MASTER® BUILDERS SOLUTIONS

MasterTop DTZ

Method Statement
&
Applicator Guide

A brand of MBCC GROUP

The following “Applicators Guide” is provided to assist in highlighting the various steps that need to be considered when installing a **MasterTop DTZ** epoxy Terrazzo floor.

What does a MasterTop DTZ floor consist of:

MasterTop DTZ is an epoxy resin-based flooring system utilizing both coloured resins and coloured aggregates to create a seamless and aesthetically pleasing floor surface for both commercial and residential projects were high levels of durability are required along with the ability to create designs or colour changes within the floors surface.

It is made up of an epoxy resin base that is (now) pre-pigmented and an array of aggregates and inert fillers known as the “matrix”. This Matrix enables the floors to be “custom made” as the client’s requirements can normally be catered for within certain limits in terms of aggregate colours, type and concentrations.

Unlike cementitious terrazzo type floor systems that have been around for centuries, epoxy-based Terrazzo systems are installed relatively thinly (10-12mm) and are far more flowable than a typical screed type system due to their epoxy resin content. This is an important factor to bear in mind when it comes to the application requirements.

MasterTop DTZ as a flooring system requires the use of rigidly and permanently fixed edge trims to create the various floor panels and any intricate design that may be required within the floor itself.

It is to a large degree a seamless flooring system as it does not under normal circumstances require the installation of any crack control joints. Instead the system incorporates the use of a crack suppressant membrane (mesh) to reduce the requirement for jointing to an absolute minimum.

In order to achieve a seamless floor or a floor with very large jointless panels, the underlying concrete substrate plays a vitally important role in the whole design of the floor and should be designed and installed specifically with the requirements of the **MasterTop DTZ** flooring system in mind.

Failure to plan and control the installation of the concrete floor (surface bed or screed) that is to receive the **MasterTop DTZ** Terrazzo can lead to placing and finishing problems that cannot easily be rectified after the fact.

Pre- Installation Watch Points.

- The concrete floor onto which the **MasterTop DTZ** is to be applied MUST be capable of providing a tensile pull-off test result of at least >1.5 MPa and preferably >2 MPa.

- IF being placed on a floating / un-bonded “screed” this MUST be of adequate thickness and comply with BSEN 8204-1 with regards to minimum thickness in relation to the type of usage. Typically, an un-bonded screed needs to be no less than 75mm in thickness for this type of application. Bonded screeds can go down to 25mm or less depending upon material used and type of surface prep and bonding system used.

- Joints within the underlying concrete / screed need to be taken into consideration as some may need to be reflected thru the floor into the **MasterTop DTZ** or moved to ensure they do NOT clash with the design that may be within the **MasterTop DTZ**. It is extremely important that ALL joints, whether tied construction, sawn contraction or expansion joints be carefully planned and adjusted if necessary, to meet the clients requirements in terms of the number and position of joints that would remain visible in the finished **MasterTop DTZ** floor.

- As **MasterTop DTZ** is a blend of what is essentially a self-smoothing epoxy resin system (**MasterTop BC 304F**) combined with decorative aggregates there is a NEED to provide as even an underlying concrete / screeded surface as practically possible. The standard 3mm in a 3m straight edge would be the normally acceptable “flatness” “standard” for most flooring systems BUT this does NOT address the issue of “level” control over larger areas as the individual “straight-edge” flatness tests cannot easily be related to each other – they are a random “test” and at best give an “indication” of acceptance. In order to fully understand the floors surface prior to the application of the **MasterTop DTZ** it is advisable to carry out an extensive floor survey on a 1.5m grid pattern to establish both the flatness and levelness of the floor. **MasterTop DTZ** is placed at an initial thickness of 10 or 12mm depending upon what has been agreed upon. This is NOT the final finished floor level and therefore this MUST be taken into account especially when **differing** floor finishes meet. The numerous and sometimes complicated edge strip patterns and layouts that are required for **MasterTop DTZ** installations MUST be installed to an accurate “level” set either by the use of a rotating laser and detector staff or a dumpy level or water level. This accurate setting of the top face of the edging strips etc. then removes the inaccuracy in “flatness” that the floor may suffer from.
  Edge strips are often many metres apart (large jointless floor panels being possible) and IF the underlying floor is very uneven in terms of “flatness” there is a the great risk of the **MasterTop DTZ**’s installed and finished thickness being out of spec (too thin or too thick), both scenarios can cause visual defects within the floor and these would ONLY become obvious at the grinding stages (too late to do anything about it!)

It is imperative that the floors flatness and level be checked extremely carefully and if necessary remedial work can be carried out to rectify the situation BEFORE commencing with the installation of the **MasterTop DTZ**.
The above points CANNOT be stressed enough as once cast there is no easy path to rectification.

If a concrete floors surface is severely undulated, it makes placing of the **MasterTop DTZ** to the required degree of "flatness" extremely difficult, temporary guide rails can end up sitting on high or low spots on the floor with the potential to greatly increase the thickness / consumption of the material and adversely affect the overall "level" control. Guide rails in low spots may require the high spots around them to be over ground and thus expose the aggregates to a differing degree. Using a tripod type thickness "indicator" set to the required **MasterTop DTZ** thickness works perfectly well when the underlying surface is well within tolerance BUT as the "indicator" faithfully relays the underlying surface profile to the upper surface of the **MasterTop DTZ** it will also replicate high and low spots with their associated "problems". If the flatness discrepancies are big enough, grinding through the entire thickness of the **MasterTop DTZ** becomes a real possibility when trying to expose aggregates placed in low spots!

