

# Why Choose Us



**GYPSOL** Self Compacting Free Flowing Floor Screeds are available from a range of quality assured readymix suppliers throughout the United Kingdom. This makes the choice easy. However it is useful to compare **GYPSOL** floor screeds with traditional systems in the market. This table helps to ensure that you are selecting **GYPSOL** floor screeds for sound commercial and technical reasons.

Consideration	<b>GYPSOL</b>	<b>1:4 Cement:Sand Screed</b>
Productivity	✓ Up to 2000m <sup>2</sup> per day	✗ Typically 100 to 150m <sup>2</sup> per day
Quality	✓ BS EN 13454	✗ Often Site Mixed with poor and erratic quality control
	✓ BS EN 13813	✗ No specific manufacturing standard if site mixed
	✓ BS EN 8204:7:2003	
Traffic	✓ No Curing Required	✗ Should be cured under polythene for 7 days
	✓ Can be walked on after 24–48 hours	✗ Foot Traffic after 7 days
	✓ Can be loaded after 7 days	✗ Loading after 28 days
Health and Safety	✓ Little manual handling	✗ High level of manual handling, lifting and twisting
	✓ Ergonomically advantageous installation	✗ High level of joint wear and tear for installers
	✓ Reduced risk of burns and dermatitis	✗ Portland cement can lead to burns and dermatitis
	✓ Self Compacting	✗ Requires thorough compaction
Cost	✓ Lower material costs	✗ Higher material cost
	✓ High productivity	✗ Low productivity
	✓ Most installations will offer cost and time savings	
Installation	✓ By trained and approved installers	✗ By anyone regardless of skill level or training
Floating on insulation	✓ Minimum depth 35mm (see technical data sheet)	✗ Minimum depth 65mm
	✓ Requires no reinforcement	✗ D49 mesh or PP fibres required
Unbonded construction	✓ Minimum depth 30mm	✗ Minimum depth 50mm
	✓ Requires no reinforcement	✗ D49 mesh or PP fibres required
Bonded construction	✓ Minimum 25mm	✗ Minimum 40mm
Surface Finish	✓ Easily achieves SR2	✗ Dependent on installing contractor.
	✓ Can achieve SR1 with care (less need for smoothing compounds)	✗ Shrinks Cracks and Curls
	✓ Does not curl and resistant to cracking	✗ Requires many joints
	✓ Requires few joints	
Drying Rate (dependent on site conditions)	✓ 1mm per day up to first 40mm + 0.5mm per day there over	✗ 1mm per day (1 week curing + 11 weeks drying at 75mm)
	✓ Can be force dried as early as 7 days	✗ Cannot be force dried
Environmental	✓ Low CO <sub>2</sub> emissions	✗ High CO <sub>2</sub> emissions
	✓ Reduced materials so reduced embodied energy	✗ Higher embodied Energy
	✓ High recycled content	
Underfloor Heating	✓ Thinner Screed allows Thicker Insulation	✗ Thicker Screed means Thicker floor section
	✓ High Thermal Conductivity so lower energy input	✗ Low Thermal conductivity
	✓ Reduced cover to heating pipes means reduced thermal lag and rapid response times	✗ Greater Thermal Lag up to 8 hours heat up time
	✓ Self compacting and full pipe encapsulation so void free	✗ Difficult to compact under pipes leading to voids
Uses	✓ Available for use in all construction types including timber frame, lightweight steel frame, traditional masonry, modular construction, concrete and steel frame	✗ Only available for limited construction types
Acoustics	✓ 80kg/m <sup>2</sup> at just 40mm	✗ Minimum 65mm required in most systems
	✓ Uniform Density across floor section	✗ Variable Density leads to non uniform performance
	✓ Few Joints	✗ Many Joints lead to sound transmission pathways

# Technical Data



## Description

**GYPSOL** self compacting flowing screed is made to exacting standards by quality assured manufacturers to BS EN 13813:2002. It is a combination of high quality **GYPSOL** binder, specially selected sands, water and special additives where required. It is designed to offer a smooth flat and level surface for use in the vast majority of interior non wearing applications where a subsequent floor covering is to be used. **GYPSOL** screed is perfectly suited to use in floating, bonded or unbonded construction and can easily incorporate electric or warm water underfloor heating systems.

