Agilia
SCREED A GYVLON

LAFARGE
bringing materials to life™

Agilia Screed A Gyvlon Technical Guidance Manual & Specifier Guide

Call 0870 336 8258
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Contents

0086
Screed material and floor screeds
BS EN 13813 :2002

Issue 2 | Revision 0 | 30-05-12

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Why Change?

	Agilia Screed A Gyvlon	Conventional Sand Cement
Productivity	✓ Easily up to 2000 m^2 per day	× Only 100 to 150 m^2 per day
How quickly can you walk on the floor?	✓ Within 24 to 48 hours ✓ Self Curing	× Should not be walked on for 7 days × Requires covering and curing
Joints	✓ 30-40 linear meters ✓ Following building construction joints	× Can be laid in small bays of between 5-7 × linear meters
Performance	✓ Very low shrinkage ✓ Minimal cracking ✓ Will not curl	× Shrinks × Cracks × Curls
Surface Finish	✓ Easily achieves SR2 under BS 8204	× Dependant on contractor × Curls and cracks at joints
On Insulation	✓ No reinforcement required ✓ 40mm minimum thickness in commercial buildings ✓ 35mm minimum thickness in domestic buildings	× D49 or fibre reinforcement × 65mm minimum thickness
Average Drying Times	✓ 40 days at 40mm ✓ Dependant on site conditions ✓ Can be force dried after 7 days	× 9 weeks at 65mm thickness × Dependant on site conditions × Must dry naturally × Should be cured for one week
Unbonded Floor Construction	✓ Polythene laid directly to substrate minimal preparation ✓ No reinforcement ✓ 30mm minimum thickness	× D49 or fibre reinforcement × 50mm minimum thickness
Quality Control	✓ Produced under BS EN 13454	× Often mixed on site by hand with poor quality control × Inconsistent quality
Installation	✓ Self compacting	× Requires thorough compaction, one of main reasons of failure
Environmentally friendly	✓ Contains 98% recycled material	× Cement manufacture uses 1.5 tonnes / ton of cement
Health & Safety	✓ Ergonomically friendly installation ✓ No cement burns	× Very labour intensive
Underfloor Heating	✓ High thermal conductivity ✓ Reduced cover to heating elements	× Low thermal conductivity
Cost	In most applications Agilia Screed A Gyvlon gives cost/time savings over traditional hand applied sand and cement screed.	

CPC CPC breeam responsible sourcing VERY GOOD RATING CE 0086 Screed material and floor screeds BS EN 13813 :2002

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Technical Data Sheet

Description

AGILIA SCREED A GVYLON FLOWING SCREED is a blend of **GYVLON BINDER**, special additives and selected aggregates mixed with clean potable water to produce a pumpable self smoothing, flowing screed (manufactured to BSEN 13813:2002).

Uses

AGILIA SCREED A GVYLON is designed to provide a smooth level surface in both commercial and domestic buildings prior to the application of floor finishes. It can be used bonded, unbonded or floating. It is particularly suitable for use with under floor heating.

For advice on specifications and for proprietary systems contact your Lafarge representative.

Key Features

- Increased productivity - 2000m^2/day can be easily achieved
- Self compacting
- Self curing
- Can be walked on in 24-48 hours
- Can be loaded after 7 days
- Extremely low shrinkage – does not curl and minimises the risk of cracking
- Avoids the need for reinforcement
- Significantly reduced thickness when compared to traditional sand – cement screed
- Large bay sizes of up to 1000m^2 depending on application (heated floors 300m^2)
- Ideal for use with under floor heating
- Can be force dried as early as 7 days after application
- Weight saving as a result of thinner section
- Dries at a rate of 1mm per day up to a screed depth of 40mm in good drying conditions
- Easily achieves SR2 finish as described in BS8204
- Protein free – cannot harbour harmful bacteria
- Non combustible (tested to BS476 Part 4)
- Minimal thermal expansion (0.012mm/mK)
- Excellent thermal conductivity
- Environmentally friendly

Technical Data

Appearance/Colour:	Off-white fluid mortar
Water demand:	13-18 % b.w
pH:	> 10
Wet Density:	2200 kg/m^3
Dry Density:	2000 kg/m^3

Typical Screed Properties:

Compressive Strength:	CA25 N/mm^2
Flexural Strength:	F4 N/mm^2

Minimum Application Thickness

Bonded:	25mm
In contact with substrate:	30mm
Unbonded:	30mm
Floating Commercial:	40mm
Floating Domestic:	35mm
Underfloor Heating:	25mm minimum (30mm nominal) cover to pipes, heating elements.

Delivery

AGILIA SCREED A GVYLON is supplied via a concrete plant in truck mixers or transmix trucks or as a bagged material.

Health & Safety

Some of the components of this product may be hazardous during mixing and application.

Please consult the relevant Health & Safety Data Sheets, available from Lafarge on request and provided with each delivery.

Environmental Benefits

Nominal recycled content of 36% (Gyvlon binder 98%)

VOC free

100% recyclable

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Underfloor Heating

Description

AGILIA SCREED A GYVLON is a blend of **GYVLON BINDER**, special additives and selected aggregates mixed with clean potable water to produce a flowing pumpable screed (manufactured to BSEN 13813:2002) which is ideal for application over warm water and electric under floor heating systems.

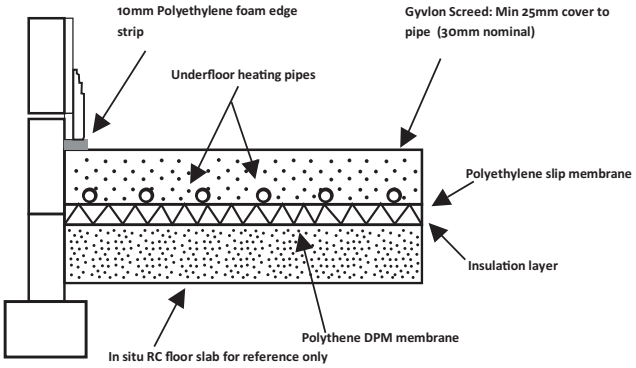
Key Features

- Increased productivity – 2000m2/day can be easily achieved
- Self compacting
- Self curing
- Can be walked on in 24-48 hours
- Can be loaded after 7 days
- Extremely low shrinkage – does not curl and minimises the risk of cracking
- Avoids the need for reinforcement
- Significantly reduced thickness when compared to traditional sand – cement screed
- Large bay sizes of up to 1000m^2 depending on application (heated floors 300m^2)
- Ideal for use with under floor heating
- Can be force dried as early as 7 days after application
- Weight saving as a result of thinner section
- Dries at a rate of 1mm per day up to a screed depth of 40mm in good drying conditions
- Easily achieves SR2 finish as described in BS8204
- Protein free – cannot harbour harmful bacteria
- Non combustible (tested to BS476 Part 4)
- Minimal Thermal expansion (0.012mm/mK)
- Excellent thermal conductivity
- Environmentally friendly

