

FASSACEM

DATA SHEET

Cement binder for rapid-drying interior and exterior floor screeds



Interior/exterior flooring



Sack



By hand



By machine



Advantages

- Fast covering application
- Practical and easy to apply
- For both renovations and new constructions

Composition

FASSACEM is a hydraulic binder containing special additives for mixing with suitably-graded aggregate and water to make normal setting, fast drying screeds with controlled shrinkage.

Supply

- Special sacks with protection against moisture, 25 kg.

Use

FASSACEM is a binder that when added to suitably graded aggregate and water is used to obtain floor screeds with semi-wet consistency, used as load distribution layers in both interiors and exteriors before laying wooden, resilient (linoleum, PVC, carpet, LVT, rubber, etc.) and stone coverings, ceramic and resinous tiles.

It is especially suitable for making screeds with fast drying times, while maintaining similar workability to traditional screeds.

Screed drying times depend on the dosage of FASSACEM; as an example, a screed made with 250 kg/m³ of FASSACEM and 1,800 kg/m³ of dry, 0-8 mm screened aggregate, can be walked on after 12 hours. Ceramic tiles and in general coverings that are not sensitive to humidity can be laid after 24 hours, while parquetry or coverings sensitive to humidity can be laid after about 4 days. As regards mechanical strength, please see the Technical Data.

FASSACEM can also be used as a binder for making screeds to be used in underfloor heating and cooling systems, without requiring further additives.

Substrate preparation

The application surface must be free of all foreign matter, mechanically resistant, dimensionally stable, cured, dry and clean.

For the construction of unbonded or floating screeds, before laying the screed, any substrates that are irregular or with significant differences in level must be levelled off the same height, making a compensating layer using products such as FASSAFLOOR LIGHT 300 or CALCESTRUZZO CELLULARE; any plumbing or electrical systems must also be embedded in the compensation layer.

Bonded screed (minimum thickness 2 cm)

In addition to meeting the requirements listed above, also make sure that the substrate is free of rising damp, clean, without any oil, waxes, paints or any other element that may compromise adhesion to the substrate. Apply a 0.5-1 cm thick strip of foam material along the perimeter walls and in the limits and then use a brush to apply a cement grout slurry to improve bonding; the slurry is made by mixing FASSACEM with AG 15 latex, diluted 1:3 with water (1 part AG 15 to 3 parts water). Apply the screed mix when the slurry is still wet.

Unbonded screed (minimum thickness 3.5 cm)

Lay a vapour barrier (thickness according to the value of S_d , equivalent air layer, required) over the entire surface of the cast, making sure to both overlap the joints by at least 10-15 cm and to fold the sheet up onto the walls to the same height as the compressible strip; seal all joints with moisture-resistant adhesive tape.

Arrange, along the perimeter walls and the elements in elevation, a strip of compressible material 0.5-1 cm thick and at least as high as the finished portion of the flooring, including the finish coverings.

Welded wire mesh can be embedded at around half thickness (see the paragraph on "Warnings").

Floating screed

For screeds on thermal insulation or soundproofing systems, such as SILENS STA 10, scrupulously apply the insulating materials, following the manufacturer's installation instructions and, as regards soundproofing, standard UNI 11516 "Installation instructions for floating flooring systems for soundproofing".

If necessary, lay a vapour barrier (thickness according to the value of S_d , equivalent air layer, required) over the entire surface of the cast, making sure to both overlap the joints by at least 10-15 cm and to fold the sheet up onto the walls to the same height as the compressible strip; seal all joints with moisture-resistant adhesive tape.

Arrange, along the perimeter walls and the elements in elevation, a strip of compressible material 0.5-1 cm thick and at least as high as the finished portion of the flooring, including the finish coverings.

The thickness of the screed must be decided based on the compressibility and thickness of the insulation, the final intended use and the type of covering used.

Furthermore, it is recommended to place welded wire mesh inside the screed (see the paragraph on "Warnings").

Floor screed with heating/cooling system

Where radiant systems are installed, make sure that all the panels are stable, bonded to the substrate and are arranged side-by-side up to perimeter compressible tape, in order to avoid thermal bridges.

As specified by standard EN 1264-4, before laying the screed, the heating circuits must be checked for tightness using a water pressure test.

Furthermore, it is recommended to place welded wire mesh inside the screed, making sure this is suitably fixed to the radiant panels. Typically, the mesh will measure 50x50 mm with a wire thickness of 2 mm, and must be interrupted at the height of the expansion joints.

Mixing

Mix FASSACEM with water and aggregates using the mixing systems commonly used for preparing floor screeds (high-pressure automatic mixer, concrete mixer, planetary mixer, etc.). Manual mixing by shovel or continuous horizontal mixers is not recommended, as the components of the binder would not be spread uniformly and the declared product performance would not be achieved.

