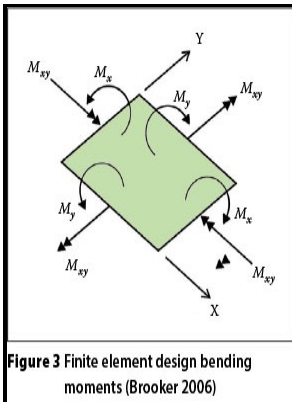


# Finite element analysis of repaired concrete structures

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## Finite

The state-of-the-art in non-linear finite element analysis of reinforced concrete has progressed to the point where such procedures are close to being practical, every-day tools for design office engineers.

## Experimental and finite element analysis of mechanical behavior of concrete damaged by Alkali Aggregate Reaction (AAR) and repaired with CFRP Layers

The CFRP and GFRP bars reinforcement of bridge deck slabs had superior effects on the ultimate load, elastic stiffness, post cracking stiffness, elastic energy absorption and post cracking energy and a little impact on ultimate deflection compared with steel reinforcement.

## Finite Element Analysis of Reinforced Concrete Structures

For all slabs reinforced with GFRP and CFRP bars, the maximum measured strains in the bars at failure were less than 50% of their ultimate strain. A comparison of finite element FE analysis using ATENA 3D software and the experimental results indicated that FE analysis is capable of modelling the behavior of AAR-damaged concrete repaired with CFRP. This paper presents a reinforced concrete model for nonlinear finite element analysis.

## Experimental and finite element analysis of mechanical behavior of concrete damaged by Alkali Aggregate Reaction (AAR) and repaired with CFRP Layers

This internal reaction produces expansion and cracking in concrete, which can lead to loss of strength and stiffness.

## fib Bulletins : Practitioner's guide to finite element modelling of reinforced concrete structures (PDF)

From 1990-1996 Professor Rombach worked as a design and project manager for a major construction company on many projects - particularly bridges - around the world. Future development and prospects are also discussed.

## Finite element modeling of reinforced concrete structures

Two state of the art reviews discuss the role of finite element analysis of reinforced concrete structures, and finite element analysis of reinforced concrete in Japan. These elements have a simple geometry and are easier to analyze.

### **Nonlinear finite element analysis of full**

Non-linear computer analysis procedures can be used to provide reliable assessments of the strength and integrity of damaged or deteriorated structures, or of structures built to previous codes, standards or practices deemed to be deficient today. The model performs the nonlinear behaviors of both concrete and reinforcement steel in each element.

### **Nonlinear finite element analysis of full**

The book focuses on and references Eurocode 2 throughout. In this book, the author highlights that complex numerical calculations should not be used to compensate for any lack of practical knowledge of the behaviour of a structure.

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