Additional Features

- Fully encapsulates heating conduits
- Elimination of voids & maximised thermal efficiency
- Rapid response and controllability
- Reduced depth allows more insulation

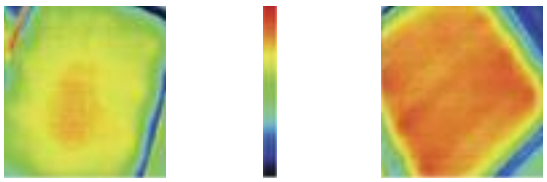
Typical Schematic Installation



Key Installation Points

- Pipes or cables must be securely fixed to prevent floatation and lifting during application of the screed
- Pipes should be pressurised in accordance with BS 1264:2001:4
- Minimum cover to pipes or cables must be 25mm (nominal 30mm)
- If required surface laitance must be removed prior to commissioning of under floor heating
- Heating must be commissioned and run in accordance with manufacturer's instructions prior to application of the floor finish
- Lafarge recommend the use of floor thermostats with electric under floor heating elements

Expansion joints should be used between different heating zones and at door thresholds. (Refer to relevant data sheet for bay sizes and aspect ratios. Or contact your local Lafarge representative for advice).



Sand Cement | **Surface Temperature** | **Agilia Screed A Gyvlon**

Temperature across screed surface 80mins after turning underfloor heating on.

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Construction Joints, Bay Sizes & Edge Detail

Agilia Screed A Gyvlon is suitable for application to most types of sub bases demonstrating an excellent degree of dimensional stability (max shrinkage/expansion on drying of 0.02%) when compared to traditional sand cement based screeds.

Maximum Bay Length – Unheated

Floating on Insulation	Maximum 40m
Unbonded on Polythene/Visqueen	Maximum 40m
Bonded	Maximum 40m
Underfloor Heating	Maximum 40m

Maximum Bay Sizes

Floating on Insulation	1000m^2
Unbonded on Polythene/Visqueen	1000m^2
Bonded	1000m^2
Underfloor Heating	300m^2

Aspect Ratio

Unheated	Max 8 : 1
Heated	Max 6 : 1

Joint Movements

The edge strip recommended for use with Agilia Screed A Gyvlon is a minimum 8mm (10mm with under floor heating) foamed polyethylene with an attached polythene skirt, this thickness relates directly to the maximum allowable positive movement within the screed.

40m x 0.02% → **8mm**

As with all types of screed a joint must be formed above all structural movement joints.

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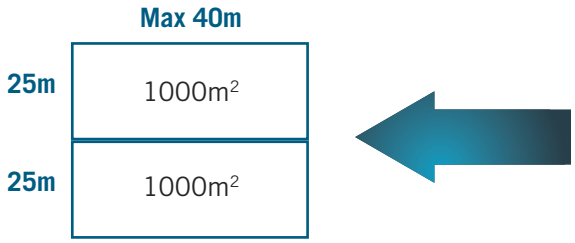
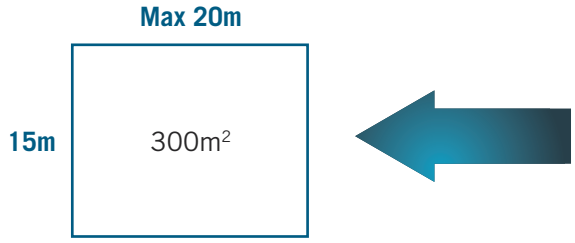
Construction Joints, Bay Sizes & Edge Detail

Joint Movements Continued

On larger pours the following guidelines may be of use when considering the layout of any day-work or bay joints during screed placement.





Normal Screeding Conditions

A bay joint is required at this position as the total screed area is in excess of 1000m².

NB: As with all types of screed a joint must be formed above all structural movement joints.

Screeding Corridors

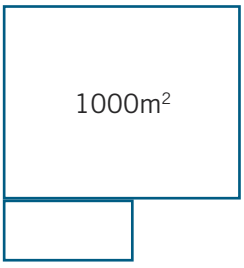
Please refer to aspect ratio table.

Underfloor Heating

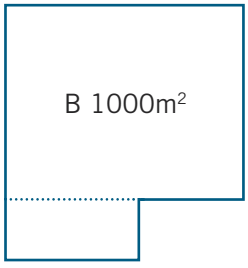
Lafarge recommends that the maximum bay size when used in conjunction with for underfloor heating is 300m². However it is important to note that a joint should be present between two independent heating circuits and door thresholds to allow for thermal movement within the screed and differential temperature gradients.

NB: Consideration should be given to additional joints between heated and unheated areas and areas of high thermal or solar gain.

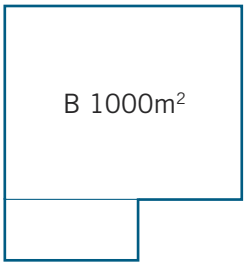
It is also necessary to note that the shape of the room can also affect the requirements for bay joints. The following guidelines highlight our recommendations with regards to placement of joints in relation to the shape of the room and area screeded.



No joint required as the proportional section is the main bay and the corner reflects into the main bay.



Joint required as the corner reflects outwards.



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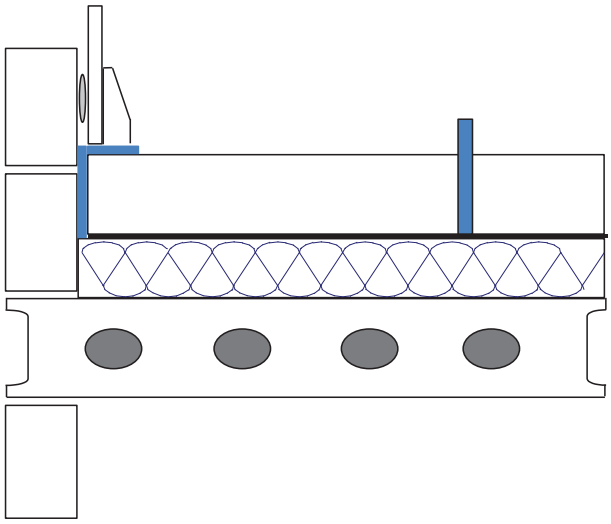
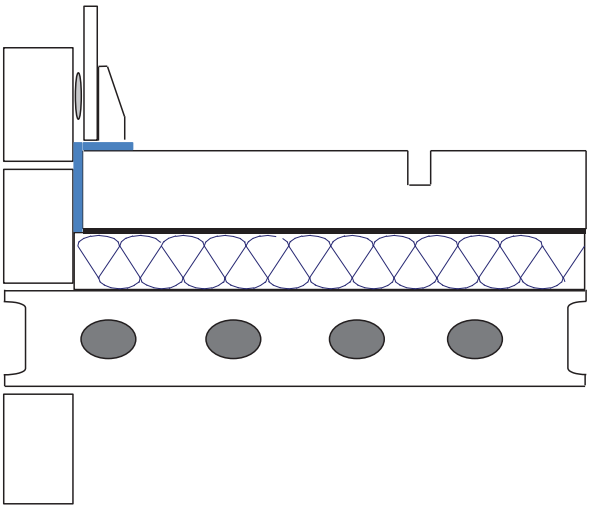
Joints



