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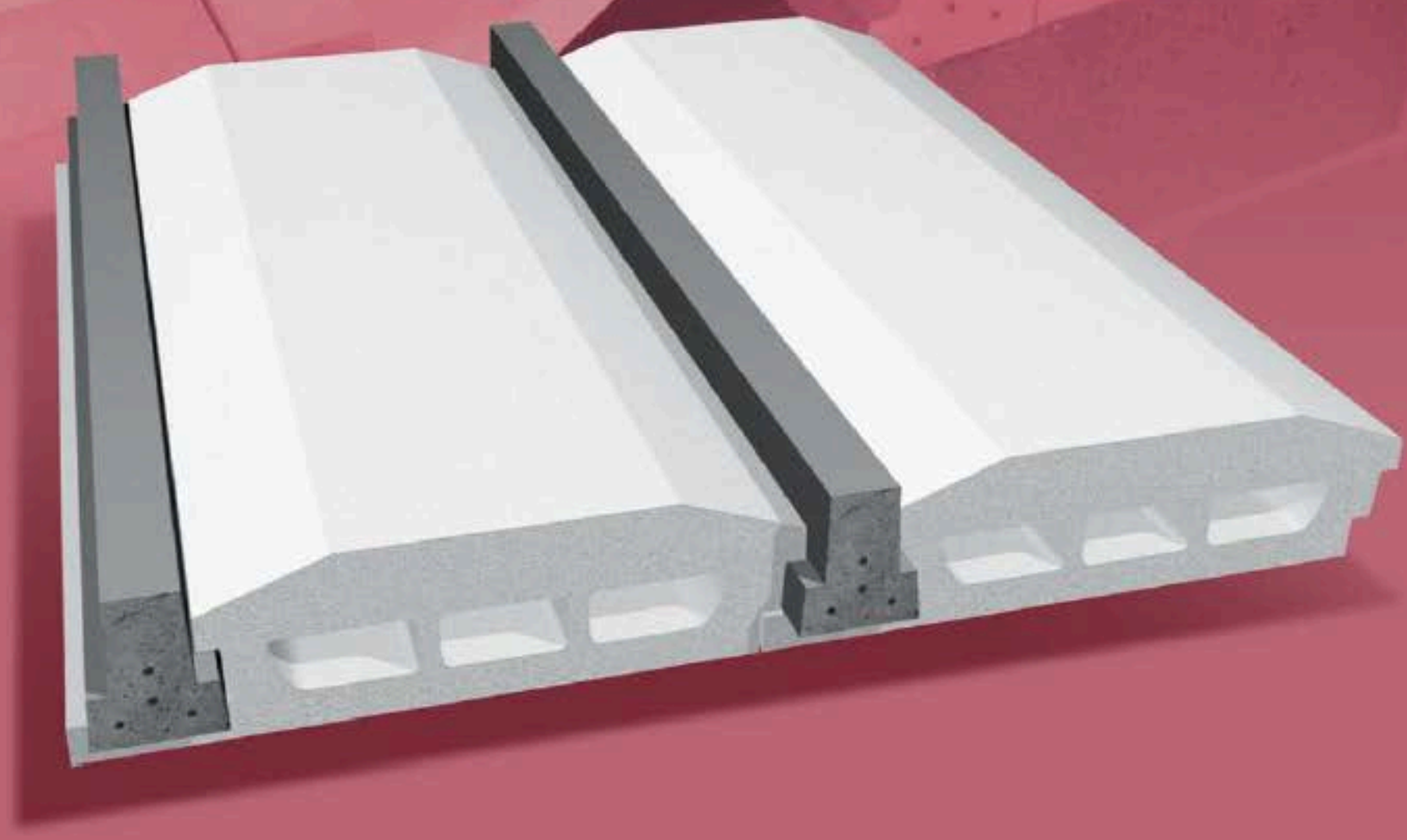
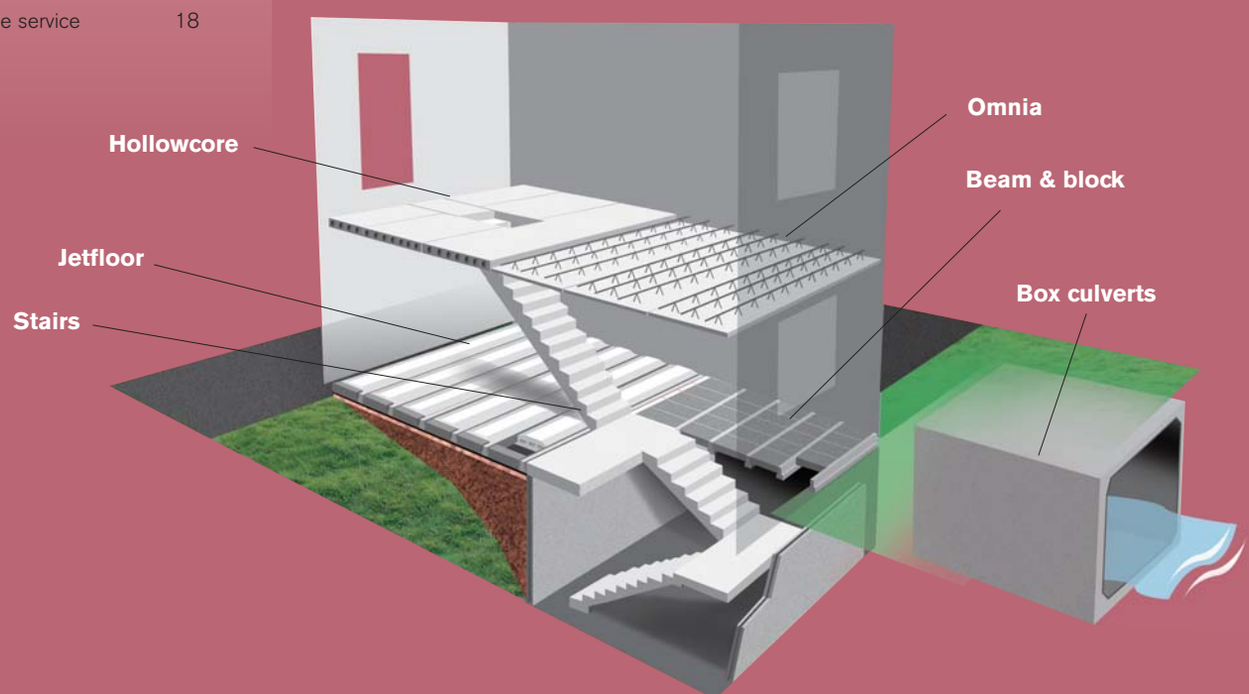
Beam & Block
FLOORING



Beam & Block
FLOORING

As part of a comprehensive range of pre-cast solutions, Hanson Building Products provides a range of beam and block systems.

