

Application Manual for Flowfresh Systems

Flowcrete SA (Pty) Ltd

Part 1: General Notes & Introduction

Opening Statement

Welcome to Flowcrete South Africa, a market-leading manufacturer of high-quality epoxy and polyurethane resin flooring systems, cementitious screeds, car park deck coatings and other specialist solutions.

This Application Manual has been designed by Flowcrete South Africa as a practical guide for all approved flooring applicators involved in the installation of its hygienic polyurethane resin flooring range, FLOWFRESH.

Compliance with the detail and procedures described herein will ensure that application teams are able to provide the end-client with a high performance, seamless resin floor finish that is positively equipped to fight surface bacteria within the hygiene industries.

Although it is assumed that Flowcrete South Africa's network of approved contractors and flooring application teams are highly experienced in the installation of seamless polyurethane resin systems, this guide serves to offer the manufacturer's recommendations based on our expertise within the industry for more than 30 years.

All on-site operations, including but not limited to the assessment of substrate conditions and compliance with safe working practises remain the responsibility of the applicator.

Should you have any queries relating to the installation of Flowcrete's FLOWFRESH systems, which are not covered within this guide, please do not hesitate to contact our Technical Department.

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Flowfresh: An Introduction

The food manufacturing, food preparation and pharmaceutical industries rely heavily on the correct specification of flooring materials in order to deliver a clean, safe and sanitary environment that complies with a wide range of critical health and safety requirements.

There are a number of factors that clients working within these industries must consider when selecting a new floor finish. Floors in clean-room environments must be able to be cleaned effectively and thoroughly, must not absorb grease, food substances or water, harbour pests or bacteria, and should be laid to a safe design so as not to cause the pooling of water.

It is imperative that all floors in clean manufacturing and preparation zones, as well as staff breakout areas and amenities, have a non-slip surface, so as to prevent slips and trips.

A number of flooring options are available to clients working in the food manufacturing, food preparation or pharmaceutical sectors including trowel-applied seamless epoxy or polyurethane resin systems, such as the Flowfresh range from Flowcrete South Africa.

Not only does the Flowfresh polyurethane flooring range offer clients an enhanced hygiene performance resulting from a seamless installation combined with the material's excellent durability and resistance, but additionally Flowfresh offers a further innovation to make the completed floor finish more effective than ever before.

Containing a powerful thermosetting amino compound, which is incorporated within the polyurethane resin matrix of the flooring material, the Flowfresh system has been designed to offer clients complete surface protection against harmful bacteria, mould and yeasts.

The technology can positively inhibit the growth of both gram positive and gram negative bacteria including SARS, E-coli, MRSA, C.diificile and Salmonella typhi amongst others, with international studies showing a 99.9% reduction in the bacterial population of a typical floor.

This protection remains active for the lifetime of the floor, even if worn or damaged, offering clients' peace of mind in terms of hygiene and sanitation.

Flowfresh systems are either rake or trowel applied in-situ, resulting in a seamless finish that prevents dirt, dust and bacteria from building up in cracks and crevices – an unavoidable problem when working with any tile-based product.

Not only can all Flowfresh systems be installed in conjunction with drainage components, but a coving option is also available to clients looking to achieve the ultimate hygiene performance.

Overview of Flowfresh Systems

Flowfresh System	Thickness	Description	Thickness	Temperature Resistance (°C)	Coverage Rate (kg/m ²)
Flowfresh HF	6–9mm	Positively textured finish for heavy-duty production areas. Offers excellent temperature (120°C at 9mm) and chemical resistance properties.	6–7mm	-25 to 100	6mm @ 12.00
					7mm @ 14.00
			8–9mm	-45 to 120	8mm @ 16.00
					9mm @ 18.00
Flowfresh MF	3–4mm	Smooth finish for medium-duty processing areas. Offers good temperature (90°C at 4mm) and chemical resistance properties.	3mm	-5 to 70	3mm @ 5.70
			4mm	-15 to 90	4mm @ 7.60
Flowfresh RT	6–9mm	Rake applied positively textured finish for wet processing areas. Offers high temperature resistance (120°C at 9mm) and fast installation times.	6–7mm	-25 to 100	6mm @ 12.00
					7mm @ 14.00
			8–9mm	-45 to 120	8mm @ 16.00
					9mm @ 18.00
Flowfresh SL	2mm	Self-smoothing, light-weight pigmented finish for light-duty areas. Easily cleaned and maintained and offers a fast return to service.	2mm	5 to 65	2mm @ 3.80
Flowfresh SR Ultra	5–6mm	Positively textured, slip resistant finish for areas where safety is critical. Offers excellent temperature (up to 122°C) and chemical resistance properties.	5–6mm	-15 to 122	5–6mm @ 8.50
Flowfresh SRQ Ultra	5–6mm	Slip resistant, decorative finish containing colourful quartz aggregates. Offers good temperature resistance (up to 122°C) and excellent durability.	5–6mm	-15 to 122	5–6mm @ 8.50
Flowfresh ESD HF	6–9mm	Antistatic, positively textured finish for heavy-duty production areas. Offers excellent temperature (120°C at 9mm) and chemical resistance properties.	6–7mm	-25 to 100	6mm @ 12.00
					7mm @ 14.00
			8–9mm	-45 to 120	8mm @ 16.00
					9mm @ 18.00
Flowfresh ESD MF	3–4mm	Antistatic, smooth finish for medium-duty processing areas. Offers good temperature (80°C at 4mm) and chemical resistance properties.	3mm	-5 to 70	3mm @ 5.70
			4mm	-15 to 90	4mm @ 7.60

Overview of Flowfresh Ancillary Products

Primers¹

Ancillary Product	Description	Coverage Rate (kg/m ²)
Flowfresh Primer	Polyurethane scratch coat and priming product for concrete and cementitious substrates.	0.50
Flowprime	Low viscosity epoxy resin priming product for cementitious substrates.	0.25

Coatings / Sealers

Ancillary Product	Description	Coverage Rate (kg/m ²)
Flowfresh Coating	Coloured, polyurethane coating product for cementitious substrates	0.50–0.60 ²
Flowseal UV	UV stable polyurethane sealing product for use on concrete, screeds or epoxy resin.	0.15
Flowseal Ultra	Fast curing polyurea sealing product for Flowfresh SRQ.	0.55 ³

¹ Stated coverages are on average. Actual coverage will depend on the porosity of the substrate.

² Coverage may vary depending in the size of aggregate used in the system.

³ Coverage may vary depending in the size of aggregate used in the system.

Flowfresh Components

Flowfresh is a range of antimicrobially treated, pigmented polyurethane-based resin flooring systems, which consist of either three or four independent components.

Base A	Polyol
Hardener B	Isocyanate
Filler C	Reactive Filler
Pigment Pack ⁴	
Filler D	Aggregate Filler
Flowfresh Conductive Fibres	Conductive Fibre

The following table highlights the components, which are required for each Flowfresh system.

Flowfresh System	Base A	Hardener B	Filler C	Filler D	Flowfresh Conductive Fibres
Flowfresh HF	✓	✓	✓	✓	
Flowfresh MF	✓	✓	✓		
Flowfresh RT	✓	✓	✓	✓	
Flowfresh SL	✓	✓	✓		
Flowfresh SR Ultra	✓	✓	✓		
Flowfresh SRQ Ultra	✓	✓	✓		
Flowfresh ESD HF	✓	✓	✓	✓	✓
Flowfresh ESD MF	✓	✓	✓		✓

⁴ See Individual Pigment Pack Section for more details.

Storage of Flowfresh Components

Optimum Site Storage Conditions

All of the components supplied by Flowcrete to produce and install its Flowfresh systems, including all of the ancillary products recommended for use throughout the substrate preparation and priming stages, are to be stored under cover away from direct sunlight.

All components should be raised from the floor, kept dry and exposed to temperatures no greater than 35°C and no lower than 5°C. This is particularly critical for any Filler C components in order to minimise the risk of the cementitious material hardening or forming lumps, rendering it unsuitable for use. Similarly, both Base A and Hardener B should not be allowed to freeze to prevent any defects in the material.

Continued exposure to direct sunlight or other sources of intense heat should also be avoided in order to prevent uneven temperature gradients from arising in the material. If this occurs, ensure not to use the material until the temperature has been regulated throughout to eliminate any inconsistencies in the application.

The manufacturer's recommended storage temperature is between 15–30°C and 50% relative humidity, which is also representative of the optimum conditions for mixing, laying and curing.

If optimum storage conditions are met, each of the component materials should offer a recommended shelf life of 12 months for all Base A, Hardener B & Filler D components or 9 months for any Filler C components. On the packaging of each component, you will find a clearly labelled date of manufacture. This will detail the date that the material was produced and packed. This can be used to calculate the recommended use by date.

Do not use any material outside of the safe use-by date range without first consulting Flowcrete's technical operations team.

Site Storage Variables

Cold Temperatures

When site or storage conditions fall below 15°C it is reasonable to expect that all Flowfresh systems will become more difficult to apply.

A drop in temperature outside of this boundary will cause the material to become more viscous adversely affecting the workability of the product and increasing laying rates. The reduced temperature will also lengthen tack-free and recoat times. A slower drying time may also increase the volume of dust that will adhere to the floor as it cures.

In cold conditions, it can often prove beneficial to heat the material prior to mixing in order to aid application. Where required, our recommendation would be to store the material in a uniformly heated room, or on large contracts under a canopy or tent. If this is not achievable, portable heating may be used, although care should be taken to prevent uneven temperature gradients with the material as this may lead to defects in the final finish.

All Flowfresh liquid components are subject to freezing. Freezing of the resin or hardener components will render them unusable and unrecoverable. Protect from temperatures below 20°C at all times. Any liquid components that have been exposed to freezing temperatures must be destroyed to prevent their use.

Hot Temperatures

The formulation of all Flowfresh systems has been modified by Flowcrete South Africa to cope with the tropical climates. However, care should be taken to prevent the material from becoming damaged.

When site or storage conditions exceed 35°C it is reasonable to expect that all Flowfresh systems may become more difficult to work with as the pot life decreases. In these instances, it is likely that imperfections in the finish may occur.

In hot conditions, it may be necessary to ensure air conditioned storage of all of the component materials. Keeping the materials within the safe temperature range of 15–30°C will reduce the possibilities of both flash setting as well as other defects.

Humidity & Moisture Control

Flowfresh polyurethane materials are moisture sensitive. Often defects or blistering found within the finished surface are as a result of moisture penetrating the material whilst in storage.

Care should be taken to ensure all Flowfresh component materials are housed in water tight storage conditions.

It is of critical importance that Hardener B components are stored in a dry environment. Large volumes of the isocyanate contents of the Hardener B may react violently with water to produce carbon dioxide gas, which can often generate enough pressure to completely rupture containers.

During application, if relative humidity drops below 50%, the time in which the curing material becomes tack-free is likely to increase. If relative humidity falls below 30%, this will cause further delays to the cure, extending the surface's tackiness by a number of days.

Likewise, if relative humidity increases above 70% there are often too many particles of water vapour in the air, which can lead to possible swelling.

Protect from moisture at all times. Do not store powdered components on bare concrete floor, dirt or gravel. Store all filler components in original bags on either wooden or plastic pallets. Cover to prevent damage from rain or incidental water exposure. Cover stacked bags with cardboard filler before covering with plastic to prevent condensation damage.

Part 2: Preparation of Substrates

Preparation of Substrates

No single element of Flowfresh installation will affect the service life of the floor more than substrate preparation. Inadequate surface preparation will cause disbondment, pop-outs, cracks and other surface defects.

Substrate Suitability

Prior to the installation of Flowfresh materials, the existing substrate needs to be assessed for suitability and is subject to the correct preparation procedures.

The following substrates are considered suitable to receive Flowfresh materials:

- Concrete
- Granolithic concrete
- SBR or acrylic polymer-modified sand / cement fine aggregate screeds
- Existing polyurethane resin materials⁵
- Cementitious terrazzo surfaces
- Well bonded epoxies⁶
- Exterior grade plywood (25mm marine ply)⁷
- Well bonded acid brick and tiles⁸

All substrates must demonstrate a minimum tensile strength of 1.5 MPa whereas all concrete substrates should be specified as 25 MPa design strength. All suitable substrates should be designed to accommodate the individual environments' service criteria, including static and dynamic loads as well as thermal movement and impact.

The following substrates are considered unsuitable to receive Flowfresh materials:

- Unmodified sand / cement screeds
- Asphalt / bitumen
- Smooth or non-porous bricks or tiles
- Magnesite

⁵ Suitability is subject to a detailed compatibility test.

⁶ Suitability is subject to a detailed compatibility test. Area must not be subjected to thermal shock.

⁷ Only suitable for application of Flowfresh SL, MF, SR, SRQ & ESD MF.

⁸ Flowprime ST, a specialist tile primer must be used prior to the application of Flowfresh systems.

- Galvanised steel
- Stainless steel
- Copper
- Aluminium
- Wood (except exterior grade plywood)
- Aerated concrete blocks

Design & Preparation of Concrete Substrates

Floor Base / Slab

Concrete bases should comply with the guidelines outlined in BS 8204 as well as all applicable engineering standards and practises, including the provision for movement joints and membranes as required.

Expansion Joints

All expansion joints formed in the floor base at preparation stage must be carried through when installing the finished Flowfresh system.

It is also the manufacturers' recommendation when forming expansion joints around columns and equipment set into the floor, that radial corners are included in order to eliminate any stress-inducing angles. In these instances, a minimum 5cm radius is advised.

Industry experience has shown that it is beneficial to form expansion joints in the floor base around areas that may be subjected to thermal or vibration movement when in service.

Control Joints

Control joints are required in concrete substrates to induce weakness and allow anticipated shrinkage to be controlled and treated within a defined area.

Flowfresh materials may be applied directly over control joints when the concrete has cured for a minimum of 28 days at normal conditions. However, occasional cracking will occur if the joints continue to experience movement.

Damp Proof Membranes

Residual moisture in the concrete substrate or rising moisture from the ground soil can lead to saturation that can unfavourably affect the bond between the substrate and Flowfresh materials.

As a result a damp proof membrane is required on basement or on-grade substrates where moisture vapour pressure is a concern. This DPM will serve to disperse any vapour pressure across the entire floor, eliminating any defects on the surface of the floor. A suitable damp proof membrane or moisture vapour barrier can be recommended by your local Flowcrete office on request.