Expansion joints can be made using pre-formed 8 or 10mm closed cell polyethylene foam with a self adhesive t-bar base. Joints may be needed due to large areas, or in between under floor heating circuits, this detail is particularly well suited to under floor heating as it eliminates cutting the screed.

- Insulation, DPM and Edge detail installed as normal
- Joint strip attached to DPM where expansion joints are required using self adhesive base, they should also be secured using additional screed tape to improve bond
- Where the strip meets either walls or door frames these joints should be sealed using tape
- Install screed as per Agilia Screed A Gyvlon Installation Guide and Gyvlon NBS M13 Specification
- Once the screed has cured the joint strip can be trimmed to screed level using a suitable knife.



Contraction joints can be cut into the screed following it's installation.

- Insulation, DPM and edge detail installed as normal
- Install screed as per Agilia Screed A Gyvlon Installation Guide and Gyvlon NBS M13 Specification
- Saw cuts should be formed as early as possible following the screed being installed (2-3 days)
- Saw cuts should be made to half the screeds depth using a floor saw with suitable blade
- Saw cuts should be a minimum of 5mm wide
- Joints can be filled using a flexible epoxy sealant.

NB: Saw cut joints should avoided when using under floor heating, for under floor heating joint please see preformed joints.

NB For maximum bay sizes and dimensions please see Gyvlon Installation Guide, or contact your Lafarge Representative.

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SoundBar

Description

Lafarge SoundBar screed is a blend of Gyvlon Binder, selected aggregates and clean potable water, to produce a pumpable self smoothing, flowing screed (manufactured to BSEN 13813:2002 and to the specific requirements of the SoundBar system).

Uses

SoundBar screed is designed specifically to be used as part of the Soundbar system, for use over timber joists both in masonry and timber framed designs. The system can be used in both commercial and residential projects and is ideally suited were improved acoustic, loading and durability are required.

For advice on specifications and proprietary systems please contact your Lafarge representative.

Features

- Increased productivity – Up to 1200m2 per day
- Improved loading compared to timber batten floors
- Can easily accommodate UFH within the screed zone
- Ideal for use with UFH
- No need for loading out prior to flooring
- Easily achieves SR2 as described in BS8204:7
- Protein Free – cannot harbour bacteria
- Minimum thermal expansion (0.012mm/mK)
- Dries at a rate of 1mm per day up to 40mm in good conditions
- Excellent UFH performance compared to floating floors
- Environmentally friendly

Technical Data

Appearance/Colour:	Off-white fluid mortar
Water demand:	13-18 % b.w
pH:	> 10
Wet Density:	2200 kg/m^3
Dry Density:	2000 kg/m^3

Typical Screed Properties:

Compressive Strength:	CA35 N/mm^2
Flexural Strength:	F6 N/mm^2

Minimum Application Thickness

Bonded:	25mm
In contact with substrate:	30mm
Unbonded:	30mm
Floating Commercial:	40mm
Floating Domestic:	35mm
Underfloor Heating:	25mm minimum (30mm nominal) cover to pipes, heating elements.

Delivery

AGILIA SCREED A GYVLON is supplied via a concrete plant in truck mixers or transmix trucks or as a bagged material.

Health & Safety

Some of the components of this product may be hazardous during mixing and application.

Please consult the relevant Health & Safety Data Sheets, available from Lafarge on request and provided with each delivery.

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Thermoplane

Description

Lafarge Thermoplane screed is a blend of Gyvlon Binder, special additives, selected aggregates and clean potable water, to produce a pumpable, self smoothing, flowing screed (manufactured to BSEN 13813 and to the specific requirement of the Thermoplane heating system)

Uses

Gyvlon Thermoplane is specifically designed to act as the screeding element of the Thermoplane system, to provide a highly conductive level surface ready to receive coverings in both commercial and domestic buildings.

For advice on specifications and proprietary systems please contact your Lafarge representative.

Features

- Highly efficient UFH and Screed system, requiring lower than average flow temperatures
- Rapid response and contrability
- Extensive research and accurate heating data
- Ideal for use with alternative heat sources such as Ground and Air source heat pumps
- Up to 2000m2 per day of screed placement
- Up to 300m2 bay sizes
- The Thermoplane underfloor heating can be commissioned after just 7 days to force dry the screed
- Dehumidifiers can be used after just 3 days
- In good drying conditions, without force drying, expect 1mm per day. (20 oc and 60% RH)
- Easily achieves SR2 as described in BS8204:7
- Protein free – cannot harbour bacteria
- Minimum thermal expansion (0.012mm/mK)
- Excellent UFH performance compared to conventional timber UFH suspended floors
- Environmentally friendly

Additional Features

- Fully encapsulated heating pipes
- Elimination of voids and maximised thermal efficiency
- Reduced depth allows more insulation

Technical Data

Appearance/Colour:	Off-white fluid mortar
Water demand:	13-18 % b.w
pH:	> 10
Wet Density:	2200 kg/m^3
Dry Density:	2000 kg/m^3

Typical Screed Properties:

Compressive Strength:	CA35 N/mm^2
Flexural Strength:	F6 N/mm^2

Minimum Application Thickness

Bonded:	25mm
In contact with substrate:	30mm
Unbonded:	30mm
Floating Commercial:	40mm
Floating Domestic:	35mm
Underfloor Heating:	25mm minimum (30mm nominal) cover to pipes, heating elements.

Delivery

AGILIA SCREED A GVYLON is supplied via a concrete plant in truck mixers or transmix trucks or as a bagged material.

Health & Safety

Some of the components of this product may be hazardous during mixing and application.

Please consult the relevant Health & Safety Data Sheets, available from Lafarge on request and provided with each delivery.

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Drying Agilia Screed A Gyvlon Floor Screed

In common with other screeds it is very important that good drying conditions are provided as soon as it is appropriate.

