Developing Fragility curves for Prefabricated Pre-stressed structures making use of multi-scale modelling.

Construction making use of Prefabricated Pre-stressed concrete structural components is gaining popularity due to the aspects of quality control and construction time reduction. The knowledge of their fragility under the influence of seismic excitation is an area that needs in depth study to assess the durability and preparedness of these assembled systems. Through this study, structures constructed using Prefabricated Pre-Stressed concrete walls, beams and slabs are analysed to identify the critical regions. These identified fragile zones, simulated by using a multiscale finite-element model provides a detailed examination for constructing the fragility curve. Use of FEM based software packages enables the effective modelling of the critical zones in detail. A balance between accuracy and computational costs can be achieved through such a methodology. The influence of seismic fragility of the structural frames can be investigated through dynamic analysis procedures.

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