Moisture

Prior to the installation of Flowfresh materials, the substrate must be surface dry and at least 3°C above the dew point. Flowfresh systems cannot be applied nor can the material cure during bouts of atmospheric condensation.

Any standing water should be completely removed by using an industrial vacuum followed by drying the surface with a hot air blower, infra-red heater or flame gun. Caution is advised when using propane heaters in cold conditions as water produced as a by-product may lead to condensation.

Tolerances

Flowfresh systems cannot be relied upon to enhance any tolerances or unevenness within the concrete substrate. Instead the substrate should be applied to the required tolerances prior to the installation of Flowfresh systems.

Preparation Methods

Cementitious substrates, which are to receive Flowfresh materials, must be mechanically prepared so that the large aggregate of the concrete / screed is exposed. Preferred methods of preparation are as follows:

- Vacuum shot blasting
- Air-impact hammer (scabblers)⁹
- Concrete surface planer
- Grit blasting
- Surface grinder¹⁰
- Ultra-high pressure water blasting
- Flame spalling may be satisfactory in some situations

Acid etching is not recommended. It is advisable that this technique is NOT used.

Caution should be taken when employing high impact preparation methods, in order to prevent internal fractures of the concrete matrix and a subsequent reduction in sub-floor strength.

Where high pressure water blasting can prove effective when removing old finishes and laitance in order to expose the aggregate within a concrete substrate, it can leave the aggregate smooth and polished resulting in a negative effect upon adhesion.

After treatment, all dust and loose particles should be removed from the whole surface, including grooves and cracks. Vacuum cleaning is the most effective method in this process.

⁹ Only recommended if the sub-floor is free from damage.

¹⁰ Care should be taken to avoid polishing the substrate.

Edge Details

The following outlines instances where a free edge of Flowfresh material is likely to occur:

- Room perimeter
- Drainage channels
- Expansion joints
- Doorways
- Machinery plinths
- Columns

In these instances, anchorage must be provided in order to help distribute the mechanical and thermal stresses arising from shrinkage and temperature changes.

Anchorage is achieved by forming or cutting anchor grooves into the concrete substrate using a diamond cutting wheel. Each groove is to have a minimum depth and width of 4mm × 4mm.

Anchorage provides the additional benefit of reducing the possibility of liquid seepage underneath the Flowfresh materials, which could weaken the bond between the final floor finish and the substrate.

Holes / Cracks

Any existing holes or cracks within the substrate, which are greater than 25mm deep, should be filled using Flowtex HT. Small irregularities within the substrate will be filled and sealed inherently during the application of Flowfresh systems, provided that sufficient material has been allowed.

When working with Flowfresh MF, SL, SR, SRQ & ESD MF, minor imperfections or irregularities should be filled with a scratch coat to ensure an even finish. Any polyurethane based scratch coat must cure for a minimum of 16 hours prior to overcoating to prevent blistering caused by outgassing of the scratch coat whilst it cures. Where there is severe time restrictions, Flowtex HT can be used to fill holes.

Unapproved materials for the patching or filling of concrete prior to installation of Flowfresh materials include:

- Gypsum based (lightweight) floor levelling compounds or screeds.
- Poly- or vinyl ester thermosetting resins.
- Latex based patching materials

Cold Rooms

Cold rooms should be isolated from neighbouring floor finishes using an expansion joint. Any bays within a cold room environment should have an aspect ratio as close to one another as possible and any bay joints created in the substrate should be carried through the Flowfresh materials.

Where the concrete substrate is not laid on to an insulating layer, additional movement joints may be necessary. With cold rooms that will be subject to temperature cycling above and below freezing, care should be taken to prevent any water ingress at junctions between the floor, cove and insulation panel.

When bringing cold rooms down to operating temperature the change in temperature must not exceed 5°C per 24 hours.

Design & Preparation of Alternative Substrates

The aforementioned recommendations for the design and preparation of concrete substrates are to apply to all other substrates outlined as suitable by the manufacturer, save the following special instructions:

Screeds

Screeds are used to smooth out the surface of existing concrete bases prior to the application of Flowfresh materials. Screeds can also be used where additional falls are required. These can include the following:

- Fine concrete to BS 8204: Part 1 (Overslabs)
- Polymer modified fine aggregate / sand / cement to BS 8204: Part 3 (Bonded Screeds)¹¹
- Flowfresh HF
- Flowtex HT Repair Mortar¹²

Waterproofing additives are not to be included in screeds unless their compatibility with Flowfresh materials has been verified by a Flowcrete representative. Any laitance present on the concrete surface must be removed by mechanical methods prior to the installation of Flowfresh systems in order to prevent delamination.

Any required falls are to be formed in the screed in line with good engineering practise, or in the case of polymer modified screeds to the manufacturers' recommendations. Ensure special attention is paid to both minimum and maximum thickness.

¹¹ Polymer screeds should contain a fine aggregate (6–10mm).

¹² Not recommended for use in areas subject to thermal shock / cycling.

Flowfresh System	Maximum Fall Steepness over 1m
Flowfresh SL	12mm
Flowfresh MF	15mm
Flowfresh ESD MF	15mm
Flowfresh SR Ultra	15mm
Flowfresh SRQ Ultra	15mm
Flowfresh RT	20mm
Flowfresh HF	20mm
Flowfresh ESD HF	20mm

Where there is severe time restrictions, Flowtex HT can be used to form falls.

When working with existing screeds, ensure that those contaminated with mould-release oils, by chemical spillage or any poorly bonded previously applied coatings are removed prior to the installation of Flowfresh systems in order to ensure that the materials adequately bond.

Well Bonded Epoxies

Any existing epoxy substrates must be tested for soundness and contamination prior to the installation of Flowfresh. Any poorly bonded or contaminated epoxy must be removed prior to overlaying with Flowfresh. Do not applied Flowfresh over an existing epoxy in areas exposed to thermal shock or thermal cycling.

Exterior Grade Plywood

Any exterior grade plywood substrate must be at least 25mm in thickness and all boards must be securely fastened (glued and screwed) at 30cm intervals. The proposed floor design must allow for the additional dead weight of a floor topping at 14kg/m². Decking should be screwed with appropriately sized deck screws. Nails or drywall screws should not be used. Any joints should be pre-filled with a Flowfresh MF topping.

The plywood surface should be primed with a Flowfresh MF scratch coat or alternatively Flowprime and allowed to cure before applying a final floor finish.

The surface of the plywood should be lightly sanded and thoroughly dusted. Provided that the substrate is surface dry, Flowfresh materials can be installed as normal.

Existing Polyurethane Resin Materials & Cementitious Terrazzo

The original substrate must be sound and the existing flooring must retain a strong bond, free from chemical attack or contamination of any kind. The surface of the resin finish should be prepared by abrasion, grinding or scarification and all dust must be removed prior to the installation of Flowfresh materials.

If the existing floor finish has been sealed, the sealer must be removed or abraded until it is completely white to ensure a sufficient bond to the Flowfresh materials. Take care to ensure that any existing anchor grooves remain adequate, particularly if there has been any alteration to the specification as well as in thermal shock / cycling environments. Provided the above conditions have been met, Flowfresh materials can be installed as normal.

Acid Bricks & Tiles

The original substrate must be sound and the existing acid bricks or tiles must retain a strong bond, free from chemical attack or contamination of any kind. The acid bricks or tiles should be prepared by abrasion, grinding or scarification and all dust must be removed prior to the installation of Flowfresh materials.

For applications over tiles, Flowprime must be applied. Provided all other conditions have been met, Flowfresh materials can be installed as normal.

Priming Instructions

Prepared substrates exhibit varying levels of porosity. If Flowfresh materials are applied directly to a prepared substrate, air that has been displaced can rise, causing defects in the finished floor.

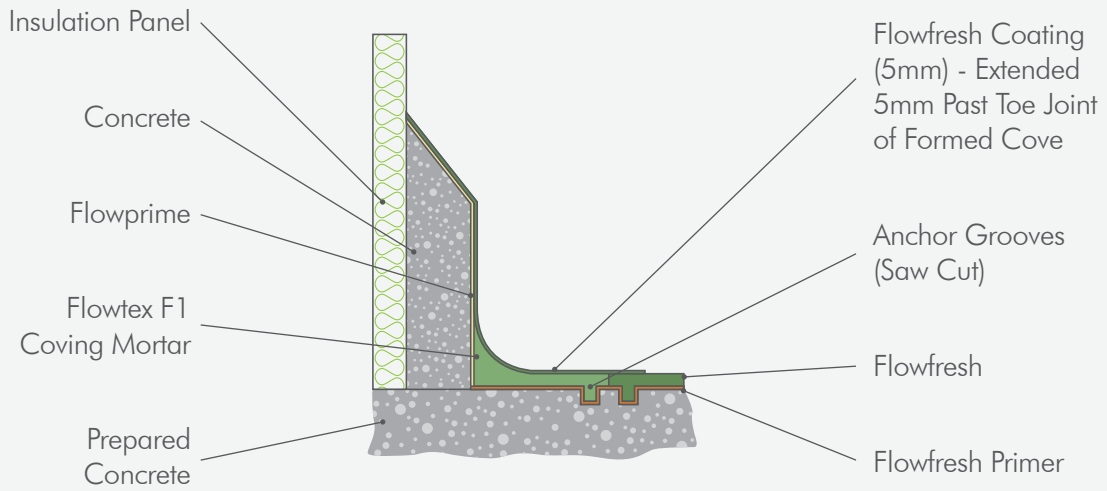
In order to ensure a hygienic and high quality aesthetic finish, it is recommended that the prepared substrate be primed prior to the installation of Flowfresh materials.

Priming the prepared substrate can offer the additional benefit of reducing 'drag' during application, which is caused when the porous substrate draws resin out of the fluid Flowfresh materials.

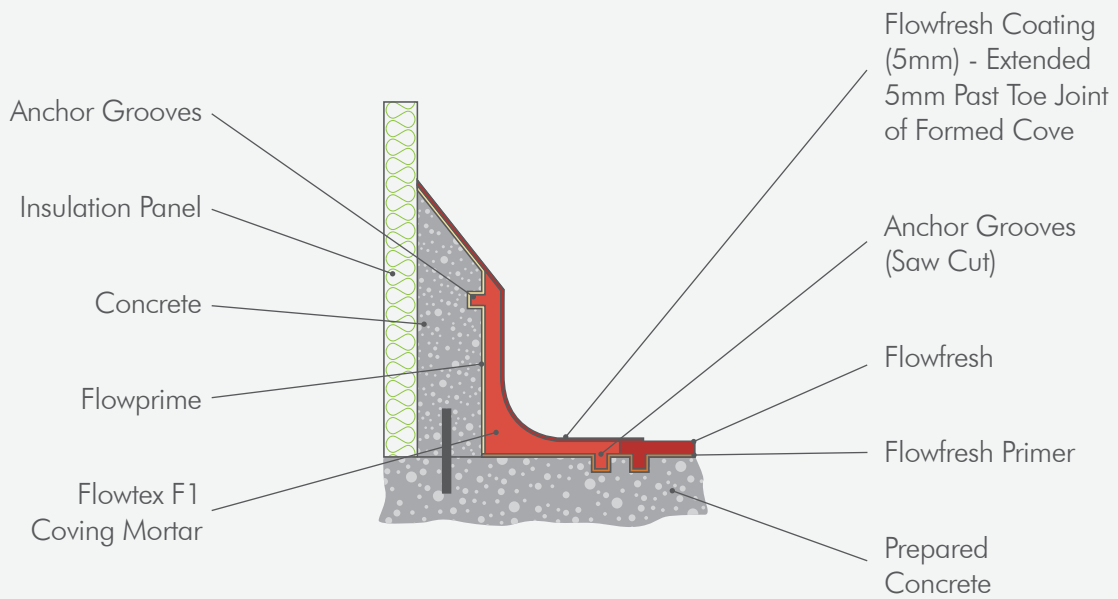
Detailed information on priming application requirements for each Flowfresh system can be found in Part 4: Products of this document.

Detailed Illustrations

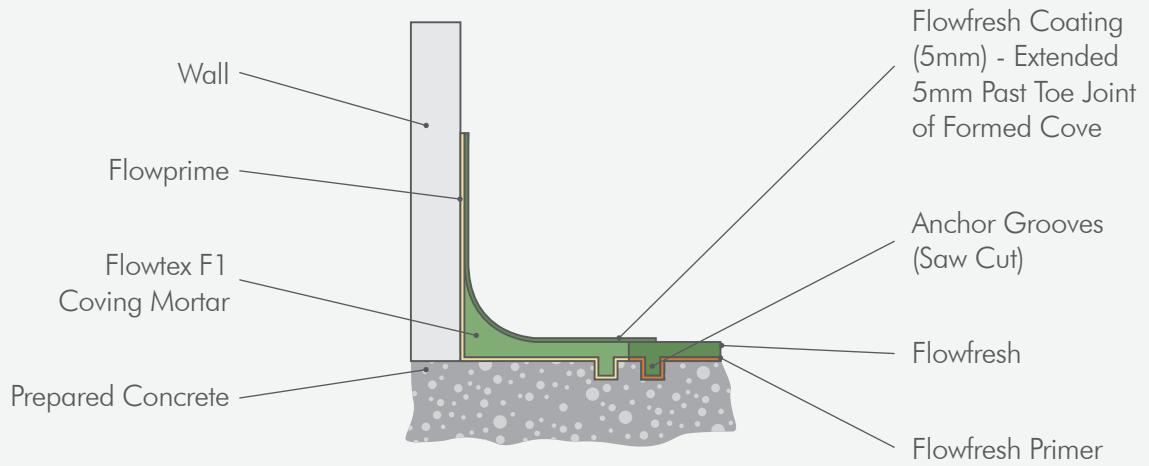
Cove to Kerb [Variation A]



