

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

**METHOD STATEMENT: MasterTop CTZ**

**Highly Decorative Seamless Cementitious Terrazzo Floor System 10mm Final Finish Thickness (Gloss Finish or Semi-gloss Finish)**

**1. PREPARATION:**

- 1.1. At the time of installation of the **MasterTop CTZ**, 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 CTZ** System, the substrate must be thoroughly surveyed to ensure that it is sound (above 25 MPa), the required bond strength can be achieved, dry and of acceptable level and finish to accept a 10mm high quality cementitious 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 (To be continued through the **MasterTop CTZ**).

The **MasterTop CTZ** should not be applied onto any floor substrate where the moisture content exceeds 5% when tested with a suitable surface moisture tester.

**The substrate temperature should not exceed 35 °C.**

**NB: Conditions during laying:** The laying of terrazzo in areas exposed to high temperature, strong sunlight, strong draughts or winds should be avoided, since under these conditions surface crazing is likely to occur.

Where terrazzo has to be laid in such unfavorable conditions, immediately after the normal rolling and troweling the terrazzo should be covered with waterproof sheeting in order to retain the moisture and prevent rapid drying. The sheeting should be left undisturbed for at least 24 hours. For more details, refer to BS 8204-4:2004 section 6.6

**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** ( $\pm 3\text{mm}$  maximum deviation from a 3m straightedge laid flat on the substrate) which is 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 CTZ**.

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

**NB:** If the substrate is significantly outside the level tolerance to accept the 10mm **MasterTop CTZ** terrazzo system, it is recommended to apply a cementitious self-smoothing screed such as **MasterTop 522**, prior to the application of the system. For further information contact Master Builders Solutions Technical Services Department.

## **2. SUBSTRATE PREPARATION:**

- 2.1. The preferred methods of substrate preparation are; heavy captive blasting or mechanical scarifying, (using Bartel, Erut, Von Arx or similar machines). A surface profile equivalent to ICRI CSP 6 is required.  
**NB: Acid etching is not acceptable.**
- 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 or there is physical / chemical damage to the surface, it should be cut back until sound, dense, uncontaminated concrete is exposed.
- 2.3. 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 cementitious terrazzo.
- 2.4. As the flatness of the finished floor is important, high spots should be ground off and low spots filled out.
- 2.5. When repairs and levelling are complete, the final surface preparation shall be carried out to remove all laitance and weak or friable concrete, leaving exposed aggregate finish in line with ICRI (CSP #6).
- 2.6. Remove all dust and debris from the prepared surface by vacuuming.
- 2.7. Close the prepared areas to ALL vehicular and pedestrian traffic.

## **3. DETAILING: Divider / Edge Strips.**

### **Expansion / Isolation / Construction Joints, Free Edges and Adjacent Finishes**

- 3.1. 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 around drains, gullies 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 15°C-25°C.

**5. FIXING METAL DIVIDER STRIPS (10mm depth)**

- 5.1. Brass, aluminium, zinc alloy, or plastic divider strips can be used, ensuring that they have a means of mechanical fixing ("L Section").
- 5.2. Divider Strips are to be permanently and firmly fixed to the substrate to the correct level using a dumpy / laser level 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 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 CTZ 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 CTZ:**

- 6.1. Ideal application temperatures are 18°C to 30°C. The mixed **MasterTop CTZ** should be within 18°C to 22°C range during installation. Once laid **MasterTop CTZ** will cure very effectively even at low temperatures (>5 °C).

Applications should not proceed if the temperature is expected to be within 3°C of the dew point at any time during the operation. This does NOT apply to the laying of the cementitious binder only the Epoxy and Polyurethane application steps.

**7. APPLICATION OF MASTERTOP CTZ (Total System Build Up at 10mm final thickness)**

**Primer / Sealer should not be applied on to:**

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

**Weak substrates** - The average pull-off strength shall be 1.5 MPa. Application to substrates of lower strength 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. Mix the Part A and Part B components of **MasterTop P 650** together until it is free of streaks.

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<sup>2</sup>** depending on the absorption of the substrate. 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

#### 7.6. Mixing MasterTop P 651

Pour the contents of the Part A and the Part B into a suitable large polyethylene mixing pail and mix using a heavy-duty handheld mixer and Collomix KR type mixing head 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

Pour the mixed material into an industrial paint tray and apply by roller and large paint brushes, 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 rates.

(a) **Coverage: 0.3 kg - 0.35 kg/m<sup>2</sup> depending on porosity of substrate.**

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

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

7.9. 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

**Note: Application of the MasterTop M 332 should not proceed if the temperature is expected to be within 3°C of the dew point at any time during the operation or the relative humidity (ambient) is >50%.**

**Surface temperature to be <40°C and ideally much lower.**

**External application requires extreme care due to inability to adequately control conditions. Shades should be provided for ALL external applications.**

### 8.1. Mixing

Pour the contents of the Part A and the Part B into a polyethylene mixing pail and mix using a heavy-duty handheld mixer and Collomix KR type mixing head 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.