One utilises expanded polystyrene blocks to provide high levels of ground floor thermal insulation while the others combine traditional building methods with modern materials to provide effective solutions for ground and upper floors in both domestic and commercial structures.



Whatever the application, Hanson Building Products can supply the ideal flooring solution with all the products backed by comprehensive design and technical support.

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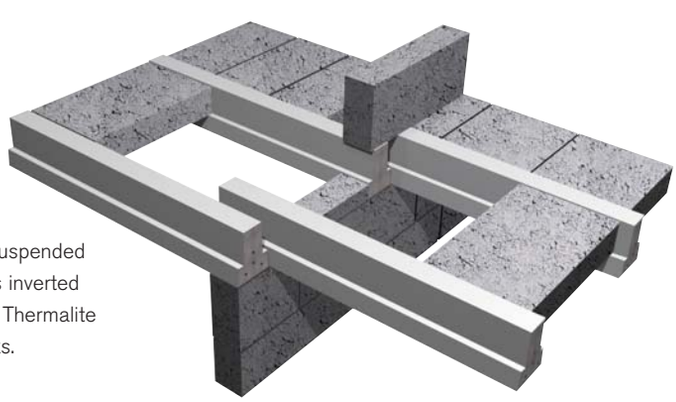
Jetfloor

The first ground floor system in the UK to utilise expanded polystyrene blocks combined with a structural topping to provide integrated thermal insulation.

Beam & Block

The traditional solution for suspended floors, the system comprises inverted 'T' beams infilled with either Thermalite or aggregate concrete blocks.



Jetfloor
SYSTEM OVERVIEW

The starting point for sustainable homes

Since its introduction in 1982, Jetfloor has been the market leading solution for thermally insulated, structural ground floors.

It was the UK's first system to utilise expanded polystyrene (EPS) blocks combined with a structural topping to provide high levels of thermal insulation and, over a 25 year period, has been successfully utilised in tens of thousands of UK homes.

Jetfloor provides the ideal starting point meeting both the growing demands for more sustainable homes and the requirements of Part L of the Building Regulations.

Today, Jetfloor provides U-values as low as 0.15 (W/m^2K) - a 25% improvement on current Part L requirements. The system has been independently assessed by BRE and awarded an 'A' rating in their Green Guide to Specification.

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Jetfloor Benefits

Thermal Performance

- 'U' value as low as 0.15 W/m²K
- Contributes to overall thermal mass

Ease of Construction

- Lightweight components increasing speed of build
- No special skills required

Integrated Insulation

- No additional sheet insulation required
- No cold bridging through floor beams

Early Completion

- Floor finished early allowing easier access of follow on trades
- Drying out time reduced, enabling earlier occupation

Sustainability

- Independently assessed by BRE confirming Green Guide to Specification 'A' rating
- High insulation and thermal mass reduces carbon footprint over the lifetime of the building

Quality Service Guaranteed

- Available nationwide either supply only or supply and fix
- Complies with all relevant standards and manufactured in accordance with ISO 9001 and 14001

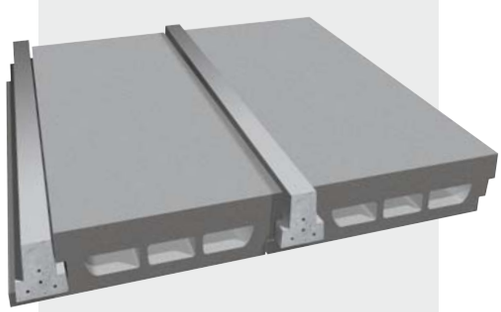
Jetfloor LO

Meeting The Code for Sustainable Homes

Jetfloor Lo is the latest addition to the Jetfloor range of products.

This unique product provides a range of U-values from 0.10 W/m²K (P/A 0.6) – a significant improvement on existing Building Regulations.

It has been specifically developed to help builders meet The Code for Sustainable Homes.



The Jetfloor system consists of standard 150mm and 225mm inverted 'T' beams set at a maximum of 610mm or 620mm centres. The beams are infilled with Expanded Polystyrene (EPS) blocks which are supplied in lightweight, easy-to-handle lengths, enabling rapid coverage of even large areas of floor.

The EPS blocks have been designed to prevent cold bridging through the floor by providing continuous insulation beneath the beams.

Blocks are available in a range of types with the new Jetfloor Lo block capable of achieving U-values as low as 0.10 W/m²K.

The Jetfloor system is usually completed with a grade RC25 structural concrete topping with 10mm aggregate and reinforced with polypropylene fibres or minimum D98 mesh.

Jetfloor
INSTALLATION GUIDE

Fast and simple – no special skills required

Installation of Jetfloor is fast and simple.

Ground floors can be completed earlier on in the construction process, allowing faster access to other trades and an overall improvement in build speed.