For Agilia Screed A Gyvlon adequate protection from rapid drying or draughts should be provided for the first 48-72 hours but thereafter the relative humidity of the building should be low to allow moisture release from the screed and facilitate drying. Failure to provide the desired conditions can prolong screed drying times considerably and may lead to delays in the construction schedule.

Screed drying time

Under ideal drying conditions (a warm, well ventilated room) Agilia Screed A Gyvlon dries at a rate of 1mm/day up to a thickness of 40mm and then at a rate of ½mm/day for thicknesses above this.

Example:

50mm Agilia Screed A Gyvlon Drying time: (40mm*1 day) + (10mm*2days) = 60 Days (2 months).

NB: Drying of screeds and can be greatly influenced by individual site conditions.

The above example is for guidance only.

Drying times can be reduced by the provision of good ventilation, open windows and doors in good weather, removal of laitance as recommended, the use of dehumidifiers and by force drying of the screed using under floor heating.

Assisted drying time

Dehumidifiers:

Dehumidifiers can be used as early as 72 hours after the placing of Agilia Screed A Gyvlon to assist with drying. It is important that a closed system is employed to ensure that any moisture extracted from the environment during operation is removed. Any water collected should be removed regularly.

Force drying

- Force drying of a Agilia Screed A Gyvlon can begin as early as 7 days following installation of the screed by various methods. Commissioning (heating & cooling procedure) of under floor heating systems. Set flow temperature to 20-25ºC, maintain for a minimum of 3 days and then gradually increase the temperature in Max 5ºC increments to maximum operating temperature. This should be maintained for a further 7 days (water temperature should not exceed 55ºC for screeds), prior to returning to ambient temperature again in Max 5ºC increments
- Space Heaters & Dehumidifiers in combination. Fossil fuel fired heaters (E.g. Gas heaters) must be avoided as they will raise humidity
- Specialist drying mechanisms These include vacuum dewatering, cocooning and microwave technology. These procedures should only be carried out by specialist contractors

Important

After drying the screed, the residual moisture content must be determined using one of the approved test methods to demonstrate suitability for acceptance of floor finishes.

NB: Drying of screeds and can be greatly influenced by individual site conditions.

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Preparation of Gyvlon Screed

The preparation of Agilia Screed A Gyvlon ready for floor coverings can be split into four areas:

- Sanding
- Moisture Testing
- UFH Commissioning
- Priming.

These notes are a brief outline, further detail can be found in our datasheets online at:

www.Lafarge.co.uk

Sanding

Agilia Screed A Gyvlon is available in both a traditional mix which can produce a laitance and a LL (Low Laitance mix) which uses a special additive to prevent laitance forming. As with all flooring substrates, both mixes will require a light sanding to either remove laitance and/or create a surface key.

(Please refer to the Agilia Screed A Gyvlon 'Floor Covering' Datasheet)

Moisture Testing

As with all screeds, in good conditions Agilia Screed A Gyvlon has a natural drying time of 1mm per day up to 40mm and 0.5mm after that, drying times can be greatly affected by site conditions so it is advised that the atmosphere is kept as warm and dry as possible. Commissioning the UFH and/or using dehumidifiers can greatly improve the figures above, prior to coverings the screed moisture must be tested using either a hair hygrometer, carbide bomb or oven test and be below 75% RH (0.5% Moisture).

NB: It may be possible to use Gypsum based products at 85% RH, manufacturers must be consulted.

(Please refer to the Agilia Screed A Gyvlon 'Drying Screed' Datasheet)

Underfloor Heating Commissioning

Where under floor heating is used this must be commissioned and run prior to floor coverings regardless of how dry the screed maybe, this is in line with CFA, TTA, Vinyl and Tile Manufacturers guidelines.

This process forces additional moisture from the screed and conditions it to thermal movement prior to coverings, typically the commissioning cycle is 21 days and can be started as early as 7 days with Gyvlon Screeds.

(Please refer to the Agilia Screed A Gyvlon 'Under Floor Heating' Datasheet)

Priming

As with all screeds, Agilia Screed A Gyvlon will require priming prior to application of adhesives for two reasons:

1) To seal the porous surface to prevent suction of moisture from the adhesive or smoothing compound.
2) To form a barrier between the screed and any cement based smoothing compound or adhesive that may be used.

Primers are generally acrylic dispersion or water based epoxy based and generally perform best when used as a two coat system. However the manufacturers of these primers should be consulted for advice prior to use.

(Please refer to the Agilia Screed A Gyvlon 'Floor Finishes' Datasheet)

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Post Installation Guidelines

Agilia Screed A Gyvlon is a flowing pumpable calcium sulphate based screed designed to provide a smooth level surface in both commercial and domestic applications prior to the application of floor finishes.

Suitable for application to all types of sub floor Agilia Screed A Gyvlon is ideal for application as a floating floor on insulation, over under floor heating (both electric and warm water systems), and cooling systems on thermal insulation and on resilient layers in acoustic applications, for large areas to reinstate the floor level.

Following installation the environment must remain sealed for 2 days. The screed should be protected from direct sunlight and frost during this time.

After this period good drying conditions should be maintained, increase ventilation, and if possible increase room temperature to minimise drying time.

Do not cover with polythene.

Storage of materials on the screed surface, accidental exposure to water, humid or cold environments will all delay drying.

For permeable floor coverings moisture content <1%

For impermeable floor coverings Moisture content < 0.5% <75% RH

After 7 days the screed can be force dried.

When installed over under floor heating and cooling systems the screed must be heated prior to application of floor finishes.

This can commence as early as 7 days after installation, commissioning of under floor heating should be carried out in accordance with BS1264:2001 part 4, clause 4.4 and in line with the manufacturers recommendations, heating should be gradual, in 3-5°C increments and at no time should the water or cable temperature exceed 50°C.

The system should be switched off for a minimum of 48 hours (2 days) prior to determination of the moisture content and installation of floor finishes.

Prior to installation of floor coverings the moisture content of the screed should be determined using the hair hygrometer in accordance with BS8203.

The Contract Flooring Association (CFA) and the Tile Association have recommendations relating to installation of floor coverings on calcium sulphate screeds. These bodies should be consulted for further information.

The surface of the screed should be free from dust, skin or other contaminants and should be sealed with an appropriate primer prior to the application of subsequent adhesives or levelling compounds (consult the manufacturer for suitable products and recommendations for installation).

Both calcium sulphate and cement based products are suitable, however in the latter case the Gyvlon Screed should be dry and the manufacturers recommended primer used prior to application.

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Post Installation Products

From time to time we are asked about primers, sealers, tile adhesives, levelling compounds etc.

