

High Strength Steel Thin-Walled Cold-Formed Profiles Manufactured for Automated Rack Supported Warehouses

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Abstract : Automated Rack Supported Warehouses (ARSWs) are storage buildings whose load-bearing structure is made of the same steel racks where goods are stocked. These racks are made of cold formed elements, and the main supporting structure is repeated several times along the length of the building, resulting in a huge quantity of steel. The possibility of using high strength steel to manufacture the traditional cold-formed profiles used for ARSWs is numerically investigated, with the aim of reducing the necessary steel quantity but guaranteeing optimal structural performance levels.

Keywords : steel racks, automated rack supported warehouse, thin-walled cold-formed elements, high strength steel, structural optimization

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