- Lay DPC and set out first beams in accordance with previously approved and issued Layout Drawing
- Position remaining beams using full depth Spacer blocks, bedded on mortar. Ensure beams are placed tightly against spacer block.
- Install Polystyrene infill blocks. Blocks can be cut with a hand saw to suit service holes and run out.
- Install edge blocks as denoted on the Layout Drawing.
- Ensure insulation strips are pinned to the underside of beams where required. See standard details issued with Layout Drawing.
- Bed split course blocks between beam ends for staggered bearings on internal walls.
- Create screed rail/formwork using either timber batten soleplate or bedded brick course.
- Lay structural concrete topping. Use grade RC25 structural concrete topping with 10mm aggregate and reinforced with polypropylene fibres or minimum D98 mesh.
- Float to final finish.

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This is a guide only and should be used in conjunction with specific quotation notes if applicable, and the relevant Agrément certificate. All floors to be installed in accordance with current health and safety and CDM regulations.

Full COSHH details are available on request.


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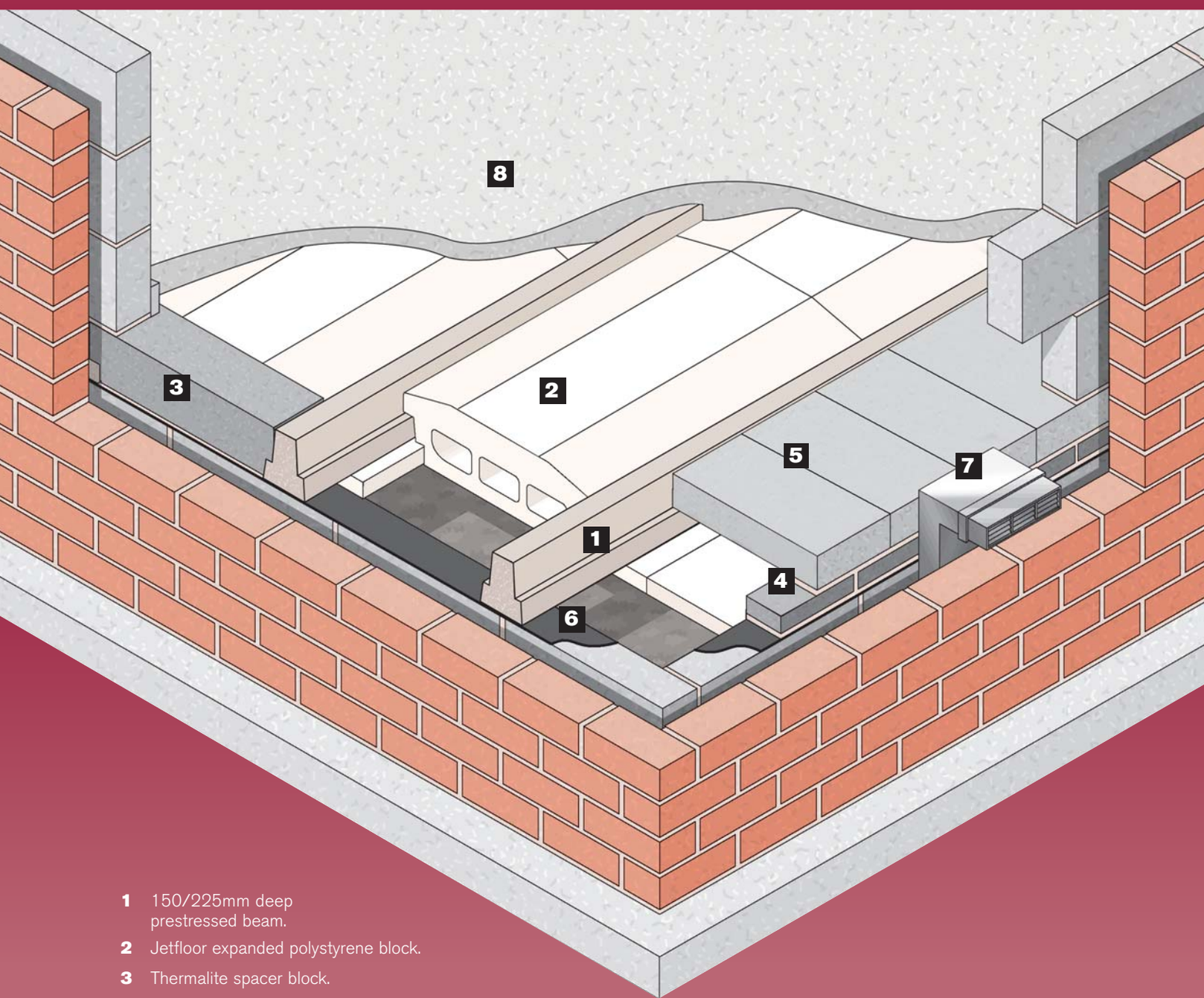
Jetfloor
CONSTRUCTION DETAILS



1 150/225mm deep prestressed beam.

2 Jetfloor expanded polystyrene block.

3 Thermalite spacer block.

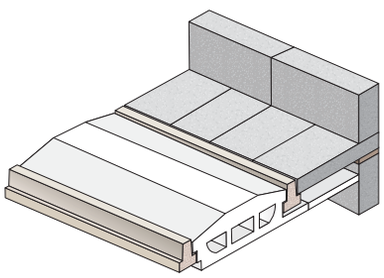
4 Split course block.

5 Thermalite edge block.

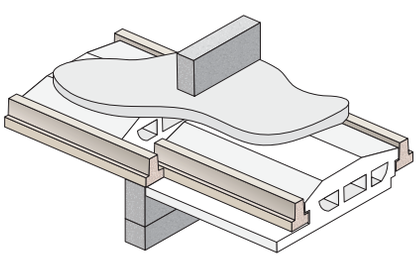
6 Damp proof course.

7 Void ventilator and air brick.

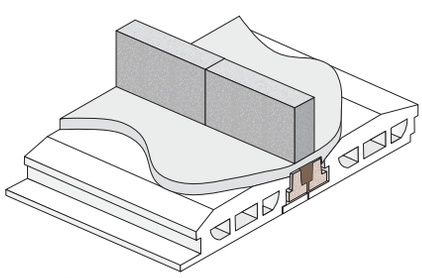
8 Structural concrete topping.



