Supaflo® Rapide

technical datasheet

Supaflo Rapide is a pumpable self-smoothing, levelling screed based on an enhanced Calcium Sulfate binder.

The binder used in Supaflo Rapide has been developed over several years by LKAB Minerals and incorporates the latest admixture technology to produce a product with significant drying time benefits when compared to standard Calcium Sulfate and Cement based flowing screeds.

Extensive laboratory testing and full-scale plant trials have repeatedly shown, floors installed with Supaflo Rapide screed, at typical thicknesses, have achieved a moisture condition of <75% Relative Humidity (RH) at between 10 and 15 days under controlled conditions.

The improved drying times that can be achieved with Supaflo Rapide mean that it is often possible to apply moisture sensitive floorcoverings such as adhered vinyl and engineered timber flooring at around 2 to 4 weeks after the screed was installed. This is approximately more than half the time that it would take for a standard Calcium Sulfate based flowing screed to dry and an improvement on the time for Cement based screeds to dry.

Supaflo Rapide retains all the benefits of standard Calcium sulfate based flowing screeds such as, ease of placement, dimensional stability, minimal plastic shrinkage and reduced potential for cracking, improved thermal conductivity. The product is self-compacting and can be installed on large scale projects.

Unlike some Cement based flowing screeds Supaflo Rapide does not require the application of a curing compound.

Supaflo Rapide can be used for all domestic and light commercial applications including bathrooms and toilets with the correct surface preparation.

Supaflo Rapide is only supplied to installers who have been trained and approved by CEMEX to use this product.

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Productivity

The table below compares typical daily productivities of Supaflo Rapide and traditional Cement:Sand screeds. Using a flowing screed like Supaflo Rapide, installation thicknesses can be reduced, and the area installed in a day can be increased by 5 to 10 times. Also, a surface regularity of SR2 or better can be routinely achieved.

Screed type	Traditional site mixed cement:sand screed
Typical number of operatives	3-4
Volume / tonnage	11 tonnes
Achievable installed area @ thickness per day	100m^2 @ 65mm

Screed type	Factory produced semi dry cement sand screed
Typical number of operatives	2-3
Volume / tonnage	15-18 tonnes
Achievable installed area @ thickness per day	140–170m^2

Screed type	Supaflo Rapide
Typical number of operatives	2-3
Volume / tonnage	40m^3
Achievable installed area @ thickness per day	1000m^2

Composition

Supaflo Rapide is composed of precisely weighed Calcium Sulfate Rapide binder, approved aggregates and water.

Manufacture

CEMEX UK has a network of specialist production units, which cover most of the country (please check local availability). All production units that currently produce the standard Supaflo product can also produce Supaflo Rapide.

The production units proportion and mixes all the constituents under precisely controlled conditions to established quality assured procedures.

Every load of Supaflo Rapide is inspected prior to being dispatched to the customer's site.

The installer of this product is also required to carry out an acceptance test before each load is pumped.

Site Work

Supaflo Rapide is delivered to site ready to use and pumped directly to the point of use; this means that there is no site mixing, only placing.

A typical pump output can cope with 150m horizontal distances and 60m vertically. In practice it takes about 25 ± 5 minutes to pump 5m^3 of Supaflo Rapide. It is preferable during construction to ensure a steady supply throughout the placement, with no break in continuity that exceeds about one hour.

Temporary stop end should be formed where there is a break in supply greater than ½ an hour. Stop ends can be constructed using timber, scaffold battens, dense concrete blocks or other convenient temporary barriers. It should form a vertical barrier, which can be removed when the next section is placed.

For most installations, it is recommended that Supaflo Rapide be treated as debonded with ducts, services and similar features of the sub floor sealed against fluid loss during the installation. The material should be placed by pump onto a prepared membrane. All vertical surfaces that the screed abuts should be prepared with a 5mm thick perimeter edge strip comprising compressible closed cell foam. This is to accommodate any natural movement of the floor.

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Characteristics

Compaction – The flow characteristics of Supaflo Rapide mean that voids within the screed and poor compaction are virtually eliminated.

The material self-compacts as it flows into position, this give good resistance to abrasion and impact during the construction phase of the development when compared with conventional screeds.

Supaflo Rapide complies with the Building Research Establishment Screed Test and indentation requirements of BS 8204.

Shrinkage – Supaflo Rapide has reduced drying shrinkage compared to traditional cement:sand screed. Stress relief joints are necessary to give maximum bay sizes of 500m² with aspect ratios of 1:4 or less and are recommended in doorways and other reduction in the plan dimension.

Stress relief joint can easily be constructed to give the required bay sizes using either 'L' section joint formers or 'arris' type joints adhered to the sub floor prior to laying the screed.

Fire protection – Supaflo Rapide is non-combustible as defined by BS EN 13501-1.

Acoustic performance of Supaflo Rapide is far superior to that of traditional screeds. (part E regulations).