Whilst Lafarge does not give warranties on products manufactured by other companies, we are aware of a number of manufacturers who have a range of products or systems, which are usable or compatible with Agilia Screed A Gyvlon.

Primers and sealers will usually be of the acrylic or epoxy type. In all cases, advice should be sought from the manufacturer.

Levelling compounds and tile adhesives, can be based on cement or calcium sulphate. Those products based on cement are usually part of a system which incorporates a sealer/primer designed to separate the cement from the calcium sulphate contained within the Agilia Screed A Gyvlon.

Those levelling compounds based on calcium sulphate usually do not need a sealer but will still require a primer in order to prevent the moisture being drawn into the screed from the levelling compound/tile adhesive too quickly. (Often referred to as “suction”.)

Again, in all cases, advice should be sought from the manufacturer.

Below is a list of manufacturers who have a range of products or systems which have been used successfully with Agilia Screed A Gyvlon, this list is not exhaustive.

Tile Adhesive Manufacturers

Gypsum Based	Cement Based
Creative Impressions 01772 335435	Bal/Dunlop 0845 6001222
Nicobond 0208 568 4600	Instarmac 01827 871871

Timber Adhesive Manufacturers

Haywood Timber Accessories 01772 696600
Sika Adhesives 01707 394444

Smoothing Compounds and Vinyl Adhesives

Gypsum Based	Cement Based
Creative Impressions 01772 335435	Laybond 01785 272727
Uzin 01926 431447	Ardex 01440 714939
	Tremco 01942 251400
	Instarmac 01827 871871

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DPM with Gyvlon Screeds

"Can I put a surface DPM on a Gyvlon Screed?"

The simple answer to this question is YES (providing certain criteria are met)

Within this article we use the term 'moisture suppressing'; this describes all-surface DPM systems currently available.

In general surface applied DPM systems do not stop the passage of moisture, they actually allow the passage of moisture from the screed to the floor finishes, but at a greatly reduced rate. Best advice will always be that it would be better to dry the screed rather than use a surface DPM.

DON'T FORGET that unlike sand/cement screed, Gyvlon can be force dried after just one week by use of good ventilation, heaters, dehumidifiers and even underfloor heating, this can often be far more cost effective than utilizing a vapour suppressing DPM.

Obviously Lafarge cannot guarantee the performance of somebody else's DPM, indeed, reassurances should be sought from the DPM manufacturer that the product is suitable for calcium sulphate based screeds with regards to overall performance and vapour transmission rates.

We can however comment on the effect that trapping moisture within the screed has on the binder. There has always been a fear that Agilia Screed A Gyvlon degrades when it gets wet and then dries. Independent studies have been carried out on generic materials confirming that this is untrue. Lafarge is able to confirm that following trials of our material there is no apparent deterioration in the screed when a moisture suppressing DPM is applied at moderate background moisture levels (see below).

Care must be taken regarding the amount of moisture trapped in the screed, as this will have an effect on the strength attainment. Applying a moisture suppressing DPM will effectively cap the strength of the screed and so it should not be applied until the screed has attained sufficient strength to be suitable for the finished application. This time period will vary depending on site conditions but bearing in mind that the strengths quoted by screed manufacturers are based on 28 day tests carried out in lab conditions, and that site conditions may be considerably worse, we recommend that the screed is at least older than this and that the moisture content is less than 1.5% (or 87% RH).

Heated Screeds

Heated screeds remain a little more complex. There are currently very few DPM manufacturers who are comfortable in offering a surface DPM to go over a heated screed, whether it is a calcium sulphate screed or sand/cement screed.

Indeed we would recommend that the under floor heating system be commissioned and run prior to the application of surface finishes regardless of the type of screed used.

We are unable to offer advice on the use of Surface DPM's on heated screeds.

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Additional UFH Guidelines

In addition to the notes regarding ground and upper floor design there are important additional considerations for screed specification.

1. **Screed Thickness** – Please ensure your specification provides the correct amount of cover to the pipe work specified (30mm cover required). Although we require 30mm we try to avoid thick sections of screed as the thicker the section the longer the drying times and slower the UFH response.

2. **Bay Sizes** – Please ensure that maximum bay sizes of 300m^2 and maximum bay length of 20 linear metres are not exceeded.

3. As per British and European Standards movement joints need to be allowed for in the screed in the following areas:
   a. As per bay sizes above
   b. At each doorway and in between independent heating circuits
   c. Between heated and non-heated screed sections.

4. **Force Drying** – Please include in your specification that the screed can be force dried to reduce drying times for floor coverings, dehumidifiers can be used after 48 hours with the UFH being commissioned at 7 days.
   a. Heating should be run at 20 degrees for 48 hours
   b. And brought up 5 degrees per 24hrs up to a maximum of 55 degrees
   c. The system can be run for as long as required to dry the screed
   d. System should be brought down 5 degrees per day to the 20 degree starting point.

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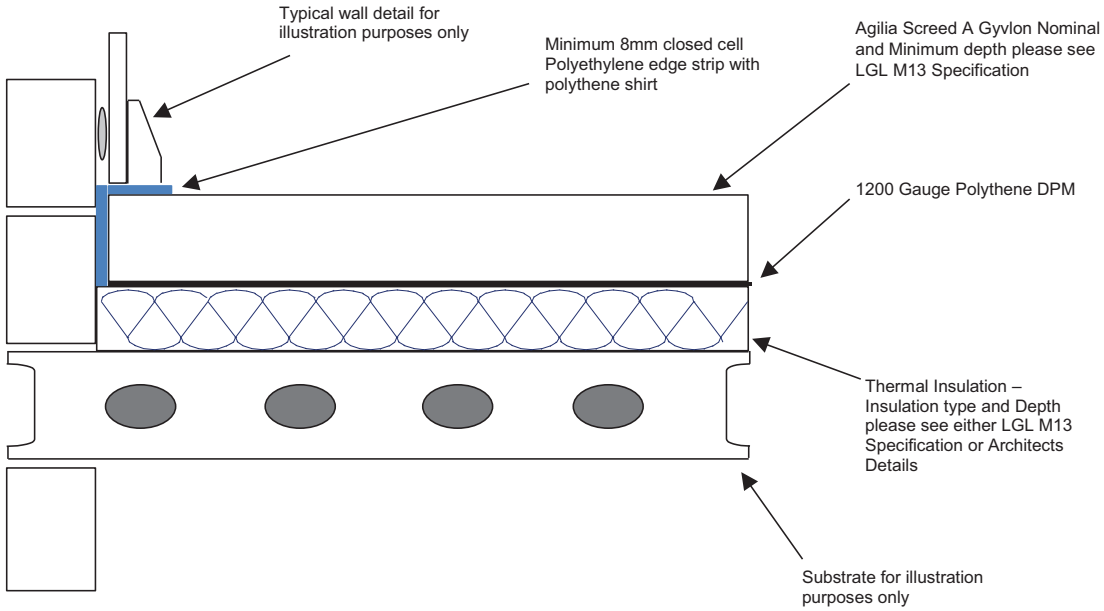
Acoustic Edge Detail (Non Robust Detail)



