

SEISMIC PERFORMANCE OF DISSIPATIVE AUTOMATED RACK SUPPORTED WAREHOUSES

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In this paper, global and local performance of dissipative Automated Rack Supported Warehouses (ARSWs) are analysed. ARSWs are storage systems where the steel racks traditionally used to store goods only, constitute also the primary system of the building. Given the lack of a reference design code to design these structures seismic-resistant, and starting from a critical analysis of the current design approaches, a proper design strategy for these structures has been developed, which is based on the possibility to dissipate seismic energy in the bracings. However, the design of an over-resistant connection that would allow the yielding of the bracings is quite tricky due to the very low thickness of the elements usually adopted for these structures and is only possible by reducing the cross section of the profile. The behaviour of these peculiar diagonals is experimentally assessed, and then implemented in the numerical models of the case study structures to measure the effective performances of the case study ARSWs, both at local and global level.