



# PRO FLOWCEM™



## 2. MANUFACTURER

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## 3. PRODUCT DESCRIPTION

PRO FLOWCEM™ is a fast-setting, easy-spread, calcium aluminate, polymer-modified and concentrated cement binder which, when mixed proportionally with the appropriate sand and water, provides a shrinkage-free mortar bed and floor underlayment leveling screed that can be easily poured or pumped. A properly mixed PRO FLOWCEM™ mortar or screed can be walked-on and ready for tile installation after 3-6 hours or for resilient floor covering after 24-48 hours. PRO FLOWCEM™ is used in place of ordinary Portland cement based concrete when a rapid-setting mortar bed or underlayment screed is needed for fast-track building renovation and construction.

### Features

- ♦ Generates high compressive strength
- ♦ Shrinkage-free
- ♦ Easily poured or pumped
- ♦ FAST-SETTING: install tile or apply self-leveling or patching compounds after 3-6 hours and floor coverings after 24-48 hours
- ♦ For job-site-prepared cement binder, sand and water mortar preparation
- ♦ Compatible with all tile-setting mortars, adhesives and floor coverings, including wood flooring
- ♦ For building cement floor screeds and mortar-beds from 13 mm (1/2") up to 10 cm (4") thick
- ♦ For building wire-reinforced "Floating" cement-mortar screeds with a minimum of 35 mm (1-3/8") thick or more
- ♦ For interior concrete slab repairs and levelling
- ♦ For use over a radiant heating floor slab system
- ♦ For filling holes and trenches up to 10 cm (4")
- ♦ For interior institutional, commercial and residential applications
- ♦ Contributes to LEED® objectives and requirements

### Packaging

20 kg (44 lb) bag;  
 1,000 kg (2,205 lb) super sak (on demand only)

### Suitable Substrates

- ♦ Dry, completely cured concrete (at least 28 days old)
- ♦ Cement backer units (CBU)†
- ♦ Gypsum and light-weight concrete surfaces†
- ♦ Existing ceramic and quarry tiles, porcelain, granite and marble†
- ♦ Cementitious and Epoxy Terrazzo floors†
- ♦ Exterior Grade Douglas Fir Plywood, certified CANPLY (SELECT) or (SEL-TF) CSA 121, for INTERIOR Residential Light-Duty Floors in dry areas only†
- ♦ Metal such as steel, copper, stainless steel, aluminum or lead†
- ♦ Old Cut-back adhesive **residue** and water-soluble adhesive **residues**†
- ♦ Existing VAT and VCT tiles, and non-cushioned vinyl sheet goods†
- ♦ Homogeneous PVC flooring†
- ♦ Resin-based floor coverings (epoxy, urethane or polyurethane)†

† When primed with PRO SUPERPRIME™ (see respective data sheet for details)

\* Provided that the tensile bond strength of 72 psi (0.5 MPa) is reached as a minimum for pumping applications

### Limitations

- ♦ For interior installation only
- ♦ Do not use at temperatures below 10°C (50°F) or above 35°C (95°F).
- ♦ Do not use on vertical surfaces.
- ♦ Do not install where ice melting chemicals may be used.
- ♦ Do not mix with other cements, lime, plaster, or similar materials.
- ♦ Do not Featheredge - Minimum mortar thickness: 13 mm (1/2"). For thin repairs and levelling, use PRO PLAN™ or PRO PATCH™ instead ( See respective product data sheets for details)
- ♦ Do not use directly over a substrate subject to hydrostatic or rising moisture conditions or over an unstable substrate such as particleboard, presswood, OSB, Masonite, Lauan, asbestos board. In such cases, a 40 mils thick polyethylene film (ASTM C 171/D 4397) or tar-felt [CSA A 123.3 – (Type 1)] must be installed before installing a free-floating PRO FLOWCEM reinforced screed of at least 35 mm (1 3/8") thick with non-corrosive [50 x 50 mm (2" X 2") CSA G 30.5-M or ASTM A 185 M] wire-fabric reinforcement.
- ♦ Avoid contact with Aluminium and metal sidings, railings, bars, windows and accessories. Insulate such areas by applying an appropriate epoxy coating.
- ♦ Protect re-bars, posts and structural elements with an effective epoxy resin coating (Contact PROMA's Technical Service Department for proper advice and recommendations)
- ♦ Do not apply on any type of cushioned flooring.
- ♦ Do not leave permanently without floor covering or exposed as a wear surface material.
- ♦ Do not add more sand than recommended as overall strength of the screed will be weakened.
- ♦ **Do not attempt to accelerate drying and curing through forced ventilation, fans, blowers or auxiliary heaters. Avoid overheating floors from the basement during cold season construction.**



