APPLICATION PROCEDURE

System: ***MasterProtect 1813***

Description: ***Non-toxic, chemical resistant, solvent free high build, epoxy resin coating over concrete.***

SCOPE

This document is to be included in site specific method statements and contains detailed instructions of the preparation for; and the application of **MasterProtect 1813** high build epoxy coating onto concrete substrates.

Although this document provides generic safety information for the use of Master Builders Solutions products used during the application of **MasterProtect 1813** system it does not replace a risk assessment, where site specific consideration must be made for confined areas, environmental issues and other safety matters.

This document does not provide any information with regards to programming or allocation of resources which must be covered by a site specific method statement.

SITE INSPECTION

The area to be coated shall be marked on the drawings and on the structure. Where different system build-ups are required, these shall also be detailed on drawings.

All deviations from the original Bill of Quantities or scope of works must be agreed in writing with the Engineer before application starts.

Any further areas to be coated shall be at the discretion of the Engineer and subject to re-measurement.

All areas not to be coated, but which may be affected by spillage or overspray shall be fully masked. Flora and fauna shall be protected.

All surfaces shall be free from oil, grease, and friable matter. Concrete surfaces shall have a minimum compressive strength of >25 MPa and a pull off strength >1.5 MPa.

Any significant concrete repairs shall have been completed to achieve the above tensile and compressive properties and the repairs shall be free of cracks and be well bonded.

SURFACE PREPARATION

Concrete Substrates

Concrete must be structurally sound and fully cured for minimum of 28 days. Test for vapor drive in accordance with ASTM D 4263 where necessary.

Remove curing and release compounds and other surface hardeners and floor coatings in accordance with the manufacturer's instructions.

Mechanical surface profiling is the method of surface preparation for both new and existing substrates. Mechanically profile the substrate to CSP 3 (approximating medium-grit sandpaper) as described by the International Concrete Repair Institute. Do not use acid etching for surface preparation. Do not use any method that will leave fractured concrete in place.

Arrises shall be rounded off using **MasterBrace ADH 2200** and surface protrusions shall be ground down to ensure a smooth substrate.

Larger cavities shall be filled with appropriate epoxy repair mortars, i.e. **MasterBrace ADH 2200** or **MasterProtect 1890.**

Steel Substrates

Steel substrates shall be prepared to SSPC-SP6 with a surface profile 50-75 micron.

PRODUCTS

The **MasterProtect 1813** system consists of the following products:

Table 1 : *Products & Components*

Product Name:	Description / Function:	Packaging	
MasterTop 2200 (4.1 L)	Blowhole & Pin Hole Filler	Base 5 kg	Reactor 2.5 kg
MasterProtect 1813 (18 L)	Bodycoat	Base 23.5 kg	Reactor 3.5 kg
MasterProtect 1813 (18 L)	Topcoat	Base 23.5 kg	Reactor 3.5 kg

PRODUCT STORAGE AND CONDITIONING

All the above products should be stored and transported in unopened containers and stored in a clean, dry environment and protected from freezing.

All the components of the **MasterProtect 1813** system shall be preconditioned to 21°C (70°F) for 24 hours before using.

APPLICATION

Application Conditions

Substrate temperatures should not be less than 10°C. In hot weather, areas to be coated shall be shaded from direct sunlight to prevent the substrate temperature exceeding 40°C.

MasterProtect 1813 shall not be applied if the humidity is likely to rise above RH 85% or if the dew point is likely to be reached before or during the application. **MasterProtect 1813** shall be used when the ambient temperature is above 10°C.

Table 2 : *Equipment, Mixing Times and Pot Life.*

Product Name	Mixing Equipment		Mixing Time *	Pot Life
MasterTop 2200	Drill & Paddle (approx 200 rpm)		> 4 min.	25ºC – 70 minutes 40ºC – 30 minutes
MasterProtect 1813	Drill & Paddle (approx 350 rpm)		> 3 min.	25ºC – 80 minutes 40ºC – 50 minutes

* Mixing times are the minimum and may need to be increased at lower temperatures and will depend on the efficiency of the mixing equipment. The stated mixing times relate only to in pail mixing, when using plural component spraying equipment, testing should be carried out to check that mixing is sufficient.

Application Rates

MasterProtect 1813 will be applied at a dry film thickness to suit the particular exposure and chemical resistance requirements, these shall be summarised by location in a **Project Coatings Schedule** by the Engineer:

Table 3: *Application Rates to Suit Exposure*					
System 1					
Total DFT		150	- 200		µm
Skim Coat	MasterTop 2200	As Required			
Top Coat	MasterProtect 1813	225	- 300		g/m^2
System 2					
Total DFT		200	- 400		µm
Skim Coat	MasterTop 2200	As Required			
Body Coat	MasterProtect 1813	150	- 300		g/m^2
Top Coat	MasterProtect 1813	150	- 300		g/m^2

Skim Coat:

Within the re-coat window of the primer all blow holes and other surface defects shall be made good using **MasterTop 2200.** Equipment and mixing times for the **MasterTop 2200** shall be as per Table 2. Part A shall be mixed with Part B until a uniform, streak free colour is obtained. Full packs only shall be mixed.

Application shall be by spatula, ensuring that pinholes and other minor defects are completely filled.

Table 4: *Working Time and Recoat Intervals*					
Product Name	Ambient Temp.	Working Time	Re-coat Intervals		
MasterTop 2200	25ºC	70 minutes	12 hours	-	36 hours
	40ºC	30 hours	8 hours	-	24 hours
MasterProtect 1813	25ºC	80 minutes	8 hours	-	36 hours
	40ºC	50 minutes	4 hours	-	16 hours

Body Coats and Top Coat

Application shall be by brush, short hair roller or airless spray. Application may also be carried out using suitable plural component equipment.

The total contents of the reactor component shall be poured into the base component and mixed as per Table 2 but shall continue until a uniform colour is achieved. Due to the high viscosity of the resin care must be taken to insert the mixing head slowly into the base material.

Each coat shall be applied giving total coverage of the prepared area, ensuring a minimum film thickness in accordance with the appropriate application rates as stated in Table 3. On smooth substrates the wet film thickness will be measured in accordance with ASTM D1212. All material shall be used within the working time of the material as stated in Table 3.

MasterProtect 1813 is produced in two different colours, light grey and black. The colour shall be alternated between each coat to make it easier to control application and spot defects in the application. After each coat the surface shall then be inspected for any pinholes or other defects. Any such defects shall be made good with **MasterTop 2200**, but within the recoat interval of the **MasterProtect 1813.**

Each coat shall be applied within the recoat interval as specified in Table 4. If the application of a following coat is delayed then the previous coat shall be abraded and wiped with a lint free cloth, dampened with Xylene / MEK / Acetone immediately prior to the application of subsequent coats.

Final Inspection and Handover

Completed areas will be inspected immediately after completion.

Upon completion of areas to the full design thickness the following non destructive tests shall be carried out where suitable, and the applicator shall create and maintain the necessary records:

- ASTM D 6132 – 08 Standard Test Method for Nondestructive Measurement of Dry Film Thickness of Applied Organic Coatings Using an Ultrasonic Gage.
- ASTM D 4787 – 08 Standard Practice for Continuity Verification of Liquid Sheet Linings Applied to Concrete Substrates.

A final, thorough, close visual inspection of the coating shall be made and all defects shall be rectified prior to final handover.

Areas that will have following trades working in them will be fully protected from impact damage prior to hand over.

No drilling **MasterProtect 1813** is allowed without approval of the engineer.

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.

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.