This data sheet offers key technical information to help your selection of **GYPSOL** as your screed of choice. For project specific advice on design and for an NBS specification contact our technical and specifications team.

<b>Physical Data</b>		<b>Performance Data</b>	
Appearance		Setting Time: Initial	> 240 minutes
Density	Wet	Final	< 660 minutes
	Dry	Foot Traffic	24 to 48 hours
Typical Strength (28 days)		Loading	5 to 7 days
Required Flow (EN 13454-2)		Drying (20°C/60% RH)	1 mm per day for first 40mm
Fire Rating			0.5mm per day there over
		Force Drying	Can be force dried after 7 days

<b>Application Data</b>			<b>Environmental Data</b>		
Minimum Depth	Bonded	25mm	Recycled Content	Binder	98%
	Unbonded	30mm		Mortar	up to 40%
	Floating	35mm Domestic	Carbon Emissions	Binder	10 to 20kg/tonne
		40mm Commercial		Mortar	20 to 40kg/m3
	Acoustic	80kg @ 40mm	VOC		zero
	Cover to conduits	25mm	Recyclability		100%



**GYPSOL** screeds are suitable for use on most substrate types

## Health and Safety Data

**GYPSOL** screeds are delivered to site ready to use via offsite mixing plants removing the need for labour intensive site mixing and associated mixing equipment.

**GYPSOL** screeds are pumped directly to where they are needed removing much of the manual handling operations required to install other screeds.

**GYPSOL** screeds are generally pumped using equipment with closed or gridded dispensing hoppers removing risk of contact with moving machinery.

**GYPSOL** screeds are finished using a lightweight dappling bar requiring no secondary compaction thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculo-skeletal system of installing contractors.

For material safety information please see the relevant health and safety data sheets.

## Declaration

The Calculated Ex Works Carbon Footprint for **GYPSOL** anhydrite binder processing operations is no more than

**1.44kg of CO<sub>2</sub>/tonne of product output**

The basis for this calculation is the government standard document “2010 Guidelines to DEFRA Greenhouse Gas (GHG) Emissions Conversion Factors”

The Footprint covers the source of Carbon Emissions from relevant business activities; specifically utilities used in production, the delivery of raw materials to site, and associated personnel activities. The figure represents emissions for ex-works at the factory gate

<b>GYPSOL</b> screed		Typical 1:4 cement:sand screed	
Binder/tonne	15.44kg <sup>[1]</sup>	Binder/tonne	900kg <sup>[3]</sup>
Screed/m <sup>3</sup>	28.36kg <sup>[2]</sup>	Screed/m <sup>3</sup>	281.81kg <sup>[4]</sup>
Screed/m <sup>2</sup> (at40mm)	1.13kg	Screed/m <sup>2</sup> (at75mm)	21.19kg

[1] Audited for Francis Flower Limited by T M Consultants, Swadlincote, Derby

[2] Bardon Concrete Limited, Bardon Hill, Leicestershire

[3] Mahasenani, Natesan; Steve Smith, Kenneth Humphreys, Y. Kaya (2003). "The Cement Industry and Global Climate Change: Current and Potential Future Cement Industry CO<sub>2</sub> Emissions". *Greenhouse Gas Control Technologies – 6th International Conference*.

[4] Bardon Concrete Limited, Bardon Hill, Leicestershire

It can be seen from the above figures that using **GYPSOL** screeds can offer **reductions of around 95%** in terms of the CO<sub>2</sub> emissions associated with the screed itself. Add to this the reductions in landfill, the improvements in the thermal performance with or without underfloor heating and it can be easily seen that **GYPSOL** screeds are the perfect choice for any environmentally responsible construction project helping to achieve your BREEAM rating.