Concrete



#### 4. TECHNICAL DATA

##### Applicable Standards

For Additional Information, please refer to the most recent TCNA handbook for ceramic tile installation or the TTMAC Specification Guide 09 30 00 Tile Installation Manual, or visit our website at [www.proma.ca](http://www.proma.ca).

WORKING PROPERTIES @ 23° C [73° F] and 50% RH	
Mixing time	3 minutes
Working time	25 minutes
Initial set	Around 2 hours
Final set	3-6 hours (depending on thickness)
Time before installing floor covering	24-48 hours
Time before installing ceramic tile	3-6 hours
Time before applying self-levelers or patching compounds	3-6 hours

PHYSICAL PROPERTIES (FLOWCEM/SAND) @ 23° C [73° F] and 50% RH	
VOC content	0 g/L
Linear shrinkage (%) @ 28 days	< 0.05%
Compressive strength (ASTM C-109)	
24 hours	≥ 12.4 MPa (1800 psi)
7 days	≥ 17.2 MPa (2500 psi)
28 days	≥ 24.1 MPa (3500 psi)
Approximate coverage as per FLOWCEM/SAND ratio recommendations (see Mixing)	
Thickness	Coverage
13 mm (1/2")	3.3 m <sup>2</sup> (36 ft <sup>2</sup> )
25 mm (1")	1.7 m <sup>2</sup> (18 ft <sup>2</sup> )
Shelf life	
6 months if kept in its original unopened packaging and stored in a dry location.	

#### 5. INSTALLATION

##### Surface Preparation

(Refer to PROMA Surface Preparation Guidelines for complete details)

**Note: PRO SUPERPRIME™ can be used to ready nearly any surface for PROMA leveling underlayments and toppings without the need for scarifying or shotblasting, saving valuable time and money (see respective technical data sheet for details).**

- ♦ Protect from any direct forced-air ventilation, wind, drafts or heat radiation source, such as direct sunlight, during and after the installation, for a minimum of 24 hours. **Do not overheat floors from the basement during cold season construction. These conditions could cause the product to cure too rapidly and affect its performance.**
- ♦ The substrate must be sound, stable and built in accordance with good engineering practice to adequately withstand the required loads and perform the required usage according to the building design and purpose once the work is completed.
- ♦ When using PRO FLOWCEM mixture with a radiant heating floor system (previously checked for good functioning), turn the system off 24 hours prior to installation and wait at least 2 weeks after application before turning it back on.
- ♦ All concrete substrates must be completely cured (at least 28 days old), solid, sound and have a direct tensile cohesive strength greater than 1.2 MPa (175 psi) when tested in accordance with ACI 503 R – (Appendix A) procedure [or 0.9 MPa (128 psi) when tested in accordance with CAN/CSA A23.2-68 procedure.]

- ♦ For concrete repairs, bonded mortar-beds and screeds, the substrate surface must be clean, slightly profiled and/or sufficiently textured and free of dust, oil, grease, paint, tar, wax, curing agent, primer, sealer, form release agent or any deleterious substance and debris which might prevent or reduce adhesion.
- ♦ Acids, concentrated alkaline conditions and cleaning chemical residues must be neutralized or removed.
- ♦ On grade or below grade concrete slabs must be installed over an effective vapor barrier.
- ♦ For bonded screeds and mortar-beds, the concrete substrates must be completely cured and free of hydrostatic conditions and/or extreme moisture problems. When PRO FLOWCEM mixture is used as a floor-covering or wood flooring substrate underlay, perform a calcium chloride moisture emission test (ASTM F-1869) on the new concrete repair screed or mortar bed once cured before proceeding with the installation of the flooring adhesive or tile setting mortar. For wood flooring and resilient floor covering installations, the vapor-moisture emission from the screed or concrete underlay must not exceed 1.36 kg per 93 m<sup>2</sup> (3 lb per 1 000 sq. ft.) per 24 hours at time of installation. Do not prime, repair, level or patch the substrate nor install any floor covering materials until moisture problems and conditions have been addressed to meet these requirements.
- ♦ Smooth concrete substrate surfaces for repairs and for bonded mortar beds and screeds must be either PRIMED with PRO SUPERPRIME primer **OR** mechanically roughened in accordance with an engineer-approved procedure (Shot-blasting, scarification, grinding, sand or water-blasting, etc) to completely remove all paint, loosely bonded toppings, loose particles and contaminants and to provide sufficient surface texture and profile (+ 3 mm or equal to a CSP 6 profile on the ICRI scale) for the adequate bonding of the leveling mortar product (see respective data sheet for more details).

