
APPLICATION NOTES



Section Name	Product Application Notes – MD FX.
Last Updated	05/09
Aim	Document the complete application procedure for MD FX.
Scope	Covers all aspects of MD FX installation (material preparation and application).
References	

MD FX

MD FX is a seamless, non-slip flooring system that is easily applied to give a hardwearing, long-lasting floor with an R11 (AS “V”) slip rating. The system can be applied onto most common surfaces and is designed for service in harsh industrial traffic conditions, such as regular machinery traffic, where the aggressive profile of HD FX is not required. MD FX is designed as a specialty flooring solution where durability, strength and wear resistance are at a premium and it achieves this through the combination of a hardwearing, Kevlar-reinforced coating system and aluminium oxide aggregate.

The standard MD FX system consists of a Kevlar-reinforced epoxy basecoat (JAXXON 1525), a fully saturated layer of aggregate (MD Agg), and a pigmented epoxy topcoat (JAXXON 1505).

1 Planning

Before application begins, the surface must be prepared thoroughly. Read Surface Preparation Notes for recommended procedures.

It is very important to read the data sheet and MSDS before use, taking particular note of film thicknesses, cure times, product features etc. Wear the appropriate protective clothing and have all tools and mix area ready before mixing.

Spending some time planning how the application is to proceed will provide the best opportunity to achieve a high standard finish.

If completing a larger area requiring several kits or more, plan out how to best progress across the area. You will need to consider whether to do the entire basecoat all at once and then sprinkle aggregate, or work in kit form, completing 16sq.m of basecoat and aggregate at a time. Accessibility, equipment availability, shutdown restraints etc. may all impact upon the decision making at this point.

You will need to consider how and where you finish a kit. Using expansion joints as boundaries (never coat directly over expansion joints) and keeping edges fresh so the next kit can be seamlessly rolled into it are important considerations. Also, if you have to break it down into individual kits, considerations such as leaving a 50cm strip near the edge so that you can roll the next basecoat seamlessly into the other without trapping aggregate will require some thought.

Once the sequencing has been determined, mark off each successive 16m² rectangles with masking tape as application progresses. This marking is very important to ensure an even application and proper budgeting of materials until full confidence and product familiarity is gained – under no conditions have the material simply spread over an estimation of the area with no control of consumption.

The designated mix area shouldn't be too far from the application area and it should be cordoned off if possible. Make sure it's big enough to allow plenty of room in which to move and work cleanly. Use drop sheets to protect from splashes/spills/drips, and have plenty of lint-free cotton rags and solvent (methylated spirits, acetone etc.) ready for clean-up. A well-organised, functional, clean mix area is very important. It helps to think of the mix and application areas as “clean zones” – wear booties/plastic bags over socks on the inside and normal footwear on the outside.

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If you're using budget rollers, it is a good idea to "de-lint" first by wrapping the roller in masking tape and removing. Repeat this process, "fluffing" the roller in between, until there are no fibres visible on the back of the tape. The lint can also be removed by simply giving the rollers a wash in a washing machine. These measures will ensure there are no errant fibres in the film. Alternatively, higher quality Mohair roller covers can be used for greater fibre retention.

The applicator also needs to plan how to deal with contingencies such as:

- Availability of power, lighting, access etc.
- Restricting access through signage or cordoning off to protect floor from accidental damage.
- Sensitivity of surrounding areas to noise, odour, dust etc.
- Poor substrate - sealing requirements, patching, re-building.
- Unexpected conditions during application e.g. extreme heat or cold, condensation etc.
- Drainage or levelling problems e.g. pooling.
- Coating defects such as holidays, pinholes, crawling, colour separation, soft spots etc.
- Dust migration and/or insect contamination on wet films.

2 Basecoat Application (JAXXON 1525)

JAXXON 1525 is supplied in one 4L kit, which contains enough product to cover 16m² (i.e. approximately 250 microns film thickness).

For larger areas or to suit applicator preferences, basecoat and topcoat kits are also available in 8L sizing. The same application procedure applies, however the area covered will be doubled and the system will need two buckets of aggregate instead of one.