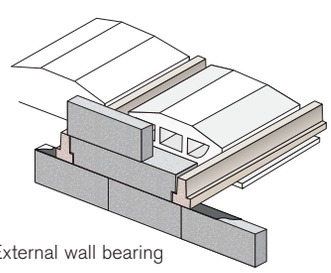
Internal edge detail



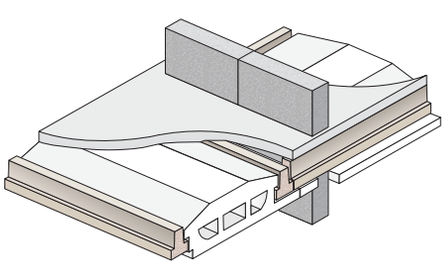
Staggered bearing on an internal wall



Multiple beams supporting partition



External wall bearing



Transverse stagger

Calculation of floor U-values

To obtain the U-value of a building with Jetfloor:

1. Calculate the floor perimeter **P**
2. Calculate the floor area **A**
3. Calculate the ratio **P/A**
4. Determine the **U-value** from the table below.

P - is the perimeter in metres measured along the finished internal faces of the external elements.

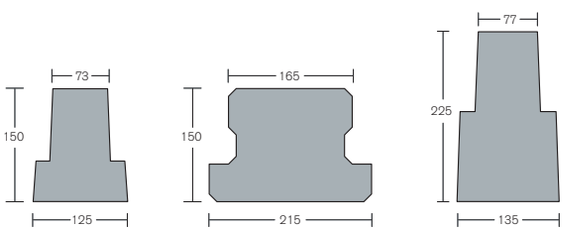
A - is the area in square metres measured between the finished internal faces of the walls bounding the building.

Unheated spaces outside the insulated fabric, such as porches or garages, are excluded when determining **P** and **A**, but the length of the wall between the heated building and unheated space is included when calculating the perimeter.

	40 	75 	75 
P/A	**2A**	**2B**	**Jetfloor Lo**
0.30	0.22	0.18	0.14
0.35	0.22	0.19	0.14
0.40	0.23	0.19	0.14
0.45	0.24	0.20	0.15
0.50	0.24	0.20	0.15
0.55	0.25	0.20	0.15
0.60	0.25	0.20	0.15
0.65	0.26	0.21	0.15
0.70	0.26	0.21	0.15
0.75	0.26	0.21	0.15
0.80	0.26	0.21	0.16

Jetfloor
LOADSPAN TABLES

Jetfloor (Non-Membrane) Prestressed Beams



BT02 RD09 T008

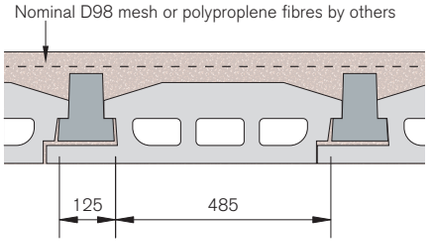
Beam details

Beam Reference	Width (mm)	Height (mm)	Weight (kN/m)	Weight (kg/m)
BT02	125	150	0.326	33.24
RD09	215	150	0.622	63.40
T008	135	225	0.576	58.74

The loadspan tables below are given as a guide only, further advice is available on request.

150mm Beam

Nominal D98 mesh or polyproplene fibres by others

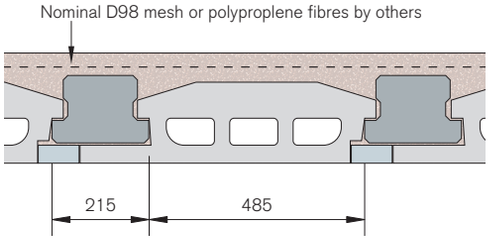


75mm Concrete topping

Floor Case	Floor Self Weight* kN/m²	Additional Finishes = 0.5 kN/m² — Superimposed Loadings in kN/m²						Additional Finishes = 1.5 kN/m² — Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
IS1	2.56	4.98	4.86	4.76	4.65	4.47	4.02	4.76	4.65	4.56	4.47	4.09	3.61

150mm Beam

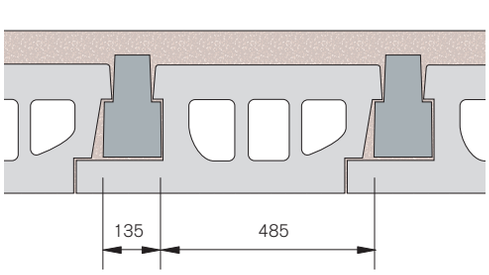
Nominal D98 mesh or polyproplene fibres by others



75mm Concrete topping

Floor Case	Floor Self Weight* kN/m²	Additional Finishes = 0.5 kN/m² — Superimposed Loadings in kN/m²						Additional Finishes = 1.5 kN/m² — Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
RDS1	3.15	5.97	5.84	5.71	5.60	5.38	5.19	5.71	5.60	5.48	5.38	5.19	5.01

225mm Beam

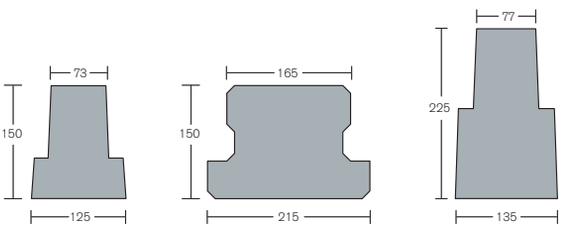


75mm Concrete topping

Floor Case	Floor Self Weight* kN/m²	Finishes = 2.3 kN/m² — Superimposed Loadings in kN/m²						Finishes = 3.3 kN/m² — Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
TS1	3.22	6.07	5.79	5.55	5.34	4.98	4.66	5.55	5.34	5.21	4.98	4.68	4.43

*The floor self weight includes the weight of the beams, polystyrene infill blocks and structural topping.

