

SUPAFLO-C[®]

technical datasheet





SUPAFLO-C®

Introduction

- CEMEX Supaflo-C® is a pumpable self-smoothing, levelling screed based on a CEM I binder.
- Supaflo-C® has been developed over the last 2 years and is at the forefront of screed technology it is made possible only through the utilisation of recent admixture advances.
- It provides significant benefits over flowing screeds based on Calcium Sulfate to the extent that it has already captured in the region 40% of the flowing screed market in some European countries.
- The main advantages of Supaflo-C® over Calcium Sulfate flowing screeds are a significant reduction in the drying time and compatibility with most other construction materials.
- Supaflo-C® can often be overlain with an adhered final flooring system 4 weeks after installation. This compares to over 8 weeks for a flowing screed based on calcium sulphate at the same thickness (50mm).
- Supaflo-C® unlike screeds based on Calcium can be specified for use in bathrooms, wet rooms, the areas surrounding swimming pools etc.
- Supaflo-C® retains many of the benefits of flowing screeds over traditional Cement: Sand screeds, ease of placement, self compacting and scales of installation.
- Supaflo-C® is only supplied to registered contractors who have been trained / approved by the CEMEX national technical centre team.

Productivity

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

Screed type	Typical number of operatives	Volume / tonnage	Achievable installed area @ thickness per day
Traditional site mixed cement: sand screed	2	11 tonnes	100m² @ 65mm
Factory produced semi dry cement sand screed	2	15-18 tonnes	140-170m² @ 65mm
Supaflo-C®	3-4	40m³	1000m² @ 40mm

Composition

- Supaflo-C® is composed of precisely weighed CEM I binder, approved aggregates and a sophisticated admixture package.
- The screeds careful formulation results in plastic properties that facilitate easy of placement and hardened properties appropriate for the end use.

- Supaflo-C® should always be used with an approved sprayed curing membrane, that must be applied as soon as possible after the screeds has been dappled for the second time and the screed remains in a plastic state.

Manufacture

- CEMEX UK has a network of specialist production units, which cover the vast majority of the country (please check local availability).
- The addition and mixing of all constituent materials is carried out under precisely controlled conditions to ensure complete dispersion of the mix components.

Compliance & testing

Supaflo-C® has been designed to comply with the requirements of:-

- European standard BS EN 13813, Screed material and floor screeds, Screed Material – Properties and Requirements.
- British standard BS 8204-7, Screeds, bases and in situ flooring – part 7: Pumpable self-smoothing screeds- Code of practice.
- All constituent materials comply with their relevant British and/or European Standards.
- The CEM I binder used in Supaflo-C® is produced under the stringently controlled conditions of ISO 9001.
- Every load of Supaflo-C® is inspected prior to delivery. An acceptance test is also carried out by the approved contractor before it is pumped.

Characteristics

- **Compaction** – The flow characteristics of Supaflo-C® mean that voids 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-C®** also complies with the Building Research Establishment Screed Test and indentation requirements of BS 8204.
- **Shrinkage** – Supaflo-C® has reduced drying shrinkage compared to traditional cement:sand screed. Stress relief joints are necessary to give maximum bay sizes of 60m² with aspect ratios of 1:3 or less.
- **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-C® is non-combustible as defined by BS EN 13501-1.
- **Acoustic performance** of Supaflo-C® 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 before final strength is achieved.
- **Durability** – Supaflo-C® as with virtually all screeds, is not a wearing surface, and requires covering with a suitable surface finish.
- **Wet areas** – Supaflo-C® unlike flowing screeds based on calcium sulphate is far less susceptible to degradation due to continuous wetting or repeated wetting and drying. However, it is best practice to protect all screeds from the ingress of water in service. Supaflo-C® would be suitable for use communal showers, changing/washing areas of sports centres etc.

