



Method Statement

Ref. #: DCP00/04-009-A-2022



Cempatch RF

[One component high strength fibre reinforced cementitious repair mortar]



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Section A: General Comments

General Notes:

The information below is a detailed overview of the application of DCP's **Cempatch RF** concrete repair system and should be read in conjunction with the relevant technical data sheet prior to application. All DCP Products should be applied by experienced specialist contractors.

All the points below assume the correct preparation of the relevant surface.

High-Temperature Working:

Cempatch RF can be applied at temperatures between 5°C and 50°C. However, it is suggested that, for temperatures above 35°C, the following guidelines are adopted as good working practice:

- i. Unmixed materials and equipment should be stored in a cool shaded area and away from direct sunlight.
- ii. Avoid application during the peak temperature of the day.
- iii. Plan for enough materials, tools, and labor to ensure a continuous applicant process.
- iv. It is recommended to use cool chilled water for mixing, to keep the mix temperature below 32°C.

Low-Temperature Working:

It is suggested that, for temperatures below 10°C, the following guidelines are adopted as good working practice:

- i. Unmixed materials should be stored at room temperature.
- ii. Use warm mixing water to provide the desired temperature for the mix.
- iii. Avoid applying the product if the temperature is around 5°C and falling
- iv. Cold temperatures retard early strength gain. Warm, moist curing can be used in order to accelerate early strength gain.
- v. Do not apply under rain or snow, and avoid dew points conditions during application.

System Products:

Cementitious repair mortar: **Cempatch RF**.

Zinc-rich steel epoxy coating: **Repcoat ZR**.

Cementitious bonding agent: **Cempatch Primer M** [if required]

Epoxy bonding agent: **Quickmast 108** [if required]



Tools and Equipment:

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

Personal protection

- : Protective overalls
- : Goggles or a face mask
- : Good quality gloves
- : Safety shoes
- : Safety helmet



Equipment

- : Slow speed heavy duty mixing drill and mixing paddle (Fig.1)
- : Soft brush (Fig.2)
- : Stiff wire brush (Fig.3)
- : Empty bucket (Fig.4)
- : Chisel and hammer (Fig.5)
- : Hammer drill (Fig.6)
- : Trowel and hand float (Fig.7)



Fig.1: Mixing drill & paddle



Fig.2: Soft brush



Fig.3: Stiff wire brush



Fig.4: Empty bucket



Fig.5: Chisel and hammer



Fig.6: Hammer drill



Fig.7: Trowel and hand float

Section B: Application

1.0 Substrate Preparation

- 1.1 The area to be repaired should be marked on the structure using spray paint, mark a line around the perimeter of the defective area.
- 1.2 The surface to be repaired should be cleaned from dust, oil, plaster, grease, curing compound, corrosion deposits, or any other contaminants that could impair the adhesion of the repair mortar.
- 1.3 Break out the marked area to remove all segregated, damaged, or deteriorated concrete. Continue breaking out until a sound homogeneous substrate has been reached and/or to a minimum depth of at least 10 mm.
- 1.4 The edge of the repair should be roughened to provide a good mechanical key at the substrate interface.
- 1.5 Steel Preparation:
 - 1.5.1 Break along corroded steel bars in the repair area and continue until non-corroded bright steel is observed. It may be necessary to break out the concrete beyond the original repair area in order to achieve this.
 - 1.5.2 Inspect steel reinforcement and replace if section loss is greater than 25%.
 - 1.5.3 Clean all bars to bright steel, preferably by grit blasting, and ensure the backside of bars is cleaned.
- 1.6 Concrete Preparation:
 - 1.6.1 Remove all dust, oil, grease, paint, and any other contaminants that could impair adhesion from the concrete surface.
 - 1.6.2 The prepared area should be cleaned thoroughly by brush, high-pressure water-blasting, and/or compressed air.



2.0 Priming

- 2.1 Exposed reinforcement steel shall be grit blasted to a minimum grade Sa 2 according to ISO 8501-1.
- 2.2 All grit blasted steel reinforcements should be primed within 2 - 4 hours with one or two coats of zinc-rich epoxy coating **Repcoat ZR**.
- 2.3 An unbroken coating of primer must be achieved.



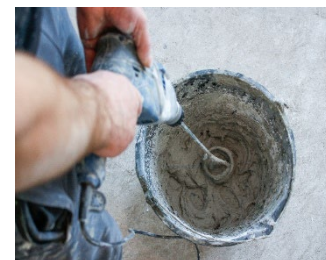
- 2.4 Alternatively, **Cempatch Primer M** which is a cementitious bonding agent and active protective primer can be used prior to the application of the repair mortar.