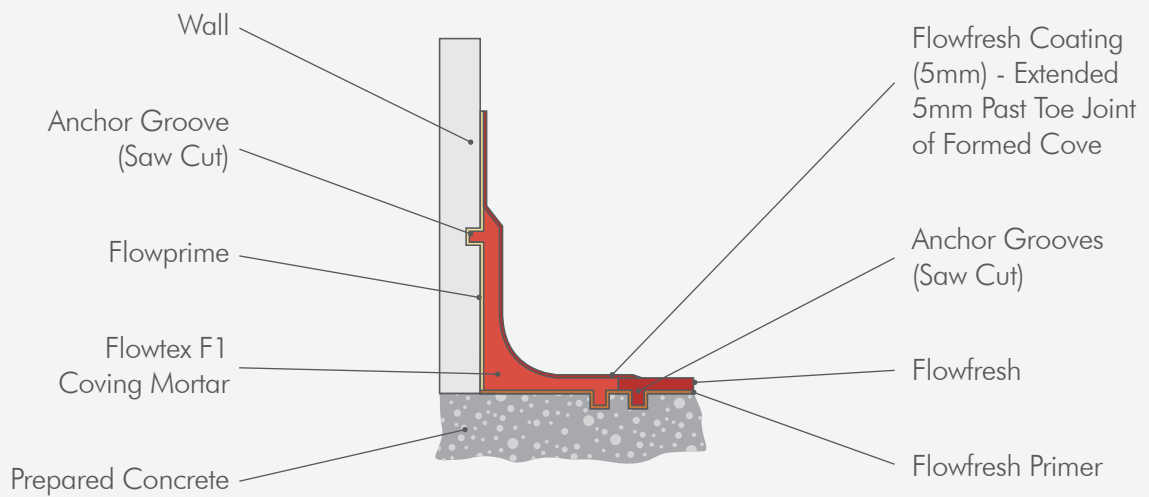
Cove to Kerb [Variation B]



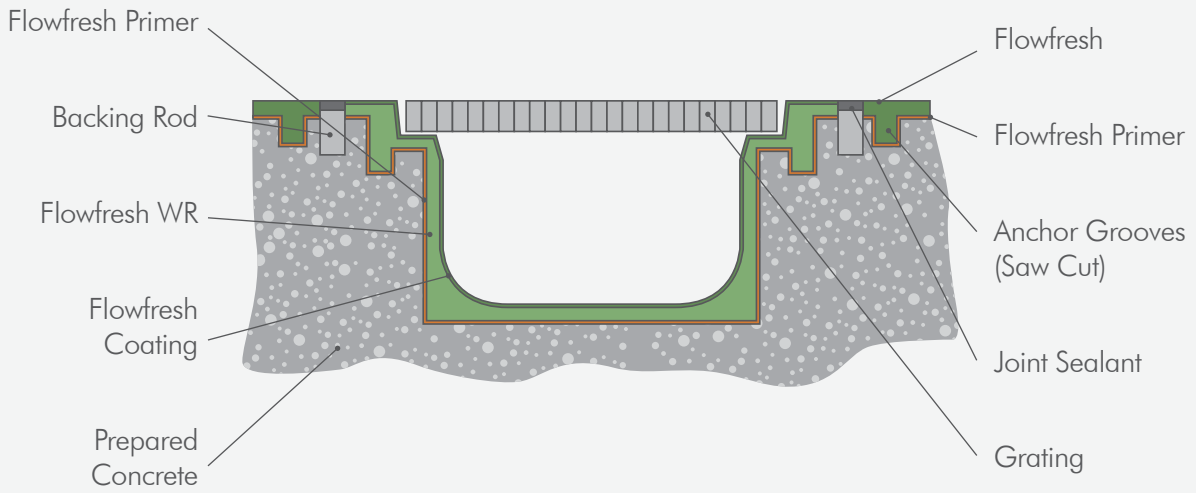
Cove to Wall [Variation A]



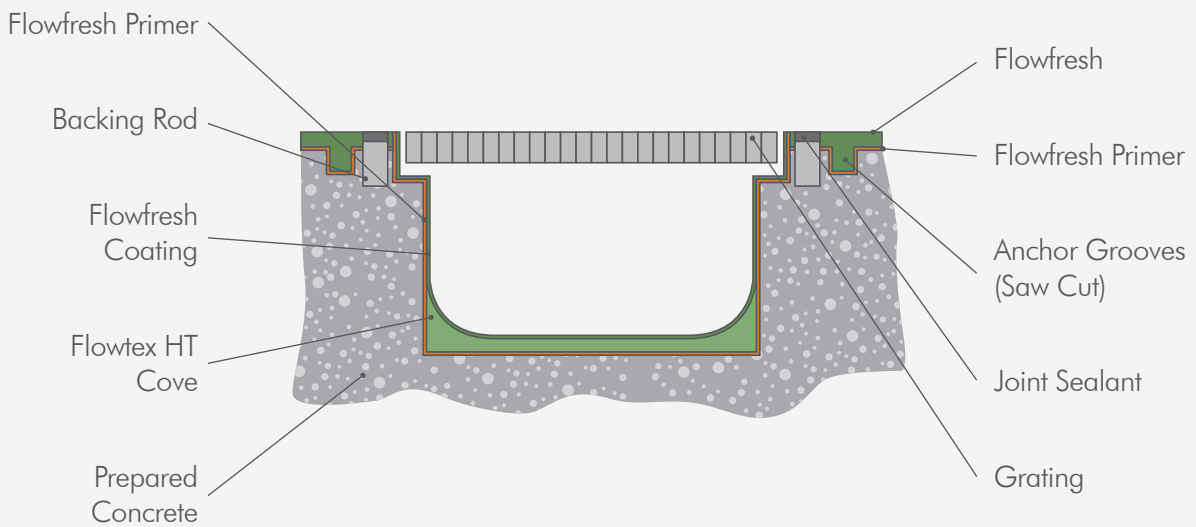
Cove to Wall [Variation B]



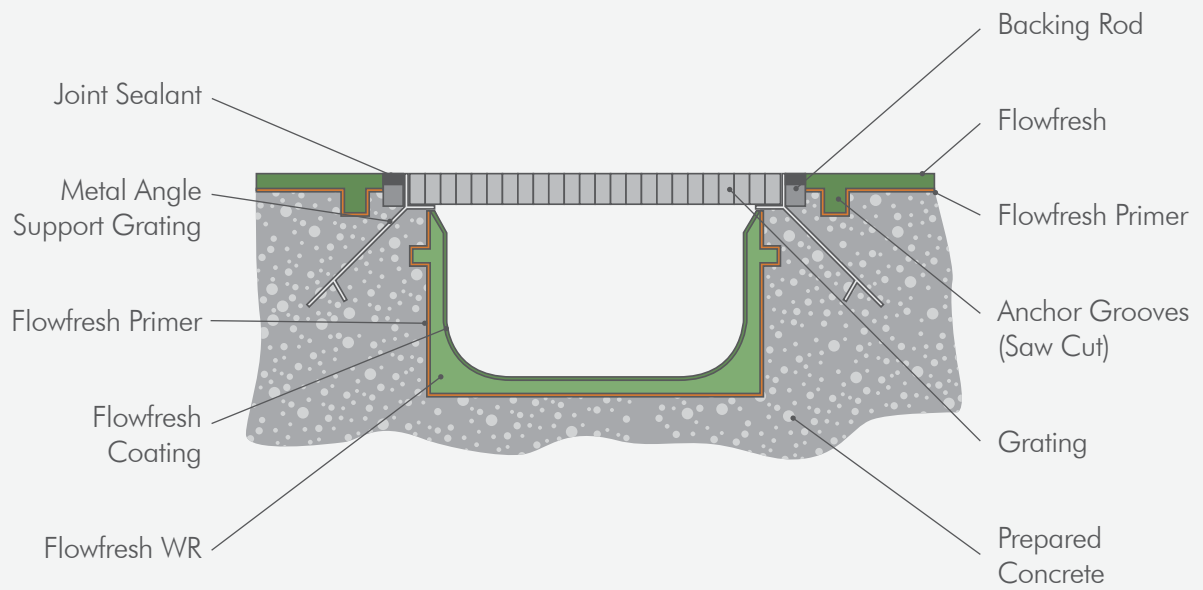
Fully Formed Stainless Steel Drain



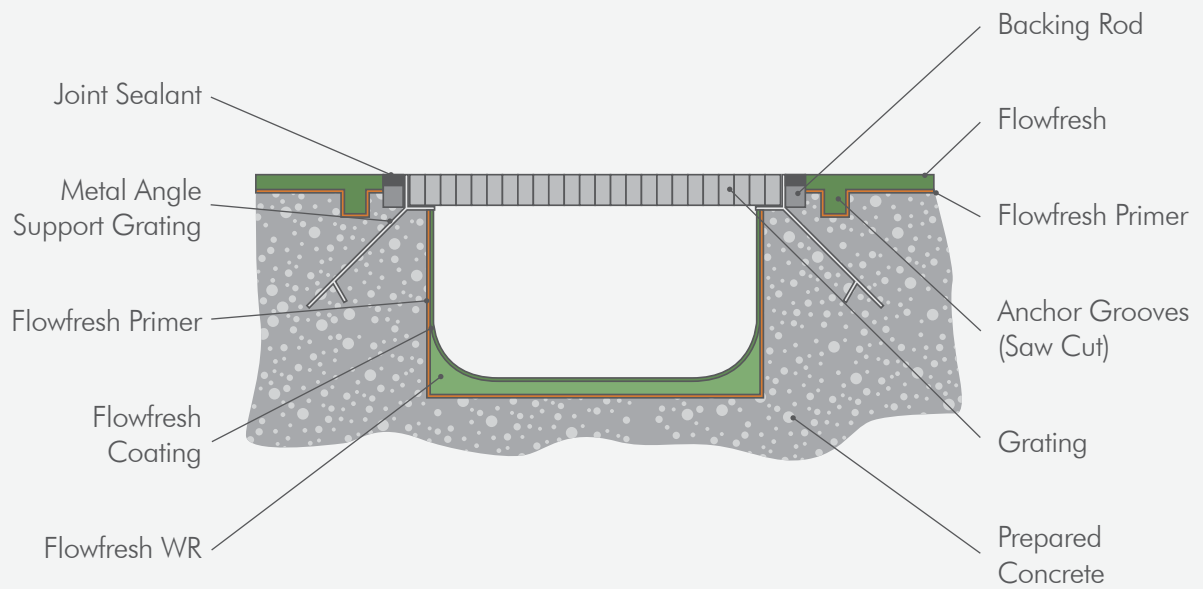
Fully Lined Stainless Steel Drain



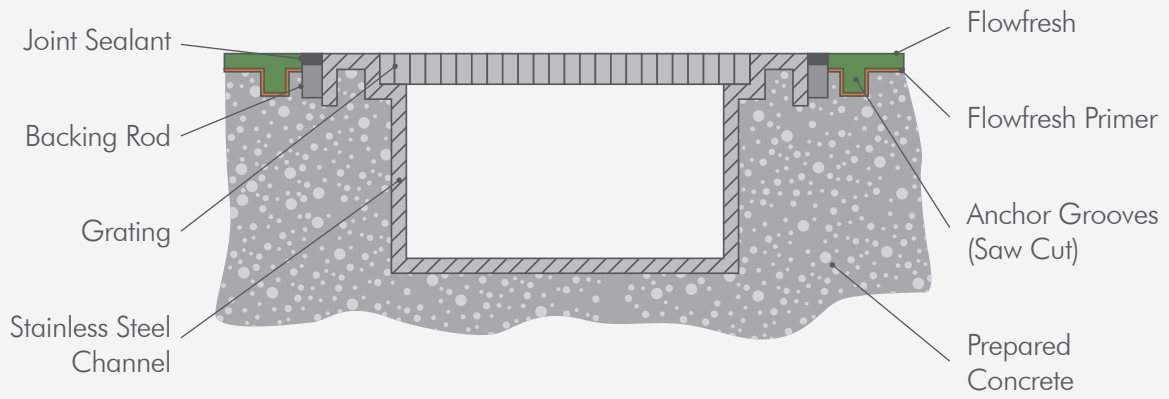
Stainless Steel Drain | Angle Support Grating [Variation A]



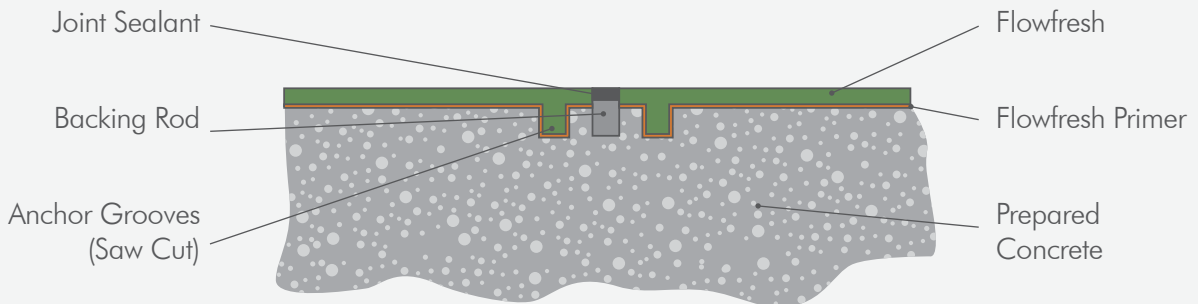
Stainless Steel Drain | Angle Support Grating [Variation B]



