

spantherm[®]

OFFSITE INSULATED PRECAST
CONCRETE FLOORING



CREAGH
INNOVATION IN CONCRETE

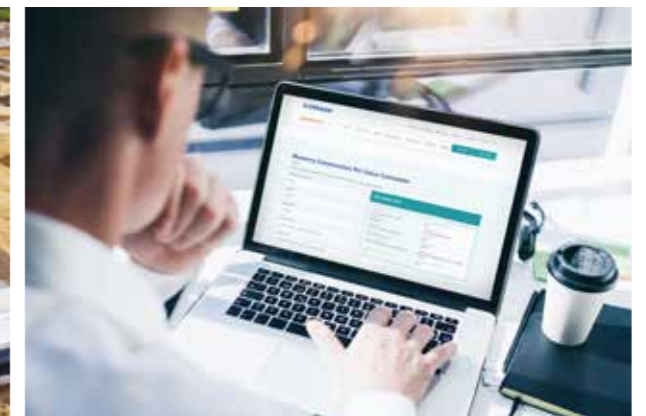




Spantherm is a modern method of construction (MMC), all plots shown were installed in just one day.

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HASSLE-FREE INSULATED PRECAST CONCRETE FLOORING (IPCU)

Spantherm is an insulated, precast concrete flooring system designed specifically for residential and commercial ground floors. By producing high performance insulated structural concrete units off-site we have redefined the speed of installing a fully insulated ground floor. This is the next generation of structural flooring systems designed as the efficient alternative to labour intensive beam and block installation.



WHY CHOOSE SPANTHERM?



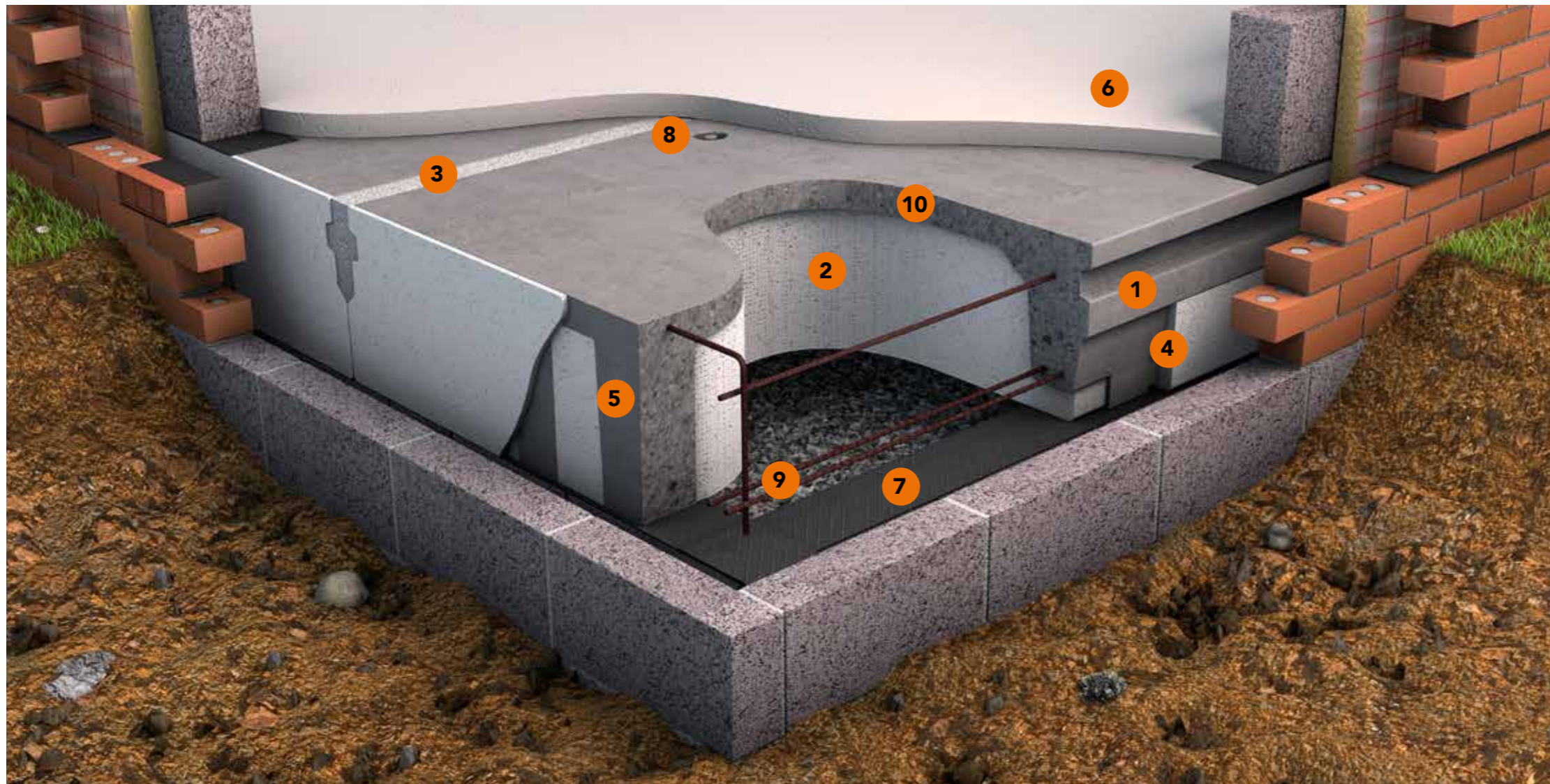
 <p>Speed</p>	<ul style="list-style-type: none"> ✓ Typical floor installed in under 1 hour. ✓ Provides a level structure without camber for ease of construction. ✓ Installation in any weather.
 <p>Efficiency</p>	<ul style="list-style-type: none"> ✓ Service openings are pre-formed offsite. ✓ Zero waste & storage. ✓ Labour radically reduced. ✓ 'No void' option reduces excavation.
 <p>Safety</p>	<ul style="list-style-type: none"> ✓ Reduced exposure to wet concrete on-site. ✓ Reduced vehicular movements on-site. ✓ Secure working platform established quickly. ✓ Mechanical offload eliminates working from height. ✓ No manual handling.

