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Bounds on the Elastic Brittle solution in bodies reinforced with FRP/FRCM composite provisions

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Abstract

In the paper the behavior of composite-reinforced masonry structures is discussed. One focuses on the problem of the reinforced structure under different modeling of the basic material keeping into account possible strength in tension of the masonry material. Actually the presence of the reinforcement requires the development of a specialized treatment, that is presented in the paper, with the purpose of exploring the dependence of the solution on more or less refined hypotheses about the masonry material in the presence of reinforcement. The original set up leads to the formulation of new bounding theorems for masonry structures reinforced by composites, with the masonry possibly modeled by an elastic brittle assumption. © 2014 Elsevier Ltd. All rights reserved.

Author keywords

A. Fibers; B. Mechanical properties; C. Analytical modeling

Indexed keywords

Engineering controlled terms: Masonry materials; Strength of materials
Masonry structures; Reinforced masonry structures; Reinforced structures
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1. Introduction

The structural rehabilitation represents an area of central scientific relevance and significant impact in the context of intervention strategies aimed at the protection of historical monuments and architectural heritage.

In this area, the spread of technologies based on the adoption of composite materials has proved to be particularly appropriate enabling to combine the demands of efficiency and low invasiveness of strengthening interventions compared to traditional techniques.

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