

THIS METHOD STATEMENT COVERS THE PREPARATION AND APPLICATION OF 2mm THICK **MasterTop XTC**. A HIGH PERFORMANCE, ODOURLESS, SELF-SMOOTHING FLOORING SYSTEM BASED ON **Xolutec™** TECHNOLOGY.

METHOD STATEMENT: MasterTop XTC

1. INTRODUCTION:

1.1. **MasterTop XTC** a high performance, odourless, self-smoothing & long-lasting flooring system based on Xolutec technology. These simple application techniques will allow a fast, efficient application, reduce the application defects, and ensure optimum in-use performance.

2. PLANNING:

2.1. Before starting the application of **MasterTop XTC**, consideration must be given to the area being installed. Careful preparation and planning with enough manpower will ensure application efficiency and optimum final aesthetics.

3. PREPARATION OF SUBSTRATES:

3.1. Suitable substrates:

The following substrates are known to be suitable for receiving **MasterTop XTC** flooring subject to correct preparation procedures:

- Concrete
- SBR / Acrylic polymer-modified Screeds
- Granolithic concrete
- Cementitious terrazzo surfaces

3.2. Substrate Quality

Concrete substrates should be visibly dry and have a minimum tensile strength of 1.5 MPa. The minimum compressive strength of the concrete floor shall be 25 MPa at 28 days. All joints in the substrate concrete subject to movement should be reflected through the **MasterTop** floor and sealed with a suitable sealant.

3.3. Expansion Joints

All expansion and crack propagation joints formed in the floor base must be carried through the **MasterTop XTC** flooring. All joints must be filled with a suitable joint sealant. The best joint sealant for any application will depend upon the width of the joint and the amount of anticipated movement as well as the chemical nature and temperature of any spillages likely to impact upon the floor.

3.4. Surface preparation

Any laitance present on the concrete surface must be removed by mechanical methods (see below), otherwise delamination will occur. Existing screeds may be contaminated with formwork-release oils, chemical spillage, or previously applied coatings. Contaminated concrete must be removed before the application of **MasterTop XTC** if a good bond is to be obtained.

All substrates will require preparation. Cementitious substrates must be mechanically prepared so that the large aggregate of the concrete/ screed is exposed. Preferred methods of preparation are:

1. Vacuum shot blasting (Blastrac or similar)
2. Concrete surface planer
3. Grit blasting
4. Drum sander
5. Ultra-high-pressure water blasting followed by captive shot blasting
6. Flame spalling may be satisfactory in some situations

Acid etching is not reliable and should not be used. High impact preparation methods (scrabbling) may cause internal fracture of the concrete matrix and a subsequent reduction in strength and should not be used.

While ultra-high-pressure water blasting is very effective at removing old finishes and laitance and exposing the aggregate in a concrete, it can leave the aggregate smooth and polished and this can have a negative effect upon adhesion. For this reason, it must be followed by captive shot blasting. After treatment, all dust and loose particles should be removed from the whole surface, including grooves and cracks. Cleaning by vacuum is the most effective method.

Recommended Surface profile as per ICRI is CSP 3 to 4.

3.5. Moisture

Standing water must be removed completely by using an industrial vacuum cleaner followed by drying with a hot-air blower, infra-red heater, or flame gun. **MasterTop XTC** is tolerant of residual moisture in the substrate concrete/screed, however, the surface must be visibly dry. The substrate temperature should be at least 3°C above the dew point temperature during application. Do not apply when atmospheric condensation is occurring or likely to occur before full cure is obtained.

3.6. Holes and Cracks

Cracks in the substrate must be investigated and the appropriate remedial action taken. Smaller irregularities should be filled with the scratch coat primer, to ensure an even final finish. All repairs to the substrate must be completed in good time prior to the application of the **MasterTop XTC**.