Jetfloor (Membrane) Prestressed Beams



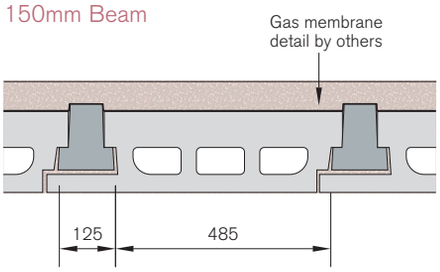
BT02 RD09 T008

Beam details

Beam Reference	Width (mm)	Height (mm)	Weight (kN/m)	Weight (kg/m)
BT02	125	150	0.326	33.24
RD09	215	150	0.622	63.40
T008	135	225	0.576	58.74

The loadspan tables below are given as a guide only, further advice is available on request.

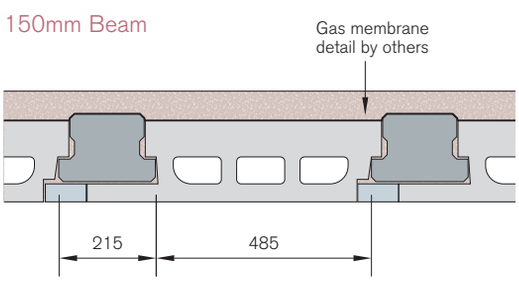
150mm Beam



75mm Concrete topping

Floor Case	Floor Self Weight* kN/m²	Finishes = 2.3 kN/m² Superimposed Loadings in kN/m²						Finishes = 3.3 kN/m² Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
ISG1	1.108	3.90	3.71	3.55	3.40	3.15	2.94	3.55	3.40	3.27	3.16	2.96	2.78

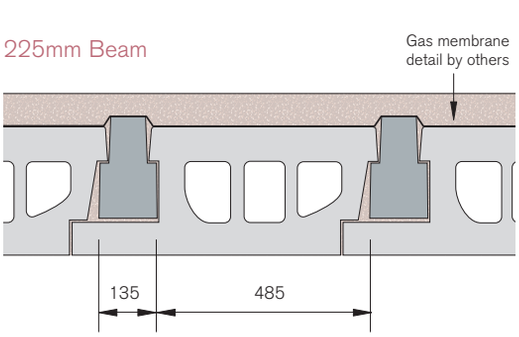
150mm Beam



75mm Concrete topping

Floor Case	Floor Self Weight* kN/m²	Finishes = 2.3 kN/m² Superimposed Loadings in kN/m²						Finishes = 3.3 kN/m² Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
RDSG1	1.389	5.14	4.90	4.69	4.51	4.20	3.95	4.69	4.51	4.35	4.20	3.95	3.73

225mm Beam



75mm Concrete topping

Floor Case	Floor Self Weight* kN/m²	Finishes = 2.3 kN/m² Superimposed Loadings in kN/m²						Finishes = 3.3 kN/m² Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
TSG1	1.46	6.07	5.79	5.55	5.34	4.98	4.66	5.55	5.34	5.21	4.98	4.68	4.43

*The floor self weight includes the weight of the beams and polystyrene infill blocks.

Beam & Block
SYSTEM OVERVIEW

Economical flooring for ground and upper floors

Beam and Block is the traditional solution for cost effective suspended floors. It is suitable for use on ground and upper storeys on all kinds of construction, from residential to commercial buildings.

The system is quick, easy and economical to install and offers numerous advantages including improved acoustic performance and fire resistance.

Particularly suitable on intermediate floors for houses, where sound reduction, fire resistance and thermal mass are amongst the key advantages beam and block has over alternative systems.

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Beam & Block Benefits

Flexibility

- Range of beam types available providing solutions for all levels to all building types
- Ideally suited to difficult Brownfield sites

Ease of Construction

- Quick to install with unskilled labour
- Working platform for early access for follow on trades

Robust and Durable

- Unaffected by damp, rot or vermin
- Can be installed in inclement weather

High Performance

- Prestressed beams span further than timber, reducing foundation costs
- Superior load-span capability enabling use in non domestic applications

Safe, sound and sustainable

- Superior levels of fire resistance and sound reduction
- Thermal mass helps reduce the carbon footprint over the lifetime of the building

Quality Service Guaranteed

- Available nationwide either supply only or supply and fix
- Complies with all relevant standards and manufactured in accordance with ISO 9001 and 14001

The system consists of inverted 'T' beams infilled with either lightweight aircrete (Thermalite) or aggregate blocks.

The fact that the system is unaffected by damp, rot or vermin makes the system a perfect choice for ground floors in both domestic and commercial buildings and its inherent fire resistance and sound insulating properties make it an ideal solution for upper floors, particularly in domestic dwellings.