HOW IT WORKS

Each Spantherm floor is constructed from a series of pre-cast insulated concrete units facilitating rapid installation onsite.



Watch our timelapse video to see a floor installed in minutes not days.
www.creaghconcrete.co.uk/spantherm



INSTALLATION PROCESS

Units are delivered to site ready for installation by Creagh fitting team or your ground workers.

Once in position, the units are jointed together with a structural concrete grout.

Floor is safe and accessible immediately after fit.
Full structural strength is achieved in 72 hours, allowing loading of the floor to commence.

A finished floor surface ready to accept internal floor finishes is provided by the application of a non structural concrete topping.

PRODUCT KEY: 1200mm wide 375mm/300mm deep Spantherm unit

- | | | |
|---------------------------|-----------------------------------|--|
| 1 Structural rib | 5 End bearing stool | 9 Rebar reinforcement within structural rib |
| 2 EPS insulation | 6 Non structural concrete topping | 10 Steel mesh reinforcement or macro synthetic fibre reinforcement, dependant on project specification |
| 3 C25/30 structural grout | 7 DPC | |
| 4 Side bearing stool | 8 Cast-in lifting pins | |



OUTSTANDING THERMAL PERFORMANCE

Spantherm is a fabric first solution.



The system integrates structural concrete with expanded polystyrene insulation and the tightly butted units lock in the thermal performance efficiently across the slab. Each floor is designed to accommodate services such as drainage via openings cast into the units to facilitate fast installation on site.

Spantherm complies with regulations throughout the UK and Ireland:

- ✓ England & Wales: PART L 2021
- ✓ Scotland: Section 6 2004
- ✓ Northern Ireland: PART F1 & F2 2012
- ✓ Republic of Ireland: PART L 2007
- ✓ NZEB Compliant 2019

WHAT IS U-VALUE?