An accurate grid-based survey followed by marking out of all edge strips or design requirements will help identify potential problem areas and these need to be raised with the main contractors / client for rectification BEFORE any application work commences.

As mentioned earlier, **MasterTop DTZ** is a semi-fluid material due to the epoxy resin content, the balance being inert fillers and decorative aggregates etc. Some aggregates are heavier than others and the requirement of the **MasterTop DTZ** system is to "suspend" these aggregates within the top of the mix evenly across the entire floor surface (which can be hundreds of square metres) so when grinding and polishing is completed there is a consistency in aggregate size and appearance.

IF the placed surface of the **MasterTop DTZ** is NOT level / flat there is a possibility for the resin part of the system to migrate to the lowest points within the floor, especially at high ambient temperatures (liquids run downhill very easily) and create resin "pools" that do NOT have the larger aggregate suspended to the same degree. These "resin spots" are unfortunately spotted ONLY AFTER initial grinding and are difficult / impossible to rectify without mechanical removal and repair. Needless to say, they MUST be avoided at all costs. Their occurrence is unfortunately also related to the type and make-up of the matrix being used in terms of aggregate shape, density, percentage used etc. and therefore needs to be considered along with all the other aspects that can adversely affect the installation and successful completion of a **MasterTop DTZ** floor.

The above gives possibly the more obvious areas of concern that can lead to resin spots etc. the other major factor that can create or increase the occurrence of such issues is related to the conditions within the room at the time of placement. As with all epoxy based systems the higher the ambient temperature, that of the materials, floor surface etc. at the time of placing WILL increase the risk of "resin-spots" as the epoxy resin holding the aggerates at the surface reduces in viscosity with an increase in temperature. This can lead to the aggregates (depending upon type and shape etc.) sinking away from the surface and when combined with an uneven floor surface with lots of "low / high spots" typically results in a surface that either requires excessive grinding (not ideal) or localized repairs (not ideal as invisible repair is almost impossible). It is therefore imperative that wherever possible the following is adopted: -

- **All materials to be stored at below 25°C on site for at least 24 hours prior to use.**
- **Room ambient temperature to be controlled and be between 15 – 30°C (max) at the time of application.**

Each kit of **MasterTop DTZ** consists of multiple components, these being:

- **MasterTop BC 304F Part A Resin** (Pre-pigmented)
- **MasterTop BC 304F Part B Resin**
- **MasterTop FSR Aggregate** (will have a project specific FSR number)

Along with the above, a smaller number of **MasterTop BC 306** "grouting" kits will be required for use during the grinding / finishing processes. These consists of:

MasterTop BC 306 (**MasterTop DTZ** pre-packaged grout) is supplied in the following "kit" and consists of:

MasterTop BC 306 Part A	3.5 kg
MasterTop BC 306 Part B	1.305 kg
MasterTop BC 306 Part C	4 kg

Depending upon the size of the project and quantity of material ordered it is possible that the above components may have been produced in different "batches and lots".

It is recommended that prior to starting any application of **MasterTop DTZ** to a specific floor panel the materials are "sorted" to ensure wherever possible the same batch / lot numbers are used within the area. This will mitigate the possible slight variances that may occur from batch to batch etc. (slight variances in the Aggregate make-up cannot be totally avoided).

The “standard” practice is to mix **MasterTop DTZ** in multiple kits (to speed up the laying process) and therefore it is imperative that these “mixes” remain constant in their make-up throughout the pouring process for individual panels. In order to ensure a consistency within the mix, the following should be considered.

1. Calculate the required number of kits for the panel to be poured.
2. Check IF this can be achieved using a single “batch” number for each component and specifically the colour pack and FSR Aggregates.
3. If this cannot be achieved, then use a multiple kit mix that contains a **constant ratio** of components from 2 or more batches.
4. DO NOT under any circumstances use random components from differing batches in an un-controlled manner as this may lead to minor colour variations within the panel and makes finding the source of any problem (if there is one) extremely difficult.

Substrate Preparation.

As mentioned earlier, the level and flatness of the surface onto which the **MasterTop DTZ** is to be laid is of paramount importance.

If it is required to correct flatness and levels of the floor to achieve the required project specified (recommended) tolerances, the following options should be considered depending upon the severity of the problem.

1. Grind off high spots to bring flatness within project specifications. This does NOT address any “level” issues that may exist over very large panels with no internal edge strips etc.
2. Grind off high spots and fill depressions with an epoxy resin / sand mix (**MasterTop BC 1215)** to bring the flatness to within the project specification.
3. Scarify entire surface and re- surface (to correct both level and flatness) using a cementitious self - leveller such as **MasterTop 522**, **MasterTop 538** or an epoxy-based system such as **MasterTop BC 1235 / MasterTop BC 1245**.

Although the **MasterTop DTZ** system incorporates a “crack-suppressant” membrane within the primer it is still required to carry out a degree of crack repair / stitching, especially on screeded surfaces that are un-bonded and therefore possibly subject to higher levels of movement. All cracks, construction joints, saw cuts (crack control), movement joints etc. within the substrate need to be taken into consideration with regards to possible movement, alignment with the edging strips in any floor “design” that may be needed, and suitable precautions taken to reduce the risk of cracking of the underlying cementitious surface (screed / surface bed) and subsequently the **MasterTop DTZ**. **The “crack-suppressant” membrane is only expected to take care of future hairline**

cracking, it should NOT be used as an alternative to the correct methods of repairing existing cracks and poorly formed joints etc.