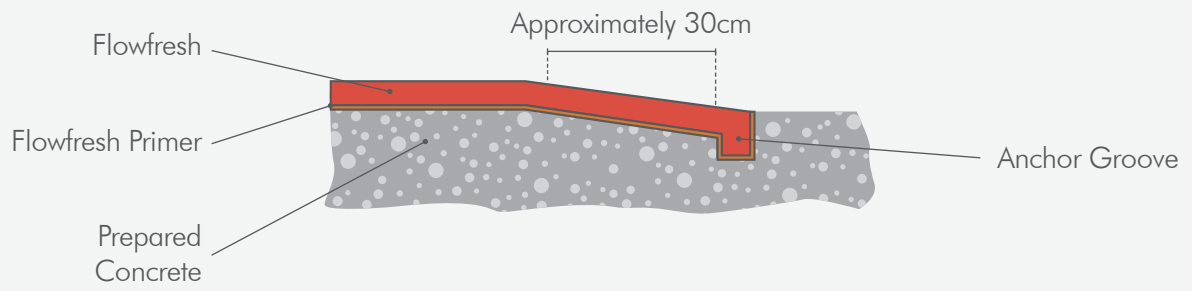
Stainless Steel Drain



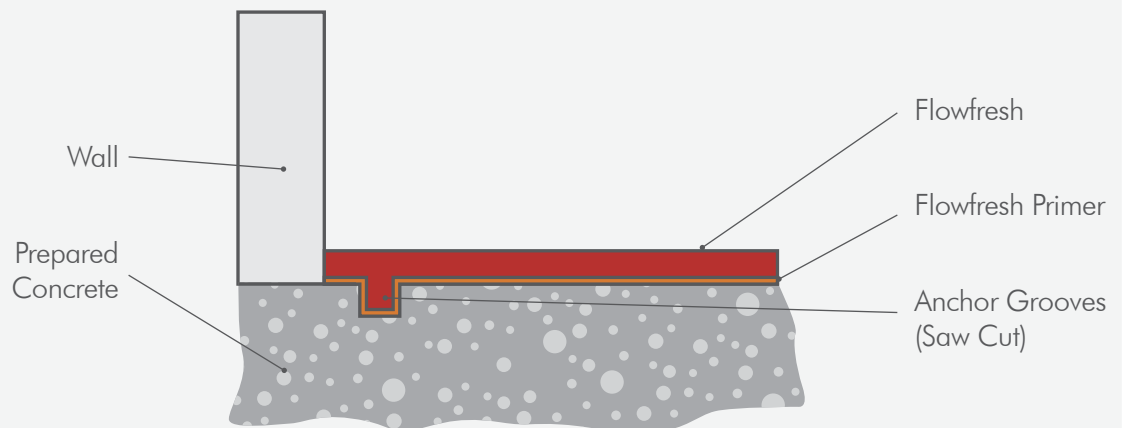
Movement Joint



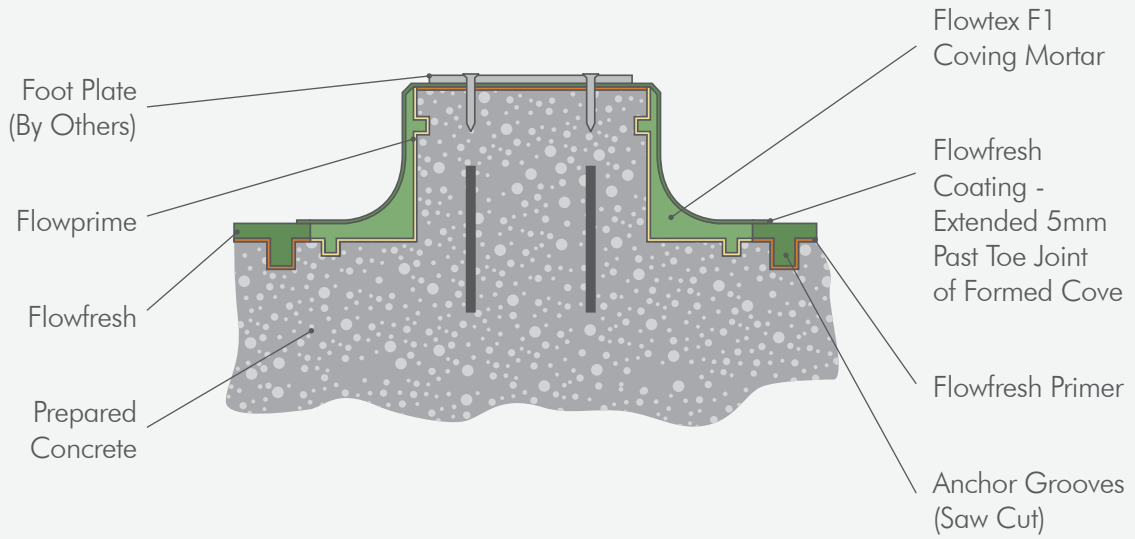
Termination at Free Edge



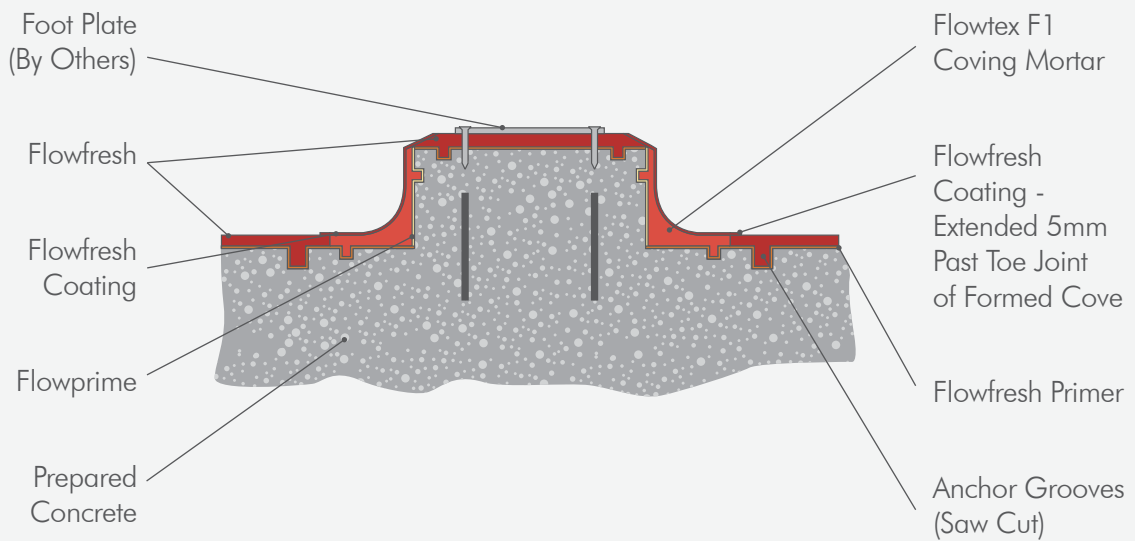
Termination at Wall



Plinth | Less than 300mm



Plinth | More than 300mm



Part 3: Pre-Application Planning

Good Practice

The success of any Flowfresh installation begins with proper material handling and mixing.

Prior to beginning any Flowfresh installation, the applicator must:

- Carefully plan the flow of material from the staging / laydown area to the mixing area.
- Ensure that the temperature conditions of the material can be maintained during the entire mixing and application process.
- In the event that the material can not be staged directly by the mixing station, ensure that the material can be moved quickly and efficiently from the storage area to the mixing area. Ensure that enough material can be staged adjacent to the mixing station to allow for uninterrupted flow of material to the application area.
- Ensure that intermediate areas between the mixing station and application area are protected as required.
- Ensure that power supplies are secure and will remain uninterrupted during the mixing and application process. Provide for backup power supply if necessary. Also consider lighting during application.
- Isolate the mixing and application areas to prevent unauthorised persons from entering.
- Post any applicable safety warning signs and notify appropriate personnel of activities.

Mixing & Application Equipment

It is critical that the correct mixing and application equipment is available on site for the Flowfresh system that is to be installed. The following equipment has been identified as suitable for mixing and applying the following Flowfresh systems:

Flowfresh System	Slow Speed Drill	Helical Spinner Head	Forced Action Mixer	Flat Squeegee	Medium Pile Roller	Notch Squeegee	Screed Box	Steel Hand Trowel	Spiked Roller	Vacuum	AvoMegger BM 80	Coving Trowel
Flowfresh HF	✓	✓	✓	✓	✓		✓	✓		✓		
Flowfresh MF	✓	✓		✓		✓		✓				
Flowfresh RT	✓	✓	✓		✓		✓	✓		✓		
Flowfresh SL	✓	✓		✓		✓		✓	✓			
Flowfresh SR	✓	✓		✓	✓	✓		✓	✓	✓		
Flowfresh SRQ	✓	✓			✓	✓		✓	✓	✓		
Flowfresh ESD HF	✓	✓	✓	✓	✓		✓	✓		✓	✓	
Flowfresh ESD MF	✓	✓		✓		✓		✓	✓	✓	✓	
Flowfresh WR	✓	✓			✓			✓				✓

Alternative mixers should be checked for efficiency and verified by a Flowcrete representative prior to use. It is the manufacturer's recommendation that hand mixers are NOT to be used.

The use of new equipment is recommended wherever possible, although used equipment is suitable provided that it has been thoroughly cleaned and is free from debris.

Where required, ensure that any application equipment is properly set to deliver the required thickness of the Flowfresh system that is to be installed. This is especially important for ESD systems as the floor thickness will affect conductivity readings.

Mixing

No single element of a Flowfresh installation will affect the application of the product more than proper mixing. Improper mixing will result in:

- Uneven or inadequate cure
- Poor adhesion
- Uneven colouration and surface texture
- Premature failure in service

Flowfresh materials are packaged as unitised "kits" containing the proper amounts of each component. Do not substitute any components. The Filler C powder contains several essential active components and must never be substituted.

Note

There are no approved thinners for use with Flowfresh materials. Never thin any Flowfresh material. Use of any thinner will void warranty.

Mixing Equipment

Mixing Station

Provide for adequate area to mix the product. Consideration should be made for the disposal of empty containers that will accumulate during mixing.

Provide additional resource to handle the disposal of containers so as not to interrupt the movement of material to the mix station, mixing and movement of mixed material to the application area.

The following steps should be adhered to at the mixing station:

- Position the mixer as close to the working area as possible. It is critical that the mixing station and neighbouring area be kept clean in order to prevent damage to newly laid floors as well as any contamination to the material being mixed.
- Ensure that components are kept at the correct temperature as detailed in Part 2: Preparation of Substrates.
- Ensure that all Flowfresh components are well placed and easily accessible so not to affect the manufacturers' recommended mixing times.
- Open packaging in advance, with the exclusion of Base A, to facilitate rapid turnaround of the mixer.

Over-mixing

Be aware that Flowfresh materials will begin to generate heat during mixing.

Over-mixing beyond the time absolutely necessary to mix the Base A, Hardener B and Filler C will result in shorter working times on the actual floor application.

In warmer weather, mixing time may be reduced to accommodate the lower viscosity of the mixed material and the shorter allowable mixing time.

In colder weather, longer mixing times may be required due to the higher viscosity.

At temperatures below 15°C mixing time may increase by approximately 50%. At temperatures below 12°C mixing time may double.

In all cases, mixing must be thorough enough to consolidate all of the powder into the Flowfresh mix.

Application Planning

Site Protection

Neighbouring floor coverings or surfaces not receiving application of Flowfresh systems must be protected. This includes surrounding flooring, walls, columns and plant equipment as well as any other fittings or fixtures.

Cured Flowfresh product can only be removed from contaminated surfaces by mechanical means, so it is imperative that soiling is prevented.

Coverage Planning

Prior to beginning application all material should be counted to ensure that there is a sufficient quantity to cover the desired area. For all Flowfresh systems it is critical coverage rates remain consistent throughout the floor.

As a visual aid to achieving a level floor at the correct thickness, the area to be covered by individual mixes can be marked by chalk lines on the substrate.

Cove Application Planning

The junction of floor and wall surfaces can become a source of contamination subject to the build-up of grease and dirt. It is therefore advisable that the junction be coved to assist with cleaning and deliver an impenetrable clean barrier. Finish the cove with a UV stable Flowfresh Coating and Flowseal UV.

Map out the installation of the cove base prior to beginning the application of the Flowfresh flooring. As the cove is applied prior to laying the floor it is important that the cove application is kept ahead of the floor application. Ensure the coving has cured for a minimum of 8 hours before applying the adjacent flooring material.

Dew Point Temperature with Relative Humidity of Air

The dew point table below shows at which temperature condensation starts forming on the substrate, dependant on the relative humidity and temperature of the air.

2°C	-7.8	-6.6	-5.4	-4.4	-3.2	-2.5	-1.8	-1.0	-0.3	0.5	1.2
4°C	-6.1	-4.9	-3.7	-2.6	-1.8	-0.9	-0.1	0.8	1.6	2.4	3.2
6°C	-4.5	-3.2	-2.1	-1.1	-0.1	0.9	1.9	2.7	3.6	4.5	5.4
8°C	-2.7	-1.6	-0.4	0.7	1.8	2.8	3.8	4.8	5.7	6.5	7.3
10°C	-1.3	0.0	1.3	2.5	3.7	4.8	5.8	6.8	7.7	8.5	9.3
12°C	0.4	1.8	3.2	4.5	5.6	6.7	7.8	8.7	9.6	10.5	11.3
14°C	2.2	3.8	5.1	6.4	7.6	8.7	9.7	10.7	11.6	12.6	13.4
15°C	3.1	4.7	6.1	7.4	8.5	9.6	10.7	11.7	12.6	13.5	14.4
16°C	4.1	5.6	7.0	8.3	9.5	10.6	11.7	12.7	13.6	14.6	15.5
17°C	5.0	6.5	7.9	9.2	10.4	11.5	12.5	13.6	14.5	15.4	16.2
18°C	5.9	7.4	8.8	10.1	11.3	12.4	13.5	14.6	15.4	16.3	17.3
19°C	6.8	8.3	9.8	11.1	12.3	13.4	14.5	15.5	16.4	17.4	18.2
20°C	7.7	9.3	10.7	12.0	13.2	14.4	15.5	16.5	17.4	18.4	19.2
21°C	8.6	10.2	11.6	12.9	14.2	15.4	16.4	17.4	18.4	19.3	20.2
22°C	9.5	11.2	12.5	13.9	15.2	16.3	17.4	18.4	19.4	20.3	21.2
23°C	10.4	12.0	13.5	14.9	16.0	17.3	18.4	19.4	20.4	21.3	22.2
24°C	11.3	12.9	14.4	15.7	17.1	18.2	19.2	20.3	21.4	22.3	23.2
25°C	12.2	13.8	15.4	16.7	18.0	19.1	20.2	21.4	22.3	23.3	24.2
26°C	13.2	14.8	16.3	17.7	18.9	20.1	21.3	22.3	23.3	24.3	25.2
27°C	14.1	15.7	17.2	18.6	19.8	21.1	22.2	23.3	24.3	25.2	26.1
28°C	15.0	16.6	18.1	19.4	20.9	22.1	23.2	24.3	25.3	26.2	27.2
29°C	15.9	17.6	19.0	20.5	21.8	23.0	24.2	25.2	26.2	27.3	28.2
30°C	16.8	18.4	20.0	21.4	22.7	23.9	25.1	26.1	27.2	28.2	29.1
32°C	18.6	20.3	21.9	23.3	24.7	25.8	27.1	28.2	29.2	30.2	31.2
34°C	20.4	22.2	23.8	25.2	26.5	27.8	28.9	30.1	31.2	32.1	33.1
36°C	22.2	24.1	25.5	27.0	28.4	29.7	30.9	32.0	33.1	34.2	35.1
38°C	24.0	25.7	27.4	28.9	30.3	31.6	32.8	34.0	35.0	36.1	37.0
40°C	25.8	27.7	29.2	30.8	32.2	33.5	34.7	35.9	37.0	38.1	39.1
45°C	30.3	32.2	33.9	35.4	36.9	38.2	39.5	40.7	41.9	43.0	44.0
50°C	34.8	36.6	38.5	40.1	41.6	43.0	44.3	45.6	46.8	47.9	49.0

Joint Treatment

Prior to installation all joints, expansion, control and construction, should be cleaned with a masonry saw, blown out with compressed air or vacuumed to remove dust and debris.

