

Altro Flexiflow™ 2mm comfort standard, Altro Flexiflow™ 2mm comfort slip-resistant

2mm PU self-smoothing flexible flooring
Technical and installation data sheet

January 2017

Product description FeRFA type 5

Altro Flexiflow comfort is an elastomeric polyurethane self-smoothing flow applied flooring, demonstrating high structural resilience that combines flexibility, toughness and comfort underfoot.

The comfort option offers the ability to tolerate a degree of structural subfloor movement and substrates which may fall below the strength requirements for other types of resin flooring. It is primarily suited to pedestrian areas where comfort under foot and reduced traffic noise is of benefit.

The UV-stable topcoat is easy to clean with an option for reduced potential for slip and can be refreshed during the life of the product to meet the demands of a wide variety of environments.

Standard colours

Altro Flexiflow is available in a range of 27 standard colours. Bespoke colours are available. Please consult the Altro Resin Sales Desk to confirm product availability and pricing before planning an installation in bespoke colours.

Typical areas of use

- Light production areas
- Mezzanine decks
- Mental health seclusion rooms
- Low stimulus and aged care facilities
- Retail
- Museums
- Galleries and atria

Advantages

- Comfort under foot
- Warm feel
- Quick and easy to install
- Flexible & robust
- Monolithically bonded
- Easy to clean, low maintenance costs
- Seamless hygienic finish
- UV Stable

Sustainability

Altro Flexiflow contains more than 50% renewable natural oil content. Altro's Steps to Sustainability program seeks to optimize our performance with respect to the planet's resources. Please refer to www.altro.com for further information.

Typical physical properties

Tensile strength	8 N/mm ²
Typical elongation at break	203%
Shore A hardness (comfort body coat)	80±5
Essential characteristics Harmonised technical specification EN 13813:2002	Performance
Reaction to fire EN 13501	CFL-s1
Bond strength EN 4264	B3,5
Impact strength ISO 6272	IR2
Wear resistance EN 138924	AR0,5

Chemical resistance

Altro Flexiflow affords resistance to a range of commonly used chemicals. However, premature contact with chemicals (including water) during the curing process may give rise to discolouration, foaming, staining and variation in gloss.

In all cases of chemical spillage, it is essential that the spillage be immediately removed and the surface washed down with clean water, removing water by wet vacuum after operation. Although some chemicals may cause discolouration, this may not affect the durability and integrity of the resin screed. Please refer to Altro and FeRFA guidance Note No.3 for further information.

Packaging

Altro Proof standard variant is available in a 6kg, two-part composite pack.

Altro Flexiflow comfort body coat is available in a 25kg and 11kg, two-part composite pack.

Altro Flexiflow standard topcoat is available in a 5kg and 3kg, two-part composite pack.

Altro Flexiflow slip-resistant topcoat is available in a 5.4kg and 3.2kg, three-part composite pack.

Storage

Ensure that the product is received in good order and store in a dry, frost free environment, ideally between 15°C and 20°C for at least three days before application. It is important to maintain the temperature during storage; low temperature storage will adversely affect the product application.

Excessively high and low storage temperatures will affect the application and performance of the product. Store in a dry place and avoid storage in direct sunlight.

Suitable substrates

Altro Flexiflow may be applied to a variety of substrates including, but not limited to, concrete, polymer-modified cementitious screeds, terrazzo, 25mm marine grade plywood (consult Altro for further guidance). For all proprietary subfloor systems refer to the manufacturer for recommendations and seek further guidance from Altro.

FeRFA, The Resin Federation, does not recommend Calcium Sulphate, Anhydrite or Hemi-hydrite screeds for overlayment with synthetic resin surfaces.

Substrate requirements

Substrates should be dry, structurally sound and free from contamination, friable materials or laitance which may affect either the adhesion or penetration of the resin system. All residues of old paint coatings and dust must be removed. In general substrates should achieve a surface tensile strength 1.5N/mm² (BS EN 13892-8). Substrates must include an effective damp proof membrane and contain residual moisture not greater than 5% by weight (75% R.H.) to (BS 8203).