3.7. Tolerances

MasterTop XTC should not be relied upon to improve the tolerances or flatness levels in the substrate. The substrate should be applied to the appropriate tolerances prior to the application. Tolerances can be corrected but this is a separate operation which must be completed before actual floor installation starts. **MasterTop XTC** follows the contours of the substrate and have the same tolerances as the substrate to which it is applied. Applicators are advised to check the tolerances of the substrate before they begin with the preparation.

3.8. Anchor Grooves

Wherever a free edge of **MasterTop XTC** will occur, for example, around the perimeter of a bay, along channels or expansion joints, at doorways and around the feet of machinery, plinths and columns, anchorage must be provided to help distribute mechanical and thermal stresses arising from curing and heavy traffic. This is achieved by forming or cutting an anchor groove in the concrete, with a depth and width about twice the thickness (typically 4mm x 4mm) of **MasterTop XTC**, using a diamond cutting wheel.

The anchor groove around the edge of each bay shall be as close to the edge as possible (maximum 100mm from the edge), around all columns, the feet of plant and equipment, to either side of any joints, around drainage and any other free edges.

On a new floor, grooves may be formed by inserting polyethylene-film-coated timber strips into the concrete at the time of laying. Grooving has the additional important advantage of reducing the possibility of liquid seeping under the flooring and affecting the bond to the substrate. Extra anchor grooves can be used around areas of heavy impact for example to help manage stress, especially on poorer substrates.

Anchor groove should also be provided at the day joint. For large floor without day joints and that are laid in single stretch an anchor groove should be provided at maximum of 16 m interval.

4. GENERAL APPLICATION GUIDELINES:

Please refer to the individual technical datasheets of body and scratch coats. It is important to note the relatively shorter open times (~ 12 minutes @ 30°C). This reduces further at higher temperatures. If the material is reworked after the open time the appearance of the finished floor is likely to be impaired. It is advisable to lay the floor in bays with the bay width narrow enough that a single mix will reach the full width of the bay to maintain a wet edge throughout.

It is important that the application is planned so that the seams between the various bays of a large floor can be placed in the optimum locations to give the best aesthetic result. For example, the seams can be hidden under plant or made to coincide with joints. Having seams in main traffic aisles should be avoided since they will stand out. These should be discussed with the client prior to starting the job. Use battens wrapped in brown parcel tape, or similar, to provide a straight edge to the bay. Mask off all adjacent surfaces. Masking tapes should be removed after approximately ~ 1 hour.

If the mixer stops during the operation for more than 2 or 3 minutes, for example because of a power failure, stop the application and finish to a neat straight line. Do not try and restart the front later as this will always be visible in the finished floor. Please wait until it is cured and leave a tidy seam between two bays in the finished floor.

4.1. Equipment for mixing

The following types of mixing equipment are suitable for mixing either **MasterTop P 920** or **MasterTop BC 920**.

1. High speed drills >350 RPM
2. Twin headed mixing drills, > 350 RPM
3. CreteAngle
4. Collomatic XM2 650

Other mixers should be checked for efficiency before use.

IMPORTANT – DO NOT MIX BY HAND.

Ensure mixing paddles are properly adjusted and close to the bottom of the mixer. Some mixers have a dead spot and mixing regimes must be adjusted to allow for these to be raked out during every mix. When using mixing drills use an appropriately sized bucket to ensure the mixing head is fully submerged to avoid entrapping too much air. If the bucket is too big for the volume of material, then mixing efficiency will be poor.

The diameter of the mixing head should be more than half the diameter of the mixing bucket.

5. PRIMER:

Sealed substrate is very important to ensure the smooth finish of **MasterTop XTC** as a system. To ensure this, prepared substrates shall be primed with a scratch coat of **MasterTop P 920**, three-component primer based on Xolotec® technology.

