Different approaches of European regulations for fire design of steel structural elements

Fire has always been a major threat for buildings and other structures, leading to consequences that can affect both the safety of people and the usage or in some cases the very survival of constructions, due to collapse mechanisms induced by fire or fire effects. Aim of this paper is to highlight how both safety issues (avoid people injuries and preserve integrity of constructions) are addressed in the framework of European structural fire safety design of steel constructions. Some relevant differences can be found both in the procedures and in the philosophy of national and community regulation in Europe, but it’s not easy to a-priori evaluate which is the safest or the most economical design due to the counterpoising effect of different requirements and assumption in the design procedures. A punctual analysis of the different aspects and a comparison of the resulting design is therefore of interest and is presented in this paper with reference to the design of a steel car park according to the Scandinavian regulation and to the Eurocodes.

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