Underfloor heating systems and service pipes should be installed within a weight bearing screed layer in accordance with BS EN 1264-4, Type A. The screed should be cementitious and of sufficient strength to withstand all structural, thermal and mechanical stresses and loads that will occur during service. After the screed has reached the strength requirement, the underfloor heating must be commissioned for a minimum of 7 days in accordance with BS EN 1264-4 and BS 8204-1. The heating must be tested and restricted to a maximum surface temperature of 27°C (BS 8203 and BS 5325). The underfloor heating must be turned off for at least 48 hours before and after the installation.

Thin-bed synthetic resin systems follow the surface of the substrate, so it is essential that the surface regularity of flatness conforms to or exceeds BS 8204.2 class SR1 (+/- 3mm under a 2 metre straight edge). Any deviation from this may require local repairs, mechanical preparation or a surface improver to be applied which must be suitable to receive a resin overlay.

Please consult Altro or FeRFA guide to the specification and application of Synthetic Resin Flooring for further information.

Substrate preparation

Surface preparation is the most vital aspect of resin flooring application. Inadequate preparation will lead to loss of adhesion and failure. The substrate in question will dictate the method of preparation. In the case of a concrete floor, preparation by dust enclosed diamond floor grinder may be appropriate, or if of a sufficient area for economic reasons, should be lightly shot blasted to leave a textured surface free from contamination.

If the floor has been treated with a cementitious surface improver, then the surface should be prepared in accordance with the manufacturer's recommendations, or abraded with an STR machine followed by thorough vacuuming.

Treatment of local repairs such as cracks and holes, improvement or modification of levels and removal of high spots, should be undertaken prior to the flooring installation. Application onto cold substrates, particularly with rising ambient air and slab temperature can give rise to pinholes in the finished system. If the ambient temperature rises during application causing, out-gassing, micro pockets of air in the concrete substrate expand and are displaced through the resin during curing. Ambient and substrate temperatures should be raised to stable conditions prior to installation, and kept constant during application.

Please consult Altro or FeRFA's guide to the specification and application of Synthetic Resin Flooring for further guidance.

Theoretical coverage

Altro Proof standard variant 18m² per 6kg unit

Altro Flexiflow comfort body coat 10.1m² per 25kg unit

Altro Flexiflow comfort body coat 4.5m² per 11kg unit

Altro Flexiflow standard topcoat 62.5m² per 5kg unit

Altro Flexiflow standard topcoat 37.5m² per 3kg unit

Altro Flexiflow slip-resistant topcoat 62.5m² per 5.4 kg unit

Altro Flexiflow slip-resistant topcoat 37.5m² per 3.2 kg unit

Always use the same Altro Flexiflow comfort colour as the intended Altro Flexiflow topcoat. Smaller units are available and should be used when working in smaller or more detailed areas to assist with working life. The material usage is dependent upon temperature, surface profile and porosity; stated coverage rates should be referred to for guidance only and cannot be relied upon to determine exact quantities. Although stringent quality assurance processes are employed, when colour consistency is required, a single batch should be used.

	Altro Flexiflow comfort	Altro Flexiflow topcoat
Usable working life @ 20°C	15 minutes	25 minutes
Over-coating time @ 20°C	18 - 24 hours	18 - 24 hours
Return to service @ 20°C After completion of the system	Light foot traffic 24 hours Full chemical cure 7 days.	

Planning

Before proceeding with the installation, careful consideration should determine the best way of installing the Altro resin system. Efforts should be made to minimise day joints and optimise the open time of the product (i.e. minimise the distance between mixing and laying). It is best to also consider the effect of external influences on the final installation (i.e. direction of light from windows etc.). Time spent at this stage will be invaluable towards the success of your installation. The Altro Flexiflow comfort floor system is designed to be laid in general at a minimum 2 mm thickness. Lower thicknesses will reflect any imperfections or defects.