- Insulation boards should be laid flat with tight butt joints as per clause 260 in Agilia Screed A Gyvlon NBS M13 Specification
- Lay a separating layer of 1200 gauge polythene over insulation lapping 100mm at the joints, polythene should be cut flush to all walls and abutments and be taped at joints
- Fix minimum 8mm closed cell polyethylene strip to all walls and abutments to isolate screed, the polythene skirt should be secured to the DPM using tape
  - Where staples are used to secure the edge detail, these should be placed above the finished screed level to prevent sound transmission pathways
  - Please ensure the edge strip has sufficient height to be returned below the skirting
- Install screed as per Agilia Screed A Gyvlon Installation Guide and Gyvlon NBS M13 Specification.

NB: When used in conjunction with under floor heating, the 1200 gauge DPM should be moved beneath the insulation, and a minimum 500 gauge polythene used over the insulation, to prevent the DPM being damaged by the under floor heating clips.

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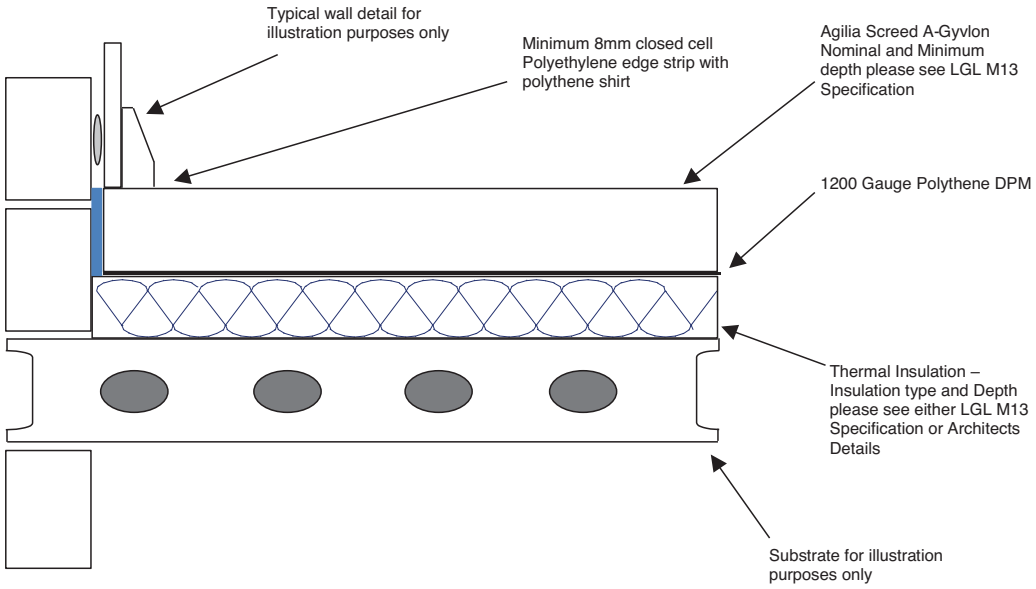
Non-acoustic Edge Detail



- Insulation boards should be laid flat with tight butt joints as per clause 260 in LGL M13 Specification
- Lay a separating layer of 1200 gauge polythene over insulation lapping 100mm at the joints, polythene should be cut flush to all walls and abutments and be taped at joints
- Fix minimum 8mm closed cell polyethylene strip to all walls and abutments to isolate screed, the polythene skirt should be secured to the DPM using tape
    - Where staples are used to secure the edge detail, these should be placed above the finished screed level to prevent sound transmission pathways
- Install Screed as per Agilia Screed A Gyvlon Installation Guide and Lafarge Gyvlon NBS M13 Specification.

NB: When used in conjunction with under floor heating, the 1200 gauge DPM should be moved beneath the insulation, and a Minimum 500 gauge polythene used over the insulation, to prevent the DPM being damaged by the under floor heating clips.

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Specification Guide for Acoustic Floors

When constructing separating floors it is always important to consider the requirement for acoustic performance especially in multiple occupancy buildings where Part E 2003 must be met, Agilia Screed A Gyvlon can be used in conjunction with other materials to offer high performing acoustic solutions in most floor constructions.

For an acoustic floor to be as high performing as possible four factors should be taken into consideration:

Mass

The more mass a structure has the harder it is for sound to transfer through.

Isolation

By isolating materials from one another, like a screed and concrete beam the sound finds it hard to transfer between the two materials, isolation is especially important in preventing impact sound.

Absorbent Material

In order for sound to transfer through an absorbent material it has to change direction numerous times, each time the sound changes direction it loses energy.

Air Tightness

Any areas of the structure which are not sealed or airtight allow sound to transfer easier than a solid structure.

By combining these four factors Agilia Screed A Gyvlon can be used to achieve a high performing acoustic floor, as you can see from the factors no one material can be used to achieve the ideal floor.

Concrete Separating Floors

Concrete substrate have acoustic benefits as they provide an excellent source of Mass, their acoustic performance can be improved by adding further mass over the floor with Agilia Screed A Gyvlon (80kg/m^2 @ 40mm). Resilient layers can be used between the concrete and screed to isolate the two masses, most resilient layers are made from absorbent materials and since resilient layer and screeds seal any joins in the concrete substrate this type of design can contribute to all four factors.

Equally important to consider is the acoustic design in the ceiling treatment. Ceiling performance can be improved by providing an air gap between it and the concrete, placing the plaster board on resilient bars to eliminate sound transfer or using MF ceiling systems.

Please see two examples of acoustic flooring treatment overleaf.