Mask off the first 16m² area (or 32m² for 8L) as determined in the planning phase. Until confidence has been gained with coverage, it is a good idea to mark off rectangles as application progresses. As discussed, the masking will need to be done before each successive kit. If a boundary is formed by a joint or a previous kit's edge, masking will not be required.

2.1 Material Preparation

Thoroughly pre-mix base with coloured pigment pot, and then add the entire curing agent, preferably using an electric drill stirrer and a 'Jiffy' type mixer, ensuring that the edges are also well mixed. Mixing will take only a couple of minutes, but must be done completely. Try to limit the amount of air trapped in the coating by holding the mixer below the surface as much as possible when mixing – don't allow mixer to "beat" the surface.

2.2 Application

Pour the mixed epoxy basecoat directly onto the floor, as evenly as possible over the 16m² area using a snaking or "S" pattern. Pouring directly onto the surface is encouraged as this will extend the pot life of the product by eliminating heat build-up when product is left in the can. Start approximately 50cm from a wall and work your way towards the exit point (e.g. door) pouring lines with 1 metre gap to allow you somewhere to stand when rolling.

Leave some product for "cutting-in" around tight areas using a 50mm brush. Try not to cut in too far, just enough to achieve the aim of protecting the wall against the roller. If the area to be "cut-in" is large, it may be best to only mix this portion first, perform the cut-in, then mix and pour the remainder of the basecoat so there is no danger of the product thickening before it is rolled. A 2L polypropylene measuring jug is ideal for splitting kits as it allows easy volume measurement and after the product has cured it can be peeled from the bottom and the jug re-used.

For achieving sharp lines around the perimeter of the area, a high-quality cloth tape is preferred as it will prevent seepage under the tape and achieve straighter, cleaner lines.

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Don't scrape the buckets to remove all product unless you have scraped the sides whilst mixing (otherwise you could be applying poorly mixed areas onto the floor that can result in soft spots).

Perform an initial "rough" spreading using lint-free or budget rollers (or trowels, squeegees) to achieve a relatively even surface, allow product to level by itself for 2-3 minutes, then backroll smooth. When backrolling, the aim is to roll in long, even strokes/sections (approximately 1 metre long as per "S" pattern) trying to get the product feeling and sounding the same with each roll to ensure even film thickness.

Timing is critical and uniform spreading is important. The hardening process will begin as soon as it is mixed, so endeavours to spread all the epoxy within about 15 minutes after mixing should be made to ensure easier manageability.

As noted, flooring should never be installed directly over expansion or control joints. These should be treated as natural boundaries when considering how to divide the flooring into the 16m² kits. The flooring should be rolled right to the edge (and over the side if possible) and a specialist, flexible sealant applied over the top of the complete system. If the flooring is applied directly over a joint, the movement experienced will inevitably crack the epoxy, impacting on its aesthetics and compromising its function.

After the product has been applied, the masking/tape strips delineating the area should then be removed.

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Film thickness: It may be tempting sometimes to "stretch" the coating further by applying at thinner than specified film thicknesses to save on material costs. It is recommended that this practice is avoided otherwise it can severely compromise the quality of the coating film. The Kevlar-reinforced products, in particular, will suffer from rolling out too thin as they need a certain film thickness to establish the network of fibres responsible for the high strength and impact resistance. Applying too thin, especially with the aid of too much solvent (see below), will make the fibres tend to clump rather than be evenly distributed, resulting in lower performance and poor aesthetics.

Basecoat substitution: The same warning must be made for substituting the Kevlar-reinforced basecoat of MD FX for a smoother, lower viscosity system, such as JAXXON 1505, to enable the application of thinner coats. The Kevlar reinforcement is there for a good reason and using a product without it will compromise the performance.

Use of solvent thinners: JAXXON 1525 is solvent free and is used without solvents. However, the addition of a small amount of solvent can be beneficial in some conditions. The solvent should be added to the base product or the combined base/curing agent mixture. The solvent will add several minutes to the epoxy pot life, making spreading and rolling easier, and increasing coverage. Most contractors add only about 50-120mL of solvent per 4L kit (which results in a product approximately 97% free of solvents).

