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Analysis and Evaluation of Human Error Inducing Conditions in Technical Organizations

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ABSTRACT

In the present day, the increased reliability of technological systems means that Human Error possess a relatively high percentage of liability for the various failures in many industrial sectors. The study of the factors that influence human performance as well as the need to forecast or investigate the human errors has led to the development of a multitude of Human Reliability Analysis Methods (HRA). In the context of the present study, an extended overview of the international bibliography on the subject and history of HRA is presented. Also, various issues faced by the HRA methods developed are identified and an analysis of the way they are being criticized is conducted. The same is attempted on the subject of Performance Shaping Factors (PSFs) which form the building blocks of many HRA methods. Next, an effort is made to develop an HRA methodology in order to identify, analyze and evaluate the conditions which lead to Human Error in the context of technical organizations and more specifically in the chaotic environment of a worksite. Through the methodology developed, the procedure of PSFs recognition in the event of a real or theoretical human error is being systemized and a significance index is being calculated for every PSF. Eventually, a retrospective, quantitative and holistic second generation method is developed through which the HRA is incorporated in the field of civil engineering.