Expansion joints should be open and clear of asphalted fiberboard or cork filler board. Fill with closed-cell foam backer rod.

Control joints should be cleaned and filled with appropriate size closed-cell foam backer rod. Treat as outlined in the section covering joints.

Construction (cold) joints need to be honoured and reflected through the Flowfresh topping. Normally, this type of joint is closed and indicates where one structural pour stops and another begins, and is installed without the benefit of an expansion joint.

Construction joints should be marked prior to Flowfresh installation with a nail or other method and re-sawed after installation of the topping.

Day Joint / Seam Planning

Prior to starting, carefully lay out the installation of product to the floor. The layout of the floor and the resulting 'cold' joints should also be agreed to with the engineer or owner.

Large installations or installations that incorporate many rooms should be divided into workable areas according to the amount of material that can be installed in an average eight to ten hour day. Keeping a steady pace is necessary for such installations as is planning and marking out bay lines noting the following:

- Day joints / cold seams and sometimes other bay lines will show in the finished floor. Wherever possible, these should be positioned so that they will be hidden by plant equipment and fixtures to be installed on the floor. The position of bay lines and day joints should be agreed with the client prior to the installation of Flowfresh material.
- Bay widths should be such that each mix can cover the width of the bay in a band ~ 0.5m wide. Mixing multiple sets at one time will allow a wider bay to be undertaken. Insufficient labour for the amount of material per mix, or alternatively insufficient material per mix for the width of the bay will almost always inevitably result in an inferior surface appearance and possible client rejection.
- Bay lengths are determined by the area to be applied between breaks. This depends on the grade, the size of the laying team, mixing equipment and the temperatures of the atmosphere and the substrate. Bay lengths should be limited based on the above mentioned limitations to ensure cold seams are not produced between bay lines.
- To ensure a neat appearance, bay lines should be straight and formed with polyethylene-film-coated timber strips slightly thicker than the required thickness of the Flowfresh floor.

Chamfering

Identify and treat all areas that require chamfering to allow full thickness of material at termination points. These are:

- Drains and trenches
- Terminations to same level adjacent floor
- Doorways, including overhead doors

Treat these terminations in accordance with the construction details contained elsewhere in this document.

Special Considerations

Carefully examine and discuss with the owner or engineer any special conditions that may exist after the floor is put into service. Examples of areas that should receive special consideration are:

- Areas where process temperatures may reach the practical limits of the Flowfresh material.
- Areas where point sources of very high, or continuous temperatures may exist.
 - Steam condensate down-pipes in close proximity to the floor surface should be shielded from the Flowfresh surface with a piece of steel, or a piece of quarry tile.
 - Burners under cooling vessels should be shielded.
 - Oil drains from frying or cooling vessels should be piped through and not allowed to purge on to the floor surface at temperatures above the recommended limit for the selected material.
- Areas where the total temperature change will be extraordinary. Freezer cases and flash freezers where the differences between the application temperature and the operation temperature will be in excess of 5°C need to be evaluated for areas of restrained expansion or contraction.

Extraordinary reduction in temperature after application can be successfully achieved if the proper allowance is made for the reduction in dimension cause by thermal contraction.

Part 4: Flowfresh Systems Application Instructions

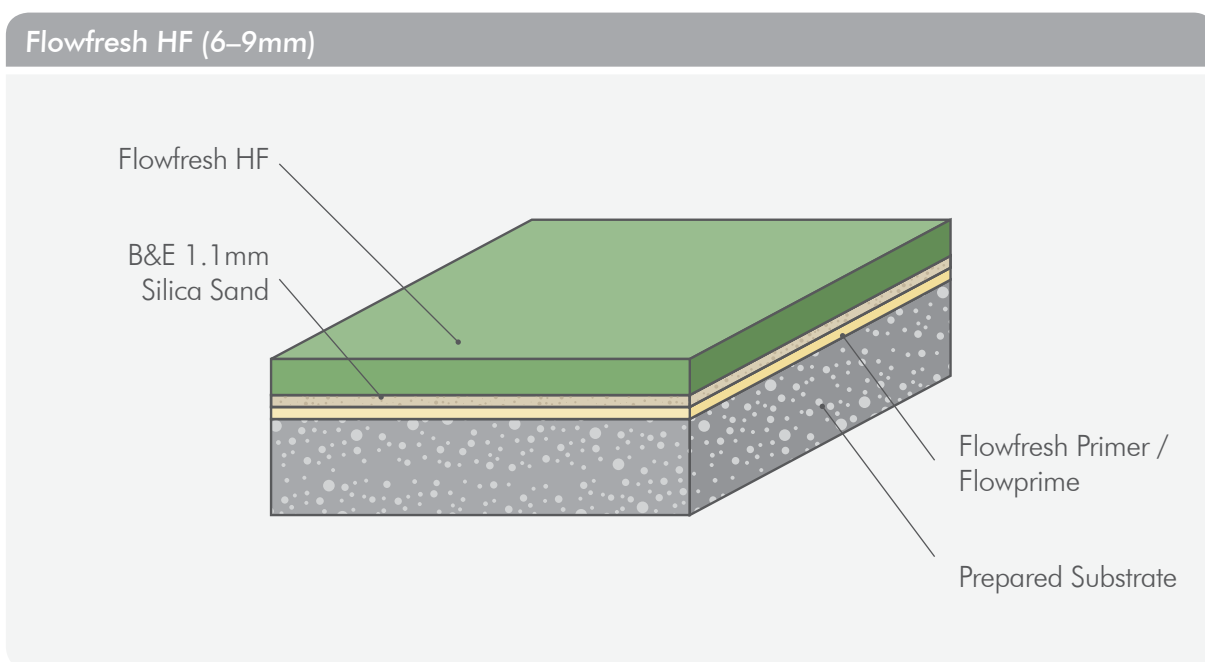
Flowfresh HF (6–9mm)

Products Required

- Flowfresh Primer / Flowprime
- B&E 1.1mm Silica Sand
- Flowfresh HF

All pack components for the products detailed above are pre-weighted for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowfresh Primer (Variation A)	0.50 kg/m ²
Flowprime (Variation B)	0.25 kg/m ²
B&E 1.1mm Silica Sand	1.0 kg/m ²
6mm	12.0 kg/m ²
7mm	14.0 kg/m ²
8mm	16.0 kg/m ²
9mm	18.0 kg/m ²

Application Instructions

Step 1: Application of Flowfresh Primer (Variation A)

The substrate must be surface dry prior to the application of Flowfresh Primer.

1. Mix Base A and Hardener B in a clean mixing container with a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh Primer using a steel hand trowel.

Step 1: Application of Flowprime (Variation B)

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Immediately broadcast B&E 1.1 mm Silica Sand into the wet primer until refusal. Allow to cure for 7–15 hours.
4. Once cured, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.

Step 2: Application of Sand Scatter

1. Apply B&E 1.1 mm Silica Sand approximately 10 minutes to 15 minutes dependant on temperature, after the application of the Flowfresh Primer and broadcast to cover.
2. Once the first coat has cured for a minimum of 8 hours, remove the excess sand and loose particles thoroughly by brush and vacuum.

¹³ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

Step 3: Application of Flowfresh HF Mortar¹³

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh HF mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and Filler D and mix for an additional 120 seconds using a forced action mixer, until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh HF using a controlled clearance screed box, overlapping paths by approximately 3mm. Use a steel hand trowel to level screed lines and create an even surface.
4. Lightly roll the surface using a medium pile roller immediately after troweling. Do not continue to roll the surface if the material has been on the floor for more than 8 minutes. Late or heavy rolling may induce pinholes or cause problems with the finish texture and appearance.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

Flowfresh MF (3–4mm)

Products Required: Variation A

- Flowfresh Primer
- Flowfresh MF

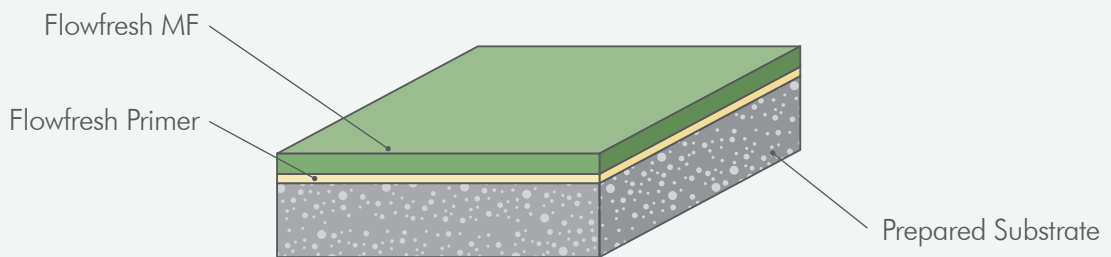
Products Required: Variation B

- Flowprime
- Eggo 0.3–0.65
- Flowfresh MF

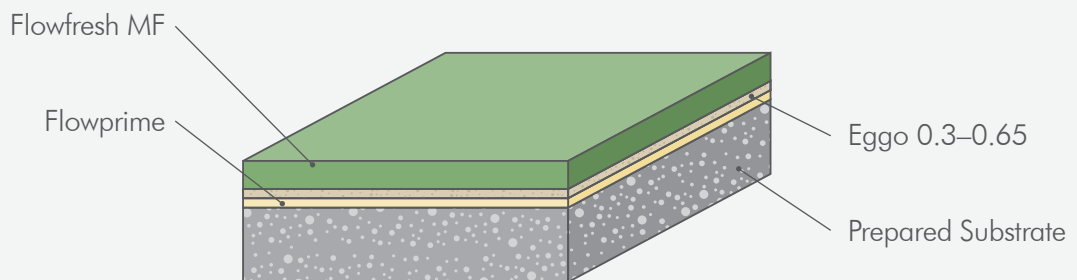
All pack components for the products detailed above are pre-weighted for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram

Flowfresh MF (3–4mm) | Variation A



Flowfresh MF (3–4mm) | Variation B



Coverage Rates

Flowfresh Primer	0.50 kg/m ²
Flowprime (per coat)	0.25 kg/m ²
3mm	5.70 kg/m ²
4mm	7.60 kg/m ²
Scatter: Eggo 0.3–0.65	1.0 kg/m ²

Application Instructions

Step 1: Application of Flowfresh Primer (Variation A)

The substrate must be surface dry prior to the application of Flowfresh Primer.

1. Mix Base A and Hardener B in a clean mixing container with a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh Primer using a steel hand trowel. Allow to become tack free for a minimum of 8 hours before applying the mortar.

Step 1: Application of Flowprime (Variation B)

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Immediately broadcast Eggo 0.3–0.65 into the wet primer until refusal. Allow to cure for 7–15 hours.
4. Once cured, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.

Step 2: Application of Flowfresh MF Mortar¹⁴

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh MF mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh MF at the required thickness using a notch squeegee or steel hand trowel.
4. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finish texture and appearance.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

¹⁴ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

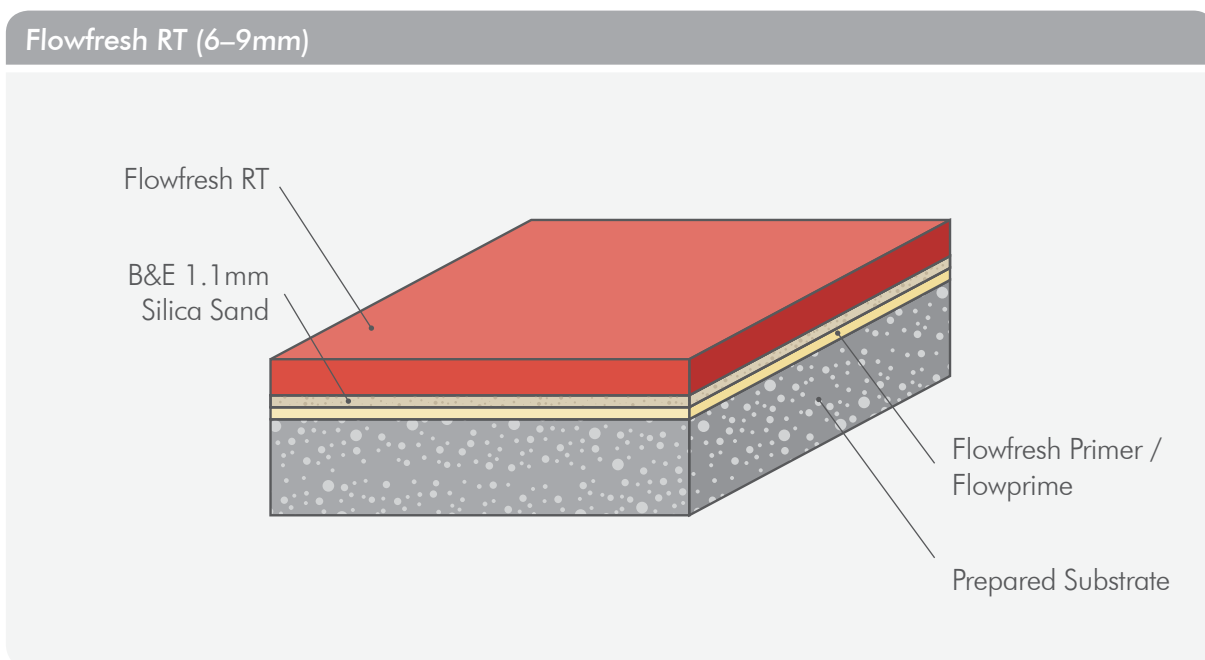
Flowfresh RT (6–9mm)

Products Required

- Flowfresh Primer / Flowprime
- B&E 1.1mm Silica Sand
- Flowfresh RT

All pack components for the products detailed above are pre-weighted for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowfresh Primer (Variation A)	0.50 kg/m ²
Flowprime (Variation B)	0.25 kg/m ²
B&E 1.1mm Silica Sand	1.0 kg/m ²
6mm	12.0 kg/m ²
7mm	14.0 kg/m ²
8mm	16.0 kg/m ²
9mm	18.0 kg/m ²

Application Instructions

Step 1: Application of Flowfresh Primer (Variation A)

The substrate must be surface dry prior to the application of Flowfresh Primer.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh Primer using a steel hand trowel.