U-Value is a measure of heat loss through a structural element (i.e. walls, windows, floor etc). It is calculated on the rate at which heat transfers through 1sqm of a structure, measuring how effective each element is preventing heat from transmitting between the inside and outside of a building. The better-insulated a structure is, the lower the U-value will be.

BETTER U-VALUES

Spantherm is available in 3 performance options designed to boost your building's performance within SAP.

Achieve U-value as low as

0.10W/m²K

Spantherm Plus based on a P/A ratio of 0.4



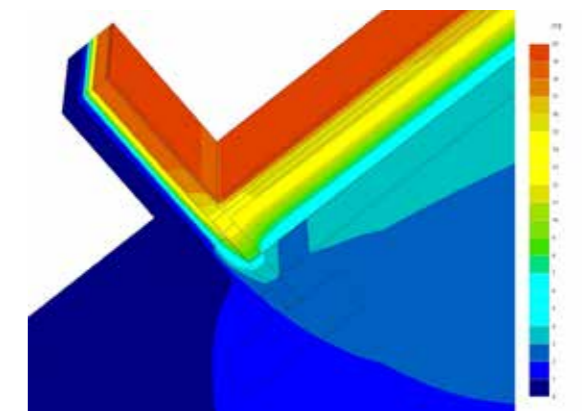
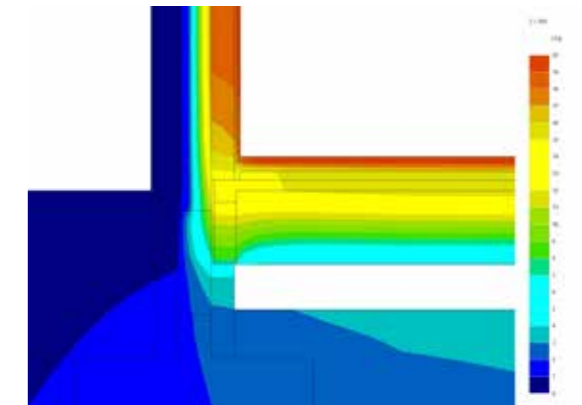
REDUCED COLD BRIDGING

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

0.01 - 0.14W/mK
Typical Psi Value

Creagh Thermal Technical Services

- Bespoke P/A U-Value SAP Calculations.
- Online Psi-Value Calculator (Standard Junction Details).



- Bespoke E5 Junction Thermal Models available on request for projects.
- Contact our Technical Service Team for a bespoke report residentialengineeringdivision@creaghconcrete.com.

WHAT IS PSI-VALUE?

A Psi-Value or ψ -value is a measurement used to determine the rate of heat loss through a junction in a dwelling where two thermal elements meet.

Junction Detail relevant to Spantherm = E5 External Wall to Ground Floor.

PSI VALUE PERFORMANCE

Please note that Psi value performance varies according to the wall configuration. Contact Creagh Concrete for Psi value details of alternative configurations.

MASONRY

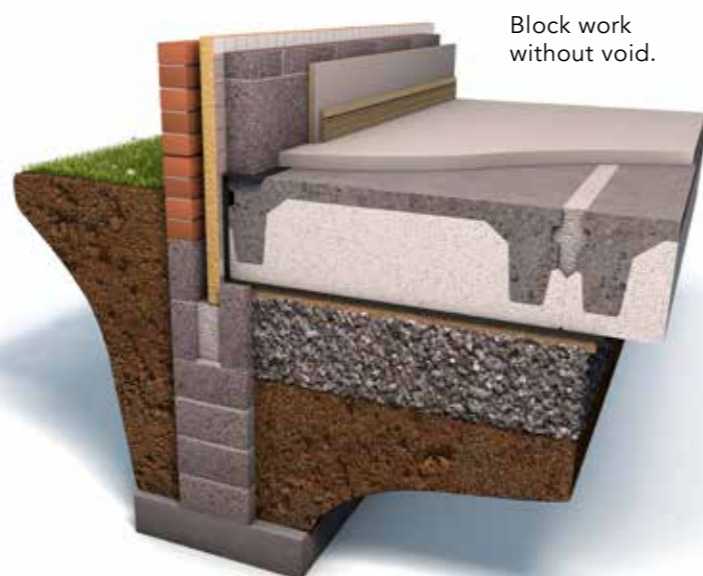
Typical block construction with Spantherm insulated concrete floor.



