



An alternative beam-to-column connection in building structures

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Summary

The main aim of this work is to propose an alternative beam-to-column connection useful in building structures. This novel solution consists of a group of headed studs and has been conceived to connect reinforced concrete beams to steel columns. Headed studs (i.e. Nelson, Köco) offer several advantages in the building field, highlighting the excellent weld safety.

Keywords: structural joints; beam-to-column connection; building structures; headed studs.

1. Introduction

The concurrent use of steel column with concrete floors combines the advantages of these conventional solutions with the architectural benefits of steel supports. Therefore the combination of these two structural systems has been increasingly applied in building structures. However, the main difficulty is addressed in the connections complexity.

2. Joints in building structures of concrete floors and steel columns

2.1 State of the art

At present, the most common solution applied to joints in building structures consists of a connection made up with two UPN steel profiles welded to the columns [1]. An example of this beam-to-column connection is represented in figure 1. In this way, the control and supervision of welding proceeding become essential to achieve the adequate safety levels. This steel profiles connection has several disadvantages, mainly due to its high cost-safety relationship.

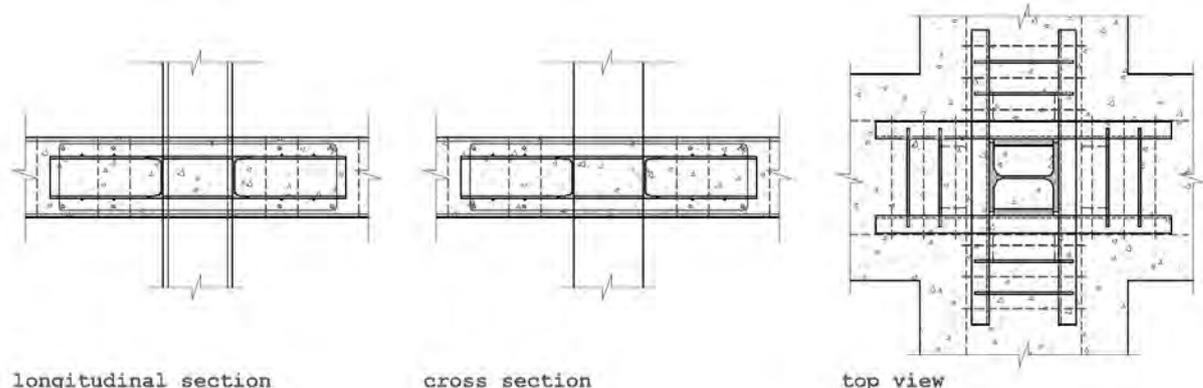


Fig. 1: Beam-to-column connection with UPN steel profiles