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A Review of Current Knowledge on Assessment of Precast Structures Using Fragility Curves

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Abstract : Precast reinforced concrete (RC) structures are excellent alternatives for construction world all over the globe, thanks to their rapid erection phase, ease mounting process, better quality and reasonable prices. Such structures are rather popular for industrial buildings. For the sake of economic importance of such industrial buildings as well as significance of safety, like every other type of structures, performance assessment and structural risk analysis are important. Fragility curves are powerful tools for damage projection and assessment for any sort of building as well as precast structures. In this study, a comparative review of current knowledge on fragility analysis of industrial precast RC structures were presented and findings in previous studies were compiled. Effects of different structural variables, parameters and building geometries as well as soil conditions on fragility analysis of precast structures are reviewed. It was aimed to briefly present the information in the literature about the procedure of damage probability prediction including fragility curves for such industrial facilities. It is found that determination of the aforementioned structural parameters as well as selecting analysis procedure are critically important for damage prediction of industrial precast RC structures using fragility curves.

Keywords : damage prediction, fragility curve, industrial buildings, precast reinforced concrete structures
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