Altro recommend that stainless steel mixing, laying and application tools are used in this process. Metal transfer from mild steel tools may result in discolouration of lighter colours which will be unacceptable to your customer.

Please note: depending on colour selection and lighting source evidence of roller marks may be visible in the finished floor.

Please contact Altro for further guidance.

Joints

Altro Flexiflow is designed to accommodate movement and can be applied over day joints and stable substrate fractures, within certain tolerances.

For application over building expansion joints, details of percentage elongation may be required; these can be provided by the appointed structural engineer.

In general where joints are over-laid then these should be routed out, filled with an appropriate joint backing material and filled to the level of the substrate using Altro Flexiflow.

All structural movement joints in the subfloor must be continued through to the resin floor surface. In all instances the type and positioning of movement joints should be agreed at the design stage between all parties concerned.

The placement, dimension, frequency and types of joints should be determined by the building designer.

Application

The following application guide is based on laboratory and simulated site conditions. However, when installations conditions differ appreciably from those detailed by Altro, the performance characteristics of both mixing and laying may change. To achieve the best results at all times please endeavour to establish the correct conditions which in turn will allow the materials to be laid effectively, and meet your customer's expectations.

Installation conditions

Apply in well ventilated areas. Both the slab and air temperature should be between 15°C and 20°C. It is not advisable to mix and lay resin products outside the range 10°C to 25°C. Ambient conditions should be maintained at least 3°C above dew point or below 75% R.H. during the initial stages of cure. At site temperatures below 10°C cure times will be substantially increased unless some form of external heating is used. It must be recognised that the concrete slab temperature will generally be lower than the air temperature, often as much as 10°C, and this will govern the rate of cure. As the resin flooring cures, in condensing conditions moisture vapour may condense onto the surface and cause surface defects including structuring, pinholes, foam etc.

Do not lay Altro Flexiflow on a raising thermometer as this can give rise to pinholes. Raise the substrate and air to a stable temperature prior to application and maintain the temperature of the substrate during application.

Mixing equipment

- Slow speed drill (200-500rpm), such as MM17 *
- Mixing paddle, such as MR4

size (70-80mm Ø) 3-15kg

size (90-100mm Ø) 6-20kg

size (120mm Ø) 15-25kg

* All tool number references relate to Refina Ltd 01202 632 270

Priming the substrate

In order to achieve a uniform finish, prevent bubbles and maximise substrate adhesion the appropriate primer should be used. For substrates less than 75% RH, (BS 8203) Altro Proof standard should be used.

For porous substrates less than 75% RH a two coat primer system is recommended comprising Altro Prime consolidating (a low in viscosity penetrating primer) followed by a single coat of Altro Proof standard variant.

For substrates with greater than 75% RH, (BS 8203) two coats of an effective damp proof membrane Altro Proof standard will be necessary. On unstable substrates a flexible primer should be used.

The appropriate Altro primer should be applied in accordance with the product datasheet. Always use site overshoes when working on the primer. Any contamination of the primer surface will cause surface imperfections of the Altro Flexiflow.

Do NOT seed the primer with aggregate, experience shows that this can lead to pinholes from entrapped air.

Ensure that the substrate is well sealed and that all hungry areas are addressed before proceeding to install the system. If the over-coating time period for the primer is exceeded, the surface should be lightly abraded and vacuumed before further coats are applied.

Product installation primer

Use a slow speed drill and paddle MR4 mix the base colour for 30 seconds. Pour all of the hardener into the base and mix for a further 4-5 minutes. Ensure the material is fully mixed around the sides and bottom of the container. (Vigorous mixing should be avoided as this can lead to bubbles and pinholes).

If the mixing area is not adjacent to the laying area the time required to transfer the mixed material will reduce the open installation time. When fully mixed, immediately pour all the mixed material onto the floor in a ribbon. Use a 2mm x 5mm notched trowel or dense foam rubber squeegee to distribute the material evenly then use a low-loss medium pile synthetic roller that has been pre-wetted with Altro Proof standard variant to uniformly and fully treat the surface. Check that sufficient material and the minimum thickness has been applied.

