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**EFFECT OF CRACK WIDTH ON RESIDUAL
STRENGTH OF RC BEAM AFTER CRACK TREATMENT**

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ABSTRACT

Crack width on the surface of the beam, is an essential factor as so to meet the serviceability requirement based on the code of practice. Crack on the surface of the beam definitely leads to the corrosion of reinforcement bar, in other words, it reduces the member capability to withstand any environmental changes and high loading. Therefore the best we can do now is to control the crack width on the surface of the member. An adequate value of crack width has been fixed in the BS 8110: Part 2 an approximately 0.1-0.2mm.

In treating cracks, one alternative is to use epoxy resin, to fill the cavities, and hence to control the residual strength of concrete. There are various types of epoxy resin in the market. Some of them such as Sikadur 752 and expofill. Expofill was chosen here since it is the most common bonding agent available in our market. In this study, the treatment of crack via injection of epoxy resin has proved to make it possible to restore the residual strength of the structural beam.

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CHAPTER 1

1.0 INTRODUCTION

A reinforced concrete RC beam is always subjected to moment cracks on the tension face when strength of the concrete is exceeded. There are guidelines to calculate the crack width as in BS 8110, Part 2, and Cl.3.8.

Allowable crack width is limited to 0.3 mm. Service crack may occur due to differential temperature changes, restraint to thermal movement and it can be as a result of poor workmanship and natural contents of concrete.

When crack width exceeded an allowable limit it will influence the ultimate residual strength durability and can lead to corrosion of reinforcement in the beam.