Adjust the amount of water so as to obtain a mixture with "semi-wet" consistency. The correct dosage of water involves adding a sufficient liquid content to the mixture to ensure compaction; higher doses of water lengthen the product drying times, while lower doses can cause the phenomena of surface "burning" on the product.

FIBER MST 20 alkali-resistant fibres can be added to the screed; the recommended dosage is 1 to 3 kg/m³, depending on the desired level of reinforcement of the floor screed and in accordance with design specifications.

Create the level bands, cast the material, then carefully complete the levelling, compacting, screeding and trowelling operations, to avoid "burning" and a consequent decline in mechanical strength. Users need to verify the correct dosage of water based on the type of mixing adopted, the building's temperature and humidity conditions and the grading and moisture content of the aggregate. If high thicknesses are required, lay the screed in several layers, carefully compacting each layer individually. Always embed metal mesh around pipes or membranes, ensuring these are covered by a suitable thickness. The compacted screed is then finished using a plastic float or spinning disk machine.

The surface must be compacted until becoming a closed-pore surface without any rising water. If needing to suspend the work, resume casting by embedding into the screed, cut perpendicularly, reinforcing mesh or pieces of iron bar and connecting the casts with a grout slurry obtained by mixing FASSACEM with AG 15 latex, diluted 1:3 with water, or with FASSA EPOXY 300, in both cases applying while the underlying material is still wet.

For installation of ceramic or stone coverings, it is recommended to use our AZ 59 FLEX, AT 99 MAXYFLEX, SPECIAL ONE or AD 8 adhesive mixed with FASSACOL LATEX S2, or, if quick-setting products are required, RAPID MAXI S1. For Spain and Portugal FASSACOL PLUS, FASSAFLEX BASIC, FASSAFLEX, FASSAFLEX TOP.

For laying wooden coverings, it is recommended to use our ADYWOOD 2K two-component epoxy-polyurethane adhesive, or ADYWOOD MS, single-component silane adhesive for laying wooden floors. For laying resilient coverings, it is recommended to use our ADYTEX RS one-component acrylic adhesive, or ADYTEX 2K high-performance epoxy-polyurethane adhesive.

The adhesive will be chosen according to the expected format and type of covering.

In any case, begin applying the covering only after verifying the suitability of the substrate according to the application regulations in force.

First radiant system start-up cycle

After curing for a period of at least 7 days, the system must be started in accordance with the requirements of standard EN 1264-4, or the following instructions:

- the first heating cycle starts with a water outlet temperature of 20-25°C, which must remain constant for 3 days;
- subsequently, the water inlet temperature must be increased by 5°C per day, until reaching the maximum expected operating temperature;
- this temperature must be maintained for 5 days for thicknesses up to 55 mm; for every additional 5 mm in thickness, the time must be increased by one day;
- then the water inlet temperature must be reduced by 10°C a day, until reaching the initial temperature;
- during the period in which the system is started for the first time, check ventilation in the rooms so as to avoid the formation of drafts.

It is always good practice to start the system before bonding any type of flooring, in order to make any cracks appear on the screed due to accumulation of stress resulting from thermal expansion; the covering must then be laid when the screed has cooled.

Joints/maximum surface without divisions

- Division joints must be made on the screed (at least 1/3 of the thickness); in principle, the joints must subdivide the surface into square or rectangular sections, and must therefore be made in correspondence with openings in the walls, protrusions or areas with irregular shapes (i.e. "L" or "U" etc.).
- The joints are made by cutting the screed during application, without interrupting the reinforcing mesh embedded in the screed, if used; the mesh must be interrupted at the expansion joints on the heated floor screed or at the structural joints.
- Indoors, the maximum uninterrupted surface area should be approximately 40 m²; for unbonded or floating screeds only, with the exception of screeds with embedded heating/cooling system, when the surfaces have a regular shape (square or rectangular), these dimensions can be extended, with a maximum length ratio of 2 to 1 and the longest side not exceeding 8 metres.
- In outdoor environments, the maximum surface area must comply with the relevant application standards.
- Structural joints must be marked on the screed.

For joints in areas with irregular shapes, it is recommended to follow the designer's instructions or contact Fassa Technical Service at area.technica@fassabortolo.it.

