

Innovative Dissipative Bracings for Seismic-Resistant Automated Rack Supported Warehouses

Authors : Agnese Natali, Francesco Morelli, Walter Salvatore

Abstract : Automated Rack Supported Warehouses (ARSWs) are storage buildings whose structure is made of the same racks where goods are placed. The possibility of designing dissipative seismic-resistant ARSWs is investigated. Diagonals are the dissipative elements, arranged as tense-only X bracings. Local optimization is numerically performed to satisfy the over-resistant connection request for the dissipative element, that is hard to be reached due the geometrical limits of the thin-walled diagonals and must be balanced with resistance, the limit of slenderness, and ductility requests.

Keywords : steel racks, thin-walled cold-formed elements, structural optimization, hierarchy rules, dog-bone philosophy

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