The cementitious substrate, screed or concrete slab should be at least 28 days old and preferably as old as is practically possible prior to the application of the **MasterTop DTZ**. This is for no other reason than to have a surface which would have completed the largest part of its drying shrinkage and therefore be less susceptible to further cracking etc. Screeds that are shrinkage compensated and "fast" curing can be overlaid sooner but the ideal situation is to have the cementitious floor surface as old as possible before considering the application of the **MasterTop DTZ**.

In terms of surface preparation, the normal approach would either be grinding or captive shot blasting, no other means of surface preparation is acceptable. Grinding is the "norm" as it allows for the removal of high spots within the floor and the correction of any level differences etc. across joints.

Once completed (crack repair and flatness control etc.) the numerous 10 or 12mm high edging strips should be mechanically fixed to the floor surface and ideally perfectly flat and level (on packers if necessary) – upper edge checked by laser level or other accurate means. They should NOT simply be screwed tightly against the floors surface as this may NOT be provide the correct "level control" between edges that may be many metres apart!

Edge strips must be installed at all free edges of the floor, around columns and any expansion / isolation / construction / saw-cut control joints in the floor substrate (that have not been stapled and filled), at column bases and perimeter walls etc. wherever movement is expected, including adjacent finishes, metal finishes and at door thresholds.

Once all of the edging / design strips are in place it is vital that the required 10 or 12mm clearance is available throughout the entire area, this can be checked using a tightly strung fishing line across the edge strips as a final check before commencing with the primer / membrane application. This would be the last stage at which adjustments to level / flatness can be done without sacrificing any of the system materials.

Primer Installation.

Prior to the application of the primer all edge strip layouts and details should be checked and confirmed as being correct.

The bare concrete / screed surface that has been previously prepared (grinding / captive blasting) should be thoroughly vacuumed to remove all debris and the working area closed off to all but the flooring application team. The ambient temperature must be within the acceptable limits (<30°C) and the concrete / screed surface tested for a moisture level of <5%.

Once all conditions are confirmed as acceptable the bare floor surface can be primed using either **MasterTop P 650** or **MasterTop P 651** primer as detailed in the **MasterTop DTZ** method statement. Any areas that show as “matt” after priming will need to be recoated with the appropriate primer.

Primed surface should be free of any “matt” patches and dry to the touch before commencing with the next stage – This next stage MUST however take place within 48 hours of application of the primer.

Crack Suppressant Membrane Installation.

This involves the application of the **MasterTop M 332** epoxy resin and **MasterTop RM 10** reinforcing mesh. It is imperative that the **MasterTop RM 10** mesh be placed into the wet epoxy resin and then firmly embedded / wetted out using a laminating roller or the edge of the steel trowel. If using a steel trowel, it is important that the resin is NOT removed from the surface of the mesh and that the mesh is simply pushed down into the wet material. Any blisters, air bubbles or wrinkles etc. within the mesh should be carefully cut and then the material flattened into the resin as it becomes tacky. The mesh should be accurately cut to the required shape / sizes so that it accurately follows the edge strips as closely as possible (within 10-15mm of the edge strip).

Once applied the surface MUST be overlaid within 48 hours and once track-free, kept clean and free of unnecessary foot traffic etc.

MasterTop DTZ Application

The application of the MasterTop DTZ overlayment should only be started IF all pre-requisite site conditions have been met. These being:

- All above stages completed and all edge strips, back to back joint profiles and anchor grooves etc. have been installed, checked and confirmed to be correct.
- The ambient temperature within the building / room is at the required level – LESS than 30°C and can be maintained.
- All components of the **MasterTop DTZ** have been pre-conditioned in an AC regulated store and are below 25°C.
- **THE FLOOR SURFACE TEMPERATURE IS BELOW 30°C** – This is critical as it can adversely affect the consistency of the **MasterTop DTZ** and can cause aggregates to sink thus generating “resin spots”.
- Area to be cast has been confirmed and number of kits needed to complete are available with an additional 10%. ALL batch numbers, expiry dates etc are recorded in the daily site record sheet.

- IF more than one “batch” of material **(FSR / MasterTop BC 304F resin Part A & Part B)** is needed to complete the area, these are initially separated and then the correct “Mix” proportions are calculated to suit the type of forced action mixer being used.
- IF using multiple batches to complete the area, combine the aggregates (FSR) from different batches to create a “mix” whose combination can be repeated for the entire floor and **should NOT change**.
- If using a 2 kit “mix” use 1 bag of aggregate from one batch and another from a different batch BUT keep this combination consistent throughout the whole placing process. The same applies for the **MasterTop BC 304F Part A** as this will contain the pigment.
- A 3 bag mix can use 3 different FSR batches or a 2 to 1 combination – the simple rule is **IT SHOULD NOT CHANGE**.
- This will then produce a consistent mix with no colour variation and allows tracking of the various components thru the floor should there be an “issue” at a later stage.

ACCURATE RECORDS OF EVERY STEP AND COMPONENT USED ARE CRITICAL TO THE SUCCESS OF THE FLOOR AND IS REQUIRED AS PART OF THE ISSUANCE OF A WARRANTY. Without these records no complaint of any nature will be considered.

Once the components have been grouped to create multiple “identical mixes” depending upon the panel size being placed and all other temperature conditions etc. have been met, the **MasterTop DTZ** application can commence.