**Coverage: 0.76 L/m<sup>2</sup> (Approx. 0.8 kg/m<sup>2</sup>)**

**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 roller or flexible steel coil 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.**

### IMPORTANT

While the **MasterTop M 332** is still wet, blind the surface with silica aggregate, **MasterTop SR 5** at the rate of 2 kg/m<sup>2</sup> to ensure a good key for the **MasterTop CTZ** body coat to bond into.

- 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 CTZ** flooring (assuming 20°C). At low temperatures and low humidity levels these times may be extended. The surface MUST be dry to the touch before overlaying.

Remove any loose or excess aggregates from the surface prior to the application of the **MasterTop CTZ** body coat.

**NB: When the MasterTop M 332 is dry, any fibres or raised areas should be sanded or ground down.**

## 9. APPLICATION OF MASTERTOP CTZ BODY COAT:

- 9.1. **MasterTop CTZ** body coat is supplied as part of a multi-component system which is pre-packaged in the exact ratios.
- 9.2. Before mixing, pre-condition the components to a temperature approximately 15-25°C.
- 9.3. Pour the entire quantity of gauging water 4.3L for each full unit into a forced action mixer.  
**NB: One full unit is 4.3L of chilled water, 20kg of MasterTop 585 and 23kg of MasterTop F 585 aggregates. Do not part mix units.**
- 9.4. Slowly add the 20kg bag of **MasterTop 585** and mix to a creamy consistency. Slowly add the 23kg bag of **MasterTop F 585** aggregates while continually mixing, until homogenous. Allow to stand for 2 minutes and then quickly remix.

10. Do not mix by hand. It is possible to mix with a double header heavy duty handheld mixer (**Collomix Xo 55 R duo**) at a low speed for at least 3 minutes. Mix until a homogeneous creamy paste is attained. Allow to stand for 2 minutes and then quickly remix.
11. Pour the mixed **body coat** on to the prepared substrate and spread with a trowel, pin rake or use screed rails to control the level over larger areas. Strike off with a straight edge to ensure the desired level is obtained.  
**Mixing ratio should be kept strictly same for each batch to ensure consistency of application.**  
(a) **Coverage: Laid at 12mm thickness to give an 10mm final finish: 1.75 m<sup>2</sup>/43 kg mix**  
**NB: Material should be laid at 12mm thick using the above given coverage rate which will give an 10mm finish after grinding and polishing. Above coverage rate does not include any wastage or allowances for variances in substrate levels.**
  - 11.1. Finally tamp / compact the placed material using a wood or plastic float.
  - 11.2. Close and flatten the surface using a steel float.  
**NB: When applying different colours side by side, the divider strip between the two sections should be properly taped and isolated, or the different colours should be applied at 24 hours interval.**
  - 11.3. Protect newly applied body coat from too rapid dehydration using plastic/polyethylene sheet. Water curing is not recommended. Ensure the polyethylene sheet is properly lapped and securely held in position.  
**NB: Covering / curing should commence as soon as the body coat can be covered without damage to its surface and should continue until the flooring is ready for grinding. The curing period will vary depending on temperatures and site conditions and should be determined by the terrazzo applicator (as per BS 8204-4:2004).**
  - 11.4. Carry out the initial rough grinding (typically done dry) after a minimum of 24 hours from application.

## 12. 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.**

### 12.1. 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 CTZ** body coat must cure for 24 hours minimum before grinding. 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.

### 12.2. 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. 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 as possible prior to applying the grouting/filler. Care must be taken not to create more voids as a result of over-grinding. By minimizing the surface irregularities, easier grouting/filling is achieved with a minimum of polishing.

### 12.3. Grouting / Filler – MasterTop 585

12.4. 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 585** mixed with a minimum of 25% by weight of water is applied to in-fill the pin holes and any pitting.

**NB: Approximate consumption of MasterTop 585 during the grouting process: 0.5-1.0 kg/m<sup>2</sup>.**

**MasterTop 585** is tightly hand troweled over the whole surface, ensuring that it is firmly pushed into and fills the pin holes, pits and voids. Remove 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. Recover the area with a polyethylene sheet.

Allow the **MasterTop 585** to dry / cure fully (at least overnight) prior to final grinding process to remove the excess grout/filler from the surface completely. During the final grinding process, apply **MasterTop 20** densifier and allow to dry completely, before finishing the final grinding. When the final grinding is complete, clean the floor with a floor scrubber (**such as EURODISC E43 Plus or similar**) at **150-155 rpm**. 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.

**(a) Coverage of MasterTop 20: 0.15-0.20 L/m<sup>2</sup> (1 coat required)**

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

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

**12.5. 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 ungrouted blowholes and pits, repeat the grouting/filler procedure.