Block work with void.

Underfloor heating

Spantherm is compatible with under floor heating systems. Utilising a 25mm pir layer directly over Spantherm forms an enhanced thermally efficient floor with superior ground floor U-Values. Values as low as 0.09 W/m²k can be achieved within Plus range.



Block work without void.

Block and brick construction examples with and without vented void.

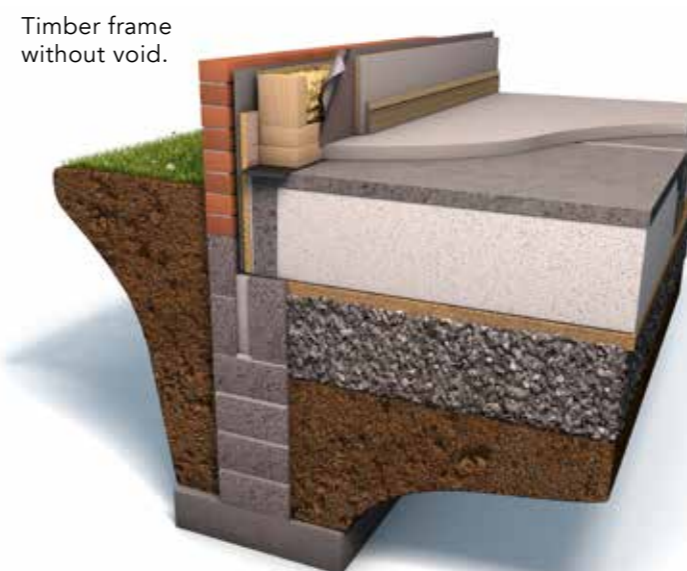
Note: These example drawings are indicative only and all detailing used on site must be confirmed by the building's designer in compliance with local regulations.

TIMBER FRAME

Typical timber frame construction with Spantherm insulated concrete floor.



Timber frame with void.



Timber frame without void.

Timber frame construction examples with and without vented void.

Note: These example drawings are indicative only and all detailing used on site must be confirmed by the building's designer in compliance with local regulations.

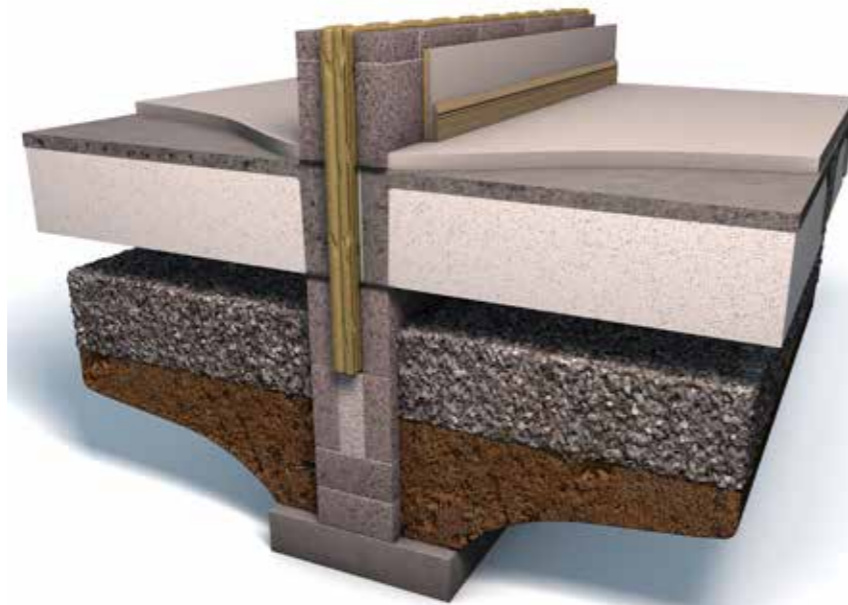
PARTY WALLS

Typical applications.