This involves the premixing of the **MasterTop BC 304F Part A** (resin + colour). The correct number of kits needed can be set aside and pre-mixed as individual units to speed up the whole process. ALL batch numbers to be noted and different batches, separated IF applicable so that 1 bucket from each batch number is used in each mix.

The same number of **MasterTop BC 304F Part B** units also to be set aside as above.

The **FSR Aggregate** MUST be checked and the required number of bags needed either obtained from 1 single “Batch / Lot” (numbers are on the labels / bag sides for identification) or the number required divided equally between 2 or more separate batches – again ensuring each “mix” contains the same group of components. **DO NOT USE A MIX THAT CONTAINS 2 BAGS FROM ONE BATCH FOLLOWED BY ANOTHER MIX USING A DIFFERENT BATCH**. This will increase the risk of even the slightest colour variation occurring within the floor panel.

All processes involved in the placement of the **MasterTop DTZ** system need to be consistent and repeatable, no variations in mixing times, temperatures, changes in applicator teams halfway through a floor casting etc. should be permitted.

Once everything as detailed above has been organized, all batch numbers etc. recorded, the installation process can commence as per the **METHOD STATEMENT** that should have been read along with this document and fully understood by ALL supervisory personnel on site.

NOTE:

- All mixes to be consistent as detailed above in terms of components
- Mixing time for each batch of **MasterTop DTZ** (2 or 3 "kit" mix) is to be consistent – over mixing CAN alter the consistency of the matrix and needs to be avoided.
- The first "mix" needs to be checked for "flow" before being placed and if outside of the provided "limits" this needs to be immediately reported to all parties and work halted until the issue can be resolved. Test the flow using a flow plate and cone (**BS 270**) to ensure consistency between any differing batches.
- This flow test should to be conducted for each "batch" that is utilizing different FSR (Aggregate) batch numbers, as these components are the most important in terms of flow and workability characteristics.

Application of the **MasterTop DTZ** should be carried out by pouring the mixed material in a line across the narrowest section of the floor. It is then spread out and levelled using hand steel trowels and temporary guide rails along with a short Aluminium straight edge to act as a final flatness / level check between edge strips / guide rails. It is imperative that the laid surface be as flat and level as possible as this will greatly reduce the amount of grinding needed to evenly expose the aggregates and reduces the risk of "resin spots" to an absolute minimum.

Be aware of differing surface temperatures that can develop as a result of direct sunlight through doorways and windows that can greatly increase the surface temperatures in localized areas. This will in turn increase the temperature of the placed **MasterTop DTZ** and can lead to a reduction in viscosity and subsequent aggregate sinking further from the surface than is desirable!

The use of a small tripod type "depth" gauge that is set to the required **MasterTop DTZ** thickness (10 or 12mm) measures from the surface of the concrete upwards and therefore the surface of the **MasterTop DTZ** would in theory follow the contours of the floor (possibly quite wavy). Low spots would be created in the placed **MasterTop DTZ** and there is then the risk of resin accumulating into these depressions and again result in resin spots! The use of a rotating laser beacon and pre-set detector rod would be the best option as it is both quick and accurate and needs only one person to complete the task once set-up accurately.

If the project consists of multiple large panels with little in the way of intricate designs within the floor it may be advantageous to have the **MasterTop DTZ** resin components pre-bulked to instantly provide a single "2 or 3 kit" making the processes required that

much quicker and easier for the flooring team. Each 2 or 3 bag “large” kit would have the **MasterTop BC 304F Part A** + **Colour** premeasured along with the appropriate increased Part B volume. This would speed up the pre application checking processes (batch numbers etc.) and the mixing process, along with creating less plastic contaminated waste that would need disposal from site.

A **MasterTop DTZ** floor is a relatively easy system to apply and produce a high quality floor IF the above “common sense” based guidelines are taken into consideration, unfortunately it is even easier to create a bad floor if the above points and guidelines are not taken into account.

As with most things, attention to detail is critical, and IF all the necessary pre-installation work has been thought through and executed correctly the risks of there being any issues whatsoever are greatly reduced.

As an aid to the laborious BUT essential pre installation checking of materials, batch numbers etc. there is attached a spread sheet that can be used to record all this information and should be used for ALL flooring applications whether they be a complicated **MasterTop DTZ** designed floor or a simple coating. The more information provided relevant to the job site the better the chances are of spotting issues and being able to resolve them.

The use of a Daily Site Report is an essential QC / QA tool and as such any flooring system being installed and that is supplied by Master Builders LLC would only be provided with a “warranty” IF copies of the daily reports are provided and contain the full information as recorded at the time of installation.

This document is intended to assist the applicator in achieving an acceptable result irrespective of the type of flooring system being undertaken and MUST be read in conjunction with the relevant Method Statement (see following pages).

Many of the “common-sense” points raised are pertinent to other flooring systems and not just MasterTop DTZ.

THIS METHOD STATEMENT COVERS THE SURFACE PREPARATION, MIXING & APPLICATION OF **MasterTop DTZ.**

METHOD STATEMENT: MasterTop DTZ

Highly Decorative Seamless Epoxy Terrazzo Floor System

8mm to 10mm Final Finish (Gloss or Matt Finish)

1. PREPARATION:

1.1. At the time of installation of the **MasterTop DTZ**, the substrate concrete must have a minimum tensile strength of >1.5 MPa, be more than 7 days old and the surface should be dry.