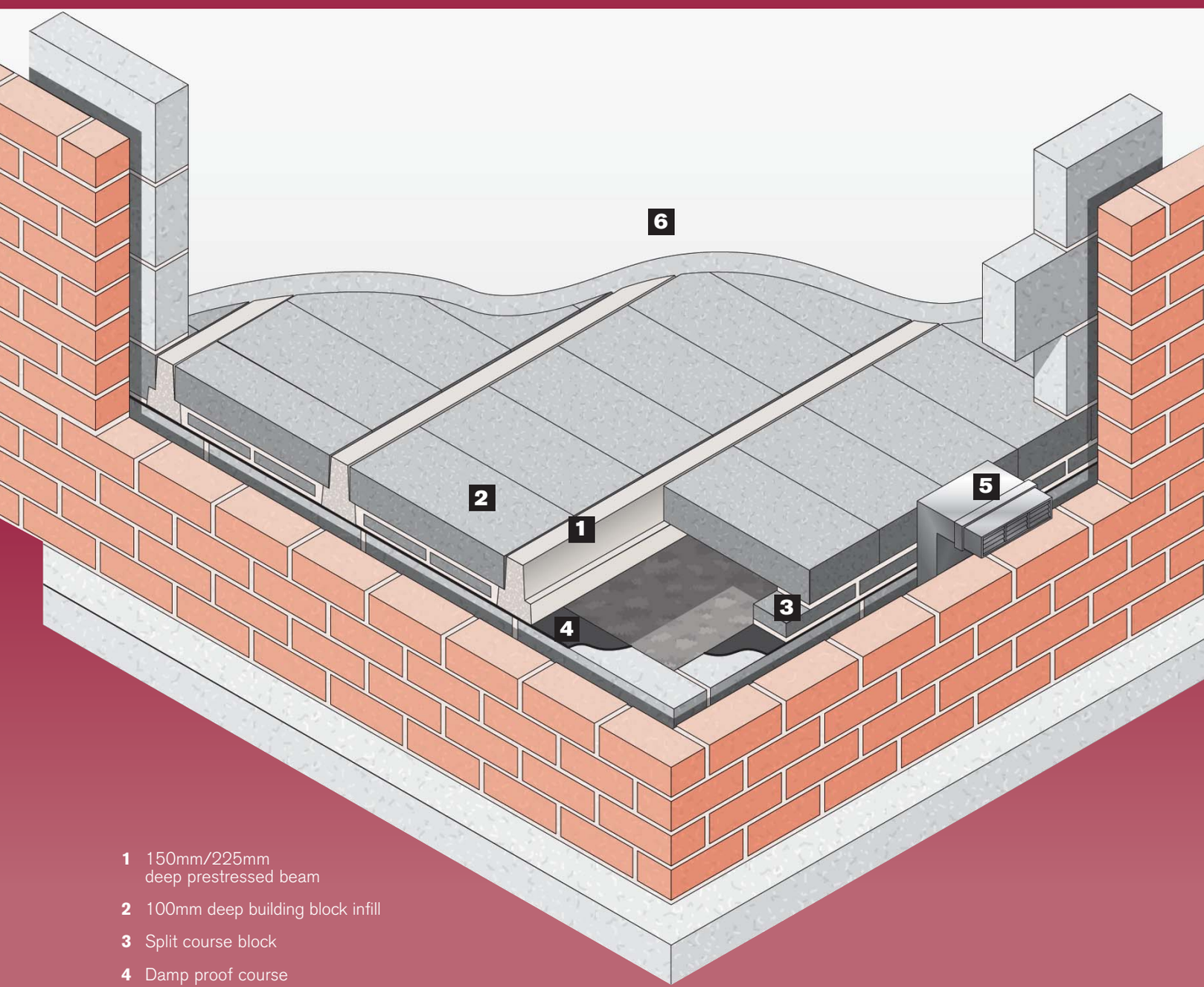
Because the completed system can act as a very effective 'thermal store' – absorbing and storing heat during hot periods and then releasing the heat as temperatures fall – it can effectively contribute to reducing the carbon footprint of a home and improving its long term sustainability.

Aggregate Block

Blocks THERMALITE

Beam & Block
INSTALLATION GUIDE

Economical flooring for ground and upper floors



1 150mm/225mm deep prestressed beam

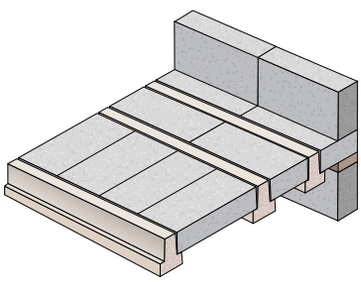
2 100mm deep building block infill

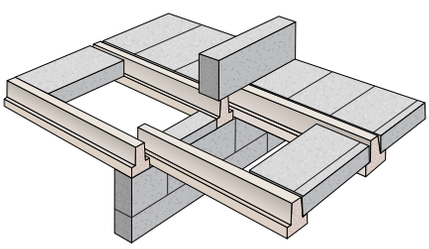
3 Split course block

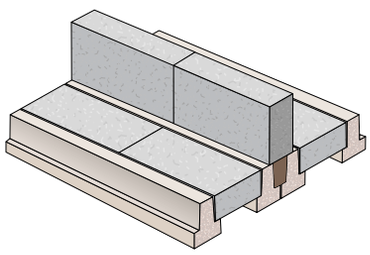
4 Damp proof course

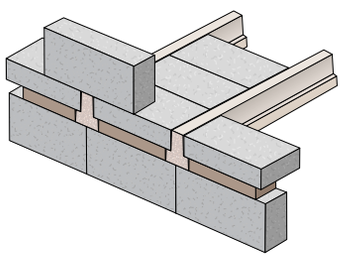
5 Void ventilator and air brick

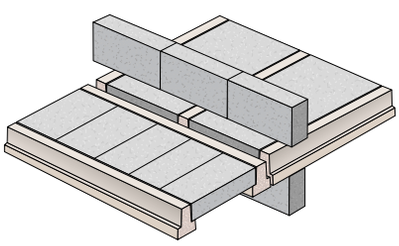
6 Applied finish to Architect's specification (dry finish may require a levelling screed)











All Hanson flooring systems are supported by comprehensive layout drawings, specifications and relevant details applicable to each application.

The pre-stressed beams used in the system are produced in standard profiles to give nominal depths of 150mm and 225mm. Beams are placed at various centres depending on span and applied load (see loadspan chart).

The beams are positioned in accordance with the layout drawings, perpendicular to the end supports with a nominal bearing of 100mm to each end when supported by brick or block. A 75mm minimum bearing is required when supported by steelwork.

The beams may be staggered at the internal walls and multiple beams may be required to support partition walls.

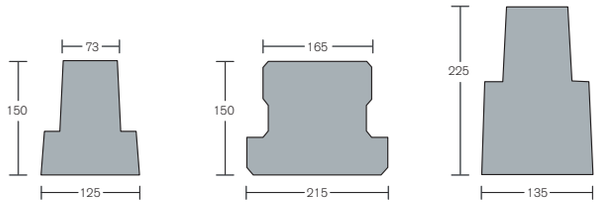
A wide range of infill blocks are available for use with the system including Floorblock from Hanson Thermalite. Hanson also provides a choice of medium and dense aggregate blocks.