Alternatively, gradually warming the base prior to mixing will also effect a reduction in viscosity if required. Use a larger bucket containing warm water and allow the base to sit in the bath until the viscosity drops sufficiently. Occasionally stirring the base while it's in the bath will help the warming process. Care should be taken not to get the product too hot (e.g. over 35°C) as this will affect film thickness and markedly reduce the potlife.

3 MD Agg Application

The MD FX flooring system employs MD Agg as its aggregate component, which consists of #60 grit white aluminium oxide.

Broadcast the aggregate immediately after basecoat application. The masking strips delineating the area should be removed prior to aggregate broadcast. If these are left on too long, the product can harden and stick to the tape, which could result in "tearing" of the film. The removal of the tape should expose clean, sharp edges around the coated area. It is recommended to wear golf shoes during aggregate broadcast as they enable the applicator to walk around on the freshly laid epoxy without leaving large prints.

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Use the full amount of aggregate supplied (20kg) to saturate the film. A technique similar to "chicken feeding" is most effective when broadcasting. Grab a "knuckle full" of aggregate (as opposed to a "hand full") and slowly sprinkle over the top. Careful spreading in this manner will ensure there is enough aggregate for the floor and will also improve the final finish. It is possible to hold a large tin in one arm (20kg supplied in each kit) while seeding, however this can get tiring and it will be easier to work from smaller quantities (e.g. 5kg).

It is necessary for the grains of the aggregate to settle into the epoxy and become thoroughly embedded in the film. There should be sufficient aggregate covering the basecoat so that it stays dry during the curing process.

Uneven coating thickness due to floor unevenness, sloppy spreading/rolling can result in pronounced "hills and ridges" after the non-slip has been applied. To minimise effects of this, check the seeding application every few minutes for 20 minutes or so to ensure that no saturated or shiny spots are showing through the seeded top layer and correct by throwing on more aggregate.

If there are no golf shoes available, the basecoat and aggregate will need to be applied together in small sections rather than one after the other. In these circumstances, only mix and roll out enough basecoat so that the entire area is still accessible to broadcast the aggregate onto (without standing on the basecoat). The same good practices should be followed, such as checking the seeding for shiny spots etc, however the application is split into smaller sections than the usual 16m² (unless all of the 16m² can be reached of course, i.e. a long, narrow strip accessible from both sides).

Allow to cure overnight or until floor is hard enough to walk on and then sweep or vacuum off excess aggregate. Clean, excess aggregate can be retained for future use if so desired. Golf shoes should not be worn at this stage. Only walk back onto the floor with "booties" or plastic bags wrapped around boots to avoid imprinting and/or contamination.

4 Topcoat Application (JAXXON 1505)

JAXXON 1505 is supplied in one 4L kit, which contains enough product to cover 16m² (i.e. approximately 250 microns film thickness).

Once again, the 16m² areas should be marked with masking tape to help measure correct coverage and application should be approached in the same manner as the basecoat with regards to sequencing.

Read the MSDS before use, wear the appropriate protective clothing and have all tools and mix area ready before mixing.

4.1 Material Preparation

Thoroughly pre-mix base with coloured pigment pot, and then add the entire curing agent, preferably using an electric drill stirrer and a 'Jiffy' type mixer, ensuring that the edges are also well mixed. Mixing will take only a couple of minutes, but must be done completely. Try to limit the amount of air trapped in the coating by holding the mixer below the surface as much as possible when mixing – don't allow mixer to "beat" the surface.

4.2 Application

Mix topcoat, pour into roller tray and apply as evenly as possible using lint-free or Mohair roller (only use lint-free rollers for the topcoat to avoid errant fibres detracting from finish). You will need to work out of a roller tray with the topcoat as the non-slip aggregate makes it impossible to roll out evenly from a straight pour, so only mix up enough product to fit into the roller tray. Do not leave mixed product sitting in the can at any stage as it will harden before it can be used. Fill all gaps between aggregate with topcoat as much as possible.

