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# Experimental investigations on the behaviour of a composite frame after the loss of a column

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## Abstract

Recent events such as natural catastrophes or terrorism attacks have highlighted the necessity to ensure the structural integrity of buildings under exceptional loading, i.e. other accidental loads than those already taken into consideration in the design process. According to Eurocodes and some other national design codes, the structural integrity of civil engineering structures should be ensured through appropriate measures but, in most of the cases, no precise practical guidelines on how to achieve this goal are provided. Even basic requirements to fulfil are generally not clearly expressed.

An European RFCS project called “Robust structures by joint ductility” has been set up in 2004, for three years, with the aim to provide requirements and practical guidelines allowing to ensure the structural integrity of steel and composite structures under exceptional loading through an appropriate robustness. This project involves analytical, numerical and experimental investigations; in particular, one substructure test simulating the loss of a column in a composite building, because of an unexpected impact, was performed in September 2006 at the University of Liège. This paper describes the experimental test carried out at the University of Liège, as part of this European project, and the first interpretation of the results.

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