5.1. Mixing

MasterTop P 920

- 5.1.1. Position the mixer as near to the working area as possible. It is important to keep the mixing station clean and to avoid spilled materials being trafficked onto the substrate as this may lead to blistering.
- 5.1.2. Ensure that the components are at the correct temperature, preferably 10 - 25°C. Open packaging while the previous mix is mixing.
- 5.1.3. Part A of **MasterTop P 920** is fillerised and may have some settlement during transit. BEFORE MIXING THE COMPONENTS, Mix Part A with high-speed electric drill for 1 to 2 minutes until material becomes fully homogeneous without lumps. Ensure no material is settled at the bottom of the pail.
- 5.1.4. Empty Part B in a separate clean mixing bucket. Whilst mixing with high-speed electric drill Add premixed Part A.
- 5.1.5. Mix for 0.5 ~ 1 minute making sure to reach the bottom and sides of the can. Continue mixing for 0.5 ~ 1 minute to produce a fully blended, uniform material.
- 5.1.6. Gradually add Part C whilst mixing continues; Mix until the filler is uniformly dispersed, and the mix is uniform, typically 1 - 2 minutes.
- 5.1.7. It is important to maintain constant mixing times throughout to avoid introducing excessive air into the system.

5.2. Application

- 5.2.1. The air and substrate temperature during application should be above 5°C.
- 5.2.2. All anchor grooves should be filled with **MasterTop P 920** to ensure that they do not “grin through” the finished floor surface.
- 5.2.3. **MasterTop P 920** is applied by steel trowel scratching over the surface in both directions to fill the pores and voids in the surface, and then a flatter trowel to leave a continuous coating over the surface.
- 5.2.4. **MasterTop P 920** should be applied as a scratch primer and care should be taken to ensure that substrate is completely sealed.

- 5.2.5. For highly porous substrate, it is recommended to apply the scratch coat in two layers keeping the total consumption rate of 1.2 – 1.5 kg/m² for **MasterTop P 920**. This will ensure proper sealing of the substrate and blemish free surface of body coat.
- 5.2.6. The scratch coat shall be allowed to dry completely to achieve a tack free surface before overcoating with **MasterTop BC 920**.
- 5.2.7. The overcoating time depends on ambient temperature and humidity, but typically **MasterTop P 920** can be overlaid after 4 hours @ 25°C.
- 5.2.8. In cold conditions or where day / night temperature change is great, care to be taken to avoid condensation on substrate primed with **MasterTop P 920**. This can be difficult to see and can lead to blistering of body coat if it is not removed.
- 5.2.9. If the time between coats exceeds 48 hours, or if condensation or water impacts the surface, lightly abrade the surface prior to overlaying.
- 5.2.10. Defects in the primed surface, such as blow holes in the surface because of air rising out of bleed run pores in the substrate, should be remedied before overlaying the bodycoat. Failure to do so may lead to surface defects in finished flooring surface.

6. BODYCOAT:

MasterTop BC 920 is supplied in four components, Part A, B, C & D with Part D being colour component. The typical mixing steps are as follows:

6.1. Mixing Procedure

- 6.1.1. Position the mixer as near to the working area as possible. It is important to keep the mixing station clean and to avoid spilled materials being trafficked onto the substrate as this may lead to blistering.
- 6.1.2. Ensure that the components are at the correct temperature, preferably 10 - 25°C. Open packaging while the previous mix is mixing.
- 6.1.3. Part A of **MasterTop BC 920** is fillerised and may have some settlement during transit. BEFORE MIXING THE COMPONENTS, mix Part A using high speed electric drill for at least 1 minute or until material becomes homogeneous without any lumps or settlement.
- 6.1.4. Always mix in separate clean container, & do not use the pails for mixing. Empty Part B into the mixing bucket.
- 6.1.5. Whilst mixing continuously add premixed Part A & Part D and mix thoroughly using a slow speed drill with a suitable paddle, making sure to reach the bottom and sides of the can.
- 6.1.6. Continue mixing for 1-2 minutes to produce a fully blended, uniform material without color streaks. It is important to maintain constant mixing times throughout to ensure consistent color and to avoid introducing excessive air into the system.
- 6.1.7. Gradually add Part C whilst mixing continues; Mix until the filler is uniformly dispersed, and the mix is uniform, typically 1½ - 2 minutes.
- 6.1.8. During mixing the components will generate heat; this is advantageous when the

components are cold as this will help raise the material temperature on mixing, so improving workability.