### **Typical Potential CO<sub>2</sub> Savings** (in comparison with 1:4 cement sand screed used floating in accordance with BS EN 8204:1:2003)

<b>House</b>	50m <sup>2</sup>	without underfloor heating	saves 859	kg CO <sub>2</sub>
		with underfloor heating	saves 986	kg CO <sub>2</sub>
<b>Large House</b>	150m <sup>2</sup>	without underfloor heating	saves 2,577	kg CO <sub>2</sub>
		with underfloor heating	saves 2,958	kg CO <sub>2</sub>
<b>Primary School</b>	2,500m <sup>2</sup>	without underfloor heating	saves 42,958	kg CO <sub>2</sub>
		with underfloor heating	saves 49,294	kg CO <sub>2</sub>
<b>Hospital</b>	12,000m <sup>2</sup>	without underfloor heating	saves 206,199	kg CO <sub>2</sub>
		with underfloor heating	saves 236,613	kg CO <sub>2</sub>

**GYPSOL** screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project including to screed installers, builders, underfloor heating designers, main contractors and clients alike. Our aim is to make it easy for specifiers to select **GYPSOL** screed as their flooring screed of choice. In order to ensure that your design utilises screed in the optimum manner it is important for designers to have relevant design information available. This datasheet goes through the simple steps to ensure that **GYPSOL** screed is specified, designed and installed correctly for the application in which it is being used. For further assistance with design and to obtain a NBS specification for **GYPSOL** screed please contact our Technical and Specifications team.

## Minimum Depth

Floating	Domestic	35mm
	Commercial	40mm
Unbonded		30mm
Bonded		25mm
Underfloor heating		25mm cover to pipes

In all cases the nominal depth should be as close to the minimum depth as possible to avoid excessive drying times. Suitable insulation can be used as a void filler where deeper floor sections are required.

## Maximum Bay Size

Underfloor Heated All Cases	300m <sup>2</sup>	Aspect Ratio 6:1
Unheated	Floating	1000m <sup>2</sup>
	Unbonded	1000m <sup>2</sup>
	Bonded	1000m <sup>2</sup>
		Aspect Ratio 8:1

As with all screeds, joints should reflect structural joints in the substrate

## Bay Length

Floating	Domestic	40m
	Commercial	40m
Unbonded		40m
Bonded		40m
Underfloor heating		20m

Consideration should be given to take account of maximum bay length as well as maximum bay size and aspect ratio e.g. a corridor 2m wide will require a joint frequency of 1 joint per 16m if unheated where as a room of 20m x 25m is likely to need no joints

## Edge Detailing

In common with all screeds **GYPSOL** screed should be isolated at all edges, abutments and columns. This is to ensure adequate allowance is given to the screed to undergo the maximum positive movement under the application or removal of thermal loadings.

## Edge Strip Width

Heated Screed	8mm (typically 10mm)
Unheated Screed	5mm

Linear Co-Efficient of Thermal Expansion (typical) =  $12 \times 10^{-6}$  m/mK

## Additional Information

Edge strips should be of an extruded polyethylene type with a laminated polythene skirt attached.

The shape of the room and the aesthetic effect on the subsequent floor coverings should be taken account of when designing joint configurations and bay sizes.

Additional joints must be placed between independently controlled heating circuits, between heated and unheated screed areas and in areas of high thermal gain.

Bay joints should be formed using rigid joint formers where possible which can be placed during the preparation phase and will remain in place during operation. Ideally the joint former should be 5mm lower than the finished **GYPSOL** screed depth to allow a smooth transition in height between bays.