**Note:** Install expansion and control joints where required in accordance with trade requirements and best recommended practice.

##### Mixing

##### Mixing ratio (FLOWCEM/SAND)

13 mm (1/2") to 51 mm (2") screed	
PRO FLOWCEM	Sand
20 kg (44 lb)	60 kg (132 lb)

**NOTICE: For pumpable procedures, please contact our Technical Service Department.**

1. Use only clean mixing tools, mixers and containers.
2. Use a low speed mixer suited for mortars and concrete.
3. Use a clean, calibrated concrete sand at a ratio of 1 part PRO FLOWCEM for 3 parts of Sand. (Please contact our Technical Service Department if more information is needed on the selection of the sand)
4. In a clean mortar mixer or container, measure and pour approximately 14L [15.2 quarts (3.8 US gal)] of cold clean water and gradually add 20 kg (44 lb) of PRO FLOWCEM, then add 60 kg (132 lb) of concrete sand while mixing slowly and repeatedly. Water dosage will be affected by the sand moisture content. In hot weather conditions, use ice-cold water for mixing to better control working time and setting time.
5. Do not over wet the mix as too much water will delay curing, cause segregation, cause excessive shrinkage and the excess water will resurface and affect the surface (Please contact our Technical Service Department if you need more information concerning the water dosage and the recommended consistency).
6. Mix until the product is homogeneous. Mixing time should not exceed 3 minutes.
7. Do not let the mixture sit in the mixer.
8. Use the product within the shortest possible delay (approximately within 25 minutes).





## Application

**Note:** Close all doors, windows and openings and protect work from wind, cross-ventilation and heat radiation source, such as direct sunlight, during and after the installation. If heating elements are included in the flooring system, it is essential that wire fabric reinforcement be incorporated into the screed.

**Do not overheat floors from basement during cold weather construction.**

### CONCRETE REPAIR, ramps and bonded screeds.

1. Prime reinforcing steel with an appropriate epoxy primer (consult the technical department for the appropriate PROMA product recommendation).
2. For a better adhesion, apply with a push-broom a primer coat consisting of a wet mixture (1:1:1 ratio) of PRO SUPERPRIME, PRO FLOWCEM and water directly onto the substrate (see PRO SUPERPRIME data sheet for more details on how to apply the primer).
3. Set, compact, tamp, level and screed the PRO FLOWCEM mortar mix to the required thickness and finish using the same techniques, tools, floats, levels and straight-edges as for regular cement screeds.
4. Do not featheredge: concrete repairs must be at least 13 mm (1/2") deep. Saw cut perimeter edges.
5. Within 25 minutes maximum from mixing, level and screed the surface with a metal straightedge or scraper while tamping with the float as work progresses.
6. To avoid cracks, splits, overlaps and warps at cold joints or when the work is to be stopped for more than 1 hour, insert several 3 mm (1/8") to 6 mm (1/4") diameter rod size metal dowels, 20 cm (8") to 30 cm (12") long, set horizontally at mid-bed at about every 20 cm (8") to 30 cm (12") gapping distance along the open cold edge of the freshly-applied and fresh mortar-bed.
7. Finish-off the surface to the required texture using a light broom, a wood float or a smooth metal finishing trowel as required.