Effect of frost – It is recommended that suitable precautions be taken against frost during cold weather conditions until the final strength is achieved.

Durability – Supaflo Rapide as with virtually all screeds, is not a wearing surface, and requires covering with a suitable surface finish.

Technical Properties

Flow (DIN 1060 test)	240 – 260mm
Plastic density	2100–2200kg/m²
BRE impact test	Less than 3mm
Flexural strength	6 - 8N/mm²
Compressive strength	25–35N/mm²
Drying shrinkage	Less than 0.05%
Time to light foot traffic	1 to 2 days
Dry density	2000 – 2100 kg/m³
Fire rating	Non combustible
Thermal expansion coefficient	0.01 mm/mK
pH	>11
Workable life	2–21/2 hours

Thickness & Area

The high flexural strength of Supaflo Rapide and the lack of voids, means that in general it may be laid substantially thinner than traditional materials.

For instance, in most cases 40mm of Supaflo Rapide will replace 75mm of traditional screed.

If Supaflo Rapide at 40mm thick is to replace 75mm of traditional screed the difference in thickness can be made up with an appropriate floor grade insulation material. This will provide economies in the usage of screed and will enhance the acoustic and thermal properties.

The minimum thickness of application should be as shown in the following table.

Minimum Thickness at any point (mm)		
Types of Construction	**Domestic – Housing/ Residential**	**Commercial – Office/ light industrial**
Bonded	25	25
Unbonded	30	30
Floating	35	40

It is recommended that Supaflo Rapide is laid on a 500-gauge polyethylene de-bonding membrane. When overlaying recently cast concrete a 1200 gauge polythene damp proof membrane should be used.

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For floors containing underfloor heating the perimeter edge strip should be a minimum 8mm thick.

Underfloor heating may be used 7 days after placing the screed, however the temperature should be increased from ambient by no more than 5°C a day until full operating temperature is reached.

Curing

Supaflo Rapide should be protected from early moisture loss during the first 24 to 48 hours after the screed is installed. Doors and windows must remain closed for this period and air changes minimized.

After this time the floor should be allowed to dry naturally with normal ventilation and air movement.

Direct sunlight must also be avoided during early life.

Supaflo Rapide is usually sufficiently hard to accept light foot traffic trafficked after 2 to 3 days, depending on drying conditions.

Hardening & Drying

The most important consideration when covering Supaflo Rapide is that the screed is sufficiently dry to accept the wearing surface.

Supaflo Rapide offers a significant reduction in drying time compared to standard Calcium Sulfate and Cement based screeds Typically Supaflo Rapide can be overlain with impermeable floor covering after 14 to 28 days, given standard conditions (20°C and 65%RH).

For permeable coverings such as carpet a moisture content of less than 1% is required. For moisture sensitive coverings such as vinyl, a moisture content of less than 0.5% is required.

Significant reductions in screed thickness can be achieved by using Supaflo Rapide over traditional screeds in many construction applications, and this in turn will reduce overall drying times.

Typically, 24 to 48 hours after installation, the screeded rooms should be ventilated during the day, with doors and windows kept open.

Forced air movement using fans can aid the drying process.

At night when temperatures drop, all doors and windows must be shut to prevent condensation.

This procedure must be carried out until the screed has dried sufficiently. After 5 to 7 days the screed can be force dried using dry source heaters, dehumidifiers and underfloor heating.

Application of Floor Covering

If floor coverings are to be applied directly to the screed then the surface may need to be sanded. This is usually carried out when the screed is between 3-10 days, using a mechanical surface sander.

When bonded floor coverings are applied directly onto Supaflo Rapide it is necessary to prime the screed to regulate suction over the entire area.

Contractors

CEMEX will only supply Supaflo Rapide to approved contractors. CEMEX can either provide the necessary training or can recommend an approved contractor.

There are strict criteria that contractors are required to meet, and they are fully trained in not only the application of Supaflo Rapide but also the complete flooring system.

Approved contractors take responsibility for sub-base approval and the preparation of your site sub-base, design and provision of all movement joint detailing, including supply of materials, provision and installation of debonding membranes etc.

Yield

The table below shows yield per cubic metre for typical application thickness.