Technical properties

Flow (DIN 1060 test)	240 – 260mm	Time to light foot traffic	1 to 2 days
Plastic density	2100–2200kg/m ³	Dry density	2000 – 2100 kg/m ³
BRE impact test	Less than 3mm	Fire rating	Non combustible
Flexural strength	4–6N/mm ²	Thermal expansion coefficient	0.01 mm/mK
Compressive strength	18–25N/mm ²	pH	>11
Drying shrinkage	Less than 0.05%	Workable life	2–2½ hours

Thickness and area

- The high flexural strength of Supaflo-C® and the lack of voids, means in general it may be laid substantially thinner than traditional materials.
- For instance, in most cases 50mm of Supaflo-C® will replace 75mm of traditional screed.
- In many cases traditional material will have been specified originally on the basis of a 75mm thickness of cement sand screed.
- If it is replaced by Supaflo-C® the screed thickness may be reduced and the overall thickness of 75mm made up with appropriate floor grade insulation material. This will provide economies in the usage of screed and will enhance the acoustic and thermal properties. Drying time will also be significantly reduced allowing the final flooring to be laid sooner.

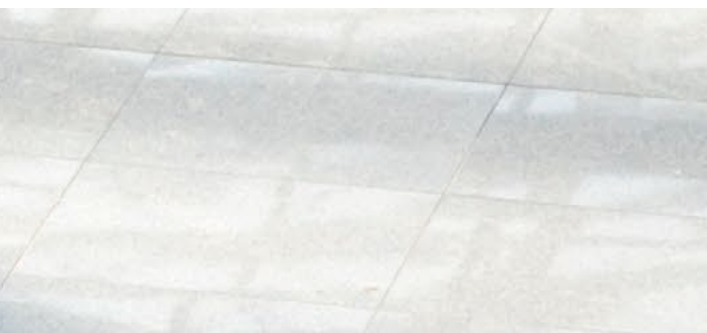
The minimum thickness of application should be as shown in the following table.

Types of Construction	Minimum Thickness at any point (mm)	
	Domestic – Housing/Residential	Commercial – Office/light industrial
Bonded	40	50
Unbonded	40	50
Floating	50	Not recommended

- It is recommended that Supaflo-C® 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.

Site work

- Supaflo-C® 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 5m³ of Supaflo-C®.
- 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.
- Where there are locations within the floor of increased stress for example service ducts, piers, etc. A polypropylene or glass fibre mesh should be placed within the screed to minimise the risk of cracking.
- Where there are identified potential weaknesses within the floor prior to laying the screed such as thresholds to doors, reductions in the plan dimension or areas greater than 60m² crack inducers shall be placed of appropriate form.
- For the majority of installations it is recommended that Supaflo-C® be treated as debonded with ducts, services and similar sealed against fluid loss in the flowing system.
- The material should be pump placed onto a prepared membrane, with minimum 5mm compressible plastic strips on all perimeter edges including internal walls and projections through the floor.



- For floors containing underfloor heating the perimeter edge strip should be a minimum 8mm thick.
- Underfloor heating may be used 14 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.
- Only contractors who are fully trained in its application should lay Supaflo-C®.

Curing

- Supaflo-C® should always have a sprayed curing membrane applied as soon as the final dapple has been completed. This is to ensure moisture loss is minimised and the risk of plastic shrinkage cracking reduced. The curing membrane should remain for at least 3 days, ideally 7.
- The curing membrane should comprise a refine white wax emulsion or other approved compounds and shall be applied at the manufacturers recommended coverage rate.
- Failure to apply an approved curing compound may result in increased cracking of the screed.
- Any unglazed or missing windows or doors should be temporarily blocked using plastic sheeting or similar to avoid excessive drying for the first 24 to 48 hours.
- Direct sun must also be avoided during early life.
- Supaflo-C® may be lightly trafficked after 2 to 3 days, depending on drying conditions.

