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Spotlight on Structures



Editor's Featured Article

The Featured Article for Volume 57 (November 2023) of *Structures* is now available. Chosen by Associate Editor Jason Ingham, the article discusses full-scale tests of steel storage pallet racks and their failure modes during testing.

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Full-scale tests of industrial steel storage pallet racks

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Industrial steel storage pallet racks are framed structures typically made of cold-formed steel profiles. The characteristics and the variability of the racking systems in terms of

components and configurations make their behaviour quite complex to be predicted and the 'design by testing' approach is commonly adopted. As part of an extensive research on the racks' static and seismic behaviour carried out at the University of Trento, a total of eight full-scale tests on four-level two-bay commercial pallet racks were performed, taking advantage of an innovative full-scale testing set-up. The experimental plan comprised of two preliminary tests in which racks with an initial out-of-plumb were vertically loaded up to their collapse and of

six monotonic push-over tests with three different levels of vertical loads and an inverse triangular pattern of horizontal forces in the down-aisle (longitudinal) direction. Tests' results enabled investigation of the failure modes and evaluation of the racks' behaviour factor q . The main features and findings of this experimental study are presented and discussed in the paper.

→ Read the full paper at <https://doi.org/10.1016/j.istruc.2023.105128>



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