### FLOATING MORTAR BED AND SCREED

1. Build a uniform even sand cleavage bed or if the slab is already smooth and even, lay a 0.76 mm (40 mil) (ASTM C171/D4397) polyethylene sheeting.
2. Dump, spread, compact and tamp the PRO FLOWCEM mortar-bed mixture to approximately + 20 mm (3/4") or about half the usually required standard bed thickness. Insert a corrosion resistant [50 x 50 mm (2" X 2") CSA G 30.5-M or ASTM A 185 M] metal reinforcing fabric and dump, spread, tamp, level and screed the remaining layer to the required slopes, to the required thickness (minimum 35 mm (1-1/2")) and finish using the same techniques, tools, floats, levels and straight-edges as for regular cement screeds..
3. Within 25 minutes from mixing, level and screed the surface with a metal straightedge or scraper while tamping with the float as work progresses.
4. To avoid cracks, splits, overlaps and warps at cold joints or when the work is to be stopped for more than 1 hour, insert several 3 mm (1/8") to 6 mm (1/4") diameter rod size metal dowels, 20 cm (8") to 30 cm (12") long, set horizontally at mid-bed at about every 20 cm (8") to 30 cm (12") gapping distance along the open cold edge of the freshly-applied and fresh mortar-bed.

## Expansion and Control Joints

- ♦ Install control joints where tiles abut restraining surfaces, around the perimeter of the work and at the base of columns and curbs.
- ♦ Install and space expansion and control joints in all directions in accordance with TCNA HANDBOOK FOR CERAMIC TILE INSTALLATION Detail #EJ-171 recommendations, or TTMAC Specification Guide 09 30 00 Detail #301-MJ recommendations. CAUTION: DO NOT cut EXPANSION JOINTS in after the tiles have been installed. Install tiles normally and stop when the control joint location is reached. Cut the tile if required and resume setting from the opposite side of the joint. Before proceeding further, rake the joint and leave the tile and joint space clean.
- ♦ DO NOT FILL EXPANSION JOINT SPACE UNTIL GROUTING IS COMPLETED on the remainder of the job.
- ♦ Install a suitable industry-approved compressible bead and flexible sealant to caulk expansion and control joints. Follow the sealant manufacturer's installation instructions.

## Curing and Protection

- ♦ Do not over-water and protect from rain, weather and freezing until cured (24 hours)
- ♦ Protect from foot traffic for at least 3-6 hours at normal room temperature and humidity conditions.
- ♦ Do not allow floors to be exposed to heavy traffic and rolling loads such as forklifts, pallet trucks, loaded dollies, scissor lifts, etc. for a minimum of 48 hours after installation.
- ♦ Sanding, smoothing and finishing of the surface can be accomplished after about 3-6 hours from laying depending on prevailing temperature and humidity conditions.
- ♦ Allow at least 3-6 hours curing before setting ceramic or stone tiling, patching or self-leveling, and at least 24-48 hours before laying wood, resilient or carpet flooring.
- ♦ For Wood flooring and resilient floor covering installations, ensure that the vapor-moisture emission from the concrete slab and new screed does not exceed 1.36 kg per 93 m<sup>2</sup> (3 lb per 1 000 sq. ft.) per 24 hours when tested in accordance with the calcium chloride moisture emission test (ASTM F-1869) at time of installation.
- ♦ Protect from dirt, dust and damage from other trades until fully covered by a floor covering or tiling material.

**Note:** Drying time may vary depending on prevailing temperature and humidity conditions. **Do not attempt to accelerate drying and curing through forced ventilation, fans, blowers or auxiliary heaters.**

## Cleaning

Clean mixer, working tools and hands with water while product is still fresh.

## Health and Safety

Refer to the Material Safety Data Sheet (MSDS) for complete details.

## 6. AVAILABILITY AND COST

PROMA products are widely available in Canada and the Northeast United States. To find a distributor of PROMA products, call **tol-free:1.866.51.PROMA (77662).**

## 7. WARRANTY

PROMA warrants that this product is manufactured using quality raw materials and is of merchantable quality and suitable for the purpose for which it was intended. PROMA's liability under this warranty shall be limited to the replacement of its product proven to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising from the use of/or the inability to use this product.

## 8. MAINTENANCE

Product requires no special maintenance. Do not leave without floor covering or exposed as a resurfacing material.

## 9. TECHNICAL SERVICE

For more detailed information on this product, please contact our technical department for proper recommendations and job field assistance. **Toll-free: 1.866.51.PROMA (77662).**

## 10. FILING SYSTEM

Additional information is available upon request, or by visiting [www.proma.ca](http://www.proma.ca).



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