Allow the Altro Proof standard variant to cure and carefully inspect the applied film for defects i.e. pinholes and areas of under thickness. If necessary, apply additional Altro Proof standard variant locally. Allow the system to cure for a minimum of 18 hours at 20°C, but no longer than 24 hours at 20°C before over-coating. Any defects in the primer layer will always reflect through and should be treated prior to the application of the Altro Flexiflow. **Remember to always use the correct PPE.**

Altro Flexiflow comfort

Apply the Altro Flexiflow comfort body coat onto the primed area after a minimum of 18 hours at 20°C since the primer was installed, but not longer than 24 hours at 20°C. Using a slow speed drill and mixing paddle MR4, thoroughly mix together the base colour for 30 seconds. Pour all hardener contents into the base bucket and mix for a further 1 minute.

Transfer the mixed base and hardener to another bucket and mix for a further 1 minute. Excessively vigorous mixing should be avoided as this can lead to undesirable air entrainment. Care should be taken to ensure that any material adhering to the sides, bottom and corners of the mixer is thoroughly blended in.

Immediately decant all of the contents of the mixing vessel onto the floor over the approximate area to be covered and spread using a clean 8mm X 8mm square notched stainless steel trowel or a pin rake set at the desired depth to achieve 2mm.

Do not leave any material in the bucket. This will impair the levelling and de-aeration properties. Spike roller the area immediately, NOT beyond 15 minutes at 20°C. Do not exceed this time between gauges. Avoid build up on the spike roller and change regularly. Care should be taken to ensure the mixing vessel is kept free of any build-up of contaminants which could fall off and contaminate the floor.

The mixing area should be directly adjacent to the laying area, the time required to transfer the mixed material will reduce the open installation time. A larger team may be necessary.

Remember to always use the correct PPE.

Altro Flexiflow topcoat

Any defects in the Altro Flexiflow comfort should be made good before the application of the Altro Flexiflow topcoat. For optimum performance the surface should be lightly abraded to remove the surface gloss before the application of a topcoat. This can be achieved using a low speed dry autoscrubber fitted with a green Scotchbrite 3M pad. This will provide the most integrity and uniformity of the system. Any dust and debris should be removed from the surface to be coated.

Apply the first topcoat after 18 hours and not more than 24 hours after the application of the bodycoat. Using a suitable drill and mixing paddle fully mix the base first to incorporate the pigment before adding the hardener. Add the hardener and thoroughly mix for 1 minute.

Excessively vigorous mixing should be avoided as this can lead to undesirable air entrainment. If using Altro Flexiflow slip-resistant topcoat pour in the slip resistant additive and fully incorporate using a mixing paddle for a further minute. Apply a thin coat (80g/m²) using a short nap microfibre roller applying the product to the floor from a paint tray. Lapping time should be minimised (8–10 minutes at 20°C/ 50% RH) making sure to maintain a *wet edge*. Be careful not to form puddles. Always ensure there is sufficient air flow and sufficiently low ambient relative humidity (< 60% RH) to allow drying. Apply a second coat after 18 hours and not more than 24 hours after the application of the first. **Always use soft soled shoes with site overshoes when working on the Altro Flexiflow comfort and Altro Flexiflow topcoat to avoid damaging the surface.**

When applying Altro Flexiflow topcoat, the ambient temperature and humidity are of importance. High humidity in combination with low temperatures slows down the drying process. After application, the surface should be protected from direct contact with water for a minimum of 24 hours.