Prior to application of the **MasterTop DTZ** System, the substrate must be thoroughly surveyed to ensure that it is sound (above 25 N/mm^2 and with a pull-off value of >1.5 N/mm^2), dry and of acceptable level and finish to accept a 10mm high quality resin finish. A structural DPM must have been installed and the Engineer should have made allowance for any structural movement by installing the correct movement joints which **MUST** be continued through the **MasterTop DTZ**.

The **MasterTop DTZ should not** be applied onto any floor substrate when air humidity exceeds 75% RH and the concrete slab shows >5% moisture content when tested with a Tramex or similar surface applied electronic moisture meter.

1.2. Substrate Floor Flatness

The substrate concrete or screed should be installed to the following tolerances as per **BS 8204-Part 6: 2001 – Table 2 Class - SR 1** (±3mm maximum deviation from a 3m straightedge laid flat on the substrate) which is the **MAXIMUM** acceptable deviation required for the flatness of the finished terrazzo floor. Any repairs to the substrate or correction of the required flatness etc. should be carried out in good time prior to the installation of the **MasterTop DTZ.**

The flatness of the floor substrate is very important for the subsequent MasterTop DTZ application.

NB: If the substrate is significantly outside the level tolerance to accept the 10mm **MasterTop DTZ** terrazzo screed, it is recommended to apply a cementitious self-smoothing screed prior to the application of the resin topping. For further information contact Master Builders Solutions LLC.

2. SUBSTRATE PREPARATION:

2.1. The preferred methods of substrate preparation are; captive blasting (heavy) or Grinding,

NB: Acid etching is not acceptable and mechanical scarification will create issues when applying the crack-suppressant membrane.

2.2. Light contamination of oil, grease, fats or similar should be removed before starting other forms of preparation using degreasing solutions. If deep contamination is present it may require cutting out and repairing of the surface.

2.3. If the substrate has been damaged by physical or chemical attack, it should be cut back until sound, dense, uncontaminated concrete is exposed.

Repairs can be carried out as per **Master Builders Solutions Method Statement for Thin Section Epoxy Repairs (MasterTop BC 1215 / MasterTop BC 1235 / MasterTop BC 1245).**

2.4. If repairs are carried out using Master Builders Solutions **MasterEmaco** Cementitious Repair Products, they should be cured properly in line with manufacturer's instructions before applying the epoxy topping.

2.5. As the flatness of the finished floor is important, high spots should be mechanically removed and minor low spots filled out.

2.6. When repairs and levelling are complete, the final surface preparation shall be carried out to remove all laitance and weak or friable concrete (**CSP 3-4**).

2.7. Remove all dust and debris from the prepared surface.

2.8. Close the prepared areas to vehicular and pedestrian traffic.

2.9. **IF possible** cool the area down to below 30ºC for the duration of the installation work.

3. DETAILING: Divider Edge Strips.

Expansion, Isolation & Construction Joints, Free Edges & Adjacent Finishes.

3.1. Metal Dividing strips should be permanently fixed to the surface of the concrete substrate or screed at all "Free Edges" and any expansion / isolation / construction / saw-cut control joints in the floor substrate, at column bases and perimeter walls etc. wherever movement is expected, including adjacent finishes, metal finishes and at door thresholds.

3.2. For expansion joints and any other required sealed joints, the joints should be formed by using two of the edging / divider strips fixed back to back to the required width of the joint and subsequently filled with an appropriate sealant for the end use.

3.3. Termination grooves must be cut in the surface of the concrete along any free-edges (against walls / window frames) and around drains, gulley's and any penetrations in the concrete substrate or screed where metal divider strips are not used. Termination grooves are nominally square in section with each side approximately twice the thickness of the floor. (Min. 16mm x 16mm).

4. PRIOR TO INSTALLATION:

4.1. Storage
Materials should be stored under cover, out of direct sunlight and must be protected from temperature extremes. Ideal storage temperature 16°C-22°C.

5. FIXING METAL DIVIDER STRIPS (10mm / 12mm depth)

5.1. Brass, Aluminium or Zinc alloy divider strips can be used, ensuring that they have a means of mechanical fixing ("L Section").

5.2. Metal Divider Strips are to be permanently and firmly fixed to the substrate to the correct levels (using a dumpy level / laser beacon) and to adhere to the design layout drawings as provided by the client and/or consultant.

5.3. Shrinkage and movement joints can be created using the permanent formwork if required, prior to filling with a proprietary joint sealant.

The decorative divider strips (Brass, Zinc or Aluminium) should be fixed and leveled to the required design prior to the application works commencing and masked off on the vertical side of the strips on adjacent panels to prevent contamination of colour from the area being laid.

NB: Care should be taken to ensure the fixing screws are countersunk into the metal divider strips to prevent them being visible after the MasterTop DTZ grinding process. If necessary, the fixing screw heads can be ground down after the application of the MasterTop RM 10 is completed and set.

6. INSTALLATION OF THE MASTERTOP DTZ:

6.1. Ideal application temperatures are 18°C to 30°C. The mixed **MasterTop DTZ** should be within 18°C to 35°C range during installation. Once laid **MasterTop DTZ** will cure very effectively even at low temperatures.

Applications should not proceed if the ambient temperature is expected to be within +3ºC of the dew point at any time during the operation.

7. APPLICATION OF MASTERTOP DTZ (Total System 8mm / 10mm after grinding)

Primer / Sealer should not be applied on to:

Damp substrates - Concrete and other cementitious substrates **must** be dry with moisture content less than 5%.