Where required, blocks should be cut using suitable mechanical means to leave a clean, vertical, square-edged face.

Once all the blocks have been placed in position, the floor is grouted using a 4:1 sharp sand/cement mixture, which is brushed in the direction of the beams and then at right angles to ensure all joints are completely filled.

Beam & Block
LOADSPAN TABLES

Prestressed Beams



BT02 RD09 T008

Beam details

Beam Reference	Width (mm)	Height (mm)	Weight (kN/m)	Weight (kg/m)
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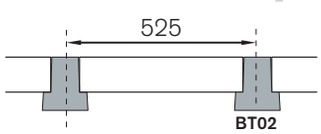
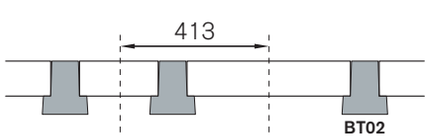
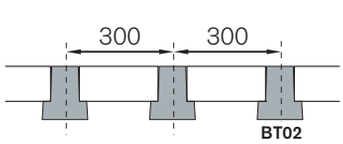
T008	135	225	0.576	58.74

The loadspan tables below are given as a guide only, further advice is available on request.

Load span table (150mm deep)

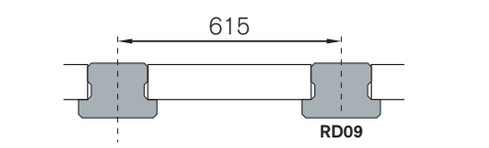


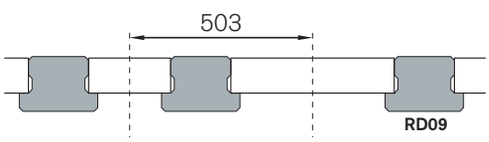


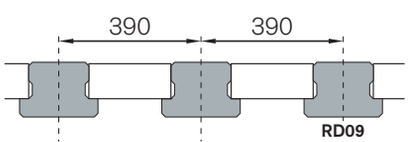


		Finishes = 1.5 kN/m²						Finishes = 2.0 kN/m²					
		Superimposed Loadings in kN/m²						Superimposed Loadings in kN/m²					
Floor Case	Floor Self Weight* kN/m²	1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
IJ1	1.83	4.25	4.04	3.86	3.70	3.42	3.19	4.04	3.86	3.70	3.56	3.31	3.10
IJ2	1.94	4.75	4.52	4.32	4.14	3.84	3.59	4.52	4.32	4.14	3.99	3.72	3.49
IJ3	2.18	5.40	5.20	4.98	4.79	4.46	4.17	5.20	4.98	4.79	4.62	4.32	4.06

Load span table (150mm deep)



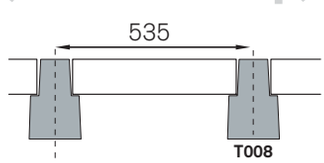


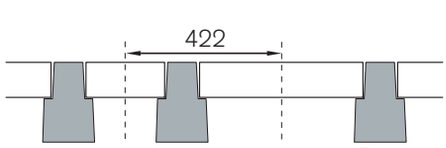


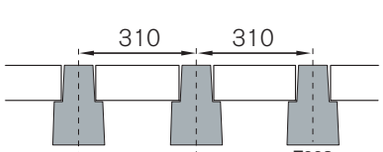
Floor Case	Floor Self Weight* kN/m²	Finishes = 1.5 kN/m² Superimposed Loadings in kN/m²						Finishes = 2.0 kN/m² Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
RDJ4	2.10	5.54	5.28	5.05	4.85	4.52	4.24	5.28	5.05	4.85	4.68	4.37	4.12
RDJ5	2.25	6.04	5.77	5.53	5.32	4.95	4.66	5.77	5.53	5.32	5.13	4.80	4.53
RDJ6	2.47	6.60	6.44	6.18	5.95	5.56	5.24	6.44	6.18	5.95	5.75	5.39	5.09

*The floor self weight includes the weight of the beams and the concrete blocks.

Load span table (225mm deep)







Floor Case	Floor Self Weight* kN/m²	Finishes = 1.5 kN/m² Superimposed Loadings in kN/m²						Finishes = 2.9 kN/m² Superimposed Loadings in kN/m²					
		1.5	2.0	2.5	3.0	4.0	5.0	1.5	2.0	2.5	3.0	4.0	5.0
		Maximum Clear Span (m)						Maximum Clear Span (m)					
TJ1	2.33	6.64	6.34	6.08	5.85	5.46	5.12	6.34	6.08	5.85	5.65	5.29	4.99
TJ2	2.56	7.34	7.03	6.75	6.50	6.08	5.71	7.03	6.75	6.50	6.28	5.90	5.57
TJ3	2.98	8.00	7.99	7.69	7.43	6.97	6.58	7.99	7.69	7.52	7.19	6.77	6.42

*The floor self weight includes the weight of the beams and the concrete blocks.

Nationwide
SERVICE

The Floors and Precast Division of Hanson Building Products now operates from a total of six dedicated plants located throughout the UK.

Three of these – Hoveringham (near Nottingham), Ipswich and Tytherington (close to the M4 corridor) – are directly involved in the manufacture and supply of components for beam and block flooring, enabling us to provide a fast and efficient service to sites throughout the country.

Sustainability commitment

Hanson Building Products is committed to be a market leader in the provision of sustainable products and services.

Our aim is to provide innovative products with 'best in class' sustainability credentials.

Founding Member
UK Green Building Council
for a sustainable built environment

Standards

All products are manufactured in accordance with relevant British/ European/Trade Association Standards.

As part of Hanson Building Products, all Floors and Precast sites are quality assured to BSEN ISO9001 2000.

We operate environmental management systems at all our production sites in accordance with the methodology set out in the BSEN ISO14001 2004.

