Fosroc®
Guncrete E

Application Guidelines

High strength, low shrinkage, high build spray applied repair mortar

Section A: General Comments

This document should be read in conjunction with the "Application Instructions" section of the current relevant technical data sheet(s). Please refer to Fosroc for advice on selection of the most appropriate product(s) for your application.

High and low temperature working

It is suggested that, for temperatures above 35°C or below 5°C, the following guidelines are adopted as good working practise:

- Store unmixed materials in dry conditions, in original unopened bags.
- In high temperature environments, keep equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment that come into direct contact with the material itself.
- Try to avoid application during the hottest times of the day, arrange temporary shading as necessary.
- At lower temperatures, Guncrete E should be applied only when the substrate temperature and the ambient temperature is above 5°C or 5ºC and rising.
- Make sufficient material, plant and labour available to ensure that application is a continuous process.
- For mixing water required in the application of the product, it is advised to maintain the water at a maximum of 20°C.

Equipment

It is suggested that the following list of equipment is adopted as a minimum requirement for the correct application of this material

Protective clothing

- Protective overalls, safety helmet and safety shoes
- Good quality gloves, goggles and face-mask

Preparation equipment

- Wire brush
- Proprietary grit blasting equipment or high pressure washer

Application equipment

- Proprietrary pump / dry spray machine
- Hand application trowel
- Wooden float
- Steel or plastic finishing float
- Finishing sponge

Application – points of note

Fosroc operates a policy to encourage the use, where possible, of experienced applicators, since the long-term performance of the materials is dependant upon proper application. For contractors who wish to apply the materials themselves, Fosroc is also able to offer technical assistance.

Section B: Application Method

1. Repair areas

1.1 The areas to be repaired are to be as shown on the drawings or as indicated by the Contract Administrator. The areas are to be clearly marked out on site and agreed with the Contract Administrator before proceeding.

1.2 The areas may be adjusted by the Contract Administrator as work proceeds according to the conditions found.

1.3 Propping shall be provided as noted on the drawings or as agreed by the Contract Administrator.

1.4 The surfaces adjacent to and of areas for repair shall be cleaned to remove any dust, unsound material, plaster, oil, paint, grease, corrosion deposits, organic growth, etc.

1.5 Within the repair area, the concrete cover to reinforcement links or main bars shall be determined by cover meter. A small area shall be chiselled out and the concrete cover and the depth of deteriorated concrete confirmed by measurement.

2. Concrete preparation

2.1 Break out unsound concrete as defined within the repair zone. Using a saw, disc cutter, or other suitable tool, the perimeter of the area to be repaired shall be incised to a depth of at least 10mm causing good arises to be formed at the outer edges all to preclude feather edging of the repair mortar.

2.2 Where the depth of breaking out corresponds to the depth of concrete cover and thereby exposes reinforcement, breaking out shall continue to expose the full circumference of the steel and to a further depth of 25mm or as directed by the Contract Administrator. Breaking out shall continue along the reinforcement until non-corroded steel is reached and shall continue 50mm beyond this point or as directed by the Contract Administrator. Special care shall be exercised to ensure that any reinforcement exposed is not cut or damaged.

2.3 After breaking out as specified the exposed surface of concrete shall be tested for carbonation by the use of a semi-aqueous solution of phenolphthalein. The test shall be carried out on the freshly exposed concrete or at least within 30 minutes of being exposed. The test shall be carried out on sound, dry and clean air-blown dust free surfaces. If the concrete substrate still exhibits carbonation in the vicinity of the steel reinforcement, breaking out to remove a further 20 mm shall be carried out and the test repeated. If carbonation is still present the Contract Administrator shall be notified before proceeding further.

2.4 It is essential that no carbonated concrete substrate shall be in contact with, or within 5mm of, the reinforcing bars. In cases where carbonation has reached within 5mm of the reinforcing bars, the concrete shall be broken out to expose the full circumference of the steel and a further depth of 20-30mm or as directed by the Contract Administrator.

2.5 All concrete surfaces to receive repair mortar shall be of a rough scabbled nature. Saw/disc cut edges shall be grit blasted to lightly roughen.

2.6 This preparation shall be such as to leave a sound exposed concrete substrate free from dust, loose particles and any deleterious matter.

3. Reinforcement preparation

3.1 All exposed reinforcement shall be cleaned of corrosion products by wet grit blasting or other approved means to achieve a surface finish to comply with a standard of steel cleanliness such as SA2½ (BS7079: Part A1 / ISO8501) or as directed by the Contract Administrator. Special care shall be taken to clean out properly any pitting that may have occurred in the steel bar.