Enough time should be given to allow the Altro Flexiflow topcoat to reach its full chemical cure. Physical drying of the surface alone is not indicative of the full cure properties including wear and chemical resistance. **Remember to always use the correct PPE.**

Protection

Whilst of an extremely durable nature these floor systems must be thoroughly protected from the rigours and abuse that exist during the ongoing contractual works. The resin floor should reach full chemical cure in 7 days at 20°C. Untreated felt paper will suffice as protection from light traffic, however if protection is required from other trades then the following protection option should be considered. Where heavier access is required then a more suitable medium to take the loadings, such as shuttering ply or Correx by Cordek, (plain/unprinted side down) should be placed on top of the untreated felt paper. The resin system should have cured for a minimum of 48 hours prior to placing the protection. No polyethylene sheets, linseed treated hardboard, print or dyed card should be placed in contact with the resin surface. All joints in the protection medium should be taped, and all accidental spillages should be recovered immediately by removal and reinstatement of the protection. Damage will occur to the system if these recommendations are not followed.

Cleaning (during installation)

All tools and equipment should be regularly cleaned using Altro Solve™ PU and dried thoroughly to reduce build up and maintain the quality of the installation. Do not allow any Altro Solve to enter the mix. **Ensure that the correct PPE is worn at all times.**

Disposal

Due diligence must be adopted if accidental spillages occur. Recover the spilled material using absorbent granules, transferring into a suitably marked container. Disposal of all empty containers and accidental spillages should be in accordance with the local waste disposal authority.

Cleaning guidance

Optimum slip resistance and appearance can only be maintained with regular cleaning. Floors with slip resistance will require mechanical cleaning; wet-loop mop cleaning will be less effective but may be sufficient for routine maintenance of floors with a smooth surface. Microfibre cleaning systems should also be sufficient for routine maintenance of floors with a smooth surface, provided that a suitable detergent / dosage is used and the microfibre pads are changed with sufficient frequency to ensure their effectiveness. Steam cleaners and / or hot pressure cleaners should not be used on the Altro Flexiflow. Warm water will offer improved cleaning, but the water temperature should not exceed 40°C. Entrance matting will reduce cleaning requirements and should also enhance the longevity of the floor, when combined with correct maintenance.

- Sweep or vacuum the floor to remove debris
- For normal cleaning, dilute an alkaline detergent such, as Altro Clean™ 44 or similar, by 1:40 in clean water
- Alternatively, dilute by 1:10 for infrequent heavy cleaning
- Liberally apply the water and detergent solution to the floor, scrubbing with a deck scrubber or slow-speed (< 400rpm) scrubbing machine and Altro UniPad or similar
- Altro Flexiflow 2mm comfort variant requires an Altro Unipad
- Altro Flexiflow 2mm comfort slip-resistant variant requires a 3M white cleaning pad.
- Pay particular attention to areas where residues may accumulate, such as internal corners of perimeter coves and around columns etc
- If possible, allow the detergent solution to remain on the floor for several minutes to break down deposits, but not sufficiently long to allow the solution to evaporate
- Remove the solution by wet vacuum recovery and follow this with a fresh water rinse, or rinse the solution into drains if permissible
- It is important that all detergent residue is removed from the textured surface of the floor. Detergent may become slippery which affects safety, or sticky which attracts and holds more dirt

Altro Clean 44 and Altro Unipads are available through Altro Resins Sales Desk, but other detergents can be tested for compatibility on request.

Please obtain the correct material safety data sheets from Altro prior to beginning the installation.

To order E-mail ResinSalesDesk@altro.com

Call 01300 320620

Fax 01300 321122

NOTE: "Altro Ltd" ("Altro") endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, where Altro has no control over the selection of its products for particular applications, it is important that any prospective customer, user or specifier, satisfies him / herself that the product is suitable for the intended application. In this process, due regard should be taken of the nature and composition of the background / base and the ambient conditions both at the time of laying / applying / installing / curing of the material and when the completed work is to be brought into use.

However, as site conditions and the execution of the work are beyond our control, we accept no resultant liability.

Altro's policy is one of continuous research and development and we reserve the right to update our products and information at any time without prior notice.

If you'd like any more information or guidance please get in touch, we're here to help.

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