

KEMREPAIR 2F

High Strength Fiber Polymer Modified Non-Shrink Two Component Repair Mortar

1 .Description:

KEMREPAIR 2F is a high strength non-shrink, two component patching cementitious mortar especially designed for repairing of vertical and horizontal surfaces of concrete and masonry, fortified with special alkali resistant fiber, that improve appreciably the impact, flexural & tensile strength.

2 .Scope:

This method statement describes the step by step procedure for repairing concrete structures using the **PROKEM** cement based repair range ready to use mortar products.

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

- Store unmixed materials in cool, dry conditions, in original unopened bags, avoiding exposure to direct sunlight.
- 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, **KEMREPAIR 2F** should be applied only when the substrate temperature and the ambient temperature are above 5°C or 5°C and rising.
- Make sufficient material, plant and labour available to ensure that application is a continuous process.



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

- Marker chalk or pen
- Disc saw
- Electric or pneumatic concrete breaker
- Wire brush
- Proprietary grit blasting equipment or high pressure Washer

Mixing equipment

- Measuring jug
- Festo slow speed drill, 400-500 rpm
Parchem mortar mixing paddle
- Parchem 20 litre mixing pail, or
- Proprietary forced-action mixer for multiple bag mixing

Application equipment

- Hand application trowel
- Wooden float
- Steel or plastic finishing float
- Finishing sponge

3 .How to Use:

3.1. Surface Preparation:

3.1.1. All defective areas will be delineated and marked out on site by the Supervising Officer.

3.1.2. Saw cut around the perimeter to a minimum depth of 10mm. The cut will be perpendicular to the surrounding concrete face. No repair will be “feather-edged”

3.1.3. All defective concrete will be removed by using appropriate tools and equipment, eg.

- Pneumatic breaker
- Electric hammer
- High pressure water jetting
- Hammer and bolster

3.1.4 The concrete will be removed from around the full circumference of the steel reinforcing bars and a further 20-30mm beyond it, or as directed by the Supervising Officer. Removal will continue along the lengths of all exposed reinforcing bars to a point 50mm beyond the limit of corroded or deteriorated steel, or as directed by the Supervising Officer.

3.1.5. Where reinforcing bars need to be replaced, they will be fixed or welded as directed by the Supervising Officer. If welded, the slag will be removed prior to continuing.

3.1.6. The reinforcing steel will be cleaned to a bright condition such as BS 4232 (second quality) or Swedish Standard SIS 05 5900 : 1967 (quality SA2½) by grit blasting. Where chlorides are present, grit and water blasting will be used, taking particular care to remove chlorides from pits in the surface of the steel.

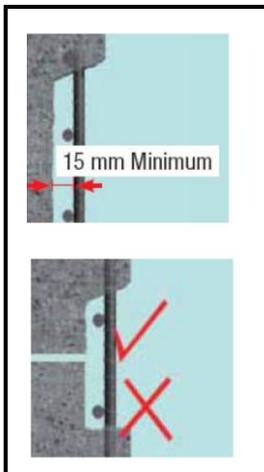
3.1.7. Where large areas of steel reinforcing are exposed, these will be made fully secure using clean tie-wires and, if necessary, anchored to the concrete substrate in an approved manner.

3.1.8. All dust and loose particles will be removed from the treated area using clean, oil-free compressed air. Where chlorides are known to have been present, the concrete and the exposed reinforcing bars will be thoroughly washed down with clean water to ensure the removal of residual contamination.



3.2. Steel Priming:

3.2.1. Priming of the exposed steel reinforcing bars will take place immediately the blasting operation is complete. In the case of wet blasting process, priming will take place immediately the steel is dry.



3.2.2. **KEMPRIM ZRS** Zinc Rich Primer will be stirred thoroughly until of uniform consistency.

3.2.3. A single continuous coating will be applied to all exposed reinforcing bars using a suitable paint brush (25-35mm wide). Care will be taken to ensure an unbroken coating is achieved, particularly to the back of each bar. The dry film thickness will be 40 microns minimum.

3.2.4. The primer will be allowed to dry (24 hour at 20°C).

3.2.5. The concrete will be pre-soaked with a fine spray of clean water. If the concrete substrate is particularly dry or absorbent, it will be sprayed again before continuing. Before priming, no free surface water will be present.

3.3. Mixing:

3.3.1. Mix **KEMREPAIR 2F** powder with mixing liquid to a batter consistency.

3.3.2. Mixing ratio: 4 kg of liquid per sack 26kg.

3.4. Application:

3.4.1. The bonding coat / primer (**KEMBOND SBR, KEMLATEX SBR, KEMBOND EP**) or (**CORROBOND 100, CORROBOND 101, CORROBOND PCI**) will be applied to all surfaces using a suitable paint brush (preferably 25-35mm wide with shirt bristles).

This will be achieved by using a scrubbing” action, taking special care to work the primer into all irregularities in the” concrete face.

3.4.2. The mortar will be used immediately after mixing is complete. It will be applied by hand, trowel or, it will be fully compacted, particularly around the full diameter or reinforcing bars.

KEMREPAIR 2F will be applied to vertical surfaces in layers up to 50mm. In many cases the actual application thickness will depend on the substrate profile and the amount of reinforcing bars available to offer additional support. High-build will best be achieved by applying “wet on wet” layers, ensuring each is fully compacted into its predecessor.

KEMREPAIR 2F will not be applied at thicknesses less than 10mm or widths less than 50mm.

3.4.3. Ambient temperatures will determine the time in which **PROKEM** Repair materials harden and cure. In colder conditions (5°C-12°C) the mortar will be left overnight before subsequent layers are applied.

3.4.4. The completed repair will be surface finished using a steel trowel or a wood-float, depending on the required texture of the finish.

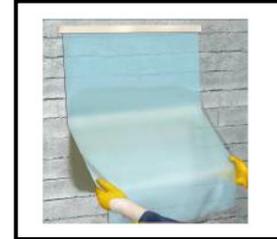
3.4.5. Where directed by the Supervising Officer, temporary shuttering will be used with both grades of mortar in order to achieve greater thicknesses in a single application. In this instance, special care will be taken to ensure that full compaction is possible and that the positioning of the formwork does not result in voids. All formwork will be pretreated with a suitable release agent such as **KEMREL**.



3.5. Curing:

3.5.1. **PROKEM** products are based on cement and will be cured in accordance with good concrete practice.

3.5.2. **KEMCURE W, KEMCURE 30D, KEMCURE 40AL** will be used as a curing membrane. The material will be spray-applied to the required areas immediately they have been surface finished. Care will be taken to ensure complete coverage, particularly around the interface with the host concrete.



3.5.3. When a protective coating is to be subsequently applied, the method of cure will be fully compatible and will be specified by the Supervising Officer.

3.6. Cleaning:

All tools and equipment should be cleaned immediately after use with clean water.

4. Theoretical Coverage:

2 Kg/m²/1mm thick.