Where units share an intermediate bearing wall, a minimum bearing of 100mm should be provided in all instances.

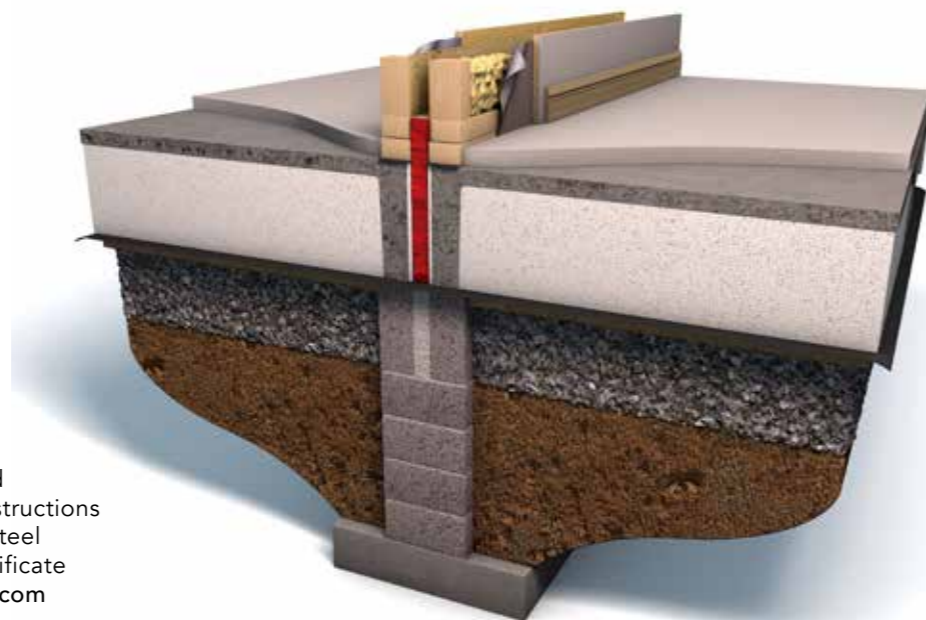
MASONRY (Example 5)

Block work party wall with void.



TIMBER (Example 6)

Timber frame party wall no void.



SPANThERM ROBUST DETAILS

Separating walls which can be used together with specific flanking constructions – masonry walls, timber walls and steel walls. To request a copy of the certificate email spantherm@creaghconcrete.com

Note: These example drawings are indicative only and all detailing used on site must be confirmed by the building's designer in compliance with local regulations.



OUTSTANDING
THERMAL
PERFORMANCE

PRODUCT SELECTION

Thermal calculations have been carried out for a range of typical perimeter / area ratios in accordance with BS EN ISO 6946 and BS EN ISO 13370. Spantherm units are available in the following widths: 1200mm, 900mm, 600mm & 400mm.

SPAN THERM ADVANCE

Thermal Conductivity of EPS 70 Graphite
($\lambda_{90/90} = 0.031 - 0.038W / m^2K$)

U Value of 0.13W/m²K
based on a P/A ratio of 0.4



SPAN THERM PLUS

Thermal Conductivity of EPS 70 Graphite
($\lambda_{90/90} = 0.031W / m^2K$)

U Value of 0.10W/m²K
based on a P/A ratio of 0.4



TECHNICAL DETAILS

SPAN THERM LOAD SPANS

Domestic Live Load (1.5KN/m ²)	No Partitions	Stud Partitions (1KN/m ²)	Block Partitions (6KN/m)
Floor Finish	Maximum Clear Span (mm)		
100mm Concrete Screed	6150	5850	5000
75mm Concrete Screed	6400	6050	5100
50mm Concrete Screed	6650	6250	5200

Achieve U-value as low as **0.10W/m²K**
Spantherm Plus based on a P/A ratio of 0.4

BEARING

Spantherm requires a nominal bearing of 100mm on masonry. Units must be supported as per the construction detail provided for each project.