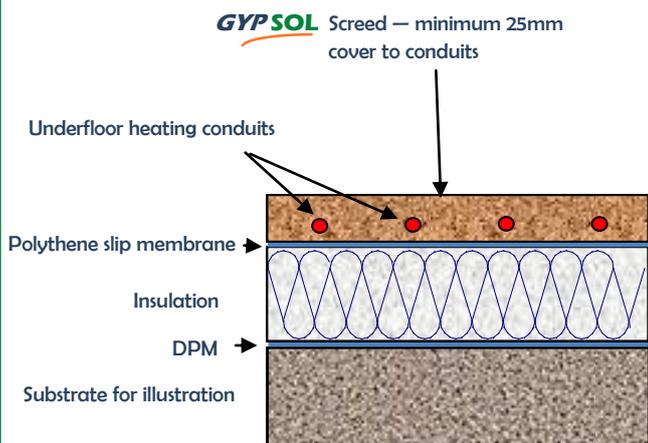
See our additional data sheet entitled "Forming Joints" for further information on creating suitable joints within screeds.

# Underfloor Heating



**GYPSOL** screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project including to screed installers, builders, underfloor heating designers, main contractors and clients alike. **GYPSOL** screed is a perfect complement to any underfloor heating system whether warm water or **GYPSOL** electric. screed has a high thermal conductivity and a high thermal capacity which means that the response time from any system is excellent. Additionally, **GYPSOL** screed has great thermal performance meaning that the efficiency of a heat source is improved. As the screed is installed to a much thinner depth than traditional screed more sub screed insulation can be used offering the ultimate levels of comfort and controllability to your underfloor heating system whilst minimising environmental impact and cost.

## Typical Schematic



## Design Data

Maximum design temperature should be no more than 55°C

Minimum EPS100 Polystyrene insulation should be used

Pipe spacing to be in accordance with the designers requirements

Pipes should be secured using clips at minimum 0.5m intervals

Movement control joints should be placed at spacing no greater than 20m and bay sizes should have an aspect ratio no more than 6:1 and a size no greater than 300m<sup>2</sup>. No reinforcement is required

Movement joints should be placed across door thresholds and between independently controlled heating zones and between heated and unheated areas of screed

Additional joints should be considered in areas of high thermal gain e.g. large conservatories or glass atria

## Installation Data

The Building envelope should be watertight prior to installation

Underfloor heating pipes/cables should be properly secured to avoid flotation during installation of the **GYPSOL** flowing screed

An operational Damp Proof Membrane should be placed under any insulation and a secondary slip membrane underneath the heating conduits

Warm Water Pipes should be pressurised with water in accordance with BS-EN 1264 : 2001 : 4

Minimum cover to the tops of the pipes/cables should be 25mm

## Additional Performance Data

Can increase the coefficient of performance of an underfloor heating system

Self compacts and fully encapsulates heating conduits eliminating voids and improving thermal transfer

Offers rapid and controllable heating system optimising efficiency, response and reducing running costs

Reduced screed depth allows for thicker insulation

Assists in meeting environmental accreditation for your project

## Post Installation

If required any surface skin should be removed prior to the heating system being commissioned

The underfloor heating should be commissioned and run in accordance with the following:

Once the screed is at least 7 days old

1. Switch on the heating system to run at a flow temperature of 25°C and leave for three days
2. Increase the flow temperature in 5°C increments per day up to a maximum of 55°C. Leave at this temperature for a minimum of 3 days (typically 7 days if force drying)
3. Reduce the flow temperature by 5°C per day down to 25°C before switching off and allowing to cool (typically for 48hours) prior to moisture testing

Test the screed for residual moisture using an approved test method

Once dry protect the screed from moisture ingress prior to applying suitable floor coverings

Bonded floor coverings should be applied using a suitably flexible and thermally stable adhesive in accordance with the manufacturers instructions

See also our "Post Installation" data sheet for additional information

**GYP SOL** screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project including to screed installers, builders, underfloor heating designers, main contractors and clients alike. Our aim is to make it easy for specifiers to select **GYP SOL** screed as their flooring screed of choice. It is important to pay attention to the treatment of the **GYP SOL** screed after it has been installed in order to ensure that the maximum benefits can be extracted. It is equally important that follow-on trades understand the material and how it should be treated in order to ensure that subsequent floor coverings remain trouble free.