Step 1: Application of Flowprime (Variation B)

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Immediately broadcast B&E 1.1mm into the wet primer until refusal. Allow to cure for 7–15 hours.
4. Once cured, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.

Step 2: Application of Sand Scatter

1. Apply B&E 1.1mm Silica Sand approximately 10 minutes to 15 minutes dependant on temperature, after the application of the Flowfresh Primer and broadcast to cover.
2. Once the first coat has cured for a minimum of 8 hours, remove the excess sand and loose particles thoroughly by brush and vacuum.

Step 3: Application of Flowfresh RT Mortar¹⁵

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh RT mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and Filler D and mix for an additional 120 seconds using a forced action mixer, until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh RT at the required thickness using a controlled clearance screed box and spread the material across the floor overlapping the previous pass by 3mm.
4. Use a hand trowel to level screed lines and create an even surface.
5. Lightly roll the surface using a medium pile roller immediately after troweling. Do not continue to roll the surface if the material has been on the floor for more than 8 minutes. Late or heavy rolling may induce pinholes or cause problems with the finished texture and appearance.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

¹⁵ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

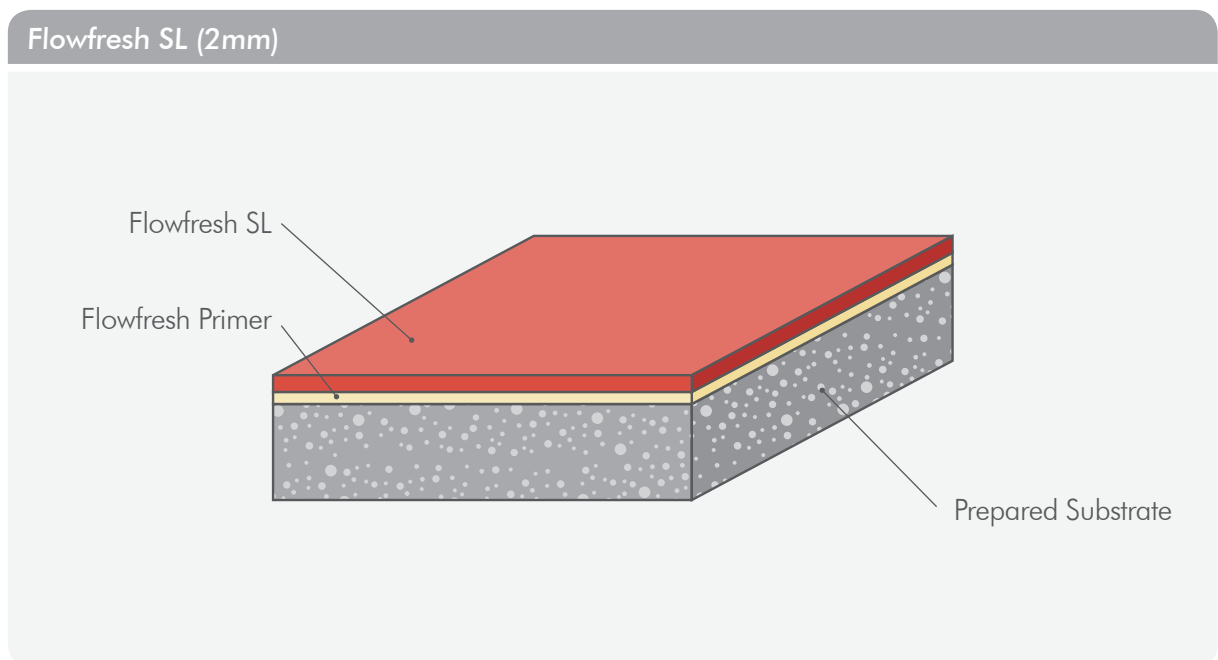
Flowfresh SL (2mm)

Products Required

- Flowfresh Primer
- Flowfresh SL

All pack components for the products detailed above are pre-weighed for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowfresh Primer	0.50 kg/m ²
2mm	3.80 kg/m ²

Application Instructions

Step 1: Application of Flowfresh Primer

The substrate must be surface dry prior to the application of Flowfresh Primer.

1. Mix Base A and Hardener B in a clean mixing container with a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh Primer using a steel hand trowel. Allow to become tack free for a minimum of 8 hours before applying the mortar.

Step 2: Application of Flowfresh SL Mortar¹⁶

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh SL mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh SL at the required thickness using a notch squeegee or steel hand trowel
4. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finished texture and appearance.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

¹⁶ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

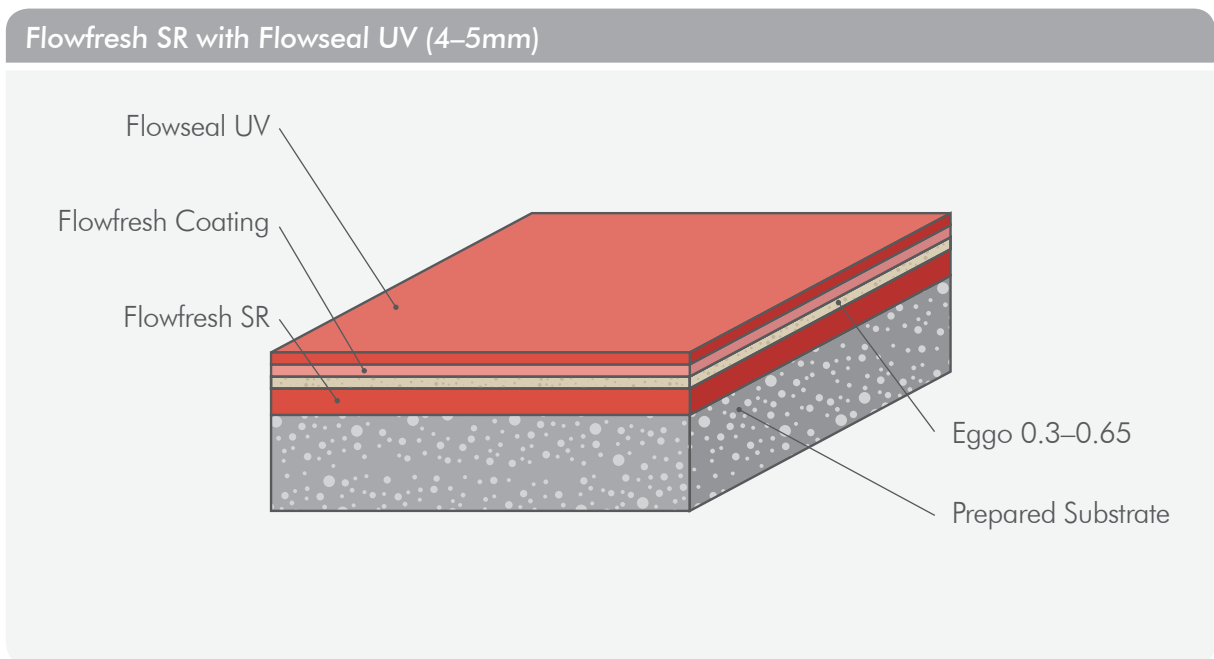
Flowfresh SR with Flowseal UV (4–5mm)

Products Required

- Flowfresh SR
- Eggo 0.3–0.65
- Flowfresh Coating
- Flowseal UV

All pack components for the products detailed above are pre-weighed for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowfresh SR	8.50 kg/m ²
Scatter: Eggo 0.3–0.65	2.50 kg/m ²
Coating: Flowfresh Coating	0.50 kg/m ²
Sealer: Flowseal UV (per coat)	0.15 kg/m ²

Application Instructions

Step 1: Application of Flowfresh SR Mortar¹⁷

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh SR mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh SR at the required thickness using a notch squeegee or steel hand trowel.
4. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finished texture and appearance.

Step 2: Application of Sand Scatter

1. Once a level finish is achieved, immediately broadcast the Eggo 0.3–0.65 aggregate into the wet mortar until refusal.
2. When the Flowfresh SR is tack free, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.

Step 3: Application of Flowfresh Coating

1. Stir Base A to re-disperse any settlement. Transfer the Base A to a clean mixing container. Add the Hardener B and mix with a slow speed drill and helical spinner head for 20 seconds.
2. Add Filler C and mix for an additional 90 seconds until the mixture is uniform, taking care not to entrain air.
3. Immediately after mixing, apply the Flowfresh Coating using a squeegee and finish with roller. Allow to become tack free for a minimum of 8 hours before applying the Flowseal UV.

¹⁷ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

Step 4: Application of Flowseal UV

1. Stir Base A to re-disperse any settlement. Add the Hardener B to the Base A and mix with a slow speed drill and helical spinner head for 120 seconds, taking care not to entrain air.
2. Immediately after mixing, apply the Flowseal UV using a squeegee and roller. Allow to cure (typically 5–10 hours, dependent on temperature).

Step 5: Application of Flowseal UV (Second Coat)

1. Within 24 hours, mix and apply as previous coat.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

Flowfresh SR with Flowseal Ultra (4–5mm)

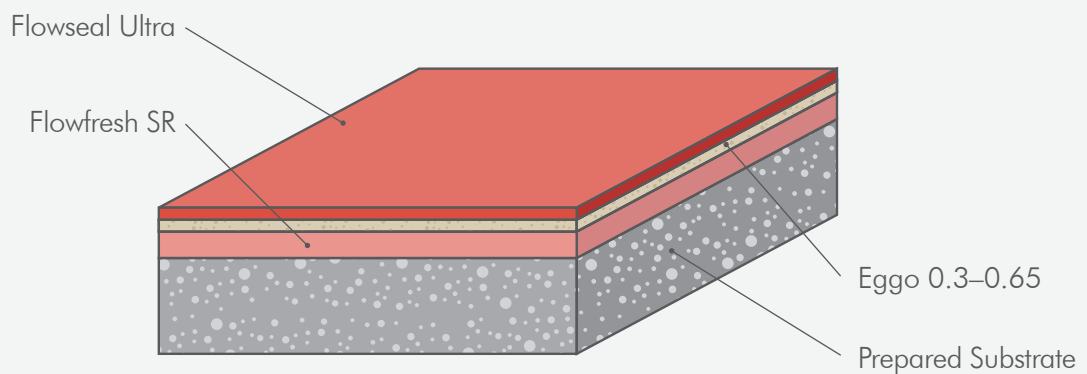
Products Required

- Flowfresh SR
- Eggo 0.3–0.65
- Flowseal Ultra

All pack components for the products detailed above are pre-weighted for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram

Flowfresh SR with Flowseal Ultra (4–5mm)



Coverage Rates

Flowfresh SR	8.50 kg/m ²
Scatter: Eggo 0.3–0.65	2.50 kg/m ²
Flowseal Ultra	0.40 kg/m ²

Application Instructions

Step 1: Application of Flowfresh SR Mortar¹⁸

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh SR mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh SR at the required thickness using a notch squeegee or steel hand trowel.
4. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finished texture and appearance.

Step 2: Application of Sand Scatter

1. Once a level finish is achieved, immediately broadcast the Eggo 0.3–0.65 aggregate into the wet mortar until refusal.
2. When the Flowfresh SR is tack free, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.

Step 3: Application of Flowseal Ultra

1. Stir Base A to re-disperse any settlement. Add the Hardener B to the Base A and mix with a slow speed drill and helical spinner head for 120 seconds, taking care not to entrain air.
2. Immediately after mixing, apply the Flowseal Ultra using a squeegee and roller. Allow to cure (typically 5–10 hours, dependent on temperature).

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

¹⁸ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

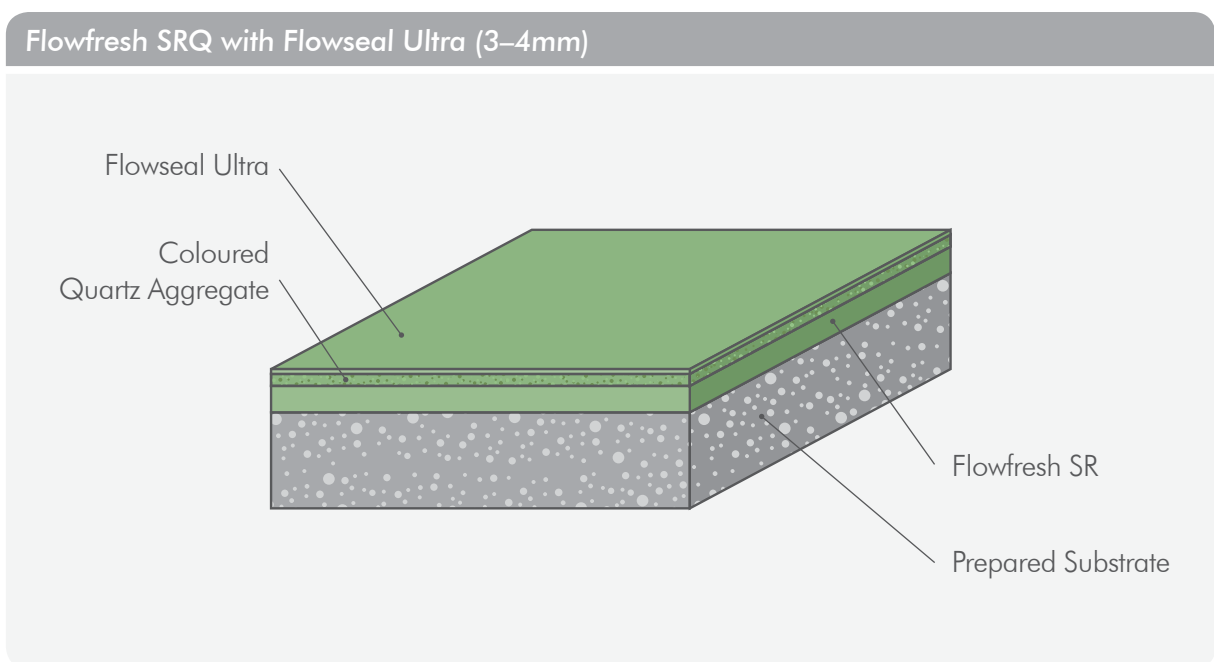
Flowfresh SRQ with Flowseal Ultra (3–4mm)

Products Required

- Flowfresh SR
- Coloured Quartz Aggregate
- Flowseal Ultra

All pack components for the products detailed above are pre-weighed for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowfresh SR	8.5 kg/m ²
Scatter: Coloured Quartz	4.00 kg/m ²
Flowseal Ultra	0.40 kg/m ²

Application Instructions

Step 1: Application of Flowfresh SR¹⁹

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh SR mortar.