Other precast concrete products

- Hollowcore and solid composite flooring
- Staircases
- Omnia lattice girder flooring
- Omnia bridgedeck
- Cobiaxdeck (light weight, long spanning, floor slabs)
- Culverts
- Bespoke solutions

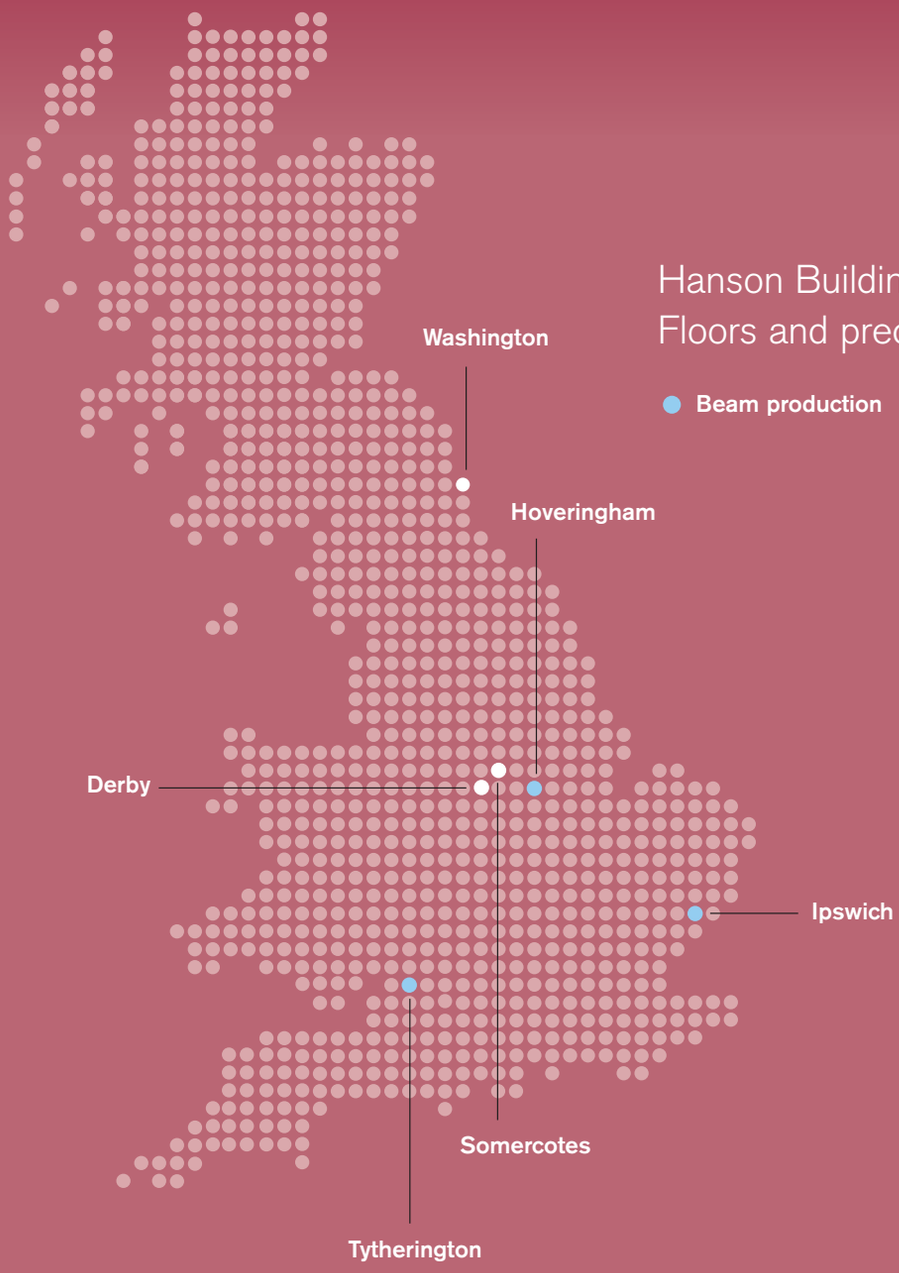
For beam and block flooring solutions please contact us at:

Hanson Building Products
Hoveringham
Nottingham
NG14 7JX
Ground floor residential enquiries: **01636 832466**
Other enquiries: **01636 832468**

Hanson Building Products
Ipswich Works
Sproughton Road
Ipswich
Suffolk IP1 5AN
All enquiries: **01473 461771**

Hanson Building Products
Floors and precast locations

● Beam production



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Website: www.hanson.com/uk

Floors and Precast Division

0870 6097094

Hanson - A global business

Hanson is one of the world's largest suppliers of heavy building materials to the construction industry. We produce aggregates (crushed rock, sand and gravel), ready-mixed and precast concrete, asphalt and cement-related materials and a range of building products including concrete pipes, concrete pavers, tiles and clay bricks

We are part of the HeidelbergCement Group, which employs 70,000 people across five continents, has leading positions in concrete and heavy building products and is the global leader in aggregates.

Hanson Building Products is the UK's largest brick and aircrete block producer. We also produce aggregate blocks, bagged aggregate and cement products, renders, pavers, pre cast floors and stairs, SUD systems and prefabricated building systems. The division incorporates London Brick, Thermalite, Red Bank, Cradley, Formpave and Structherm.

Hanson Building Products - A sustainable business

Hanson Building Products is committed to being a sustainable business and contributing to sustainable development. We achieve this by continuous improvement of our manufacturing and extraction processes and by providing products which contribute to sustainable construction.

Made at factories certified to ISO 14001, our clay and concrete products have many features which assist our customers in constructing attractive, sustainable buildings which enrich the built environment and are ideal for zero carbon developments. These include: thermal mass, insulation, longevity, durability, low maintenance, flexibility, flood resistance and the ability to be recycled. We can advise on how best to use our products in sustainable buildings and how they contribute to high ratings under the Code for Sustainable Homes and BREEAM.

Email: sustainabilityuk@hanson.biz
Web: www.hanson.com/uk/sustainability

BB 02 | April 2009