3.2 When the corrosion products have been removed and if directed by the Contract Administrator, the diameter of the reinforcing bar(s) shall be measured. If considered necessary by the Contract Administrator the existing reinforcement shall be cut out and replaced and/or additional bars added in accordance with instructions. Any deep pitting of the reinforcing bars shall be brought to the attention of the Contract Administrator.

3.3 Reinforcement damaged during the removal of concrete or the preparation process shall be brought to the attention of the Contract Administrator and if required, shall be repaired or replaced.

3.4 Where the presence of chloride is determined, it is essential that the cleaning process is completed by pressure washing with clean water the total exposed areas of reinforcing steel to ensure the removal of all residual contamination from the pitted surface of steel.

4. Reinforcement priming

4.1 Immediately following preparation and cleaning, the reinforcing steel shall be primed with Nitoprime Zincrich single component epoxy primer.

4.2 The Nitoprime Zincrich shall be brush applied to the cleaned reinforcement ensuring that all exposed steel is fully coated. Special attention shall be paid to the backs of the steel bars and where steel bars are tied together. It is essential that this coat is continuous with that of any adjacent repaired area where zincrich primer has been used. Avoid excessive overpainting onto the concrete and allow to dry.

5. Concrete reinstatement

5.1 Guncrete E spray mortar shall be used for decks, slabs, horizontal and vertical concrete surfaces to be repaired in one or more layers, each layer 10-150mm thick where compressive strength >45MPa and a low level of drying shrinkage is required.

The maximum applied thickness per layer for overhead applications is between 80 and 100mm depending on the geometry of the substrate. Site trials are recommended to establish the achievable application thickness.

The minimum depth for repair shall be 10mm.

6. Priming concrete

6.1 The prepared substrate shall be thoroughly wetted with clean water to totally satisfy absorption and any standing or excess water shall be removed.

6.2 No concrete primer shall be used.

7. Application of repair mortar

7.1 Before dry spraying the repair mortar the contractor shall ensure that sufficient and correct areas for reinstatement are prepared and ready to receive repair mortar.

7.2 Only complete bags of Guncrete E shall be allowed and part bag mixes not permitted.

7.3 The dry spraying shall be carried out strictly in accordance with current product instructions for use and only with appropriate equipment.

7.4 The mixing water shall be potable quality and be added at the nozzle. As a guide approximately 2.0 litres per 20kg bag should be added for dry spray application.

7.5 Sagging of the repair mortar is not acceptable and if occurring, all the material of the affected repair shall be completely removed prior to reinstating.

7.6 After applying sufficient mortar to achieve a level flush with or slightly proud of the surrounding surface the Guncrete E shall be finished by striking off with a straight edge and trowelled / floated depending upon circumstances.

7.7 Repair mortar shall not be applied when the ambient or substrate temperature is below 5°C or above 35°C nor at an ambient temperature of 5°C on a falling thermometer. The applied repair mortar shall always be protected from freezing whilst drying.

8. Layering Guncrete E

8.1 When the application exceeds the maximum practical thickness it may be necessary to apply the repair mortar in two layers. In this case the first application should be left rough (off the gun finish) and be allowed to cure sufficiently so that its tensile strength is adequate to hold the weight of the the

second layer. Leaving steel reinforcement exposed in the first application will assist with restraint of the second layer.

8.2 The first layer should be protected with plastic film taped to the area after application.

8.3 Once sufficiently hardened (typically overnight) the first layer layer should be pre-soaked with clean water and the second layer applied and finished as previously detailed.

9. Curing

9.1 Details of the methods of curing shall be submitted to the Contract Administrator for approval.

9.2 Curing techniques shall be instigated immediately following application of repair mortar to any given area. Large areas (0.5m² at a time) shall be cured as trowelling progresses without waiting for completion of the whole area.

9.3 Concure A99 or Nitobond AR may be low-pressure spray applied as a curing membrane. In fast drying conditions it will be necessary to supplement this with polyethylene sheet taped around its edges. Where a Dekguard protective coating is to be applied over the repair area, then the Concure A99 or Nitobond AR should be removed to allow the Dekguard silane primers to pentrate.

9.4 During application and curing, all work shall be protected against direct strong sunlight.

Section C: Important Note

These guidelines are offered by Fosroc as a 'standard proposal' for the application of Guncrete E. It remains the responsibility of the Customer to determine the correct method for any given application.

Fosroc does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

Parchem Construction Supplies Pty Ltd
1956 Dandenong Rd Clayton VIC 3168
Ph: 1800 812 864
www.fosroc.com.au ABN 80 069 961 968

Distributed in New Zealand by: Concrete Plus Ltd
150 Hutt Park Road Gracefield Ph: 0800 657 156
www.fosroc.co.nz NZBN 9429033691282