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
3. Immediately after mixing, spread the Flowfresh SR at the required thickness using a notch squeegee or steel hand trowel.
4. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finished texture and appearance.

Step 2: Application of Coloured Quartz Scatter

1. Once a level finish is achieved, immediately broadcast the Coloured Quartz Aggregate into the wet mortar until refusal.
2. When the Flowfresh SR is tack free, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.

Step 3: Application of Flowseal Ultra

3. Pre-mix the Base A using a slow speed drill and helical spinner head in its original container to re-disperse any settlement. Transfer to a clean mixing container.
4. Add the Hardener B and mix with a slow speed drill and helical spinner head for 60 seconds, taking care not to entrain air.
5. Immediately after mixing, apply the Flowseal Ultra using a squeegee and roller. Allow to cure.

Step 4: Second Application of Flowseal Ultra

1. Within 24 hours, mix and apply a second coat of Flowseal Ultra by repeating Step 5.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

¹⁹ Where pigment is supplied separately, please refer to the Individual Pigment Packs sub-section.

Individual Pigment Packs

Pigment to colour the Flowfresh mortar can be supplied separately on request. Individual pigment packs are available in conjunction with all systems using Flowfresh HF / RT and MF / SL mortars excluding antistatic systems.

Where individual pigment packs are supplied, please ensure that the following application steps are taken above those outlined in the above sections.

Flowfresh HF / RT Mortars

Note

Replace the existing Step 3: Application of Flowfresh HF / RT Mortar with the following:

Replacement Step 3: Application of Flowfresh HF / RT Mortar

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh HF / RT system.

1. Mix Base A in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Agitate the pigment pack in its individual container. Add to the Base A and mix for 20 seconds. Add Hardener B into the mixture and mix for an additional 20 seconds, taking care not to entrain air.
3. Add the Filler C and Filler D mix for a minimum of 120 seconds until the mixture is uniform using a forced action mixer.
4. Immediately after mixing, spread the Flowfresh HF / RT at the required thickness using a controlled clearance screed box, overlapping notched paths by approximately 3mm. Use a hand trowel to level screed lines and create an even surface.
5. Lightly roll the surface using a medium pile roller immediately after troweling. Do not continue to roll the surface if the material has been on the floor for more than 8 minutes, dependent on temperature. Late or heavy rolling may induce pinholes or cause problems with the finished texture and appearance.

Flowfresh MF / SL Mortars

Note

Replace the existing Step 2: Application of Flowfresh MF / SL Mortar with the following:

Replacement Step 2: Application of Flowfresh MF / SL Mortar

Within 24 hours of applying the Flowfresh Primer, apply the Flowfresh MF / SL system.

1. Mix Base A in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Pre-mix the pigment pack by shaking in its individual container. Add to the Base A and mix for 20 seconds. Add Hardener B into the mixture and mix for an additional 20 seconds, taking care not to entrain air.
3. Add the Filler C and mix for an additional 120 seconds until the mixture is uniform.
4. Immediately after mixing, spread the Flowfresh MF / SL at the required thickness using a notch squeegee or steel hand trowel.
5. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finished texture and appearance.

Part 5: Antistatic Systems

Antistatic Systems

The application of antistatic flooring, including earthing and priming, is a specialised process. It is advisable that testing is carried out in conjunction with a qualified electrician in order to assess the quality of the connection to earth.

It is recommended that a network of copper tape connected to the building's main earthing point through copper wire earthing strips be included in the build-up of the antistatic flooring system, in order to ensure effective passage of electrical charge to earth.

Earthing Points

It is essential that sufficient earthing points are provided; these should be agreed with the building owner's electricians prior to installation.

Earthing points are achieved by connecting a multi-strand length of copper wire to earth at one end whilst opening the wire out into a fan shape at the other and fixing to the floor with copper tape. It is critical that good contact is made between the copper wire and tape.

Copper Tape Network

The copper tape, which is most commonly self-adhesive, is secured to the surface of the cured primer, in a maximum 3 × 3m grid pattern, prior to the application of the first antistatic layer.

In some instances, application around room edge or columns only may be required to deliver sufficient protection.

Copper laid to the edge of the room should be at most 1 metre from the walls.

Copper tape should be used to bridge gaps, such as at expansion joints, beam joints, repairs or any other feature or detail breaking up the continuity of the floor. If bridging is not possible, these isolated areas may need to incorporate individual earth connections.

Prior to the installation of the antistatic grade Flowfresh system, it is essential that the electrical continuity of the copper tape network is tested and verified.

If times allows, it is good practise to lay a trial area of antistatic flooring, no more than 10m² at the beginning of the contract to enable all parties involved to agree on the appearance and testing of the floor.

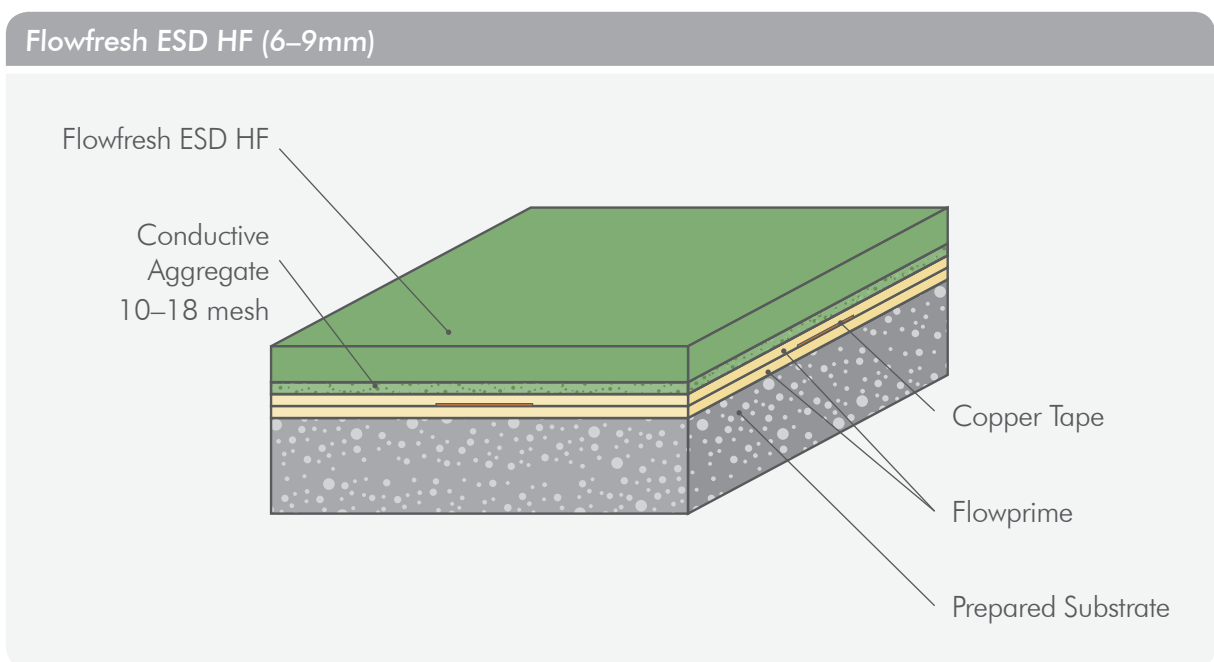
Flowfresh ESD HF (6–9mm)

Products Required

- Flowprime
- Copper Tape
- Conductive Aggregate 10–18 mesh
- Flowfresh ESD HF

All pack components for the products detailed above are pre-weighed for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowprime (per coat)	0.25 kg/m ²
Conductive Aggregate 10–18 Mesh	2.00 kg/m ²
6mm	12.0 kg/m ²
7mm	14.0 kg/m ²
8mm	16.0 kg/m ²
9mm	18.0 kg/m ²

Application Instructions

Step 1: Application of Flowprime

The substrate must be surface dry prior to the application of Flowprime.

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Allow to become tack free (typically 7–15 hours, dependent on ambient temperature).

Step 2: Application of Copper Tape

1. Within 24 hours of applying the Flowprime, apply self-adhesive copper tape to the configuration and requirements detailed at the beginning of this section.

Step 3: Application of Flowprime with Conductive Aggregate 10-18 mesh

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Immediately broadcast Conductive Aggregates 10–18 mesh into the wet primer until refusal. Allow to cure for 7–15 hours.
4. Once cured, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.
5. Measure the conductivity with an AvoMegger BM 80 (or equivalent). Flowprime with Conductive Aggregate 10–18 mesh when tested should have an average resistance reading of less than 1.5 kOhms (1.5×10^3 Ohms).

Note

Flowfresh ESD HF should only be applied if the Flowprime with Conductive Aggregates 10–18 mesh meets the above conductivity requirement. If any readings are out of range, repeat Step 3.

Step 4: Application of Flowfresh ESD HF Mortar

1. Transfer the Base A into a clean mixing container. Add the Flowfresh Conductive Fibres to the container and mix for 20 seconds using a slow speed drill and helical spinner ensuring that the Flowfresh Conductive Fibres are well dispersed.
2. Add the Hardener B into the mixture and mix for an additional 20 seconds, taking care not to entrain air.
3. Add the Filler C and Filler D and mix for an additional 120 seconds until the mixture is uniform using a forced action mixer.
4. Immediately after mixing, spread the Flowfresh ESD HF at the required thickness using a controlled clearance screed box, overlapping the previous pass approximately 3mm. Use a hand trowel to level screed lines and create an even surface.
5. Lightly roll the mortar using a medium pile roller immediately after application to further level the surface. Do not continue to roll the surface if the material has been on the floor for more than 8 minutes. Late or heavy rolling will cause problems with the finished texture and appearance.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

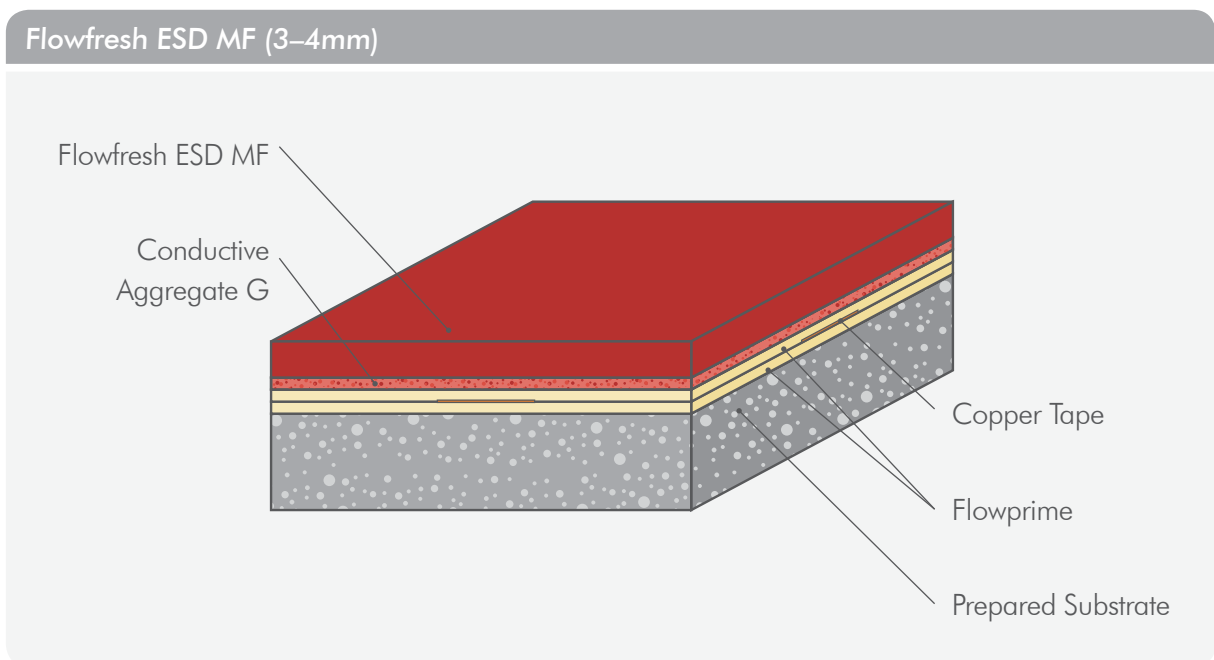
Flowfresh ESD MF (3–4mm)

Products Required

- Flowprime
- Copper Tape
- Conductive Aggregate G
- Flowfresh ESD MF

All pack components for the products detailed above are pre-weighed for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates

Flowprime	0.25 kg/m ² /coat
Conductive Aggregate G	2.0 kg/m ²
3mm	5.70 kg/m ²
4mm	7.60 kg/m ²

Application Instructions

Step 1: Application of Flowprime

The substrate must be surface dry prior to the application of Flowprime.

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Allow to become tack free (typically 7–15 hours, dependent on ambient temperature).

Step 2: Application of Copper Tape

1. Within 24 hours of applying the Flowprime, apply self-adhesive copper tape to the configuration and requirements detailed at the beginning of this section.

Step 3: Application of Flowprime with Conductive Aggregate G

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using a squeegee and roller, ensuring it is worked into all surface irregularities. Immediately broadcast Conductive Aggregate G into the wet primer until refusal. Allow to cure for 7–15 hours.
4. Once cured, remove the excess aggregate and any loose debris thoroughly by brush and vacuum.
5. Measure the conductivity with an AvoMegger BM 80 (or equivalent). Flowprime with Conductive Aggregate G when tested should have an average resistance reading of less than 1.5 kOhms (1.5×10^3 Ohms).

Note

Flowfresh ESD MF should only be applied if the Flowprime ESD Conductive meets the above conductivity requirement. If any readings are out of range, repeat Step 3 after sanding the existing Flowprime ESD Conductive.

Step 4: Application of Flowfresh ESD MF Mortar

1. Transfer the Base A into a clean mixing container. Add the Flowfresh Conductive Fibres into the Base A and mix for 20 seconds using a slow speed drill and helical spinner ensuring that Flowfresh Conductive Fibres are well dispersed.
2. Add the Hardener B into the mixture and mix for an additional 20 seconds, taking care not to entrain air.
3. Add the Filler C and mix for an additional 90 seconds until the mixture is uniform.
4. Immediately after mixing, spread the Flowfresh ESD MF at the required thickness using a notch squeegee and finish with a steel hand trowel.
5. Immediately roll with a spiked roller to release any entrapped air and level the mortar. Do not roll the surface after 4 to 8 minutes of it being applied to the floor. Late rolling will cause problems with the finish texture and appearance.