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

**NB: It is essential that all traces of MasterTop 585 Powder is removed completely prior to the application of the MasterTop Sealer of choice.**

**13. SEAL COATING MASTERTOP CTZ**

**13.1. Option 1 - (Gloss Finish) – Ucrete TCPU CLEAR – Polyurethane sealer coat**

**Ucrete TCPU CLEAR** is a one component, solvent free, aliphatic polyurethane designed to provide a tough, chemical resistant clear coating to floors subjected to harsher in-service conditions.

One coat is adequate for most situations, but two or more coats can be applied if a smoother, but less slip-resistant, surface is required.

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.

Shake the can well before use.

Pour the **Ucrete TCPU CLEAR** into an industrial paint tray and apply by short nap roller to the substrate at the following coverage rates.

**Ucrete TCPU CLEAR coverage:**

**0.05-0.1 kg/m<sup>2</sup> 1<sup>st</sup> coat**

**0.05-0.1 kg/m<sup>2</sup> 2<sup>nd</sup> coat (optional)**

**NB: Above coverage rates does not include any wastage.**

- 13.3. Continue rolling to ensure complete coverage and wetting out of all surfaces, it is essential to achieve the stated coverage rates failure to do so will result in defects in the resultant film. Where too much **Ucrete TCPU CLEAR** is applied foaming occurs producing a white bloom that detracts from the appearance of the floor and, in the worst cases, can impair the technical performance.
- 13.4. Prior to application of a second or subsequent coat check that the surface is tack-free. Recoating time is dependent upon humidity and temperature, but under most conditions a second coat can be applied after 5 hours. The time between coats must not exceed 16 hours. Normally, full cure is reached after 24 hours, but under very cold, dry conditions this may be extended to 48 hours.
- 13.5. Allow the final coat of **Ucrete TCPU CLEAR** 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).

#### **14. Option 2 – (Semi-gloss) – MasterTop TC 423 - Acrylic sealer coat**

14.1. Make sure the floor is clean and dry before applying **MasterTop TC 423**. Using a Padco applicator apply a thin uniform coat. Allow to dry for a minimum of 90 minutes after each coat if more than one coat is required.

##### **14.2. Coverage:**

**1<sup>st</sup> coat: approx. 0.05 L/m<sup>2</sup>**  
**2<sup>nd</sup> coat: approx. 0.025 L/m<sup>2</sup>**

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

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

14.3. Allow the final coat of **MasterTop TC 423** 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).

#### **15. EXPANSION JOINTS**

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

#### **16. POST INSTALLATION:**

- 16.1. No Building Trades or traffic to be allowed on to the freshly laid **MasterTop CTZ** for at least 24 hours at 15°C to 20°C, longer at lower temperatures.
- 16.2. It is normal for the installation of joints to take place and no other trades should have access until the sealant has cured sufficiently to resist damage.
- 16.3. If the floor is to be handed to the client in a pristine condition, then it must be protected from other trades. Fully protect the whole floor by temporary covers consisting of polyethylene sheet overlaid with hardboard or plywood, with joints taped and fixed. Ensure the floor is completely cured at the time of covering, typically after 24 hours at 15°C to 20°C.

## 17. CLEANING AND MAINTENANCE

Please refer to the BS 8204-4:2004 section 9

The terrazzo layer should advise building owners in writing of the correct cleaning and maintenance procedures. For the information of all parties these are set out in this clause. Terrazzo can usually be cleaned effectively by washing or scrubbing with warm water and a neutral sulphate-free detergent suitable for cleaning terrazzo. Greasy deposits can be removed by detergent incorporating an organic solvent or an alkaline detergent (pH > 9), but these should be used only occasionally and never for regular cleaning. The occasional use of mild abrasive cleaners can be beneficial in removing stubborn marks, but household soaps are not recommended as they tend to leave a slippery scum, particularly in hard-water areas. Regular use of scrub and rinse cleaning machines fitted with abrasive pads other than the finest grades, or the use of machines with hard plastics bristles, could result in damage to the surface of terrazzo. Damage could also be caused by frequent use of unsuitable cleaning agents, including highly acidic or alkaline detergents and chemicals. Resistance to staining can be increased by the use of certain proprietary chemical hardeners, and sealing can

enhance the appearance of the terrazzo, but care should be taken to ensure that sealers have been manufactured for use on terrazzo. The wrong type of treatment can cause floors to become slippery; wax polishes and linseed oil should never be used.

### NOTE:

The above guide provides a summary of the installation of a **MasterTop CTZ** System and should be read in conjunction with our Technical Data Sheets.

The **MasterTop CTZ** Applicator is a specialist in the installation of **MasterTop CTZ** System and is to carry out the installation in accordance with **Master Builders Solutions Construction Chemicals LLC** recommendations, Method Statement and best site practice.

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### STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

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### NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by Master Builders Solutions either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not Master Builders Solutions, are responsible for carrying out procedures appropriate to a specific application.

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