Hardening and drying

- The most important consideration when covering Supaflo-C® is that the screed is sufficiently dry to accept the wearing surface.
- Supaflo-C® offers a significant reduction in drying time compared to Anhydrite based flowing screeds. Typically Supaflo-C® can be overlain with impermeable floor covering after 28 days, given standard conditions (20°C and 65%RH).
- For permeable coverings such as carpet a moisture content of less than 4% is required.
- For moisture sensitive coverings such as vinyl, a moisture content of less than 3% is required.
- Significant reductions in screed thickness can be achieved by using Supaflo-C® over conventional screeds in many construction applications, and this in turn will reduce overall drying times.
- Typically, 3 days after installation the screeded rooms should be well ventilated during the day, with doors and windows kept open this will improve drying.
- Optimum drying time can only take place when warm, moist air is exchanged with cold, dry air, which can absorb moisture again with a rise in temperature.

- 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.

Application of floor covering

- If the floor covering is to be applied directly to the screed then the surface of the screed will require sanding or grinding to remove the wax based curing compound. Some curing compounds do not require removal.
- This is usually carried out when the screed is between 3-10 days, using a mechanical surface grinder.
- The surface must be free from the ground material before applying the floor finish.
- When bonded floor coverings are applied directly onto Supaflo-C® it is necessary to prime the screed to regulate suction over the entire area.
- Supaflo-C® is compatible with all cement based adhesives and does not require extra precautions associated with overlaying flowing screeds based on calcium sulphate.

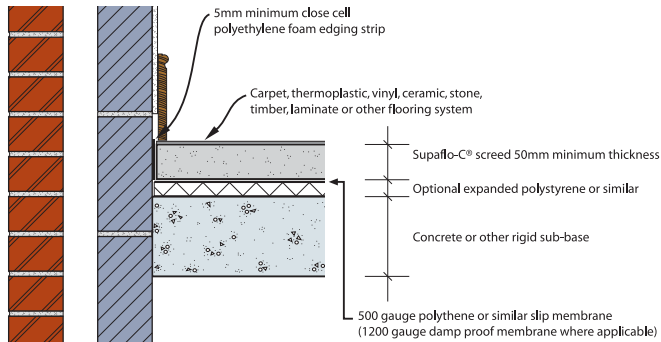
Contractors

- CEMEX will only supply Supaflo-C® 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-C® but also the complete flooring system.
- Approved contractors take responsibility for sub-base approval and 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.

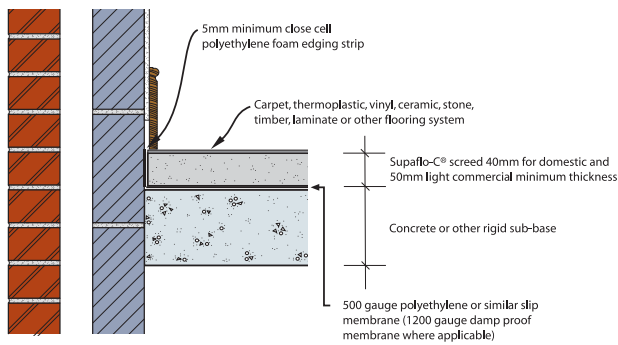
Yield

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

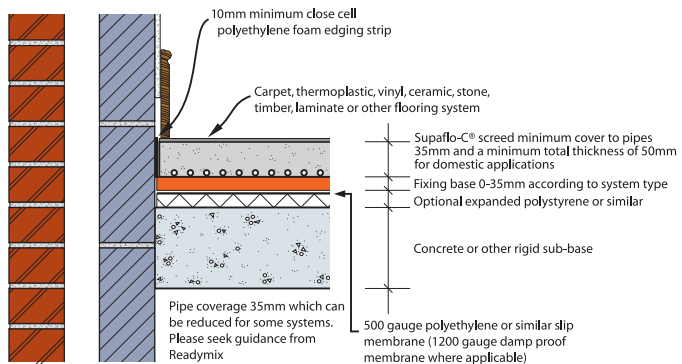
Thickness (mm)	Area/m³ (m²)
40	25
50	20



Supaflo-C® floating floor with insulation



Supaflo-C® 'normal' or 'typical' unbonded



Supaflo-C® with underfloor heating

- The use of an uncoupling layer should be considered for ceramic and natural stone flooring.

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.

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