Trafficking Recommendations

Allow to cure for 24 hours at a minimum of 10°C before light trafficking.

Part 6: Coving Systems

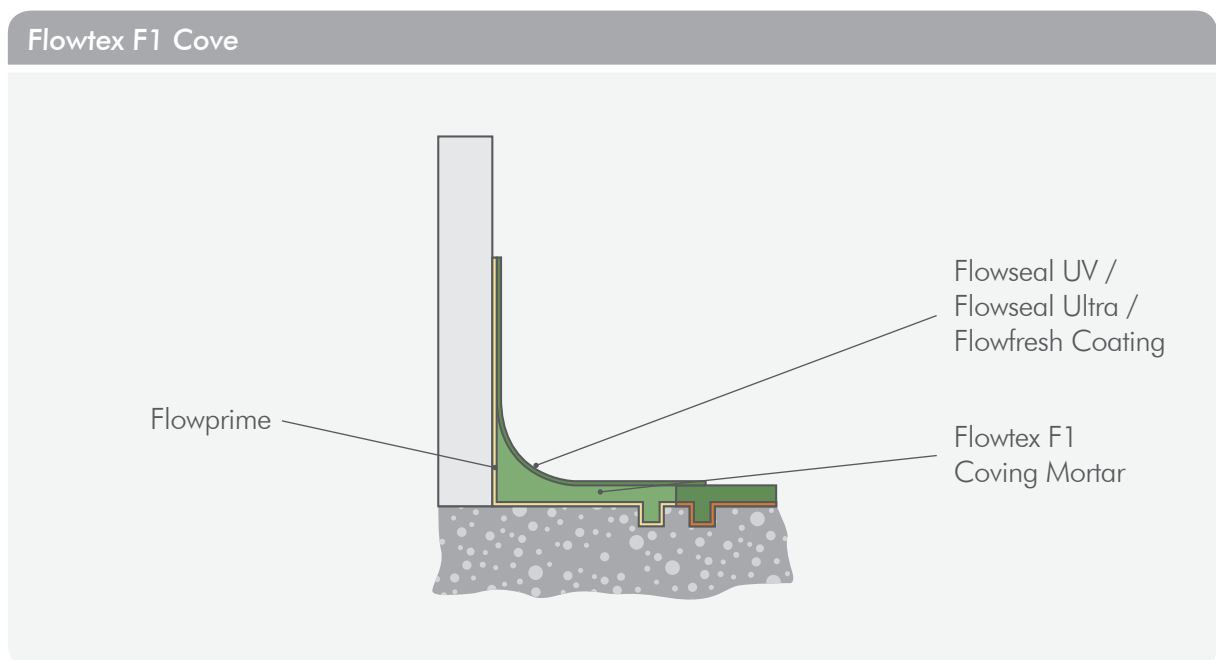
Flowtex F1 Cove

Products Required

- Flowprime
- Flowtex F1 Coving Mortar
- Flowseal UV / Flowseal Ultra / Flowfresh Coating

All pack components for the products detailed above are pre-weighted for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates*

Flowprime	0.05 kg/linear m
Flowtex F1 Coving Mortar	3.00 kg/linear m
Flowseal UV	0.03 kg/linear m
Flowseal Ultra	0.40 kg/m ²
Coating: Flowfresh Coating	0.50 kg/m ²
Flowseal UV	0.03 kg/linear m

*Assumes cove is troweled at 100mm high, 100mm out from the wall and with a 50mm radius.

Surface Preparation

1. Surface preparation is to be completed by hand grinders and / or sanders. All cementitious laitance must be removed to expose a sound screed and provide a dry, dust free, open textured surface.
2. Any damage areas must be made good with Flowtex F1 mortar. Consult Flowcrete prior to using an alternative repair mortar.
3. Anchor grooves, minimum 4mm wide × 4mm deep, must be formed at all edges, bay joints, columns, doorways, drains and at regular centres across the floor.

Application Instructions

Step 1: Application of Flowprime

The substrate must be surface dry prior to the application of Flowprime.

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowprime using roller to both horizontal and vertical part, ensuring it is worked into all surface irregularities.

Step 2: Application of Flowtex F1 Coving Mortar

Flowtex F1 Coving Mortar should be applied onto tacky Flowprime.

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Transfer to a forced action mixer (e.g. a Creteangle) and add the Filler C. Mix for minimum 90 seconds, until the mixture is uniform.
4. Immediately after mixing, apply the Flowtex F1 Coving Mortar using a steel trowel, slightly thicker than the thickness required. Compact and finish to the required thickness using a steel-coving trowel. Normally the vertical edge is formed first, then the horizontal and finally the cove radius.

Step 3: Application of Flowseal UV / Flowseal Ultra / Flowfresh Coating

1. Pre-mix the Base A using a slow speed drill and helical spinner head in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add the Hardener B and mix with a slow speed drill and helical spinner head for 120 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowseal UV / Flowseal Ultra / Flowfresh Coating using a squeegee and roller.

Step 4: Second Application of Flowseal UV / Flowseal Ultra / Flowfresh Coating

Within 24 hours, mix and apply a second coat of Flowseal UV / Flowseal Ultra / Flowfresh Coating by repeating Step 3.

Curing Information

Allow to cure for 24 hours at a minimum of 10°C before use.

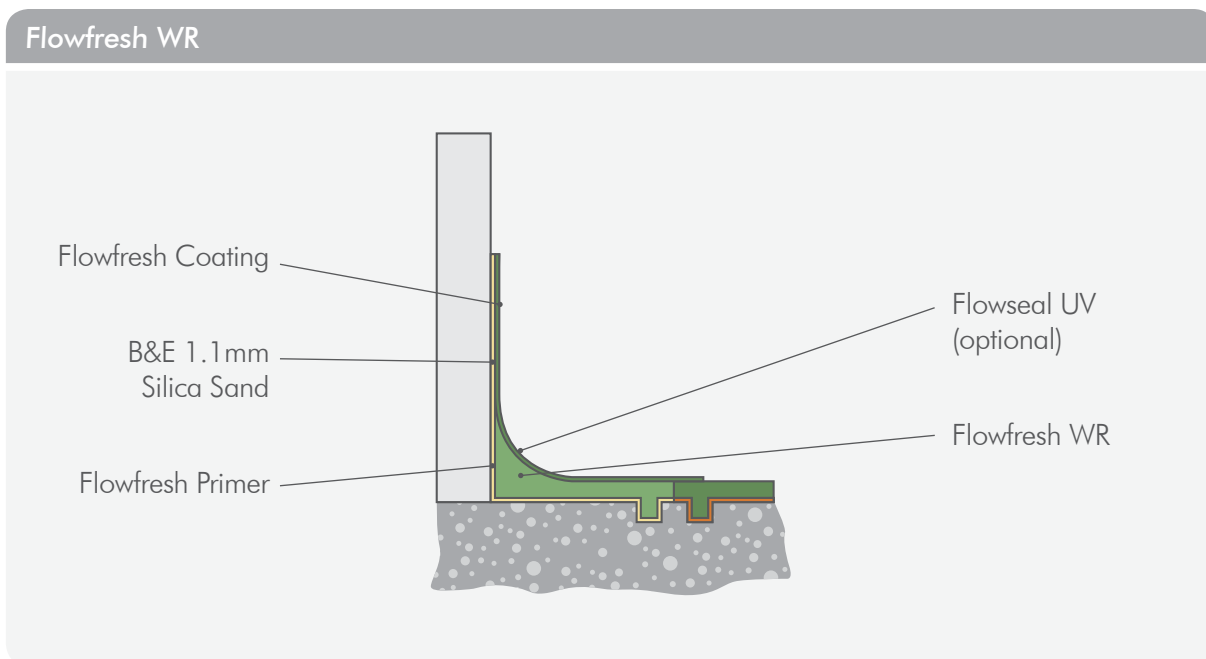
Flowfresh WR

Products Required

- Flowfresh Primer
- B&E 1.1mm Silica Sand
- Flowfresh WR
- Flowfresh Coating
- Flowseal UV (optional)

All pack components for the products detailed above are pre-weighed for optimum performance. Never split or proportion any of the packs supplied by Flowcrete.

System Diagram



Coverage Rates*

Flowfresh Primer	0.10 kg/linear m
B&E 1.1mm Silica Sand	1.0 kg/linear m
Flowfresh WR	3.00 kg/linear m
Flowfresh Coating	0.075 kg/linear m
Flowfresh Coating	0.075 kg/linear m
Flowseal UV	0.05 kg/linear m

*Assumes cove is troweled at 100mm high, 100mm out from the wall and with a 50mm radius.

Surface Preparation

1. Surface preparation is to be completed by hand grinders and / or sanders. All cementitious laitance must be removed to expose a sound screed and provide a dry, dust free, open textured surface.
2. Any damage areas must be made good with Flowfresh mortar material. Consult Flowcrete prior to using an alternative repair mortar.
3. Anchor grooves, minimum 4mm wide × 4mm deep, must be formed at all edges, bay joints, columns, doorways, drains and at regular centres across the floor.

Application Instructions

Step 1: Application of Flowfresh Primer

The substrate must be surface dry prior to the application of Flowfresh Primer.

1. Pre-mix the Base A using a slow speed drill and helical spinner in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add Hardener B and mix using a slow speed drill and helical spinner head for 90 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowfresh Primer using roller to both horizontal and vertical part, ensuring it is worked into all surface irregularities. Immediately lightly broadcast B&E 1.1mm Silica Sand. Allow to become tack-free.

Step 2: Application of Flowfresh WR

1. Mix Base A and Hardener B in a clean mixing container using a slow speed drill and helical spinner head for 20 seconds, taking care not to entrain air.
2. Add the Filler C and Filler D and mix for an additional 120 seconds using a forced action mixer, until the mixture is uniform.
3. Immediately after mixing, apply the Flowfresh WR using a steel trowel, slightly thicker than the thickness required. Compact and finish to the required thickness using a steel-coving trowel. Normally the vertical edge is formed first, then the horizontal and finally the cove radius.

Step 3: Application of Flowfresh Coating

Allow the cove to become tack-free, then seal with Flowfresh Coating.

1. Pre-mix the Base A using a slow speed drill and helical spinner head in its original container to re-disperse any settlement.
2. Transfer the Base A into a clean mixing container and add the Hardener B to the Base A and mix with a slow speed drill and helical spinner head for 30 seconds, taking care not to entrain air.
3. Add the Filler C and mix for an additional 90 seconds until the mixture is uniform.
4. Immediately after mixing, apply by squeegee and finish with roller. Allow to become tack free.

Step 4: Application of Second Coat of Flowfresh Coating

Mix and apply as previous coat.

Step 5: Application of Flowseal UV (optional)

1. Pre-mix the Base A using a slow speed drill and helical spinner head in its original container to re-disperse any settlement. Transfer to a clean mixing container.
2. Add the Hardener B and mix with a slow speed drill and helical spinner head for 120 seconds, taking care not to entrain air.
3. Immediately after mixing, apply the Flowseal UV using a squeegee and roller.

Curing Information

Allow to cure for 24 hours at a minimum of 10°C before use.

Part 7: Cleaning and Maintenance

Cleaning and Maintenance

Flowfresh materials deliver floors that are extraordinarily durable and long lasting. They are impervious to water, process liquids and solids.

The integral Polygiene® antimicrobial feature ensures reliable protection against bacterial and microbial growth. Flowfresh products also have the added benefit of being resistant to water at sanitising temperatures, which permits cleaning the floor surface to the highest possible degree.

Cleaning Recommendations

Post-Installation Cleaning

Cleaning and protection of the flooring material begins shortly after installation. If the Flowfresh materials are installed during the initial construction phase, special considerations must be taken to protect the floor prior to being put into service.

Heavy equipment with rubber tyres, such as high-lifts, bobcats and forklifts, may cause damage from turning tyres and imbedded dirt and soil.

Point loads from heavy static equipment placed on floor should be avoided for at least 48 hours after application, longer at lower temperatures.

Follow-on trades must protect the floor from spillage of paints, solvents, cutting fluids and welding spatter. Brick mortar, wet concrete, tile grouts and other materials containing Portland cement must not be allowed to come into contact with Flowfresh materials after installation as they may stain or bleach the surface.

Caustic materials such as paint strippers, drain cleaners and metal de-scaler will also bleach and stain the surface if used.

Routine Service Cleaning

After the Flowfresh floor has been put into service, normal plant cleaning procedures may be employed.

There are no effective restrictions on the method of cleaning employed. The method of cleaning should match the soil conditions and degree of sanitation required. Flowfresh products, when properly installed, will withstand water wash down at continuous sanitising temperatures ($>82^{\circ}\text{C}$). Flowfresh HF, when properly installed, will withstand routine cleaning by direct application of water-steam mix. Routine fumigation will not affect Flowfresh products.

Contact your local cleaning materials manufacturer or distributor for recommendations on the proper cleaning materials suitable for your application.

Clean In Place Chemicals

Some Clean-In-Place (CIP) chemicals, in full-strength form may cause damage to Flowfresh surfaces. Care should be taken in areas where CIP chemicals are stored to prevent the routine exposure of the Flowfresh flooring to full concentrations of:

1. Sodium hydroxide $> 50\%$
2. Nitric Acid
3. Phosphoric Acid
4. "Red" acid (nitric / phosphoric mix)
5. Peroxyacetic Acid

In areas where these chemicals are stored on Flowfresh flooring, take precautions such as drip pans and routine wash down to reduce the concentration and accumulation of these and other cleaning chemicals at very high concentrations.

Floor Repair

Even the most carefully installed and maintained Flowfresh floor will sometimes be damaged by excessive force from dropped objects, construction / plumbing modifications, and excessive chemical exposure. In addition, expansion joints must be considered a maintenance item, subject to routine inspection and repair as required. It is accepted that most large floor failures begin as small failures that are usually easily and inexpensively repaired.

Flowfresh materials of all grades will experience colour shift and fading on exposure to ultraviolet light sources and sunlight. This colour shift and fading will not affect the physical performance of the product. The use of Flowseal UV will help reduce the amount of colour shift.