Inelastic model of R/C frame with masonry infill - analytical approach

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SUMMARY

Two mathematical models for simulation of inelastic response of masonry infilled reinforced-concrete frames were developed. The first one is intended for monotonous loading response and the second one is intended for dynamic loading response. Both models are based on experimental and analytical research of 34 one-bay, one-story models. The first model is created for calculation of trilinear relationship between the displacements and base shear. Simple expressions were derived from the basic assumptions and relations of strength of materials theory and calibrated by experimental results. Therefore, several parameters were also included in the proposed equations. The second model enables the complete dynamic analysis of infilled frame structures if it is incorporated in a computer program for dynamic analysis of structures. Frame is modelled as a set of beam and column elements and infill as a set of strut elements. The DRAIN-2D program was implemented by inclusion of proposed model. It became more suitable for inelastic response analysis of infilled frame structures including those which are repaired and strengthened