Thickness (mm)	Area/m³ (m²)
40	25
50	20

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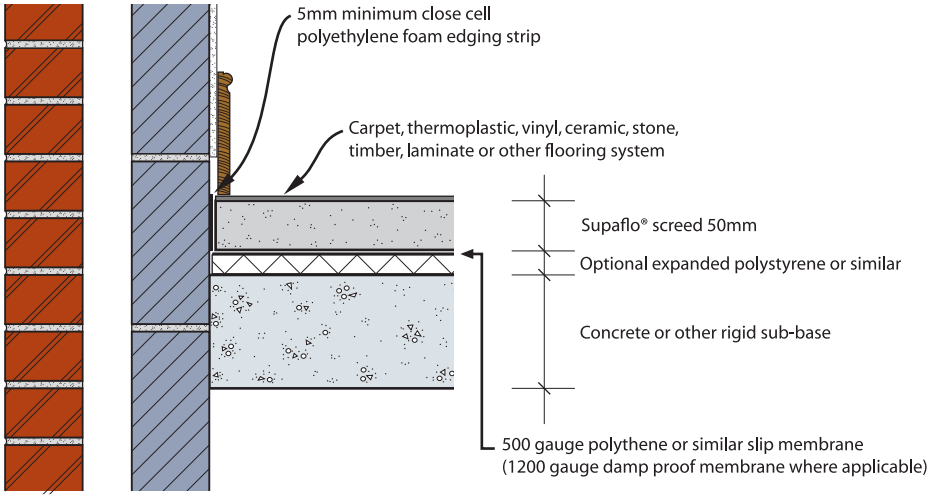
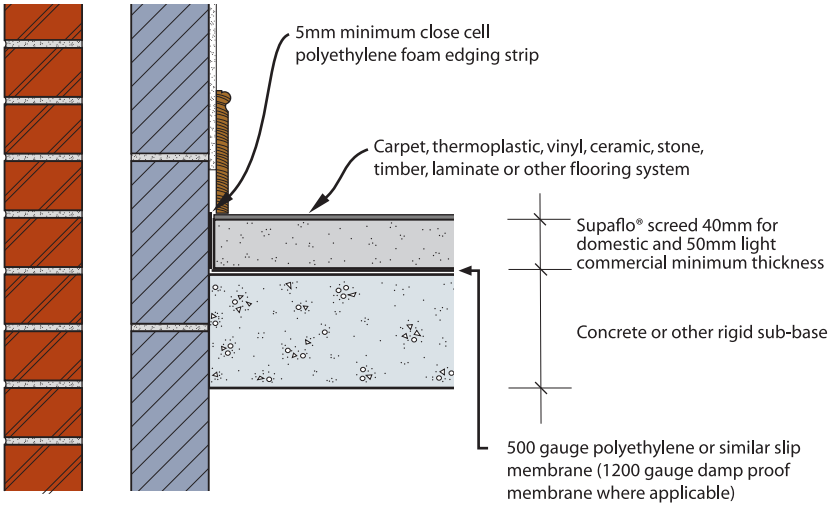
Floating floor with insulation



Supaflo Rapide

'Normal' or 'Typical' unbonded



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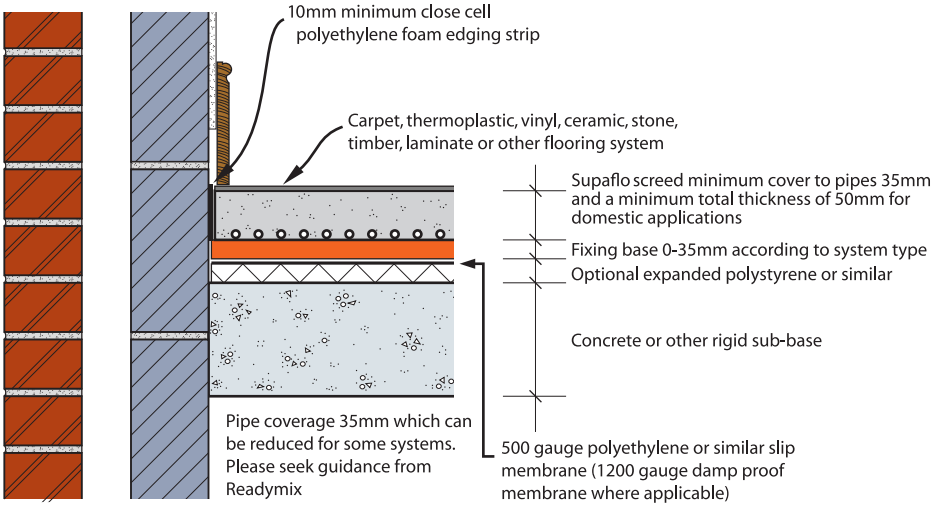
With underfloor heating



CEMEX Readymix produce an extensive range of high quality, ready to use screed products, covering a wide variety of applications including traditional and flowing methods. All of our products are designed with the final surface finish in mind and are tailored to meet the specific needs of our customers.

About CEMEX

CEMEX is a global supplier of building materials with leading positions in cement, ready-mixed concrete, mortar, screeds and aggregates.

We believe in building a better future, for everyone. Balancing the needs of the built environment with our firm commitment to the natural environment.

We are committed to working collaboratively by providing innovative solutions that are more sustainable and socially responsible. All backed by industry-leading customer service.

This product range can be found in the following resources and supported with an approved CPD presentation:

NBS Plus | NBS National BIM Library | riba product selector | RIBA CPD Providers Network

For more information contact our Screed Helpline
Tel: 0800 667 827
E-mail: gb-enquiries@cemex.com
Or visit our website at
www.cemex.co.uk/screed

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