- 6.1.9. However, when the stored components are already warm, over mixing must be avoided as the chemical curing reaction will proceed at a faster rate, leading to decreased working time.
- 6.1.10. The required mixing time may be judged with experience and will depend on the individual grade, the efficacy of the mixer and the number of units mixed.

6.2. Application

- 6.2.1. Before progressing further, ensure that substrate is fully sealed with scratch coat primer and if required apply another coat of scratch primer to ensure complete sealing of substrate.
- 6.2.2. Spread the mixed material over the dry scratch coat at a consumption of 2.2 to 2.6 kg/m² using pin rake. The pins of the pin rake adjusted to appropriate depth.
- 6.2.3. Use steel trowel for edge work. Use a spiked roller to produce smooth even finish. The whole floor should spike rolled twice.
- 6.2.4. On the first pass the spike roller should be pushed right through the material to substrate to assist the flow, remove pin rake marks and to flatten the floor.
- 6.2.5. Subsequent passes with the roller held lightly just upon the surface to bring the resin up to the surface and improve aesthetics. The roller should be carried no more than 10cm into the previous mix.
- 6.2.6. To ensure an even finish, all troweling, and spiked rolling should be completed before the mix is 10 minutes old.
- 6.2.7. Care should be taken at doorways. Hot / cold draughts will affect the cure / flow of the material. This can cause the spike roller marks to not “settle” out.

7. ESTIMATING DATA:

Actual consumption depends on the surface absorption, texture, loss and wastage. The following minimum consumption rates shall be strictly adhered to achieve designed performance properties.

Layer	Product	Consumption (kg/m ²)
Scratch coat	MasterTop P 920	1.2 ~ 1.5
Body coat	MasterTop BC 920	2.2 ~ 2.6

8. SITE STORAGE:

8.1. General

All of the components that are used to install **MasterTop XTC** - and the ancillary products that are used in the substrate preparation and laying - must be stored under cover, above 5°C and below 30°C and out of direct sunlight. Materials must be raised off the floor and kept dry, this is especially important for Part 3 components to prevent them becoming hard

and lumpy and unsuitable for use, especially under a humid environment.

The preferred application temperature lies in the range 10°C - 25°C; this is also the preferred temperature range for mixing, laying and curing. Short term exposure to direct sunlight or other intense heat sources will cause uneven temperature gradients in the stored material; such product must not be used until the temperature has become uniform, otherwise application inconsistencies may arise.

8.2. Cold Temperatures

Installation becomes more difficult and consequently laying speed gets reduced. In practice, it is often necessary to warm up the material to aid application. When warming up is required, it is preferable to keep the material in a heated room until even temperatures are realised. If this is not practical, some form of portable heater is recommended at the mixing area. On large contracts a "tent" will help raising the temperature more efficiently. All components should be warmed up, with care being taken to keep temperatures uniform in the components.

8.3. Hot Temperatures

When temperatures during application are expected to be above 30°C, some form of air-conditioned storage is required. Keeping the materials at 20-25°C will reduce the possibility of flash setting and other defects. Do not install in direct sunlight or on very hot substrates.

8.4. Relative Humidity

If the relative humidity drops below 50%, the applied material may have extended times to become tack free. If the humidity is below 30%, this can even extend for several days. A portable humidifier might help in closed environments to cure faster.

8.5. Safety Notes

If moisture enters containers of Part B components, it will react chemically with the contents producing carbon dioxide gas. If this occurs, do not replace the lids, otherwise a dangerously excessive pressure can develop which may lead to rupture of the can.

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the Master Builders Solutions Material Safety Data Sheet (MSDS) from our office or our website.

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