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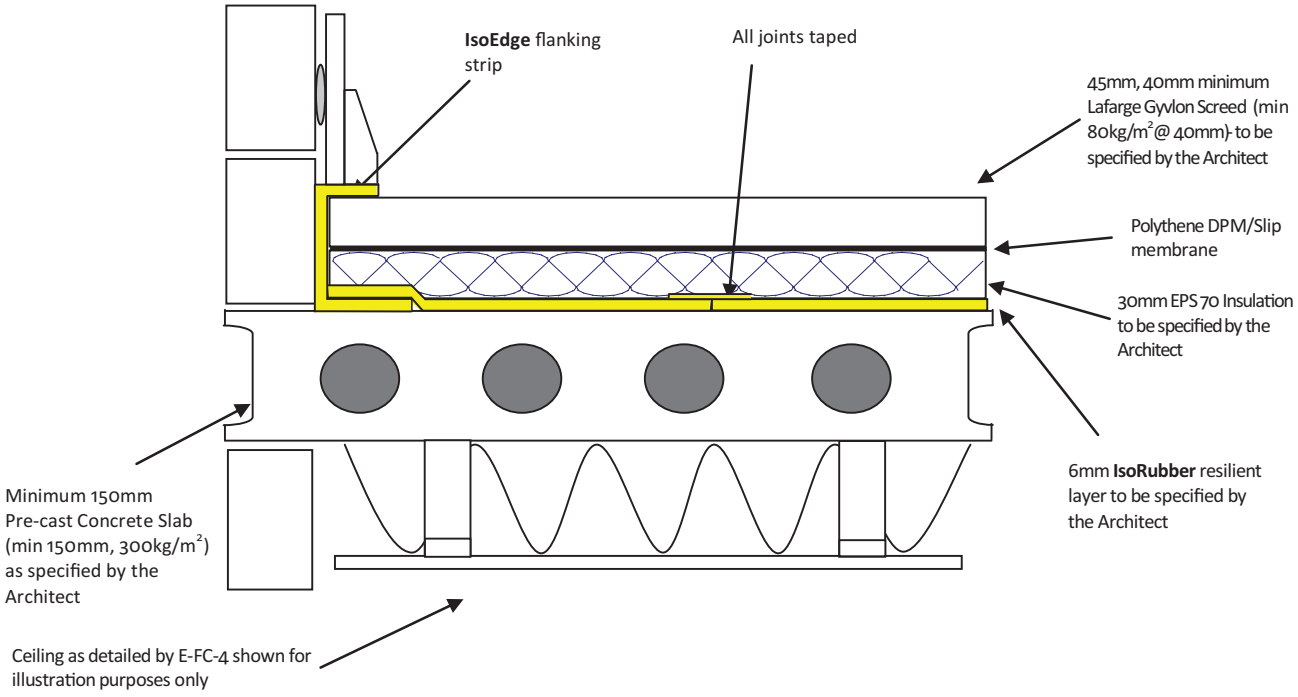
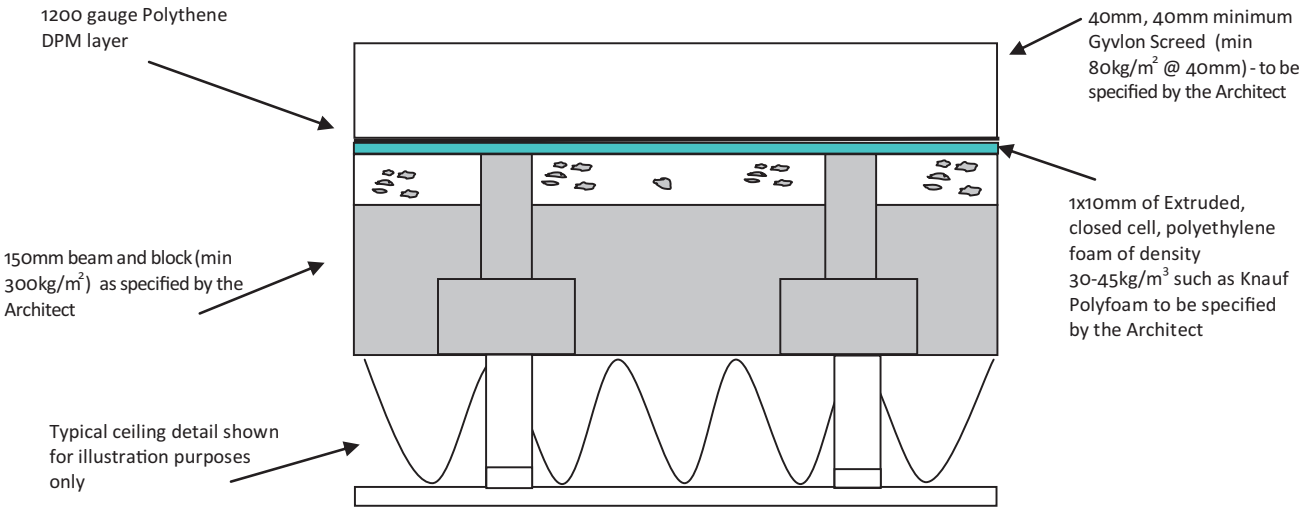
Specification Guide for Acoustic Floors

Robust Detail EFC-4 (Also Available EFC5 and EFC11 offering different performance levels)



Pre Completion Testing Options using Polyethylene foam



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Specification Guide for Acoustic Floors

