.11W/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)		
	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

## INSTALLATION PROCESS

The ThermoBeam™ 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 ThermoBeam™ 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 ThermoBeam™ layouts.

\*\*\* Subject to design based on individual wall locations.





Recent ThermaBeam™ installation in Co Armagh Northern Ireland.

# 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 certificate on the following page or view in full at [www.fpmccann.co.uk/quality](http://www.fpmccann.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](mailto: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 400m<sup>2</sup> 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



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## Agrément Certificate

19/5618

Product Sheet 1

### FP McCANN PRECAST CONCRETE

### THERMABEAM INSULATED PRECAST CONCRETE GROUND FLOOR SYSTEM

This Agrément Certificate Product Sheet<sup>(1)</sup> 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.

#### 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).



SCAN QR CODE  
TO VIEW OUR FULL  
BBA CERTIFICATE



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](http://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.

#### British Board of Agrément

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ThermaBeam™ being manufactured at our Weston Underwood facility

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**BUILDING PRODUCTS**

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**DOCK LEVELLER PITS**

Weston Underwood 01335 361269

**DRAINAGE**

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**FENCING**

Cadeby 01455 290780

**FILTER BED SYSTEMS**

Littleport 01353 861416

**FLOORING**

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**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**

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