PARTITIONS

Partitions can be built off the floor providing these have been allowed for in the design. Generally 6KN/m blockwork walls run parallel to span (load shared between ribs of adjacent units). Walls that can be built off the floor will be indicated on layout drawings.

GARAGE FLOORS

To comply with garage domestic loading criteria; 2.5 KN/m² live load / concentrated vehicle point load of 9.0KN. Garage floors should be designed with a structural topping (i.e: 75mm C25/30N concrete reinforced with A142 steel mesh). See garage floor type options Vs load span table below.

Garage Floor Type	Maximum Clear Span (mm)
150 RIB (225 Composite)	4500
150 PS HC (225 Composite)	6500
200 PS HC (275 Composite)	8500

75mm structural topping bonded directly to slab surface forming Composite floor design.

GROUT

Once in position, the units are jointed together with a structural concrete grout. Grout - C25/30 concrete with an aggregate size of not more than 10mm.

SERVICE OPENINGS

All service holes are formed during the manufacture of the units. Our standard service opening is 200mm x 200mm. Please contact the Spantherm Technical Team if larger openings are required.

DURABILITY

Spantherm has a designed working life of 50 years in accordance with the requirements of exposure class XC3.

WEIGHT

Total floor weight plus grout is 260kg per sq m average. Weight of slab only is on average 240kg.

PRODUCT DIMENSIONS

Length - determined by layout and load
Widths:

1200mm wide x 375mm deep
900mm wide x 375mm deep
600mm wide x 375mm deep
400mm wide x 375mm deep
1200mm wide x 300mm deep
900mm wide x 300mm deep
600mm wide x 300mm deep
400mm wide x 300mm deep

GROUND GAS PROTECTION

When designing and constructing new buildings it is important to consider the potential risks associated with ground gases including methane, carbon dioxide and radon as well as volatile organic compounds including hydrocarbons.

Specialist manufacturers offer a comprehensive range of construction membranes and associated accessories that provide resistance to a wide variety of contaminants, ground gases and moisture ingress. The selection of an appropriate membrane system will be determined by the Building Designer

based on the type of contaminant from which the building requires protection.

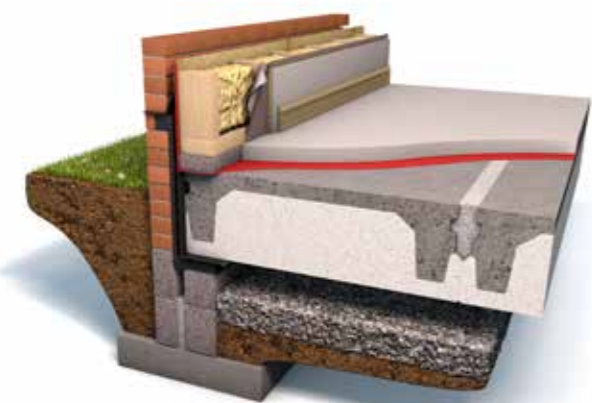
Below are some examples of membrane systems which can be utilised to provide either a low-level barrier or high level barrier dependent upon requirements.

High level application

A gas barrier membrane may be installed on top of the Spantherm units, in which case the membrane must be covered by a sand and cement screed to a minimum depth 75mm. The barrier membrane must be continuous across the building and installed in compliance with the membrane manufacturer's installation instructions.