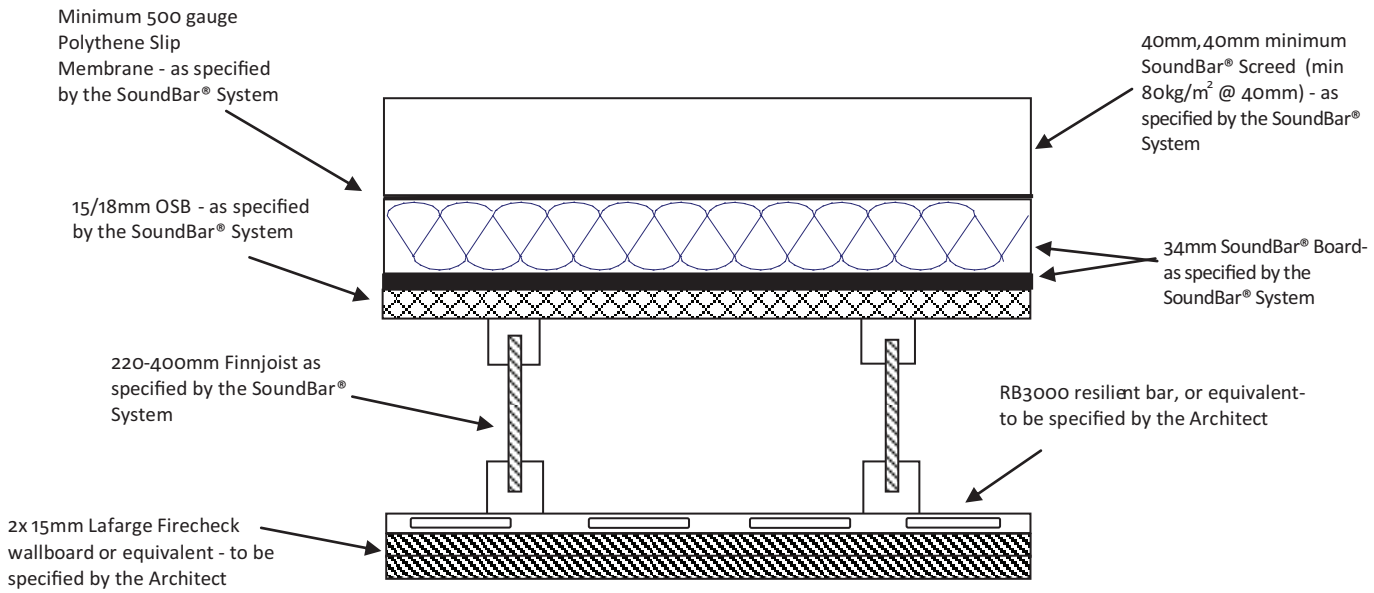
Timber Separating Floors

Timber separating floors lack the acoustic benefit of mass, traditionally this has been overcome by using high amounts of absorbent material, adding mass using plasterboard and creating isolation using acoustic battens all of which results in a complicated multi trade floor zone. Traditionally specifier's have avoided adding mass using screeds for two reasons, firstly the creep and settlement experienced on timber floors can lead to screed cracking, secondly the amount of weight the timber would have to accommodate.

Due to its higher flexural strengths, reduced weight and reduced thickness it is now possible to use Gyvlon over timber as part of a system such as SoundBar®, this system is also engineered to reduce to amount of deflection experienced.

As you can see from the diagram below the mass added by the screed is then isolated from the structure using a 34mm Acoustic board.

Due to the additional design considerations required for a timber system please contact one of our Technical & Specifications Managers on 0870 336 8258.



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Specification Guide for Ground Floors

One of the major benefits of Agilia Screed A Gyvlon is that it can be laid significantly thinner than traditional screeds allowing more of the floor zone to be saved for insulation, this is especially important as building regulations and green building codes have changed and require higher U-values.

It is now possible to achieve these increased U-values with no need for costly increases to floor zone thickness.

To decide on the specification we first need to decide what depth of screed will be required for the application, (please see guide below).

Application Type	Type of Build	Minimum Depth Required
Floating	Residential	Minimum 35mm
Floating	Commercial	Minimum 40mm
Floating	UFH System	Minimum 25mm (30mm nominal) cover to pipe work

A general rule of thumb is 40mm for none heated floating floors and 50mm for heated floating floors, the remainder of the floor zone can now be used to achieve the required U-value.

How to Calculate a U-value

For a ground floor construction we need to establish the perimeter and area ratio to allow us complete a U-value calculation, which is the total external linear perimeter divided by total area of the ground floor, for example if the floor had a 15.3m perimeter and an area of 55.46m^2, the calculation will simply be 15.3/55.46 = 2.75 perimeter area ratio).

NB: The lower P/A figure the easier it is to achieve the required U-value.

NB: Only exposed perimeter walls should be measured, walls to adjoining insulated properties do not need to be taken into account.

Now we have the P/A figure for your project. We now need to establish what the required U-value for the building should be. Confirmation can be sought from either local building control or the projects Breeam Assessor.

We can now use both figures (P/A Value and Required U-value) in conjunction with the tables below.

For different insulation types and performance at different depths, there are numerous products available on the market all with varying strength and thermal properties.

Example:

Based on the 0.275 P/A ratio above for a building that requires 0.22 U-value, you can choose from 90mm EPS100 or as little as 55mm Philonic Polyurethane.

We can look at the U-value in two ways, firstly achieve the required U-value with the cheapest insulation possible or choose to use a higher grade insulation and make a higher than required U-value.

For further assistance or to request a completed specification call 0870 336 8258.

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U-Value Chart 0.15

0.15

			P/A ratio's								
			1.00	0.90	0.80	0.70	0.60	0.50	0.40	0.30	0.20
		Strength									
EPS 100	0.04	100 KPA	205	200	200	195	195	185	180	165	135
EPS 100 Platinum	0.03	100 KPA	175	175	170	170	165	160	155	140	115
XPS	0.03	200 KPA Minimum	170	17	165	165	160	155	150	135	115
Polyurethane with foil	0.02	130 KPA Typical	135	135	130	130	125	125	120	110	90
Philonic Polyurethane with Foil	0.02	140 KPA Typical	125	120	120	120	115	115	110	100	85

EPS stands for expanded polystyrene and is polystyrene beads that have been expanded and compressed together to form a board, the more beads that are compressed the stronger the insulation becomes, we would suggest using at least a 100 KPA board. EPS is available in two grades; White and Platinum, the only difference being the thermal performance of the product. Manufacturers of these boards include, Jablite, Kay Metzeler, Springvale, Aeroboard, Quinntherm and many more.

XPS stands for Extruded polystyrene which is a different process of manufacture than the expanded, and as such gives you a stronger insulation with a higher thermal performance. Manufacturers of these boards include Knauf and Cellecta.

Polyurethane is a higher performing insulation product that is often foil back, it offers a significant thermal increase over the polystyrene products. Manufacturers include Celotex, Kingspan, Quinntherm and Xtratherm.

Philonic Polyurethane is a modified polyurethane which offer a slightly higher performing board which can be of use for very strict U-values or on limited floor zones. Manufacturers include Kingspan.

Agilia SCREED A GYVLON

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U-Value Chart 0.18

0.18

			P/A ratio's								
			1.00	0.90	0.80	0.70	0.60	0.50	0.40	0.30	0.20
		Strength									
EPS 100	0.035	100 KPA	165	160	160	155	155	150	140	125	100
EPS 100 Platinum	0.03	100 KPA	140	140	140	135	130	125	120	105	85
XPS	0.029	200 KPA Minimum	135	135	135	130	125	120	115	100	80
Polyurethane with foil	0.023	130 KPA Typical	110	110	105	105	100	100	90	85	65
Philonic Polyurethane with Foil	0.021	140 KPA Typical	100	100	95	95	95	90	85	75	60

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U-Value Chart 0.22

0.22

			P/A ratio's								
			1.00	0.90	0.80	0.70	0.60	0.50	0.40	0.30	0.2
		Strength									
EPS 100	0.035	100 KPA	130	125	125	125	115	110	105	90	65
EPS 100 Platinum	0.03	100 KPA	110	110	105	105	100	95	90	75	55
XPS	0.029	200 KPA Minimum	105	105	105	100	95	95	85	75	50
Polyurethane with foil	0.023	130 KPA Typical	85	85	80	80	80	75	70	60	40
Philonic Polyurethane with Foil	0.021	140 KPA Typical	80	75	75	75	70	70	65	55	

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