Weak substrates - The **MINIMUM** pull-off strength shall be >1.5 N/mm^2. Application to substrates of lower strength is **NOT** recommended and may affect the long-term performance of the applied flooring. This is particularly relevant in areas subject to heavy use be it thermal or mechanical.

7.1 Option 1 – MasterTop P 650

(Low Viscosity Two Component Primer for Dense, Low Porous Substrates)

7.2. Pour the contents of the Part A and the Part B into a suitable polyethylene mixing pail and mix using a low speed hand-held heavy-duty mixer and suitable mixing paddle (**Collomix KR** or similar) for at least 1 minute.

7.3. Apply the mixed **MasterTop P 650** to the substrate, using a medium pile roller at the coverage rate of **0.15 - 0.30 kg/m^2** depending on the absorption of the substrate. The surface of the primer must be wet and glossy at the time of applying the aggregate scatter. Dry / matt areas must be re-primed.

7.4. Allow to cure for at least 5 hours at 20°C.

7.5. Option 2 - MasterTop P 651 – PRIMER/SEALER

Mixing MasterTop P 651

7.6. Pour the contents of the Part A and the Part B into a suitable polyethylene mixing pail and mix using a low speed hand-held heavy duty mixer and suitable mixing paddle (**Collomix KR** or similar) for at least 1 minute, and then add Part C powder and mix for a further 2 minutes until an even consistency is achieved.

7.7. Application of MasterTop P 651 PRIMER

7.8. Pour the mixed material into an industrial paint tray and apply by roller, steel trowel or squeegee, taking care to avoid ponding. Apply the material around the edges of areas and into the termination grooves by brush to ensure even spreading at the following coverage rate.

Coverage: 0.3 kg - 0.35 kg/m^2 depending on porosity of substrate.

NB: Above coverage rate will depend on substrate profile and does not include any wastage.

7.9. **MasterTop P 651 Primer** should be allowed to cure for a minimum of 8 hours and a maximum of 48 hours before applying **MasterTop DTZ** flooring (assuming 20°C). At low temperatures and low humidity these times may be extended. **The surface MUST be dry to the touch before overlaying.**

7.10. Should the primer coat be left for more than 48 hours, mechanical surface preparation will be required to produce a suitable surface for the application of the **MasterTop M 332** and the **MasterTop RM 10.** This may necessitate re-priming.

8. APPLICATION OF CRACK SUPPRESSANT MEMBRANE AND MAT:

MasterTop M 332 and MasterTop RM 10

8.1. Mixing

Pour the contents of the Part A and the Part B into a polyethylene mixing pail and mix using a low speed hand-held heavy-duty mixer and suitable mixing paddle (**Collomix KR** or similar) for 3 minutes.

8.2. Application of MasterTop M 332

Pour the mixed material into an industrial paint tray and apply by roller at the following coverage rate taking care to avoid ponding. Apply the material around the edges of the area by brush to ensure even spreading.

(a) Coverage: 0.5 litres / m^2 (Approx. 0.525 kg / m^2)

NB: Above coverage rate does not include any wastage.

Embed the **MasterTop RM 10** into the wet **MasterTop M 332** membrane and firmly press the mat into the wet resin using a flat trowel, metal disc or flexible steel coil laminating roller ensuring there is no creasing or air blisters.

NB: Any creases or blisters formed in the MasterTop RM 10 during the application process can be cut with a sharp blade when the MasterTop M 332 membrane is starting to be tacky and then rolled to press the MasterTop RM 10 into the tacky MasterTop M 332 membrane. Spike shoes may be required for this operation.

8.3. **MasterTop M 332** should be allowed to cure for a minimum of 8 hours and a maximum of 48 hours before applying **MasterTop DTZ** flooring (assuming 20°C). At low temperatures and low humidity these times may be extended. **The surface MUST be dry to the touch before overlaying.**

NB: When dry, any fibres or raised areas should be sanded or ground down.

9. APPLICATION OF MASTERTOP BC 304F:

MULTIPLE KIT MIXING.

9.1. **MasterTop BC 304F** consists of 3 components.

9.2. Pre-mix the **MasterTop BC 304F** liquid component Part A for 1 minute with a slow speed drill and paddle (300 – 350 rpm) to create a uniform dispersion as the **colour pack is already contained** within this **Part A** resin.

9.3. Once **Part A** is pre-mixed add it to the pan mixer along with the **Part B** and mix for 30 seconds and then add the **Part C** aggregates whilst the mixer is still running and mix for typically 3 – 4 minutes. Only whole units are to be mixed. Nothing is to be added or left out.

9.4. **DO NOT** mix more than 3 units at a time. Transport and discharge the mixed material on to the substrate as quickly as possible.

SINGLE KIT MIXING.

9.5. Pre-mix the **MasterTop BC 304F** liquid component Part A for 1 minute with a slow speed drill and paddle (300 – 350 rpm) to create a uniform dispersion as the **colour pack is already contained** within this **Part A** resin.

9.6. Pour the premixed Part A into a large clean mixing bucket (25/30 litre) and ensure all resin is thoroughly scrapped out. Add the Part B and mix slowly for 30 seconds using a low speed hand-held heavy-duty mixer and suitable mixing paddle (**Collomix KR** or similar)

9.7. Whilst the mixer is running slowly add the **Part C** (**MasterTop DTZ** Aggregate) and mix thoroughly until all aggregates are thoroughly wetted out (1-2 minutes).