Warnings

- Product for professional use.
- Always consult the safety data sheet before use.
- The fresh product must be protected against frost and quick drying. Normally a temperature of +5°C is suggested as a minimum value for application and proper hardening of the product. Below this value, setting would be delayed excessively and below 0°C the fresh or partially hardened product could be broken up by frost.
- Avoid applying FASSACEM at temperatures above +30°C.
- Avoid air draughts and strong sunlight in the first few hours after application (in summer it is recommended to use dark fabrics to block sunlight on all openings). From the third day, ventilate the rooms to ensure optimal hardening and drying of the screed.
- For application of FASSACEM on compressible materials (thermal and acoustic insulation) or substrates subject to deformation, the thickness of the screed must be sized according to the characteristics of the insulation (compressibility, mechanical strength, thickness, etc.), flexural strength of the substrate and the place where the flooring will be laid.
- Lay wooden, resilient and laminated floors only after having ascertained by carbide hygrometer that the moisture content is less than 2% (in compliance with UNI 11371 and UNI 11515-1).
- For application of wooden floor coverings on screeds enclosing underfloor heating coils, residual moisture must be $\leq 1.7\%$ (in compliance with UNI 11371 and UNI 11515-1).
- Lay stone coverings only after having ascertained by carbide hygrometer that the moisture content is $\leq 3\%$ or $\leq 2\%$ for moisture-sensitive materials (in compliance with UNI-11714-1).
- Residual moisture is measured using a carbide hygrometer only in screeds in which the presumed moisture content is less than 3%, placing a 50 gram sample and a vial of calcium carbide in the bottle. The reading must be made on the 50 g scale, or using the appropriate conversion scales supplied with the instrument, 20 minutes after starting the test. Electrical instruments may provide inaccurate values.
- For correct installation of ceramic flooring on any cement screed, the residual moisture content must be $\leq 3\%$ (in compliance with standard UNI 11493-1).
- For the production of unbonded screeds on vapour barriers, intended for the subsequent application of thin coverings in general and/or resilient coverings, the minimum thickness must be at least 4 cm (in compliance with UNI 11515-1), placing metal reinforcing mesh half-way into the floor screed.
- Remember that for the installation of moisture-sensitive coverings (wood, resilient, etc.), the vapour barrier must have an S_d (equivalent air layer thickness) that complies with the requirements of the corresponding application standards.
- Depending on the intended use, useful thickness, compressibility of insulating materials, surface geometries and type of covering, evaluate whether to use welded wire mesh inside the screed. Typically, the mesh will measure 50x50 mm with a wire thickness of 2 mm, and must be interrupted at the height of the expansion joints.
- If the screed is laid on underfloor heating systems, there is no need to use fluidifying agents, since they are already contained in the product formulation.
- For laying on underfloor heating systems, a minimum thickness of 3 cm is recommended above the pipes.
- In addition to what is specified in the "substrate preparation" paragraph, it should be stressed that bonded screeds can only be made on sound, compact, crack-free substrates and with a residual moisture content below that required for applying the envisaged covering.
- The drying times shown in the graphs below refer to specimens that cure at 20°C and 65% RH; other temperature-humidity conditions or the use of excessively fine or unscreened aggregate will increase drying times.
- For exterior screeds, the thickness of the perimeter joint must be specified by the designer and in any case must not be less than 10 mm.

Storage

Keep dry for a period not exceeding 12 months. Once the product has expired, it must be disposed of in accordance with current legislation.

Quality

FASSACEM is subjected to accurate and constant checks in our laboratories. The raw materials used are rigorously selected and controlled.

