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# STRENGTH BEHAVIOUR OF REINFORCED CONCRETE BEAMS WITH BONDING AGENT

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# ABSTRACT

Structural behaviour of designed beams depend greatly on the design analysis and construction methods. Due to natural contents of the materials, non-compliance with specifications and workmanship, cracks may occur early in reinforced concrete beams (RC Beams). As such, the residual strength ability of the designed beams may or may not be reliable.

This laboratory study is intended to seek and measure the strength behaviour of a few reinforced beams (RC Beams) which are tested under applied loads until the appearance of cracks. Treatment of cracks were conducted by using bonding agent via injection of epoxy resin or any known agent. The repair process should not only eliminates unsightly appearance but also to restore strength of the damaged beams. Through the observations, the residual strength varied for beams on application of using different type of bonding agents. The strength is also dependent upon the time period after the treatment of cracks.

# CHAPTER 1

## 1.0 INTRODUCTION

## 1.1 GENERAL

Concrete is arguably the most important building material, playing a part in all building structures. It can be moulded to take up the shapes required for the various structural forms. It is also very durable and fire resistant when specification and construction procedures are correct. Concrete can be used for all standard buildings such as single storey and multistorey buildings, retaining walls, bridge and roads, etc.

Cast in-situ concrete structures are hardly ever built under ideal conditions so, for a variety of reasons, defects may occur as the concrete is being cast or very soon afterwards or after loads applied. The majority of construction defects can be made good, but demolition and rebuilding of the affected members is sometimes a more economical solution.

Before any repair work is put in hand, the cause of damage must be identified as clearly as possible. This principle may seem self-evident but it is surprising how often it is disregarded, with the result that further repairs have to be carried out within a short time.