9.8. Spread all of the mixed **MasterTop BC 304F** on to the floor immediately after mixing and spread by steel trowel to the correct thickness (minimum 10mm) and strike off flat using the installed divider strips and depth gauges as a guide at the following coverage rates.

Laid at 10mm thickness to give an 8mm final finish: Approx. 22 kg/m^2

NB: Material should be laid at 10mm thick using the above given coverage rate (Approx. 22 kg/m^2) which will give an 8 mm finish after grinding and polishing.

NB: Above coverage rate does not include for any wastage or excess thickness etc. that may be associated with casting on un-even floor surfaces that are outside of the surface flatness tolerances that are recommended.

9.9. Compact the placed material using a wood or plastic float.

9.10. Close and flatten the surface using a steel float.

9.11. Allow to cure for a minimum 16 hours.

9.12. Do not apply when atmospheric condensation is occurring or likely to occur before full cure is attained, i.e., when the dew point is reached or when the ambient or substrate temperature is within 3°C of the dew point. Normally full cure is reached after 24 hours, but under very cold or very dry conditions this may be extended to 48 hours.

10. GRINDING, GROUTING AND POLISHING:

Grinding and polishing consists of four specific stages:

(a) Coarse grinding
(b) Fine grinding
(c) Grouting
(d) Polishing

Each stage should be completed in turn.
Grouting should not commence until all surface irregularities are removed.

10.1. Coarse Grinding

This requires the use of a **diamond grinder (such as HTC or similar)** and would also require an **edge grinder (such as a HTC 270 EG or similar)** for grinding close to adjacent finishes and around columns, etc. The **MasterTop DTZ** floor must cure for 16 hours minimum and the grinding preferably commence after 3 days. Grinding too early will pull out aggregate necessitating the use of additional grouting to fill the voids created. Grinding too late will mean that additional time will be needed to achieve the ground surface with consequent rapid and excessive wear of the grinding diamonds. Coarse grinding is carried out either wet or dry. The mobile grinding machines should be fitted with suitable dust extractors for the dry grinding and a wet vacuum is required for the wet grinding. The diamond heads need periodic replacement; consult the supplier for advice on their effective working life. This can be either a wet or dry process depending on the equipment used. If wet grinding, remove the fine grounds as a slurry to ensure control of the grinding pattern.

Remove the slurries with a squeegee and wet vacuum the surface to remove all the slurry.

Coarse grinding may remove up to 1 mm from the surface to attain evenness.

10.2. Fine Grinding

This requires the use of a **diamond grinder (such as HTC or similar)** and would also require an **edge grinder (such as a HTC 270 EG or similar)** for grinding close to walls, doorways, adjacent finishes and around columns etc.
Fine grinding frees the surface from scratches. The mobile grinding machines are fitted with diamond heads, the choice of which depends upon the required final finish; this procedure should be carried out by wet grinding. Areas inaccessible to large grinding machines are ground using either an edge grinder or a hand finisher fitted with carborundum paper; this procedure is normally done dry so proper safety precautions (such as wearing safety goggles and dust

masks) must be taken. When grinding is complete, clean the floor with a floor scrubber (150 rpm) and wash down the surface with water 2 or 3 times and wet vacuum the area to leave it clean and dry with all surface irregularities free from dust and debris. It is essential that the surface is as free from scratches as much possible prior to applying the grouting/filler. Care must be taken not to create more voids as a result of over-grinding. By minimising the surface irregularities, easier grouting / filling is achieved with a minimum of polishing.

10.3. Grouting / Filler

MasterTop BC 306 (pre-packaged grout)

10.4. The grinding stages cause some surface pitting from aggregate pull-out and exposure of pin holes. It is extremely important that loose particles and slurry moisture are removed by a floor scrubbing machine and wet vacuum machine cleaning**. MasterTop BC 306** is applied to in-fill the pin holes and any pitting.

MasterTop BC 306 is tightly hand trowelled over the whole surface, ensuring that it is firmly pushed into and fills the pin holes, pits and voids and removing as much excess grout filler as possible with the trowel edge or a scraper to avoid build-up of grout/filler on the surface.

This is very important otherwise the subsequent polishing stage will be unnecessarily long as it will have to remove the excess grout / filler as well as polish the floor surface.

Allow the **MasterTop BC 306** to dry / cure fully prior to final grinding to remove the excess grout/filler from the surface completely. When the final grinding is complete, clean the floor with a floor scrubber **(such as EURODISC E43 Plus or similar) and (150-155 rpm)** and wash down the surface with clean potable water 2 or 3 times and wet vacuum the area to leave it clean and dry with all surface irregularities free from dust and debris.

MasterTop BC 306 (**MasterTop DTZ** pre- packaged grout) is supplied in the following “kit” and consists of:

(1) **MasterTop BC 306** Part A	3.5 kg
(2) **MasterTop BC 306** Part B	1.305 kg
(3) **MasterTop BC 306** Part C	4 kg

MasterTop BC 306 Part C (Filler) would be added to the above resins @ approx. 3 to 4 kg depending upon the consistency preferred by the applicator.

Coverage: Approx. 0.075 kg/m^2 (per application)

NB: (It may require several applications as required depending on the amount of pin holes / blemishes in the matrix).

Sufficient time should be given before each application is grinded to remove any excess grout. (Approx. 12 hours).

10.5. Polishing

The procedure is similar to fine grinding but using the polishing diamond heads. The procedure should be done wet. A final pass with new diamond heads will help to achieve uniformity in appearance. If examination shows evidence of un-grouted blowholes and pits, repeat the grouting/filler procedure.