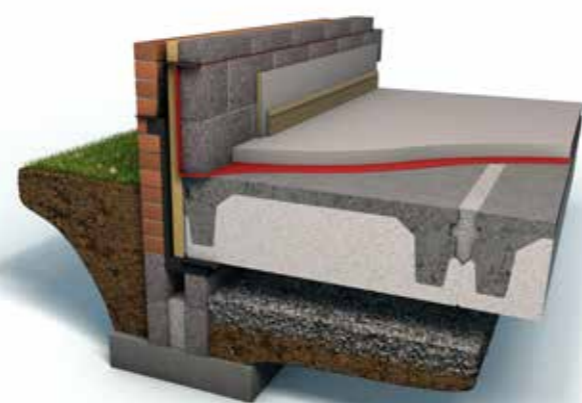
TIMBER FRAME (Example 1)

Membrane installed on top of Spantherm floor.



MASONRY (Example 2)

Membrane installed on top of Spantherm floor.



Underfloor heating

Spantherm is compatible with under floor heating systems. Utilising a 25mm pir layer directly over Spantherm forms an enhanced thermally efficient floor with superior ground floor U-Values. Values as low as 0.09 W/m²k can be achieved within Plus range.

Note: These example drawings are indicative only and all detailing used on site must be confirmed by the building's designer in compliance with local regulations.

SERVICES



HANDLING & INSTALLATION



Please refer to our Handling and Installation Guide for full details concerning the safe handling and efficient installation of Spantherm.

Available for download on our website:
creaghconcrete.co.uk/resources

SUPPLY & FIT

Creagh offer a full supply and fit service subject to project scale and location.

In each case we would lay the **Spantherm** floor onto your pre-prepared groundworks, leaving it fully grouted.



SUPPLY ONLY

Creagh can supply **Spantherm** on a delivered only basis when you prefer installation by your chosen groundworker.



Creagh Concrete has been a pioneer of precast for over 47 years. We are one of the UK's largest producers of concrete products for a diverse range of market sectors. Creagh is leading the market with innovation in concrete, providing new solutions across the construction industry.



Creagh also manufacture:

Precast & Prestressed Flooring Systems | Precast Stairs & Lift Cores |
Agricultural Products | Premix Concrete, Blocks & Aggregates



CREAGH PRODUCTS

A range of concrete products for the home builder.

RAPIDRES

Fast track offsite crosswall build system

Rapidres is a fastrack offsite crosswall build system developed for residential projects, including apartments, student accommodation, hotels, social housing and custodial accommodation.



HOLLOWCORE

Prestressed Flooring - ideal for larger spans

Creagh Concrete manufactures an extensive range of prestressed Hollowcore flooring units from 150mm to 500mm deep. These products are generally used in upper floors in apartments and multi-storey dwellings.



STAIRS

Precast Concrete Stairs and Landings

This product range comprises of straight, return and curved stairs. These are designed and made to order for each individual project. Type A, B and C finishes as per BS8110 are available.



HOMESPAN

Reinforced Flooring - for ground and upper floors

The HomeSPAN flooring system comprises of flat precast concrete planks generally 600mm wide and 150mm deep. It is designed for residential use in ground and upper floors. HomeSPAN slabs are capable of carrying domestic loading for spans up to 5m.





CREAGH INNOVATION IN CONCRETE

CREAGH CONCRETE PRODUCTS LTD

ENGLAND

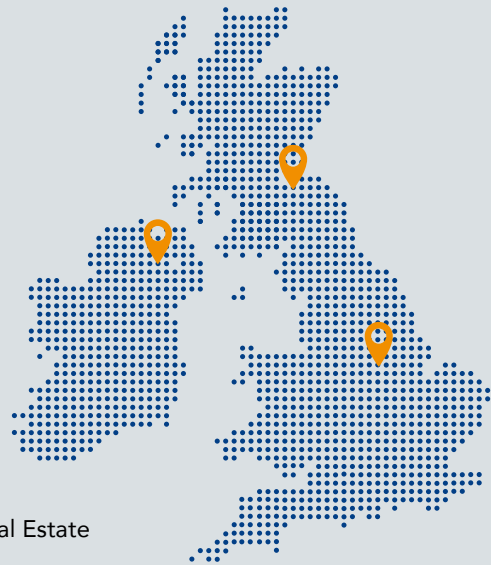
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