- 2.5 Areas to be repaired with **Cempatch RF** should be soaked and thoroughly saturate with clean water to provide a saturated, surface dry condition before applying the repair mortar; all excess water should be removed.
- 2.6 Provided that the substrate is well prepared, roughened and has been thoroughly soaked with clean water, and is damp before the application of the repair mortar, a primer is not normally required.
- 2.7 In case of the fully submerged condition, or when the concrete elements will be exposed to chemicals, it is recommended to use **Quickmast 108** (epoxy bonding agent) as a primer before applying the repair mortar to prevent the migration of salts, as well as providing a bond for **Cempatch RF** to host concrete.
- 2.8 In both cases, subsequent application of the repair mortar shall be done wet on wet.

3.0 Mixing

- 3.1 Hand mixing with a trowel or similar of Cempatch S is not allowed. A variable speed mixer with a large mixing paddle should be used.
- 3.2 Measure out 3.75 litre of clean, cool water into a suitably sized empty bucket that has been pre-dampened. Ensure any excess water is removed.
- 3.3 Slowly add one full 25 kg bag of **Cempatch RF** to the water and mix using a slow speed (400–600 rpm) drill fitted with a mixing paddle, or a forced-action mixer.
- 3.4 Continue mixing for a minimum period of 3 minutes until a smooth, even consistency is obtained.

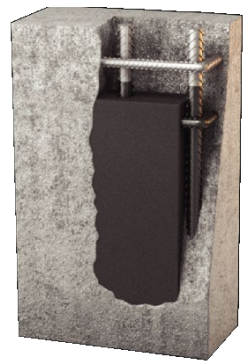
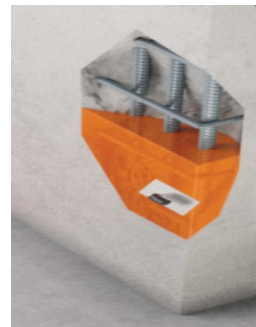


Notes:

- *Slow speed mixer should be only used. Do not mix by hand.*
- *Dampen all surfaces of mixing equipment, removing any excess water.*
- *The mixed material should be quickly transported and placed.*
- *While mixing, ensure that the mixing blade is kept below the surface of the mortar to prevent air entrapment.*

4.0 Application

- 4.1 **Cempatch RF** can be applied by trowel or hand.
- 4.2 **Cempatch RF** can be applied in a single application for sections up to 30 mm thick in a vertical application, and 20 mm in the overhead application; thickness should not be less than 10 mm deep in all applications.
- 4.3 **Cempatch RF** repair area should not exceed 2.5 m² in single application.
- 4.4 Where **Cempatch RF** mortar is trowel applied it must be forced into the prepared substrate ensuring intimate contact and good compaction.
- 4.5 The mixed mortar should be applied using firm pressure to fully compact the mortar and ensure good adhesion with the steel reinforcement and the substrate.
- 4.6 The surface of the placed mortar shall be levelled using a wooden or plastic float.
- 4.7 Final finishing should be carried out using steel float.



5.0 Curing

- 5.1 As **Cempatch RF** is a cementitious-based material, it should be cured in a similar method to concrete.
- 5.2 Curing can be conducted by using **Setseal A** or by wet hessian sheets covered with polyethylene sheets.

6.0 Cleaning

- 6.1 All tools should be cleaned immediately after finishing using clean water.
- 6.2 Hardened materials must be cleaned mechanically.

7.0 Remarks

- 7.1 In all cases the steel should be clean and bright after cleaning.
- 7.2 Avoid application in direct sun and/or strong wind.
- 7.3 Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- 7.4 Protect freshly applied material from freezing.
- 7.5 No standing or excess water should remain after dampening the surface.
- 7.6 **Cempatch RF** should not be applied onto frozen substrates or if the ambient temperature is around 5°C and falling.



Section C: Cautions

Health and safety

Cempatch RF should not come in contact with skin and eyes. However, any accidental splashes to the eyes must be rinsed with clean water and seek medical advice.

Fire:

Cempatch RF is nonflammable.

For further information on refer to the Material Safety Data Sheet.

Section D : Approval and Variations

This method statement is offered by DCP as a 'standard proposal' for the application of **Cempatch RF**. It remains the responsibility of the Engineer to determine the correct method for any given application. Where alternative methods are to be used, these must be submitted to DCP for approval, in writing, prior to commencement of any work. DCP will not accept responsibility or liability for variations to the above method statement under any other condition.