

method statement

Renderoc HS

Section A : General Comments

High temperature working

It is suggested that, for temperatures above 35°C, the following guidelines are adopted as good working practice:

- (i) Store unmixed materials in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.
- (ii) Keep equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment, which will come into direct contact with the material itself.
- (iii) Try to avoid application during the hottest times of the day, arrange temporary shading as necessary.
- (iv) Make sufficient material, plant and labour available to ensure that application is a continuous process.
- (v) Where mixing water is required in the application of a product, it is advised to maintain such water at a maximum of 20°C

Equipment

It is suggested that the following list of equipment is adopted as a minimum requirement

<i>Protective clothing</i>	:	Protective overalls
	:	Good quality gloves, goggles and face mask
<i>Preparation equipment</i>	:	Marker chalk or pen
	:	Disc cutter
	:	Electric/pneumatic breaker or hammer and chisel
	:	Wire brush
	:	Proprietary blasting equipment
<i>Mixing equipment</i>	:	Measuring jug
	:	1 KW slow speed drill, 400 or 500 rpm + Fosroc MR4 mortar mixing paddle + suitably sized mixing vessel, for single bag mixing or
	:	Proprietary forced-action mixer, for multiple bag mixing
<i>Application equipment</i>	:	Hand application trowel
	:	Wooden float
	:	Steel or plastic finishing float
	:	Finishing sponge

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Application - points of note

Fosroc operates a policy to encourage the use, where possible, of registered applicators, since the long term performance of the materials is dependent upon proper application. For contractors who wish to apply the materials themselves Fosroc is also able to offer technical assistance and training, either on-site or at its Training Centre in Dubai.

Section B : Application Method

1.0 Surface preparation

Attention to full and proper preparation of the substrate is essential for complete repair adhesion.

- 1.1** Mark out the defective area, then saw cut the edge of the repair to a minimum depth of 10 mm, angling the blade to create an undercut.
- 1.2** Break out the repair area to remove all contaminated or damaged concrete to a minimum depth of 10 mm, up to the pre-cut perimeter of the repair.
- 1.3** Fully expose any corroded reinforcement in the repair area and continue until non-corroding steel is reached - it may be necessary to break out the concrete beyond the original repair area in order to achieve this. Ensure that a clear gap of at least 20 mm is created behind the rear face of the steel reinforcement, such that a gloved hand can comfortably reach behind the bars.
- 1.4** Oil and grease deposits are best removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should be assessed by a pull-off test.
- 1.5** Fully clean the concrete and steel surfaces to remove laitance, the by-products of corrosion and other contaminants. This is most effectively achieved by the use of proprietary blast media; with particular attention required to both the rear face of the bars and the edge of the repair. The steel bars should be cleaned to a uniform bright condition; and the saw cut edge of the repair should be 'roughened' to provide a good mechanical key at the substrate interface.
- 1.6** Chloride induced corrosion will further require high pressure washing with clean water, after blasting, to ensure complete removal of the corrosive elements.



2.0 Reinforcement priming

- 2.1 Exposed steel reinforcement, including any replacement reinforcement, should be securely held in place to avoid movement during application, as this will affect the compaction, build and bond of the mortar.
- 2.2 Apply one full, unbroken coat of Nitoprime Zincrich to the steel within 3 hours of cleaning, and allow drying before continuing. If unsure about continuity of the coating, apply a second coat and allow drying.

3.0 Substrate Priming

- 3.1 Thoroughly saturate the surface of the concrete with potable water to provide saturated surface dry condition. Poor quality concrete may require soaking for a significant length of time. Any surface water should be removed using an oil free compressed air-jet.

4.0 Mixing

- 4.1 Only full bag mixing is permissible. Do **not** part mix, **nor** add further water to the mixed material in order to prolong workability. Either of these actions will result in an incorrect water-powder ratio, and will compromise final material performance.
- 4.2 It is essential that Renderoc HS is thoroughly mixed and that the temperature of the mixed material should not be allowed to exceed 30°C.
- 4.3 Water addition: 3.75 litres per 25kg bag

Measure out appropriate quantity of cool, potable water, into the mixing vessel (it is suggested that the temperature of the water should not exceed 20°C, so that the final temperature of mixed mortar is not greater than 30°C).

- 4.4 Always add the powder to the water. With the mixer in operation add one full 25Kg bag of Renderoc HS, or multiples thereof, and mix continuously for 5 minutes until fully homogenous, using :
 - (a) a 1 KW, slow speed drill (400/500 rpm) + Fosroc MR4 mortar mixing paddle, for single bag mixing, or
 - (b) a forced action, proprietary mixer for multiple bag mixing

NOTE : Free-fall mixers must **not** be used for mixing.



5.0 Application

- 5.1 Apply mixed Renderoc HS to the substrate by trowel or gloved hand, thoroughly compacting onto the pre-soaked substrate. Ensure that the mortar is applied around the exposed steel reinforcement, compacting fully at the rear face.
- 5.2 Thickness of application should be in accordance with that laid down in the '**Application criteria**' section of the current product data sheet.
- 5.3 If sagging occurs on vertical or overhead faces, the Renderoc HS must be completely removed. Renderoc HS then should be reapplied in layers of reduced thickness.

6.0 Build-up

- 6.1 Build-up of Renderoc HS is best-achieved using a 'wet on wet' technique.
- 6.2 Multiple layers can also be used to achieve the desired thickness and profile; but care must be taken to ensure consistency of inter-coat bond strength.
- 6.3 Where multiple layers are to be applied, the surface of intermediate layers should be 'scratch-keyed' and cured with wet hessian. Further applications of fresh Renderoc HS may be applied once the intermediate layer has reached its initial set.

7.0 Finishing

- 7.1 Renderoc HS is finished by striking off with a straight edge and closing with a steel or plastic float. Note that water can be drawn to the surface if 'overworking' with the float occurs, and an unsightly finish may result.
- 7.2 Damp sponges or plastic floats may be used to achieve a desired surface texture, but care should again be taken not to overwork the surface.

8.0 Curing

- 8.1 Curing of repaired areas should be carried out as soon as possible after the surface has been 'closed'. Water curing is the preferred method for Renderoc HS. Alternatively, Nitobond AR can be brush-applied to form a continuous film over the substrate. In case the substrate requires overacting with epoxy coatings; Nitobond PE135 should be used for curing.
- 8.2 In adverse conditions (e.g. windy conditions or ambient temperatures greater than 30°C), use supplementary curing in the form of polythene sheeting, taped down at the edges should be used.



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9.0 Cleaning

9.1 Nitobond AR, Nitocote PE135 and Renderoc HS should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed by mechanical means.

Section C: Approvals and Variations

This method statement is offered by Fosroc as a 'standard proposal' for the application of Renderoc HS. It remains the responsibility of the Customer to determine the correct method for any given application. Where alternative methods are to be used, these must be submitted to Fosroc for comment, in writing, prior to the commencement of any work.