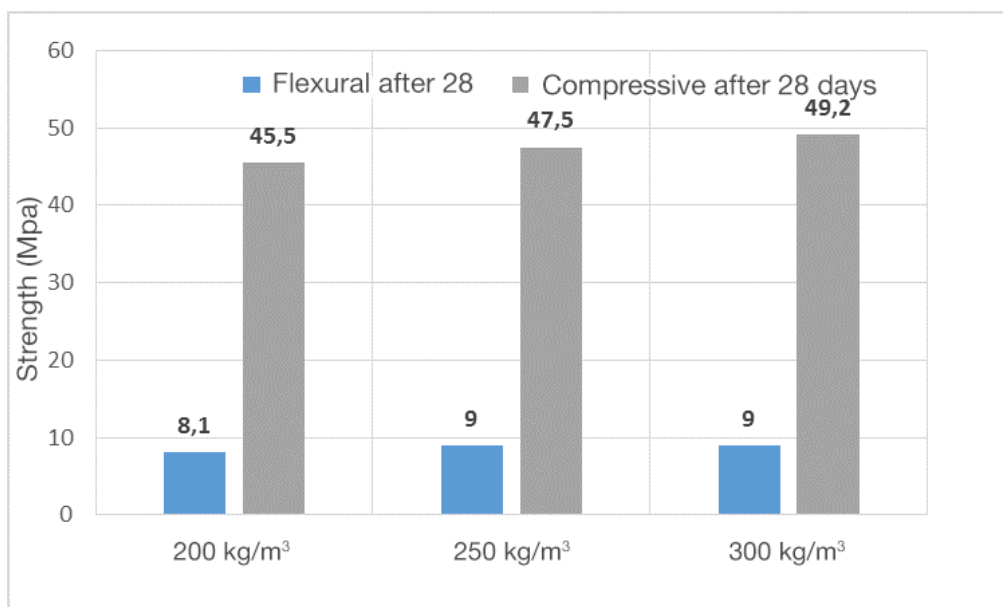
Technical Data

Appearance	Grey powder
Apparent specific gravity	1,000 g/l
Granulometry	< 0.1 mm
Dry residue	100%
FASSACEM mixing ratio	200-300 kg/m ³ depending on desired performance
Aggregate ratio (up to 8 mm)	1,600-1,900 kg/m ³ depending on desired performance
Mixing water	120-150 l of water per cubic metre of product, depending on the type of aggregate
Working time	approx. 60 minutes
Minimum application thickness	bonded: 2 cm
	unbonded: 3.5 cm
Recycled/recovered/by-product content	The product contains some recycled/recovered/by-product. The relevant declaration is available on request.

Environmental sustainability certifications and protocols

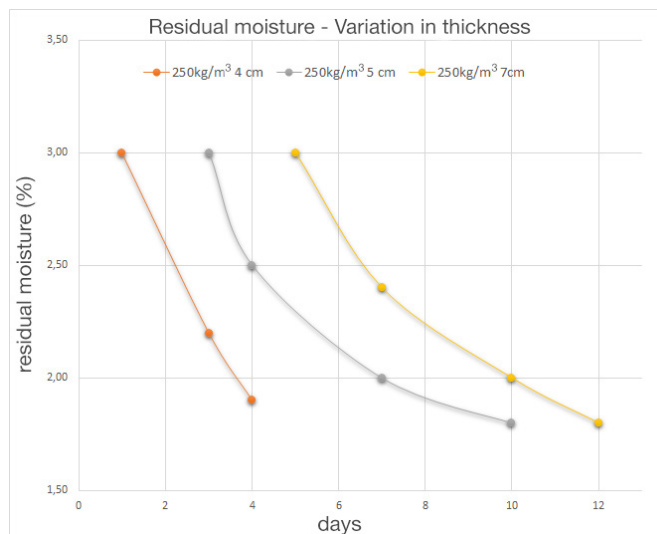
GEV Classification	GEV EMICODE EC 1 ^{Plus} - very low emission
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Mechanical strength after 28 days

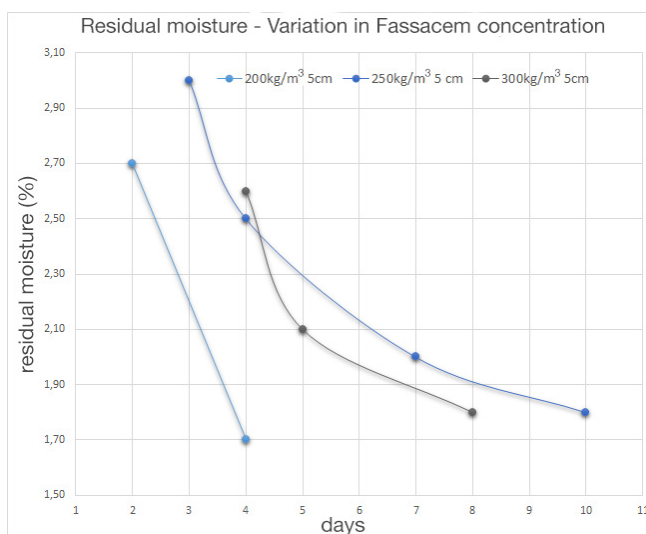


The specimens for mechanical resistance tests are prepared under laboratory conditions using dry, 0-8 mm screened aggregate, and adopting a specific procedure in accordance with the reference standard (EN 13892-1)

Residual moisture based on varying thickness for screeds with 250 kg/m³ of FASSACEM



Residual moisture with varying concentration of FASSACEM for 5 cm thick screeds



The specimens used to determine the drying times are prepared and cured in laboratory conditions at +23°C and 50% RH

The above information refers to laboratory testing; it is possible that in practical applications on site these may differ considerably according to the conditions in which the material is applied. In any case the user must check that the product is suitable for the intended application, taking all responsibility for its use. Fassa reserves the right to make technical modifications without notice.

Technical specifications regarding the use of Fassa Bortolo products for structural or fire prevention applications will only be officially valid if provided by Fassa Bortolo's "Technical Service" and "Research, Development and Quality System". If necessary, contact Technical Service in your country of reference (IT: area.technica@fassabortolo.com, ES: asistencia.technica@fassabortolo.com, PT: assistencia.technica@fassabortolo.com, FR: bureau.technique@fassabortolo.fr, UK: technical.assistance@fassabortolo.com).

Please note that for the aforementioned products, the assessment is required by the appointed professional, in accordance with regulations in force.