

**SPECIFICATION  
FOR  
STRUCTURAL REPAIR TO  
CRACKS IN LOAD BEARING  
BRICKWALLS  
AND JOINTS BETWEEN  
BEAM AND COLUMN**

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<b>Contents</b>	<b>Page</b>
1. Scope	2
2. Seal Material	2
3. Grouting Material	2
4. Submittals	2
5. Packaging And Labeling	2
6. Equipment For Metering, Mixing And Pressure Grouting	3
6.1. Type	3
6.2. Discharge Pressure	3
7. Execution Of Work	3
7.1. Extent Of Work	3
7.2. Temporary Supports And Props	3
7.3. Procedure	3
7.3.1. Crack Preparation	3
7.3.2. Cleaning Cracks And Holes	3
7.3.3. Crack Sealing	4
7.3.4. Entry Ports	4
7.3.5. Pressure Grouting	4
7.3.6. Finishing	4
7.4. Record Of Grouting	4
7.5. Preliminary Testing	5

# **SPECIFICATION FOR STRUCTURAL REPAIR TO CRACKS IN LOAD BEARING BRICK WALLS AND JOINTS BETWEEN BEAM AND COLUMN**

## **1. Scope**

This specification defines the work, including materials, equipment and execution of structurally repairing cracks in load bearing brick walls or brick-framed joints by pressure grouting with non-shrink cementitious grout.

## **2. Seal Material**

The material used as a surface seal must have adequate strength and adhesion to confine the non-shrink cementitious grout in the crack being repaired until the grouting material has cured. The surface seal must also be capable of being removed after the grout has cured. The surface seal shall have properties similar to or equivalent to Fosroc HydroPlug.

## **3. Grouting Material**

The grouting material must be free-flowing pumpable non-shrink grout which imparts controlled expansion in the plastic state whilst minimising water demand. The low water requirements ensures high early strength and long term durability.

The material for grouting into cracks shall have properties similar to or equivalent to Conbextra GD (Fosroc)

## **4. Submittals**

Prior to the use of grout and seal materials, the Contractor shall submit certification to the S.O. that the materials conform to all requirements of the Specification.

## **5. Packaging And Labeling**

All grout and seal materials used shall be delivered to the job site in clearly labeled, unopened bags.

All labels shall clearly indicate:

- i. Name of manufacturer.
- ii. Manufacturer's product name.
- iii. Manufacturer's lot number.
- iv. Mix ratio.
- v. Conformance with the Specification.

## **6. Equipment For Metering, Mixing And Pressure Grouting**

### **6.1. Type**

The equipment used to meter and pressure grouting the grout into the cracks shall be a hand operated diaphragm grout pump of relatively light weight and trouble-free performance under varying site conditions.

### **6.2. Discharge Pressure**

The pressure grouting pump shall have the capability of discharging the grouting material at a pressure up to 1379 kPa and maintaining that pressure. The working pressure shall be approximately 552 kPa but not as high as to force open the cracks appreciably.

## **7. Execution Of Work**

### **7.1. Extent Of Work**

All cracks in load bearing brick walls and joints between beam and column of 0.5 mm or wider shall be repaired.

### **7.2. Temporary Supports And Props**

Before repair may be done to any structural member, the Contractor shall provide adequate supports and props to the structural members to ensure the safety and stability of the member and the structure is not impaired. The support and prop system shall be of such configuration and design approved by the S.O. Where additional supports or props are deemed necessary by the S.O., these shall be provided by the Contractor at his own cost.

### **7.3. Procedure**

#### **7.3.1. Crack Preparation**

All cracks to be repaired shall be routed along its length with sharp-edged V-grooves to a depth and width of 25 mm and 20 mm respectively using light chipping mechanical hammers or grinding tool approved by the S.O.

#### **7.3.2. Cleaning Cracks And Holes**

On completion of the groove routing and drilling work, the exposed surface and the inside of the cracks shall be thoroughly cleaned using high pressure water jet. The water used shall be clean tap water free from deleterious matter. The surfaces and cracks shall be allowed to air dry and thereafter they shall be cleaned and dried using high pressure compressed air jet. The equipment supplying the compressed air shall be equipped with efficient oil and water trap approved by the S.O. to prevent contamination to the brick surface.

### **7.3.3. Crack Sealing**

Prior to pressure grouting of the cracks, area to be treated shall be wetted with water. Surface seal material as specified shall be applied along the faces of the cracks (both sides of walls or joints). Allow for minimum curing time before beginning grouting process. All surfaces and cracks shall be inspected by the S.O. before application of surface sealing compound.

### **7.3.4. Entry Ports**

Openings in the surface seal shall be established along the cracks on one side/face only. The distance between entry ports shall not be less than the thickness of the member being repaired.

### **7.3.5. Pressure Grouting**

The grouting shall begin at the entry port at the lowest elevation. Grouting shall continue at the first port until the grout material begins to flow out of the port at the next highest elevation. The pressure shall remain for 15 minutes (min). The first port shall be plugged and grouting shall start at the second port until the grout flows from the next port. The entire cracks shall be grouted with the same sequence.

### **7.3.6. Finishing**

After the grouting has cured, the surface seal shall be removed. The face of the cracks shall be finished flush with the adjacent brick walls. There shall be no indentations or protrusions caused by placement of entry ports.

## **7.4. Record Of Grouting**

The Contractor shall maintain continuous record of all crack repair works. The record; in duplicate, shall be in such form approved by the S.O, giving the following data, for crack at each location:

- i. Identification of crack member stating type (e.g. slab, beam or column) and reference or position of crack.
- ii. Provide general description of crack and sketch showing crack configuration and maximum width.
- iii. Length of V-groove.
- iv. Number of entry ports.
- v. Grouting information:
  - a) Date of grouting.
  - b) Contractor's grouting operators.
  - c) Amount of epoxy grout uptake for the crack.
  - d) Maximum grouting pressure.

The amount of grout up-take recorded shall be the actual quantity used for filling the crack. No account shall be taken of the quantity of grout for hose charging, surplus in tank, waste or discard.

The Contractor shall submit the record in duplicate to the S.O.'s Site Representative immediately on completion of each crack grouting work for verification. Thereafter the verified record shall be jointly signed by the Contractor and the S.O.'s representative. A copy of the record shall be kept by the S.O, the remaining returned to the Contractor. The information from the record shall be the basis of computing the actual final quantity for crack repair works under the Contract.

### **7.5. Preliminary Testing**

Prior to the work being carried out the contractor shall submit four samples for each material (grout and sealant) for shear and tension testing purposes.

Four samples shall be prepared with the formulation for sealing the V-notch while the other four samples shall be prepared with the formulation used for crack repair.

All samples shall be given a number, date of preparation, its mix, formulation used and name of operator preparing the sample.

The samples submitted shall be ready for testing at an approved laboratory.

Final approval for the work to start will depend on the result of this test.

All tests shall be carried out in accordance to BS 6319:Part 4:1984 and BS 6319:Part 7:1985.

All expenses to carry out this test shall be borne by the contractor. The test shall not be a reason for any delay on the part of the contractor to carry out the work.