10.6. Wash the floor down thoroughly and vacuum it until it is clean and dry.

NB: It is essential that all traces of MasterTop BC 304F resin + MasterTop 1210 filler powder are removed completely prior to the application of the MasterTop TC 425 seal coat (Gloss Finish) or MasterTop TC 424 (Matt Finish).

11. Seal Coat (MasterTop TC 425 - Gloss Finish) or (MasterTop TC 424 - Matt Finish)

11.1. Option 1 - (Gloss Finish) - MasterTop TC 425 Seal Coat

11.2. The finished floor may have a dull, dusty appearance when dry, but will improve with additional cleaning and washing.

11.3. A seal coat is required to improve aesthetics and ease of cleaning.

11.4. **MasterTop TC 425 Seal Coat** should be applied at the following coverage rate.

(a) Coverage: Approx. 0.015 litres / m^2 per coat (3 coats required)

NB: Each coat should be allowed to dry and subsequent coats applied at right angles to the previous coat.

11.5. Allow the final coat of **MasterTop TC 425 Seal Coat to dry for a minimum of 12 hours before polishing / buffing with a high-speed polishing / buffer machine. (Min 1500 rpm) using the White Pad and then the fluffy cloth pad for the final buff up.**

(Such as FIMAP FM 1500 V or similar - min 1500 rpm)

Option 2 - (Matt Finish) - MasterTop TC 424 Seal Coat

11.6. **MasterTop TC 424 Seal Coat** should be applied at the following coverage rate.

Coverage: Approx. 0.02 litres / m^2 per coat (3 coats required)

NB: Each coat should be allowed to dry and subsequent coats applied at right angles to the previous coat.

11.7. Allow to cure for 24 hours at 20°C prior to foot traffic.

12. Expansion Joints

Expansion / Movement Joints should be formed as per item 3.2 above.

13. POST INSTALLATION:

13.1. No Building Trades or traffic to be allowed on to the freshly laid **MasterTop DTZ** for at least 16 hours at 15°C to 20°C, longer at lower temperatures.

13.2. During the installation of the required joint sealant no other trades have access until the sealant has cured sufficiently to resist damage (at least 48 hours).

13.3. If the floor is to be handed to the client in a pristine condition, then it must be protected from **ALL** other trades. Full protection of the whole floor by temporary covers consisting of polyethylene sheeting overlaid with hardboard, or plywood depending on the trades and traffic to have access, with joints taped and fixed. Ensure the floor is completely tack free at the time of covering, typically after 24 hours at 15°C to 20°C.

14. Cleaning and Maintenance

Please refer to the Master Builders Solutions Construction Chemicals LLC Aftercare Floor Cleaning Concept 10.

NOTE:

The above guide provides a summary of the installation of a **MasterTop DTZ** floor and should be read in conjunction with our Technical Data Sheets.
The **MasterTop DTZ** Applicator is a specialist in the installation of **MasterTop DTZ** floors and is to install the floor in accordance with **Master Builders Solutions Construction Chemicals LLC** recommendations, Method Statement and best site practice.

Daily Site Report

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2	Project													
3														
4	Flooring System													
5														
6														
7														
8	DATE													
9														
10	Site Conditions													
11		Time												
12		Ambient Temp												
13		Relative Humidity												
14		Surface Moisture												
15		Surface Temp												
16														
17	Application Stage													
18														
19														
20	Concrete Surface Level - Confirmed & Approved							YES	NO					
21	Surface Bond Test Conducted							YES	NO					
22					Result									
23														
24	Panel Area (m²)													
25	Application Thickness / Rate													
26	Number of kits required													
27														
28	Application Start Time													
29	Application Finish Time													
30														
31														
32														
33	Product Name													
34		Batch Numbers												
35		Expiry Date												

Daily Site Report

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
36		Qty Used												
37														
38	Product Name													
39		Batch Numbers												
40		Expiry Date												
41		Qty Used												
42														
43	Product Name													
44		Batch Numbers												
45		Expiry Date												
46		Qty Used												
47														
48	Product Name													
49		Batch Numbers												
50		Expiry Date												
51		Qty Used												
52														
53		**IF SITE MIXES REQUIRE MULTIPLE BATCH / LOTS TO BE USED WITHIN A "MIX" PLEASE RECORD ALL INFO BELOW**												
54														
55	BATCH MIX Proportions USED				Batch / Lot numbers to be registered and consistent									
56		Batch 1												
57		Number of kits per "MIX"												
58														
59		MasterTop BC 304 Part A			Batch / Lot #									
60		MasterTop BC 304 Part B			Batch / Lot #									
61		FSR Matrix			Batch / Lot #						Number of bags in mix			
62		FSR Matrix			Batch / Lot #						Number of bags in mix			
63		FSR Matrix			Batch / Lot #						Number of bags in mix			
64														
65														
66														
67	BATCH MIX Proportions USED													
68		Batch 2												
69		Number of kits per "MIX"												

Daily Site Report

70													
71		MasterTop BC 304 Part A			Batch / Lot #								
72		MasterTop BC 304 Part B			Batch / Lot #								
73		FSR Matrix			Batch / Lot #						Number of bags in mix		
74		FSR Matrix			Batch / Lot #						Number of bags in mix		
75		FSR Matrix			Batch / Lot #						Number of bags in mix		
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86	Remarks / Issues												
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