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Seismic risk assessment model for industrial facilities

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Catastrophe risk model witch assessment the risk of property and consider the natural hazards like floods, hurricanes and earthquakes has been developing in the recent decays and widely use in the insurance companies and mitigations programs. The catastrophe risk models combines three element of risk (hazard, vulnerability and loss) and contain four main parts. 1) Inventory models 2) hazard evaluations 3) vulnerability assessment 4) loss estimation.

Most of the catastrophe models are designed to evaluate the risk of urban areas in different levels (country, province, zip code, etc.). These models consider the vulner-ability of buildings and its contents with different accuracy.

The catastrophe model for industrial facility is different from general catastrophe models in some aspect. The most important part of the industrial losses is business interruption that causes long-term economic losses. In other hands, the equipment in industrial facilities which play an important rule in vulnerability and losses faces to different source of vulnerability which has been not considered in the current catastrophe models.

In this paper, the main parameters that have to be considered in the seismic catastrophe risk model are presented and the proposal catastrophe model based on these parameter that has been developed by authors is presented and in the end, the result of a case study of an oil refinery plant that have been studied is presented.