Once the topcoat has been put down evenly over the aggregate, it will need to be backrolled correctly for an unblemished finish. Haphazard, multi-directional strokes used to wet out the aggregate will show up if they are not "smoothed" by backrolling. It is best to start at the far edge of the floor and use long, uniform, parallel strokes back towards the applicator, trying to get the product sounding the same with each stroke as per the basecoat application. This will give the floor the best chance to settle evenly and avoid visible ridges and patterns in the finish.

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After the product has been applied, the masking strips delineating the area should then be removed.

Allow to cure overnight before returning to light service. Floor will achieve maximum properties 7 days after topcoat application.

5 Labour Requirements

- 1 man to mix, pour and backroll.
- 1 man to broadcast aggregate.
- 1 technical advisor to supervise application and troubleshoot should the need arise (on large areas only).

If area is less than 45m², then one man should be capable of performing the task.

6 Equipment Requirements

- 1 x HD Roller Frame (230mm cage)
- 2 x Lint-free or Budget Roller (230mm, 12mm nap)
- 1 x HD Roller Tray (270mm, re-usable)
- 2 x Standard Brush.
- 1 x Extension Pole.

7 Records/Quality Control

Recording the details of a job can be extremely useful throughout the preparation and application period. Kept records can also be used as references for future jobs, which will make tasks such as material calculation, planning and even troubleshooting a lot easier. Indeed, records are of tremendous legal benefit in cases where coating performance is disputed.

The following pieces of information should be recorded:

Important – Photos – take photos of everything deemed significant: before commencement, after all stages (preparation, basecoat, topcoat, completion etc.), any problem areas, after fit out (if applicable), during service (to understand wear patterns for maintenance). Photos are much more effective at conveying information than written descriptions.

- Date of application – date of start and date of completion.
- Client details – name, address, contact details.
- Approximate area – drawing a basic plan on grid paper will help you visualise and plan sequence of tasks.
- Condition of surface – any repairs needed, age and condition of existing coating etc.
- Service conditions – temperature, chemical exposure, physical demands (wear, abrasion, impact) should be listed and product choice explained (inc. any other criteria, e.g. environmental, odour, slip requirements).
- Site conditions – is the site dusty, crowded, hard to access, weather conditions, any interruptions? etc.
- Division of labour/personnel employed – who did what? Recording these details helps trace problems back to their source and establishes accountability.

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- Type of preparation – equipment used (make and model), quality checks made etc.
- Coating system employed – product codes, batch numbers, number of coats, thickness of coats/overall consumption (planned versus actual).
- Method of mixing and application – equipment used (drill type, rollers, trowels etc.), procedures (mix speed, time, any special application techniques etc.).
- Completion details – start and finish time of each task/stage, total number hours to complete, details of agreements and/or acceptances with client.
- Any identified defects or other notes – product behaviour/observations, insects/contamination, future references etc.

8 Safety

When using the flooring system, it is advisable to avoid prolonged contact with the skin and to avoid any contact with the eyes. Gloves, goggles and full-length clothing are strongly recommended during application. Wash hands thoroughly after using the product. Consult MSDS prior to use.

9 Clean Up

Use lacquer thinner, M.E.K., acetone or methylated spirits before the epoxy has cured.

10 Maintenance

Once cured, the flooring is easily maintained using standard janitorial techniques. Contamination from oils, grease and other common fluids may be removed using normal cleaners. Please consult Floor Maintenance Notes for more information.

To honour the terms of NMP's product warranty and as a service to the client, two inspections over the 12-month period need to be conducted by the applicator – one after 3 months to determine maintenance requirements and a final inspection at the end of 12 months to monitor the condition of the floor.

During these inspections, the applicator will need to liaise with the client to identify any changes to the condition of the floor – whether or not they are covered by warranty. This process will enable the quick repair of damaged areas and adjustments to the maintenance plan if required and therefore will be invaluable in prolonging the life of the floor. Taking photos is an important part of the inspection process as it will provide the best means for comparing any changes that emerge.

Examples of things to look out for and consider include:

- Physical damage, e.g. gouges, holes etc.
- Areas wearing excessively.
- Changes in colour or appearance, e.g. stains, yellowing etc.
- Areas of complete failure, e.g. peeling, blistering, cracking.