## Post Installation up to 48 hours

**GYP SOL** screed, having been installed into a suitably sealed building envelope should be protected from ingress of water and extremes of temperature. External windows and door openings should remain closed in order to allow the screed to set. The screed may be trafficked by light foot traffic after 24 to 48 hours from installation. **GYP SOL** screed is self curing and therefore does not require a curing membrane. The finished screed should not be excessively heated during this period although keeping the environment at or around 20°C is beneficial. Significant air movement across the screed should be avoided in order to reduce the risk of plastic shrinkage cracking.

## 48 hours to 7 days

After 48 hours the **GYP SOL** screed is ready to begin drying. It is of significant benefit at this stage to provide as much ventilation as is reasonably practicable whilst maintaining protection for the screed from ingress of external water. Windows and doors can remain open for as long as possible, assuming conditions allow, during the working day to provide good air exchange thus removing moisture from the air above the screed allowing the residual moisture to escape. After 72 hours dehumidifiers may be introduced to assist the drying process if desired. Between 72 hours and 7 days any surface laitance should be removed if present by lightly sanding with a rotary floor sander and a medium grit sanding disc or other suitable means of removal. Foot traffic can continue during this period.

## After 7 days

The **GYP SOL** screed can now be loaded and the work area returned to full service. Underfloor heating can be commissioned and run and unlike cement based screeds which cannot be heated for 28 days or force dried at all, **GYP SOL** screeds can be force dried either using the underfloor heating, or using space heaters and fans. In either case it is important to remove the moisture from the air above the screed either by ventilation, extraction or dehumidification in order to allow the screed to dry properly. This assists greatly with early preparation for floor coverings. If space heaters are used these should not be of the fossil fuel variety e.g. gas burners as the burning of gas emits moisture back into the air reducing the benefit of heating significantly. Electrical or forced air movement heaters are suitable. Protection during the remainder of the construction period should continue in order to protect the **GYP SOL** screed from re-wetting which could delay the drying period. It is not however desirable that the screed should be covered with impervious sheeting during construction.

## Prior to Floor Covering Installation

In accordance with the relevant National Standards for floor coverings the surface of the screed should be inspected and should satisfy the following

1. It should be clean and free from chemicals likely to interfere with adhesion
2. It should be sound, hard and free from fractures other than planned joints
3. It should be free from dust, construction debris and loose surface contamination e.g. mud, building adhesive and bricklaying mortar
4. It should be suitably dry or an approved method of moisture management such as a damp proof membrane or uncoupling technology employed (see additional notes)
5. Any Underfloor heating must have been commissioned and run

## Additional Notes

Moisture testing is carried out using a suitable approved method such as a flooring hygrometer or carbide bomb test. Once dry the floor should be cleared of any gross debris and then thoroughly vacuumed to remove any small loose dust and debris.

Damp proof membranes can be used on **GYP SOL** screeds subject to them being unheated, below 1.5% moisture (below 92% RH using a calibrated hair hygrometer) and them having achieved sufficient strength to satisfy the mechanical requirements of the application (minimum 28 days old).

If the floor requires priming any primer should be selected for its suitability for use with calcium sulphate or anhydrite screeds. If a smoothing compound is to be used it should ideally be one made using calcium sulphate although subject to suitable priming one based on Portland cement could be used. If a cement based smoothing compound is to be used it is often beneficial to select a water dispersible epoxy primer.

If the floor is to be tiled a flexible adhesive based on calcium sulphate is likely to offer the most robust combination. Again, subject to suitable priming, it is possible to use an adhesive based on Portland cement.

**GYP SOL** screeds are also suitable to receive epoxy resin toppings subject to suitable preparation and priming.

Alternatively it may be desirable to use a proprietary uncoupling membrane. These are available for both soft flooring such as vinyl or for tile surfaces. It is a recommendation of BS 5385 that natural stone tiles should be uncoupled from heated screeds.

The manufacturers of **GYP SOL** screeds do not generally manufacture or supply primers, adhesives, damp proofing membranes or uncoupling technology. Whilst advice is based on sound principals and qualified expertise it is recommended that in all instances the relevant manufacturer's advice should be followed in order to ensure suitable warranties are in place.